MOTOROLA

Professional Portable Radio

Detailed Service Manual

6866558D03-P

Professional Radio

GP Series

Detailed Service Manual
6866558D03-P

Contents

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Document History

The following major changes have been implemented in this manual since the previous edition:

Edition	Description	Date
6866558D03-P	UHF Narrow Band (450-470 MHz)	June 2007
	Contoller Board & Digital Architecture added to UHF Theory	June 2007
	UHF Narrow Band (450-470 MHz) PCB Schematics/Parts List added	June 2007
	PCB 8415234H05 UHF Narrow Band (450-470 MHz) Contoller Schematics added	June 2007

Professional Radio
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Service Maintainability

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SAFETY INFORMATION

Read this information before using the radio.

PRODUCT SAFETY AND RF EXPOSURE FOR PORTABLE TWO-WAY RADIOS.

This document provides information and instructions for the safe and efficient operation of Motorola Portable Two-Way Radios.

RF Energy Exposure Awareness and Control Information and Operational Instructions for Occupational Use

Note: This Radio is intended for use in occupational/controlled applications, where users have been made aware of the potential for exposure and can exercise control over their exposure. This radio device is NOT authorized for general population, consumer or similar use.

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. It uses radio frequency (RF) energy or radio waves to send and receive calls. RF energy is one form of electromagnetic energy. Other forms include, but are not limited to, sunlight and x-rays. RF energy, however, should not be confused with these other forms of electromagnetic energy, which when used improperly, can cause biological damage. Very high levels of x-rays, for example, can damage tissues and genetic material.

Experts in science, engineering, medicine, health, and industry work with organizations to develop standards for safe exposure to RF energy. These standards provide recommended levels of RF exposure for both workers and the general public. These recommended RF exposure levels include substantial margins of protection.

All Motorola two-way radios are designed, manufactured, and tested to ensure they meet government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios. These instructions are important because they inform users about RF energy exposure and provide simple procedures on how to control it.

Please refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits:

http://www.fcc.gov/oet/rfsafety/rf-faqs.html
http://www.osha.gov/SLTC/radiofrequencyradiation/index.html

Federal Communication Commission (FCC) Regulations (US markets only)

The FCC rules require manufacturers to comply with the FCC RF energy exposure limits for portable two-way radios before they can be marketed in the U.S. When two-way radios are used as a consequence of employment, the FCC requires users to be fully aware of and able to control their exposure to meet occupational requirements. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Motorola two-way radio has a RF Exposure Product Label. Do not remove this RF Exposure Label from the device. Also, your Motorola user manual, or separate safety booklet includes information and operating instructions required to control your RF exposure and to satisfy compliance requirements.

Compliance with RF Exposure Standards

Your Motorola two-way radio is designed and tested to comply with a number of national and International standards and guidelines (listed below) for human exposure to radio frequency electromagnetic energy. **This radio complies with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk-50% listen and is authorized by the IEEE/ICNIRP for occupational use only.**

In terms of measuring RF energy for compliance with these exposure guidelines, **your radio generates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.**

Note: The approved batteries, supplied with this radio, are rated for a 5-5-90 duty cycle (5% talk–5% listen–90% standby), even though this radio complies with IEEE/ICNIRP occupational exposure limits at usage factors of up to 50% talk.

Your Motorola two-way radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR part 2 sub-part J
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard 2003
- ANATEL ANNEX to Resolution No. 303 of July 2, 2002 "Regulation of limitation of exposure to electrical, magnetic and electromagnetic fields in the radio frequency range between 9 KHz and 300 GHz" and "Attachment to resolution # 303 from July 2, 2002"

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures:

Guidelines:

- User awareness instructions should accompany device when transferred to other users.
- Do not use this device if the operational requirements described herein are not met.

Operating Instructions

- Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), push the Push-To-Talk (PTT) button. To receive calls, release the PTT button.
  Transmitting 50% of the time, or less, is important because this radio generates measurable RF energy exposure only when transmitting (in terms of measuring for standards compliance).
- When worn on the body, always place the radio in a Motorola-approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of non-Motorola-approved accessories may result in exposure levels, which exceed the IEEE/ICNIRP occupational/controlled environment RF exposure limits.
- If you are not using a body-worn accessory and are not using the radio in the intended use position, along side the head in the phone mode (TETRA only), in front of the face in the hand held mode, then ensure the antenna and the radio are kept 2.5 cm (one inch) from the body when transmitting. Keeping the radio at a proper distance is important because RF exposures decrease with increasing distance from the antenna.

Hand-held Mode - Operating Instructions

- Hold the radio in a vertical position in front of the face with the microphone (and other parts of the radio including the antenna) at least 2.5 cm (one inch) away from the nose or lips. Antenna should be kept away from the eye. Keeping the radio at a proper distance is important since RF exposures decrease with increasing distance from the antenna.

Phone Mode (TETRA only) - Operating Instructions

- When placing or receiving a phone call, hold your radio product as you would a wireless telephone. Speak directly into the microphone.

Approved Accessories

- Use only Motorola-approved supplied or replacement antennas, batteries, and accessories. Use of non–
  Motorola - approved antennas, batteries and accessories may exceed IEEE/ICNIRP RF exposure guidelines.
  For a list of Motorola-approved antennas, batteries, and other accessories please see your dealer or local Motorola contact. Your nearest dealer can be found at the following web site:

http://www.motorola.com/cgiss/emea/dealerlocator.html

Additional Information

For additional information on exposure requirements or other training information, visit http://www.motorola.com/rfhealth.

ELECTROMAGNETIC INTERFERENCE/COMPATIBILITY

NOTE: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed or otherwise configured for electromagnetic compatibility.

Facilities

To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any facility where posted notices instruct you to do so. Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

Aircraft

When instructed to do so, turn off your radio when on board an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

Medical Devices

Pacemakers

The Advanced Medical Technology Association (AdvaMed) recommends that a minimum separation of 15 cms (6 inches) be maintained between a handheld wireless radio and a pacemaker.These recommendations are consistent with those of the U.S. Food and Drug Administration.

Persons with pacemakers should:

- ALWAYS keep the radio more than 15 cms from their pacemaker when the radio is turned ON.
- Not carry the radio in the breast pocket.
- Use the ear opposite the pacemaker to minimize the potential for interference.
- Turn the radio OFF immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

Use of Communication Devices While Driving

Always check the laws and regulations on the use of radios in the areas where you drive.

- Give full attention to driving and to the road.
- Use hands-free operation, if available.
- Pull off the road and park before making or answering a call, if driving conditions or regulations so require.

OPERATIONAL WARNINGS

Vehicles with an air bag

Refer to vehicle manufacturer's manual prior to installation of electronic equipment to avoid interference with air bag wiring.

WARNING: Do not place a portable radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a portable radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

Potentially explosive atmospheres

WARNING: Turn off your radio prior to entering any area with a potentially explosive atmosphere, unless it is a radio type especially qualified for use in such areas as "Intrinsically Safe" (for example, Factory Mutual, CSA, UL, CENELEC or ATEX Approved). Do not remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

NOTE The areas with potentially explosive atmospheres referred to above include fuelling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust or metal powders. Areas with potentially explosive atmospheres are often but not always posted.

Blasting caps and areas

WARNING: To avoid possible interference with blasting operations, turn off your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio". Obey all signs and instructions.

OPERATIONAL CAUTIONS

Antennas

CAUTION: Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.

Batteries

CAUTION: All batteries can cause property damage and/or bodily injury such as burns if a conductive material such as jewellery, keys, or beaded chains touch exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

INTRINSICALLY SAFE RADIO INFORMATION

The Intrinsically safe approval unit refers to a product that has been approved as intrinsically safe by an approval agency (for example FM Approvals, CSA, UL, CENELEC or ATEX) and certifies that a particular product meets the Agency's applicable intrinsic safety standards for specific types of hazardous classified locations. A portable radio that has been approved for intrinsic safety will have Approval label attached to the radio to identify the unit as being Approved for specified hazardous atmospheres. This label specifies the hazardous Class/Division/Group along with the part number of the battery that must be used. The Intrinsically Safe Approval Label will be located on the portable radio unit.

Operational Cautions for Intrinsic Safe Equipment

- Do not operate radio communications equipment in a hazardous atmosphere unless it is a type especially qualified (for example, FM, UL, CSA, or CENELEC or ATEX approved). An explosion or fire may result.
- Do not operate a radio unit that has been approved as intrinsically safe product in a hazardous atmosphere if it has been physically damaged (for example, cracked housing). An explosion or fire may result.
- Do not replace or charge batteries in a hazardous atmosphere. Contact sparking may occur while installing or removing batteries and cause an explosion or fire.

Warnings for Radios Approved as Intrinsically Safe

Radios must ship from the Motorola manufacturing facility with the hazardous atmosphere capability and the intrinsic safety approval labelling (FM, UL, CSA, CENELEC or ATEX). Radios will not be upgraded to this capability and labeled once they have been shipped to the field.

A modification changes the unit’s hardware from its original design configuration. Modifications can only be made by the original product manufacturer.

- **Do not replace or changeaccessories in a hazardous atmosphere. Contact sparking may occur while installing or removing accessories and cause an explosion or fire.**
- **Turn the radio off before removing or installing a battery or accessory**.
- **Do not disassemble an intrinsically safe product in any way that exposes the internal circuits of the unit.**
- **Failure to use an intrinsically safe approved battery or Approved accessories specifically approved for the radio unit may result in the dangerously unsafe condition of an unapproved radio combination being used in a hazardous location.**
- **Unauthorized or incorrect modification of the intrinsically safe approved Product will negate the approval rating of the product.**
- **Incorrect repair or relabeling of any intrinsically safe Agency-approved radio could adversely affect the Approval rating of the unit.**
- **Use of a radio that is not intrinsically safe in a hazardous atmosphere could result in serious injury or death.**

Repair

REPAIRS FOR MOTOROLA PRODUCTS WITH INTRINSICALLY SAFE APPROVAL ARE THE RESPONSIBILITY OF THE USER.

- **Repairs to a Motorola FM approved radio product should only be done at a location that has been FM audited under the FM 3605 repairs and service standard.**
- **Contact Motorola for assistance regarding repairs and service of Motorola intrinsically safe equipment.**

A repair constitutes something done internally to the unit that would bring it back to its original condition.

Items not considered as repairs are those in which an action is performed on a unit which does not require the outer casing of the unit to be opened in a manner which exposes the internal electrical circuits of the unit.

Do Not Substitute Options or Accessories

The Motorola communications equipment certified as intrinsically safe by the approving agency, (FM, UL, CSA, CENELEC or ATEX) is tested as a complete system which consists of the listed agency Approved portable, Approved battery, and Approved accessories or options, or both. This Approved portable and battery combination must be strictly observed. There must be no substitution of items, even if the substitute has been previously Approved with a different Motorola communications equipment unit. Approved configurations are listed by the Approving Agency (FM, UL, CSA, CENELEC or ATEX).

The Intrinsically Safe Approval Label affixed to radio refers to the intrinsically safe classification of that radio product, and the approved batteries that can be used with that system.

The manual PN referenced on the Intrinsically Safe Approval Label identifies the approved Accessories and or options that can be used with that portable radio unit.

Using a non Motorola intrinsically safe battery and or accessory with the Motorola approved radio unit will void the intrinsically safe approval of that radio unit.

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Chapter 1

INTRODUCTION

1.0 Scope of Manual

This manual is intended for use by service technicians familiar with similar types of equipment. It contains service information required for the equipment described and is current as of the printing date. Changes which occur after the printing date may be incorporated by a complete Manual revision or alternatively as additions.

NOTE Before operating or testing these units, please read the Safety Information Section in the front of this manual.

2.0 Warranty and Service Support

Motorola offers long term support for its products. This support includes full exchange and/or repair of the product during the warranty period, and service/ repair or spare parts support out of warranty. Any "return for exchange" or "return for repair" by an authorised Motorola Dealer must be accompanied by a Warranty Claim Form. Warranty Claim Forms are obtained by contacting an Authorised Motorola Dealer.

2.1 Warranty Period and Return Instructions

The terms and conditions of warranty are defined fully in the Motorola Dealer or Distributor or Reseller contract. These conditions may change from time to time and the following notes are for guidance purposes only.

In instances where the product is covered under a "return for replacement" or "return for repair" warranty, a check of the product should be performed prior to shipping the unit back to Motorola. This is to ensure that the product has been correctly programmed or has not been subjected to damage outside the terms of the warranty.

Prior to shipping any radio back to the appropriate Motorola warranty depot, please contact Customer Resources (Please see page 2 and page 3 in this Chapter). All returns must be accompanied by a Warranty Claim Form, available from your Customer Services representative. Products should be shipped back in the original packaging, or correctly packaged to ensure no damage occurs in transit.

2.2 After Warranty Period

After the Warranty period, Motorola continues to support its products in two ways.

1. Motorola's Radio Aftermarket and Accessory Division (AAD) offers a repair service to both end users and dealers at competitive prices.
2. AAD supplies individual parts and modules that can be purchased by dealers who are technically capable of performing fault analysis and repair.

2.3 European Radio Support Centre (ERSC)

The ERSC Customer Information Desk is available through the following service numbers:

Austria:	08 00 29 75 41	Italy:	80 08 77 387
Belgium:	08 00 72 471	Luxemburg:	08 00 23 27
Denmark:	80 88 05 72	Netherlands:	08 00 22 45 13
Finland:	08 00 11 49 910	Norway:	80 01 11 15
France:	08 00 90 30 90	Portugal:	08 00 84 95 70
Germany:	08 00 18 75 240	Spain:	90 09 84 902
Greece:	00 80 04 91 29 020	Sweden:	02 07 94 307
UK :	08 00 96 90 95	Switzerland:	08 00 55 30 82
Ireland:	18 00 55 50 21	Iceland:	80 08 147

Or dial the European Repair and Service Centre:

Tel: +49 30 6686 1555

Please use these numbers for repair enquiries only

2.4 Piece Parts

Some replacement parts, spare parts, and/or product information can be ordered directly. If a complete Motorola part number is assigned to the part, it is available from Motorola Radio Aftermarket and Accessory Division (AAD). If no part number is assigned, the part is not normally available from Motorola. If the part number is appended with an asterisk, the part is serviceable by Motorola Depot only. If a parts list is not included, this generally means that no user-serviceable parts are available for that kit or assembly.

All part orders should be directed to :

Motorola GmbH
Customer Care
AM Borsigturm 130
13507 Berlin
Germany.

EMEA Test Equipment Support

Information related to support and service of Motorola Test Equipment is available via Motorola Online (Extranet), through the Customer Care organisation of Motorola’s local area representation or by calling the the European Repair and Service Centre: Tel: +49 30 6686 1555.

2.5 Technical Support

Motorola Product Services is available to assist the dealer/distributors in resolving any malfunctions which may be encountered.

North Europe - Stephen Woodrow
Telephone: +44 (0) 1256 488 082
Fax: +44 01256 488 080
Email: CSW066@motorola.com

Central and East Europe - Siggy Punzenberger
Telephone: +49 (0) 6128 70 2342
Fax: +49 (0) 6128 95 1096
Email: TFG003@email.mot.com

Russia and Belarus - Oleg Machnev
Telephone: +7 495 785 0150
Fax: +7 495 785 0185
Email: COM005@email.mot.com

Germany - Customer Connect Team
Telephone: +49 (0) 30 6686 1539
Fax: +49 (0) 30 6686 1916
Email: cgiss.emea@europe.mot.com

Middle East and Africa - Wayne Holmes
Telephone: +27 11 800 7922
Fax: +27 11 800 7923
Email: radiosupport.za@motorola.com

Italy - Ugo Gentile
Telephone: +39 0 2822 0325
Fax: +39 0 2822 0334
Email: C13864@email.mot.com

France - Armand Roy
Telephone: +33 1 6935 7868
Fax: +33 1 6935 7808
Email: armand.roy@motorola.com

France - Laurent Irrmann
Telephone: +33 1 6935 7866
Fax: +33 1 6935 7808
Email: laurent.irrmann@motorola.com

2.6 Related Documents

The following documents are directly related to the use and maintainability of this product.

Title	Language	Part Number
GP140 Product Manual	English Russian	ENLN4071 ENLN4072
GP300 Series Product Manual	English German French Italian Spanish Russian	ENLN4073 ENLN4074 ENLN4075 ENLN4076 ENLN4130 ENLN4077
GP600 Series Product Manual	English German French Russian	ENLN4078 ENLN4079 ENLN4080 ENLN4081
GP1280 Product Manual	English German French	ENLN4082 ENLN4083 ENLN4084
GP240/280/540/580 Service Kit	English	ENLN5000

3.0 Radio Model Information

The model number and serial number are located on a label attached to the back of your radio. You can determine the RF output power, frequency band, protocols, and physical packages. The example below shows one portable radio model number and its specific characteristics.

Table 1-1 Radio Model Number (Example: MDH25KDC9AA3AE)

	Type of Unit	Model Series	Freq. Band	Power Level	Physical Packages	Channel Spacing	Protocol	Feature Level	Model Revision	Model Package
MD = Motorola Internal Use	**H** = Portable	**25**	**K** VHF (136-174MHz)	**D** 3-5W	**C** GP140, GP320, GP330, GP240, GP340, GP540. GP640.	**9** Program-mable	**AA** Conventional MDC	**O** GP320	**A**	**E**
			R UHF 1 (403-470MHz)					**2** GP330		
			S UHF 2 (450-527MHz)	**E** 5-6W	**H** GP280, GP380, GP580, GP680	**6** Non Programm able	**AN** Conventional 5 Tone	**3** GP140, GP240 GP340, GP540 GP640.		
			T UHF 1 NB (450-470MHz)	C 2-2.5W	**N** GP1280		**CK** MPT	**5** GP360		
			B LB1 29-42MHz		**F** GP360		**PW** MPT/5T	**6** GP280 GP380, GP580 GP680		
			C LB2 35-50MHz				**FB** Privacy Plus	**8** GP1280		
			E 300R1 (300-350MHz)				**FC** SmartZone			
			U 800 MHz (806-870MHz)							

Chapter 2

MAINTENANCE

1.0 Introduction

This chapter of the manual describes:

- ❏ preventive maintenance
- ❏ safe handling of CMOS devices
- ❏ repair procedures and techniques

NOTE **The Servicing of your Intrinsically Safe Radios.**
In order to maintain compliance, radios that are FM Approved to intrinsically safe standards MUST be repaired at FM audited service centers. See *Further Assistance From Motorola* on page 1-2 for more information.

2.0 Preventive Maintenance

The radios do not require a scheduled preventive maintenance program; however, periodic visual inspection and cleaning is recommended.

2.1 Inspection

Check that the external surfaces of the radio are clean, and that all external controls and switches are functional. It is not recommended to inspect the interior electronic circuitry.

2.2 Cleaning

The following procedures describe the recommended cleaning agents and the methods to be used when cleaning the external and internal surfaces of the radio. External surfaces include the front cover, housing assembly, and battery case. These surfaces should be cleaned whenever a periodic visual inspection reveals the presence of smudges, grease, and/or grime.

NOTE Internal surfaces should be cleaned only when the radio is disassembled for servicing or repair.

The only recommended agent for cleaning the external radio surfaces is a 0.5% solution of a mild dishwashing detergent in water. The only factory recommended liquid for cleaning the printed circuit boards and their components is isopropyl alcohol (70% by volume).

CAUTION: The effects of certain chemicals and their vapors can have harmful results on certain plastics. Aerosol sprays, tuner cleaners, and other chemicals should be avoided.

1. Cleaning External Plastic Surfaces
   The detergent-water solution should be applied sparingly with a stiff, non-metallic, short-bristled brush to work all loose dirt away from the radio. A soft, absorbent, lintless cloth or tissue should be used to remove the solution and dry the radio. Make sure that no water remains entrapped near the connectors, cracks, or crevices.
2. Cleaning Internal Circuit Boards and Components

Isopropyl alcohol may be applied with a stiff, non-metallic, short-bristled brush to dislodge embedded or caked materials located in hard-to-reach areas. The brush stroke should direct the dislodged material out and away from the inside of the radio. Make sure that controls or tunable components are not soaked with alcohol. Do not use high-pressure air to hasten the drying process since this could cause the liquid to collect in unwanted places. Upon completion of the cleaning process, use a soft, absorbent, lintless cloth to dry the area. Do not brush or apply any isopropyl alcohol to the frame, front cover, or back cover.

NOTE Always use a fresh supply of alcohol and a clean container to prevent contamination by dissolved material (from previous usage).

3.0 Safe Handling of CMOS and LDMOS

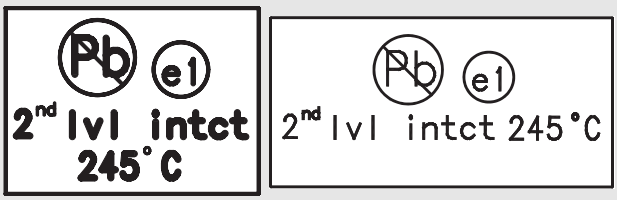
Complementary metal-oxide semiconductor (CMOS) devices are used in this family of radios. CMOS characteristics make them susceptible to damage by electrostatic or high voltage charges. Damage can be latent, resulting in failures occurring weeks or months later. Therefore, special precautions must be taken to prevent device damage during disassembly, troubleshooting, and repair.

Handling precautions are mandatory for CMOS circuits and are especially important in low humidity conditions. DO NOT attempt to disassemble the radio without first referring to the CMOS CAUTION paragraph in the Disassembly and Reassembly section of the manual.

4.0 General Repair Procedures and Techniques

NOTE Environmentally Preferred Products (EPP) (refer to the marking on the printed circuit boards) were developed and assembled using environmentally preferred components and solder assembly techniques to comply with the European Union's ROHS and WEEE directives **(Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC** and **Restriction of Hazardous Subtances (ROHS) Directive 2002/95/EC).** To maintain product compliance and reliability, use only the Motorola specified parts in this manual.

For the identification of lead (Pb) free assemblies, all EPP products will carry the EPP Marking, shown below, on the printed circuit board (PCB). This marking provides information to those performing assembly, servicing and recycling operation on this product, adhering to the JEDEC standard #97. The EPP Marking takes the form of a label or marking on the PCB



Any rework or repair on Environmentally Preferred Products must be done using the appropriate lead-free solder wire and lead-free solder paste as stated in the following table:

Table 2-1 Lead Free Solder Wire Part Number List

Motorola Part Number	Alloy	Flux Type	Flux Content by Weight	Melting Point	Supplier Part number	Diameter	Weight
1088929Y01	95.5Sn/3.8Ag/0.7Cu	RMA Version	2.7-3.2%	217C	52171	0.015”	1lb spool
1088929Y02	95.5Sn/3.8Ag/0.7Cu	RMA Version	2.7-3.2%	217C	52170	0.010”	0.5lb spool
1088929Y03	95.5Sn/3.8Ag/0.7Cu	RMA Version	2.7-3.2%	217C	52173	0.032”	1lb spool

Table 2-2 Lead Free Solder Paste Part Number List

Motorola Part Number	Manufacturer Part Number	Viscosity	Type	Composition & Percent Metal	Liquid Temperature
10-856-74C03	NC-SMQ230	900-1000KCPs Brookfield (5rpm)	Type 3 (-325/+500)	(95.5%Sn-3.8%Ag-0.7%Cu) 89.3%	217°C

Parts Replacement and Substitution

When damaged parts are replaced, identical parts should be used. If the identical replacement component is not locally available, check the parts list for the proper Motorola part number and order the component from the nearest Motorola Communications parts center listed in the “Piece Parts” section of this manual.

Rigid Circuit Boards

The family of radios uses bonded, multi-layer, printed circuit boards. Since the inner layers are not accessible, some special considerations are required when soldering and unsoldering components. The through-plated holes may interconnect multiple layers of the printed circuit. Therefore, care should be exercised to avoid pulling the plated circuit out of the hole.

When soldering near the 18-pin and 40-pin connectors:

- avoid accidentally getting solder in the connector.
- be careful not to form solder bridges between the connector pins
- closely examine your work for shorts due to solder bridges.

Chip Components

Use either the RLN4062 Hot-Air Repair Station or the Motorola 0180381B45 Repair Station for chip component replacement. When using the 0180381B45 Repair Station, select the TJ-65 mini-thermojet hand piece. On either unit, adjust the temperature control to 390 °C (735 °F), and adjust the airflow to a minimum setting. Airflow can vary due to component density.

- **To remove a chip component**:
  1. Use a hot-air hand piece and position the nozzle of the hand piece approximately 0.3 cm (1/8") above the component to be removed.
  2. Begin applying the hot air. Once the solder reflows, remove the component using a pair of tweezers.
  3. Using a solder wick and a soldering iron or a power desoldering station, remove the excess solder from the pads.
- **To replace a chip component using a soldering iron**:

1. Select the appropriate micro-tipped soldering iron and apply fresh solder to one of the solder pads.
2. Using a pair of tweezers, position the new chip component in place while heating the fresh solder.
3. Once solder wicks onto the new component, remove the heat from the solder.
4. Heat the remaining pad with the soldering iron and apply solder until it wicks to the component. If necessary, touch up the first side. All solder joints should be smooth and shiny.

- **To replace a chip component using hot air**:

1. Use the hot-air hand piece and reflow the solder on the solder pads to smooth it.
2. Apply a drop of solder paste flux to each pad.
3. Using a pair of tweezers, position the new component in place.
4. Position the hot-air hand piece approximately 0.3 cm (1/8”) above the component and begin applying heat.
5. Once the solder wicks to the component, remove the heat and inspect the repair. All joints should be smooth and shiny.

Shields

Removing and replacing shields will be done with the R1070 station with the temperature control set to approximately 215°C (415°F) [230°C (445°F) maximum].

- **To remove the shield**:

1. Place the circuit board in the R1070 circuit board holder.
2. Select the proper heat focus head and attach it to the heater chimney.
3. Add solder paste flux around the base of the shield.
4. Position the shield under the heat-focus head.
5. Lower the vacuum tip and attach it to the shield by turning on the vacuum pump.
6. Lower the focus head until it is approximately 0.3 cm (1/8”) above the shield.
7. Turn on the heater and wait until the shield lifts off the circuit board.
8. Once the shield is off, turn off the heat, grab the part with a pair of tweezers, and turn off the vacuum pump.
9. Remove the circuit board from the R1070 circuit board holder.

- **To replace the shield:**

1. Add solder to the shield if necessary, using a micro-tipped soldering iron.
2. Next, rub the soldering iron tip along the edge of the shield to smooth out any excess solder. Use solder wick and a soldering iron to remove excess solder from the solder pads on the circuit board.
3. Place the circuit board back in the R1070 circuit board holder.
4. Place the shield on the circuit board using a pair of tweezers.
5. Position the heat-focus head over the shield and lower it to approximately 0.3 cm (1/8”) above the shield.
6. Turn on the heater and wait for the solder to reflow.
7. Once complete, turn off the heat, raise the heat-focus head and wait approximately one minute for the part to cool.
8. Remove the circuit board and inspect the repair. No cleaning should be necessary.

5.0 Notes For All Schematics and Circuit Boards

* Component is frequency sensitive. Refer to the Electrical Parts List for value and usage.

1. Unless otherwise stated, resistances are in Ohms (k = 1000), and capacitances are in picofarads (pF) or microfarads (µF).

2. DC voltages are measured from point indicated to chassis ground using a Motorola DC multimeter or equivalent. Transmitter measurements should be made with a 1.2 µF choke in series with the voltage probe to prevent circuit loading.

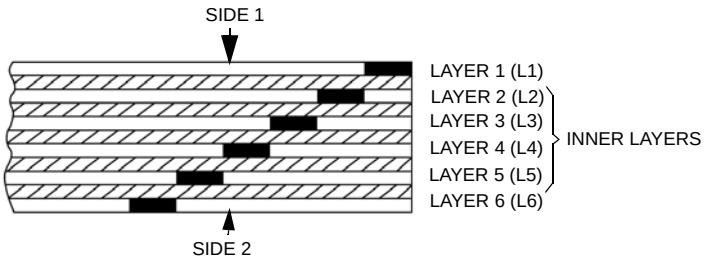
3. Reference Designators are assigned in the following manner:

100 Series	=	Transmitter
200 Series	=	Frequency Generation
300 Series	=	Receiver
400/500 Series	=	Controller
600 Series	=	Keypad Board

4. Interconnect Tie Point Legend:

UNSWB+	=	Unswitch Battery Voltage (7.5V)
SWB+	=	Switch Battery Voltage (7.5V)
R5	=	Receiver Five Volts
CLK	=	Clock
Vdda	=	Regulated 3.3 Volts (for analog)
Vddd	=	Regulated 3.3 Volts (for digital)
CSX	=	Chip Select Line (not for LVZIF)
SYN	=	Synthesizer
DACRX	=	Digital to Analog Voltage (For Receiver Front End Filter)
VSF	=	Voltage Super Filtered (5 volts)
VR	=	Voltage Regulator

6-LAYER CIRCUIT BOARD DETAIL VIEWING
COPPER STEPS IN PROPER LAYER SEQUENCE



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Chapter 3

SERVICE AIDS

1.0 Recommended Test Tools

Table 3-1 lists the service aids recommended for working on the radio. While all of these items are available from Motorola, most are standard workshop equipment items, and any equivalent item capable of the same performance may be substituted for the item listed.

Table 3-1 Service Aids

Motorola Part Number	Description	Application
6680387A59 6680387A64 6680387A65 0180382A31	Extractor, 2-contact Heat controller with safety stand or Safety stand only Safety stand only Portable desoldering unit	Removal of discrete surface-mounted devices
RLN4460_	Portable & Mobile Test Set	Enables connection to the audio/ accessory jack. Allows switching for radio testing.
RKN4074_	RIB/Radio/Test Set Interconnect Cable (for all Models except GP1280).	Connects radio to Computer.
RKN4075_	Programming Cable with internal RIB (for all Models except GP1280).	Connects radio to Computer.
RLN4008_	Radio Interface Box (RIB).	Enables communications between the radio and the computer's serial communications adapter.
5885705M01	BNC Adaptor	Adapts radio's antenna port to BNC cabling of test equipment.
5880384G68	SMA to BNC Adaptor	Adapts radio's antenna port to BNC cabling of test equipment, 800MHz only.
HKN9743_	MAP27 Cable (for GP1280 only).	Connects radio to computer for MAP27 applications in MPT requirements.
HLN9742_	Flash Upgrade Adapter	Provides connections to the computer or RIB programming /test cable.
RLN4510_	Battery Elliminator 7.5 VDC	Includes protection circuit.
0180305G54	Battery Adapter to RLN4510	Connects radio to Battery Elliminator.
8180384F68	Bench Test Housing Eliminator (for all Models except GP1280).	Provides for troubleshooting of the radio when the housing is removed.
8180384F66	Bench Test Housing Eliminator (long housing, GP1280 only).	Provides for troubleshooting of the radio when the housing is removed.
EPN4040_	Wall-Mounted Power Supply (UK).	for RLN4008
EPN4041_	Wall-Mounted Power Supply (220VAC).	for RLN4008
3080369B71	Computer Interface Cable	25 to 9 pin (RLN4008_ to IBM PC).
3080369B72	Computer Interface Cable	9 to 9 pin (RLN4008_ to IBM PC).

Table 3-2 lists the recommended tools used for maintaining this family of radios. These tools are also available from Motorola..

Table 3-2 Recommended Test Tools

Motorola Part Number	Description	Application
6680702Z01	Chassis opener and knob removal tool.	Disassembly tool
RSX4043_	Torx Driver	Tighten and remove chassis screws.
6680387A70	T-6 Torx Bit	Removable Torx driver bit (2 pcs).
WADN4055_ 6604008K01 6604008K02	Portable soldering station 0.4mm replacement tip 0.8mm replacement tip	Digitally controlled For WADN4055_ soldering Iron For WADN4055_ soldering Iron
1010041A86	Solder (RMA type), 63/37, 0.5mm diameter 1 lb. spool.	
1080370B43	RMA liquid flux	Used during all radio assembly and disassembly procedures
0180386A78	Illuminated magnifying glass with lens attachment.	
0180386A82	Anti-static grounding kit.	Used during all radio assembly and disassembly procedures.
0180303E45	SMD tool kit incl. probers and brush.	
R1321_ R-1070_ or R-1319_	Shields and surface-mounted component and IC removal/rework station (order all heat-focus heads separately). Shields and surface-mounted component - IC removal/rework station (order all heat-focus heads separately) Shields and surface-mounted component - IC removal/rework station SMD10000 M.A.P.E.	Removal and assembly of surface-mounted integrated circuits and shields.
6680332E82 6680332E84 6680333E55 6680332E90	Nozzle 20.3 x 20.3 mm Nozzle 12.7 x 12.7 mm Nozzle 16.5 x 25.4 mm Nozzle 24.1 x 24.1 mm	Heat-focus heads for R1321_ work station.

2.0 Test Equipment

Table 3-3 lists test equipment required to service the radio and other two-way radios.

Table 3-3 Recommended Test Equipment

Motorola Part Number	Description	Characteristics	Application
R2600_	Comms System Analyzer (non MPT).	This monitor will substitute for items with an asterisk*	Frequency/deviation meter and signal generator for widerange troubleshooting and alignment.
RLN5069_	Tracking Generator Option.		Option for R2600_
RLN4361_	CCITT Filter.	with 600 Ohm Meter Load.	Option for R2600_
RLN4423_	Spectrum Analyzer and Oscilloscope with Markers.	High Performance option.	Option for R2600_
RLN4485_	Test Set Ups Memory.	Programmable	Allows storage of complete screen values.
1580357B77	Canvas Case	Protects Units	When used in the Field.
or			
R2680_HS	Comms System Analyzer (MPT1327)	This monitor will substitute for items with an asterisk*.	Frequency/deviation meter and signal generator for widerange troubleshooting and alignment.
RLN1022_	MPT1327 Hardware		Option for R2680_HS
RLN1023_	MPT1327 Software		Option for R2680_HS
RLN4361_	CCITT Filter	with 600 ohm Meter Load	Option for R2680_HS
RLN4423_	Spectrum Analyzer and Oscilloscope with Markers	High Performance option.	Option for R2680_HS
1580357B77	Canvas Case	Protects Units	When used in the Field.
or			
R2670_	Comms System Analyzer with FDMA.	This monitor will substitute for items with an asterisk*.	Frequency/deviation meter and signal generator for widerange troubleshooting and alignment.
RLN4498_	Analog Trunking Smartnet/Zone.		Option for R2670_
1580357B77	Canvas Case	Protects Units	When used in the Field.
* WADN4133_	Oscilloscope	Analog 2 Channel 40MHz bandwidth, 5mV/cm - 20 V/cm.	Waveform measurements.
* R1072_	Digital Multimeter		AC/DC voltage and current measurements.
* R1377_	AC Voltmeter	100µV to 300V, 5Hz - 1MHz, 10Mohm input impedance.	Audio voltage measurements.

Motorola Part Number	Description	Characteristics	Application
* R1440_ * 0180305F14 * 0180305F29 * 0180305F38 * 0180305F46 * RLN5417 * T1013_	Wattmeter, Plug-in Element Plug-in Element Plug-in Element Plug-in Element Carry case for Wattmeter RF Dummy Load	Thruline 50-Ohm, ±5% accuracy 10W, 25 - 60MHz 5W, 100-250MHz 5W, 200-500MHz 5W, 400-1000MHz plus elements	Transmitter power output measurements.
WADN4243_	Power Supply (220V)	Bench top	Programmable
S1339_/220	RF Millivolt Meter	100mV to 3 V RF. 10kHz to 1.2GHz	RF level measurements.
0100855414	RF Cable	2 male BNC Conn. 1.5m (3 pcs needed)	

Section 4

POWER UP SELF-TEST

1.0 Error Codes

Turning on the radio using the on/off volume control starts a self-test routine which checks the RAM, ROM checksum, EEPROM hardware and EEPROM checksum. If these checks are successfully completed, the radio will generate the Self-Test Pass Tone. If the self-test is not successful, a “bonk” is heard. Radios with displays are able to display these error messages:

- “RAM TST ERROR” for <RAM Test Error>
- “ROM CS ERROR” for <ROM Checksum Error>
- “EEPRM HW ERROR” for <EEPROM Hardware Test Error>
- “EEPRM CS ERROR” for <EEPROM Checksum Error>

NOTE **Radio without display emits only “bonk” (300 Hz) tone if it fails the self-test.**

Error Code	Explanation	Corrective Action
“RAM TST ERROR”	RAM Test Failure	Retest radio by turning it off and turning it on again. If message reoccurs, replace RAM (U405).
“ROM CS ERROR”	ROM Checksum is wrong.	Reprogram FLASH Memory, then retest. If message reoccurs, replace ROM (U406).
“EEPRM HW ERROR”	Codeplug structure mismatch, non existence of codeplug.	Reprogram codeplug with correct version and retest radio. If message reoccurs, replace EEPROM (U407).
“EEPRM CS ERROR”	Codeplug check-sum is wrong.	Reprogram codeplug.
No Display	Display module is not connected properly. Display module is damaged.	Check connection between main board and display module. Replace with new display module.

Notes

MOTOROLA

Professional Radio
GP Series

Keypad and Flex
Service Information

Issue: July 2007

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Table of Contents

Chapter 1 THEORY OF OPERATION

Chapter 2 PCB / SCHEMATICS / PARTS LISTS

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Chapter 1

THEORY OF OPERATION

1.0 Keypad and Flexible Connectors

1.1 Keypad

The keypad block diagram is shown in Figure 1-1. U602 is a comparator that will compare the voltage when any one of the keypad row or keypad column keys is being pressed. Therefore when a key is being pressed, it will send a message to the microprocessor through the output (KEY_INT) telling it that a key has been pressed. The microprocessor then sample the analog to digital voltages at the keypad row and keypad column and map it with a table so that the key pressed being can be identified. Once the key has been identified, the message that corresponds to the key will show up at the display.

The LED_EN setting is set by the codeplug. When the value is set to high, the LED does not light up during power up and vice versa.

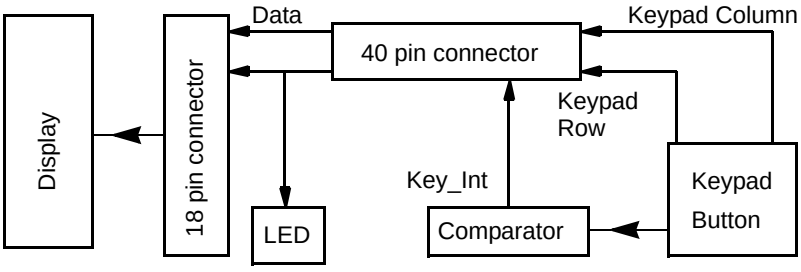

Figure 1-1 Keypad Block Diagram

1.2 Flexible Connectors

Flexible ribbon circuits (flexes) are used to connect the keypad and radio front panel components with the circuit boards. The flexes are locked into place in their connectors by latches which must be released before the flexes may be disconnected during maintenence disassembly.

Two types of flexible ribbon circuits are used in the radios:

- Keypad/Controller Interconnect flex - used for connecting the keypad with the main board circuits.
- Universal Flex connector - used to make connections to the Speaker, Microphone and accessory connector.

2.0 Troubleshooting Chart

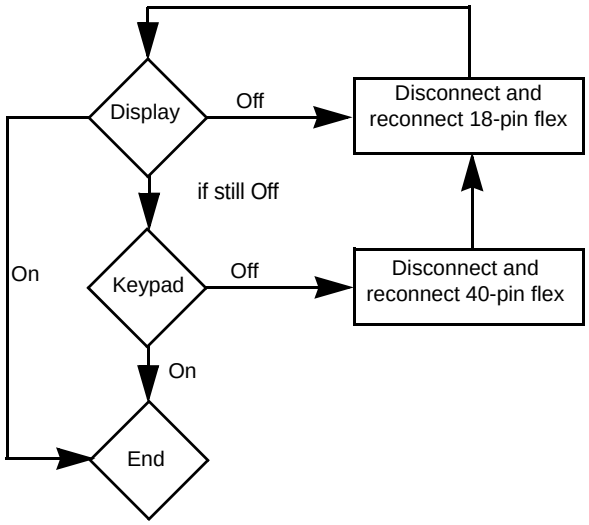

Figure 1-2 Keypad Board Troubleshooting Chart

3.0 Parts List (Keypad Basic)

Circuit Ref	Motorola Part No.	Description
C601	2113743N50	100 pF
C602	2311049A86	1 uF
C603	2113743N50	100 pF
C604	2113743N50	100 pF
C605	2113743N50	100 pF
C606	2113743N50	100 pF
C607	2113743L17	1000 pF
C608	2113743N50	100 pF
C609	2113743N50	100 pF
C610	2113743N50	100 pF
C611	2113743N50	100 pF
C612	2113743N50	100 pF
C613	2113743N50	100 pF
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
D607	4880479U01	LED
D608	4880479U01	LED
E609	2480640Z01	IND BEAD
E613	2480640Z01	IND BEAD
E614	2480640Z01	IND BEAD
E615	2480640Z01	IND BEAD
E616	2480640Z01	IND BEAD
E617	2480640Z01	IND BEAD
E618	2480640Z01	IND BEAD
E619	2480640Z01	IND BEAD
E620	2480640Z01	IND BEAD
E621	2480640Z01	IND BEAD
J601	0980521Z01	44 pin connector
J602	0905505Y03	18 pin connector
Q601	4813824A10	40V.2A NPN TRANSISTOR
Q602	4813824A10	40V.2A NPN TRANSISTOR
Q603	4813824A17	40V.2A PNP TRANSISTOR
Q604	4813824A10	40V.2A NPN TRANSISTOR
Q605	4813824A10	40V.2A NPN TRANSISTOR
Q606	4813824A10	40V.2A NPN TRANSISTOR
Q607	4813824A10	40V.2A NPN TRANSISTOR
Q608	4813824A10	40V.2A NPN TRANSISTOR
R601	0662057M98	10K
R602	0662057A66	51K
R603	0662057M82	2.2K
R605	0662057M01	0 ohm
R610	0662057M01	0 ohm
R622	0662057V20	51K
R623	0662057N16	51K
R624	0662057V20	51K
R625	0662057N41	560K
R626	0662057V05	13K
R627	0662057V05	13K
R628	0662057N47	1.0MEG
R629	0662057V11	22K
R630	0662057V11	22K
R631	0662057V18	43K
R632	0662057V18	43K
R633	0662057V30	130K
R634	0662057V30	130K
R641	0662057M42	47K
R643	0662057M42	47K
R644	0662057M42	47K
R647	0662057M42	47K
U602	5102463J49	LMC7211 comparator
	8480574Z05	PC Board, Keypad

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Chapter 2

PCB / SCHEMATICS / PARTS LISTS

1.0 Allocation of Schematics and Circuit Boards

The printed circuit boards (PCB) and schematic diagrams related to the Flexible Connectors and the Keypads are shown in the tables below:

1.1 Flexible Connectors

Table 2-1: Keypad /Controller Flex

Flex : 8480475Z02	
Flex	Page 2-3
Schematic	Page 2-3

Table 2-2: Universal Speaker/Microphone Flex

Flex : 8480549Z05	
Flex	Page 2-4
Schematic	Page 2-4

Table 2-3: Universal Speaker/Microphone Flex

Flex : 8415169H02	
Flex	Page 2-5
Schematic	Page 2-5

1.2 Keypad PCBs

Table 2-4: Standard Keypad

PCB : 8480574Z06	
PCB Layout	Page 2-9
Schematic	Page 2-10
Parts List	Page 2-11

Table 2-5: GP1280 Keypad

PCB : 8480682Z04	
Flex	Page 2-13
Schematic	Page 2-14
Parts List	Page 2-15

Table 2-6: Standard Keypad

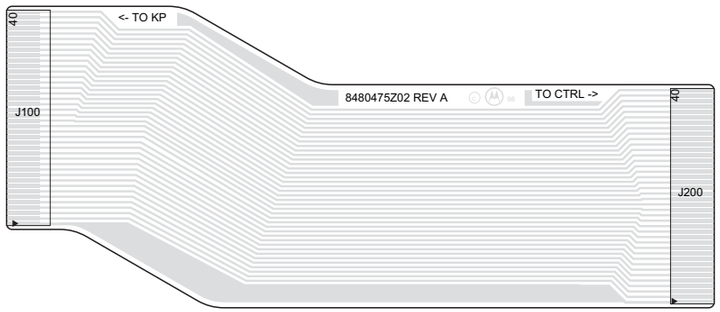
PCB : 8480574Z05	
Flex	Page 2-17
Schematic	Page 2-18
Parts List	Page 2-19

Table 2-7: GP1280 Keypad

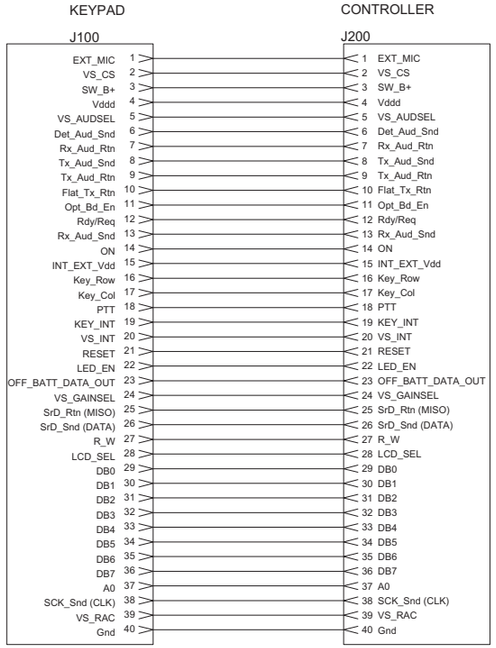
PCB : 8480682Z01	
Flex	Page 2-21
Schematic	Page 2-22

2.0 PCB/Schematic Diagrams and Parts List: Flexes

2.1 Keypad - Controller Flex



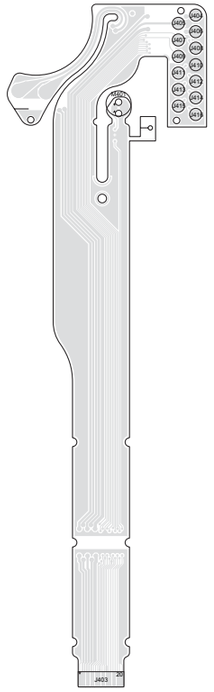
Keypad/Controller Interconnect Flex - Assembly



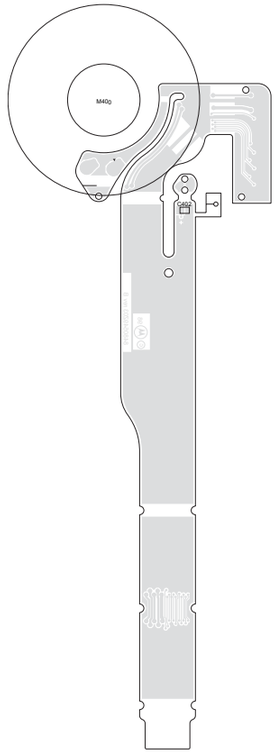
Keypad/Controller Interconnect Flex - Schematic Diagram

Keypad - Controller Interconnect Flex (PCB No. 8480475Z02)

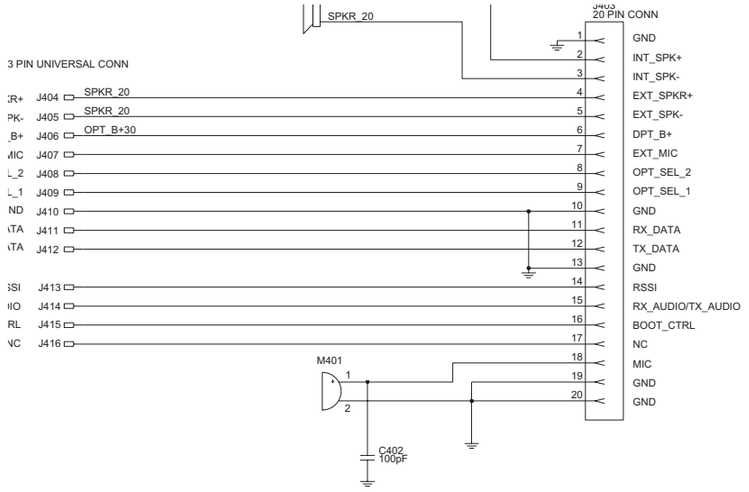
2.2 Universal Connector Flex



View from Top Side



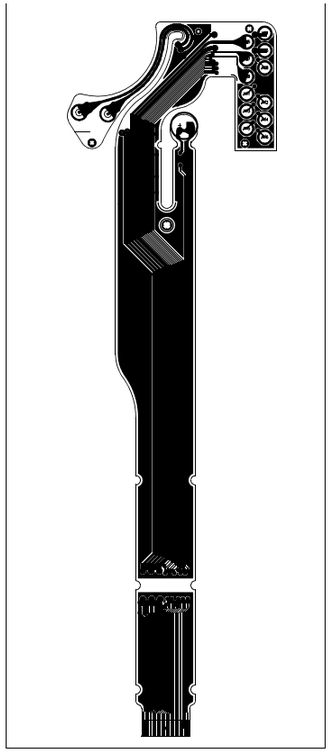
View from Bottom Side



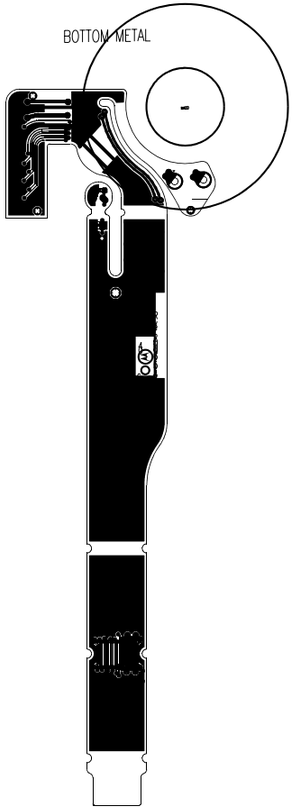
Universal Connector Flex - Schematic Diagram

Universal Connector Flex (8480549Z05)

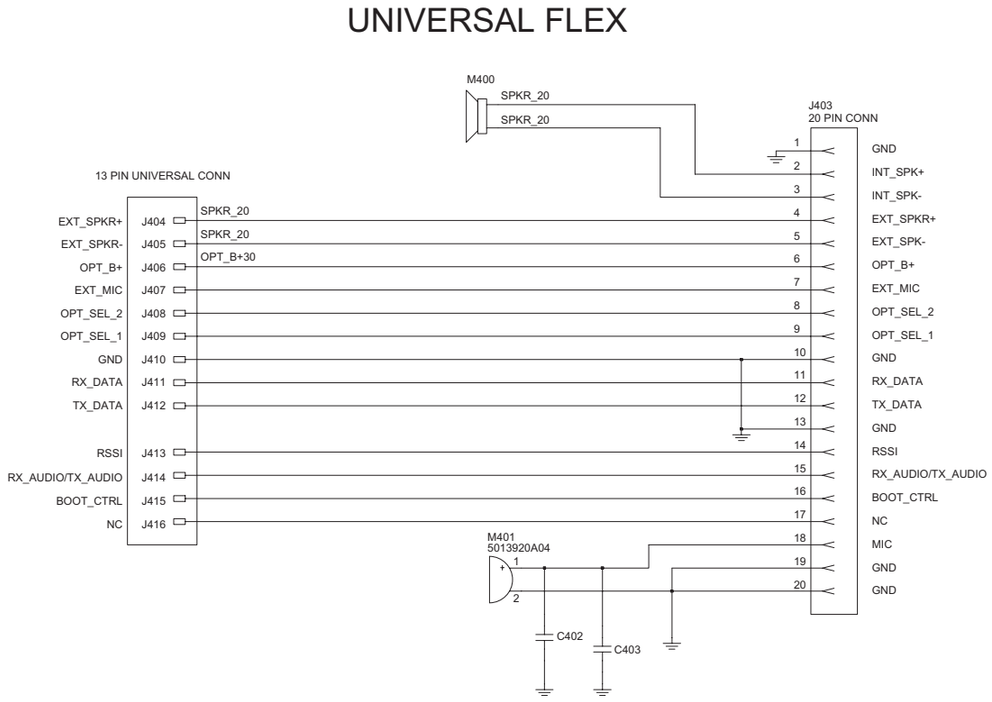
2.3 Universal Connector Flex



View from Top Side



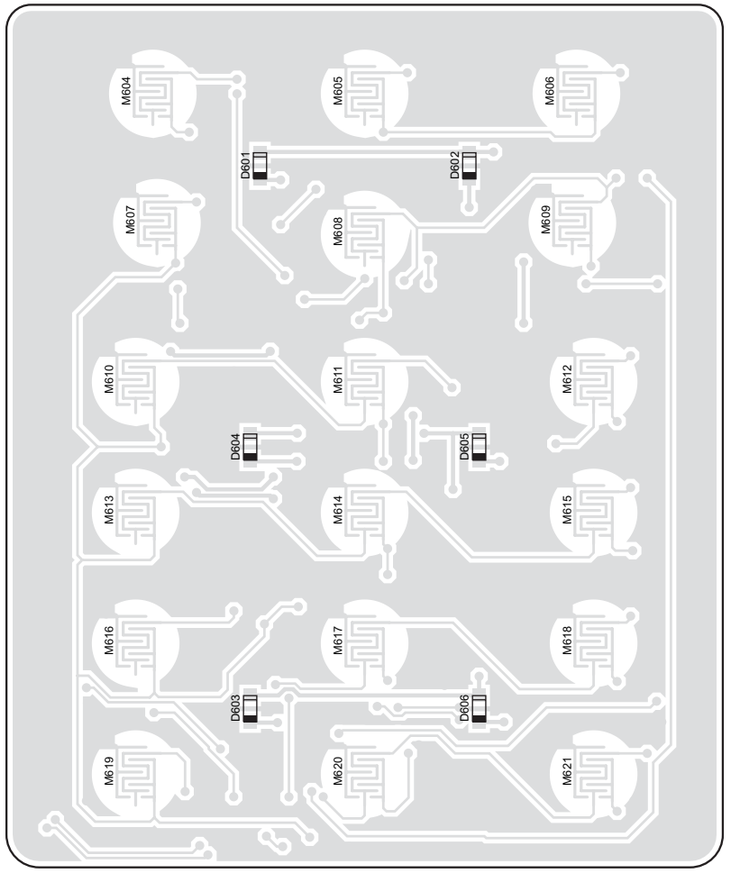
View from Bottom Side

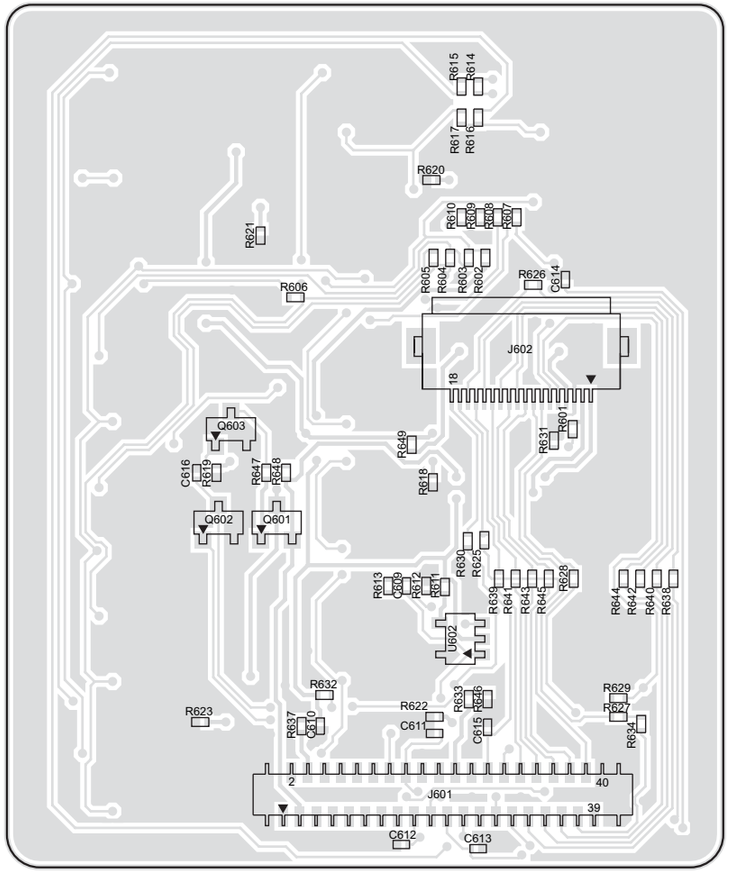


Universal Connector Flex - Schematic Diagram

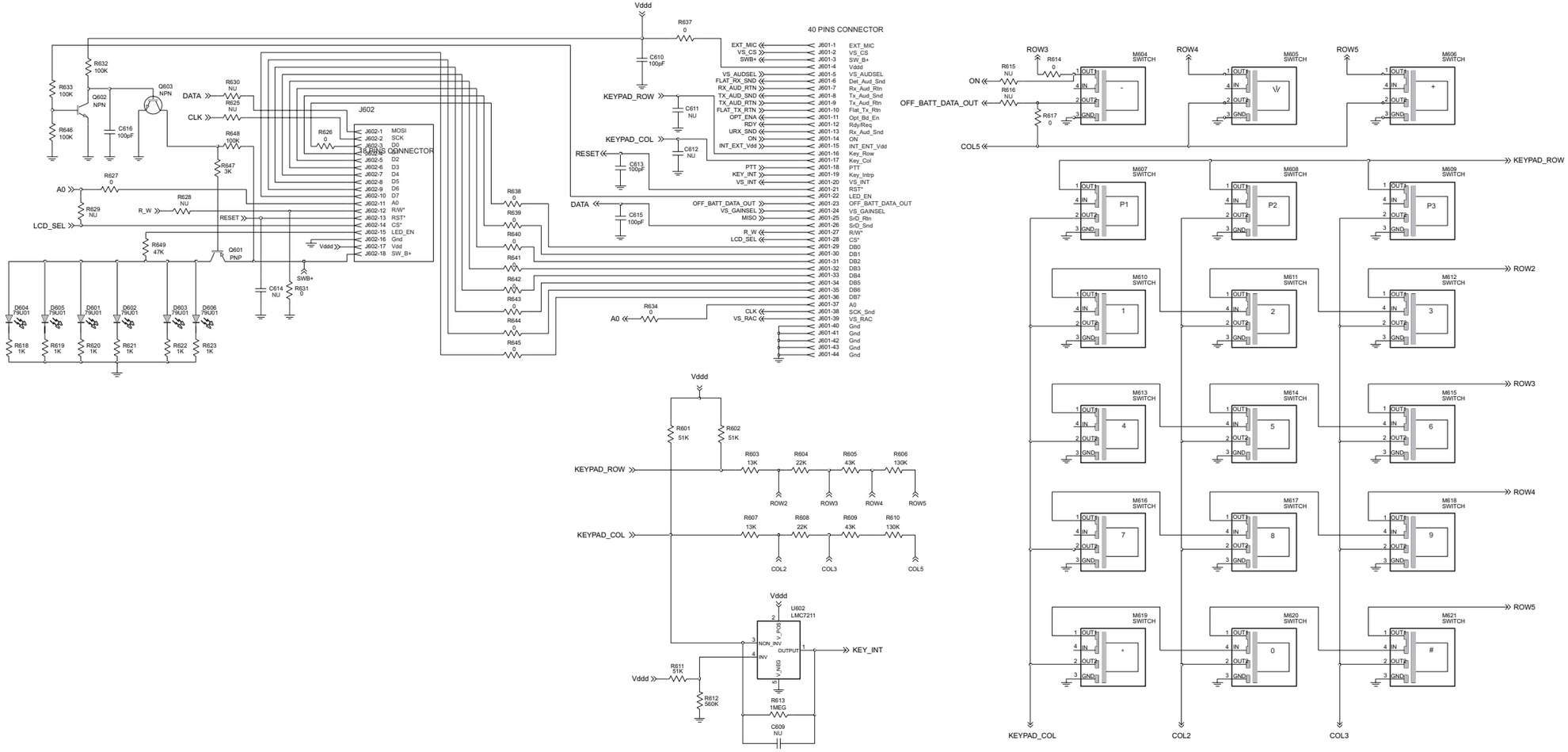
Universal Connector Flex (PCB No. 8415169H02)

2.4 Keypad Board And Schematic Diagram





Keypad Board Top and Bottom View for GP380 (PCB No. 8480574Z02)



Keypad Board Schematic Keypad Board Schematic Diagram for GP380

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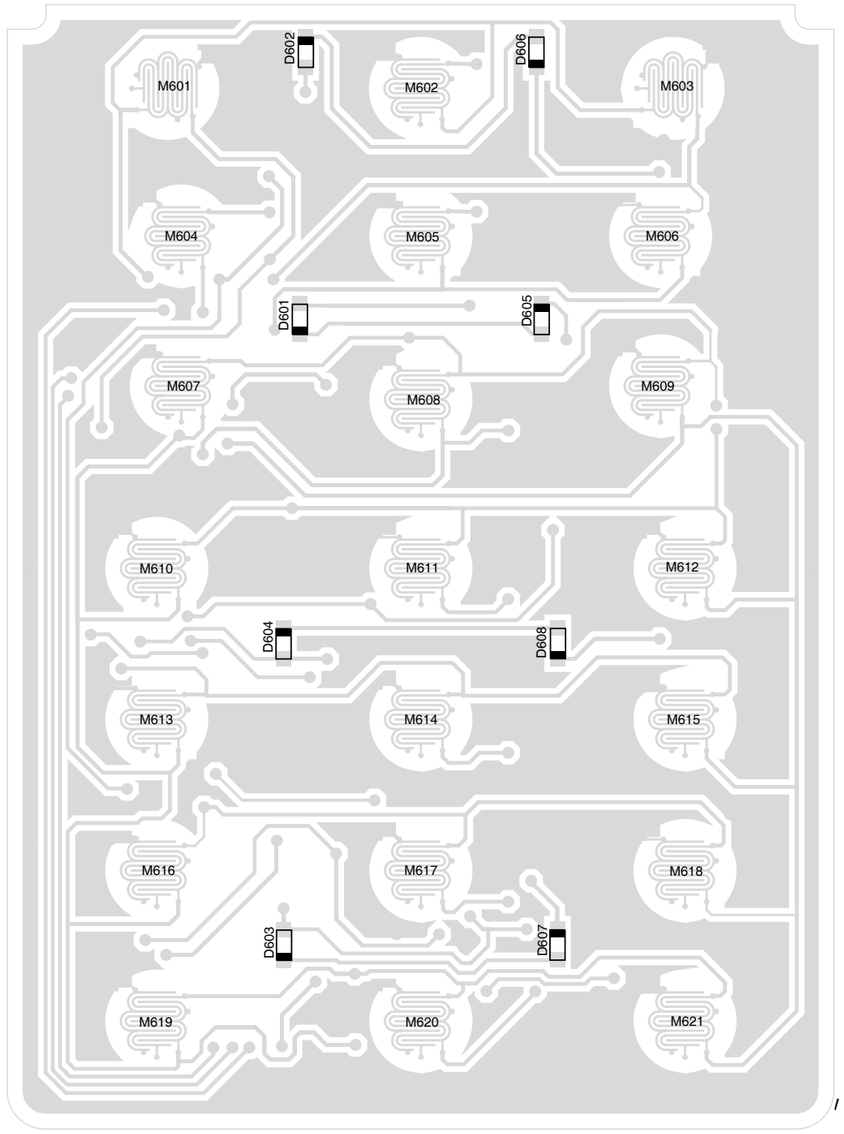
3.3 PCB 8480682Z04 - Diagrams



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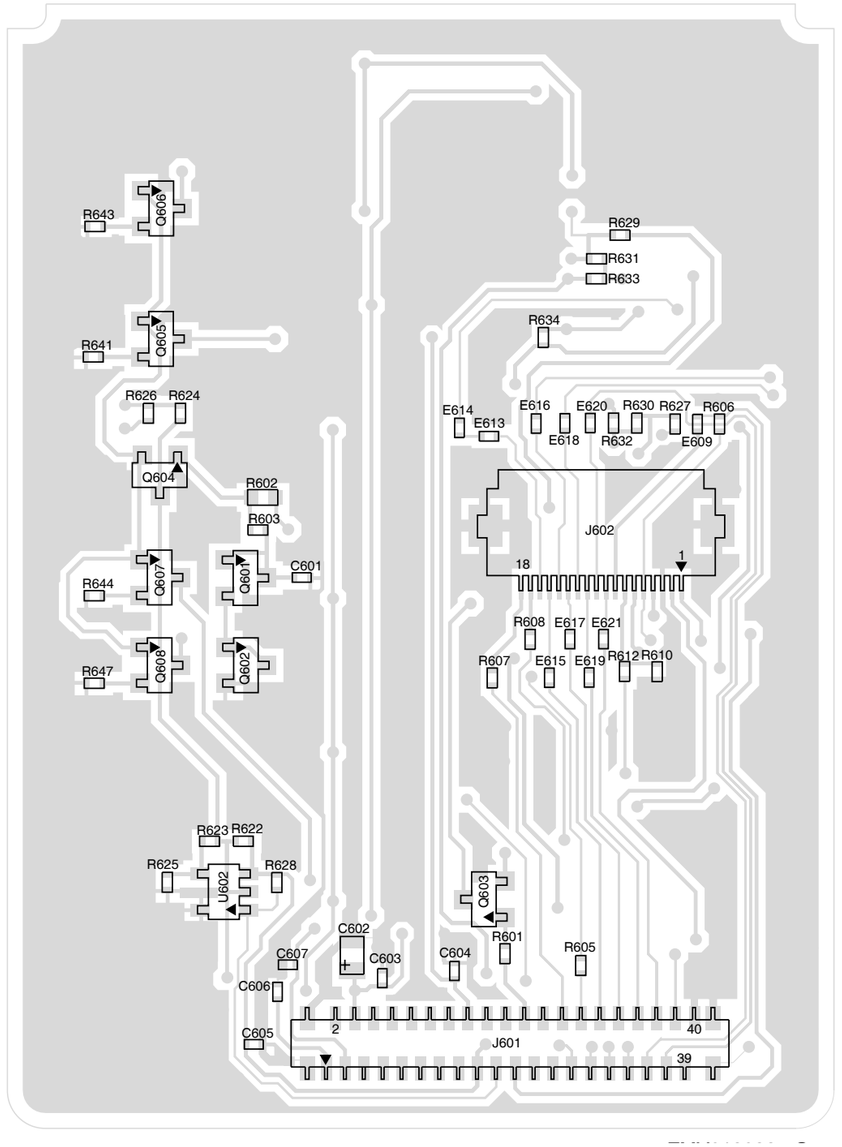
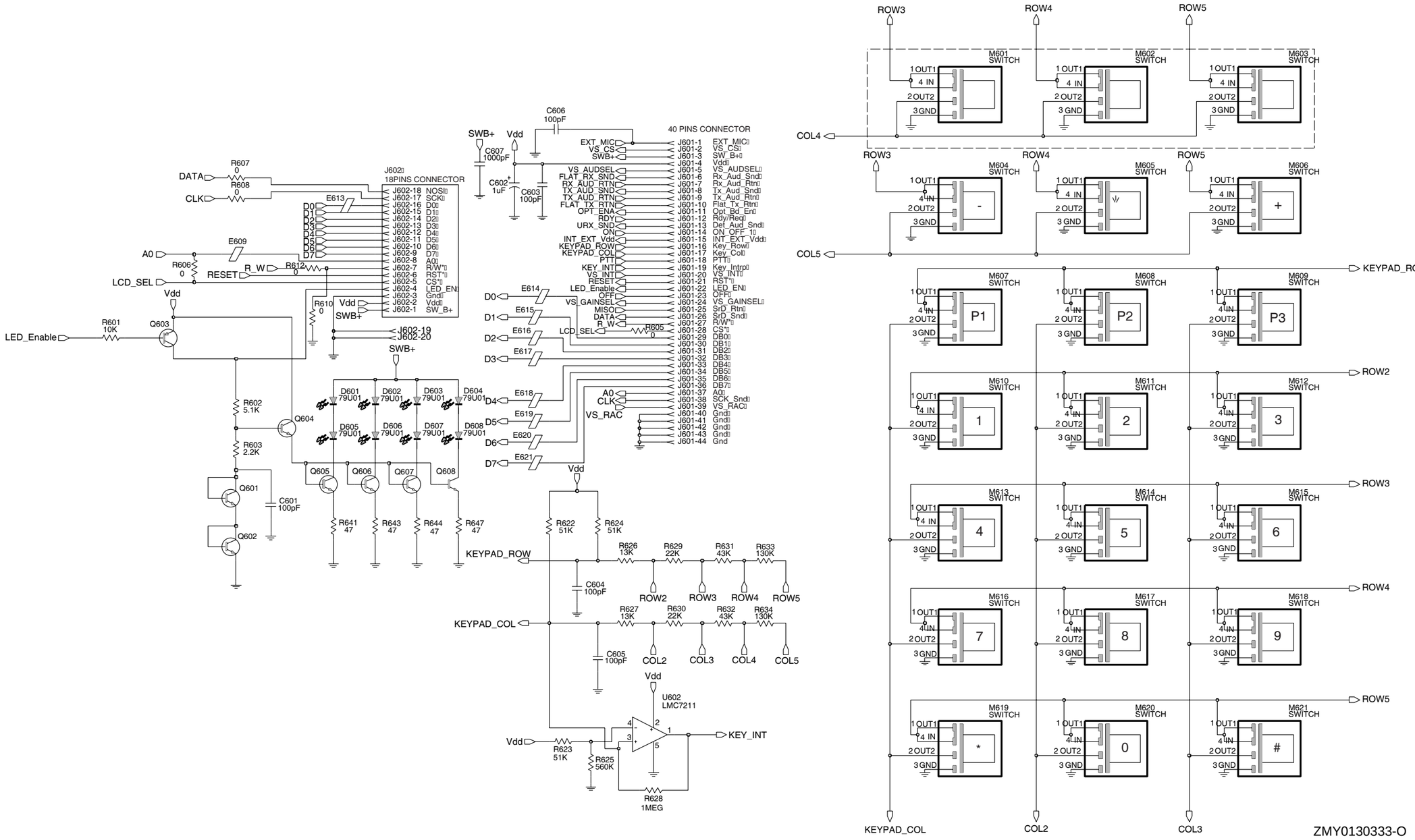


ZMY0130335-O

Keypad Board GP1280 (PCB No. 8480682Z04)



Keypad Schematic Diagram GP1280 (PCB No. 8480682Z04)

3.4 GP1280 PCB 8480682Z04 - Parts List

Circuit Ref	Motorola Part No.	Description
C601	2113743N50	100 PF 5%
C602	2311049A86	1UF 20% 10V
C603	2113743N50	100 PF 5%
C604	2113743N50	100 PF 5%
C605	2113743N50	100 PF 5%
C606	2113743N50	100 PF 5%
C607	2113743L17	1000 PF 10%
C608	2113743N50	100 PF 5%
C609	2113743N50	100 PF 5%
C610	2113743N50	100 PF 5%
C611	2113743N50	100 PF 5%
C612	2113743N50	100 PF 5%
C613	2113743N50	100 PF 5%
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
D607	4880479U01	LED
D608	4880479U01	LED
E609	2480640Z01	C/IND BK1005HM471 BEAD
E613	2480640Z01	C/IND BK1005HM471 BEAD
E614	2480640Z01	C/IND BK1005HM471 BEAD
E615	2480640Z01	C/IND BK1005HM471 BEAD
E616	2480640Z01	C/IND BK1005HM471 BEAD
E617	2480640Z01	C/IND BK1005HM471 BEAD
E618	2480640Z01	C/IND BK1005HM471 BEAD
E619	2480640Z01	C/IND BK1005HM471 BEAD
E620	2480640Z01	C/IND BK1005HM471 BEAD
E621	2480640Z01	C/IND BK1005HM471 BEAD
J601	0980521Z01	ZIF VERTICAL,40 PIN
J602	0905505Y03	ZIF HORIZONTAL
Q601	4813824A10	NPN 40V .2A GEN PURP
Q602	4813824A10	NPN 40V .2A GEN PURP
Q603	4813824A17	PNP40V .2A GENPB=100-300
Q604	4813824A10	NPN 40V .2A GEN PURP
Q605	4813824A10	NPN 40V .2A GEN PURP
Q606	4813824A10	NPN 40V .2A GEN PURP
Q607	4813824A10	NPN 40V .2A GEN PURP
Q608	4813824A10	NPN 40V .2A GEN PURP
R601	0662057M98	10K 5% 20X40
R602	0662057A66	5100 5 1/8
R603	0662057M82	2200 5% 20X40
R605	0662057M01	0 5% 20X40
R610	0662057M01	0 5% 20X40
R622	0662057V20	51K 1% 1/16W
R623	0662057N16	51K 5% 20X40
R624	0662057V20	51K 1% 1/16W
R625	0662057N41	560K 5% 20X40
R626	0662057V05	13K 1% 1/16W
R627	0662057V05	13K 1% 1/16W
R628	0662057N47	1.0 MEG 5% 20X40
R629	0662057V11	22K 1% 1/16W
R630	0662057V11	22K 1% 1/16W
R631	0662057V18	43K 1% 1/16W
R632	0662057V18	43K 1% 1/16W
R633	0662057V30	130K 1% 1/16W
R634	0662057V30	130K 1% 1/16W
R641	0662057M42	47 5% 20X40
R643	0662057M42	47 5% 20X40
R644	0662057M42	47 5% 20X40
R647	0662057M42	47 5% 20X40
U602	5102463J49	COMPARATOR CMOS LM7211
	8480682Z04	PCB, KEYPAD

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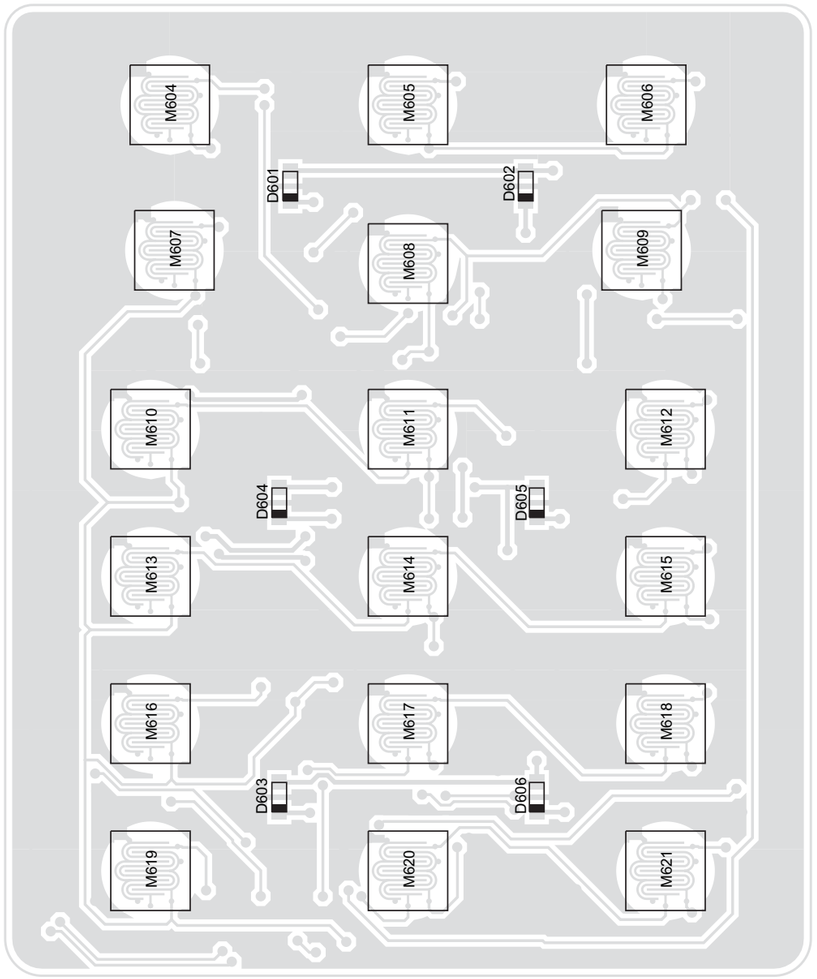
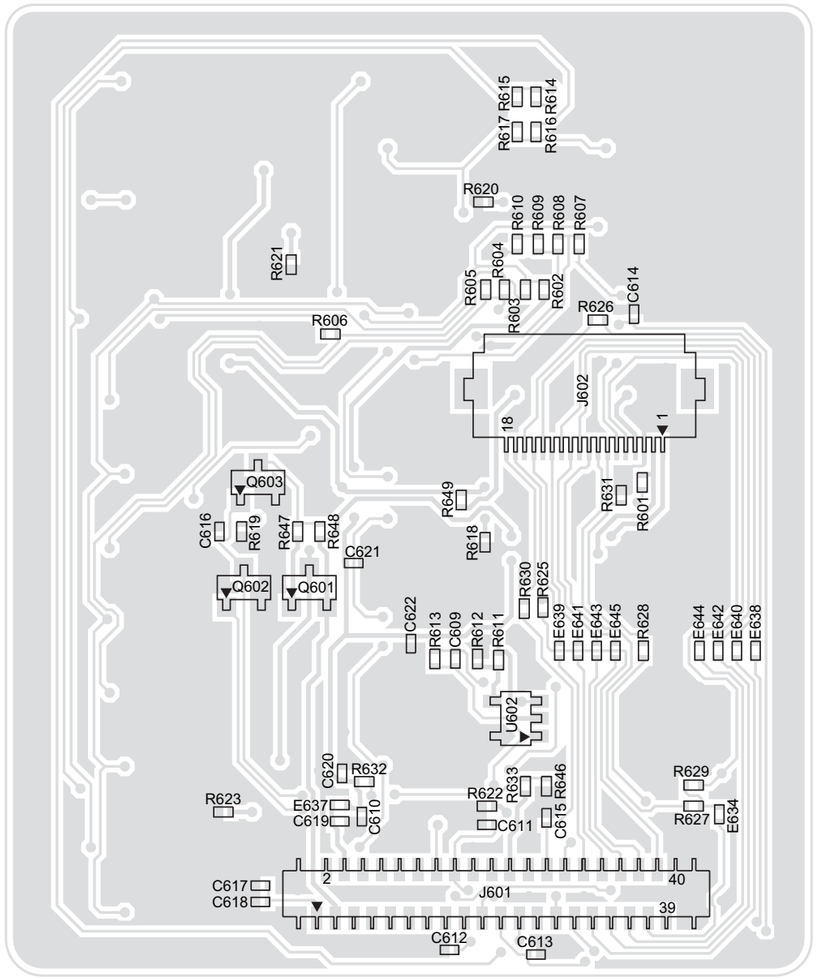
3.5 PCB 8480574Z05 - Diagrams

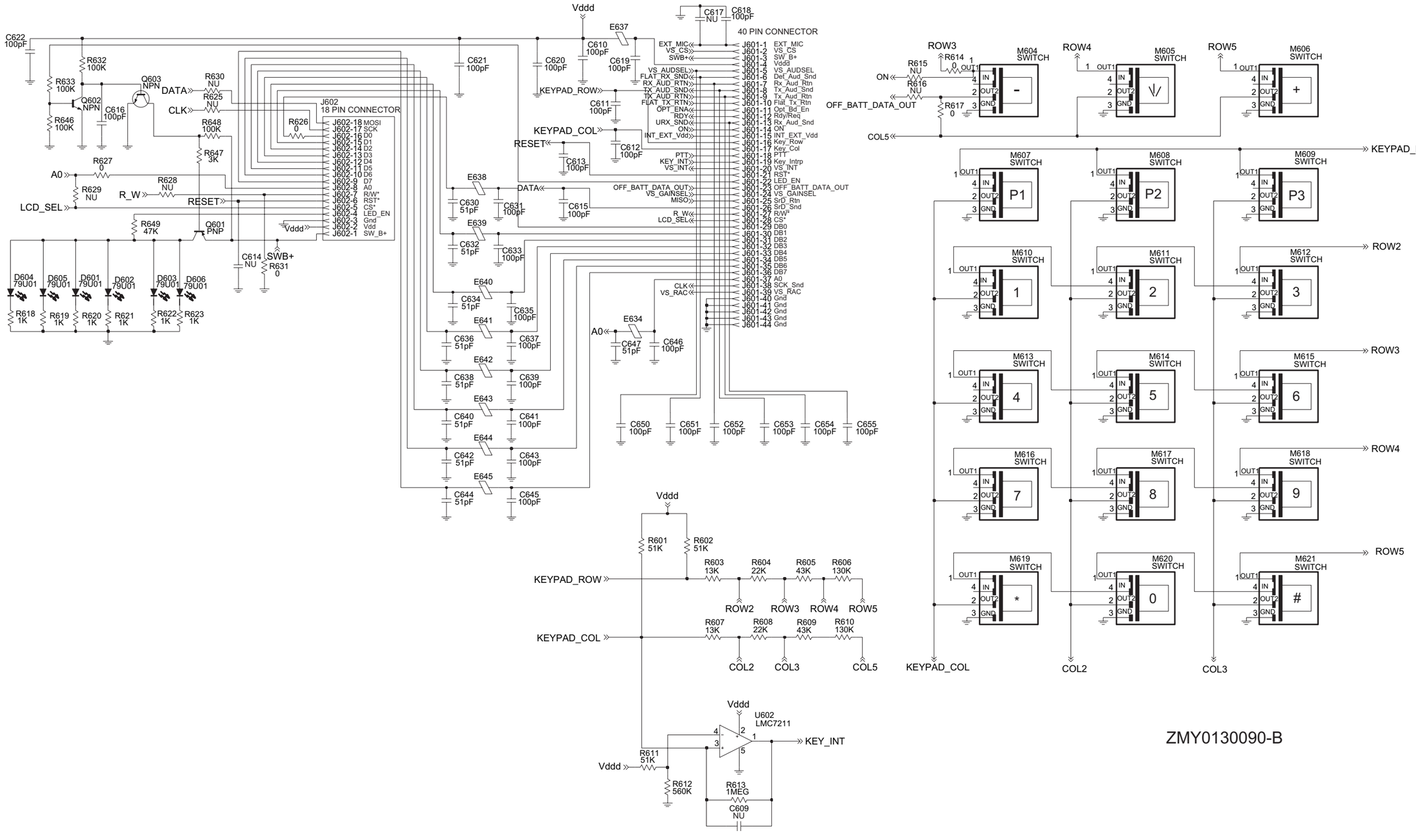


ZMY0130489-O



ZMY0130490-O

Keypad Board (PCB No. 8480574Z05)



Keypad Board Schematic Diagram (PCB No. 8480574Z05)

3.6 PCB 8480574Z05 - Parts List

Circuit Ref	Motorola Part No.	Description
C610	2113743N50	100 pF
C611	2113743N50	100 pF
C612	2113743N50	100 pF
C613	2113743N50	100 pF
C615	2113743N50	100 pF
C616	2113743N50	100 pF
C618	2113743N50	100 pF
C619	2113743N50	100 pF
C620	2113743N50	100 pF
C621	2113743N50	100 pF
C622	2113743N50	100 pF
C631	2113743N50	100 pF
C630	2113743N43	51 pF
C632	2113743N43	51 pF
C633	2113743N50	100 pF
C634	2113743N43	51 pF
C635	2113743N50	100 pF
C636	2113743N43	51 pF
C637	2113743N50	100 pF
C638	2113743N43	51 pF
C639	2113743N50	100 pF
C640	2113743N43	51 pF
C641	2113743N50	100 pF
C642	2113743N43	51 pF
C643	2113743N50	100 pF
C644	2113743N43	51 pF
C645	2113743N50	100 pF
C646	2113743N50	100 pF
C647	2113743N43	51 pF
D601	4880479U01	79U01
D602	4880479U01	79U01
D603	4880479U01	79U01
D604	4880479U01	79U01
D605	4880479U01	79U01
D606	4880479U01	79U01
E634	2480640Z01	Ind Bead
E637	2480640Z01	Ind Bead
E638	2480640Z01	Ind Bead
E639	2480640Z01	Ind Bead
E640	2480640Z01	Ind Bead
E641	2480640Z01	Ind Bead
E642	2480640Z01	Ind Bead
E643	2480640Z01	Ind Bead
E644	2480640Z01	Ind Bead
E645	2480640Z01	Ind Bead
J601	0980521Z01	44 pin connector
J602	0905505Y03	18 pin connector
Q601	4805128M67	MMBT3906 transistor (PNP)
Q602	4880214G02	MMBT3904 transistor (NPN)
Q603	4880214G02	MMBT3904 transistor (NPN)
R601	0662057V20	51K
R602	0662057V20	51K
R603	0662057V05	13K
R604	0662057V11	22K
R605	0662057V18	43K
R606	0662057V30	130K
R607	0662057V05	13K
R608	0662057V11	22K
R609	0662057V18	43K
R610	0662057V30	130K
R611	0662057N16	51K
R612	0662057N41	560K
R613	0662057N47	1M
R614	0662057M01	0 ohm
R617	0662057M01	0 ohm
R618	0662057M74	1K
R619	0662057M74	1K
R620	0662057M74	1K
R621	0662057M74	1K
R622	0662057M74	1K
R623	0662057M74	1K
R626	0662057M01	0 ohm
R627	0662057M01	0 ohm
R631	0662057M01	0 ohm
R632	0662057N23	100K
R633	0662057N23	100K
R646	0662057N23	100K
R647	0662057M85	3K
R648	0662057N23	100K
R649	0662057N15	47K
U602	5102463J49	LMC7211 comparator
	8480574Z05	PC Board

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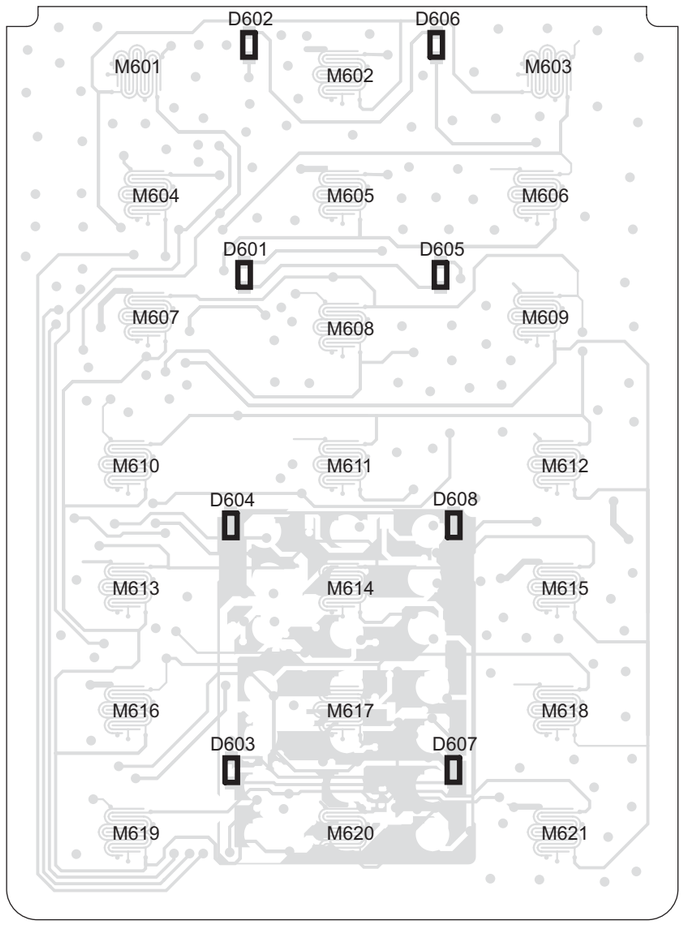
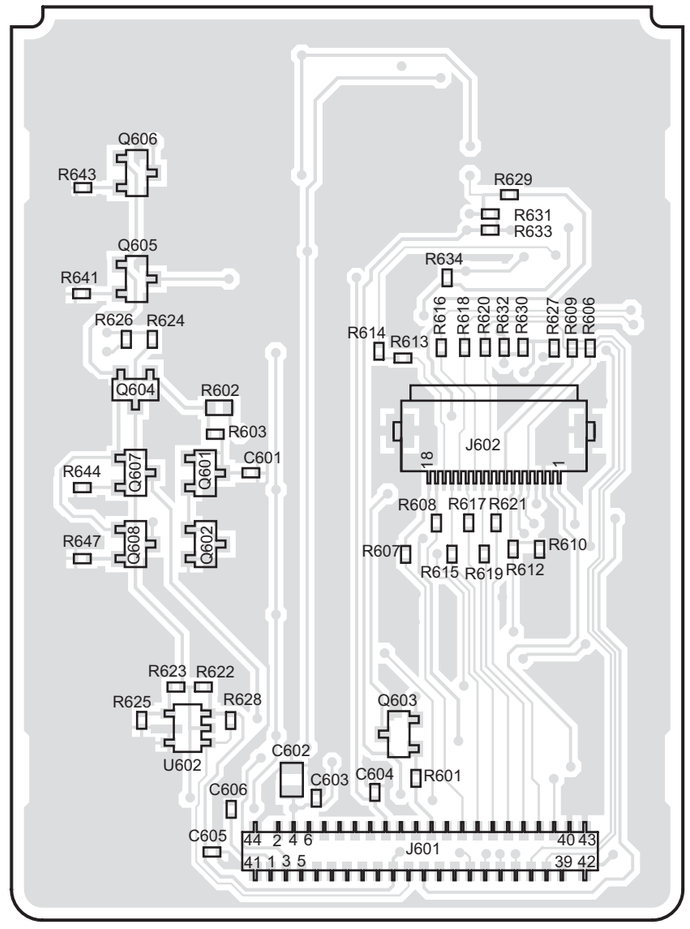
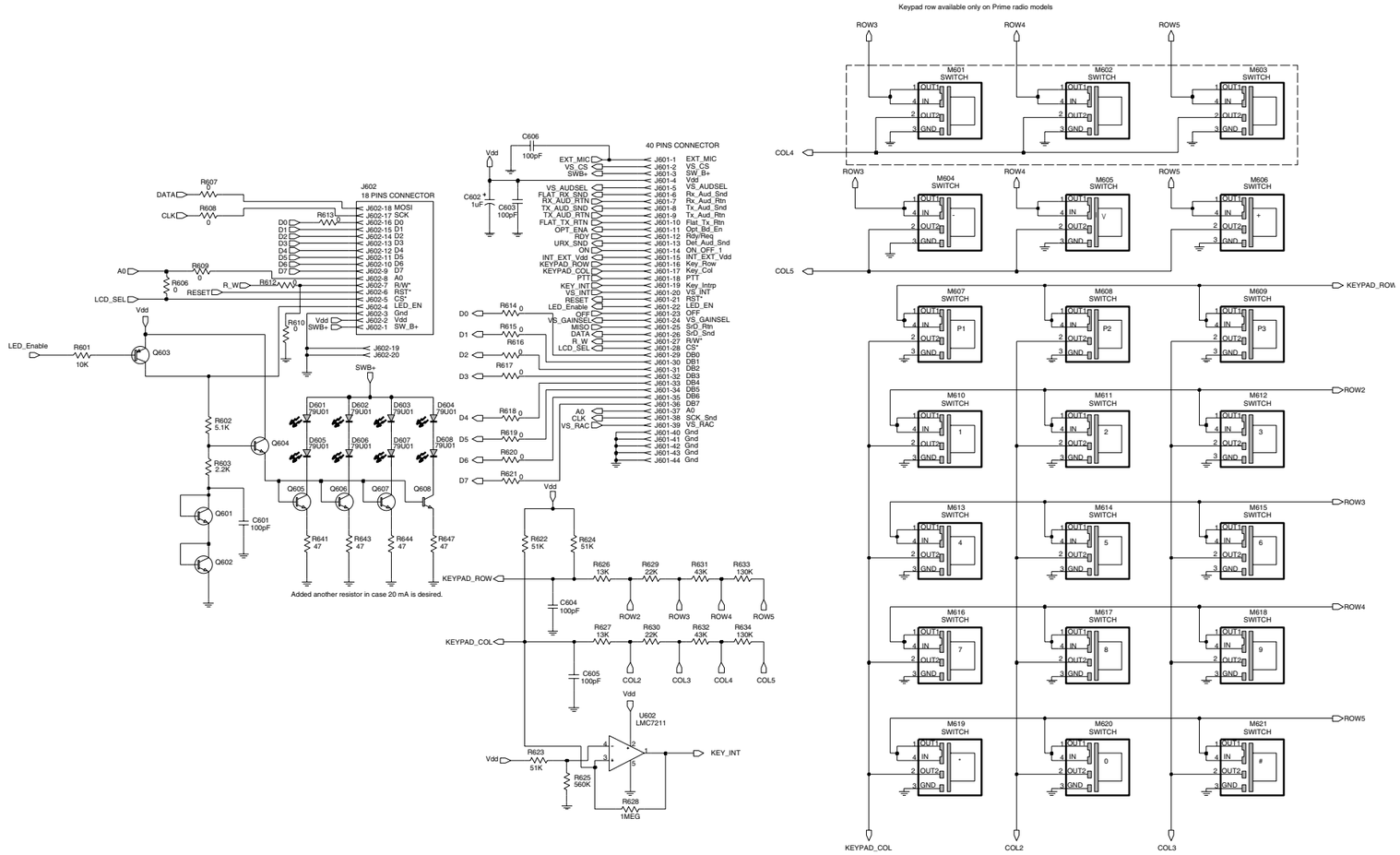
3.7 PCB 8480682Z01 - Diagrams





Keypad Board GP1280 (PCB No. 8480682Z01)



Keypad Schematic Diagram GP1280 (PCB No. 8480682Z01)

MOTOROLA

Professional Radio
GP Series

Power Distribution and Controller
Service Information

Issue: July 2007

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Chapter 2 TROUBLESHOOTING CHARTS

Chapter 3 CONTROLLER SCHEMATICS

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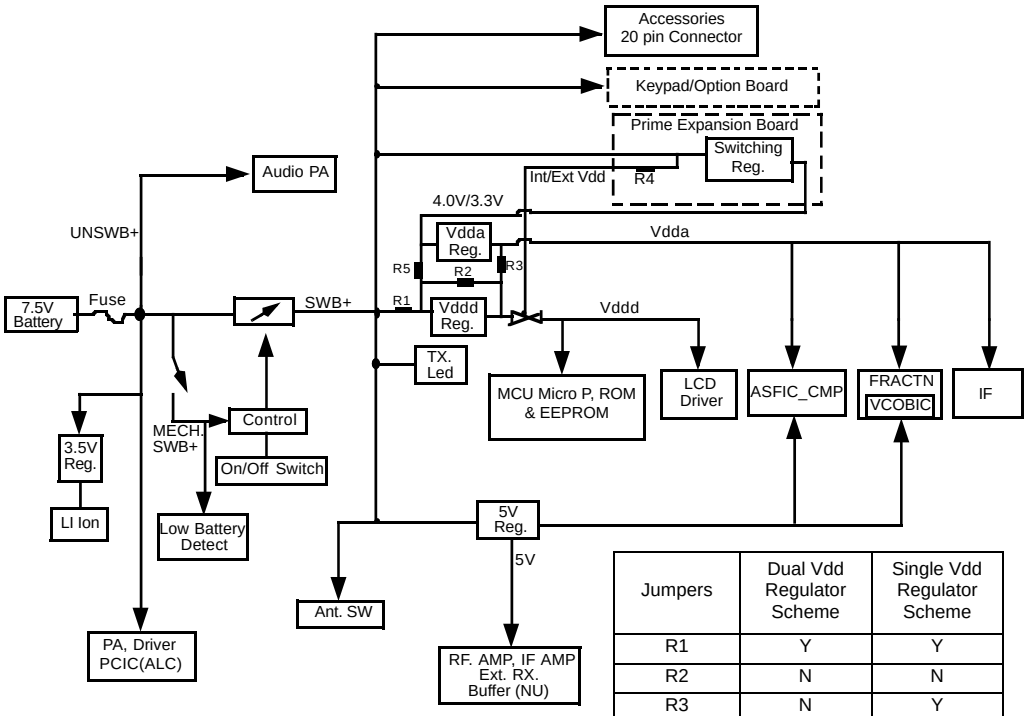
Chapter 1

THEORY OF OPERATION

1.0 Overview

This Chapter provides a detailed theory of operation for the power distribution and controller circuits in the radio. The components for these circuits are contained on the Main Board. Refer to the RF sections of this manual for the component location details and the parts lists for these circuits.

2.0 Radio Power Distribution



Jumpers	Dual Vdd Regulator Scheme	Single Vdd Regulator Scheme
R1	Y	Y
R2	N	N
R3	N	Y
R4	N	N
R5	Y	N
Vdda	Y	N
SW. Reg.	N	N

Figure 1-1 DC Power Distribution Block Diagram

Figure 1-1 illustrates the DC distribution throughout the radio board. A 7.5V battery (BATT 7.5V) supplies power directly to the electronic on/off control as UNSWB+. When the radio is turned on, MECH_SWB+ (on/off/volume control) will trigger the electronic on/off control (momentary-on path), then SWB+ is distributed as shown in Figure1-1. Vdda from 3.3V Vdda regulator will then supply the microprocessor. Data is then sent to ASFIC_CMP to turn on GCB4(DAC). GCB4 will take over the momentary-on path within 12ms. SWB+ will continue to support the whole board until the radio is turned off.

Radio will be turned-off on two conditions;

1. MECH_SWB+ turned off

2. Low battery

When low battery level is detected by the microprocessor through both conditions above, it will store the radio personality data to EEPROM before turning off.

3.0 Controller Circuits

3.1 Controller Architecture

The controller board is the central interface between the various subsystems of the radio. It is separated into MCU digital and audio/signalling architectures as shown in Figure 1-2.

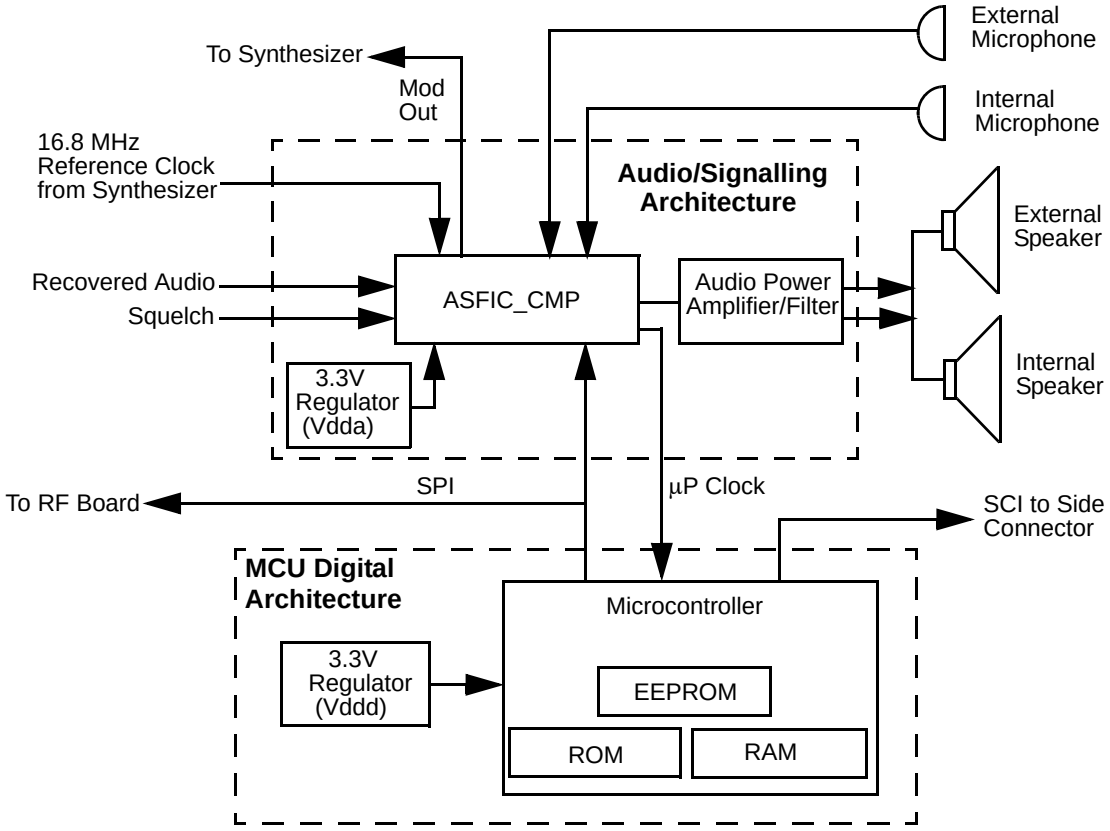


Figure 1-2 Controller Block Diagram

3.2 MCU Digital Architecture

(*Refer to Figure 1-2, the Microprocessor and the Memory schematic diagrams*)

The digital architecture portion consists of a microcontroller and associated EEPROM, RAM, and ROM memories. The architecture is commonly used for both low-tier and high-tier products and also includes conventional and trunking portables. Combinations of different size RAM and ROM are available to support various application software. RAM supports 8KB and 32KB sizes. ROM supports 128KB, 256KB, and 512KB sizes. Table 1-1 shows the ROM, RAM and EEPROM requirements for different applications.

Table 1-1 Radio Memory Requirements

RADIO		ROM (KB)	EXT RAM (KB)	EEPROM (KB)
Conventional MDC	GP140	128K	-	8K
Conventional 5 Tone	GP320, GP330, GP340	512K	16K	16K
Conventional 5 Tone	GP360, GP380	512K	16K	16K
Privacy Plus	GP240, GP280	512K	16K	16K
SmartZone	GP540, GP580	512K	16K	16K
MPT	GP640, GP680	512K	16K	16K
MPT	GP1280	512K	16K	16K

3.3 Real Time Clock

(*Refer to Figure 1-3 and the Microprocessor schematic diagram*)

Radios with displays support a Real Time Clock (RTC) module for purposes of message time stamping and time keeping. The RTC module resides in the microcontroller.The clock uses a back-up Lithium Ion battery for operating power when the primary battery is removed.

3.3.1 Circuit Description

The RTC module circuit, shown in Figure 1-3, is powered by the ModB/Vstby pin and PI6/PI7 from the crystal oscillator circuit. A clock frequency of 38.4kHz from a crystal oscillator provides the reference signal which is divided down to 1 Hz in the processor.

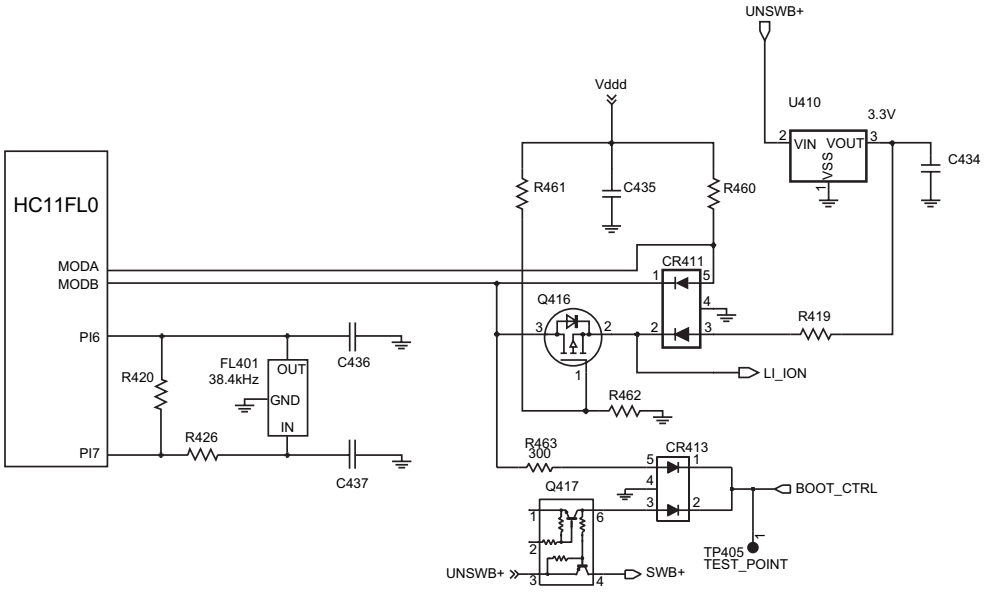


Figure 1-3 RTC Circuit

As the RTC module is powered separately from the processor Vdd, the RTC is kept active through the ModB / Vstby pin which provides the Lithium battery back-up power when the radio is switched off.

A MOSFET Q416 switches in the LiO supply when Vdd is removed. Q416 also provides isolation from BOOT_CTRL function in the event of radio program flashing. The 3.3V regulator charges the Lithium battery.

3.4 ModB/Vstby Supply

The supply to the ModB/Vstby pin varies depending on the conditions listed in Table 1-2.

Table 1-2 ModB/Vstby Supply Modes

Condition	Circuit Operation
Radio On	Vdd supply voltage via CR411
Radio Off	• Vdd turned off • Q416 gate pulled low by R462 • Q416 switched on • U410 supplies 3.2V to ModB/Vstby
Primary battery removed	• Vdd turned off • Q416 gate pulled low by R462 • Q416 switched on • Lithium battery provides 3.2V to ModB/Vstby
Flash Mode	• Boot_Ctrl line pulled low • ModA & ModB go low • Processor in boot-strap mode

3.5 Audio/Signalling Architecture

(*Refer to Figure 1-2 and the ASFIC/ON_OFF and Audio Power Amplifier schematic diagrams*)

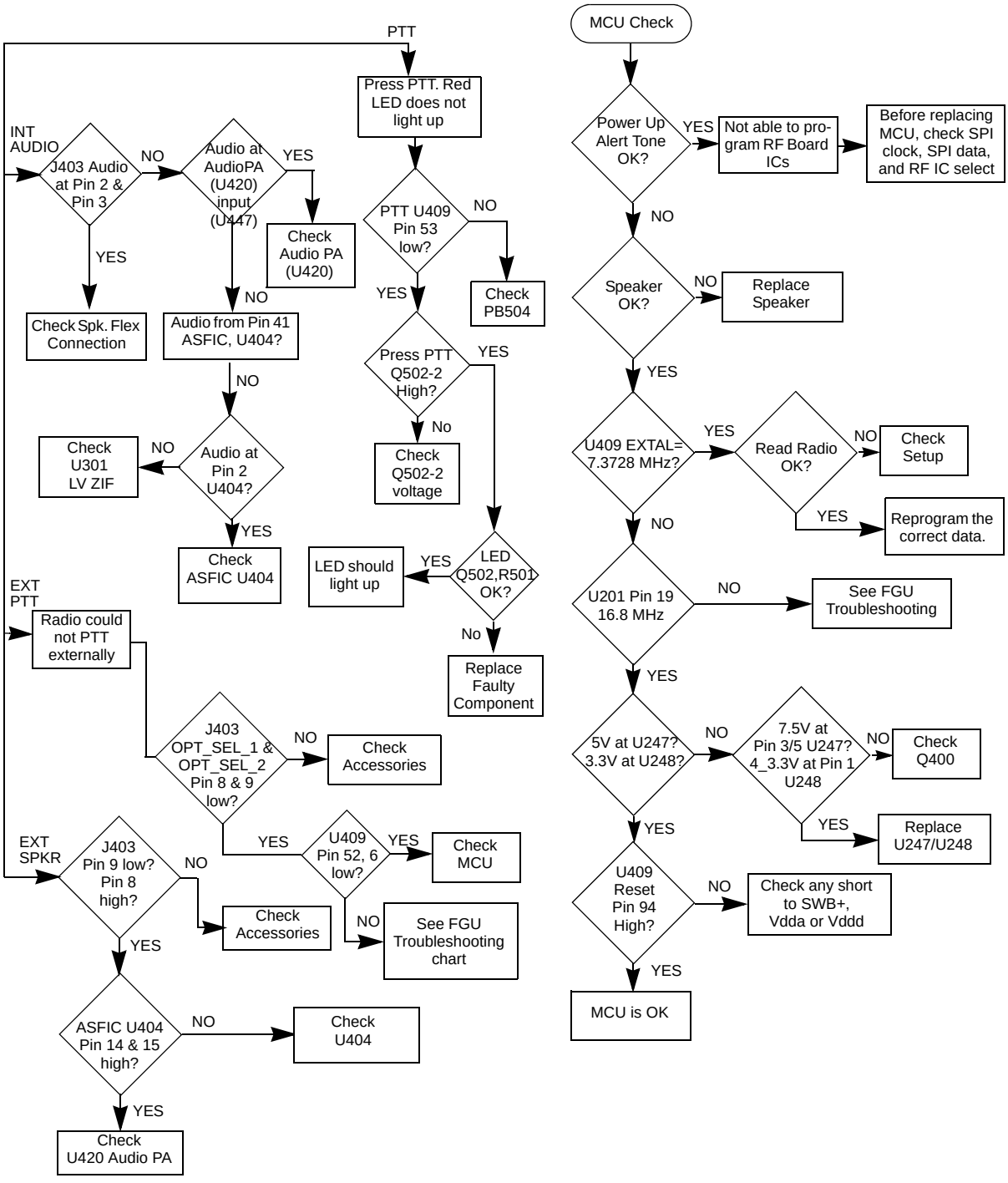
The audio/signalling/filter/companding IC (ASFIC_CMP) and the audio power amplifier, shown in Figure 1-2, form the main components of the audio/signalling architecture section of the controller board. Inputs include a 16.8 MHz clock from the synthesizer, recovered audio and squelch, MCU control signals, and external or internal microphones. Outputs include a microprocessor clock (uP), modulator output to the synthesizer, and amplified audio signals to an internal or external speaker.

Chapter 2

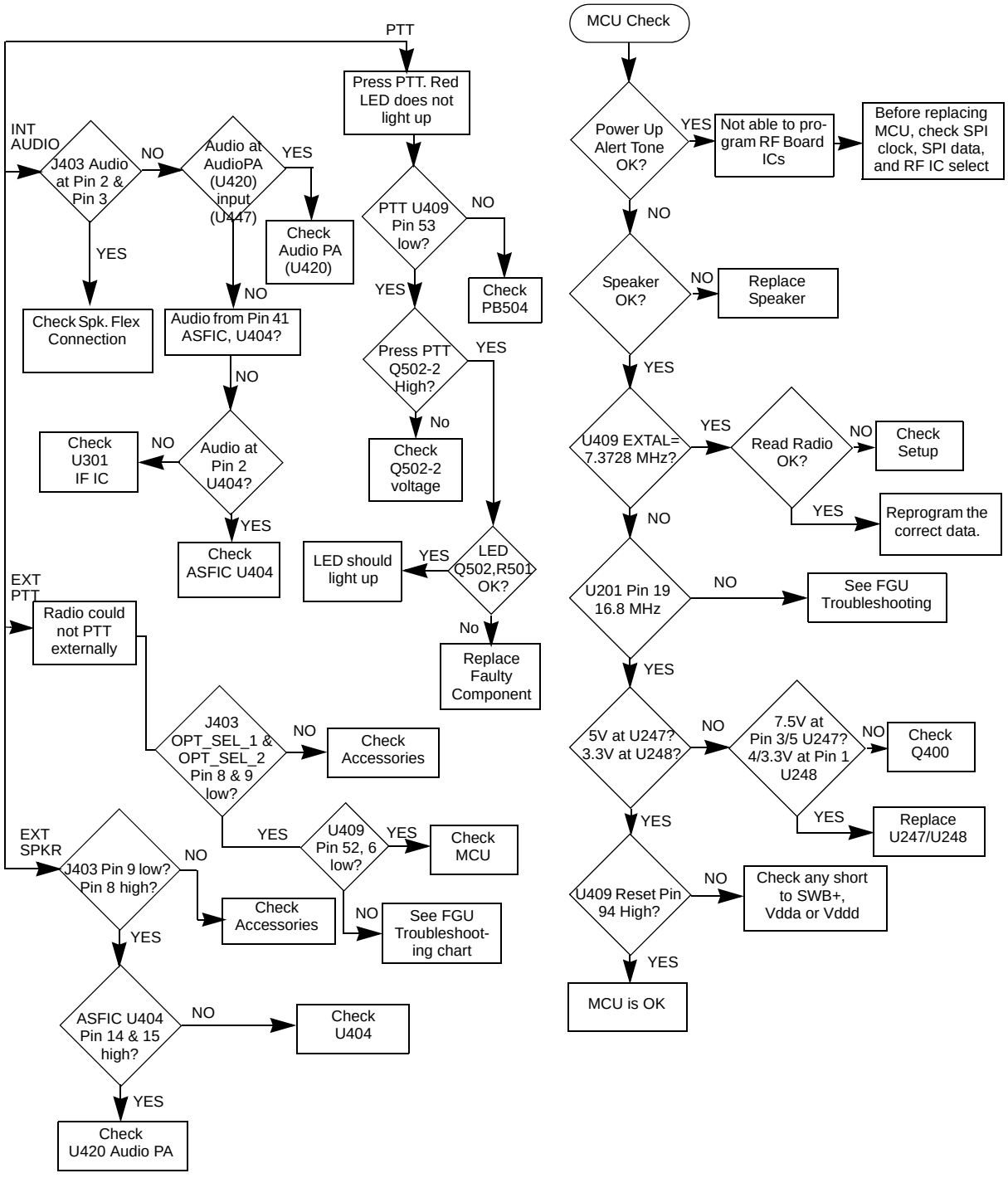
TROUBLESHOOTING CHARTS

1.0 UHF/ UHF2/ 800MHz Controller

1.1 All models except those with PCB 8486458Z03



1.2 Models with PCB 8486458Z03



Chapter 3

CONTROLLER SCHEMATICS

1.0 Allocation of Schematics and Circuit Boards

The Controller circuits are contained on the printed circuit board (PCB) containing the RF circuits. This Chapter shows the schematics for the Controller circuits only, refer to the relevant RF section for details of the related RF circuits, the PCB component layouts and the Parts Lists. The Controller schematic diagrams and the related PCB and parts list are shown in the tables below:

Table 3-1 Schematics - Set 1

PCBs :	
8480450Z03	**UHF**
8485641Z02	**UHF2**
8485677Z02	**UHF2**
8480587Z01	**UHF GP1280**
8485677Z01	**UHF2 GP1280**
8480641Z03	**800 MHz**
8480641Z09	**800 MHz**
8480641Z10	**800 MHz**
SCHEMATICS	
Overall Controller Schematic	Page 3-5
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Microprocessor	Page 3-7
Memory	Page 3-8
Interface	Page 3-9
Audio Power Amplifer	Page 3-10
Voice Storage Schematic Diagram (GP1280)	Page 3-11

Table 3-2 Schematics - Set 2

PCBs :	
8480450Z13/14	**UHF**
8480587Z05	**UHF**
8415234H01	**UHF**
8415234H02	**UHF**
8415234H05	**UHF**
8485641Z06	**UHF2**
8415235H01	**UHF2**
8415235H03	**UHF2**
SCHEMATICS	
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Table 3-3 Schematics - Set 3

PCBs :	
8486458Z03	**UHF**
8486686Z02	**UHF2**
SCHEMATICS	
Overall Controller Schematic	Page 3-20
ASFIC ON_OFF	Page 3-21
Microprocessor	Page 3-22
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Table 3-4 Schematics - Set 4

PCBs : **8416256H02**	**UHF**
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Microprocessor	Page 3-27
Memory	Page 3-28
Interface	Page 3-29
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Table 3-5 Schematics - Set 5

PCBs : **8486743Z02**	**UHF**
SCHEMATICS	
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ASFIC ON_OFF	Page 3-32
Microprocessor	Page 3-33
Interface	Page 3-34
Audio Power Amplifer	Page 3-35

Table 3-6 Schematics - Set 6

PCBs : **8486743Z02**	**UHF (450-470 MHz)**
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ASFIC ON_OFF	Page 3-37
Microprocessor	Page 3-38
Memory	Page 3-16
Interface	Page 3-17
Audio Power Amplifer	Page 3-17

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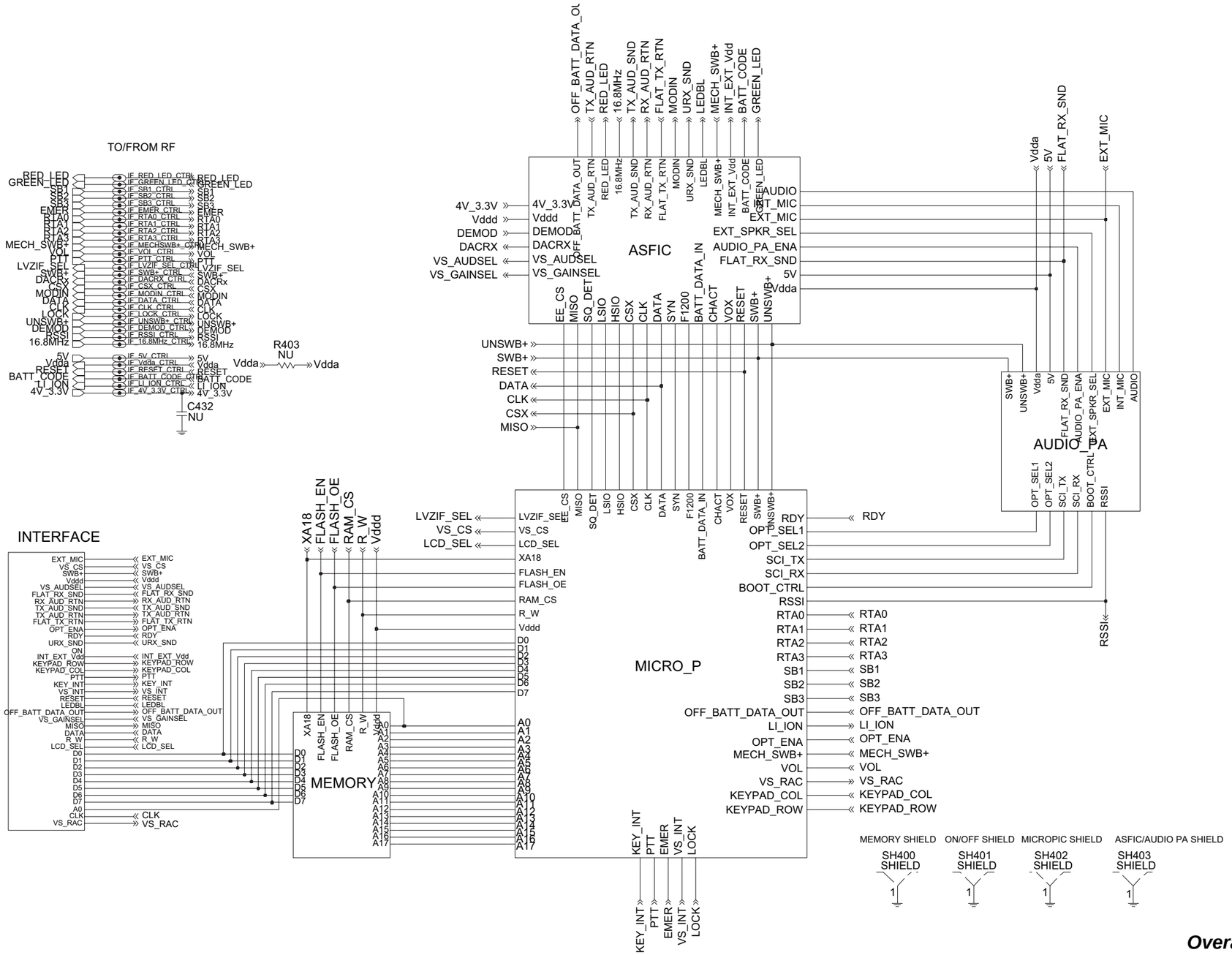
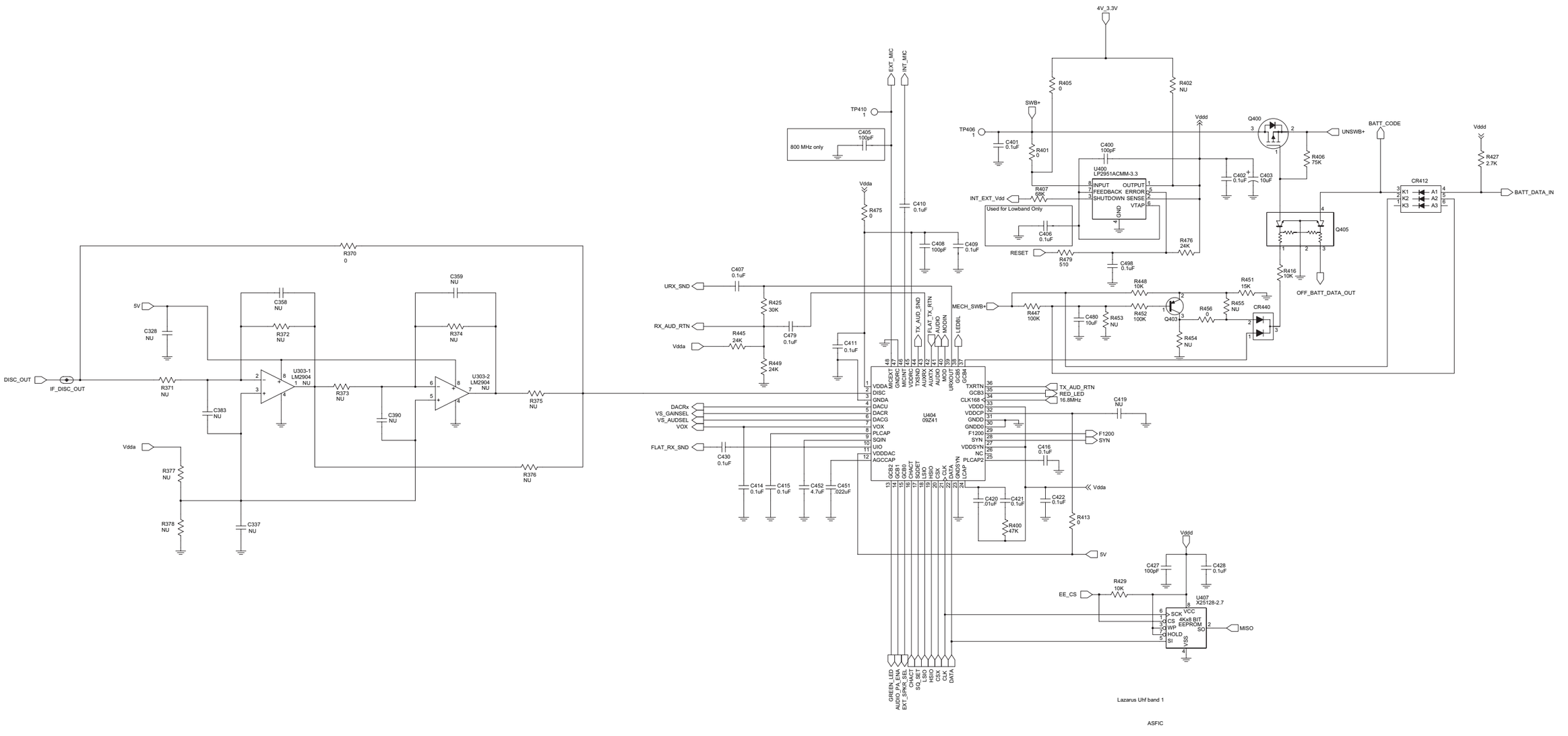
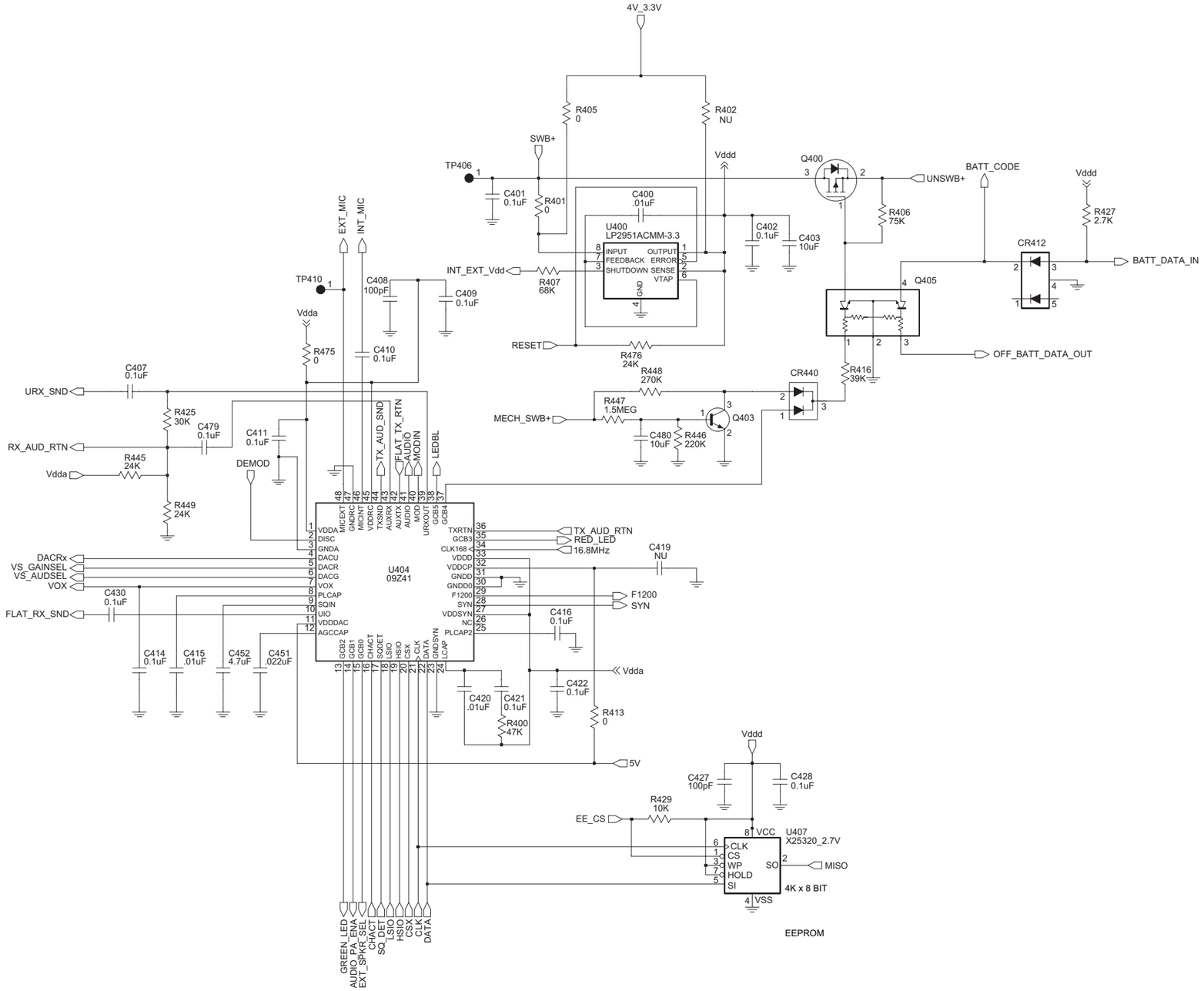
2.0 Controller - Set 1 (PCB 8480450Z03 (UHF), 8485641Z02 (UHF2), 8480587Z01/Z03 (UHF), 8485677Z01 (UHF2 GP1280), 8485677/Z02 (UHF2), 8480641Z03/Z09/Z10 (800 MHz)



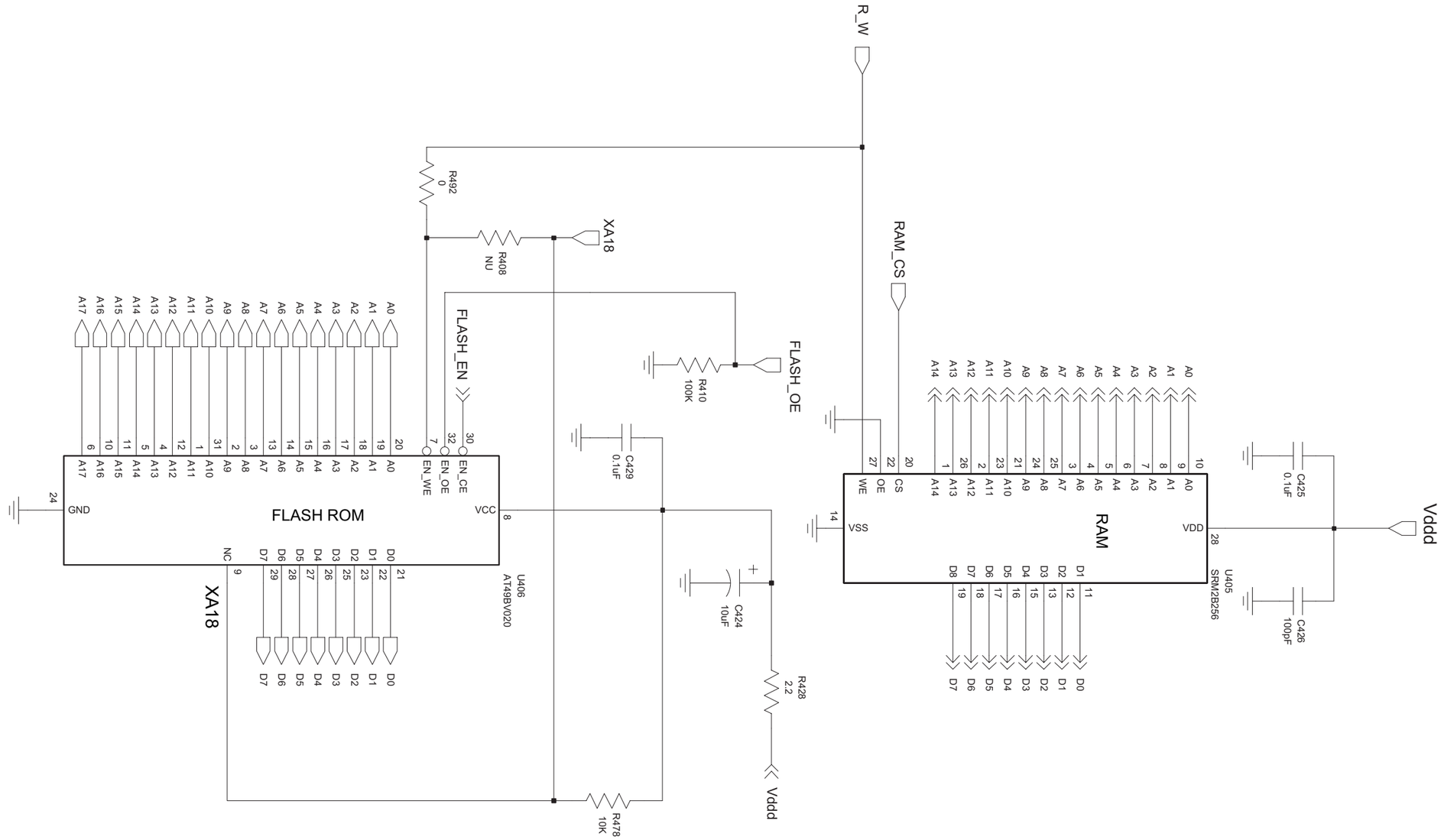
Overall Controller Schematic Diagram



Controller ASFIC / ON-OFF

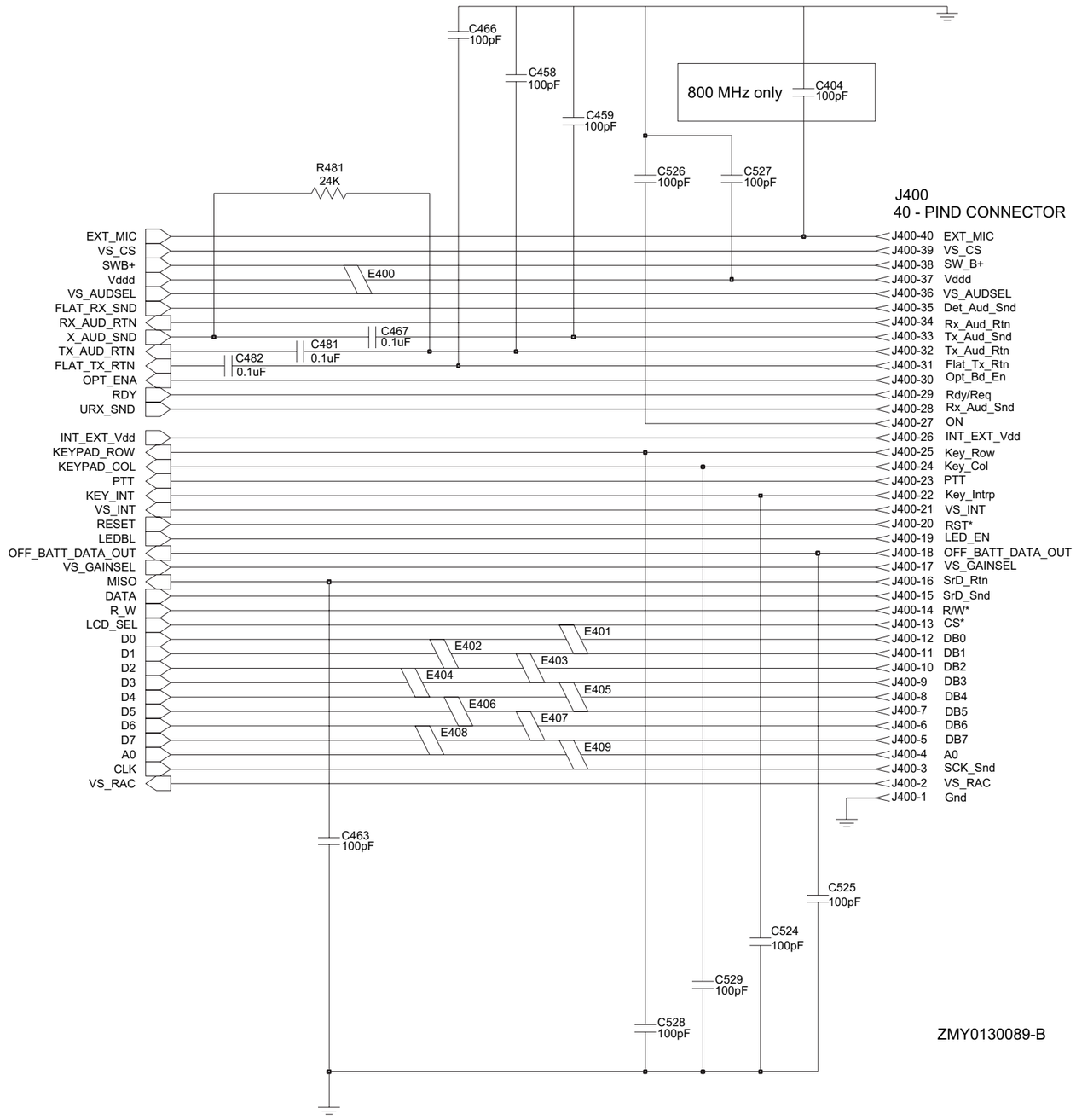


Controller MicroProcessor



FL0830279-O

Controller Memory


C466 100pF
C458 100pF
C459 100pF
800 MHz only
C404 100pF
C526 100pF
C527 100pF
R481 24K
J400
40 - PIND CONNECTOR
EXT_MIC
VS_CS
SWB+
Vddd
VS_AUDSEL
FLAT_RX_SND
RX_AUD_RTN
X_AUD_SND
TX_AUD_RTN
FLAT_TX_RTN
OPT_ENA
RDY
URX_SND
E400
C467 0.1uF
C481 0.1uF
C482 0.1uF
J400-40 EXT_MIC
J400-39 VS_CS
J400-38 SW_B+
J400-37 Vddd
J400-36 VS_AUDSEL
J400-35 Det_Aud_Snd
J400-34 Rx_Aud_Rtn
J400-33 Tx_Aud_Snd
J400-32 Tx_Aud_Rtn
J400-31 Flat_Tx_Rtn
J400-30 Opt_Bd_En
J400-29 Rdy/Req
J400-28 Rx_Aud_Snd
J400-27 ON
INT_EXT_Vdd
KEYPAD_ROW
KEYPAD_COL
PTT
KEY_INT
VS_INT
RESET
LEDBL
OFF_BATT_DATA_OUT
VS_GAINSEL
MISO
DATA
R_W
LCD_SEL
D0
D1
D2
D3
D4
D5
D6
D7
A0
CLK
VS_RAC
E401
E402
E403
E404
E405
E406
E407
E408
E409
J400-26 INT_EXT_Vdd
J400-25 Key_Row
J400-24 Key_Col
J400-23 PTT
J400-22 Key_Intrp
J400-21 VS_INT
J400-20 RST*
J400-19 LED_EN
J400-18 OFF_BATT_DATA_OUT
J400-17 VS_GAINSEL
J400-16 SrD_Rtn
J400-15 SrD_Snd
J400-14 R/W*
J400-13 CS*
J400-12 DB0
J400-11 DB1
J400-10 DB2
J400-9 DB3
J400-8 DB4
J400-7 DB5
J400-6 DB6
J400-5 DB7
J400-4 A0
J400-3 SCK_Snd
J400-2 VS_RAC
J400-1 Gnd
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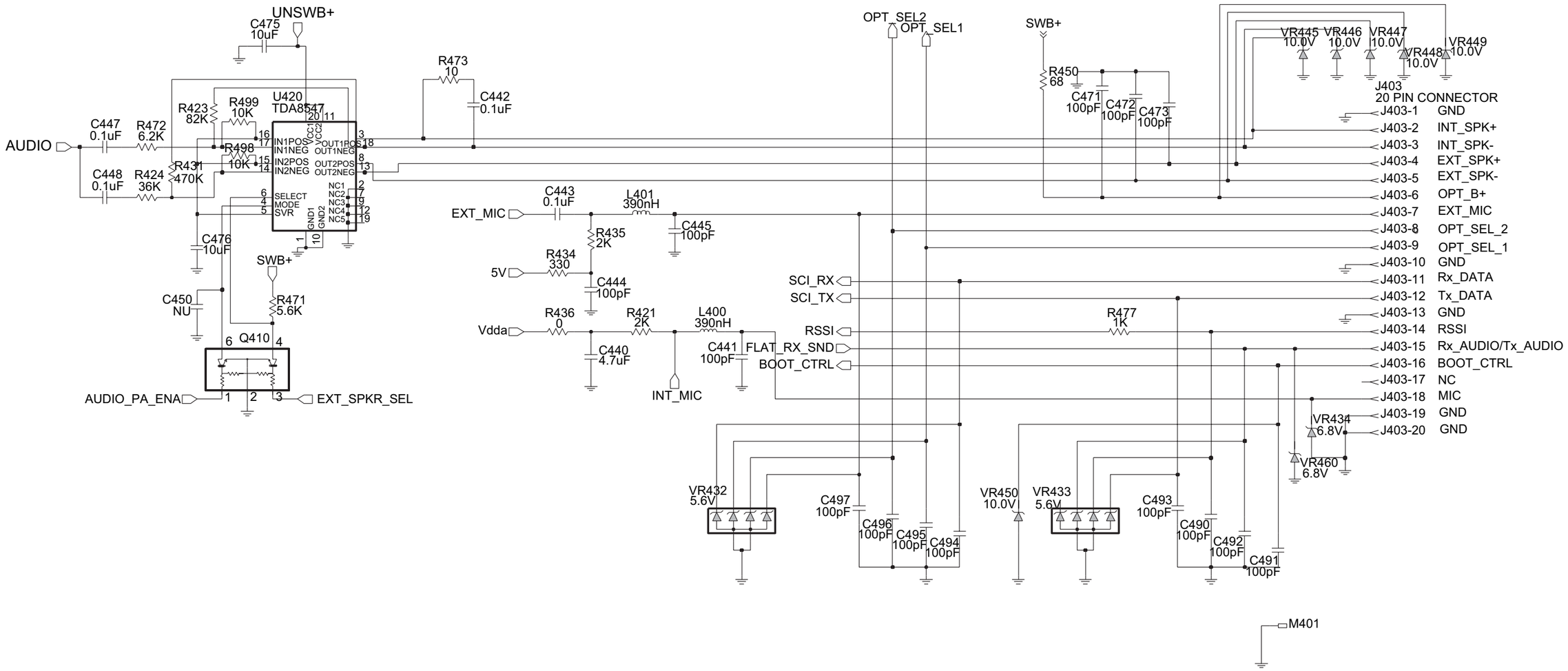
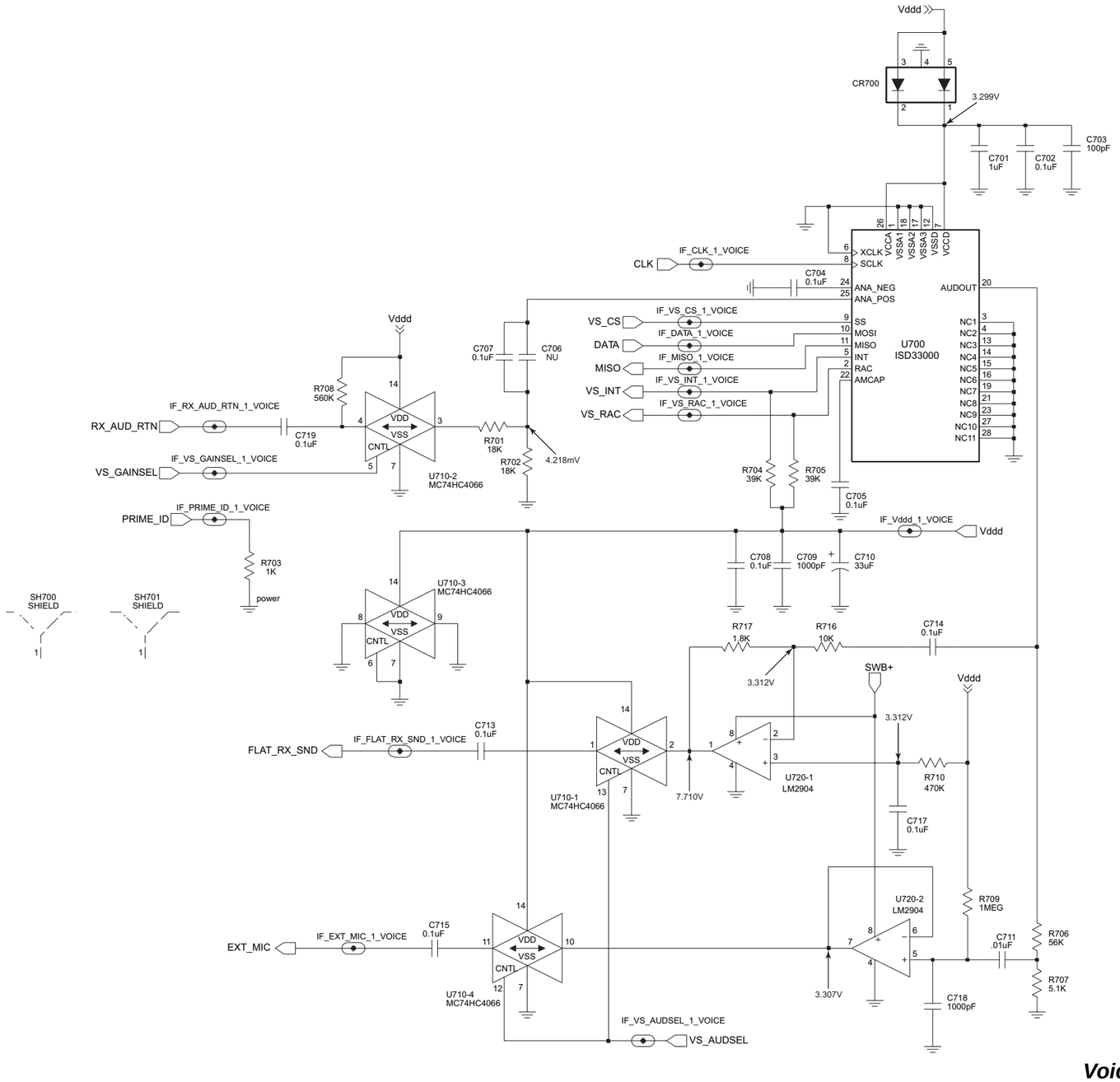


Controller Audio Power Amplifier



Voice Storage Schematic Diagram (GP1280)

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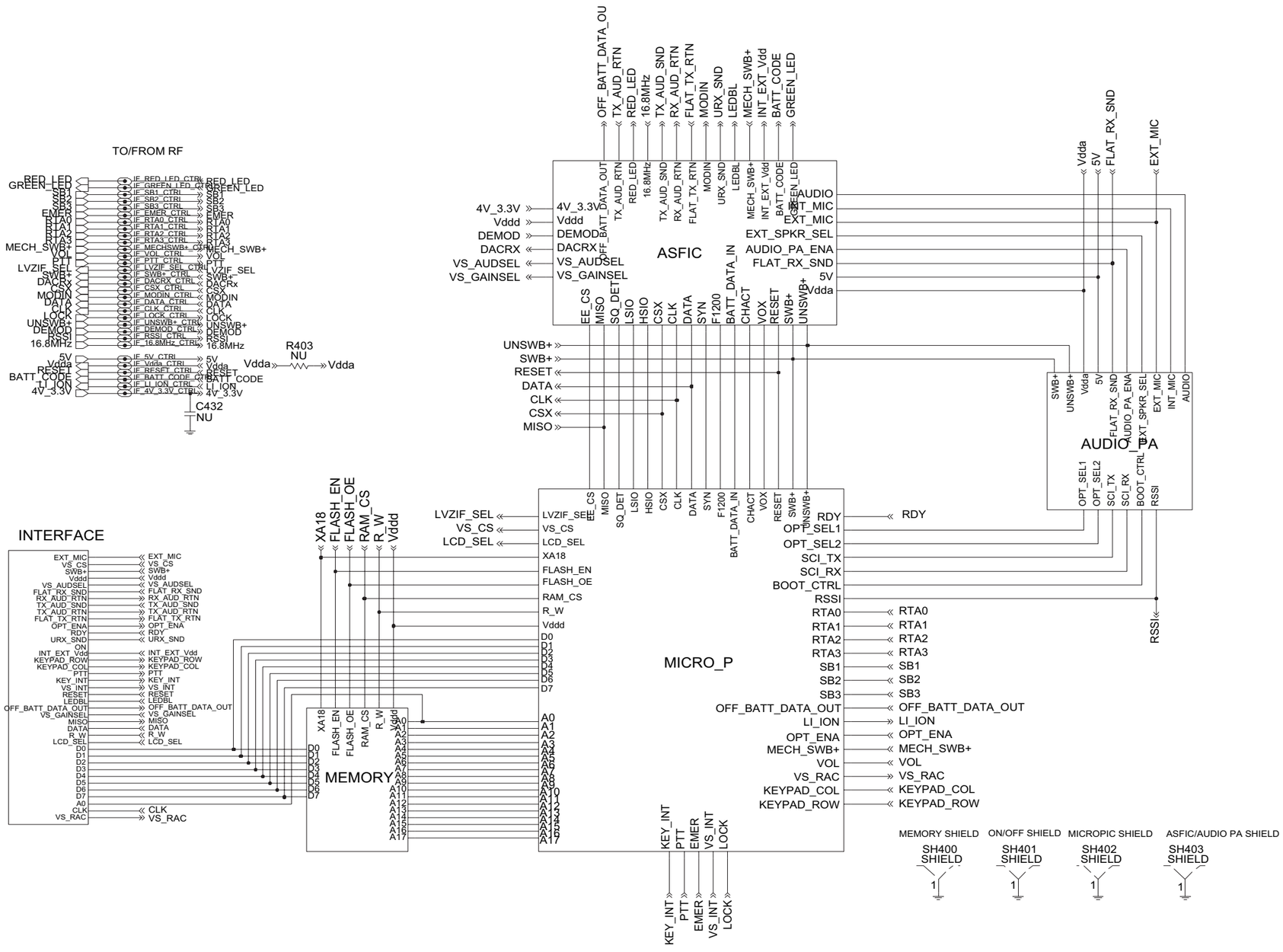
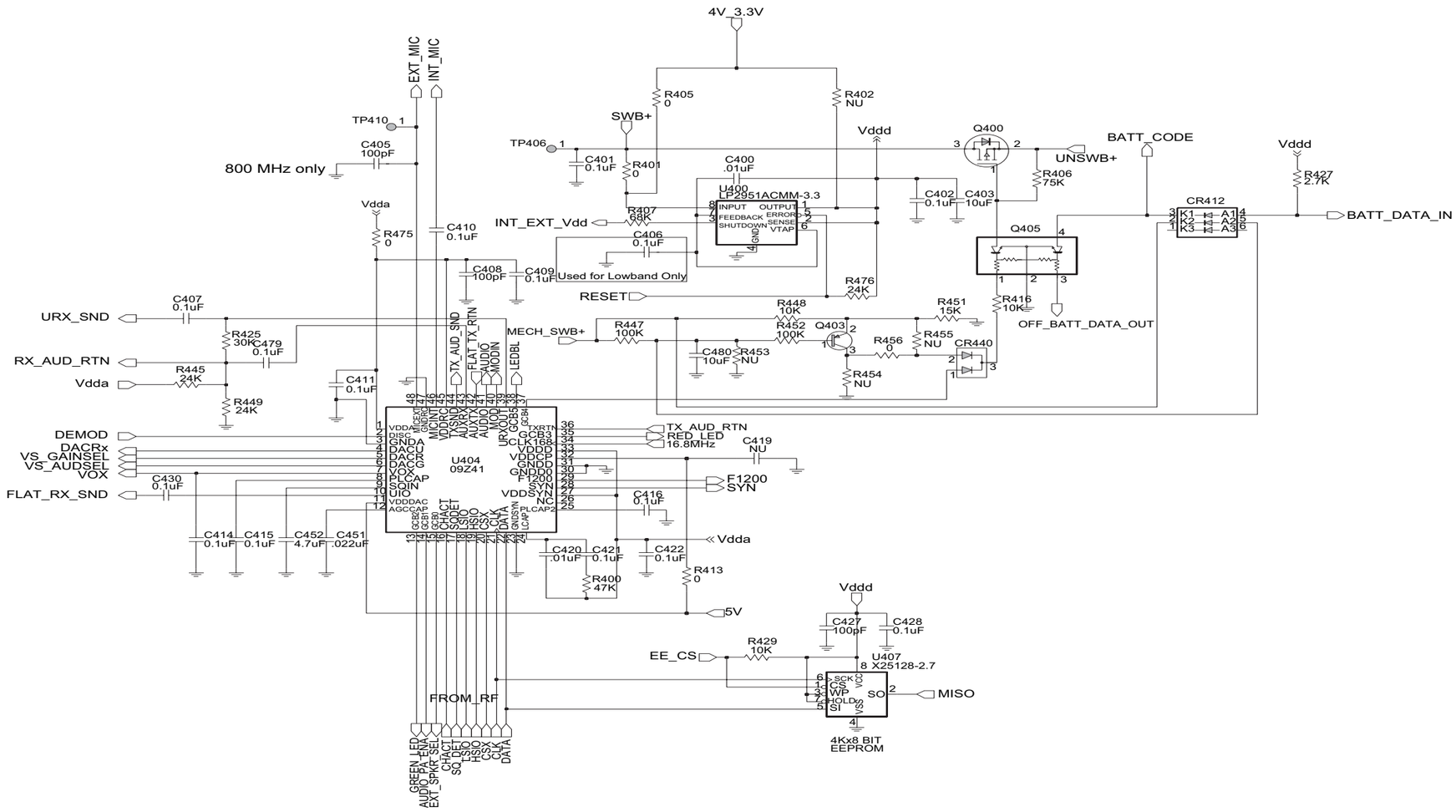
3.0 Controller - Set 2 (PCB 8480450Z13/14 (UHF), 8480587Z05 (UHF), 8485641Z06 (UHF2), 8415234H01/H02/H05 (UHF), 8415235H01/H03 (UHF2)

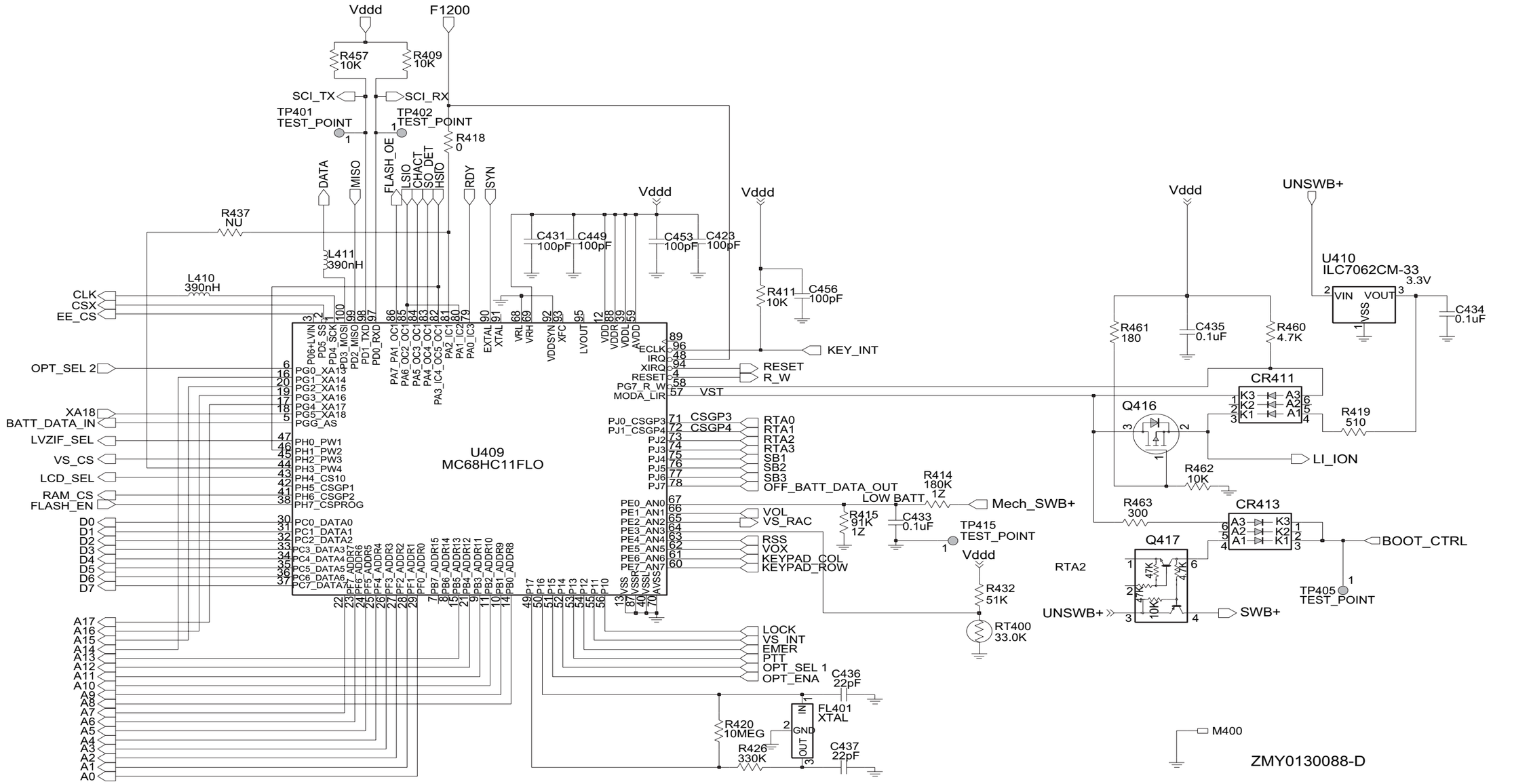


ZMY0130086-B

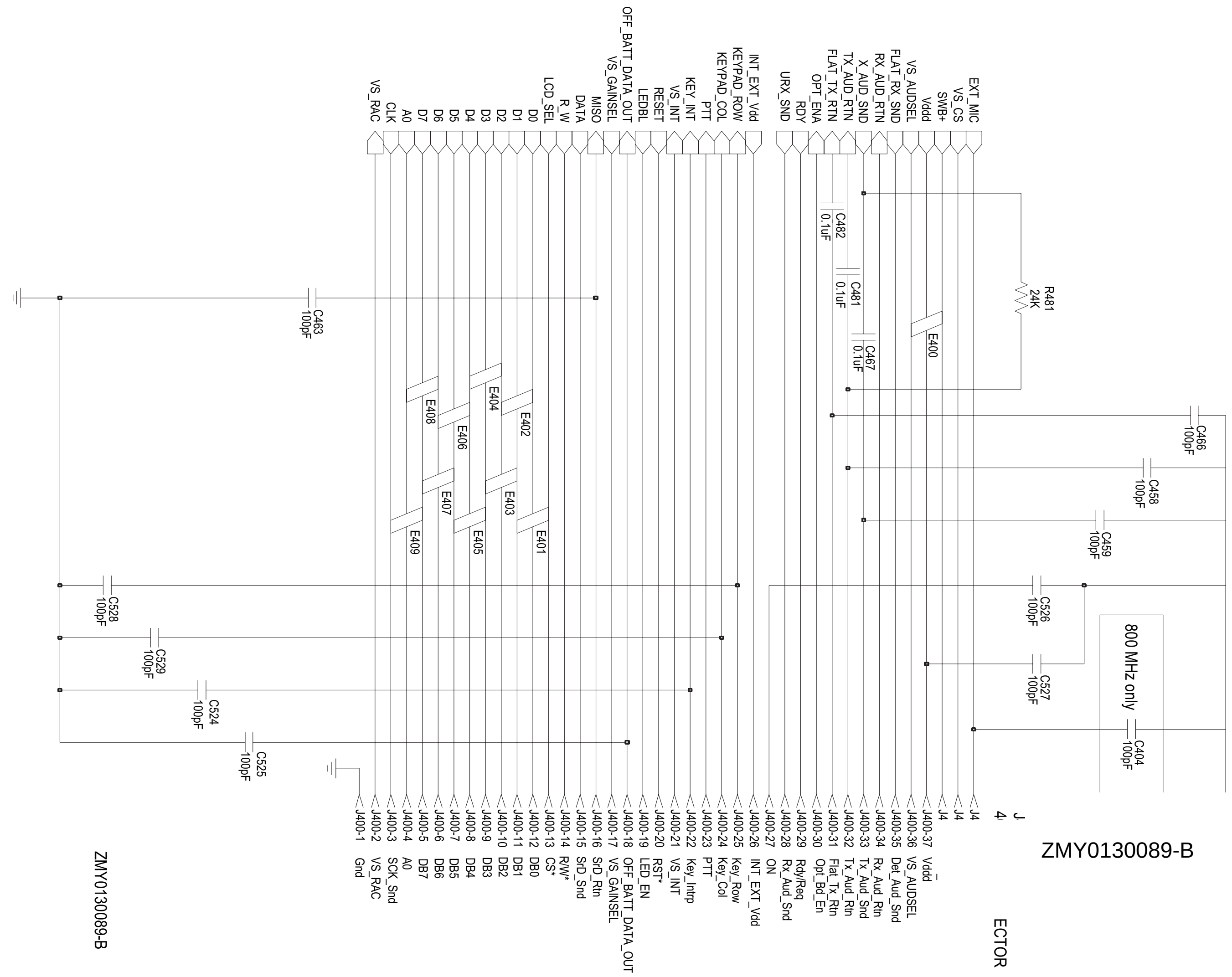
Overall Controller Schematic

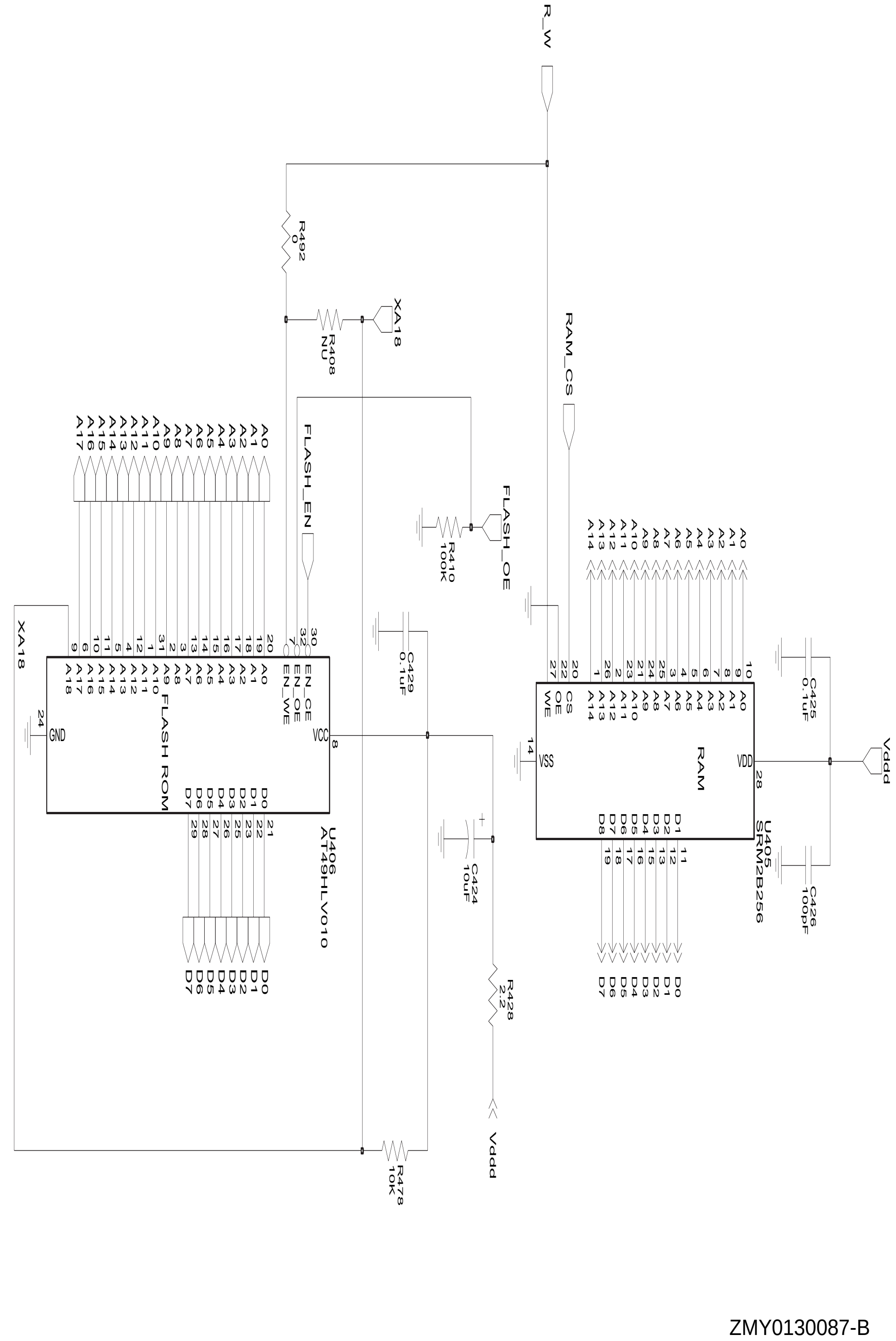


Controller ASFIC / ON-OFF



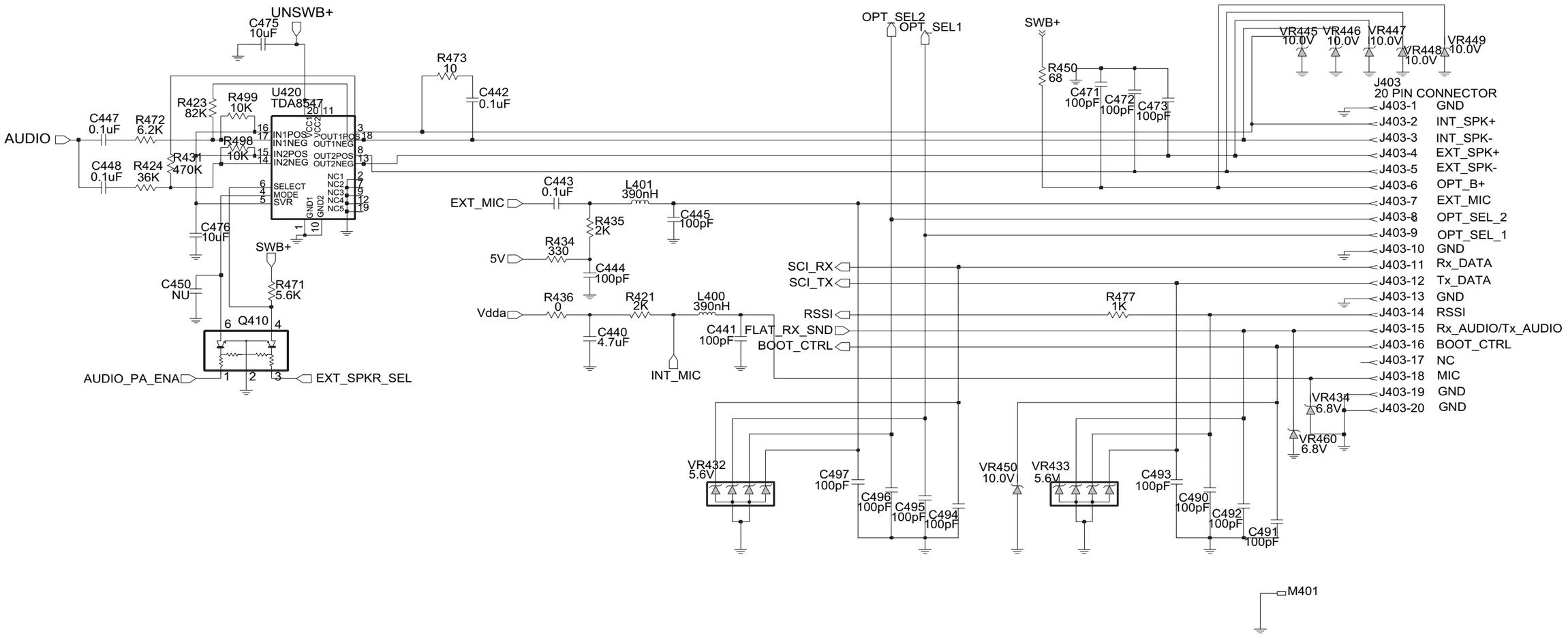
Controller Micro Processor





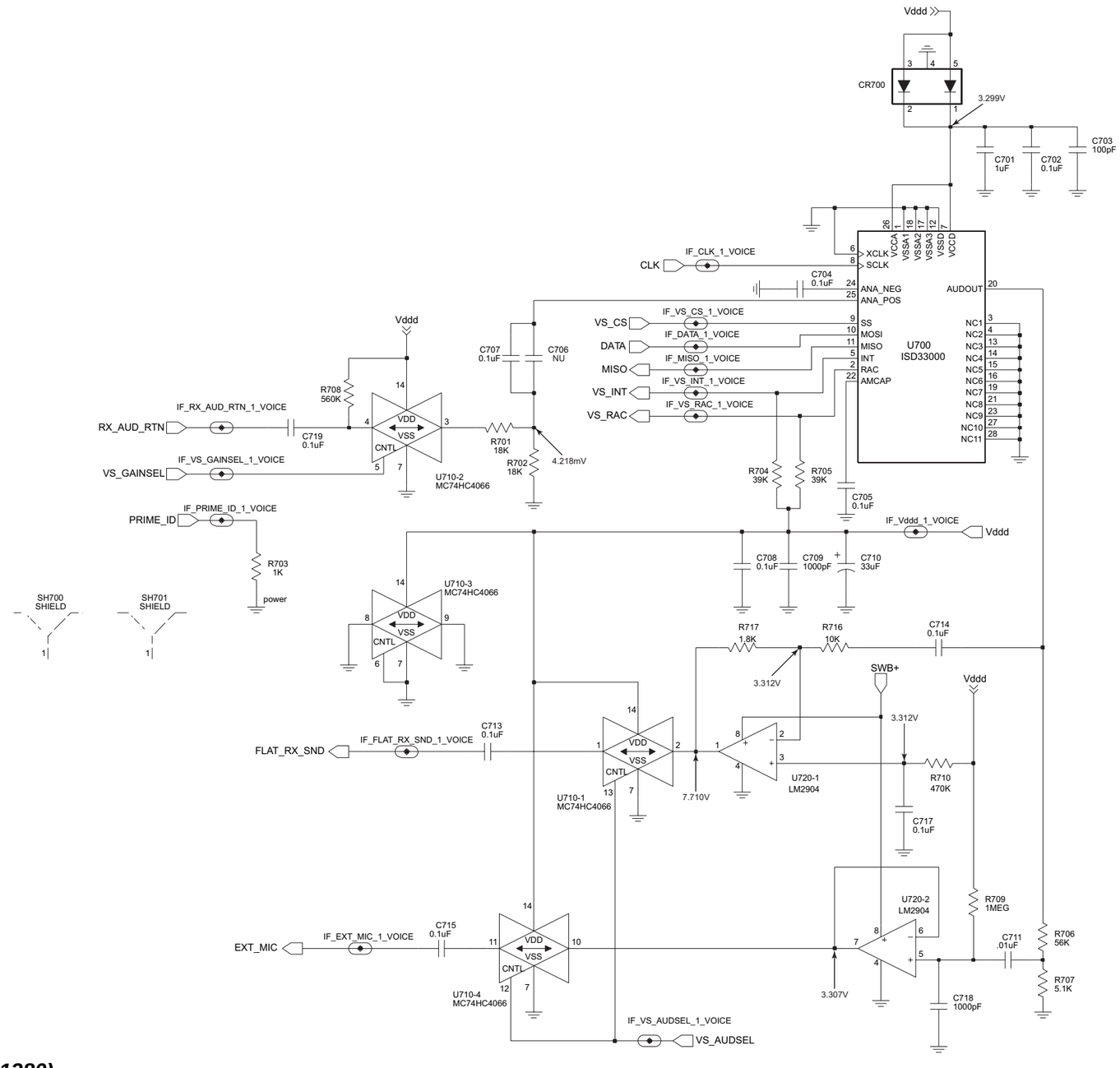
Controller Interface

Controller Memory



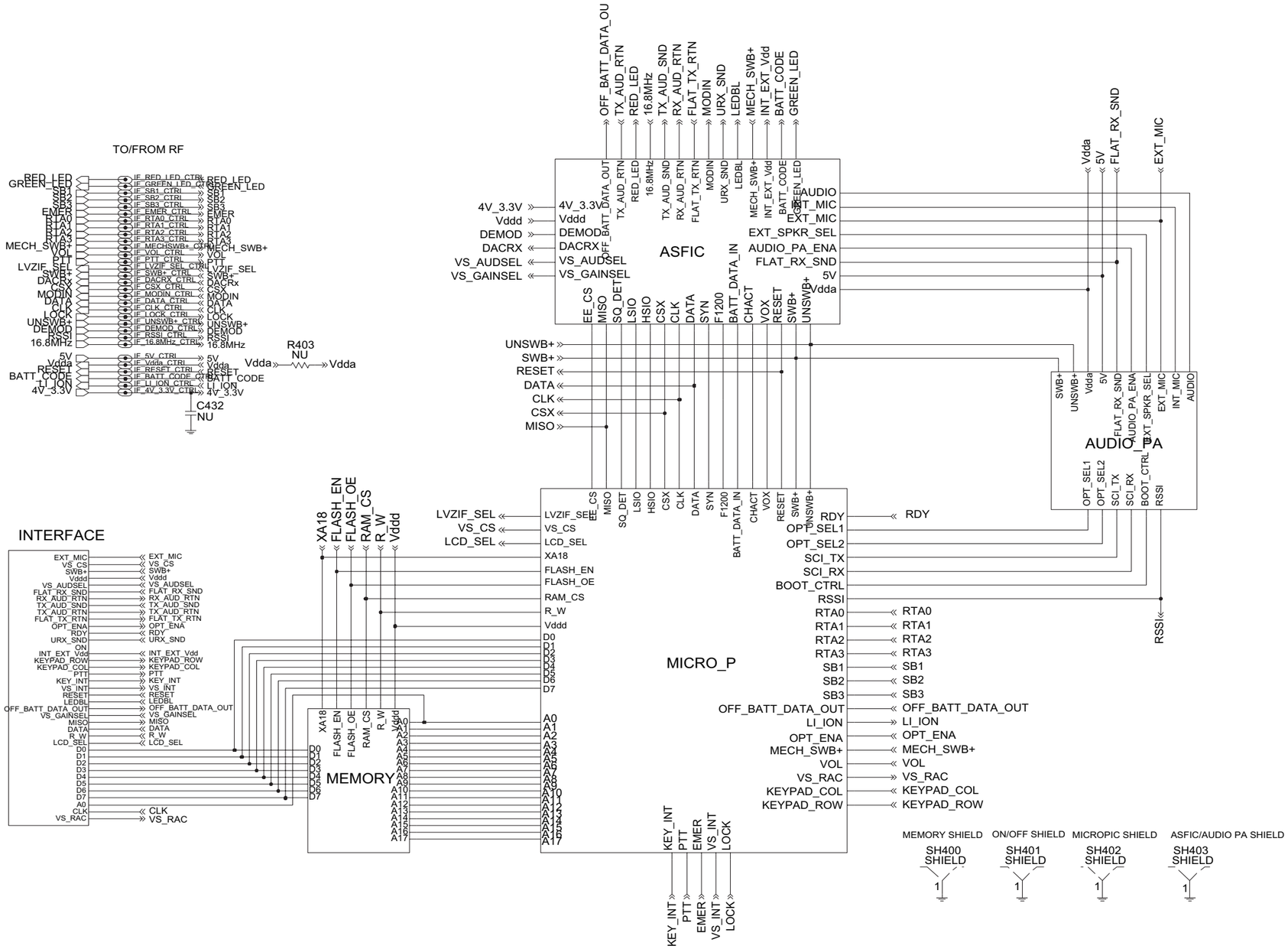
ZMY0130079-D

Controller Audio Power Amplifier



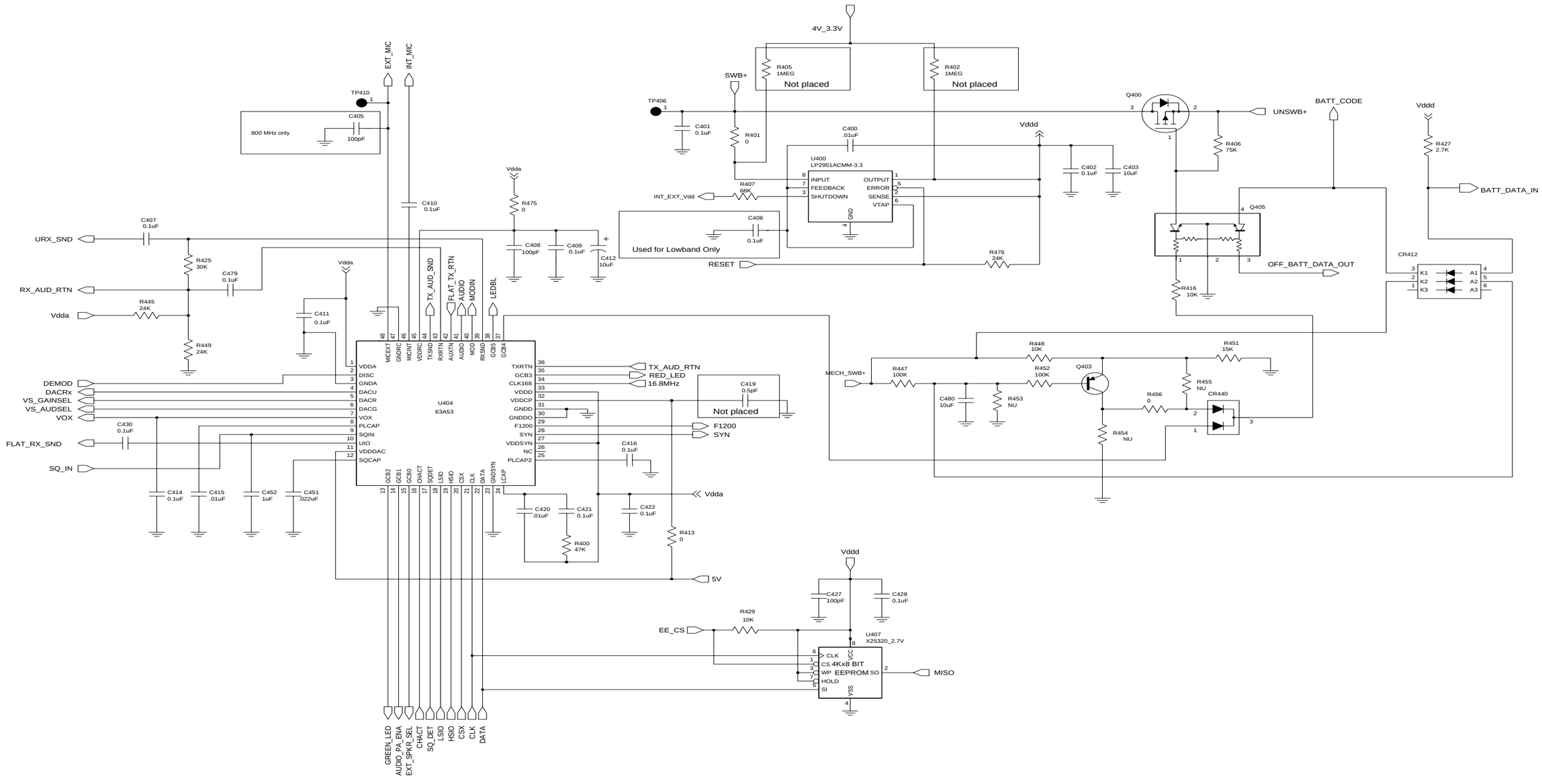
Voice Storage Schematic Diagram (GP1280)

4.0 Controller - Set 3 (PCB 8486458Z03 (UHF), 8486686Z02 (UHF2)

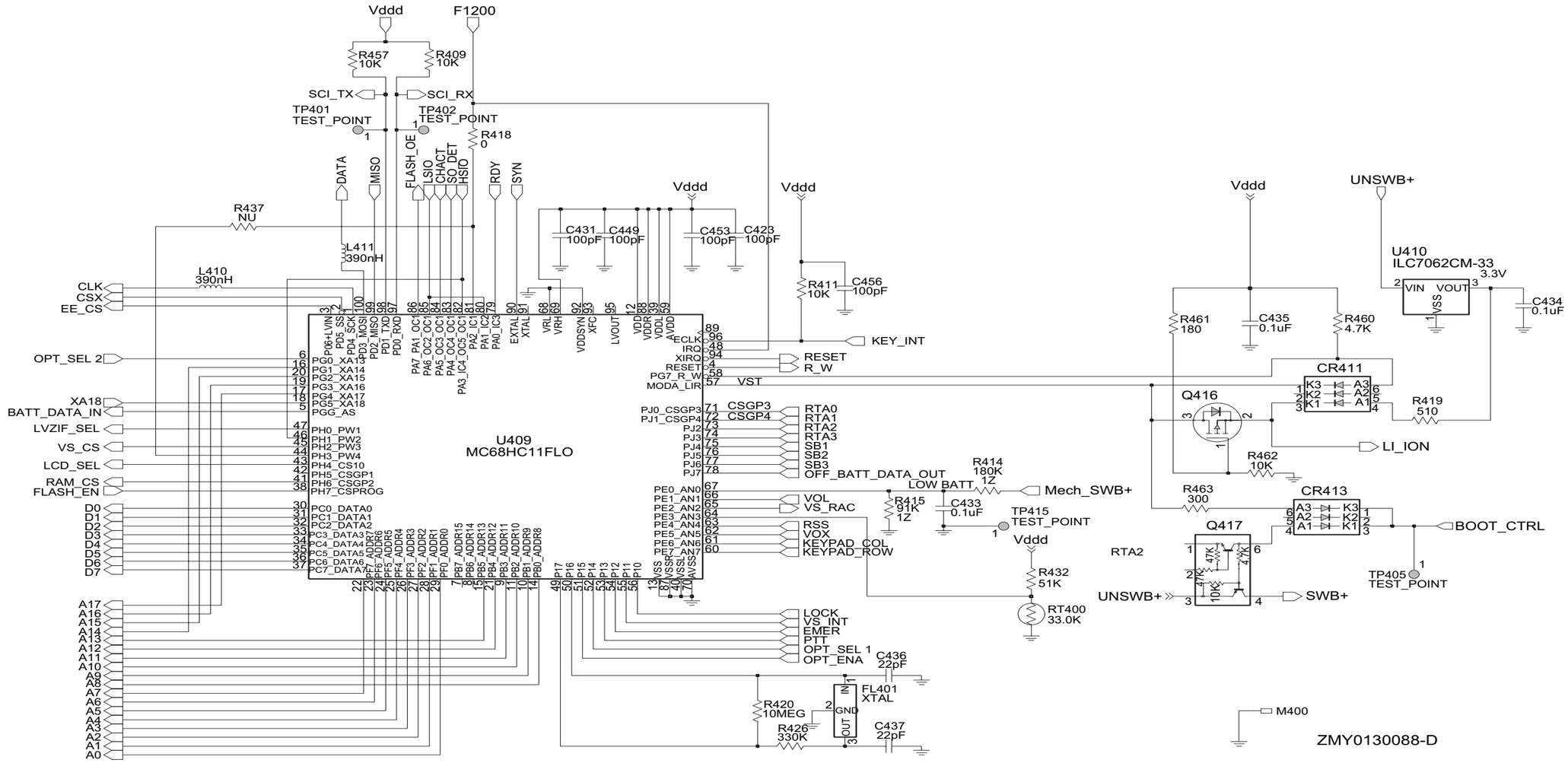


ZMY0130086-B

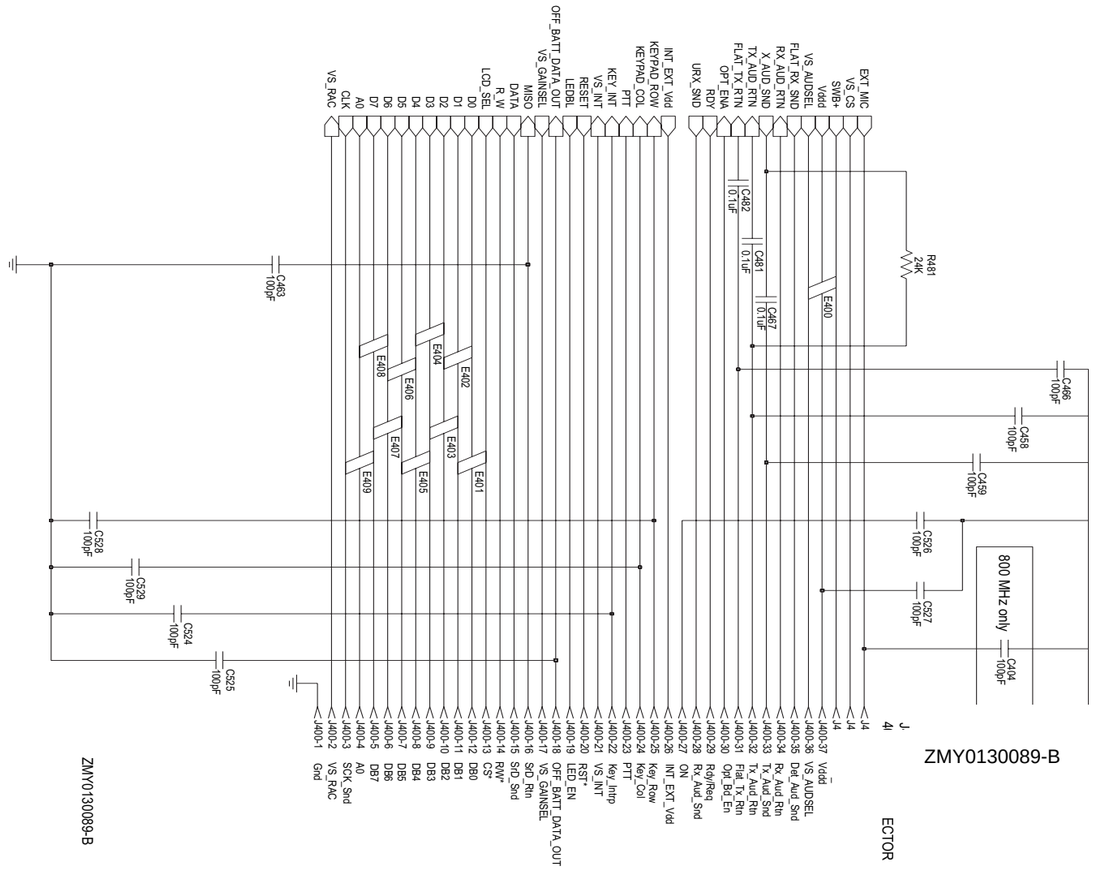
Overall Controller Schematic

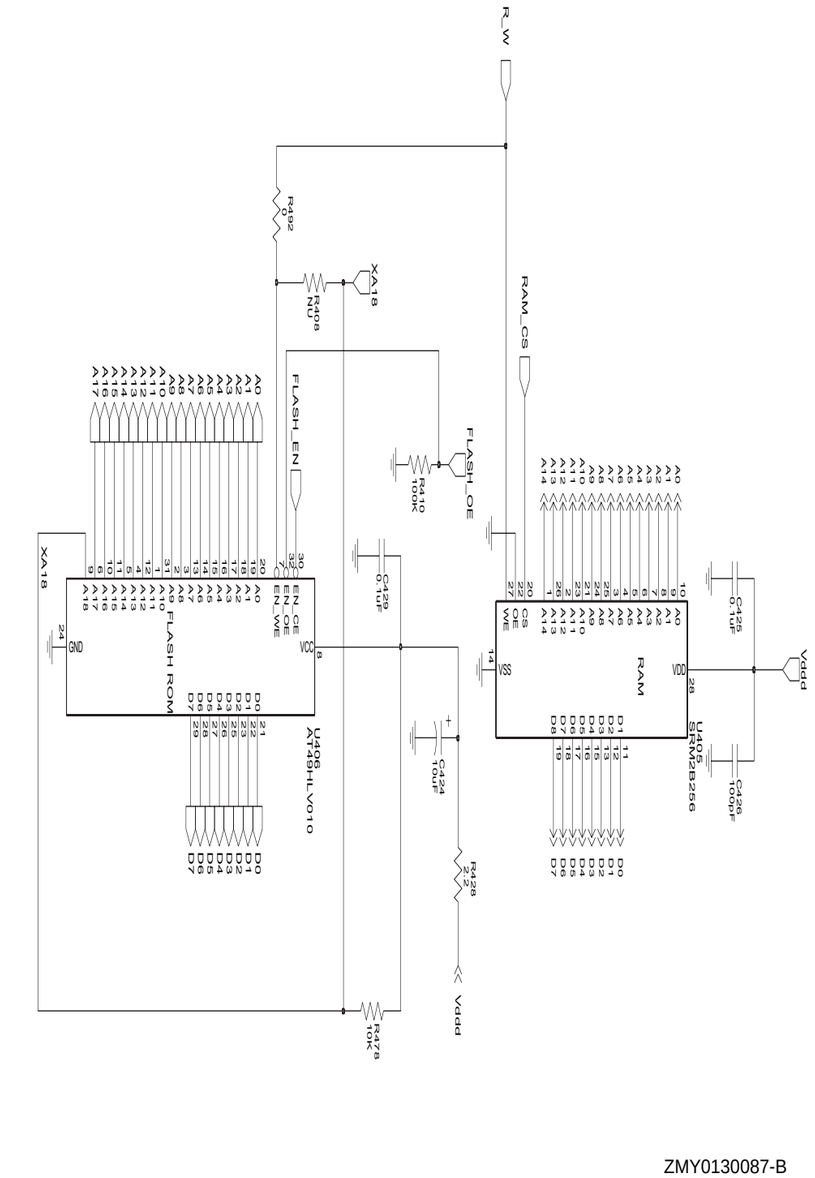


Controller ASFIC / ON-OFF



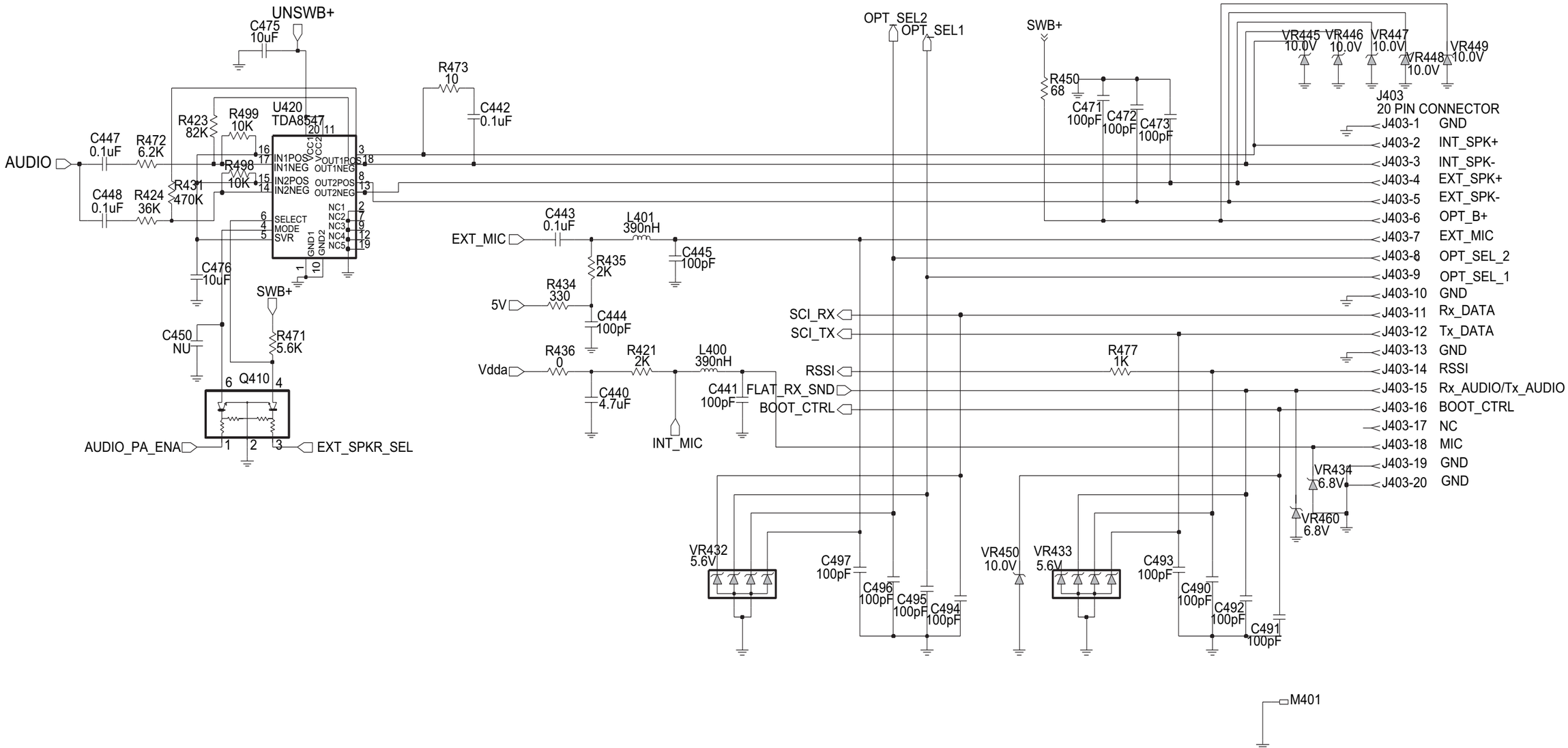
Controller Microprocessor





Controller Interface

Controller Memory



Controller Audio Power Amplifier

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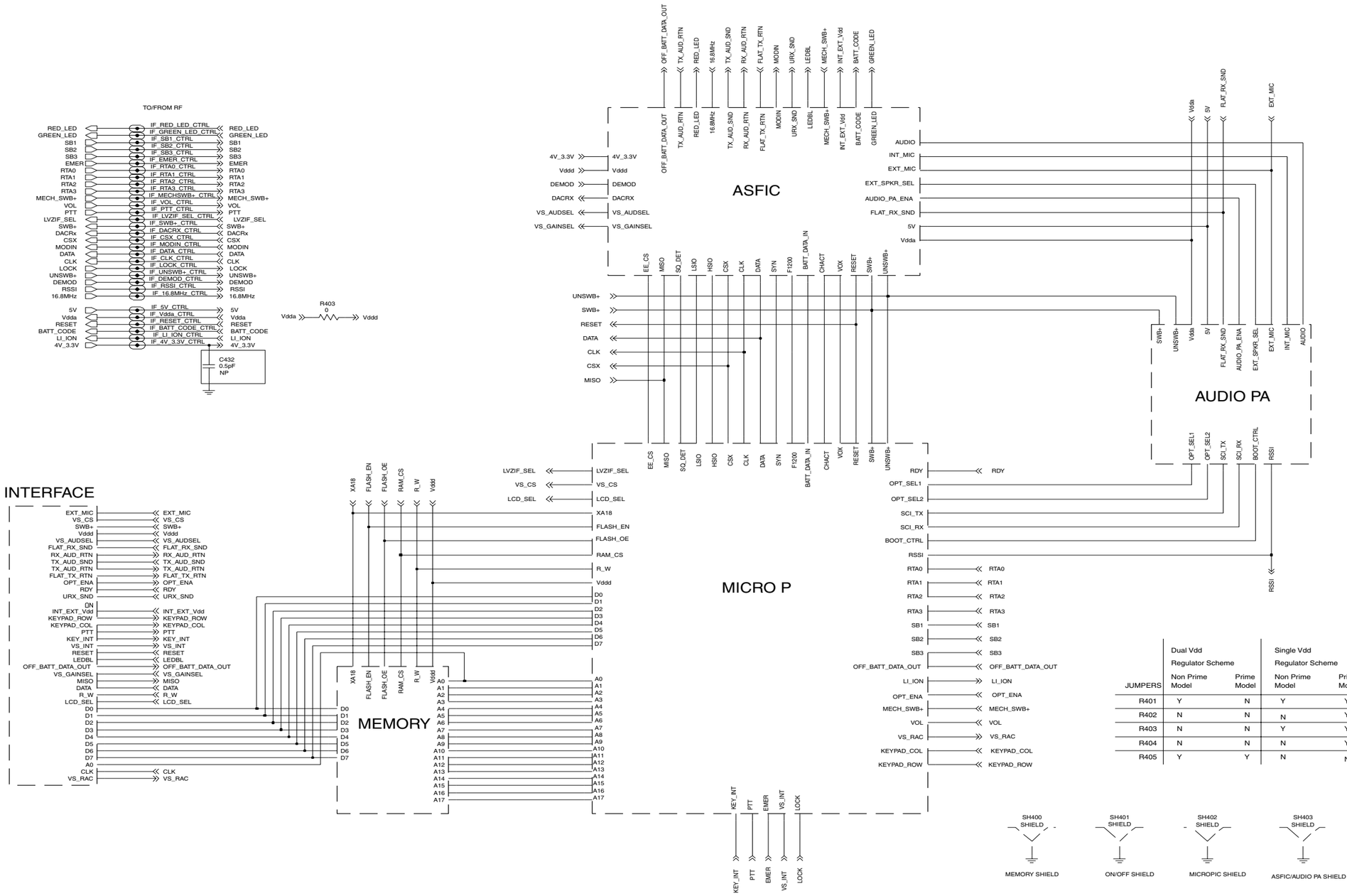
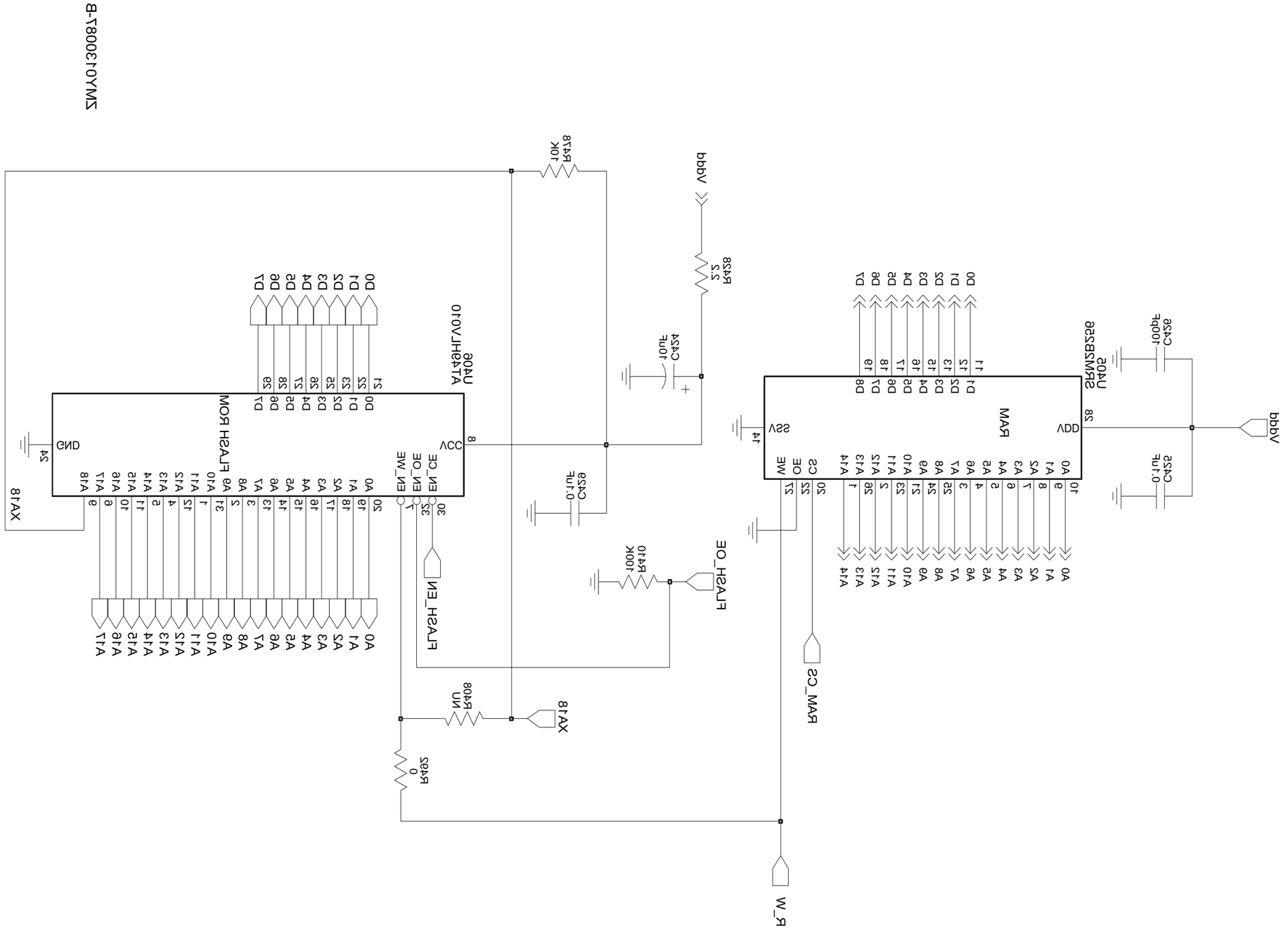
5.0 Controller - Set 4 (PCB 8416256H02) UHF

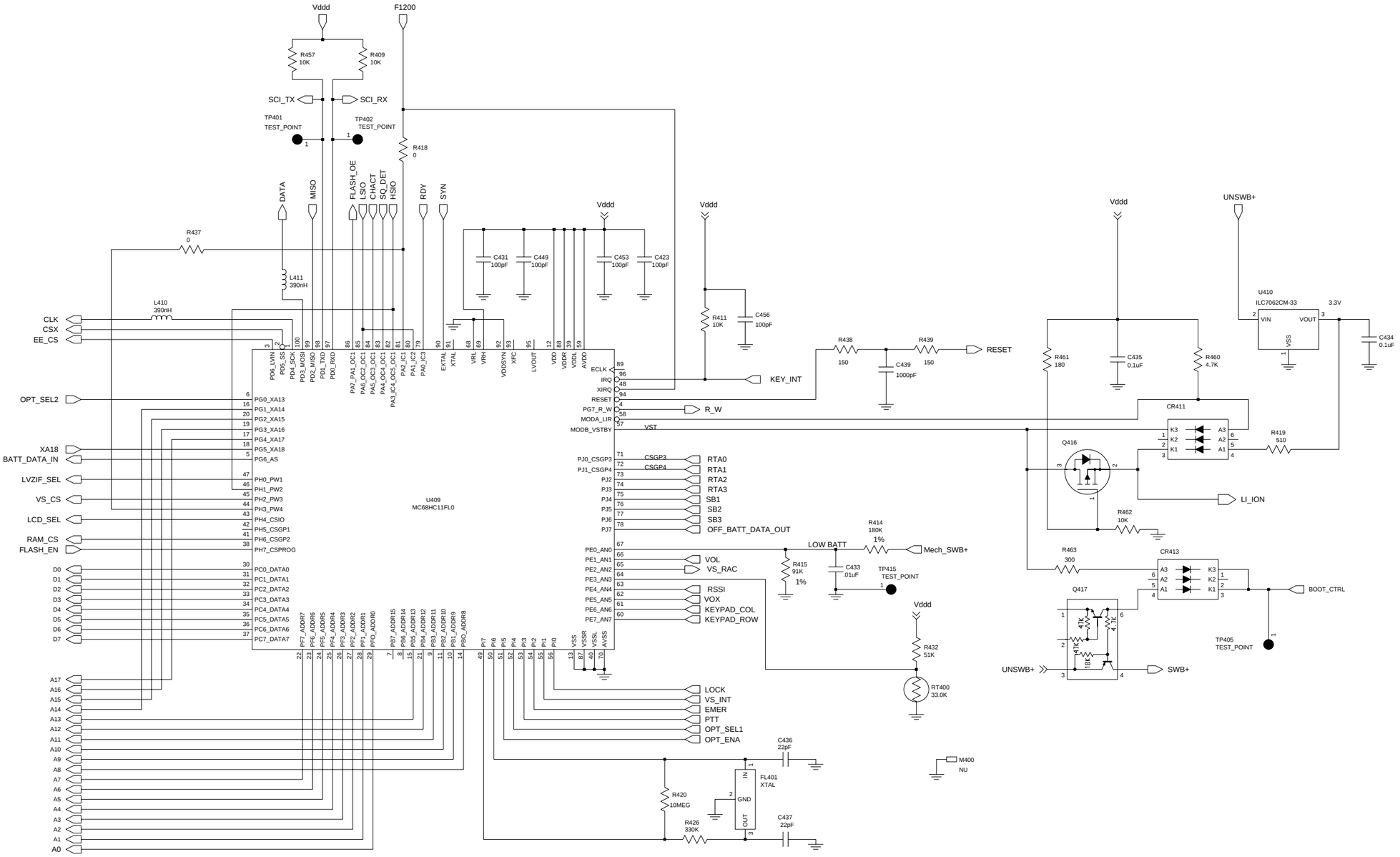


JUMPERS	Dual Vdd Regulator Scheme		Single Vdd Regulator Scheme	
	Non Prime Model	Prime Model	Non Prime Model	Prime Model
R401	Y	N	Y	Y
R402	N	N	N	Y
R403	N	N	Y	Y
R404	N	N	N	Y
R405	Y	Y	N	N

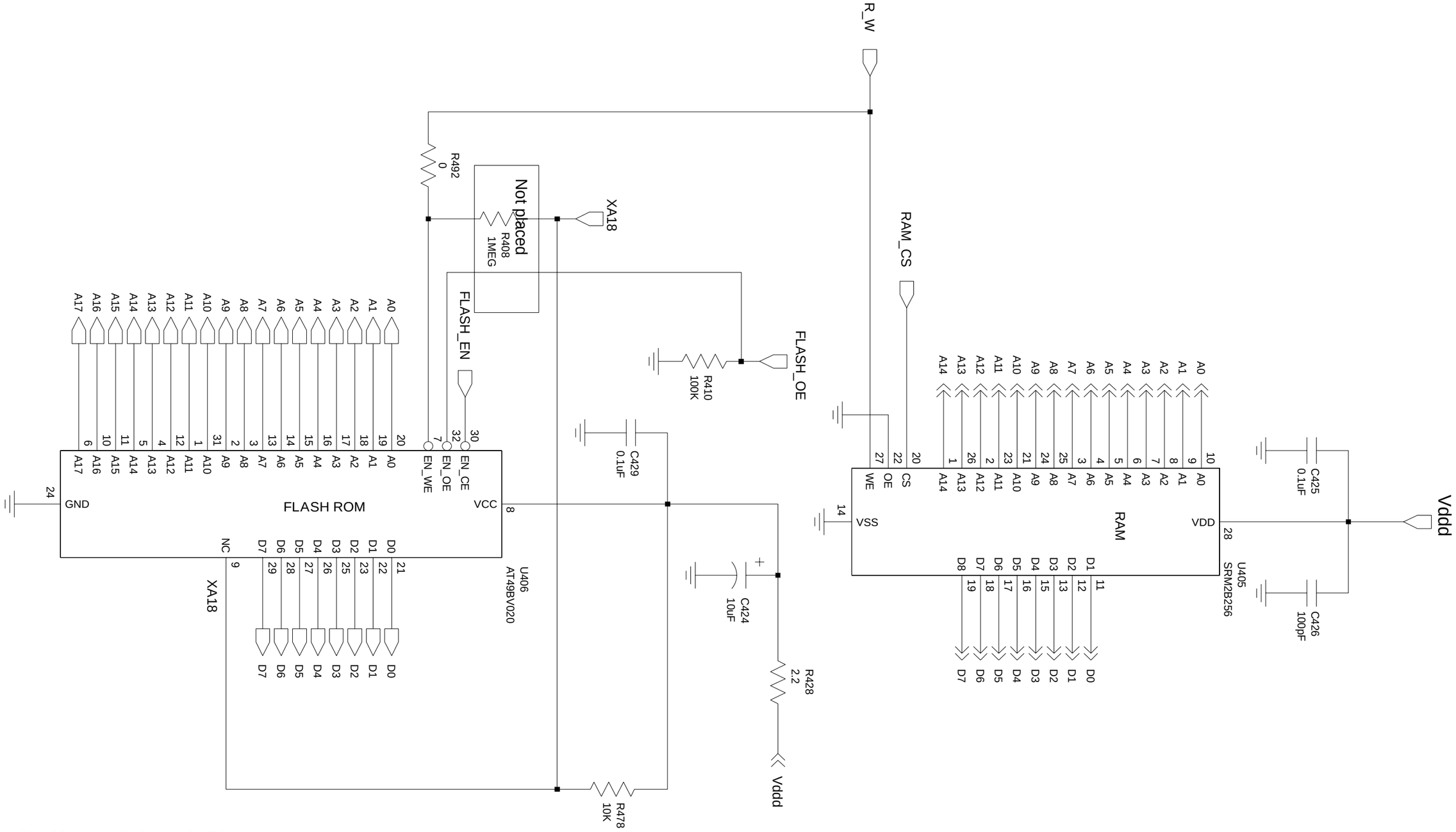
Overall Controller Schematic



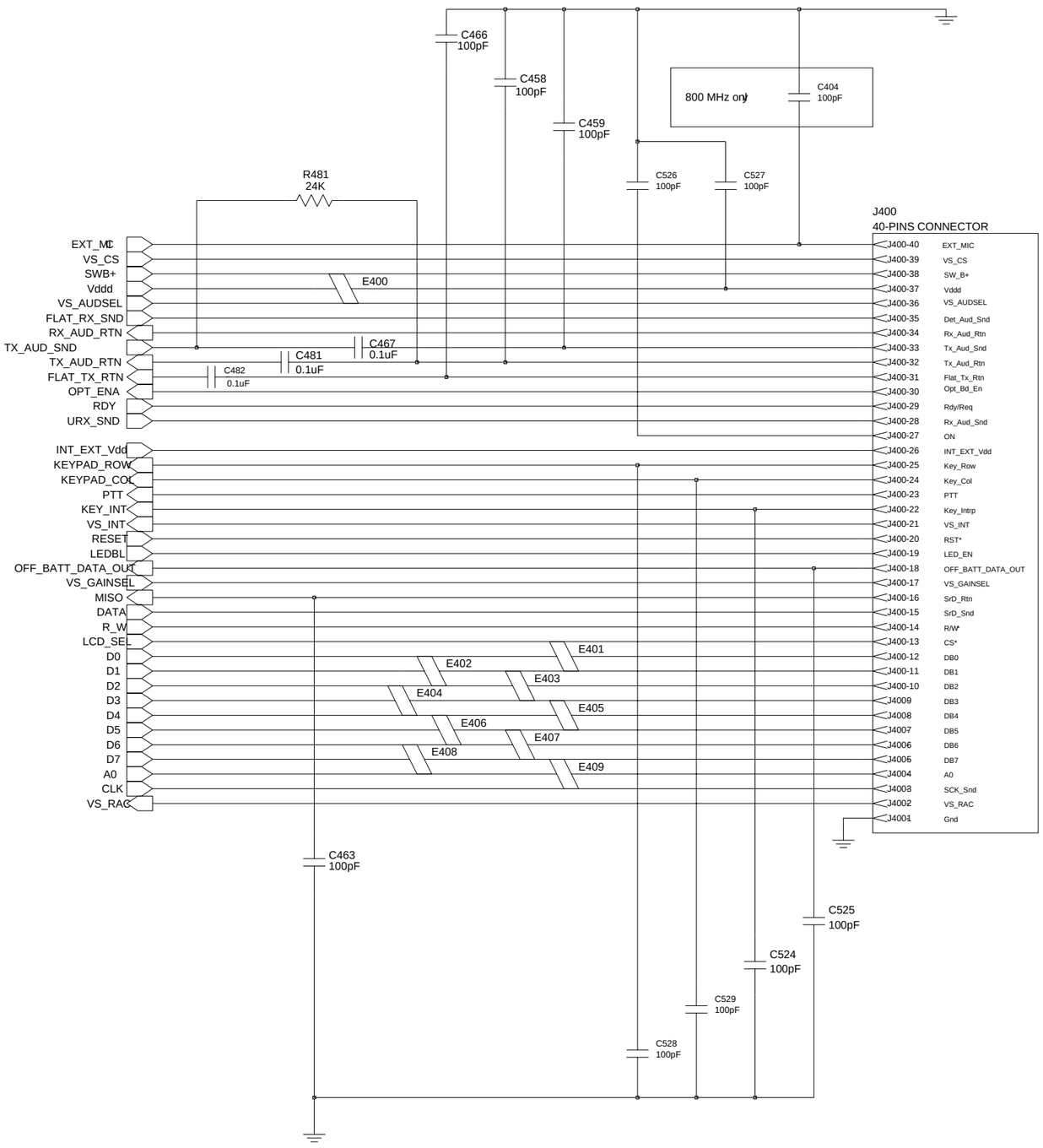
Controller ASFIC / ON-OFF



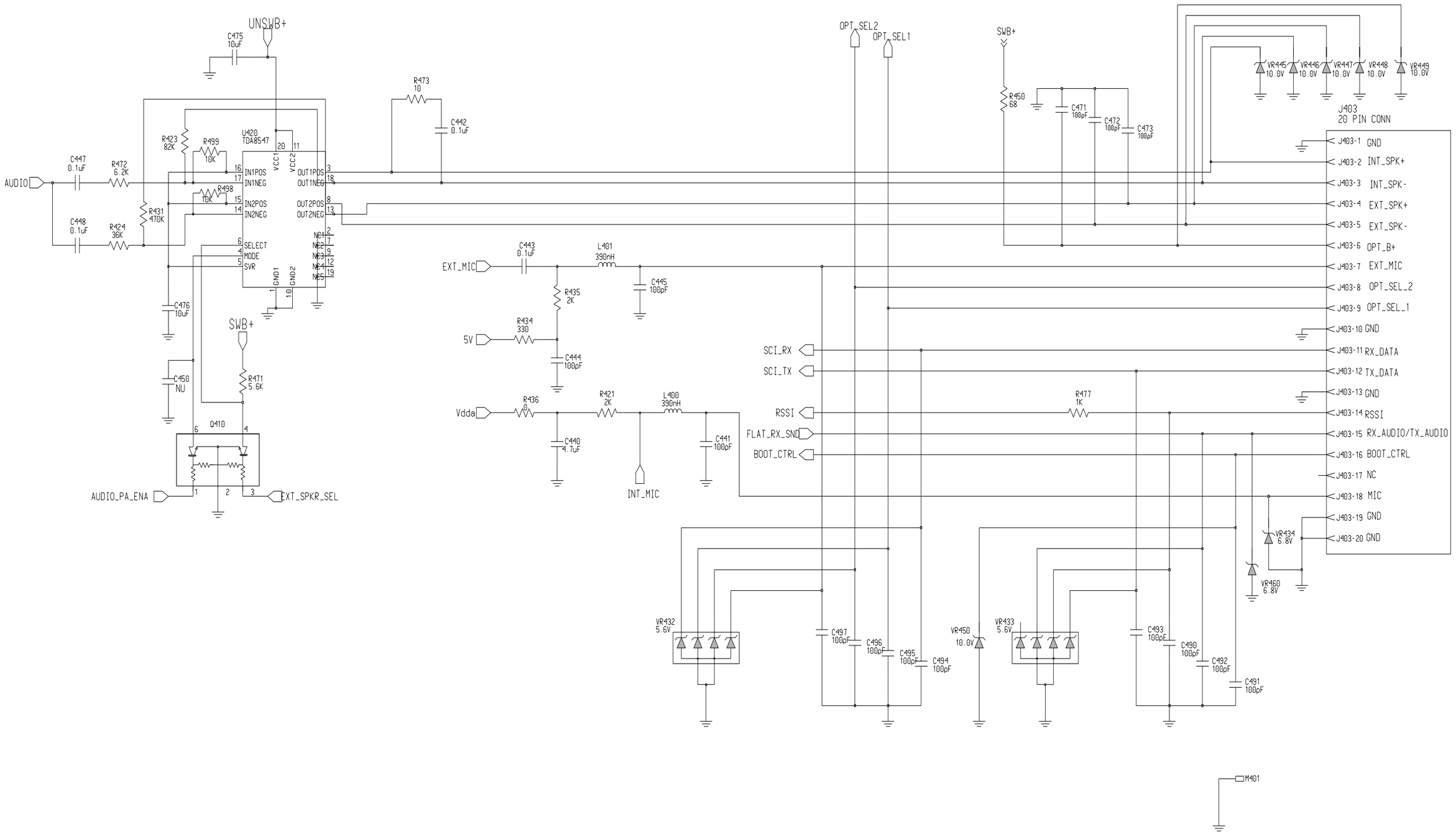
Controller Micro Processor Schematic Diagram



Controller Memory Schematic Diagram

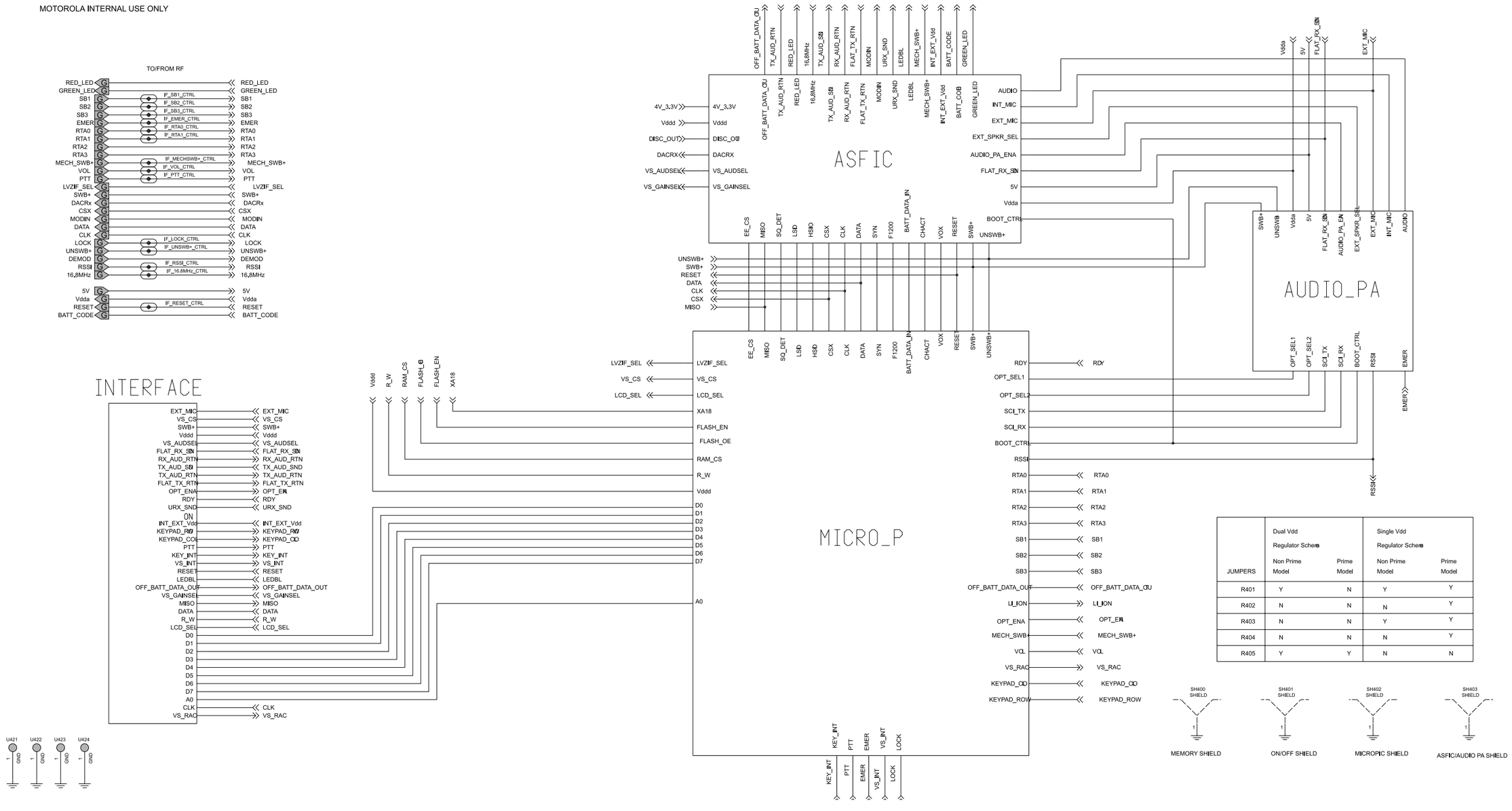


Controller Interface Schematic Diagram



Controller Audio Power Amplifier Schematic Diagram

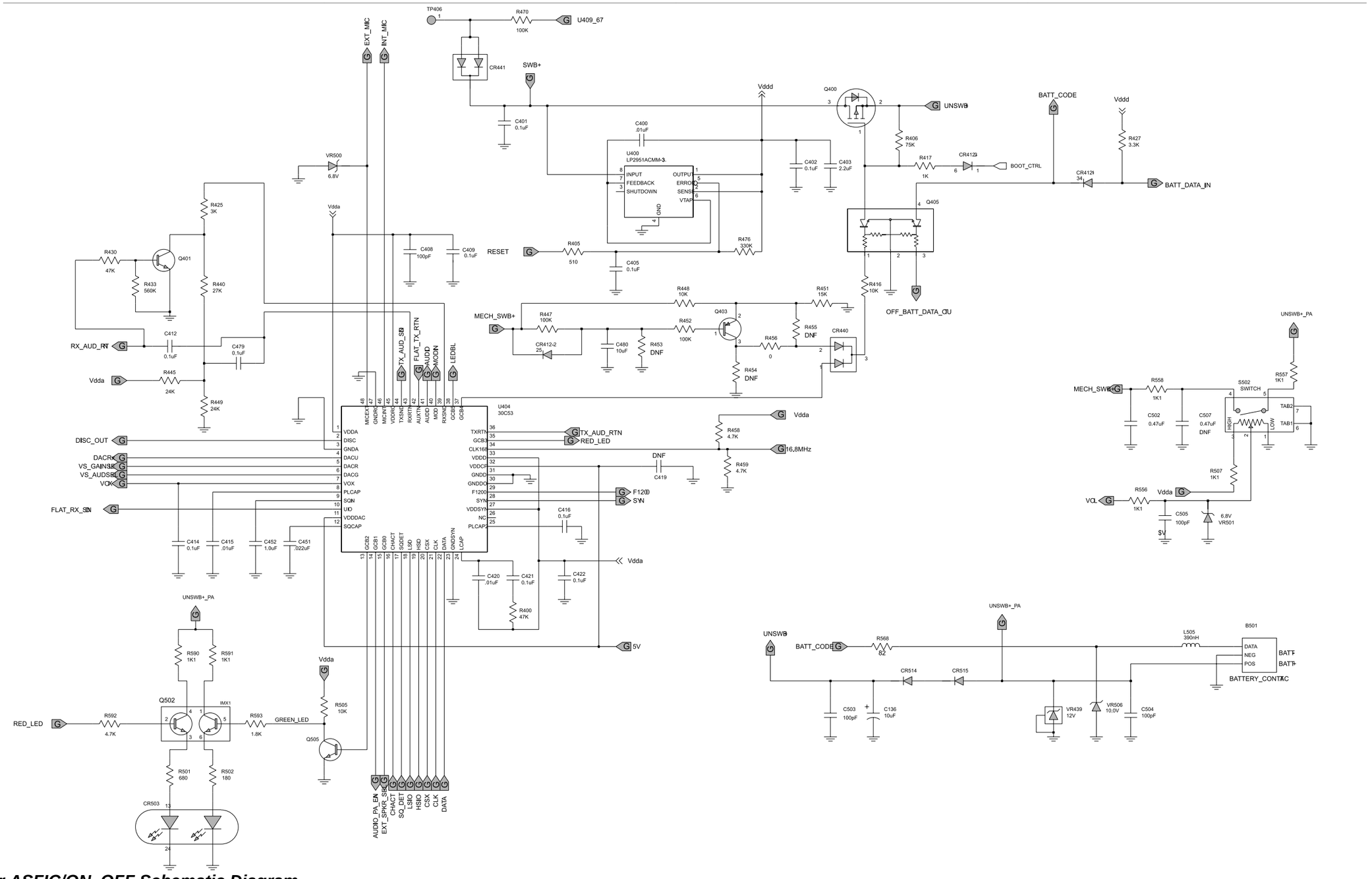
6.0 Controller - Set 5 (PCB 8486743Z02) UHF



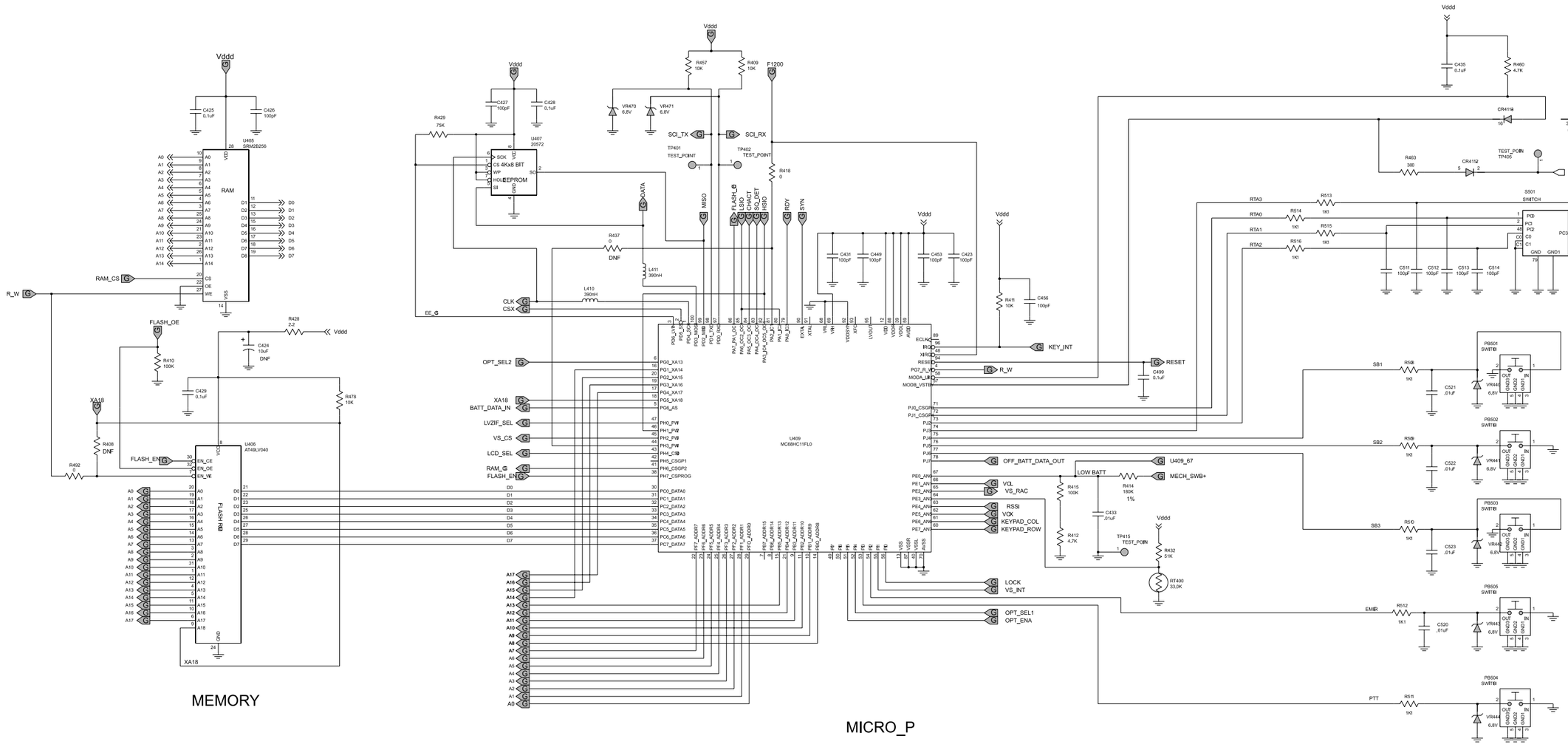
JUMPERS	Dual Vdd Regulator Scheme: Non Prime Model	Dual Vdd Regulator Scheme: Prime Model	Single Vdd Regulator Scheme: Non Prime Model	Single Vdd Regulator Scheme: Prime Model
R401	Y	N	Y	Y
R402	N	N	N	Y
R403	N	N	Y	Y
R404	N	N	N	Y
R405	Y	Y	N	N

SH400 SHIELD — MEMORY SHIELD
SH401 SHIELD — ON/OFF SHIELD
SH402 SHIELD — MICROPIC SHIELD
SH403 SHIELD — ASFIC/AUDIO PA SHIELD

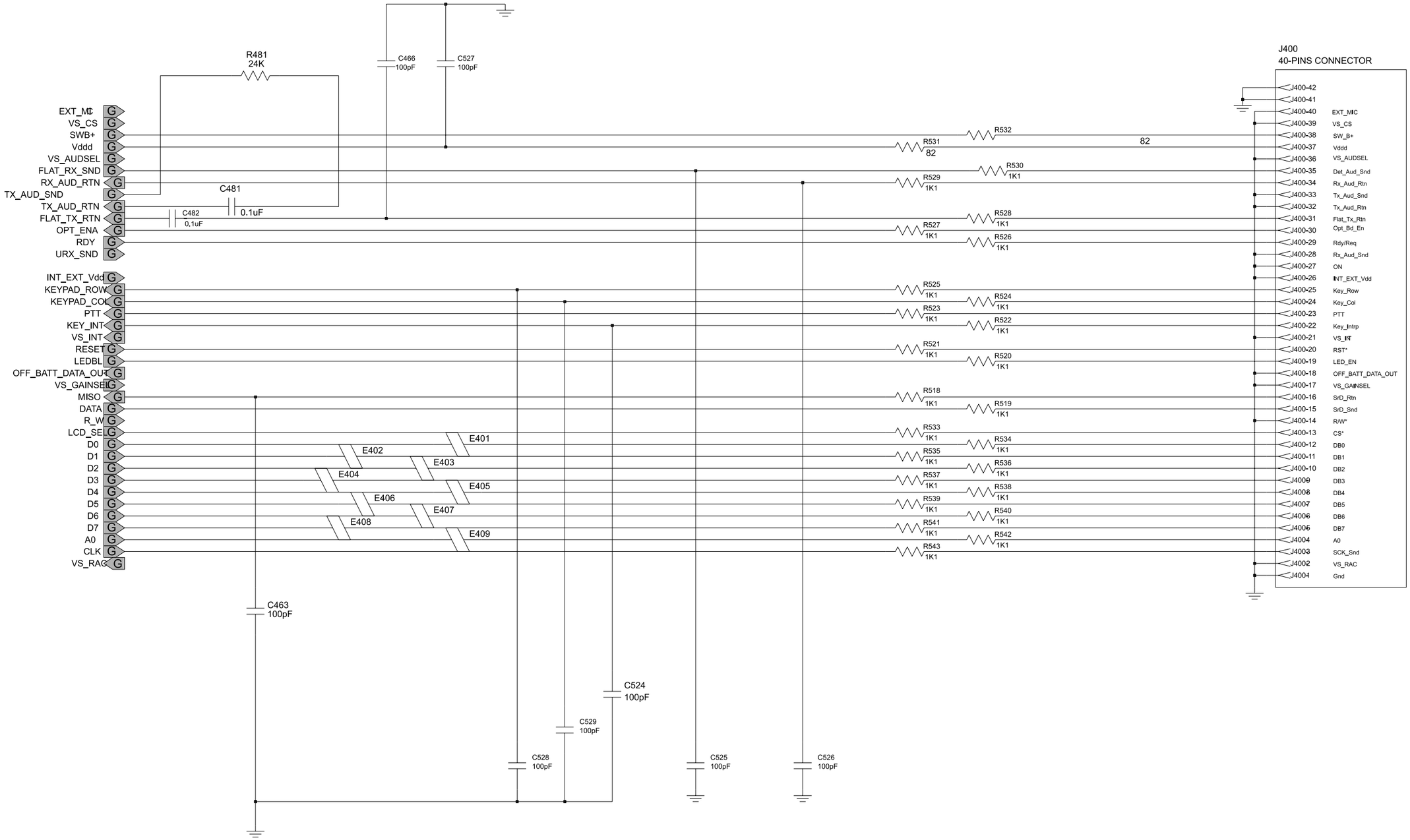
Overall Controller Schematic Diagram



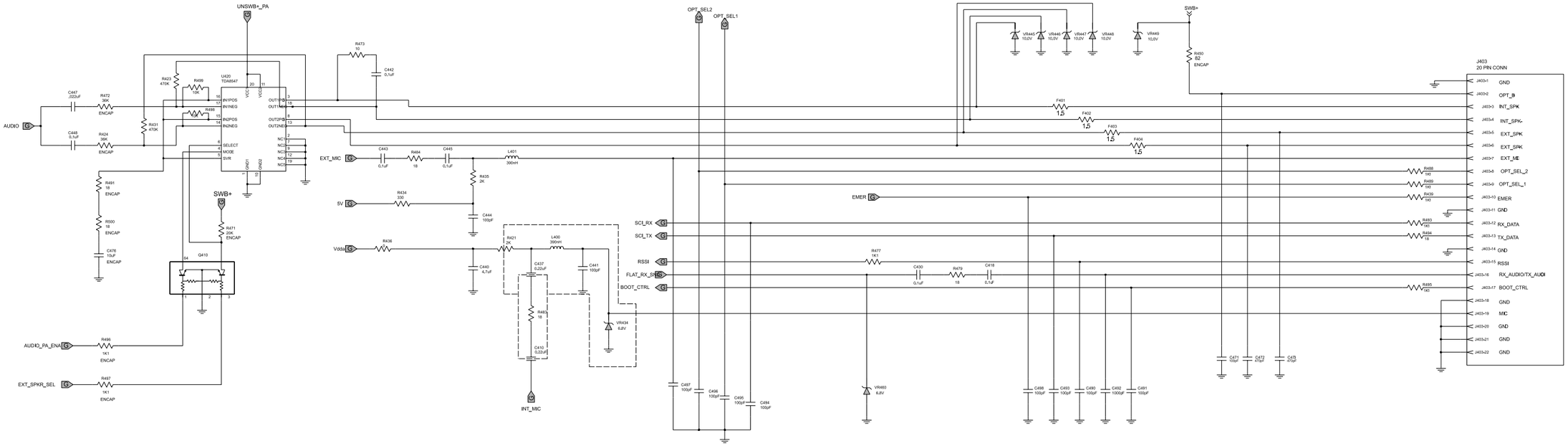
Controller ASFIC/ON_OFF Schematic Diagram



Controller Micro Processor Schematic Diagram



Controller Interface Schematic Diagram



AUDIO_PA

Controller Audio Power Amplifier Schematic Diagram

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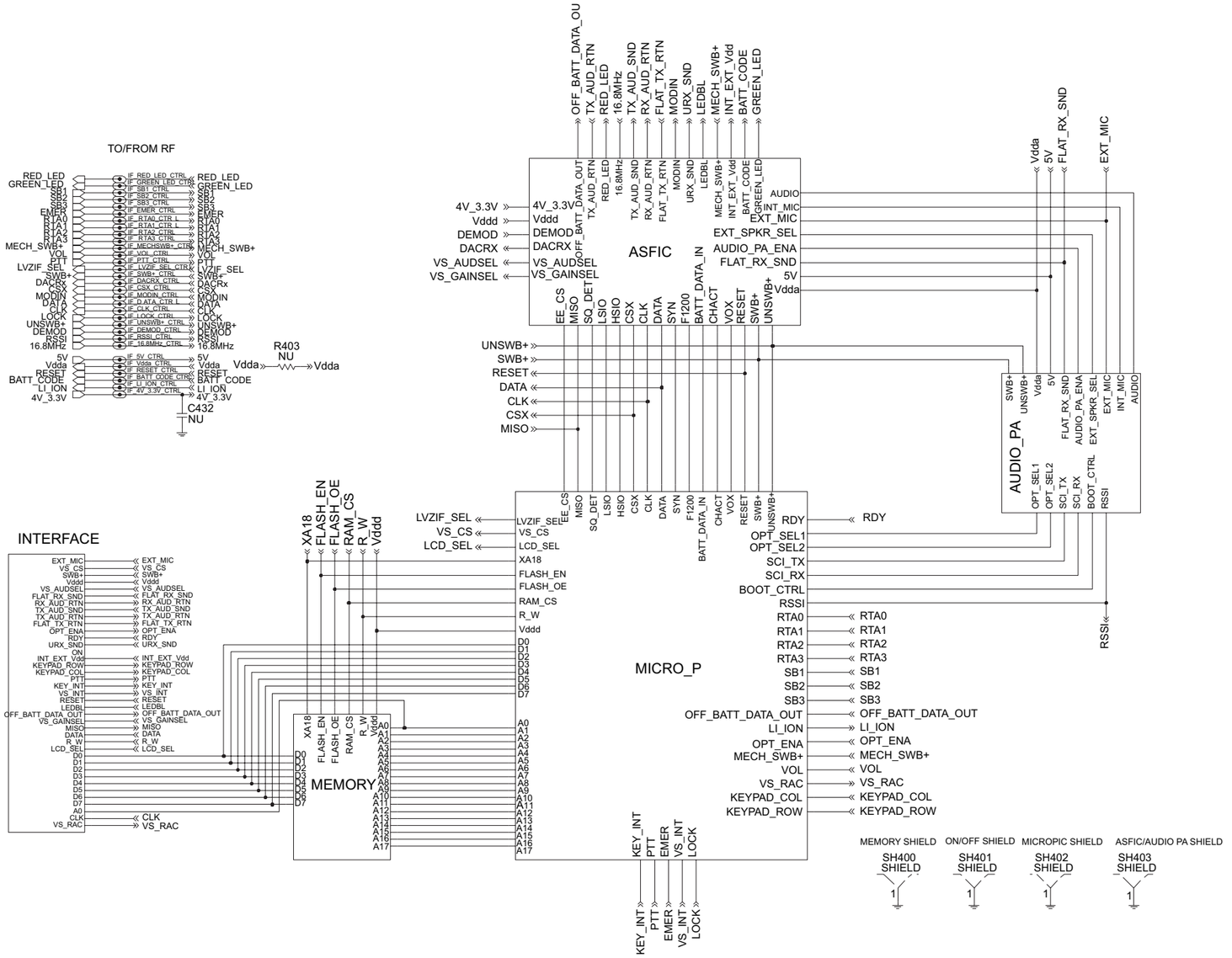
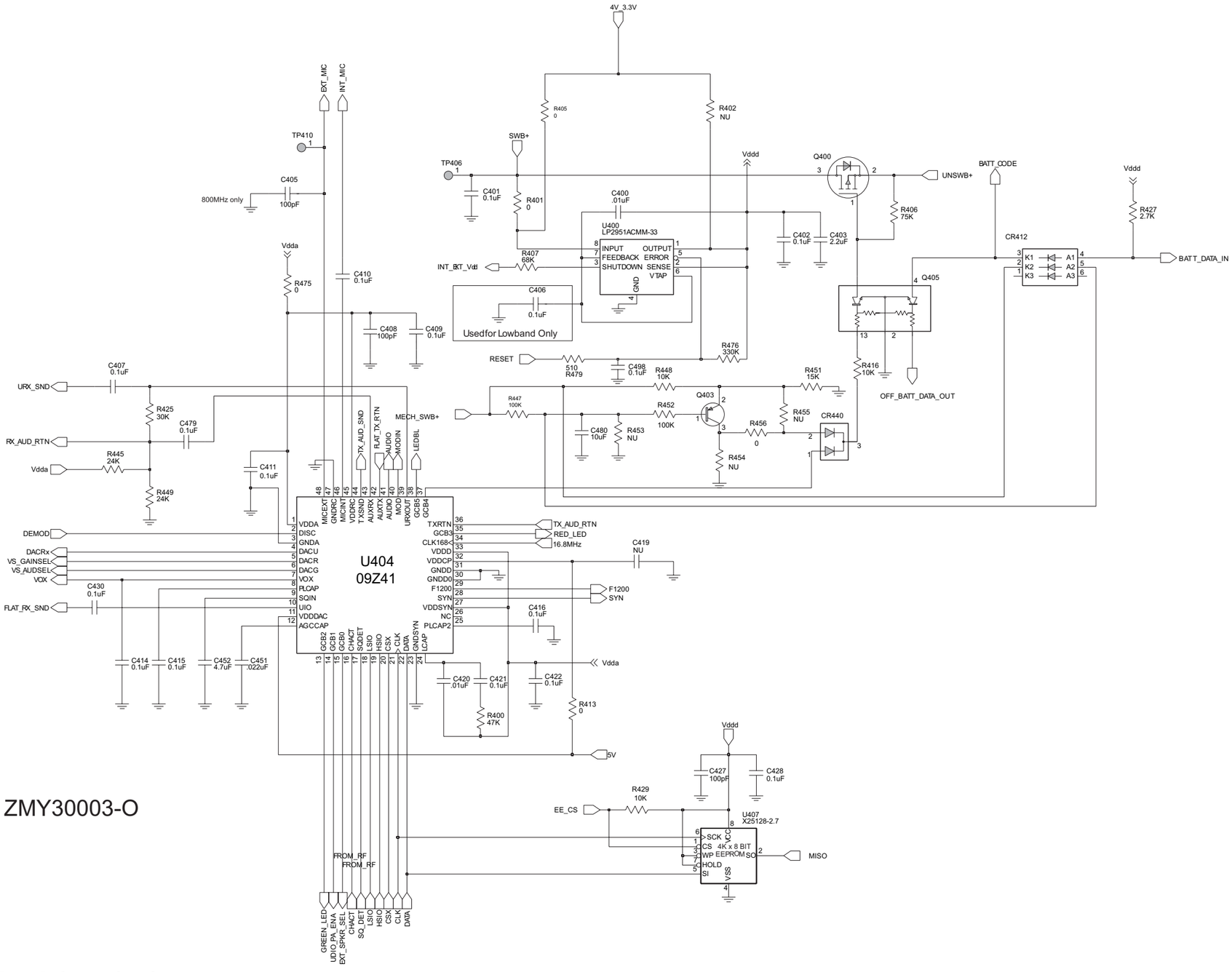
7.0 Controller Schematics - Set 6 (PCB 8415234H05) Narrow Band

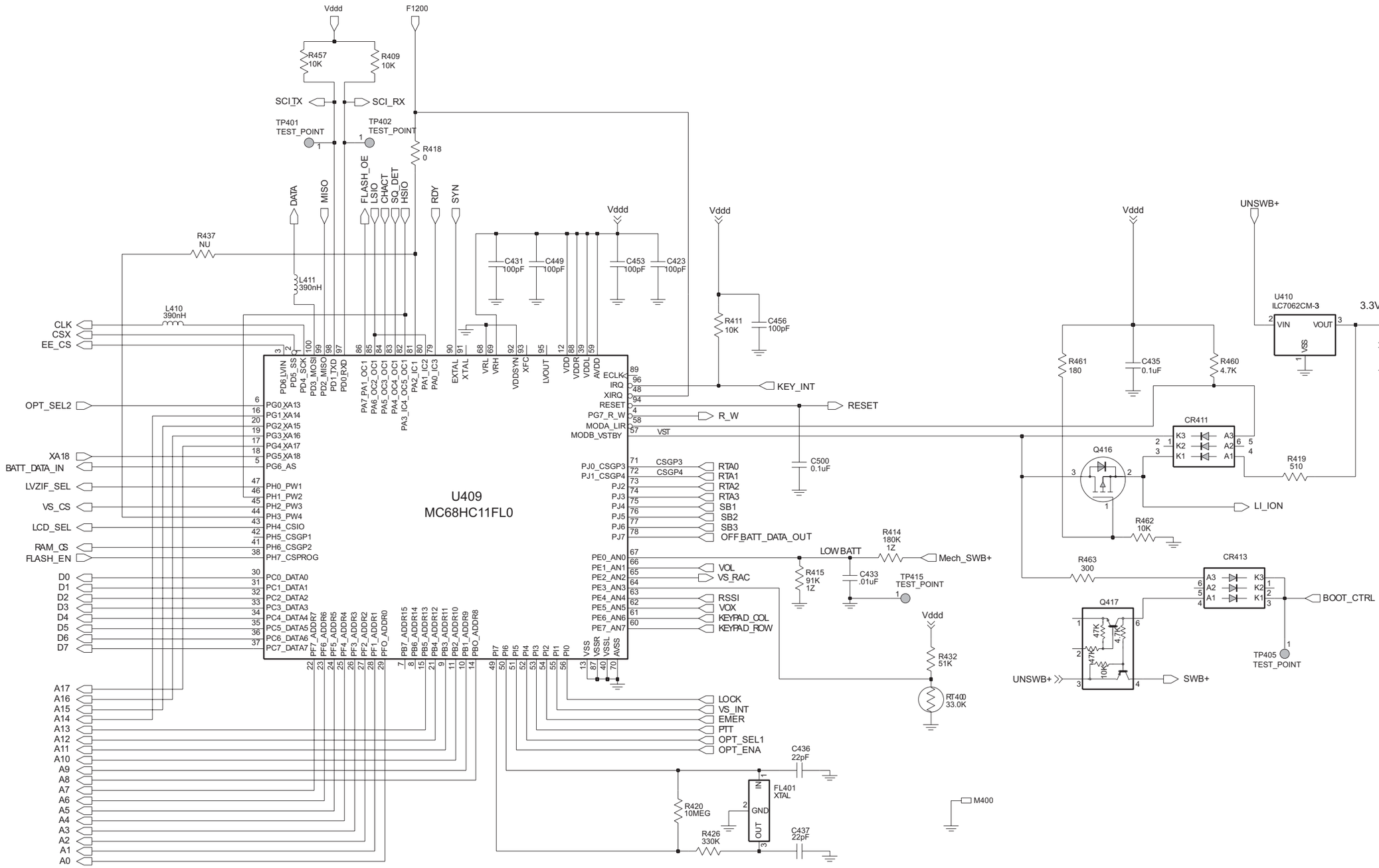


Complete Controller Schematic Diagram



ZMY30003-O

Controller ASFIC/ON_OFF Schematic Diagram



Controller Micro Processor Schematic Diagram

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MOTOROLA

Professional Radio

GP Series

UHF (403 - 470MHz)

Narrow Band (450 - 470MHz)

Service Information

Issue: July 2007

Computer Software Copyrights

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Chapter 2 TROUBLESHOOTING CHARTS

Chapter 3 UHF PCB/SCHEMATICS/PARTS LISTS

Chapter 1

THEORY OF OPERATION

1.0 Introduction

This Chapter provides a detailed theory of operation for the UHF circuits in the radio. For details of the theory of operation and trouble shooting for the the associated Controller circuits refer to the Controller Section of this manual.

2.0 UHF Transmitter

(*Refer to Figure 2-1 and the UHF Transmitter schematic diagram*)

The UHF transmitter consists of the following basic circuits:

1. Power amplifier (PA).
2. Antenna switch/harmonic filter.
3. Antenna matching network.
4. Power Control Integrated Circuit (PCIC).

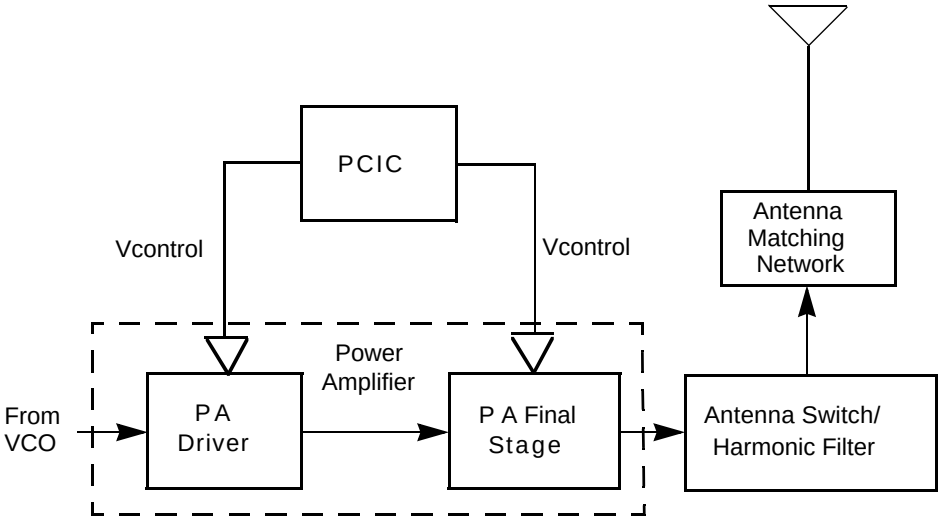


Figure 1-1 UHF Transmitter Block Diagram.

2.1 Power Amplifier

The power amplifier (PA) consists of two principle devices:

1. LDMOS PA driver IC, U101.
2. LDMOS PA final stage, Q110.

The LDMOS driver IC provides 2-stage amplification using a supply voltage of 7.3V. The amplifier is capable of supplying an output power of 0.3W (pins 6 and 7) with an input signal of 2mW at 3dBm (pin16). The current drain is typically 160mA while operating in the frequency range of 403-470MHz.

The LDMOS PA is capable of supplying an output power of 7W with an input signal of 0.3W. The current drain is typically 1300mA while operating in the frequency range of 403-470MHz. The power output can be varied by changing the bias voltage.

2.2 Antenna Switch

The antenna switch circuit consists of two pin diodes (CR101 and CR102), a pi network (C107, L104 and C106) and, in 403-470 Mhz, two current limiting resistors (R101 and R170). In the transmit mode, B+ at PCIC (U102) pin 23 goes low turning on Q111 which applies a B+ bias to the antenna switch circuit to bias the diodes “on”. The shunt diode (CR102) shorts out the receiver port and the pi network. This operates as a quarter wave transmission line to transform the low impedance of the shunt diode to a high impedance at the input of the harmonic filter. In the receive mode, the diodes are both off, creating a low attenuation path between the antenna and receiver ports.

2.3 Harmonic Filter

The harmonic filter consists of components C104, L102, C103, L101,C102, L103, C131, C139. The harmonic filter for UHF is a modified Zolotarev design optimized for efficiency of the power module. This type of filter has the advantage that it can give a greater attenuation in the stop-band for a given ripple level. The harmonic filter insertion loss is typically less than 1.2dB.

2.4 Antenna Matching Network

The antenna matching network is made up of inductor L116. This component matches the antenna impedance to the harmonic filter to optimize the performance of the transmitter and receiver.

2.5 Power Control Integrated Circuit (PCIC)

The transmitter uses PCIC, U102, to regulate the power output of the radio. The current to the final stage of the power module is supplied through R101 to provide a voltage proportional to the current drain. This voltage is then fedback to the Automatic Level Control (ALC) within the PCIC to regulate the output power of the transmitter.

The PCIC contains internal digital to analog converters (DACs) that provide a programmable control loop reference voltage through the SPI line of the PCIC.

The PCIC internal resistors, integrators, and external capacitors (C133, C134 and C135) control the transmitter rise and fall times to reduce the power splatter into adjacent channels.

Diode CR105 and its associated components are part of a temperature cut back circuit. This circuit senses the printed circuit board temperature around the transmitter circuits and outputs a DC voltage to the PCIC. If the DC voltage produced exceeds the set threshold of the PCIC, the transmitter output power decreases to reduce the transmitter temperature.

3.0 Transmitter (for ATEX specified models)

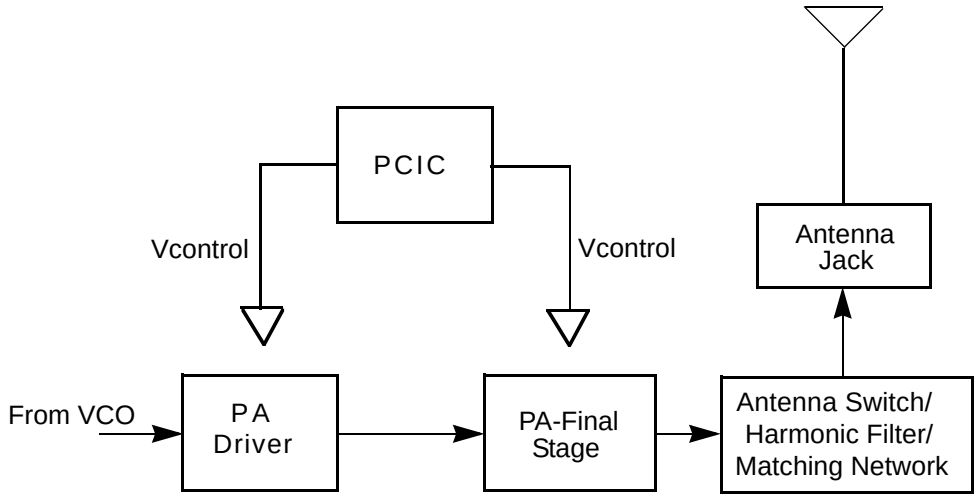


Figure 1-2: Transmitter Block Diagram

3.1 General

(Refer to Figure 6-1)

The UHF transmitter contains five basic circuits:

1. power amplifier

2. antenna switch

3. harmonic filter

4. antenna matching network

5. power control integrated circuit (PCIC).

3.1.1 Power Amplifier

The power amplifier consists of two devices:

1. 30C65 LDMOS driver IC (U101) and

2. MRF1513 LDMOS PA (Q110).

The 30C65 LDMOS driver IC contains a 2 stage amplification with a supply voltage of 7.3V.

This RF power amplifier is capable of supplying an output power of 0.3W (pin 6 and 7) with an input signal of 2mW (3dBm) (pin11). The current drain would typically be 160mA while operating in the frequency range of 403-470MHz.

The MRF1513 LDMOS PA is capable of supplying an output power of 3W with an input signal of 0.3W. The current drain would typically be 650mA while operating in the frequency range of 403-470MHz. The power output can be varied by changing the biasing voltage.

Controlled voltage of driver IC and PA are limited by dual shunt Zener diodes. This is to limit the RF power available to the RF connector to less than 2W under fault conditions as per ATEX requirements.

3.1.2 Antenna Switch

The antenna switch circuit consists of two PIN diodes (CR101 and CR102), a pi network (C107, L104 and C106). In the transmit mode, B+ at PCIC (U102) pin 23 will go low and turn on Q111 where a B+ bias is applied to the antenna switch circuit to bias the diodes "on". The shunt diode (CR102) shorts out the receiver port, and the pi network, which operates as a quarter wave transmission line, transforms the low impedance of the shunt diode to a high impedance at the input of the harmonic filter. In the receive mode, the diodes are both off, and hence, there exists a low attenuation path between the antenna and receiver ports.

3.1.3 Harmonic Filter

The harmonic filter consists of L103, C131, C139, C104, L102, C103, L101 and C102. The design of the harmonic filter for UHF is that of a modified Zolotarev design. It has been optimized for efficiency of the power module. This type of filter has the advantage that it can give a greater attenuation in the stop-band for a given ripple level. The harmonic filter insertion loss is typically less than 1.2dB.

3.1.4 Antenna Matching Network

A matching network which is made up of L116 is used to match the antenna's impedance to the harmonic filter. This will optimize the performance of the transmitter and receiver into an antenna.

3.1.5 Power Control Integrated Circuit (PCIC)

The transmitter uses the Power Control IC (PCIC), U102 to regulate the power output of the radio. The current to the final stage of the power module is supplied through R101, which provides a voltage proportional to the current drain. This voltage is then fedback to the Automatic Level Control (ALC) within the PCIC to regulate the output power of the transmitter.

The PCIC has internal digital to analog converters (DACs) which provide the reference voltage of the control loop. The reference voltage level is programmable through the SPI line of the PCIC.

There are resistors and integrators within the PCIC, and external capacitors (C133, C134 and C135) in controlling the transmitter rising and falling time. These are necessary in reducing the power splatter into adjacent channels.

4.0 UHF Receiver (all models except those with PCB 8486458Z03, 8486743Z02)

The UHF receiver consists of a front end, back end, and automatic gain control circuits. A block diagram of the receiver is shown in Figure 2-2. Detailed descriptions of these features are contained in the paragraphs that follow.

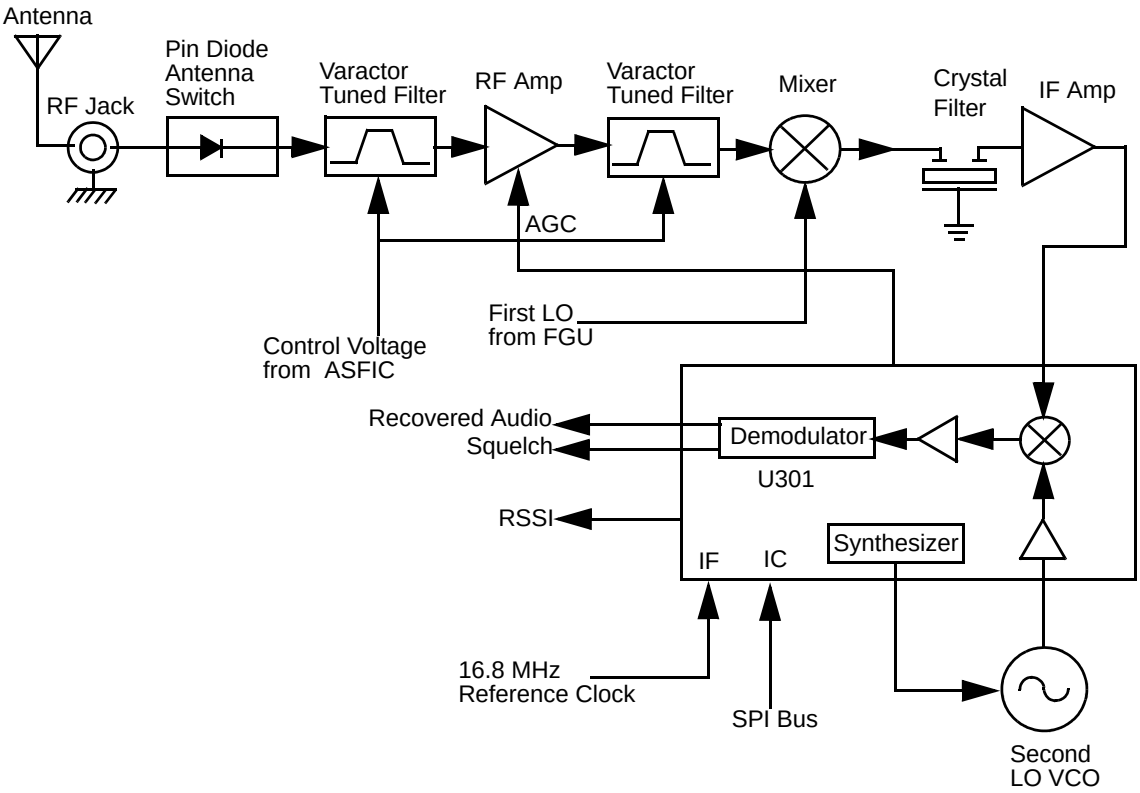


Figure 1-3 UHF Receiver Block Diagram.

4.1 Receiver Front-End

(*Refer to Figure 2-2 and the UHF Receiver Front End schematic diagram)*

The RF signal received by the antenna is applied to a low-pass filter. For UHF, the filter consists of components L101, L102, C102, C103, and C104. The filtered RF signal is passed through the antenna switch circuit consisting of two pin diodes (CR101 and CR102) and a pi network (C106, L104, and C107). The signal is then applied to a varactor tuned bandpass filter.

The UHF bandpass filter consists of components L301, L302, C302, C303, C304, CR301, and CR302. The filter is electronically tuned by DACRx from IC 404 which supplies a control voltage to the varactor diodes (CR301 and CR302) in the filter as determined by the microprocessor depending on the carrier frequency. Wideband operation of the filter is achieved by shifting the bandpass filter across the band.

The output of the bandpass filter is coupled to the RF amplifier transistor Q301 via C307. After being amplified by the RF amplifier, the RF signal is further filtered by a second varactor tuned bandpass filter, consisting of L306, L307, C313, C317, CR304 and CR305.

Both the pre and post-RF amplifier varactor tuned filters have similar responses. The 3 dB bandwidth of the filter is approximately 50 MHz. This enables the filters to be electronically controlled by using a single control voltage from DACRx.

The output of the post-RF amplifier filter is connected to the passive double balanced mixer consisting of components T301, T302, and CR306. Matching of the filter to the mixer is provided by C381. After mixing with the first local oscillator (LO) signal from the voltage controlled oscillator (VCO) using low side injection, the RF signal is down-converted to a 45.1 MHz IF signal.

The IF signal coming out of the mixer is transferred to the crystal filter (FL301) through a resistor pad and a diplexer (C322 and L310). Matching to the input of the crystal filter is provided by C324 and L311. The crystal filter provides the necessary selectivity and intermodulation protection.

4.2 Receiver Back-End

(*Refer to Figure 2-2 and the UHF Receiver Back End schematic diagram*)

The output of crystal filter FL301 is matched to the input of IF amplifier transistor Q302 by components L322 and C325. Voltage supply to the IF amplifier is taken from the receive 5 volts (R5). The IF amplifier provides a gain of about 7dB. The amplified IF signal is then coupled into U301(pin 3) via C330, C338 and L330 which provides matching for the IF amplifier and U301.

The IF signal applied to pin 3 of U301 is amplified, down-converted, filtered, and demodulated, to produce recovered audio at pin 27 of U301. This IF IC is electronically programmable, and the amount of filtering, which is dependent on the radio channel spacing, is controlled by the microprocessor. Additional filtering, once externally provided by the conventional ceramic filters, is replaced by internal filters in IF module U301.

The IF IC uses a type of direct conversion process, whereby the externally generated second LO frequency is divided by two in U301 so that it is very close to the first IF frequency. The IF IC (U301) synthesizes the second LO and phase-locks the VCO to track the first IF frequency. The second LO is designed to oscillate at twice the first IF frequency because of the divide-by-two function in the IF IC.

In the absence of an IF signal, the VCO searches for a frequency, or its frequency will vary close to twice the IF frequency. When an IF signal is received, the VCO locks onto the IF signal. The second LO/VCO is a Colpitts oscillator built around transistor Q320. The VCO has a varactor diode, CR310, to adjust the VCO frequency. The control signal for the varactor is derived from a loop filter consisting of components C362, C363, C364, R320 and R321.

The IF IC (U301) also performs several other functions. It provides a received signal-strength indicator (RSSI) and a squelch output. The RSSI is a dc voltage monitored by the microprocessor, and used as a peak indicator during the bench tuning of the receiver front-end varactor filter. The RSSI voltage is also used to control the automatic gain control (AGC) circuit at the front-end.

The demodulated signal on pin 27 of U301 is also used for squelch control. The signal is routed to U404 (ASFIC) where squelch signal shaping and detection takes place. The demodulated audio signal is also routed to U404 for processing before going to the audio amplifier for amplification.

4.3 Automatic Gain Control (AGC)

(*Refer to the UHF Receiver Front End and Receiver Back End schematic diagrams*)

The front end automatic gain control circuit provides automatic reduction of gain, of the front end RF amplifier via feedback. This action is necessary to prevent overloading of backend circuits. This is achieved by drawing some of the output power from the RF amplifier output. At high radio frequencies, capacitor C331 provides a low impedance path to ground for this purpose. CR308 is a pin diode used for switching the path on or off. A certain amount of forward biasing current is needed to turn the pin diode on. Transistors Q315 and Q311 provide for this current. When Q315 is turned on, current flows via R323, collector and emitter of Q315, and R319 before going to ground. Q315 is an NPN transistor used for switching.

The Radio Signal Strength Indicator (RSS I) voltage signal is used to drive Q315 to saturation, i.e., turned on. RSSI is produced by U301 and is proportional to the gain of the RF amplifier and the input power to the radio.

Resistors R318 and R316 are voltage dividers designed to turn on Q315 at certain RSSI levels. To turn on Q315, the voltage across R318 must be greater or equal to the voltage across R319 + Vbe. Capacitor C397 dampens any instability while the AGC is turning on.

Diode D300 is to ensure that C397 only discharges towards the transistor and not back to U301. The current flowing into the base of Q311, a high current gain PNP transistor, is amplified and fed to the pin diode to turn it on. Maximum current flowing through the pin is limited by resistors R347 and R317. Feedback capacitor C333 provides some stability to this high gain stage. Q316, R325, R326, R327, R338, R339 and R341 make up the temperature compensation circuit for this AGC. RSSI generated by U301 is lower at cold compared to normal operation at room temperature. Q316 is designed to turn on only at cold temperature. When Q316 is turned on, current flows through the collector-emitter junction to ground. Current through R319 and hence voltage across it is reduced. The turn on voltage is lower and this accommodates for the reduction of the RSSI at cold temperature.

5.0 Receiver (for ATEX specified models)

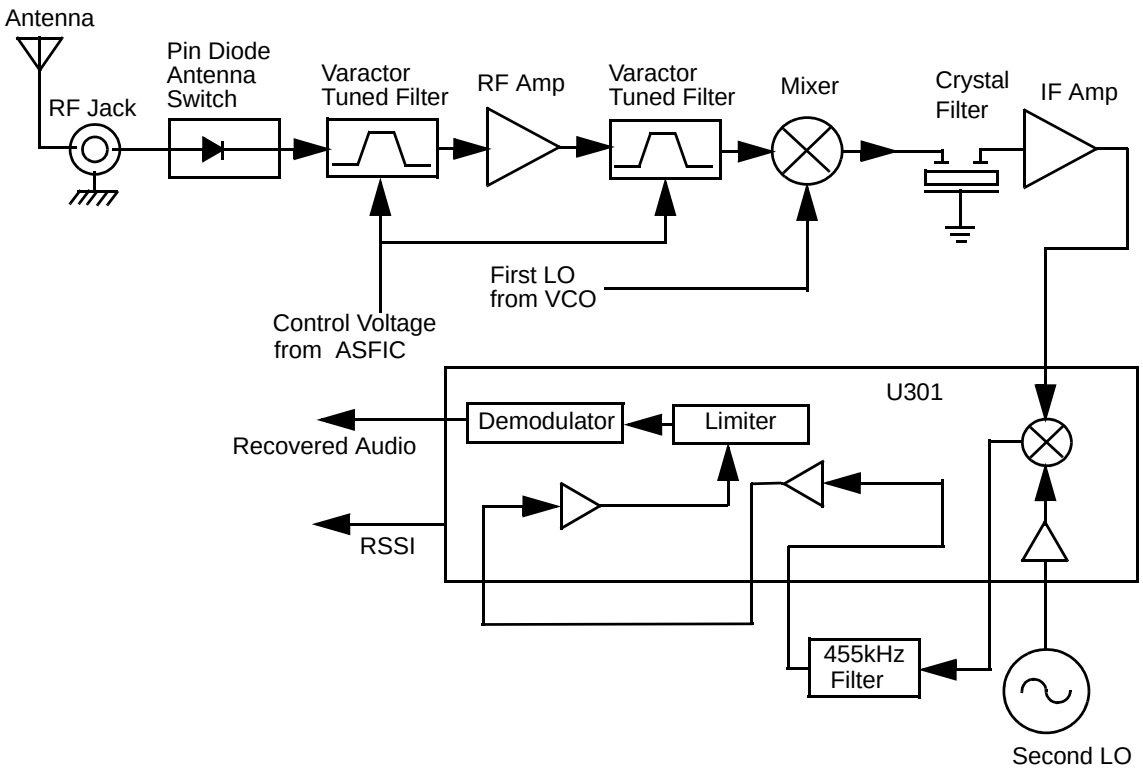


Figure 1-4: UHF Receiver Block Diagram

5.1 Receiver Front-End

(Refer to *UHF Receiver Front End Schematic Diagram* on page 7B-79 and *UHF Transmitter Schematic Diagram* on page 7B-84)

The RF signal is received by the antenna and applied to a low-pass filter. For UHF, the filter consists of L103, C131, C139, L101, L102, C102, C103, C104. The filtered RF signal is passed through the antenna switch. The antenna switch circuit consists of two PIN diodes(CR101 and CR102) and a pi network (C106, L104 and C107).The signal is then applied to a varactor tuned bandpass filter. The UHF bandpass filter comprises of L301, L302, C302, C303, C304, CR301 and CR302. The bandpass filter is tuned by applying a control voltage to the varactor diodes(CR301 and CR302) in the filter.

The bandpass filter is electronically tuned by the DACRx from IC404 which is controlled by the microprocessor. Depending on the carrier frequency, the DACRx will supply the tuned voltage to the varactor diodes in the filter. Wideband operation of the filter is achieved by shifting the bandpass filter across the band.

The output of the bandpass filter is coupled to the RF amplifier transistor Q301 via C307. After being amplified by the RF amplifier, the RF signal is further filtered by a second varactor tuned bandpass filter, consisting of L306, L307, C313, C317, CR304 and CR305.

Both the pre and post-RF amplifier varactor tuned filters have similar responses. The 3 dB bandwidth of the filter is about 50 MHz. This enables the filters to be electronically controlled by using a single control voltage which is DACRx .

The output of the post-RF amplifier filter which is connected to the passive double balanced mixer consists of T301, T302 and CR306. Matching of the filter to the mixer is provided by C381. After mixing with the first LO signal from the voltage controlled oscillator (VCO) using low side injection, the RF signal is down-converted to the 44.85 MHz IF signal.

The IF signal coming out of the mixer is transferred to the crystal filter (FL301) through a resistor pad and a diplexer (C322 and L310). Matching to the input of the crystal filter is provided by C324 and L311. The crystal filter provides the necessary selectivity and intermodulation protection.

5.2 Receiver Back-End

The output of crystal filter FL301 is matched to the input of first IF amplifier transistor Q302 by L330. Voltage supply to the IF amplifier is taken from the receive 5 volts (R5). The IF amplifier provides a gain of about 16dB. The amplified first IF signal is then coupled into U301(pin 1) via C360 and L332 which provides the matching for the first IF amplifier and U301.

Within U301, the first IF 44.85 MHz signal mixes with the 44.395 MHz second local oscillator (2nd LO) to produce the second IF signal at 455 kHz. The 2nd LO signal frequency is determined by crystal Y300. The second IF signal (455 kHz) is then filtered by an external ceramic filter FL303 before being amplified by the second IF amplifier within U301. Again, the signal is filtered by a second external ceramic filter FL304. The filtered output of the second IF signal is applied to the limiter input pin of U301.

The IF IC (U301) contains a quadrature detector using a ceramic phase-shift element (Y301) to provide audio detection. Internal amplification provides an audio output level around 120mVrms (@60% deviation) from pin 8 of U301. This demodulated audio is fed to the ASFIC_CMP IC (U404) in the controller section.

The IF IC (U301) also performs several other functions. It provides a received signal-strength indicator (RSSI) with a dynamic range of 70 dB. The RSSI is a dc voltage monitored by the microprocessor, and used as a peak indicator during the bench tuning of the receiver front-end varactor filter.

6.0 UHF Receiver (Models with PCB 8486458Z03)

The UHF receiver consists of a front end, back end, and automatic gain control circuits. A block diagram of the receiver is shown in Figure 2-3. Detailed descriptions of these features are contained in the paragraphs that follow.

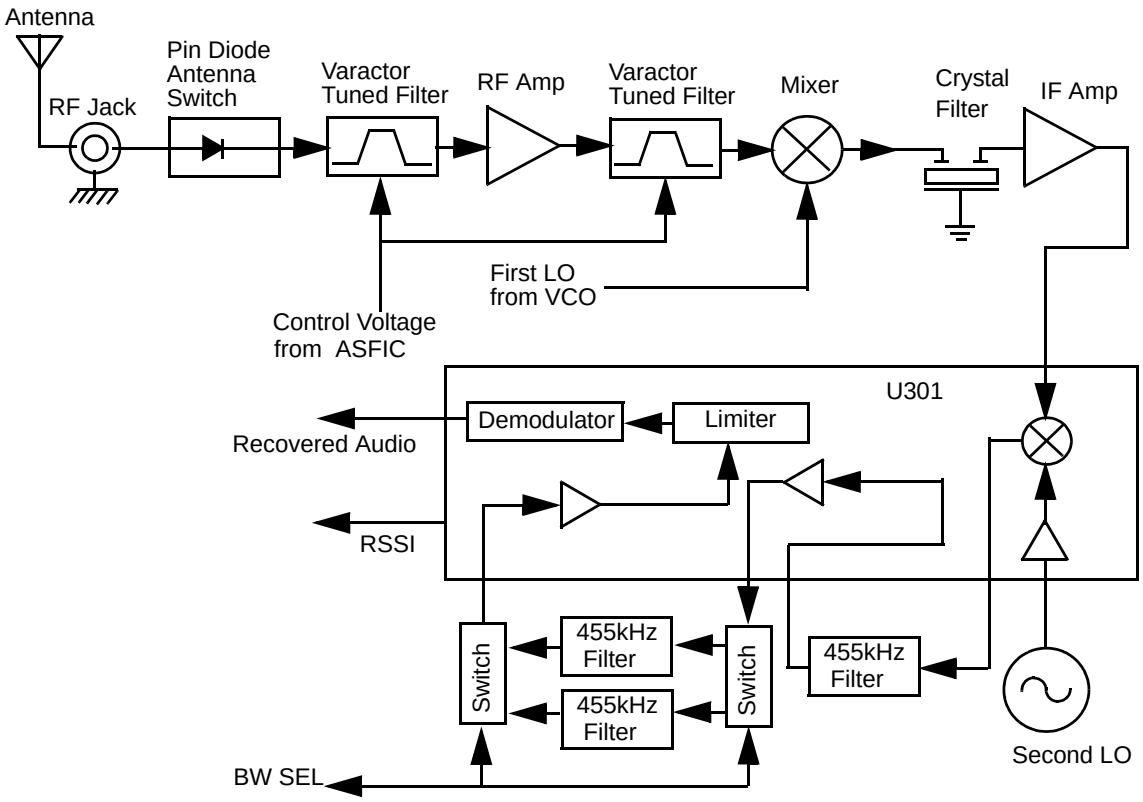


Figure 1-5 UHF Receiver Block Diagram.

6.1 Receiver Front-End

(*Refer to Figure 2-3 and the UHF Receiver Front End schematic diagram for PCB 8486458Z03)*

The RF signal is received by the antenna and applied to a low-pass filter. For UHF, the filter consists of L101, L102, C102, C103, C104. The filtered RF signal is passed through the antenna switch. The antenna switch circuit consists of two PIN diodes(CR101 and CR102) and a pi network (C106, L104 and C107).The signal is then applied to a varactor tuned bandpass filter. The UHF bandpass filter comprises of L301, L302, C302, C303, C304, CR301 and CR302. The bandpass filter is tuned by applying a control voltage to the varactor diodes(CR301 and CR302) in the filter.

The bandpass filter is electronically tuned by the DACRx from IC404 which is controlled by the microprocessor. Depending on the carrier frequency, the DACRx will supply the tuned voltage to the varactor diodes in the filter. Wideband operation of the filter is achieved by shifting the bandpass filter across the band.

The output of the bandpass filter is coupled to the RF amplifier transistor Q301 via C307. After being amplified by the RF amplifier, the RF signal is further filtered by a second varactor tuned bandpass filter, consisting of L306, L307, C313, C317, CR304 and CR305.

Both the pre and post-RF amplifier varactor tuned filters have similar responses. The 3 dB bandwidth of the filter is about 50 MHz. This enables the filters to be electronically controlled by using a single control voltage which is DACRx .

The output of the post-RF amplifier filter which is connected to the passive double balanced mixer consists of T301, T302 and CR306. Matching of the filter to the mixer is provided by C381. After mixing with the first LO signal from the voltage controlled oscillator (VCO) using low side injection, the RF signal is down-converted to the 44.85 MHz IF signal.

The IF signal coming out of the mixer is transfered to the crystal filter (FL301) through a resistor pad and a diplexer (C322 and L310). Matching to the input of the crystal filter is provided by C324 and L311. The crystal filter provides the necessary selectivity and intermodulation protection.

6.2 Receiver Back-End

(*Refer to Figure 2-3 and the UHF Receiver Back End schematic diagram for PCB 8486458Z03*)

The output of crystal filter FL301 is matched to the input of first IF amplifier transistor Q302 by L330. Voltage supply to the IF amplifier is taken from the receive 5 volts (R5). The IF amplifer provides a gain of about 16dB. The amplified first IF signal is then coupled into U301(pin 1) via C360 and L332 which provides the matching for the first IF amplifier and U301.

Within U301, the first IF 44.85 MHz signal mixes with the 44.395 MHz second local oscillator (2nd LO) to produce the second IF signal at 455 kHz. The 2nd LO signal frequency is determined by crystal Y300. The second IF signal (455 kHz) is then filtered by an external ceramic filter FL302 before being amplified by the second IF amplifier within U301. Again, the signal is filtered by a second external ceramic filter FL303 or FL304 depending on the selected channel spacing. FL303 is used for 20/25 kHz channel spacing whereas FL304, for 12.5 kHz channel spacing. The simple circuit consisting of U302, CR312, CR313 and resistors R345, R360, R321 and R324 divert the second IF signal according to the BW_SEL line. The filtered output of the second IF signal is applied to the limiter input pin of U301.

The IF IC (U301) contains a quadrature detector using a ceramic phase-shift element (Y301) to provide audio detection. Internal amplification provides an audio output level around 120mVrms (@60% deviation) from pin 8 of U301. This demodulated audio is fed to the ASFIC_CMP IC (U404) in the controller section.

The IF IC (U301) also performs several other functions. It provides a received signal-strength indicator (RSSI) with a dynamic range of 70 dB. The RSSI is a dc voltage monitored by the microprocessor, and used as a peak indicator during the bench tuning of the receiver front-end varactor filter.

7.0 Frequency Generation Circuit

(*Refer to Figure 2-4 and the UHF Frequency Synthesizer schematic diagram*)

The frequency generation circuit, shown in Figure 2-4, is composed of Fractional-N synthesizer U201 and VCO/Buffer IC U241. Designed in conjunction to maximize compatibility, the two ICs provide many of the functions that normally require additional circuitry. The synthesizer block diagram illustrates the interconnect and support circuitry used in the region. Refer to the schematic for the reference designator.

The synthesizer is powered by regulated 5V and 3.3V which are provided by ICs U247 and U248 respectively. The 5V signal goes to pins 13 and 30 while the 3.3V signal goes to pins 5, 20, 34 and 36 of U201. The synthesizer in turn generates a superfiltered 5V which powers U241.

In addition to the VCO, the synthesizer also interfaces with the logic and ASFIC circuitry. Programming for the synthesizer is accomplished through the data, clock and chip select lines (pins 7, 8 and 9) from the microprocessor, U409. A 3.3V dc signal from pin 4 indicates to the microprocessor that the synthesizer is locked.

Transmit modulation from the ASFIC is supplied to pin10 of U201. Internally the audio is digitized by the Fractional-N and applied to the loop divider to provide the low-port modulation. The audio runs through an internal attenuator for modulation balancing purposes before going out at pin 41 to the VCO.

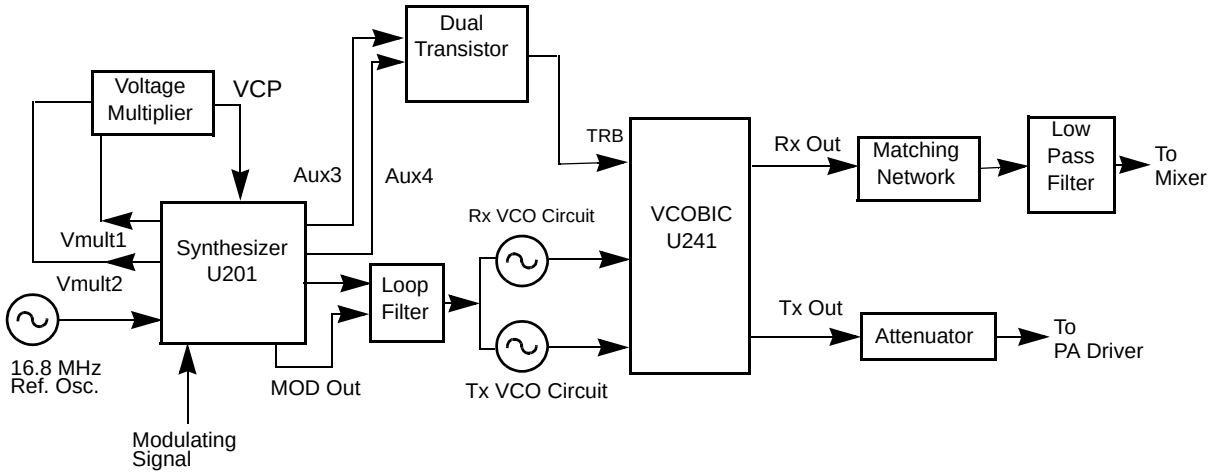


Figure 1-6 UHF Frequency Generation Unit Block Diagram

7.1 Synthesizer

(*Refer to Figure 2-5 and the UHF Synthesizer schematic diagram)*

The Fractional-N synthesizer, shown in Figure 2-5, uses a 16.8MHz crystal (FL201) to provide a reference for the system. The LVFractN IC (U201) further divides this to 2.1MHz, 2.225MHz, and 2.4MHz to be used as reference frequencies. Together with C206, C207, C208, R204 and CR203, they build up the reference oscillator which is capable of 2.5ppm stability over temperatures of -30 to 85°C. It also provides 16.8MHz at pin 19 of U201 for use by the ASFIC and IF.

The loop filter consists of components C231, C232, C233, R231, R232 and R233. This circuit provides the necessary dc steering voltage for the VCO and determines the amount of noise and spur passing through.

To achieve fast locking for the synthesizer, an internal adapt charge pump provides higher current at pin 45 of U201 to put the synthesizer within lock range. The required frequency is then locked by normal mode charge pump at pin 43.

Both the normal and adapt charge pumps get their supply from the capacitive voltage multiplier made up of C258, C259, C228, triple diode CR201, and level shifters U210 and U211. Two 3.3V square waves, 180 degrees out of phase, are first shifted to 5V, then along with regulated 5V, put through arrays of diodes and capacitors to build up 13.3V at pin 47 of U201.

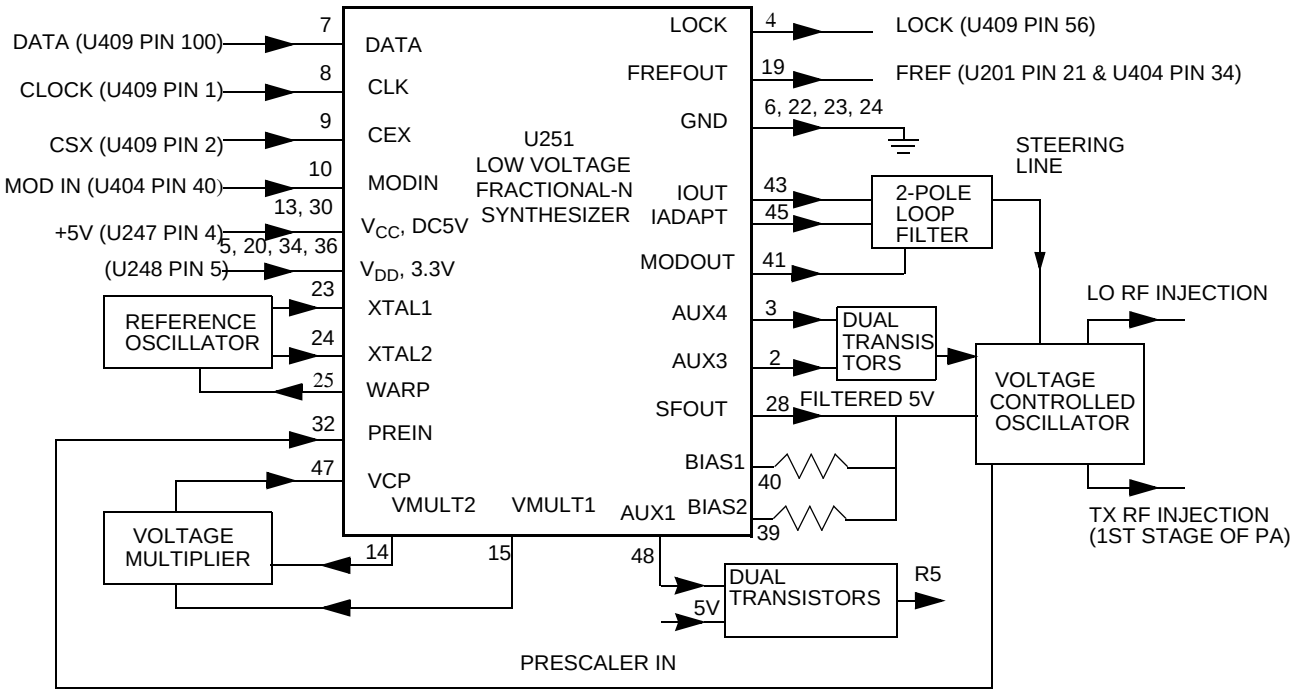


Figure 1-7 UHF Synthesizer Block Diagram

7.2 Voltage Controlled Oscillator (VCO)

(*Refer to Figure 2-6 and the UHF Voltage Controlled Oscillator schematic diagram)*

The VCOB IC (U241), shown in Figure 2-6, in conjunction with the Fractional-N synthesizer (U201) generates RF in both the receive and the transmit modes of operation. The TRB line (U241 pin 19) determines which oscillator and buffer are enabled. A sample of the RF signal from the enabled oscillator is routed from U241, pin 12, through a low pass filter, to the prescaler input (U201 pin 32). After frequency comparison in the synthesizer, a resultant CONTROL VOLTAGE is received at the VCO. This voltage is a DC voltage between 3.5V and 9.5V when the PLL is locked on frequency.

The VCOB IC is operated at 4.54 V (VSF) and Fractional-N synthesizer (U201) at 3.3V. This difference in operating voltage requires a level shifter consisting of Q260 and Q261 on the TRB line. The operation logic is shown in Table 2-1.

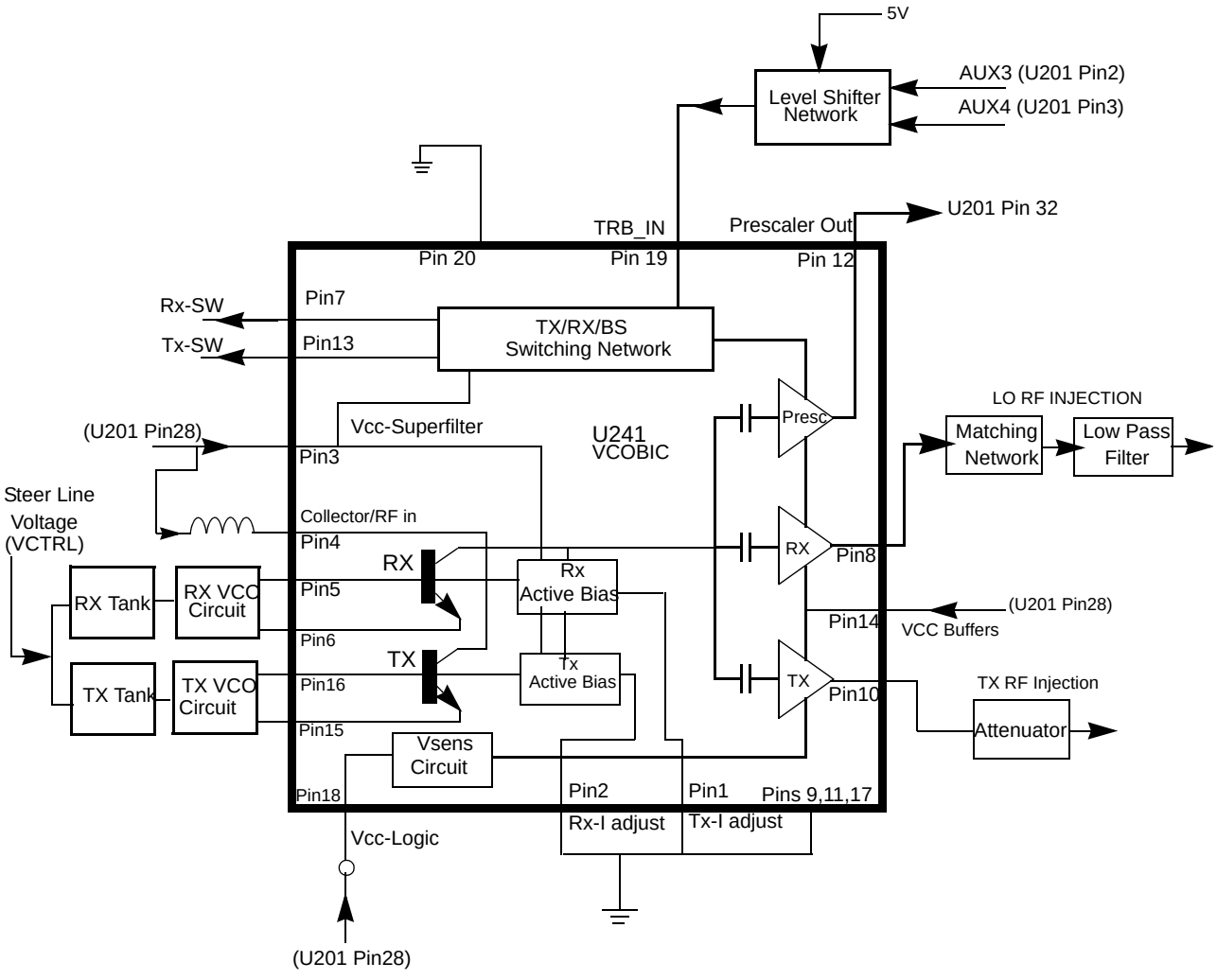


Figure 1-8 UHF VCO Block Diagram

Table 1-1 Level Shifter Logic

Desired Mode	AUX 4	AUX 3	TRB
Tx	Low	High (@3.2V)	High (@4.8V)
Rx	High	Low	Low
Battery Saver	Low	Low	Hi-Z/Float (@2.5V)

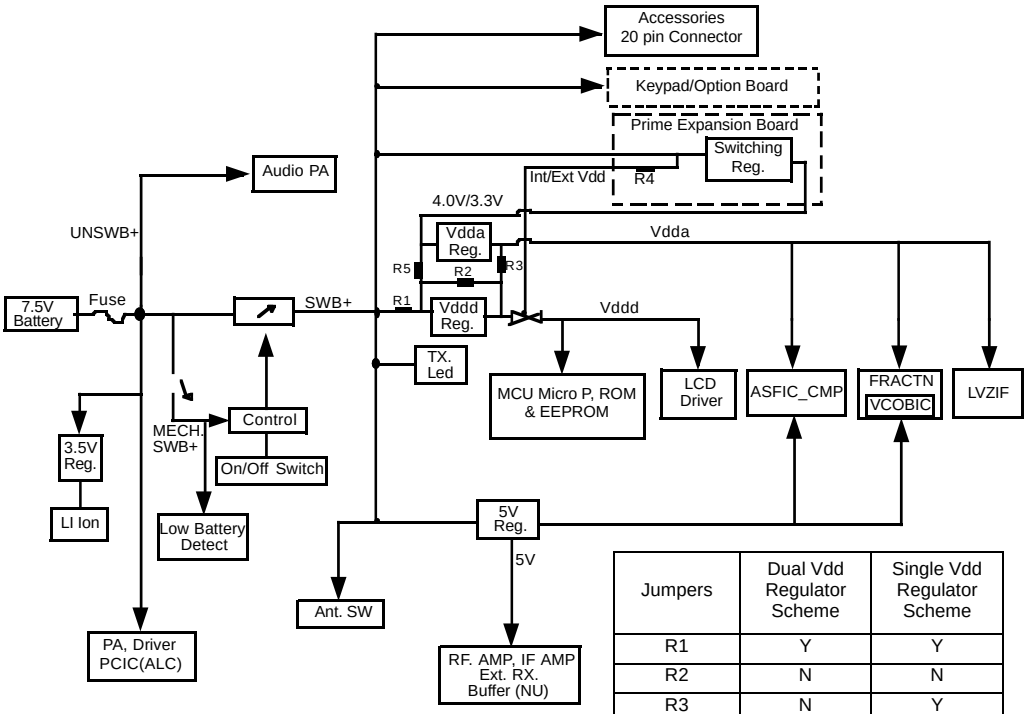
In the receive mode, U241 pin 19 is low or grounded. This activates the receive VCO by enabling the receive oscillator and the receive buffer of U241. The RF signal at U241 pin 8 is run through a matching network. The resulting LO RF INJECTION signal is applied to the mixer at T302.

During the transmit condition, when PTT is pressed, five volts is applied to U241 pin 19. This activates the transmit VCO by enabling the transmit oscillator and the transmit buffer of U241. The RF signal at U241 pin 10 is injected into the input of the PA module (U101 pin16). This RF signal is the TX RF INJECTION. Also in transmit mode, the audio signal to be frequency modulated onto the carrier is received through U201, pin 41.

When a high impedance is applied to U241 pin19, the VCO is operating in BATTERY SAVER mode. In this case, both the receive and transmit oscillators as well as the receive transmit and prescaler buffer are turned off.

8.0 Controller Information

8.1 Radio Power Distribution



Jumpers	Dual Vdd Regulator Scheme	Single Vdd Regulator Scheme
R1	Y	Y
R2	N	N
R3	N	Y
R4	N	N
R5	Y	N
Vdda	Y	N
SW. Reg.	N	N

Figure 1-9: DC Power Distribution Block Diagram

Figure 7-6 illustrates the DC distribution throughout the radio board. A 7.5V battery (BATT 7.5V) supplies power directly to the electronic on/off control as UNSWB+. When the radio is turned on, MECH_SWB+ (on/off/volume control) will trigger the electronic on/off control(momentary-on path), then SWB+ is distributed as shown in Figure 7-6. Vdda from 3.3V Vdda regulator will then supply the microprocessor. Data is then sent to ASFIC_CMP to turn on GCB4(DAC). GCB4 will take over the momentary-on path within 12ms. SWB+ will continue to support the whole board until the radio is turned off.

Radio will be turned-off on two conditions;

1. MECH_SWB+ turned off

2. Low battery

When low battery level is detected by the microprocessor through both conditions above, it will store the radio personality data to EEPROM before turning off.

8.2 Controller Board

8.2.1 General

The controller board is the central interface between the various subsytems of the radio. It is separated into digital and audio architectures. The digital portion consists of a special Motorola microcontroller (HC11FL0). The audio power amplifier (Audio PA) and audio/signalling/filter/companding IC (ASFIC_CMP) form the backbone of the audio/signalling architecture.

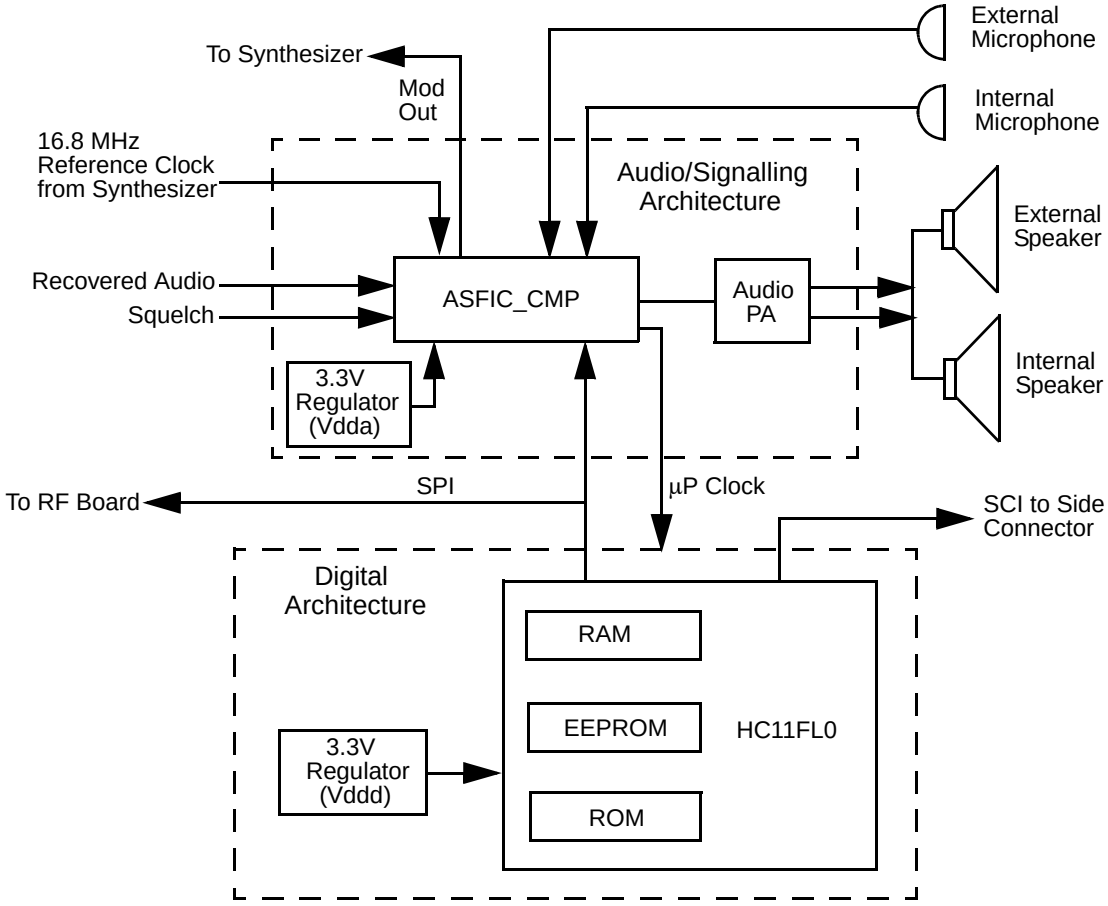


Figure 1-10: Controller Block Diagram

8.2.2 Digital Architecture

MCU Configuration

There is one common MCU architecture for low-tier as well as for the high-tier products. It covers the Conventional and Trunking portables. An open architecture system with the new HC11FL0 as the processor is used. Combinations of different size RAM, ROM and EEPROM are available for various application software.

REAL TIME CLOCK (RTC)

This radio supports Real Time Clock (RTC) module for purposes of Message Time Stamping and Time Keeping. The RTC module resides in the micro-processor HC11FL0. It is kept alive by a back-up Lithium Ion battery when the primary battery is removed.

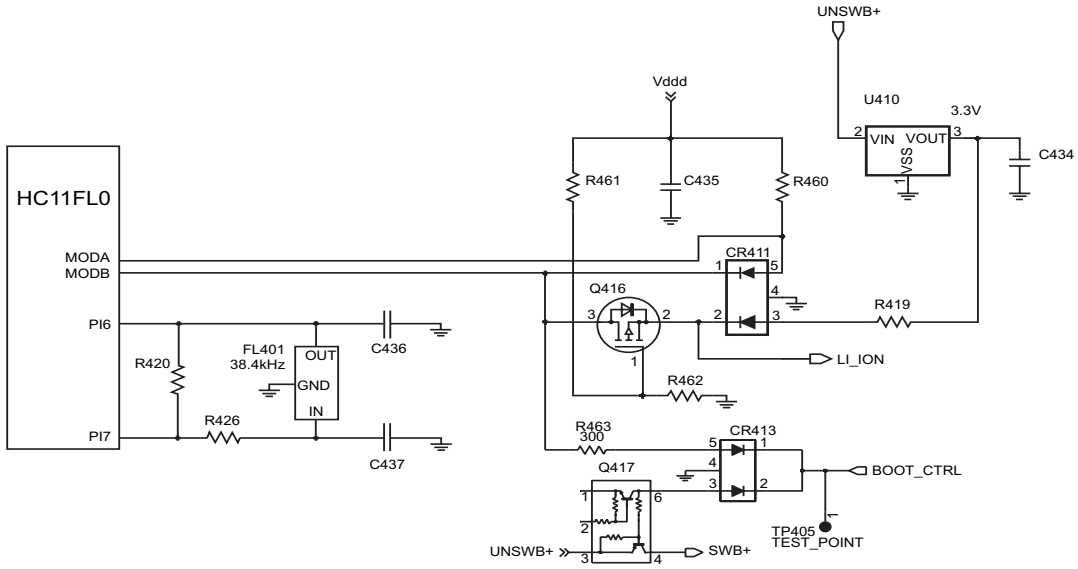


Figure 1-11: RTC Circuit

Circuit Description

The RTC module which resides in the HC11FL0 is powered by the ModB/Vstby pin and PI6/PI7 form the crystal oscillator circuit. Clock frequency of 38.4kHz from a crystal oscillator provides the reference signal. In the processor, the frequency is divided down to 1Hz.

As the RTC module is powered separately from the processor Vdd, the RTC is kept alive through the ModB / Vstby pin when the radio is switched off. A small button Lithium Ion battery continues to feed the RTC when the primary battery is removed.

A MOSFET Q416 switches in the LiO supply when Vdd is removed. Q416 also provides isolation from BOOT_CTRL function in the event of radio program flashing. A small 3.3V regulator is used to charge the LiO battery.

ModB/Vstby Supply

Under various conditions, the supply to the ModB/Vstby would vary. Table 7-2 shows these conditions and circuits in operation.

Table 1-2: ModB/Vstby Supply Modes

Condition	Circuit Operation
	Vdd supply voltage via CR411
Radio Off	• Vdd turned off • Q416 gate is pulled low by R462 • Q416 is switched on • U410 supplies 3.2V to ModB/Vstby
Primary battery removed	• Vdd turned off • Q416 gate is pulled low by R462 • Q416 is switched on • LiO battery provides 3.2V to ModB/Vstby
Flash Mode	• Boot_Ctrl line pull low • ModA & ModB goes low • Processor in boot-strap mode • Flashing enabled

9.0 Voice Storage (GP1280 Only)

(*Refer to Figure 2-7 and the UHF Voice Storage schematic diagram)*

The Voice Storage feature is offered as standard in the GP1280 and as an Option board for GP340/GP360/GP380, GP140and GP640/GP680 models.

The Voice Storage feature enables users to:

- Record and Playback Personal Memo (Reminders, Notes, etc.).
- Send over-the-air an “Out-Of-Office” message when an incoming call is received but is not available to take up call.
- Over-the-air recording of important voice message being received.

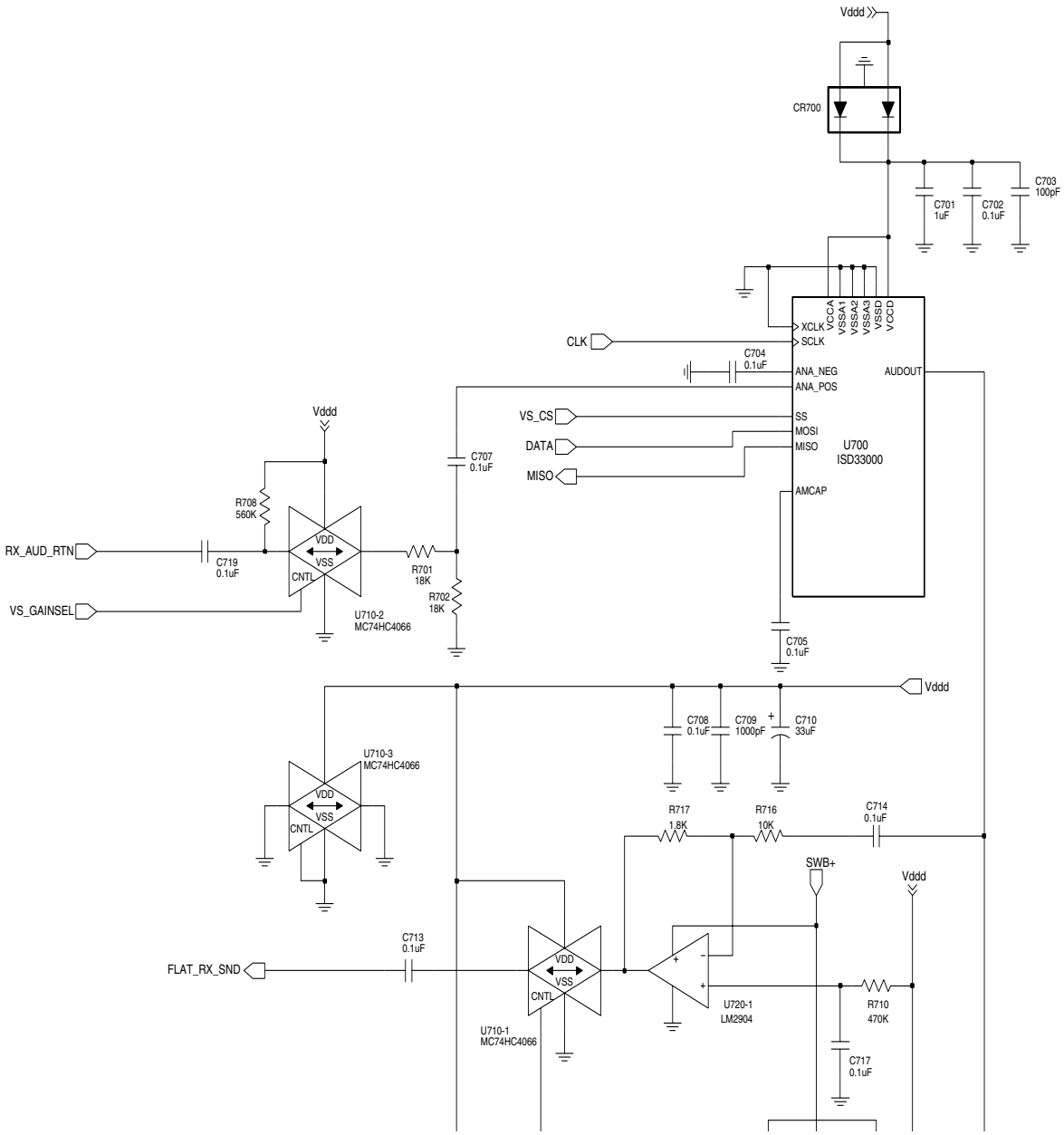


Figure 1-12 Audio path for voice storage connection to interface connector

Audio routing to the Voice Storage circuitry during receive message recording, message playback, personal memo recording and voice prompt transmit over the air are as follows:

Received Message Recording

The receive audio is tapped from the Rx_Aud_Rtn pin of the ASFIC_CMP during receive mode.

Message Playback

Message playback is via the FLAT_RX_SND pin of ASFIC_CMP. In the ASFIC_CMP, the signal is routed via the Side-Tone path to the Receive path where playback audio is routed to the speaker.

Personal Memo Recording

In this mode, voice is pick-up at the Mic. and via the Side-Tone path will be directed to the Rx_Aud_Rtn pin, which is then routed to the voice recording chip.

Voice Prompt transmit over the air

A personal voice prompt or Out-Of-Office Message which is stored in the IC can be transmitted over the air through mic path in the ASFIC_CMP to the calling party. This feature is similar to the Telephone Answering Machine feature when the person called is not available to attend the call.

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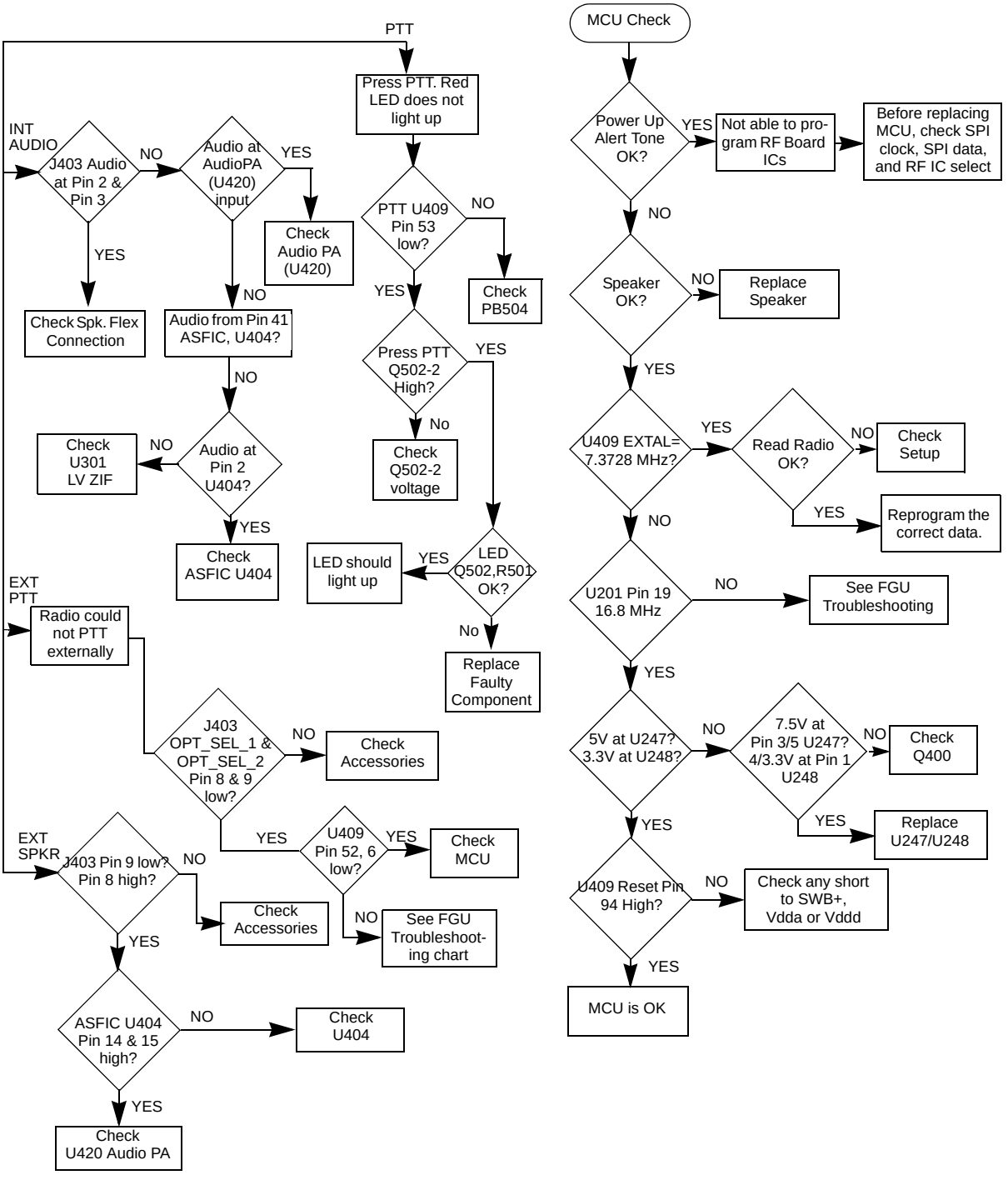
Chapter 2

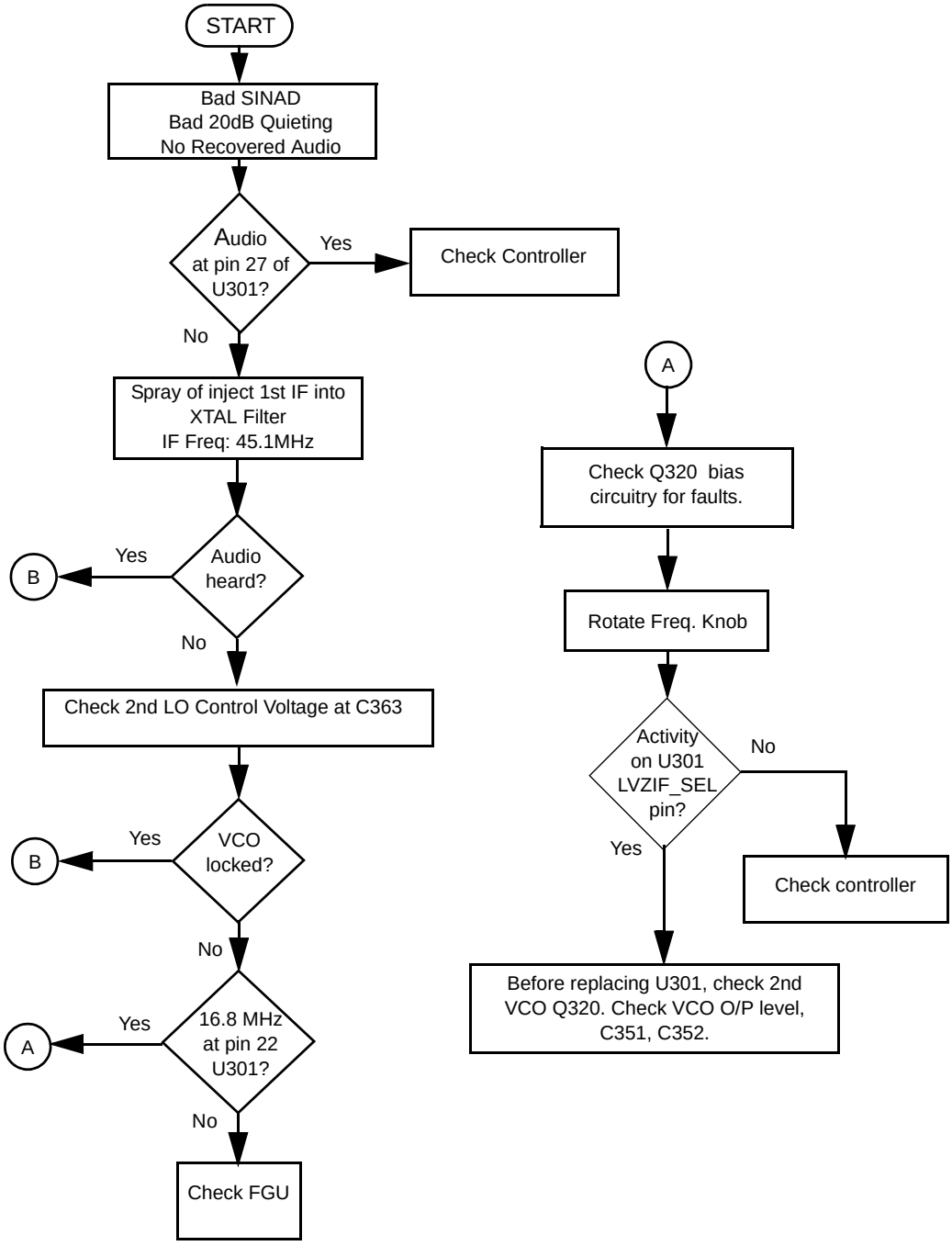
TROUBLESHOOTING CHARTS

1.0 Troubleshooting Charts

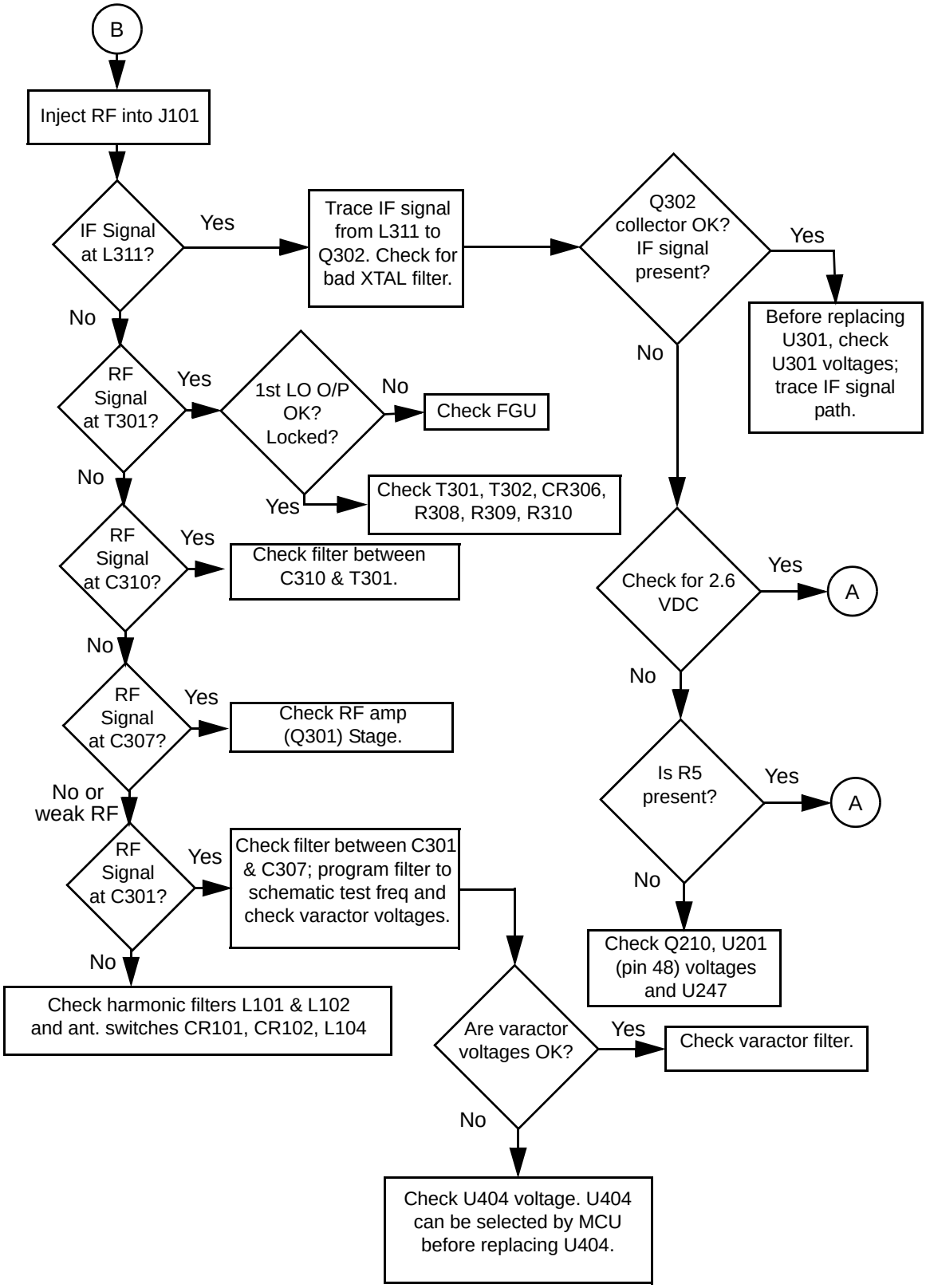


Troubleshooting Flow Chart for Controller

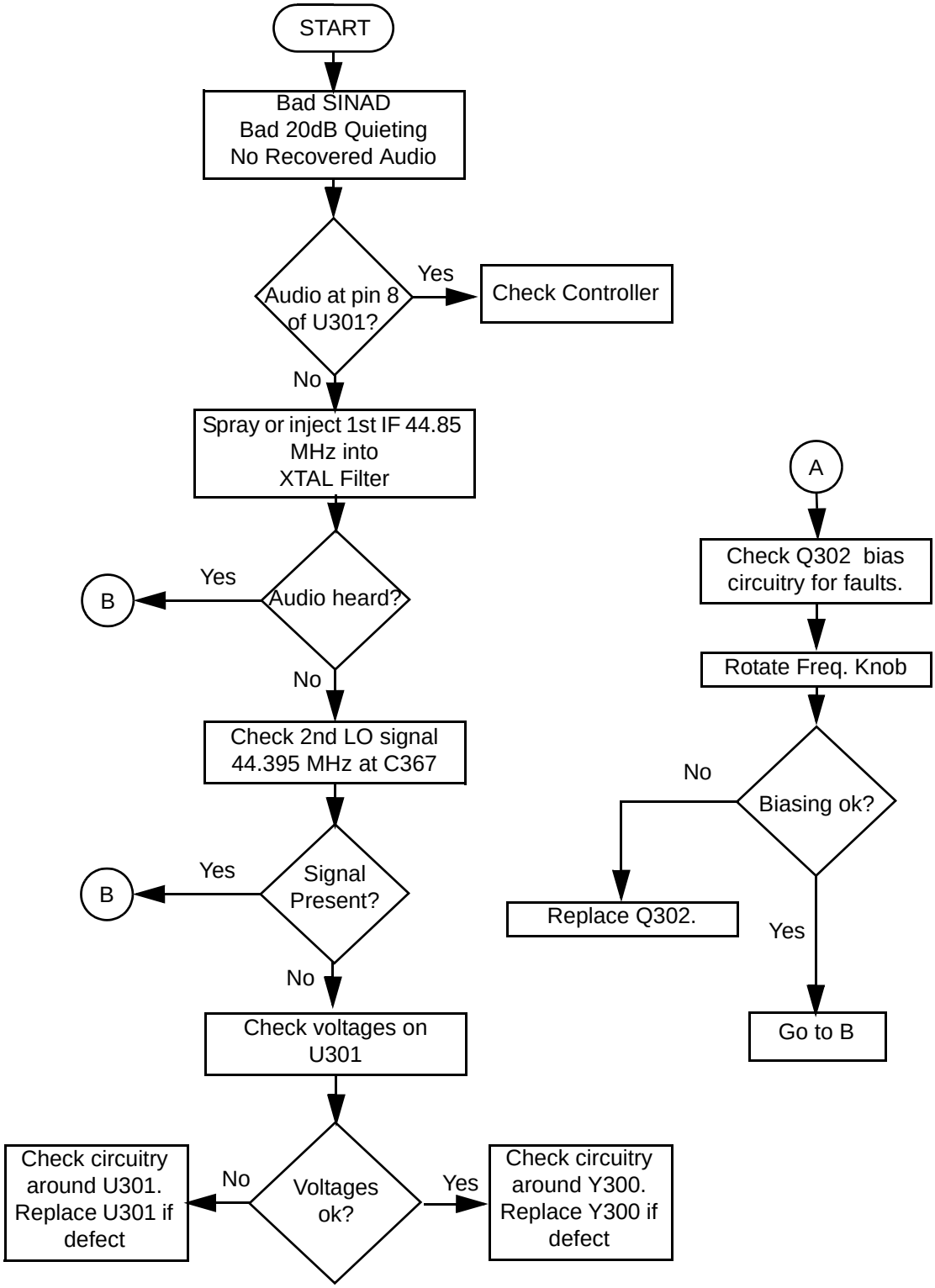
2.0 Troubleshooting Flow Chart for Receiver (All models except those with PCB 8486458Z03) (Sheet 1 of 2)



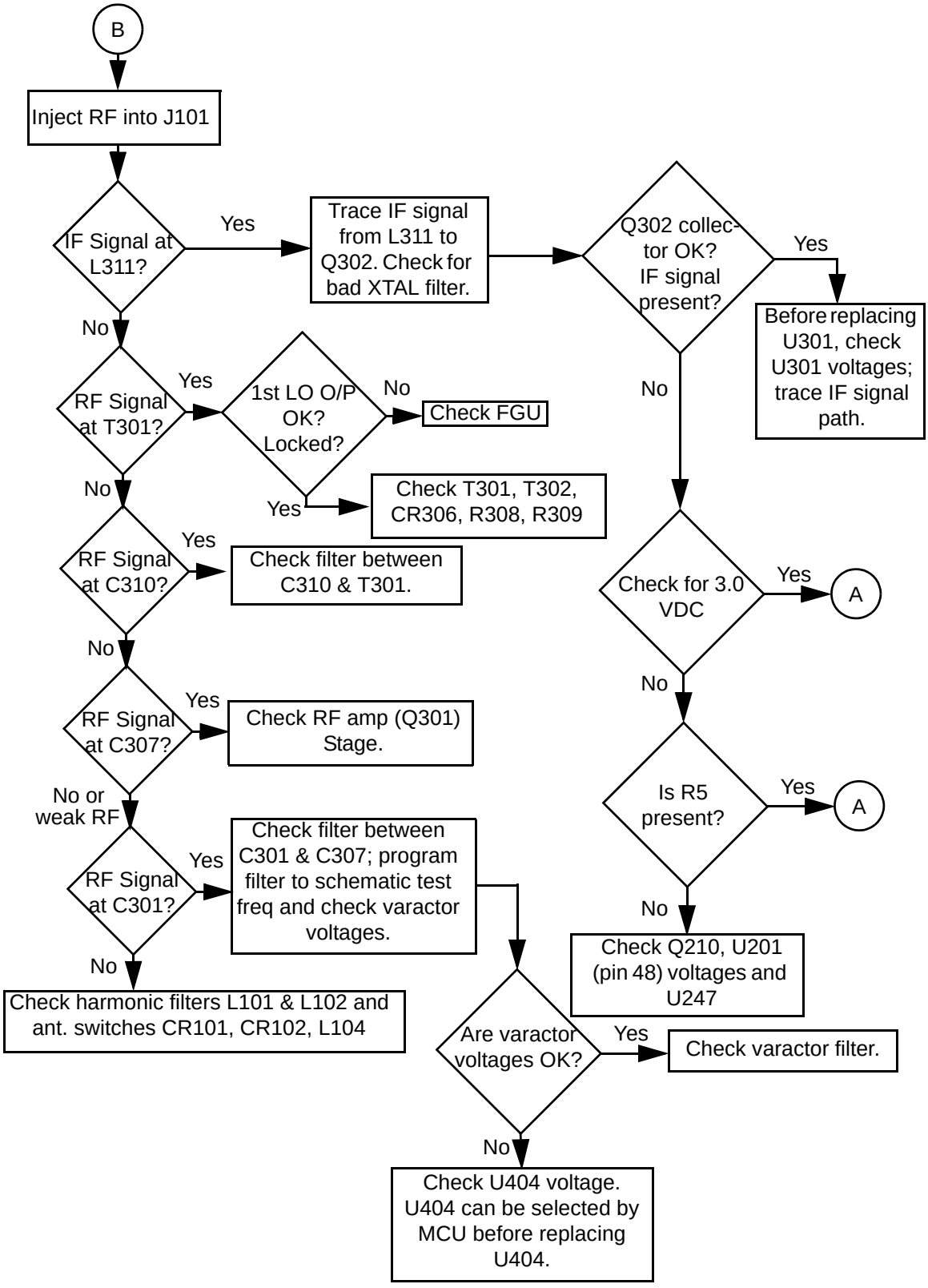
3.0 Troubleshooting Flow Chart for Receiver (All models except those with PCB 8486458Z03) (Sheet 2 of 2)



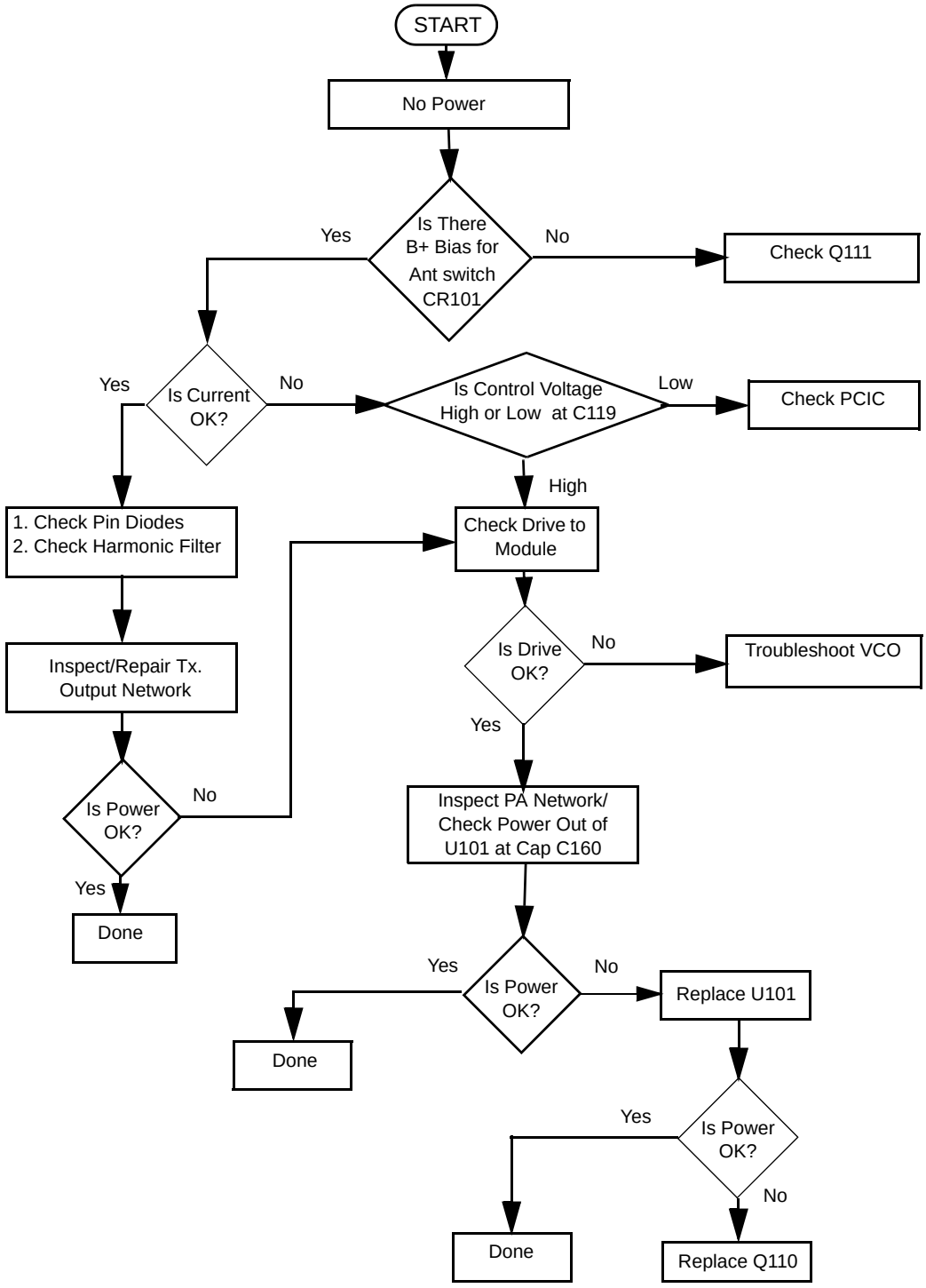
4.0 Troubleshooting Flow Chart for Receiver (Models with PCB 8486458Z03) (Sheet 1 of 2)



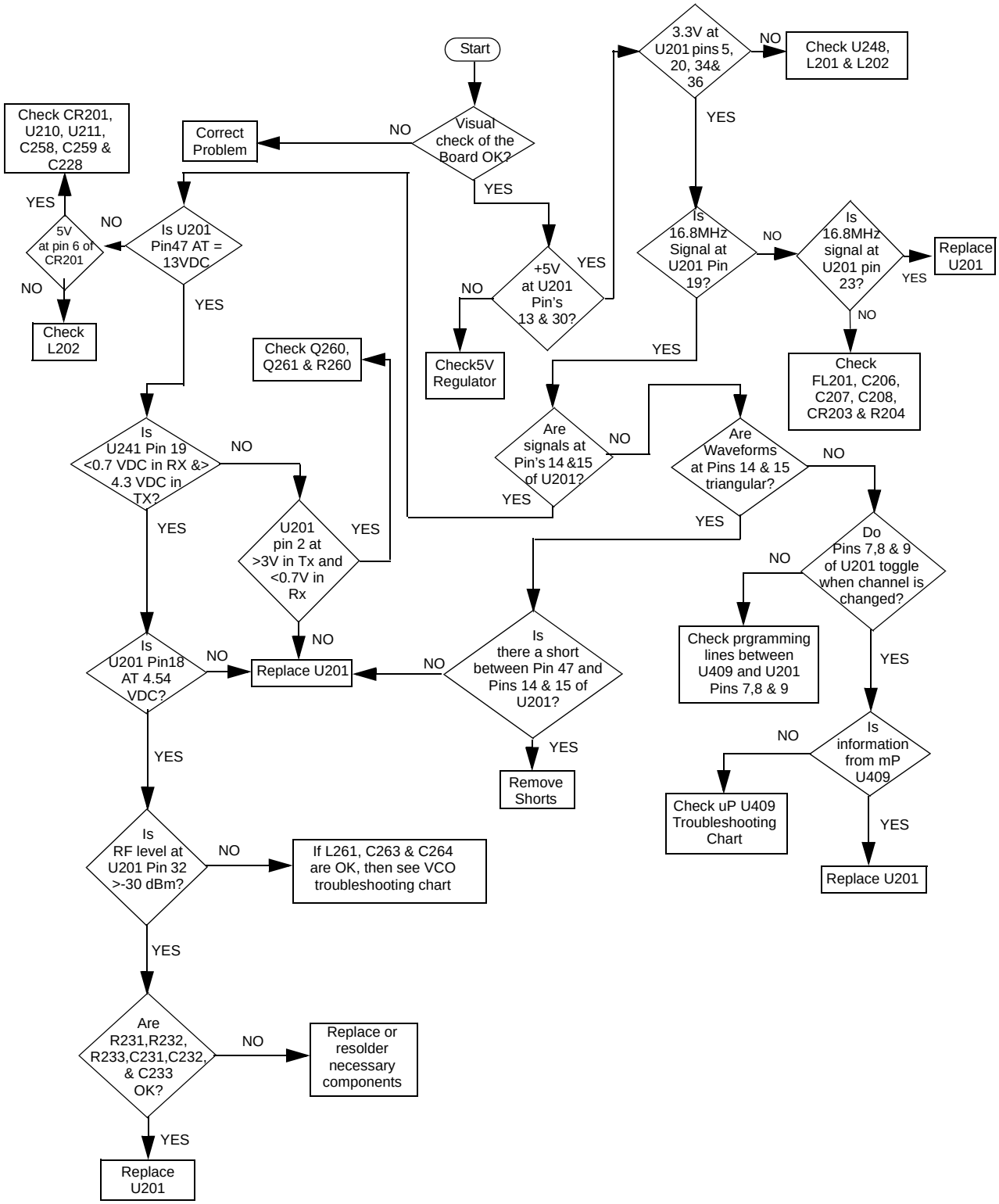
5.0 Troubleshooting Flow Chart for Receiver (Models with PCB 8486458Z03) (Sheet 2 of 2)



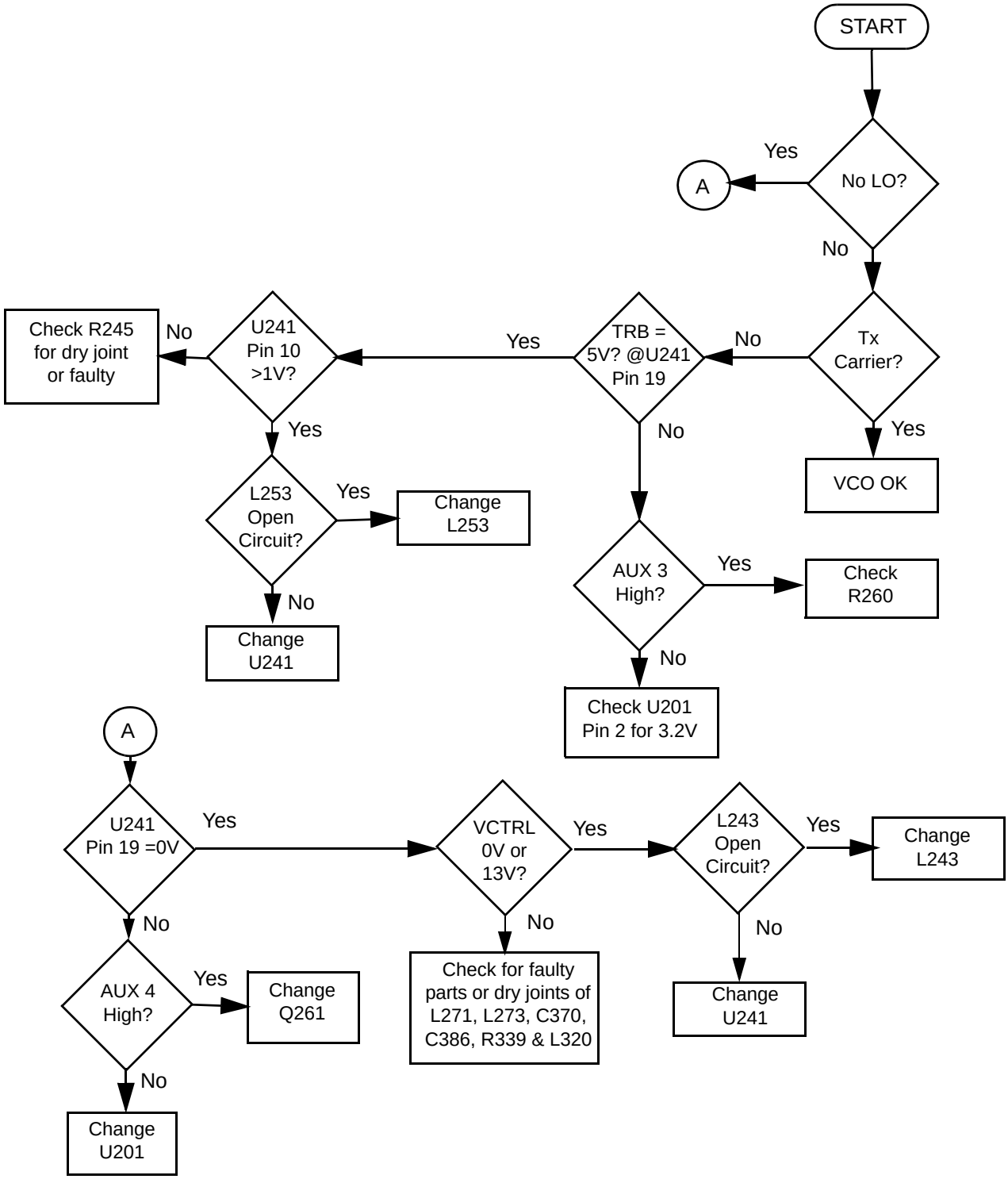
6.0 Troubleshooting Flow Chart for Transmitter



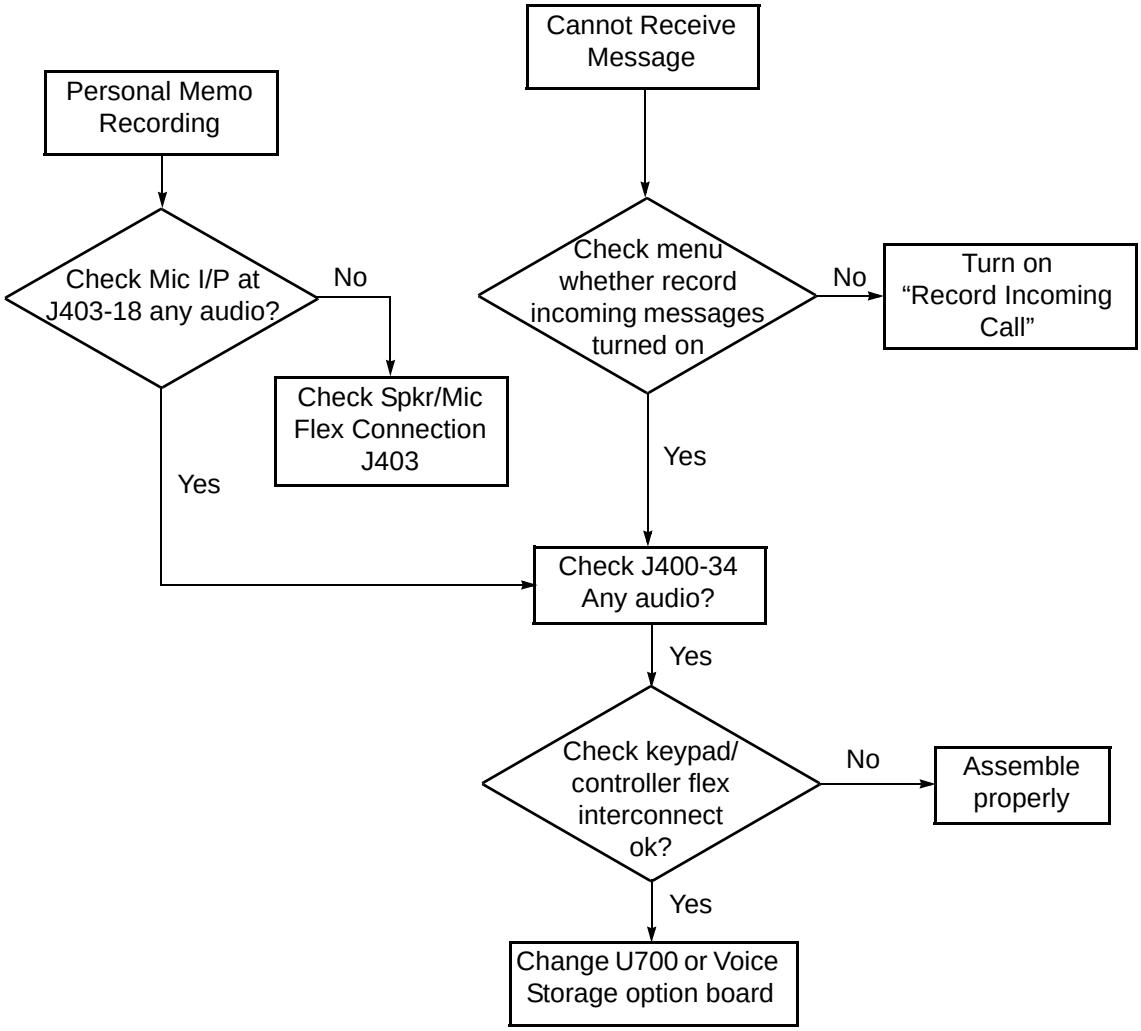
7.0 Troubleshooting Flow Chart for Synthesizer



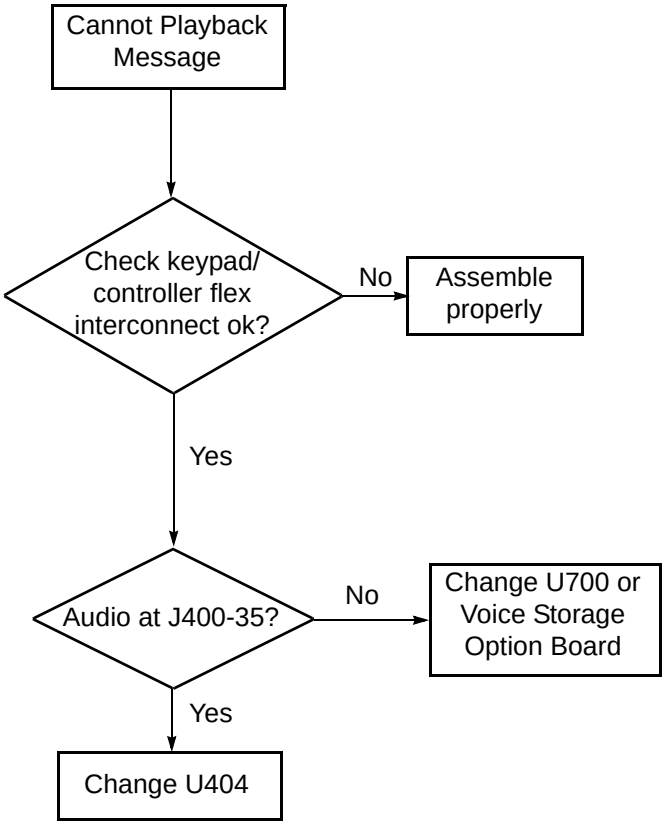
8.0 Troubleshooting Flow Chart for VCO



9.0 Troubleshooting Flow Chart for Receive Message/Personal Memo Recording



10.0 Troubleshooting Flow Chart for Message Playback



Chapter 3

UHF PCB/SCHEMATICS/PARTS LISTS

1.0 Allocation of Schematics and Circuit Boards

1.1 Controller Circuits

The UHF circuits are contained on the printed circuit board (PCB) which also contains the Controller circuits. This Chapter shows the schematics for the UHF circuits only, refer to the Controller section for details of the related Controller circuits.The PCB component layouts and the Parts Lists in this Chapter show both the Controller and UHF circuit components. The UHF schematics and the related PCB and parts list are shown in the tables below.

1.2 Voice Storage Facility

The Voice Storage facility is fitted to the GP1280 radio as standard and the schematics, component layout and parts list for these circuits are shown in this Chapter. The Voice Storage facility may be fitted to other radios in the GP Series as an option board; reference must be made to the Option Board manual in this case. The Voice Storage schematic and the related PCBs are shown in Tables 3-2, 3-3 and 3-4 below.

Table 3-1 UHF Diagrams and Parts Lists

Table 3-2 UHF GP1280 Diagrams and Parts Lists

Table 3-3 UHF GP1280 Diagrams and Parts Lists

Table 3-4 UHF GP1280 Diagrams and Parts Lists

Table 3-5 UHF Diagrams and Parts Lists

Table 3-6 UHF Diagrams and Parts Lists

Table 3-7 UHF Diagrams and Parts Lists

Table 3-8 UHF Diagrams and Parts Lists

Table 3-9 UHF Diagrams and Parts Lists

Table 3-10 UHF Diagrams and Parts Lists

Table 3-11 UHF Diagrams and Parts Lists

Table 3-12 UHF Narrow Band (450-470 MHz) Diagrams and Parts Lists

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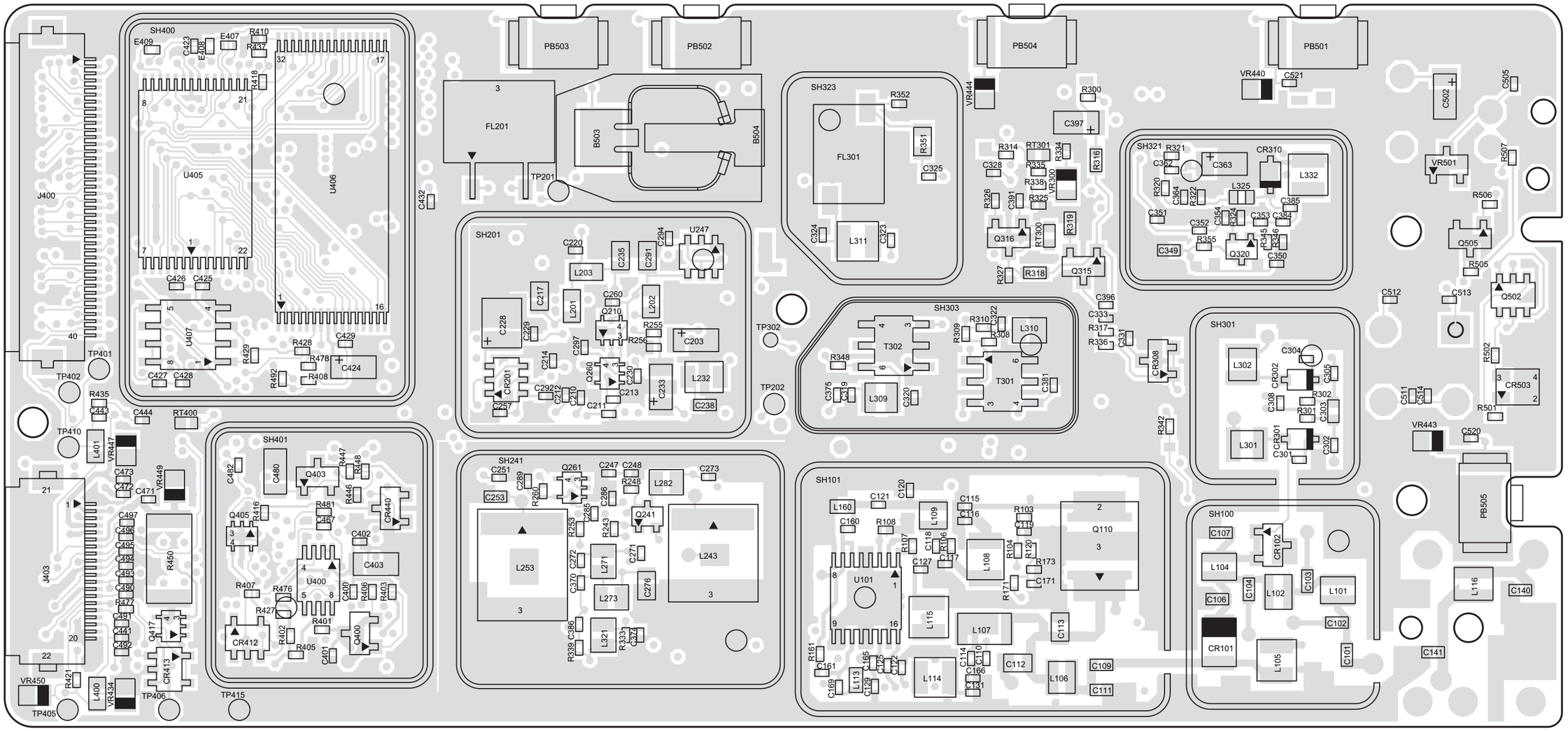
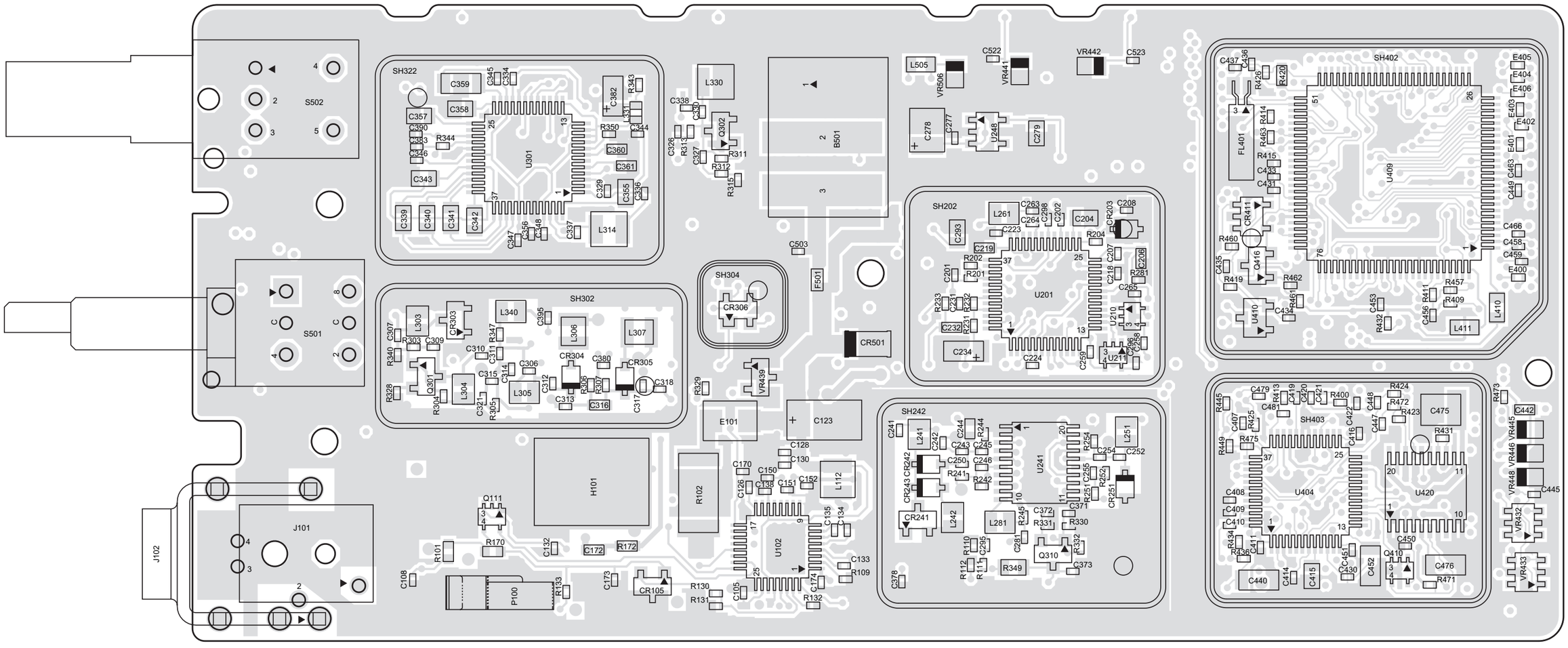
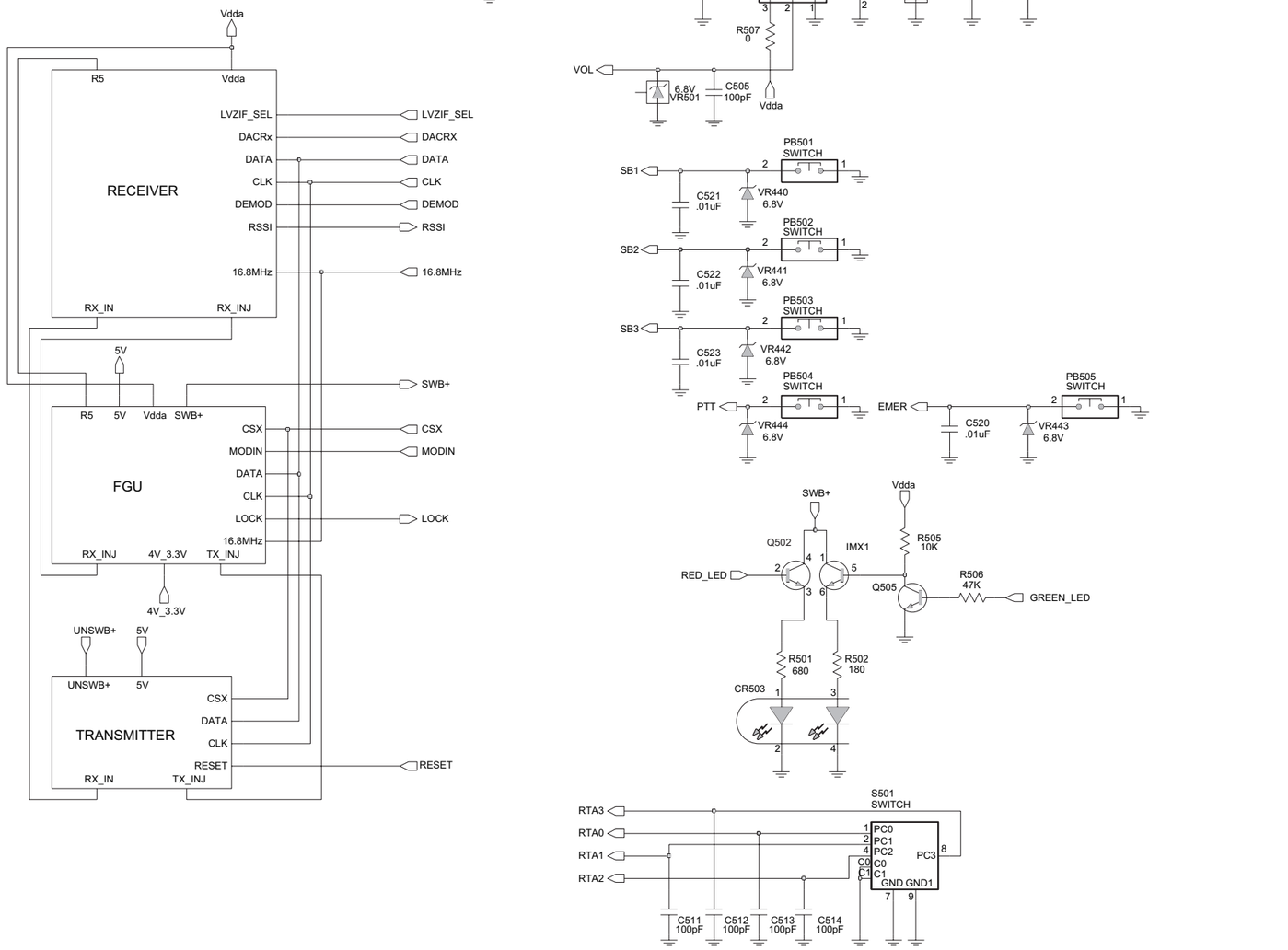
2.0 UHF PCB 8480450Z03 Schematics



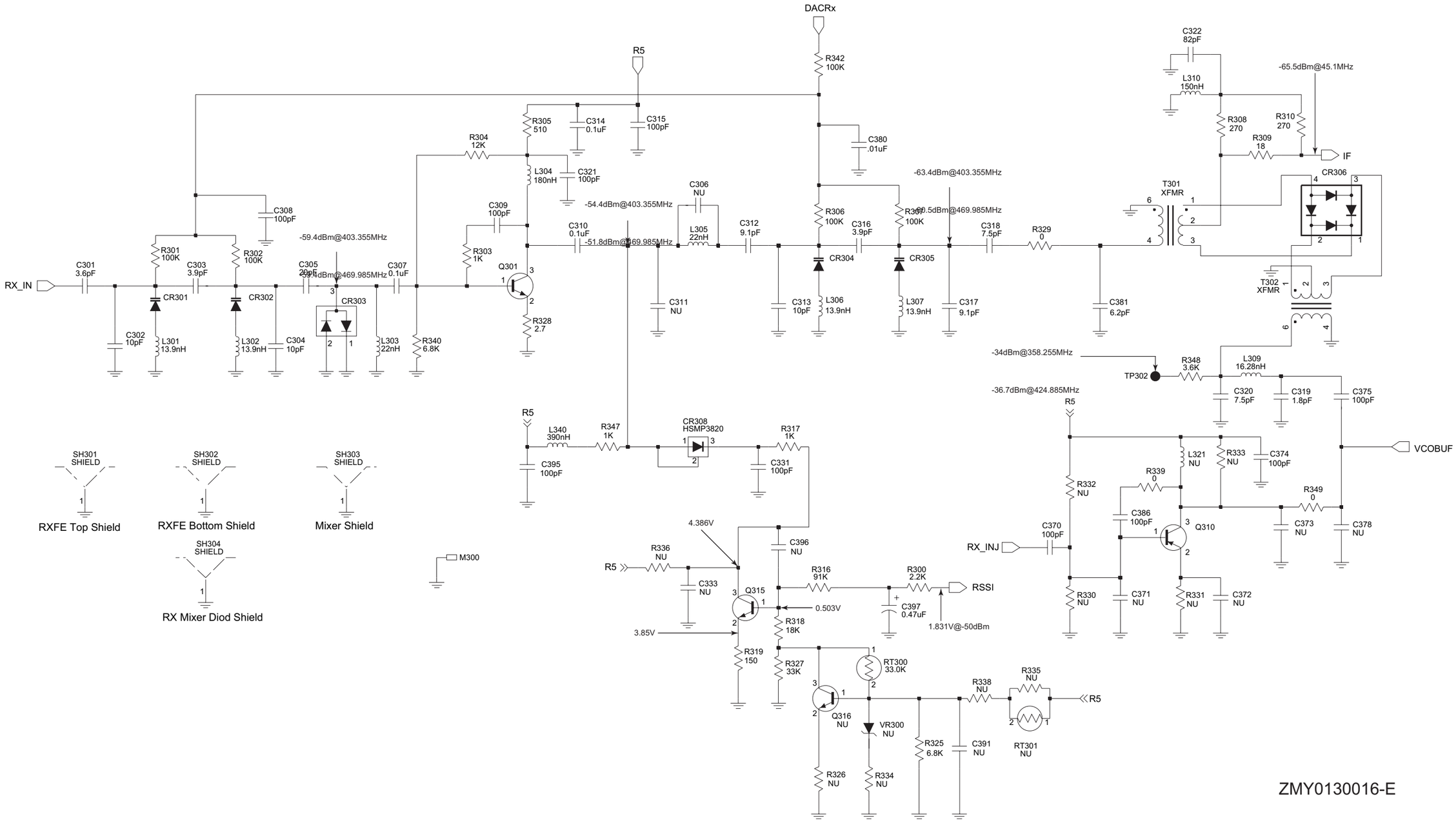
UHF (403-470MHz) Main Board Top Side



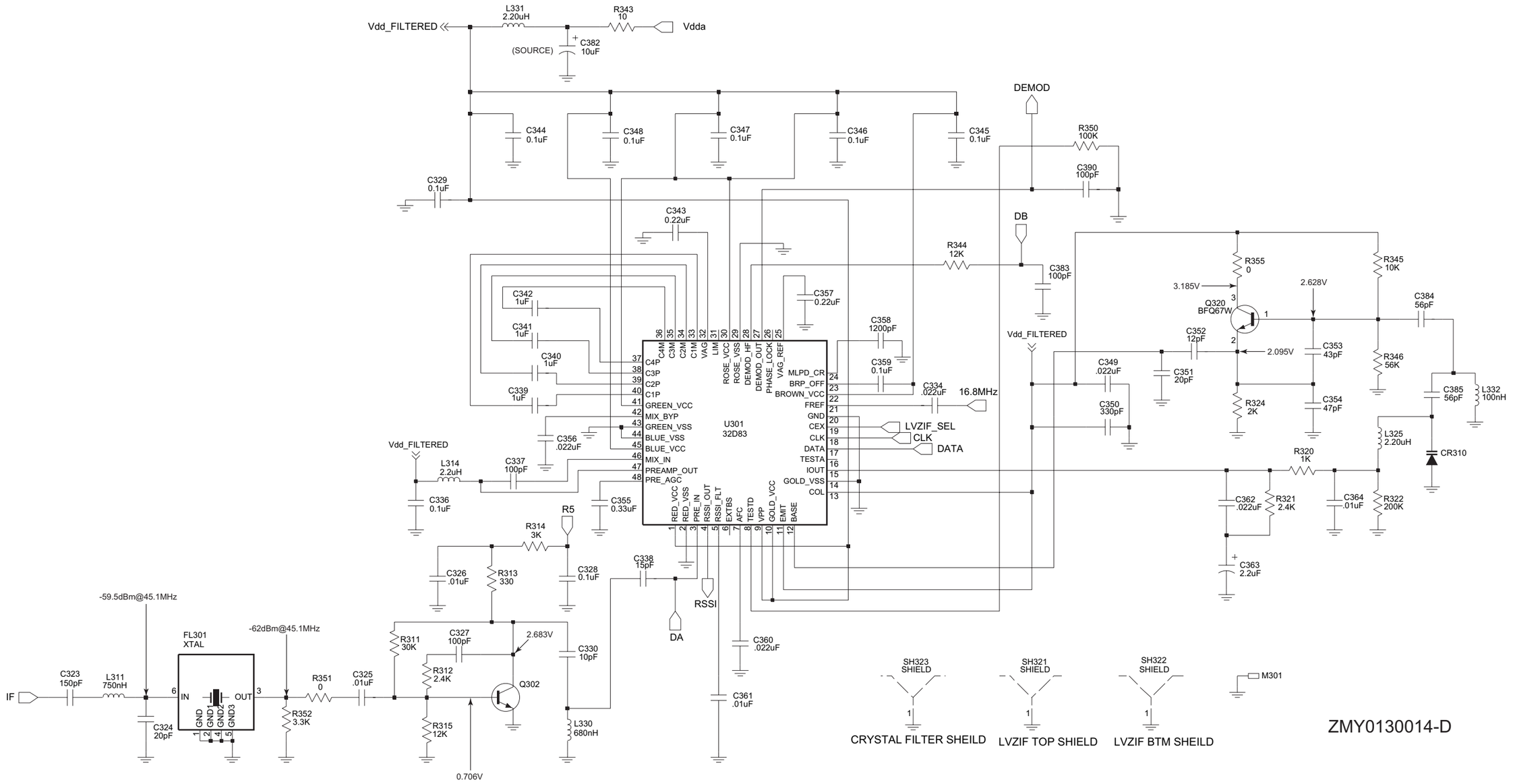
UHF (403-470 MHz) Main Board Bottom Side



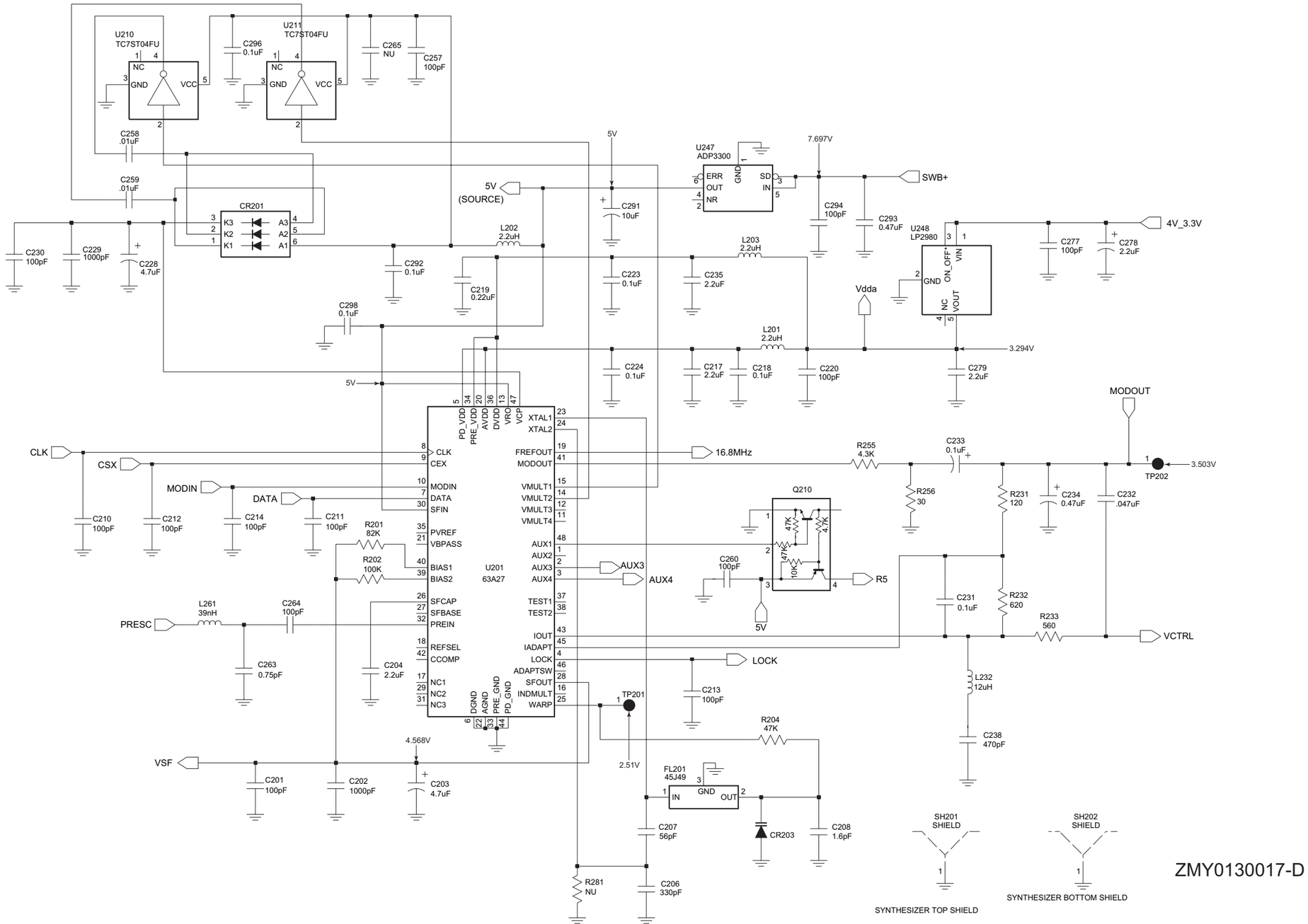
UHF (403-470 MHz) Controls and Switches



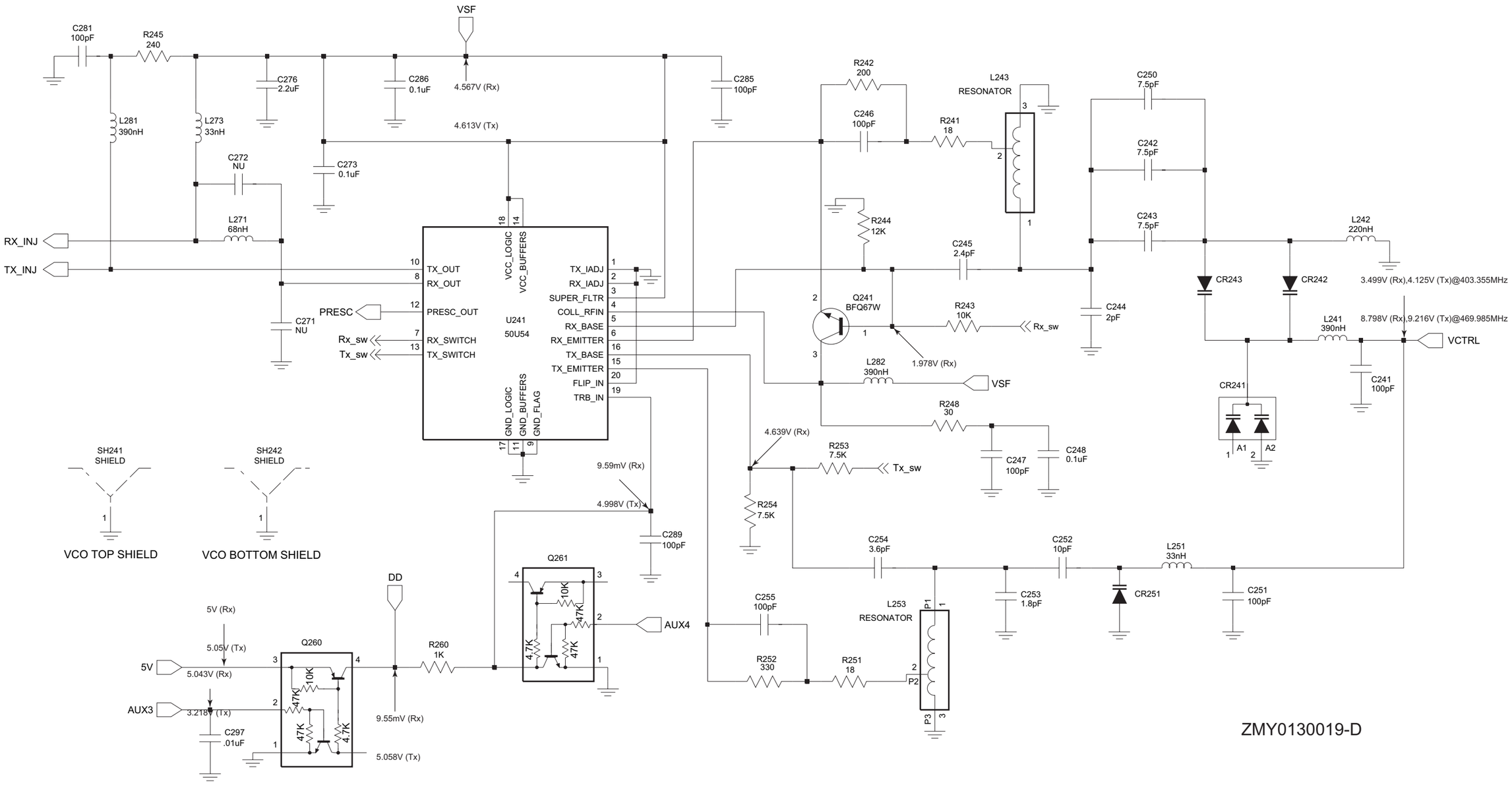
UHF (403-470 MHz) Receiver Front End



UHF (403-470 MHz) Receiver Back End

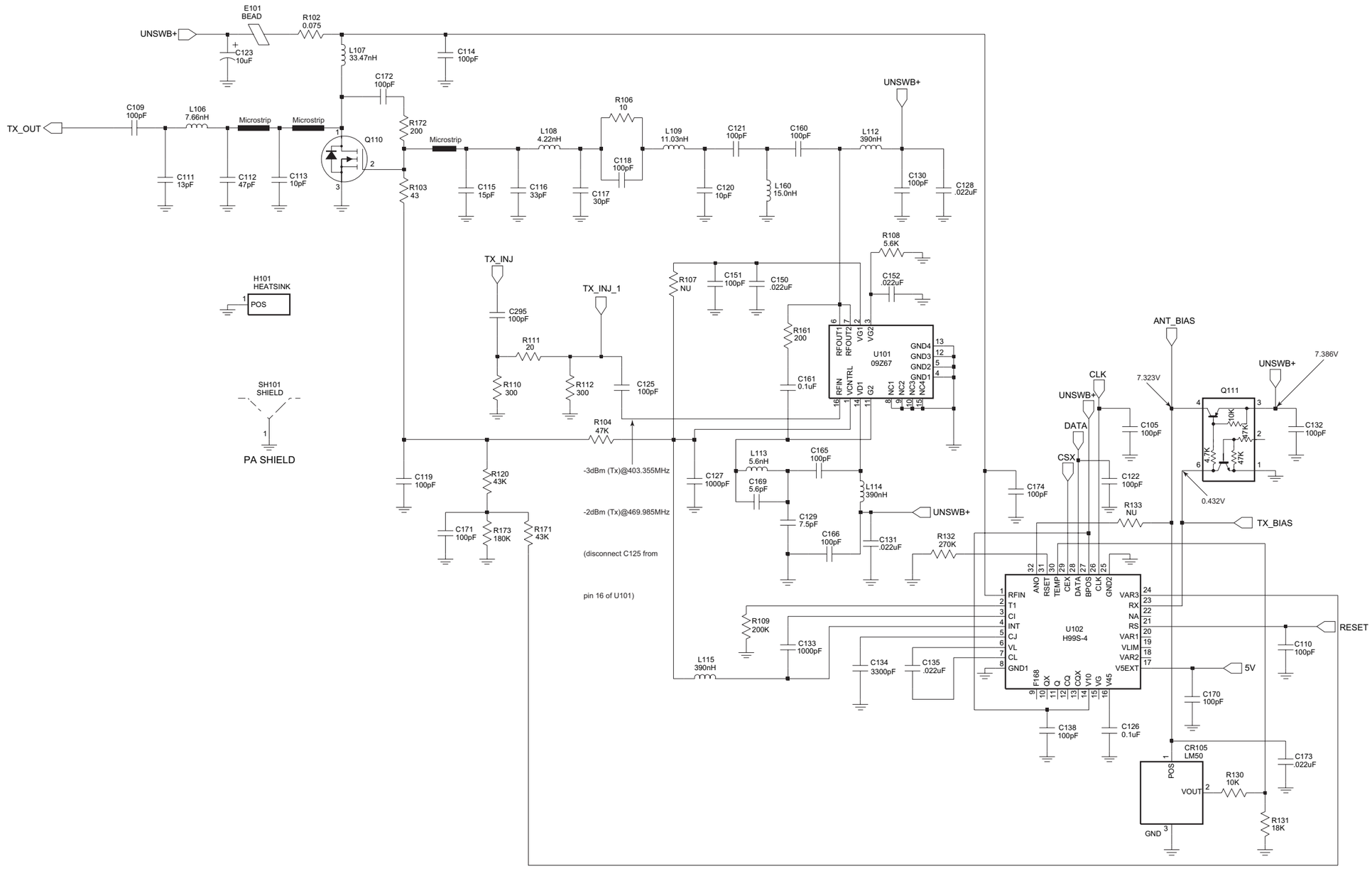


UHF (403-470 MHz) Synthesizer



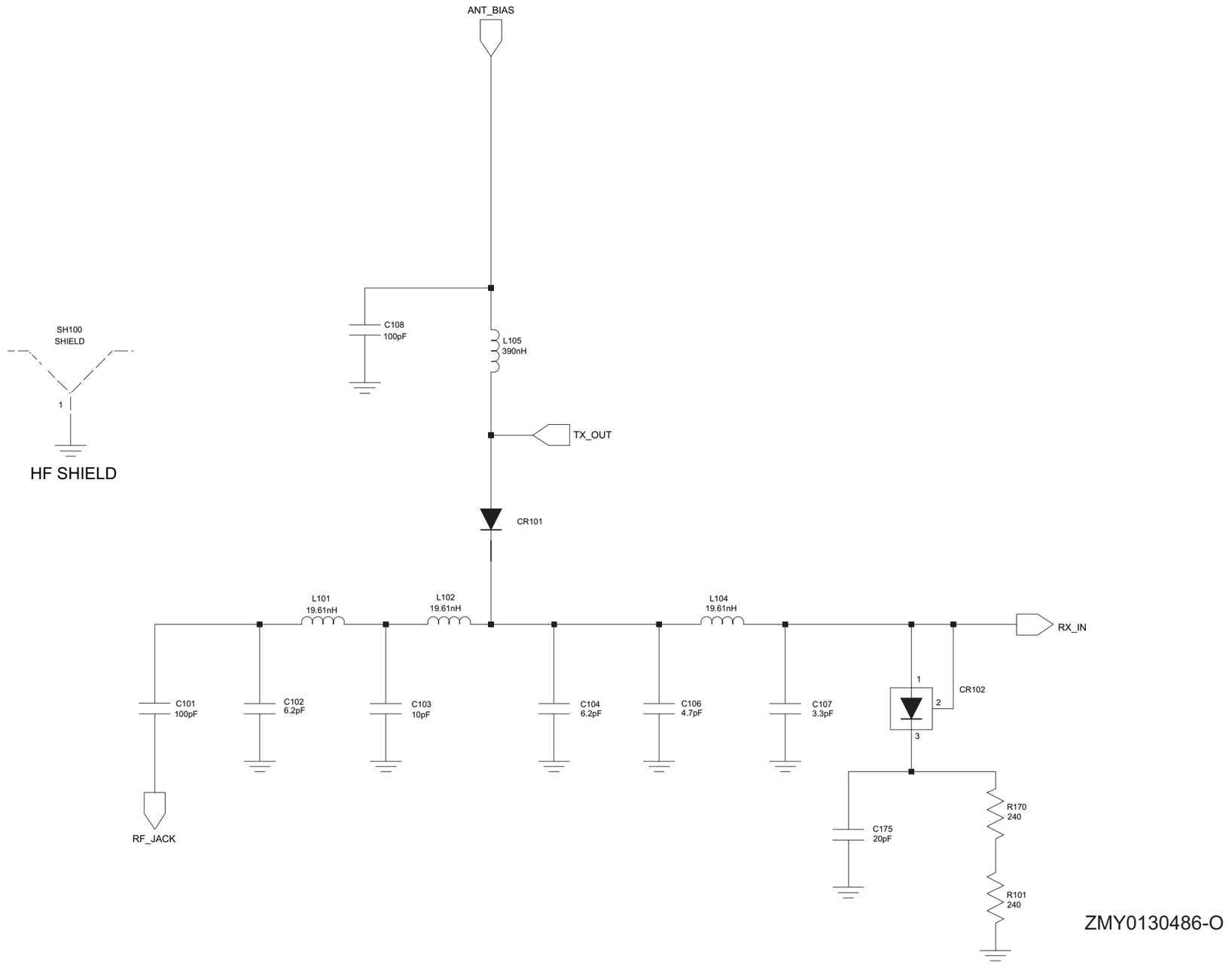
ZMY0130019-D

UHF (403-470 MHz) Voltage Controlled Oscillator



ZMY0130018-E

UHF (403-470 MHz) Transmitter



UHF (403-470 MHz) Voice Storage Circuit

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3.0 UHF PCB 8480450Z03 / PCB 8480587Z01 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	Battery Contact Module
B503	3980502Z01	Backup Contact, B+ (not used in GP140/240)
B504	3980501Z01	Backup Contact, B- (not used in GP140/240)
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F27	10pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2113740F30	13pF
C112	2180605Z32	47pF
C113	2180605Z16	10pF
C114	2113743N50	100pF
C115	2113743N30	15pF
C116	2113743N38	33pF
C117	2113743N37	30pF
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N26	10pF
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A18	10uF
C125	2113743N50	100pF
C126	2113743M24	100000pF
C127	2113743L17	1000pF
C128	2113743M08	22000pF
C129	2113743N23	7.5pF
C130	2113743N50	100pF
C131	2113743M08	22000pF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	0662057N47	1M
C135	2113743M08	22000pF
C138	2113743N50	100pF
C150	2113743M08	22000pF
C151	2113743N50	100pF
C152	2113743M08	22000pF
C160	2113743N50	100pF
C161	2113743M24	100000pF
C165	2113743N50	100pF
C166	2113743N50	100pF
C169	2113743N20	5.6pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113740F51	100pF
C173	2113743M08	22000pF
C174	2113743N50	100pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2311049A56	4.7uF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N44	56pF
C208	2113743N08	1.6pF
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C217	2104993J02	2.2uF
C218	2113743M24	100000pF
C219	2113743K16	0.22uF
C220	2113743N50	100pF
C223	2113743M24	100000pF
C224	2113743M24	100000pF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	100000pF
C232	2113743E12	0.047uF
C233	2311049A01	0.1uF
C234	2311049A05	0.47uF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N23	7.5pF
C243	2113743N23	7.5pF
C244	2113740F10	2.0pF
C245	2113743N11	2.4pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	100000pF
C250	2113743N23	7.5pF
C251	2113743N50	100pF
C252	2113743N26	10pF
C253	2113740F09	1.8pF
C254	2113743N15	3.6pF
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	10000pF
C259	2113743L41	10000pF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C273	2113743M24	100000pF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A57	10uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C285	2113743N50	100pF
C286	2113743M24	100000pF
C289	2113743N50	100pF
C291	2311049A69	10uF
C292	2113743M24	100000pF
C293	2113743A27	0.47uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	100000pF
C297	2113743L41	10000pF
C298	2113743M24	100000pF
C301	2113743N15	3.6pF
C302	2113743N26	10pF
C303	2113740L08	3.9pF
C304	2113743N26	10pF
C305	2113743N33	20pF
C307	2113743M24	100000pF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743M24	100000pF
C312	2113743N25	9.1pF
C313	2113743N26	10pF
C314	2113743M24	100000pF
C315	2113743N50	100pF
C316	2113740L08	3.9pF
C317	2113743N25	9.1pF
C318	2113743N23	7.5pF
C319	2113743N69	1.8pF
C320	2113743N23	7.5pF
C321	2113743N50	100pF
C322	2113743N48	82pF
C323	2113743N54	150pF
C324	2113743N33	20pF
C325	2113743L41	10000pF
C326	2113743L41	10000pF
C327	2113743N50	100pF
C328	2113743M24	100000pF
C329	2113743M24	100000pF
C330	2113743N26	10pF
C331	2113743N50	100pF
C334	2113743M08	22000pF
C336	2113743M24	100000pF
C337	2113743N50	100pF
C338	2113743N30	15pF
C339	2180478Z20	1uF
C340	2180478Z20	1uF
C341	2180478Z20	1uF
C342	2180478Z20	1uF
C343	2113743A23	0.22uF
C344	2113743M24	100000pF
C345	2113743M24	100000pF
C346	2113743M24	100000pF
C347	2113743M24	100000pF
C348	2113743M24	100000pF
C349	2113743E07	0.022uF
C350	2113743L05	330pF

Circuit Ref	Motorola Part No.	Description
C351	2113743N33	20pF
C352	2113743N28	12pF
C353	2113743N41	43pF
C354	2113743N42	47pF
C355	2113743A24	0.33uF
C356	2113743M08	22000pF
C357	2113743A23	0.22uF
C358	2113741A23	1200pF
C359	2109720D14	0.1uF
C360	2113743E07	0.022uF
C361	2113741F49	10nF
C362	2113743M08	22000pF
C363	2311049A40	2.2uF
C364	2113743L41	10000pF
C370	2113743N50	100pF
C374	2113743N50	100pF
C375	2113743N50	100pF
C380	2113743L41	10000pF
C381	2113743N21	6.2pF
C382	2311049A59	10uF
C383	2113743N50	100pF
C384	2113743N44	56pF
C385	2113743N44	56pF
C386	2113743N50	100pF
C390	2113743N50	100pF
C395	2113743N50	100pF
C397	2311049A05	0.47uF
C400	2113743L41	10000pF
C401	2113743M24	100000pF
C402	2113743M24	100000pF
C403	2113743G24	2.2uF
C407	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	100000pF
C410	2113928N01	0.1uF
C411	2113743M24	100000pF
C414	2113743M24	100000pF
C415	2185895Z01	0.01uF
C416	2113928N01	0.1uF
C420	2113743L41	10000pF
C421	2113928N01	0.1uF

Circuit Ref	Motorola Part No.	Description
C422	2113743M24	100000pF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	100000pF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	100000pF
C429	2113743M24	100000pF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C433	2113743L41	10000pF
C434	2113928N01	0.1uF (not used in GP140/240)
C435	2113743M24	100000pF
C436	2113743N34	22pF (not used in GP140/240)
C437	2113743N34	22pF (not used in GP140/240)
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	10uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	22000pF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C451	2113743M08	22000pF
C452	2113743B29	1uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF
C480	2113743G26	4.7uF
C481	2113928N01	0.1uF

Circuit Ref	Motorola Part No.	Description
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C502	2311049A05	0.47uF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	10000pF
C521	2113743L41	10000pF
C522	2113743L41	10000pF
C523	2113743L41	10000pF
CR101	4880973Z02	Pin diode
CR102	4802245J41	Pin diode
CR105	5185963A15	Temperature Sensor
CR201	4802233J09	Triple diode (SOT 25)
CR203	4862824C03	Varactor
CR241	4805649Q13	Varactor
CR242	4862824C08	Varactor
CR243	4862824C08	Varactor
CR251	4802245J22	Varactor
CR301	4862824C08	Varactor
CR302	4862824C08	Varactor
CR303	4880154K03	Dual common anode-cathode diode
CR304	4862824C08	Varactor
CR305	4862824C08	Varactor
CR306	4802245J42	Ring Quad diode (SOT-143)
CR308	4802245J41	Pin diode
CR310	4862824C08	Varactor
CR411	4802245J47	Schottky diode
CR412	4802245J47	Schottky diode
CR413	4802245J47	Schottky diode

Circuit Ref	Motorola Part No.	Description
CR440	4813833C02	Dual common cathode diode
CR501	4880107R01	Rectifier
CR503	4805729G49	Red/Yellow LED
E101	2484657R01	Ferrite bead
E400	2480640Z01	Ferrite bead
E401	2480640Z01	Ferrite bead
E402	2480640Z01	Ferrite bead
E403	2480640Z01	Ferrite bead
E404	2480640Z01	Ferrite bead
E405	2480640Z01	Ferrite bead
E406	2480640Z01	Ferrite bead
E407	2480640Z01	Ferrite bead
E408	2480640Z01	Ferrite bead
E409	2480640Z01	Ferrite bead
F501	6580542Z01	3A fuse
FL201	4802245J49	16.8MHz Xtal oscillator
FL301	4802245J43	Xtal Filter 45.1MHz
FL401	4870368G02	Real Time clock Osc Xtal (not used in GP140/240)
H101	2680499Z01	Heat spreader
J101	0985613Z01	RF Jack
J102	0280519Z02	Antenna nut
J400	0905505Y04	40-pin connector
J403	0905505Y02	20-pin connector
L101	2479990B02	19.61nH
L102	2479990B02	19.61nH
L104	2479990B02	19.61nH
L105	2462587N22	390nH
L106	2479990A02	7.66nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L109	2479990B01	11.03nH
L112	2462587N45	22nH
L113	2413926H09	0.3nH
L114	2462587N22	390nH
L115	2462587N22	390nH
L116	2479990A03	9.75nH
L160	2413926H14	15nH
L201	2462587Q20	2200nH
L202	2462587Q20	2200nH
L203	2462587Q20	2200nH

Circuit Ref	Motorola Part No.	Description
L232	2462587P25	12000nH
L241	2462587V41	390nH
L242	2462587V38	220nH
L243	2460593C01	Multi-layered Teflon resonator, Rx
L251	2462587V28	33nH
L253	2460593C02	Multi-layered Teflon resonator, Tx
L261	2462587V29	39nH
L271	2462587V32	68nH
L273	2462587V28	33nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990C01	13.9nH
L302	2479990C01	13.9nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V26	22nH
L306	2479990C01	13.9nH
L307	2479990C01	13.9nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH
L311	2462587N65	750nH
L314	2462587N72	2200nH
L325	2480646Z20	2.2uH
L330	2462587N64	680nH
L331	2480646Z20	2.2uH
L332	2462587N53	100nH
L340	2462587V41	390nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
P100	3905643V01	Ground contact finger
PB501	4080523Z01	Tactile switch
PB502	4080523Z01	Tactile switch
PB503	4080523Z01	Tactile switch
PB504	4080523Z01	Tactile switch
PB505	4080523Z01	Tactile switch
Q110	4802245J55	RF Power amplifier
Q111	4802245J50	Dual NPN/PNP Transistor
Q210	4802245J50	Dual NPN/PNP Transistor
Q241	4805218N63	RF NPN transistor
Q260	4802245J50	Dual NPN/PNP Transistor
Q261	4802245J50	Dual NPN/PNP Transistor
Q301	4802245J44	NPN Transistor
Q302	4802245J44	NPN Transistor
Q315	4880214G02	NPN Transistor
Q320	4805218N63	RF NPN transistor
Q400	4809579E18	Mosfet P-chan
Q403	4880214G02	NPN Transistor
Q405	4802245J54	Dual NPN Transistor
Q410	4802245J54	Dual NPN Transistor
Q416	4809579E18	Mosfet P-chan (not used in GP140/240)
Q417	4802245J50	Dual NPN/PNP Transistor
Q502	5180159R01	Dual NPN Transistor
Q505	4880214G02	NPN Transistor
R101	0662057A34	240
R102	0680539Z01	0.1
R103	0662057M41	43
R104	0662057N15	47k
R106	0662057M26	10
R108	0662057M92	5600
R109	0662057N30	200k
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43k
R130	0662057M98	10k
R131	0662057N05	18k
R132	0662057N33	270k
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43k
R172	0662057A32	200
R173	0662057N29	180k
R201	0662057N21	82k
R202	0662057N23	100k
R204	0662057N15	47k
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M57	200
R243	0662057M98	10k
R244	0662057N01	12k
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M32	18
R252	0662057M62	330
R253	0662057M95	7500
R254	0662057M95	7500
R255	0662057M89	4300
R256	0662057M37	30
R260	0662057M74	1000
R300	0662057M82	2200
R301	0662057N23	100k
R302	0662057N23	100k
R303	0662057M74	1000
R304	0662057N01	12k
R305	0662057M67	0
R306	0662057N23	100k
R307	0662057N23	100k
R308	0662057M60	270
R309	0662057M32	18
R310	0662057M60	270
R311	0662057N10	30k
R312	0662057M83	2400
R313	0662057M62	330
R314	0662057M85	3000
R315	0662057N01	12k
R316	0662057A96	91k
R317	0662057M74	1000
R318	0662057A79	18k
R319	0662057A29	150
R320	0662057M74	1000
R321	0662057M83	2400
R322	0662057N30	200k
R324	0662057M81	2000
R325	0662057M94	6800
R327	0662057N11	33k
R328	0662057M12	2.7
R329	0662057M01	0
R339	0662057M01	0
R340	0662057M94	6800
R342	0662057N23	100k
R343	0662057M26	10
R344	0662057N01	12k
R345	0662057M98	10k
R346	0662057N17	56k
R347	0662057M74	1000
R348	0662057M87	3600
R349	0662057C01	0
R350	0662057N23	100k
R351	0662057C01	0
R352	0662057M86	3300
R355	0662057M01	0
R400	0662057N15	47k
R401	0662057M01	0
R405	0662057M01	0
R406	0662057N20	75k
R407	0662057N19	68k
R409	0662057M98	10k
R410	0662057N23	100k
R411	0662057M98	10k
R413	0662057M01	0
R414	0662057V34	180k
R415	0662057V26	91k
R416	0662057M90	4700
R418	0662057M01	0
R419	0662057M67	0 (not used in GP140/240)
R420	0662057B46	10M (not used in GP140/240)
R421	0662057M81	2000
R423	0662057N39	470k
R424	0662057N12	36k
R425	0662057N10	30k
R426	0662057N35	330k (not used in GP140/240)
R427	0662057M84	2700
R428	0662057M10	2.2
R429	0662057M98	10k
R431	0662057N39	470k
R432	0662057N16	51k

Circuit Ref	Motorola Part No.	Description
R434	0662057M62	330
R435	0662057M81	2000
R436	0662057M01	0
R445	0662057N08	24k
R446	0662057N22	91k
R447	0662057N38	430k
R448	0662057N06	20k
R449	0662057N08	24k
R450	0683962T45	68 ohms, 1W
R457	0662057M98	10k
R460	0662057M90	4700
R461	0662057M56	180 (not used in GP140/ GP240)
R462	0662057M98	10k (not used in GP140/ GP240)
R463	0662057M61	300
R471	0662057N06	20k
R472	0662057N12	36k
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N35	330k
R477	0662057M74	1000
R478	0662057M98	10k
R481	0662057N08	24k
R492	0662057M01	0
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10k
R506	0662057N15	47k
R507	0662057M01	0
RT300	0680590Z01	THERMISTOR_33K
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z01	Frequency Switch
S502	1880619Z02	Volume/on-off switch
SH100	2680507Z01	Harmonic Filter shield
SH101	2680510Z01	RF PA shield
SH201	2680511Z01	Synthesizer top shield
SH202	2680511Z01	Synthesizer bottom shield
SH241	2680513Z01	Resonators shield
SH242	2680514Z01	VCO Buffer IC shield
SH301	2680554Z01	Receiver front end shield

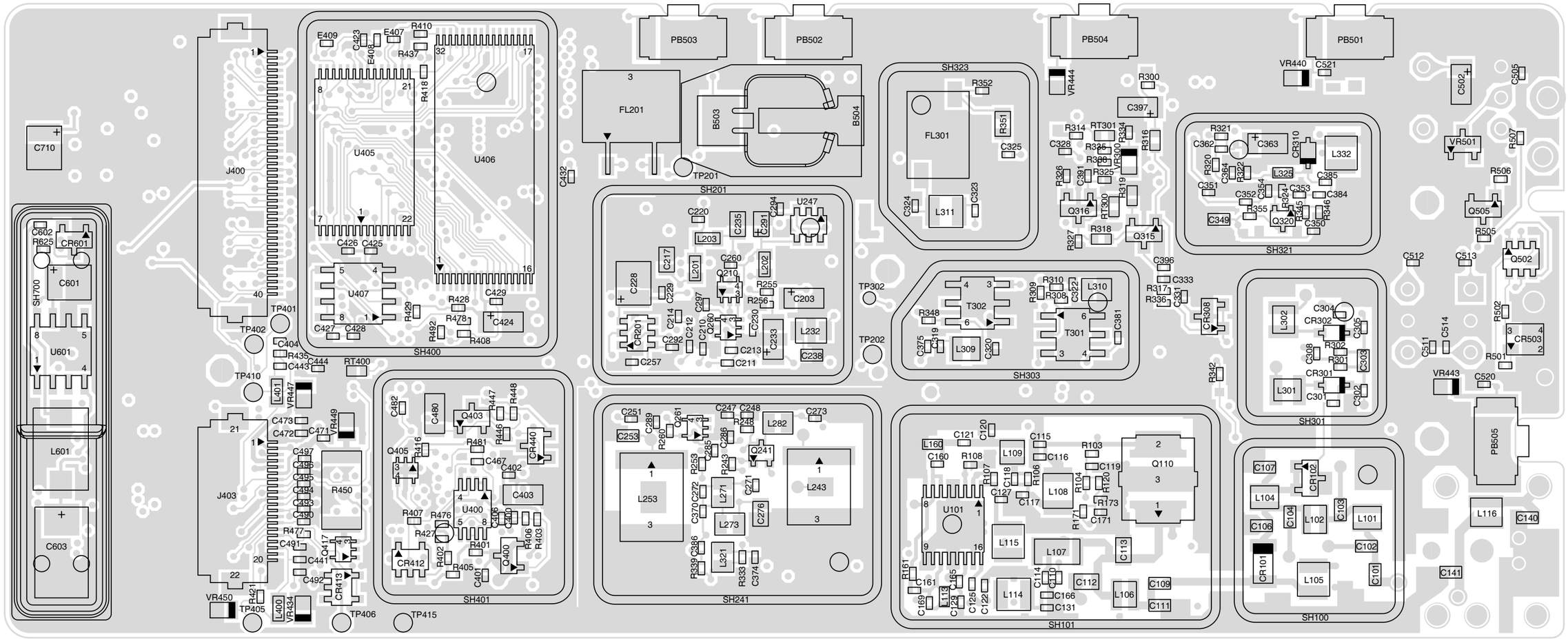
Circuit Ref	Motorola Part No.	Description
SH302	2680555Z01	Receiver front end bottom shield
SH303	2680509Z01	Mixer shield
SH304	2680624Z01	Mixer diode shield
SH321	2680508Z01	LVZIF 2nd LO shield
SH322	2680514Z01	LVZIF shield
SH323	2680553Z01	Crystal Filter shield
SH400	2680505Z01	Controller Memory Shield
SH401	2680506Z01	Controller on-off shield
SH402	2680515Z01	Microprocessor shield
SH403	2680516Z01	Asfic_Cmp/Audio PA shield
T301	2580541Z02	Balun transformer
T302	2580541Z02	Balun transformer
U101	5105109Z67	LDMOS driver IC
U102	5185765B28	PCIC
U201	5185963A27	LVFRACN Synthesizer IC
U210	5102463J61	Inverter
U211	5102463J61	Inverter
U241	5105750U54	VCO Buffer IC
U247	5105739X05	5V Regulator
U248	5102463J58	3.3V REGULATOR IN SOT23-5 PKG
U301	5109632D83	LVZIF IC
U400	5102463J40	3.3V Regulator
U404	5185963A53	Asfic_Cmp
U406	*5102463J59	128K X 8 FLASH ROM
U407	*5102463J64	16K X 8 EEPROM
U409	5102226J56	Microprocessor
U410	5102463J57	3.3V Regulator (not used in GP140/240)
U420	5102463J44	Audio amplifier
VR432	4805656W08	Zener diode-5.6V
VR433	4805656W08	Zener diode-5.6V
VR434	4802245J73	Zener diode-6.8V
VR439	4880140L17	Zener diode-12V
VR440	4802245J73	Zener diode-6.8V
VR441	4802245J73	Zener diode-6.8V
VR442	4802245J73	Zener diode-6.8V
VR443	4802245J73	Zener diode-6.8V
VR444	4802245J73	Zener diode-6.8V
VR445	4802245J53	Zener diode-10V

Circuit Ref	Motorola Part No.	Description
VR446	4802245J74	Zener diode-10V
VR447	4802245J74	Zener diode-10V
VR448	4802245J74	Zener diode-10V
VR449	4802245J74	Zener diode-10V
VR450	4802245J75	Zener diode-12V
VR501	4813830A18	Zener diode-6.8V
VR506	4802245J73	Zener diode-6.8V
	1485777Z01	Insulator
	8480450Z03	UHF Band 1 main PC Board

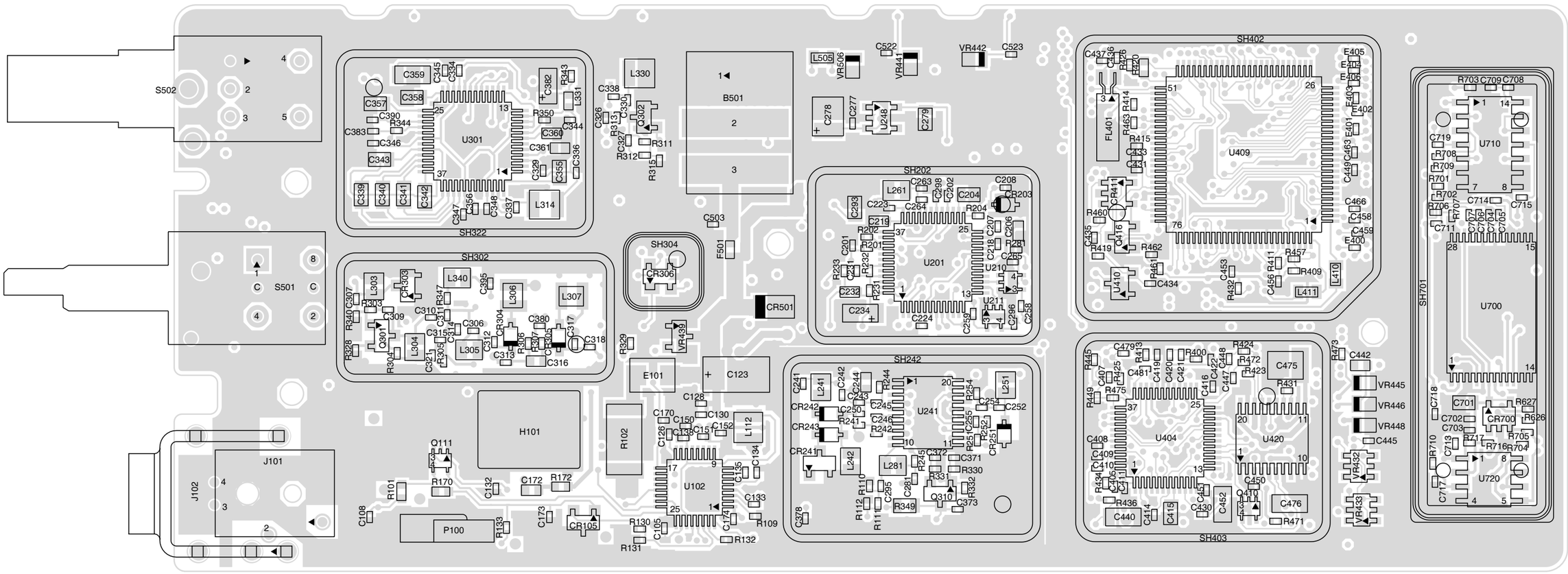
* Motorola Depot Servicing only

Reference designators with an asterisk indicate components which are not fieldreplaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

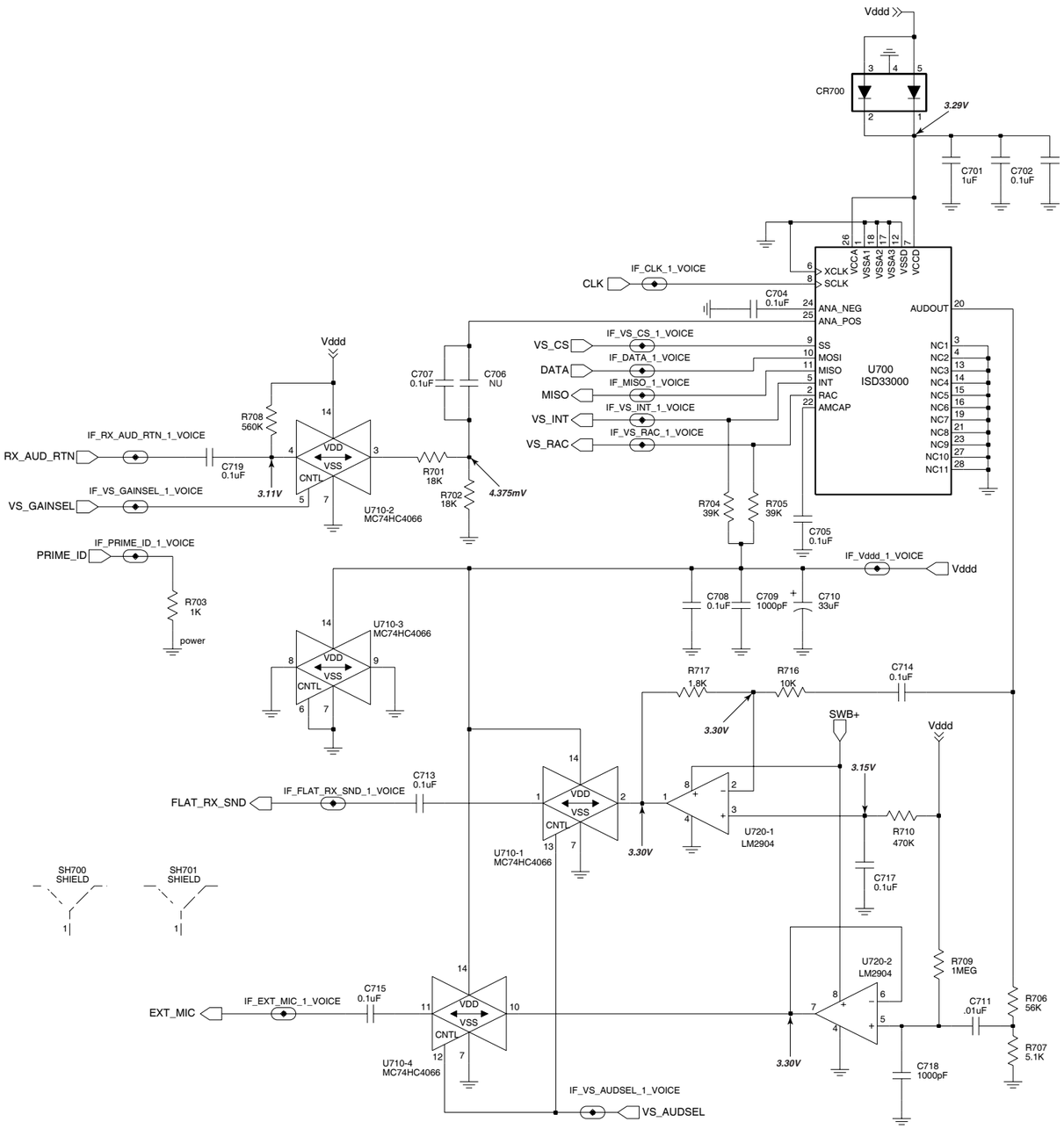
4.0 UHF PCB 8480587Z01 (GP1280) Schematics



UHF (403-470MHz) GP1280 Main Board Top Side



UHF (403-470MHz) GP1280 Main Board Bottom Side



UHF (403-470 MHz) GP1280 - Voice Storage Schematic

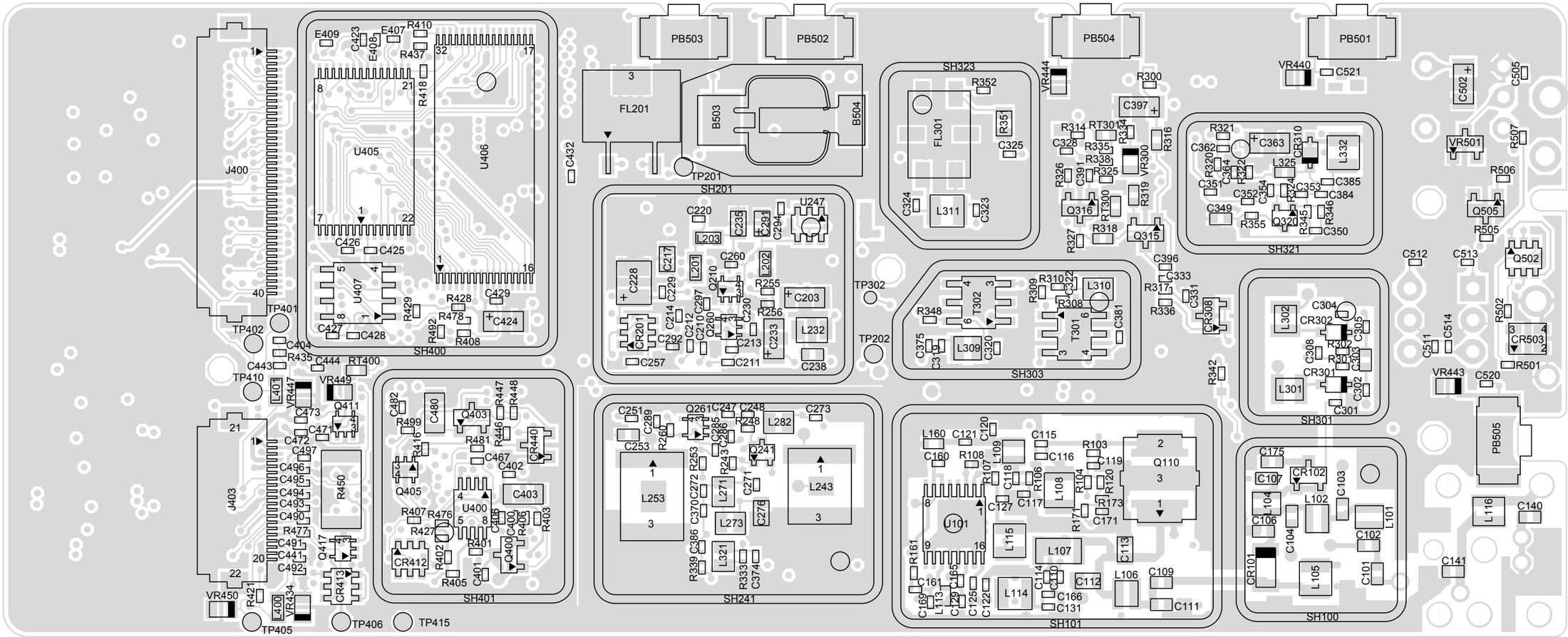
5.0 Voice Storage Parts List (GP1280)

Circuit Ref	Motorola Part No.	Description
C601	2311049A57	10uF
C602	2113743L41	.01uF
C603	2311049C07	100uF
C701	2180478Z20	1uF
C702	2113928N01	0.1uF
C703	2113743N50	100pF
C704	2113928N01	0.1uF
C705	2113928N01	0.1uF
C706	2113928N01	0.1uF
C707	2113928N01	0.1uF
C708	2113928N01	0.1uF
C709	2113743N50	100pF
C710	2311049A30	33uF
C711	2113928N01	0.1uF
C713	2113928N01	0.1uF
C714	2113928N01	0.1uF
C715	2113928N01	0.1uF
C716	2113928N01	0.1uF
C717	2180478Z20	1uF
C718	2180478Z20	1uF
CR601	4805129M76	
CR700	4802245J47	
L601	2480570Z01	68uH
R625	0662057M01	
R626	0662057M83	2.4K
R627	0662057M74	1K
R701	0662057N10	30K
R702	0662057M91	5.1K
R703	0662057N15	47K
R704	0662057N23	100K
R705	0662057N23	100K
R706	0662057N17	56K
R707	0662057M91	5.1K
R716	0662057N15	47K
R717	0662057N15	47K
U601	5105109Z74	LM2675
U700	5102463J53	ISD33000
U710	5102463J52	MC74HC4066
U720	5180932W01	LM2904

* Motorola Depot Servicing only

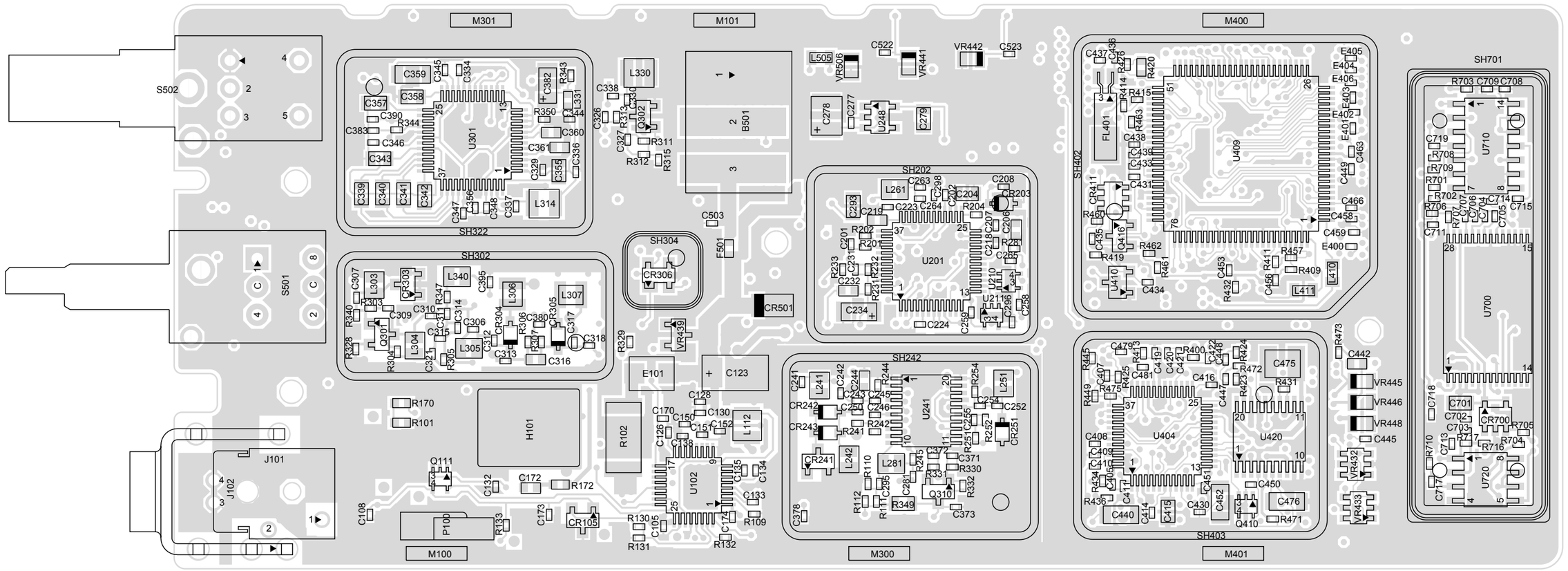
Reference designators with an asterisk indicate components which are not fieldreplaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

6.0 UHF PCB 8480587Z03 Schematics

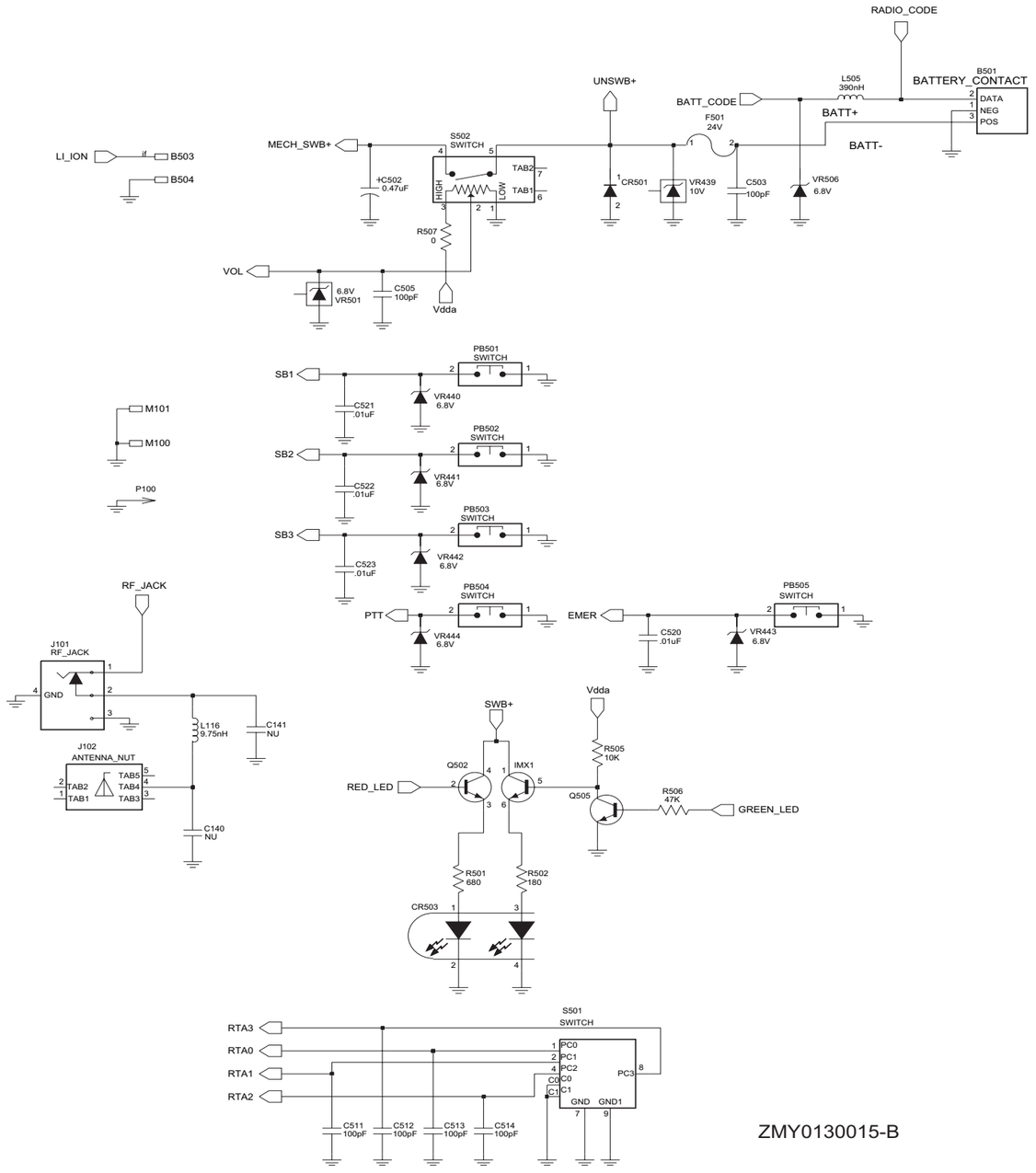


ZMY0130183-A

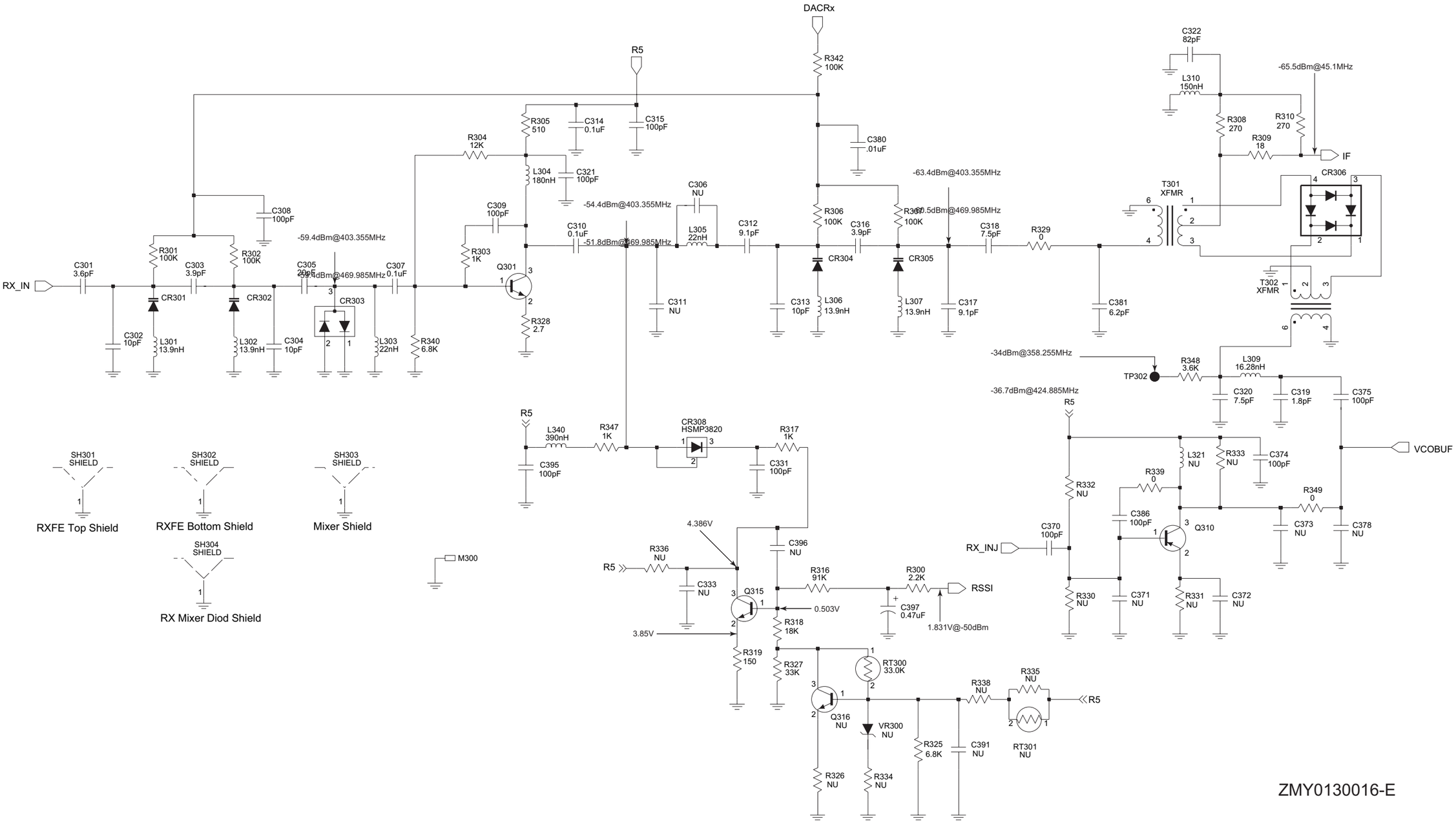
UHF (403-470MHz) GP1280 Main Board Top Side



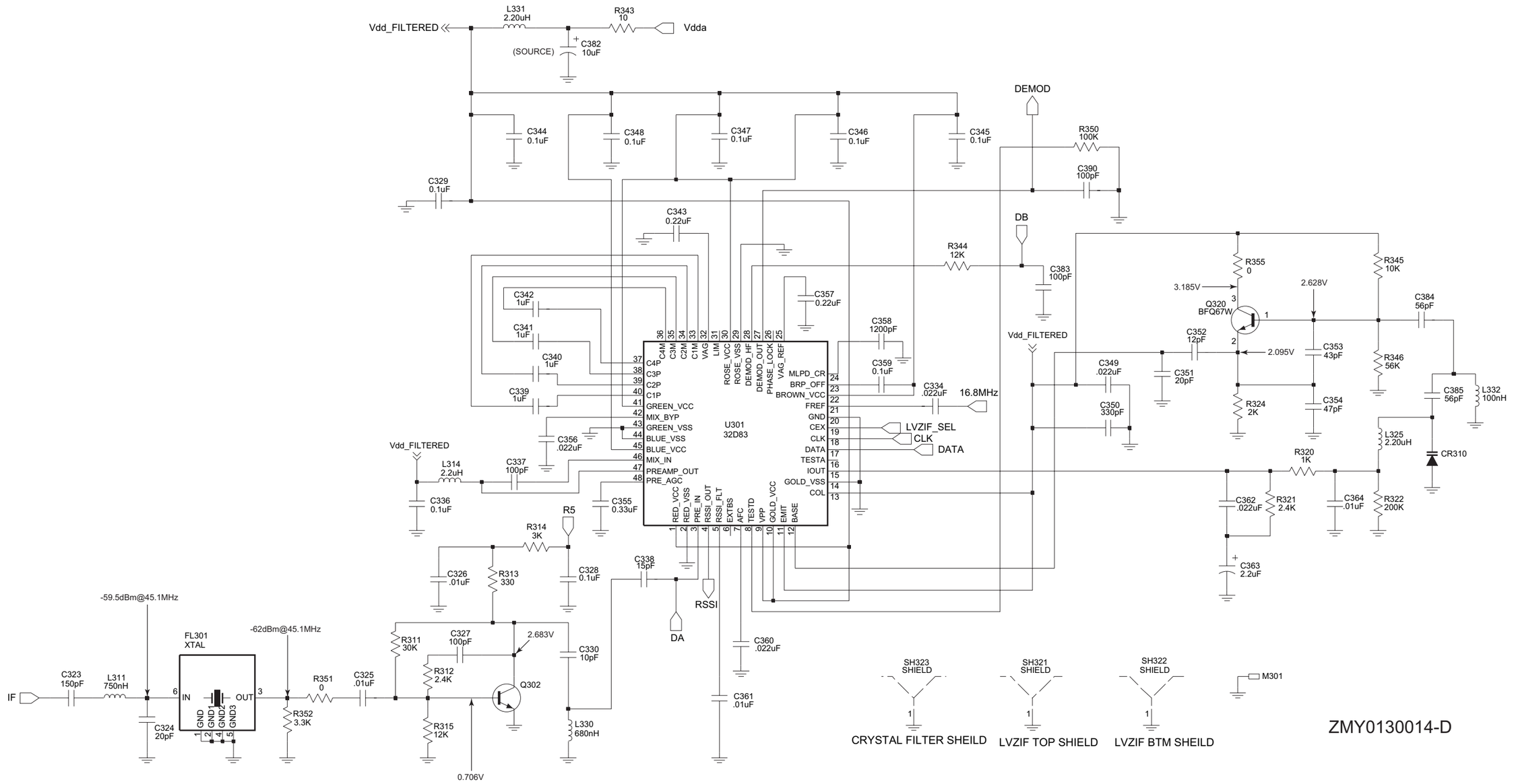
UHF (403-470MHz) GP1280 Main Board Bottom Side



ZMY0130015-B

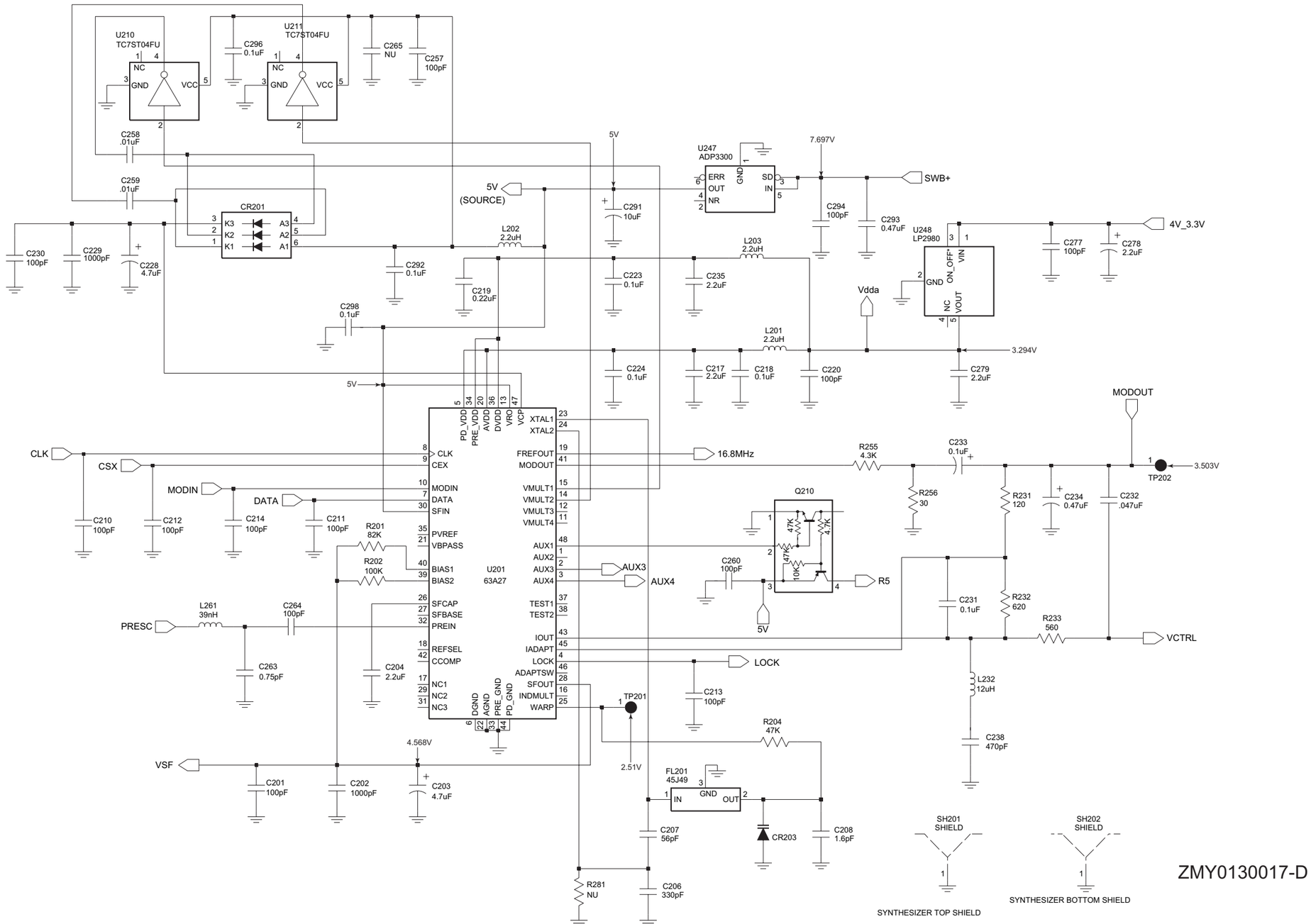


UHF (403-470 MHz) Receiver Front End

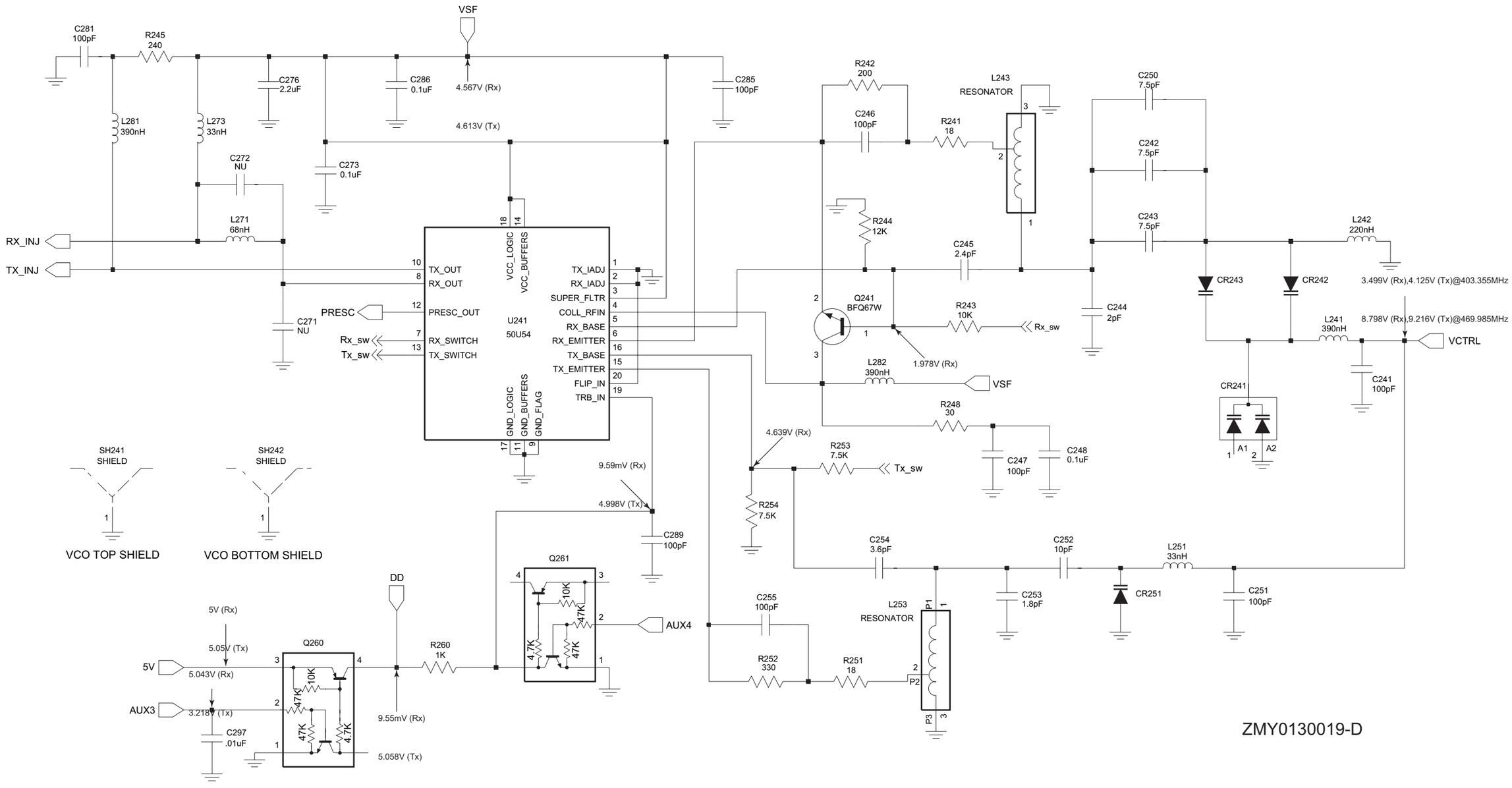


ZMY0130014-D

UHF (403-470 MHz) Receiver Back End

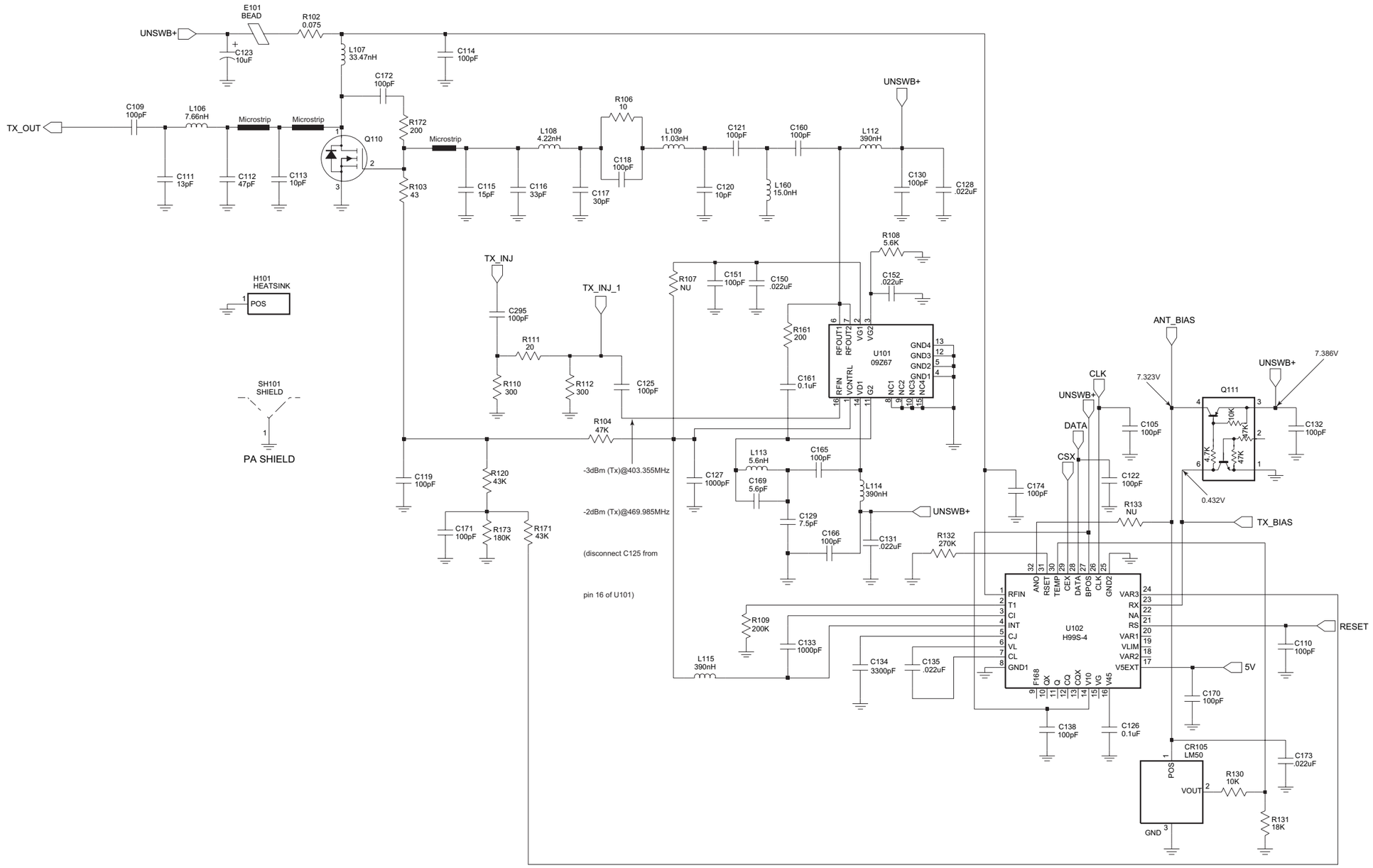


UHF (403-470 MHz) Synthesizer



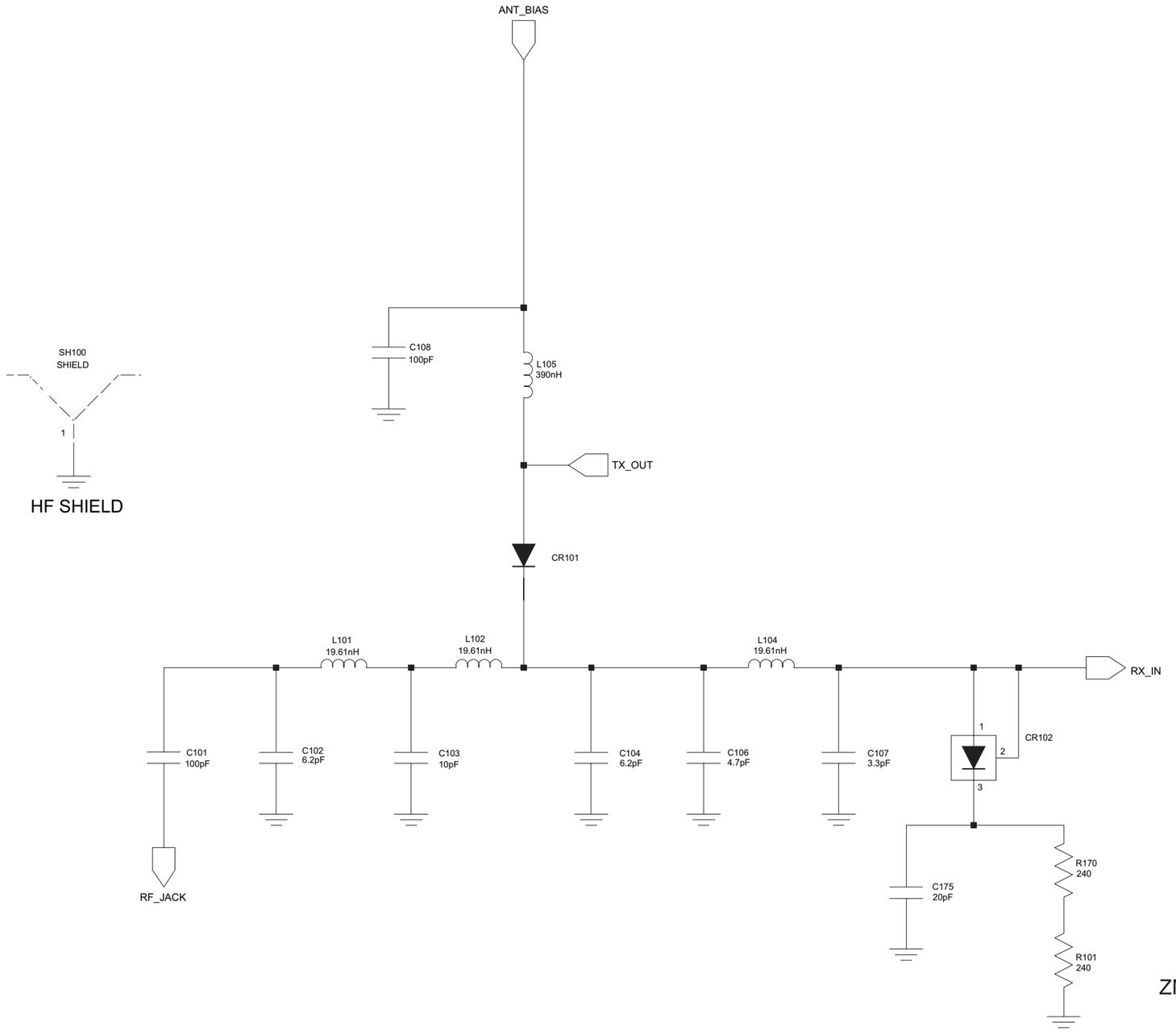
ZMY0130019-D

UHF (403-470 MHz) Voltage Controlled Oscillator



ZMY0130018-E

UHF (403-470 MHz) Transmitter



ZMY0130486-O

UHF (403-470 MHz) Harmonic Filter

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7.0 UHF PCB 8480587Z03 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A01	CONN, CONTACT BATTERY
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F27	10pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2113740F30	13pF
C112	2180605Z32	47pF
C113	2180605Z16	10pF
C114	2113743N50	100pF
C115	2113743N30	15.0pF
C116	2113743N38	33.0pF
C117	2113743N37	30.0pF
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N26	10pF
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A18	10uF
C125	2113743N50	100pF
C126	2113743M24	0.1uF
C127	2113743L17	1000pF
C128	2113743M08	0.022uF
C129	2113743N23	7.5pF
C130	2113743N50	100pF
C131	2113743M08	0.022uF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	2113743L29	3300pF
C135	2113743M08	0.022uF
C138	2113743N50	100pF
C150	2113743M08	0.022uF
C151	2113743N50	100pF
C152	2113743M08	0.022uF
C160	2113743N50	100pF
C161	2113743M24	0.1uF
C165	2113743N50	100pF
C166	2113743N50	100pF
C169	2113743N20	5.6pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113740F51	100pF
C173	2113743M08	0.022uF
C174	2113743N50	100pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2311049A56	4.7pF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N44	56.0pF
C208	2113743N08	1.6pF
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C217	2104993J02	2.2uF
C218	2113743M24	0.1uF
C219	2113743K16	0.220uF
C220	2113743N50	100pF
C223	2113743M24	0.1uF
C224	2113743M24	0.1uF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	0.1uF
C232	2113743E12	0.047uF
C233	2311049A01	0.1pF
C234	2311049A05	0.47pF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N23	7.5pF
C243	2113743N23	7.5pF
C244	2113740F10	2.0pF
C245	2113743N11	2.4pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	0.1uF
C250	2113743N23	7.5pF
C251	2113743N50	100pF
C252	2113743N26	10pF
C253	2113740F09	1.8pF
C254	2113743N15	3.6pF
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	0.01uF
C259	2113743L41	0.01uF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C273	2113743M24	0.1uF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A09	2.2uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C285	2113743N50	100pF
C286	2113743M24	0.1uF
C289	2113743N50	100pF
C291	2311049A69	10.0uF
C292	2113743M24	0.1uF
C293	2113743A27	0.470uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	0.1uF
C297	2113743L41	0.01uF
C298	2113743M24	0.1uF
C301	2113743N15	3.6pF
C302	2113743N26	10pF
C303	2113740L08	3.9pF
C304	2113743N26	10pF
C305	2113743N33	20.0pF
C307	2113743M24	0.1uF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743M24	0.1uF
C312	2113743N25	9.1pF
C313	2113743N26	10pF
C314	2113743M24	0.1uF
C315	2113743N50	100pF
C316	2113740L08	3.9pF
C317	2113743N25	9.1pF
C318	2113743N23	7.5pF
C319	2113743N69	1.8pF
C320	2113743N23	7.5pF
C321	2113743N50	100pF
C322	2113743N48	82.0pF
C323	2113743N54	150pF
C324	2113743N33	20.0pF
C325	2113743L41	0.01uF
C326	2113743L41	0.01uF
C327	2113743N50	100pF
C328	2113743M24	0.1uF
C329	2113743M24	0.1uF
C330	2113743N26	10pF
C331	2113743N50	100pF
C334	2113743M08	0.022uF
C336	2113743M24	0.1uF
C337	2113743N50	100pF
C338	2113743N30	15.0pF
C339	2180478Z20	1.0uF
C340	2180478Z20	1.0uF
C341	2180478Z20	1.0uF
C342	2180478Z20	1.0uF
C343	2113743A23	0.220uF
C344	2113743M24	0.1uF
C345	2113743M24	0.1uF
C346	2113743M24	0.1uF
C347	2113743M24	0.1uF
C348	2113743M24	0.1uF
C349	2113743E07	0.022uF
C350	2113743L05	330pF
C351	2113743N33	20.0pF
C352	2113743N28	12.0pF
C353	2113743N41	43.0pF
C354	2113743N42	47.0pF
C355	2113743A24	0.330uF
C356	2113743M08	0.022uF
C357	2113743A23	0.220uF
C358	2113741A23	1200pF
C359	2109720D14	0.1uF
C360	2113743E07	0.022uF
C361	2113741F49	10nF
C362	2113743M08	0.022uF
C363	2311049A40	2.2uF
C364	2113743L41	0.01uF
C370	2113743N50	100pF
C374	2113743N50	100pF
C375	2113743N50	100pF
C380	2113743L41	0.01uF
C381	2113743N21	6.2pF
C382	2311049A59	10uF
C383	2113743N50	100pF
C384	2113743N44	56.0pF
C385	2113743N44	56.0pF
C386	2113743N50	100pF
C390	2113743N50	100pF
C395	2113743N50	100pF
C397	2311049A05	0.47pF
C400	2113743L41	0.01uF
C401	2113743M24	0.1uF
C402	2113743M24	0.1uF
C403	2113928D08	10.0uF
C407	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	0.1uF
C410	2113928N01	0.1uF
C411	2113743M24	0.1uF
C414	2113743M24	0.1uF
C415	2109720D01	0.01uF
C416	2113928N01	0.1uF
C420	2113743L41	0.01uF
C421	2113928N01	0.1uF
C422	2113743M24	0.1uF
C423	2113743N50	100pF

Circuit Ref	Motorola Part No.	Description
C424	2311049A59	10uF
C425	2113743M24	0.1uF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	0.1uF
C429	2113743M24	0.1uF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C433	2113743L41	0.01uF
C434	2113743M24	0.1uF
C435	2113743M24	0.1uF
C436	2113743N34	22.0pF
C437	2113743N34	22.0pF
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	10uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	0.022uF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C451	2113743M08	0.022uF
C452	2113743G26	4.7uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10.0uF
C476	2113928D08	10.0uF
C479	2113928N01	0.1uF
C480	2113928D08	10.0uF
C481	2113928N01	0.1uF
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C502	2311049A05	0.47pF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	0.01uF
C521	2113743L41	0.01uF
C522	2113743L41	0.01uF
C523	2113743L41	0.01uF
C701	2180478Z20	1.0uF
C702	2113928N01	0.1uF
C703	2113743N50	100 pF
C704	2113928N01	0.1uF
C705	2113928N01	0.1uF
C707	2113928N01	0.1uF
C708	2113928N01	0.1uF
C709	2113743L17	1000 pF
C710	2311049A30	33 uF
C711	2113743L41	0.1 uF
C713	2113928N01	0.1 uF
C714	2113928N01	0.1 uF
C715	2113928N01	0.1 uF
C717	2113928N01	0.1 uF
C718	2113743L17	1000pF
C719	2113928N01	0.1uF
CR101	4880973Z02	PIN DIODE
CR102	4802245J41	PIN DIODES
CR105	5185963A15	TEMPERATURE SENSE
CR201	4802233J09	DIODE TRIPLE
CR203	4862824C03	VARACTOR
CR241	4805649Q13	DUAL VARACTOR
CR242	4862824C01	VARACTOR
CR243	4862824C01	VARACTOR
CR251	4802245J22	VARACTOR
CR301	4862824C01	VARACTOR
CR302	4862824C01	VARACTOR
CR303	4880154K03	DUAL COMMON ANODE-CATHODE
CR304	4862824C01	VARACTOR
CR305	4862824C01	VARACTOR
CR306	4802245J42	RING QUAD DIODE
CR308	4802245J41	PIN DIODES
CR310	4862824C01	VARACTOR
CR411	4802245J47	DIODE SCHOTTKY
CR412	4802245J47	DIODE SCHOTTKY
CR413	4802245J47	DIODE SCHOTTKY
CR440	4813833C02	DUAL DIODE COMMON CATHODE
CR501	4880107R01	RECTIFIER
CR503	4805729G49	LED RED/YEL
CR700	4802245J47	DIODE SCHOTTKY
E101	2484657R01	FERRITE BEAD
E400-		
E409	2480640Z01	FERRITE BEAD
F501	6580542Z01	FUSE 3A
FL201	4802245J49	CRYSTAL 16.8MHZ CLIP
FL301	4802245J43	XTAL FILTER 45.1MHZ
FL401	4870368G02	CLOCK OSC XTAL
H101	2680499Z01	HEAT SPREADER
J101	0180117S05	RF JACK ASSEMBLY
J102	0280519Z02	NUT, ANTENNA
J400	0905505Y04	40 PINS CONNECTOR
J403	0905505Y02	20 PINS CONNECTOR
L101	2479990B02	19.61nH
L102	2479990B02	19.61nH
L104	2479990B02	19.61nH
L105	2462587N22	390nH
L106	2479990A02	7.66nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L109	2479990B01	11.03nH
L112	2462587N45	22nH
L113	2413926H09	5.6nH
L114	2462587N22	390nH
L115	2462587N22	390nH
L116	2479990A03	9.75nH
L160	2413926H14	15.0nH
L201	2462587Q20	2.2UH
L202	2462587Q20	2.2UH
L203	2462587Q20	2.2UH
L232	2462587P25	12UH
L241	2462587V41	390nH
L242	2462587V38	220nH
L243	2460593C01	TEFLON RESONATOR
L251	2462587V28	33nH
L253	2460593C02	TEFLON RESONATOR
L261	2462587V29	39nH
L271	2462587V32	68nH
L273	2462587V28	33nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990C01	13.9nH
L302	2479990C01	13.9nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V26	22nH
L306	2479990C01	13.9nH
L307	2479990C01	13.9nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH
L311	2462587N65	750nH
L314	2462587N72	2.2UH
L325	2480646Z20	2.20UH
L330	2462587N64	680nH
L331	2480646Z20	2.20UH
L332	2462587N53	100nH
L340	2462587V41	390nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
P100	3905643V01	GND CONTACT FINGER
PB501	4080523Z01	TACTILE PUSH BUTTON
PB502	4080523Z01	TACTILE PUSH BUTTON
PB503	4080523Z01	TACTILE PUSH BUTTON
PB504	4080523Z01	TACTILE PUSH BUTTON
PB505	4080523Z01	TACTILE PUSH BUTTON
Q110	4802245J55	RF POWER FET
Q111	4802245J50	DUAL NPN/PNP
Q210	4802245J50	DUAL NPN/PNP
Q241	4805218N63	NPN
Q260	4802245J50	DUAL NPN/PNP
Q261	4802245J50	DUAL NPN/PNP
Q301	4802245J44	NPN
Q302	4802245J44	NPN
Q315	4880214G02	NPN
Q320	4805218N63	NPN
Q400	4809579E18	MOSFET P-CHAN
Q403	4880214G02	NPN
Q405	4802245J54	DUAL NPN
Q410	4802245J54	DUAL NPN
Q416	4809579E18	MOSFET P-CHAN
Q417	4802245J50	DUAL NPN/PNP
Q502	5180159R01	DUAL NPN
Q505	4880214G02	NPN
R101	0662057A34	240
R102	0680735Z01	0.075
R103	0662057M41	43
R104	0662057N15	47K
R106	0662057M26	10
R108	0662057M92	5.6K
R109	0662057N30	200K
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43K
R130	0662057M98	10K
R131	0662057N05	18K
R132	0662057N33	270K
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43K
R172	0662057A32	200

Circuit Ref	Motorola Part No.	Description
R173	0662057N29	180K
R201	0662057N21	82K
R202	0662057N23	100K
R204	0662057N15	47K
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M57	200
R243	0662057M98	10K
R244	0662057N01	12K
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M32	18
R252	0662057M62	330
R253	0662057M95	7.5K
R254	0662057M95	6.8K
R255	0662057M89	4.3K
R256	0662057M37	30
R260	0662057M74	1K
R300	0662057M82	2.2K
R301	0662057N23	100K
R302	0662057N23	100K
R303	0662057M74	1K
R304	0662057N01	12K
R305	0662057M67	0
R306	0662057N23	100K
R307	0662057N23	100K
R308	0662057M60	270
R309	0662057M32	18
R310	0662057M60	270
R311	0662057N10	30K
R312	0662057M83	2.4K
R313	0662057M62	330
R314	0662057M85	3K
R315	0662057N01	12K
R316	0662057A96	91K
R317	0662057M74	1K
R318	0662057A79	18K
R319	0662057A29	150
R320	0662057M74	1K
R321	0662057M83	2.4K
R322	0662057N30	200K
R324	0662057M81	2K
R325	0662057M94	6.8K
R327	0662057N11	33K
R328	0662057M12	2.7
R329	0662057M01	0
R339	0662057M01	0
R340	0662057M94	6.8K
R342	0662057N23	100K
R343	0662057M26	10
R344	0662057N01	12K
R345	0662057M98	10K
R346	0662057N17	56K
R347	0662057M74	1K
R348	0662057M87	3.6K
R349	0662057C01	0
R350	0662057N23	100K
R351	0662057C01	0
R352	0662057M86	3.3K
R355	0662057M01	0
R400	0662057N15	47K
R401	0662057M01	0
R405	0662057M01	0
R406	0662057N20	75K
R407	0662057N19	68K
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057N13	39K
R418	0662057M01	0
R419	0662057M67	0
R420	0662057B46	10.0 MEG
R421	0662057M81	2K
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R426	0662057N35	330K
R427	0662057M84	2.7K
R428	0662057M10	2.2
R429	0662057M98	10K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2K
R436	0662057M01	0
R445	0662057N08	24K
R446	0662057N31	220K
R447	0662057N51	1.5MEG
R448	0662057N33	270K
R449	0662057N08	24K
R450	0683962T45	68
R457	0662057M98	10K
R460	0662057M90	4.7K
R461	0662057M56	180
R462	0662057M98	10K
R463	0662057M61	300
R471	0662057M92	5.6K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N08	24K
R477	0662057M74	1K
R478	0662057M98	10K
R481	0662057N08	24K
R492	0662057M01	0
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10K
R506	0662057N15	47K
R507	0662057M01	0
R701	0662057N05	18K
R702	0662057N05	18K
R703	0662057M74	1K
R704	0662057N13	39K
R705	0662057N13	39K
R706	0662057N17	56K
R707	0662057M91	5.1K
R708	0662057N41	560K
R709	0662057N47	1.0 MEG
R710	0662057N39	470K
R716	0662057N01	12K
R717	0662057M82	2.2K
RT300	0680590Z01	THERMISTOR_33K
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z02	CHANNEL SWITCH
S502	1880619Z01	VOLUME SWITCH
SH100	2680507Z01	SHIELD, HARMONIC FILTER
SH101	2680510Z01	SHIELD, PA
SH201	2680511Z01	SYNTHESIZER TOP SHIELD
SH202	2680511Z01	SYNTHESIZER BOT SHIELD
SH241	2680513Z01	SHIELD, VCO TOP
SH242	2680514Z01	SHIELD, VCO BOT/LVZIF
SH301	2680554Z01	RX PRE FILTER SHIELD
SH302	2680555Z01	RX POST FILTER/RX AMP
SH303	2680509Z01	SHIELD, MIXER
SH304	2680624Z01	SHIELD, MIXER DIODE
SH321	2680508Z01	SHIELD,LVZIF 2ND LO
SH322	2680514Z01	ZIF SHIELD
SH323	2680553Z01	SHIELD, CRYSTAL FILTER
SH400	2680505Z01	CNTRL MEMORY SHIELD
SH401	2680506Z01	ON/OFF CNTRL SHIELD
SH402	2680515Z01	MICROP CNTRL SHIELD
SH403	2680516Z01	ASFIC CMP/AUDIO PA CONTROLLER SHIELD
SH701	2680677Z01	SHIELD (VOICE STORAGE BOTTOM)
T301	2580541Z01	XFMR COIL
T302	2580541Z01	XFMR COIL
U101	5105109Z67	LDMOS DRIVER UHF IC
U102	5185765B01	POWER CONTROL IC
U201	5185963A27	LVFRACN
U210	5102463J61	INVERTER
U211	5102463J61	INVERTER
U241	5105750U54	VCO BuFFER
U247	5105739X05	REGULATOR LINEAR
U248	5102463J58	3.3V REGULATOR
U301	5109632D83	LVZIF 2.2
U400	5102463J40	3.3V REGULATOR
U404	5185963A53	ASFIC CMP
U405	5102463J36	STATIC_RAM_32KX8 I
* U406	*5102463J60	FLASH ROM 512KX8
* U407	*5102463J64	16K X 8 EEPROM
U409	5102226J56	UP HC11FLO
U410	5102463J57	REGULATOR 3.3V
U420	5102463J44	AUDIO PA
U700	5109152M01	IC EEPROM ANLOG
U710	5102463J52	QUAD ANALOG SWITCH IC
U720	5113818A01	SING SPLY IC
VR432	4805656W08	5.6V ZENER
VR433	4805656W08	5.6V ZENER
VR434	4802245J51	ZENER 6.8V
VR439	4880140L15	10V ZENER
VR440	4802245J51	ZENER 6.8V
VR441	4802245J51	ZENER 6.8V
VR442	4802245J51	ZENER 6.8V
VR443	4802245J51	ZENER 6.8V
VR444	4802245J51	ZENER 6.8V
VR445	4802245J53	ZENER_10V
VR446	4802245J53	ZENER_10V
VR447	4802245J53	ZENER_10V
VR448	4802245J53	ZENER_10V
VR449	4802245J53	ZENER_10V
VR450	4802245J53	ZENER_10V
VR501	4813830A18	6.8V ZENER
VR506	4802245J51	ZENER 6.8V
	7580671Z01	PAD (FLEXIBLE CIRCUIT)
	7580671Z01	PAD (FLEXIBLE CIRCUIT)
	8480587Z03	BOARD, PC EXTENDED MAIN

* Motorola Depot Servicing only

Reference designators with an asterisk indicate components which are not fieldreplaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

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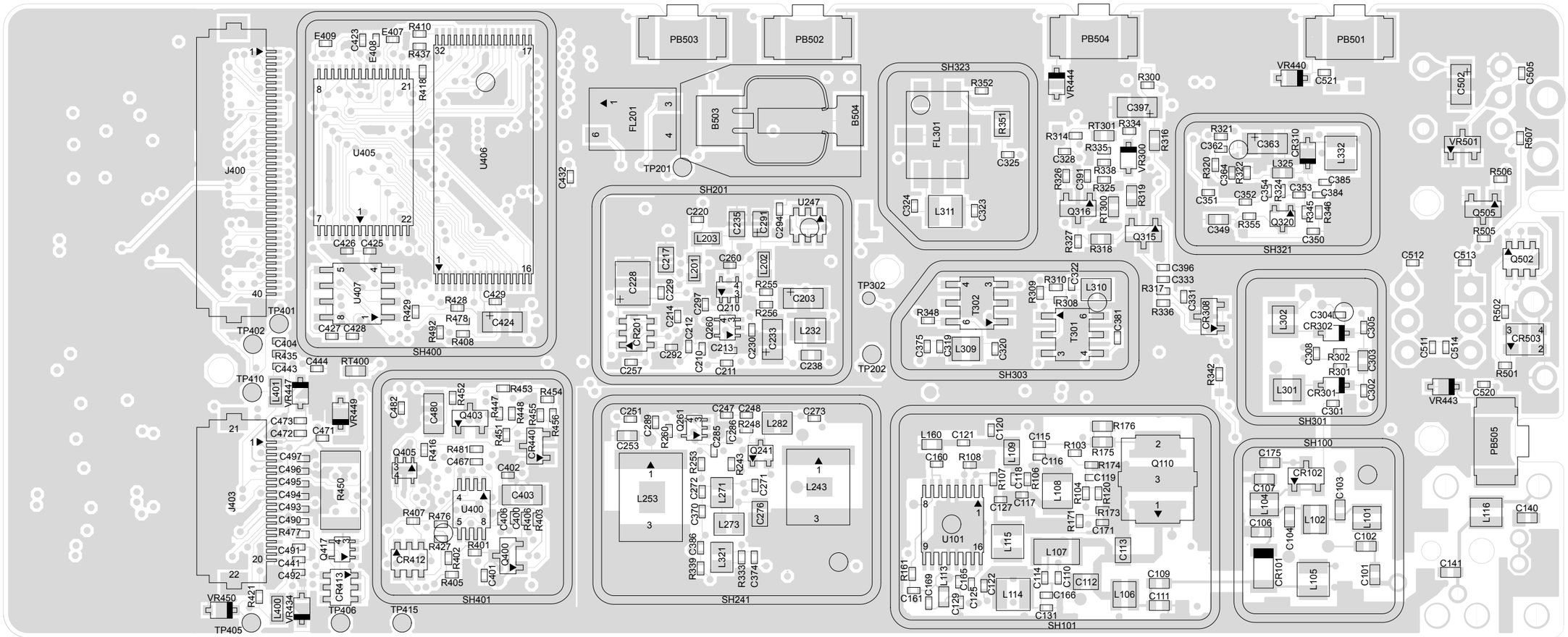
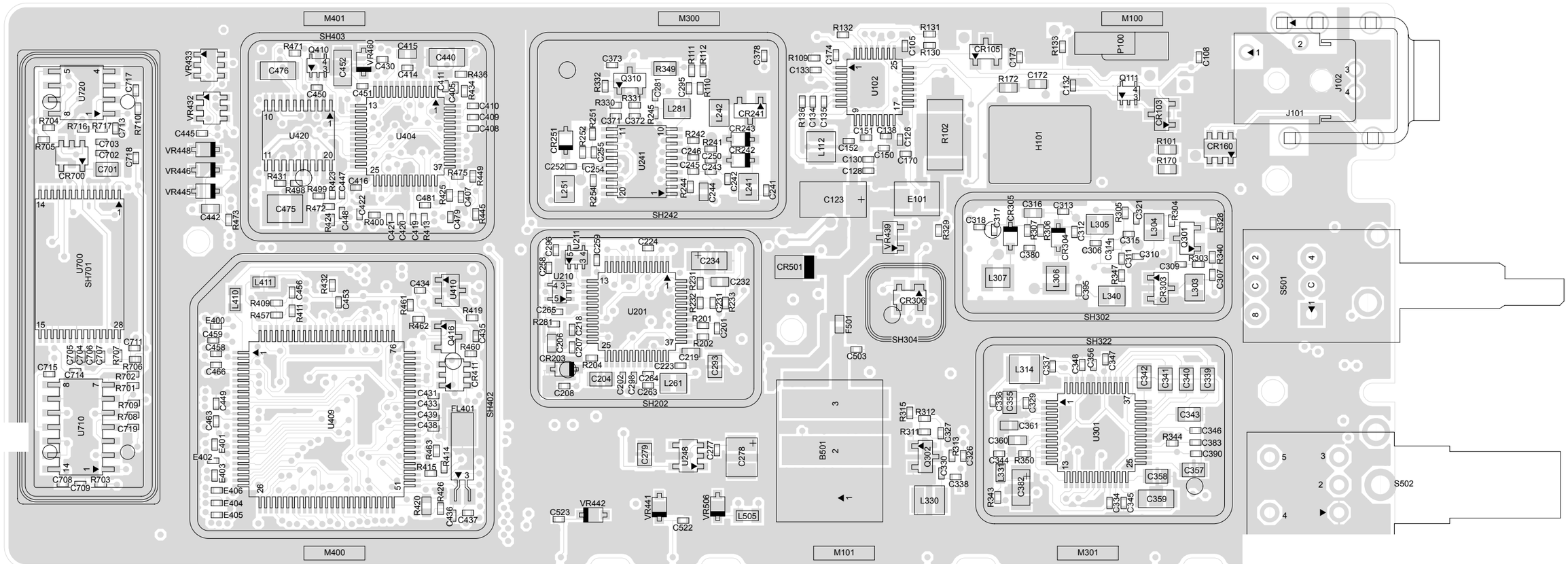
8.0 UHF PCB 8480587Z05 Schematics



UHF (403-470MHz) GP1280 Main Board Top Side



UHF (403-470 MHz) GP1280 Main Board Bottom Side

9.0 UHF PCB 8480587Z05 Parts List

Circuit Ref.	Motorola Part No.	Description
B501	0986237A02	Battery Contact Module
B503	3980502Z01	Backup Contact, B +
B504	3980501Z01	Backup Contact, B -
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F27	10pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2113740F31	15pF
C112	2180605Z32	47pF
C113	2180605Z16	10pF
C114	2113743N50	100pF
C115	2113743N35	24pF
C116	2113743N35	24pF
C117	2113743N34	22pF
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N27	11pF
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A96	33uF
C125	2113743N50	100pF
C126	2113743M24	100000pF
C127	2113743L17	1000pF
C128	2113743M08	22000pF
C129	2113743N23	7.5pF
C130	2113743N50	100pF
C131	2113743M08	22000pF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	2113743L29	3300pF
C135	2113743M08	22000pF
C138	2113743N50	100pF
C140	0662057A67	5.6K
C141	NOTPLACED	
C150	2113743M08	22000pF
C151	2113743N50	100pF
C152	2113743M08	22000pF
C160	2113743N50	100pF
C161	2113743M24	100000pF
C165	2113743N50	100pF
C166	2113743N50	100pF
C169	2113743N20	5.6pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113740F51	100pF
C173	2113743M08	22000pF
C174	2113743N50	100pF
C175	2113740F51	100pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2113928L05	4.7uF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N42	47pF
C208	NOTPLACED	
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C217	2104993J02	2.2uF
C218	2113743M24	100000pF
C219	2113743K16	0.22uF
C220	2113743N50	100pF
C223	2113743M24	100000pF
C224	2113743M24	100000pF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	100000pF
C232	2113743E12	0.047uF
C233	2311049A01	0.1uF
C234	2311049A05	0.47uF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N23	7.5pF
C243	2113743N23	7.5pF
C244	2113740F10	2pF
C245	2113743N11	2.4pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	100000pF
C250	2113743N23	7.5pF
C251	2113743N50	100pF
C252	2113743N26	10pF
C253	2113740F09	1.8pF
C254	2113743N15	3.6pF
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	10000pF
C259	2113743L41	10000pF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C265	NOTPLACED	
C271	NOTPLACED	
C272	NOTPLACED	
C273	2113743M24	100000pF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A57	10uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C285	2113743N50	100pF
C286	2113743M24	100000pF
C289	2113743N50	100pF
C291	2311049A69	10uF
C292	2113743M24	100000pF
C293	2113743A27	0.47uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	100000pF
C297	2113743L41	10000pF
C298	2113743M24	100000pF
C301	2113743N15	3.6pF
C302	2113743N26	10pF
C303	2113740L08	3.9pF
C304	2113743N26	10pF
C305	2113743N33	20pF
C306	NOTPLACED	
C307	2113743M24	100000pF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743M24	100000pF
C311	NOTPLACED	
C312	2113743N25	9.1pF
C313	2113743N26	10pF
C314	2113743M24	100000pF
C315	2113743N50	100pF
C316	2113740L08	3.9pF
C317	2113743N25	9.1pF
C318	2113743N23	7.5pF
C319	2113743N69	1.8pF
C320	2113743N23	7.5pF
C321	2113743N50	100pF
C322	2113743N48	82pF
C323	2113743N54	150pF
C324	2113743N33	20pF
C325	2113743L41	10000pF
C326	2113743L41	10000pF
C327	2113743N50	100pF
C328	2113743M24	100000pF
C329	2113743M24	100000pF
C330	2113743N26	10pF
C331	2113743N50	100pF
C333	NOTPLACED	
C334	2113743M08	22000pF
C336	2113743M24	100000pF
C337	2113743N50	100pF
C338	2113743N30	15pF
C339	2180478Z20	1uF
C340	2180478Z20	1uF
C341	2180478Z20	1uF
C342	2180478Z20	1uF
C343	2113743A23	0.22uF

Circuit Ref.	Motorola Part No.	Description
C344	2113743M24	100000pF
C345	2113743M24	100000pF
C346	2113743M24	100000pF
C347	2113743M24	100000pF
C348	2113743M24	100000pF
C349	2113743E07	0.022uF
C350	2113743L05	330pF
C351	2113743N33	20pF
C352	2113743N28	12pF
C353	2113743N41	43pF
C354	2113743N42	47pF
C355	2113743A24	0.33uF
C356	2113743M08	22000pF
C357	2113743A23	0.22uF
C358	2113741A23	1200pF
C359	2109720D14	0.1uF
C360	2113743E07	0.022uF
C361	2113741F49	10000pF
C362	2113743M08	22000pF
C363	2311049A40	2.2uF
C364	2113743L41	10000pF
C370	2113743N50	100pF
C371	NOTPLACED	
C372	NOTPLACED	
C373	NOTPLACED	
C374	2113743N50	100pF
C375	2113743N50	100pF
C378	NOTPLACED	
C380	2113743L41	10000pF
C381	2113743N21	6.2pF
C382	2311049A59	10uF
C383	2113743N50	100pF
C384	2113743N44	56pF
C385	2113743N44	56pF
C386	2113743N50	100pF
C390	2113743N50	100pF
C391	NOTPLACED	
C395	2113743N50	100pF
C396	NOTPLACED	
C397	2311049A05	0.47uF
C400	2113743L41	10000pF

Circuit Ref.	Motorola Part No.	Description
C4001	NOTPLACED	
C4002	NOTPLACED	
C4003	NOTPLACED	
C4004	NOTPLACED	
C4005	NOTPLACED	
C4007	NOTPLACED	
C4008	NOTPLACED	
C4009	NOTPLACED	
C401	2113743M24	100000pF
C4010	NOTPLACED	
C4011	NOTPLACED	
C4012	NOTPLACED	
C4013	NOTPLACED	
C4014	NOTPLACED	
C4015	NOTPLACED	
C4016	NOTPLACED	
C402	2113743M24	100000pF
C403	2113743G24	2.2uF
C404	NOTPLACED	
C405	NOTPLACED	
C406	NOTPLACED	
C407	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	100000pF
C410	2113743M08	22000pF
C411	2113743M24	100000pF
C414	2113743M24	100000pF
C415	2185895Z01	0.01uF
C416	2113928N01	0.1uF
C419	NOTPLACED	
C420	2113743L41	10000pF
C421	2113928N01	0.1uF
C422	2113743M24	100000pF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	100000pF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	100000pF
C429	2113743M24	100000pF
C430	2113928N01	0.1uF

Circuit Ref.	Motorola Part No.	Description
C431	2113743N50	100pF
C432	NOTPLACED	
C433	2113743L41	10000pF
C434	2113928N01	0.1uF
C435	2113743M24	100000pF
C436	2113743N34	22pF
C437	2113743N34	22pF
C438	2113743L17	1000pF
C439	2113743L17	1000pF
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	0.1uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	22000pF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C450	NOTPLACED	
C451	2113743M08	22000pF
C452	2113743B29	1uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF
C480	2113928D08	10uF
C481	2113928N01	0.1uF
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF

Circuit Ref.	Motorola Part No.	Description
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C502	2311049A05	0.47uF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	10000pF
C521	2113743L41	10000pF
C522	2113743L41	10000pF
C523	2113743L41	10000pF
C601	NOTPLACED	
C602	NOTPLACED	
C603	NOTPLACED	
C701	2180478Z20	1uF
C702	2113928N01	0.1uF
C703	2113743N50	100pF
C704	2113928N01	0.1uF
C705	2113928N01	0.1uF
C706	NOTPLACED	
C707	2113928N01	0.1uF
C708	2113928N01	0.1uF
C709	2113743L17	1000pF
C711	2113743L41	10000pF
C713	2113928N01	0.1uF
C714	2113928N01	0.1uF
C715	2113928N01	0.1uF
C717	2113928N01	0.1uF
C718	2113743L17	1000pF
C719	2113928N01	0.1uF
CR101	4880973Z02	Pin Diode
CR102	4802245J41	Pin Diode
CR103	4802245J41	Pin Diode
CR105	5185963A15	Temperature Sensor
CR160	NOTPLACED	
CR201	4802233J09	Triple Diode
CR203	4862824C03	Varactor

Circuit Ref.	Motorola Part No.	Description
CR241	4805649Q13	Varactor
CR242	4862824C08	Varactor
CR243	4862824C08	Varactor
CR251	4802245J22	Varactor
CR301	4862824C08	Varactor
CR302	4862824C08	Varactor
CR303	4880154K03	Dual Schottky Diode
CR304	4862824C08	Varactor
CR305	4862824C08	Varactor
CR306	4802245J42	Ring Quad Diode
CR308	4802245J41	Pin Diode
CR310	4862824C08	Varactor
CR411	4802245J62	Diode Schottky
CR412	4802245J62	Diode Schottky
CR413	4802245J62	Diode Schottky
CR440	4813833C02	Dual Common Cathode Diode
CR501	4880107R01	Rectifier
CR503	4805729G49	Red/Yellow LED
CR601	NOTPLACED	
CR700	4802245J47	Diode Schottky
E101	2484657R01	FERRITE BEAD
E400	2480640Z01	FERRITE BEAD
E401	2480640Z01	FERRITE BEAD
E402	2480640Z01	FERRITE BEAD
E403	2480640Z01	FERRITE BEAD
E404	2480640Z01	FERRITE BEAD
E405	2480640Z01	FERRITE BEAD
E406	2480640Z01	FERRITE BEAD
E407	2480640Z01	FERRITE BEAD
E408	2480640Z01	FERRITE BEAD
E409	2480640Z01	FERRITE BEAD
F501	6580542Z01	Fuse 3A
FL201	4805875Z04	16.8 MHZ Xtal Filter
FL301	9186153B01	Xtal Filter 45.1MHz
FL401	4870368G02	Real Time Clock Xtal Oscillator 38.4kHz
H101	2680499Z01	Heat Spreader
J101	0985613Z01	RF Jack
J102	0280519Z02	Antenna Nut
J400	0905505Y04	40-Pin Connector
J403	0905505Y02	20-Pin Connector
L101	2479990B02	19.61nH
L102	2479990B02	19.61nH
L104	2479990B02	19.61nH
L105	2462587N22	390nH
L106	2479990A02	7.66nH
L107	2479990G01	33.47nH
L108	2479990A01	4.2nH
L109	2479990B01	11.03nH
L112	2462587N45	22nH
L113	2413926H09	5.6nH
L114	2462587N45	22nH
L115	2462587N22	390nH
L116	2479990A03	9.75nH
L160	2413926H14	15nH
L201	2462587Q20	2200nH
L202	2462587Q20	2200nH
L203	2462587Q20	2200nH
L232	2462587P25	12000nH
L241	2462587V41	390nH
L242	2462587V38	220nH
L243	2485776Z01	RESONATOR
L251	2462587V28	33nH
L253	2460593C02	RESONATOR
L261	2462587V29	39nH
L271	2462587V32	68nH
L273	2462587V28	33nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990C01	13.9nH
L302	2479990C01	13.9nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V26	22nH
L306	2479990C01	13.9nH
L307	2479990C01	13.9nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH
L311	2462587N65	750nH
L314	2462587N72	2200nH
L321	NOTPLACED	
L325	2480646Z20	2.20uH
L330	2462587N64	680nH
L331	2480646Z20	2.20uH
L332	2462587N53	100nH
L340	2462587V41	390nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
L601	NOTPLACED	
M100	7585651Z01	PAD, EMI, SMT
M101	7585651Z01	PAD, EMI, SMT
M300	7585651Z01	PAD, EMI, SMT
M301	7585651Z01	PAD, EMI, SMT
M400	7585651Z01	PAD, EMI, SMT
M401	7585651Z01	PAD, EMI, SMT
P100	3905643V01	Ground Contact Finger
PB501	4080523Z02	Tactile Switch
PB502	4080523Z02	Tactile Switch
PB503	4080523Z02	Tactile Switch
PB504	4080523Z02	Tactile Switch
PB505	4080523Z02	Tactile Switch
Q110	4813828A09	RF PA
Q111	4809939C05	DUAL NPN/PNP Transistor
Q210	4809939C05	DUAL NPN/PNP Transistor
Q241	4805218N63	RF NPN Transistor
Q260	4809939C05	DUAL NPN/PNP Transistor
Q261	4809939C05	DUAL NPN/PNP Transistor
Q301	4802245J44	NPN Transistor
Q302	4802245J44	NPN Transistor
Q310	NOTPLACED	
Q315	4880214G02	NPN Transistor
Q316	NOTPLACED	
Q320	4805218N63	RF NPN Transistor
Q400	4809579E18	MOSFET P-Channel
Q403	4813824A17	PNP Transistor
Q405	4802245J54	Dual NPN Transistor
Q410	4802245J54	Dual NPN Transistor
Q416	4809579E18	MOSFET P-Channel
Q417	4809939C05	DUAL NPN/PNP Transistor
Q502	5180159R01	Dual NPN Transistor
Q505	4880214G02	NPN Transistor
R101	0662057A34	240
R102	0680539Z01	0.1
R103	0662057M41	43
R104	0662057N15	47K
R106	0662057M26	10
R107	NOTPLACED	
R108	0662057M92	5.6K
R109	0662057N30	200K
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43K
R130	0662057M98	10K
R131	0662057N05	18K
R132	0662057N33	270K
R133	NOTPLACED	
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43K
R172	0662057A32	200
R173	0662057N29	180K
R174	0662057N15	47K
R175	0662057B59	3
R176	0662057B59	3
R201	0662057N21	82K
R202	0662057N23	100K
R204	0662057N15	47K
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M57	200
R243	0662057M98	10K
R244	0662057N01	12K
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M32	18
R252	0662057M62	330
R253	0662057M95	7.5K

Circuit Ref.	Motorola Part No.	Description
R254	0662057M95	7.5K
R255	0662057M89	4.3K
R256	0662057M37	30
R260	0662057M74	1K
R281	NOTPLACED	
R300	0662057M82	2.2K
R301	0662057N23	100K
R302	0662057N23	100K
R303	0662057M74	1K
R304	0662057N01	12K
R305	0662057M67	510
R306	0662057N23	100K
R307	0662057N23	100K
R308	0662057M60	270
R309	0662057M32	18
R310	0662057M60	270
R311	0662057N10	30K
R312	0662057M83	2.4K
R313	0662057M62	330
R314	0662057M85	3K
R315	0662057N01	12K
R316	0662057A96	91K
R317	0662057M74	1K
R318	0662057A79	18K
R319	0662057A29	150
R320	0662057M74	1K
R321	0662057M83	2.4K
R322	0662057N30	200K
R324	0662057M81	2K
R325	0662057M94	6.8K
R326	NOTPLACED	
R327	0662057N11	33K
R328	0662057M12	2.7
R329	0662057M01	0
R330	NOTPLACED	
R331	NOTPLACED	
R332	NOTPLACED	
R333	NOTPLACED	
R334	NOTPLACED	
R335	NOTPLACED	
R336	NOTPLACED	
R338	NOTPLACED	
R339	0662057M01	0
R340	0662057M94	6.8K
R342	0662057N23	100K
R343	0662057M26	10
R344	0662057N01	12K
R345	0662057M98	10K
R346	0662057N17	56K
R347	0662057M74	1K
R348	0662057M87	3.6K
R349	0662057C01	0
R350	0662057N23	100K
R351	0662057C01	0
R352	0662057M86	3.3K
R355	0662057M01	0
R400	0662057N15	47K
R401	0662057M01	0
R402	NOTPLACED	
R403	NOTPLACED	
R405	0662057M01	0
R406	0662057N20	75K
R407	0662057N19	68K
R408	NOTPLACED	
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057M98	10K
R418	0662057M01	0
R419	0662057M67	510
R420	0662057B46	10M
R421	0662057M81	2K
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R426	0662057N35	330K
R427	0662057M84	2.7K
R428	0662057M10	2.2
R429	0662057M98	10K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2K
R436	0662057M95	7500
R437	NOTPLACED	
R445	0662057N08	24K
R447	0662057N23	100K
R448	0662057M98	10K
R449	0662057N08	24K
R450	0683962T45	68
R451	0662057N03	15K
R452	0662057N23	100K
R453	NOTPLACED	
R454	NOTPLACED	
R455	NOTPLACED	
R456	0662057M01	0
R457	0662057M98	10K
R460	0662057M90	4.7K
R461	0662057M56	180
R462	0662057M98	10K
R463	0662057M61	300
R471	0662057N06	20K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N35	330K
R477	0662057M74	1K
R478	0662057M98	10K
R481	0662057N08	24K
R492	0662057M01	0
R498	0662057M98	10K
R499	0662057M98	10K
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10K
R506	0662057N15	47K
R507	0662057M01	0
R625	NOTPLACED	
R626	NOTPLACED	
R627	NOTPLACED	
R701	0662057N05	18K
R702	0662057N05	18K
R703	0662057M74	1K
R704	0662057N13	39K
R705	0662057N13	39K
R706	0662057N17	56K
R707	0662057M91	5.1K
R708	0662057N41	560K
R709	0662057N47	1M
R710	0662057N39	470K
R716	0662057N01	12K
R717	0662057M82	2.2K
RT300	0680590Z01	THERMISTOR_33K
RT301	NOTPLACED	
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z02	Frequency Switch
S502	1880619Z02	Volume / On-off Switch
SH100	2680507Z01	Harmonic Filter Shield
SH101	2680510Z01	PA Shield
SH201	2680511Z01	Synthesizer Top Shield
SH202	2680511Z01	Synthesizer Bottom Shield
SH241	2680513Z01	VCO Resonators Shield
SH242	2680514Z01	VCO Buffer IC Shield
SH301	2680554Z01	Receiver Front-End Shield
SH302	2680555Z01	Receiver Back-End Bottom Shield
SH303	2680509Z01	Mixer Shield
SH304	2680624Z01	Mixer Diode Shield
SH321	2680508Z01	LVZIF 2nd LO Shield
SH322	2680514Z01	LVZIF Shield
SH323	2680553Z01	Crystal Filter Shield
SH400	2680505Z01	Controller Memory Shield
SH401	2680506Z01	Controller On-off Shield
SH402	2680515Z01	Microprocessor Shield
SH403	2680516Z01	Asfic_Cmp, Audio PA Shield
SH701	2680677Z01	Voice Storage Shield
T301	2580541Z02	Balun Transformer
T302	2580541Z02	Balun Transformer
U101	5185130C65	LDMOS PA Driver
U102	5185765B26	PCIC
U201	5185963A27	LVFRACN Synthesizer IC

Circuit Ref.	Motorola Part No.	Description
U210	5102463J61	Inverter
U211	5102463J61	Inverter
U241	5105750U54	VCO Buffer IC
U247	5105739X05	5V Regulator
U248	5102463J58	3.3V Regulator
U301	5109632D83	LVZIF IC
U400	5102463J40	3.3V Regulator
U404	5185130C53	ASFIC_CMP IC
U405	5102463J36	Static RAM 32K X 8
* U406	5102463J60	Flash ROM 512K X 8
* U407	5102495J05	EEPROM 16K X 8
U409	5102226J56	Micro Processor
U410	5102463J57	3.3V Regulator
U420	5102463J44	Audio PA
U601	NOTPLACED	
U700	5185770M01	IC Voice Storage
U710	5102463J52	QUAD ANALOG SWITCH IC
U720	5113818A01	SING Supply IC
VR300	NOTPLACED	
VR432	4805656W08	Zener Diode
VR433	4805656W08	Zener Diode
VR434	4802245J73	Zener Diode 6.8V
VR439	4880140L17	Zener Diode
VR440	4802245J73	Zener Diode 6.8V
VR441	4802245J73	Zener Diode 6.8V
VR442	4802245J73	Zener Diode 6.8V
VR443	4802245J73	Zener Diode 6.8V
VR444	4802245J73	Zener Diode 6.8V
VR445	4802245J74	Zener Diode 10V
VR446	4802245J74	Zener Diode 10V
VR447	4802245J74	Zener Diode 10V
VR448	4802245J74	Zener Diode 10V
VR449	4802245J74	Zener Diode 10V
VR450	4802245J75	Zener Diode 12V
VR460	4802245J73	Zener Diode 6.8V
VR501	4813830A18	DIODE 6.8V
VR506	4802245J73	Zener Diode 6.8V

Reference designators with an asterisk indicate components which are not field replaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

* Motorola Depot Servicing only

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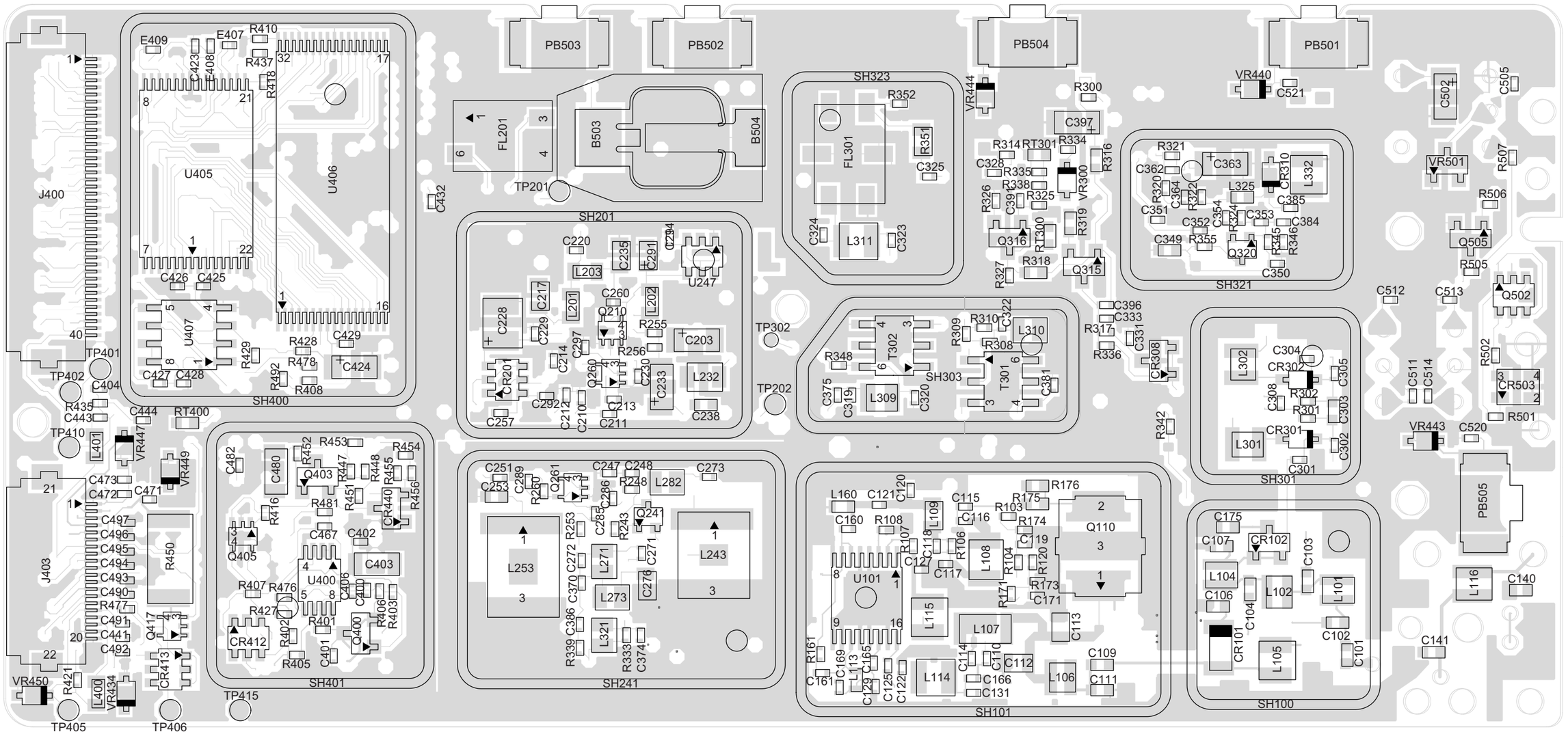
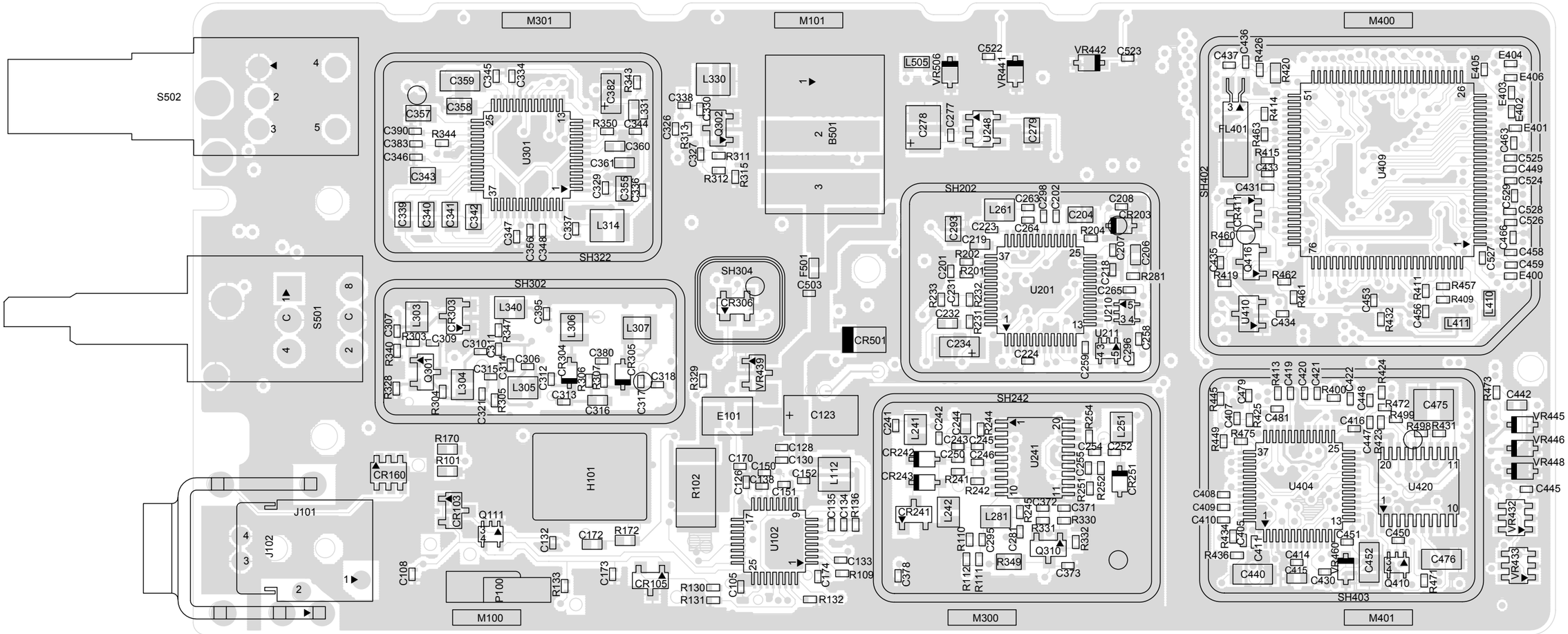
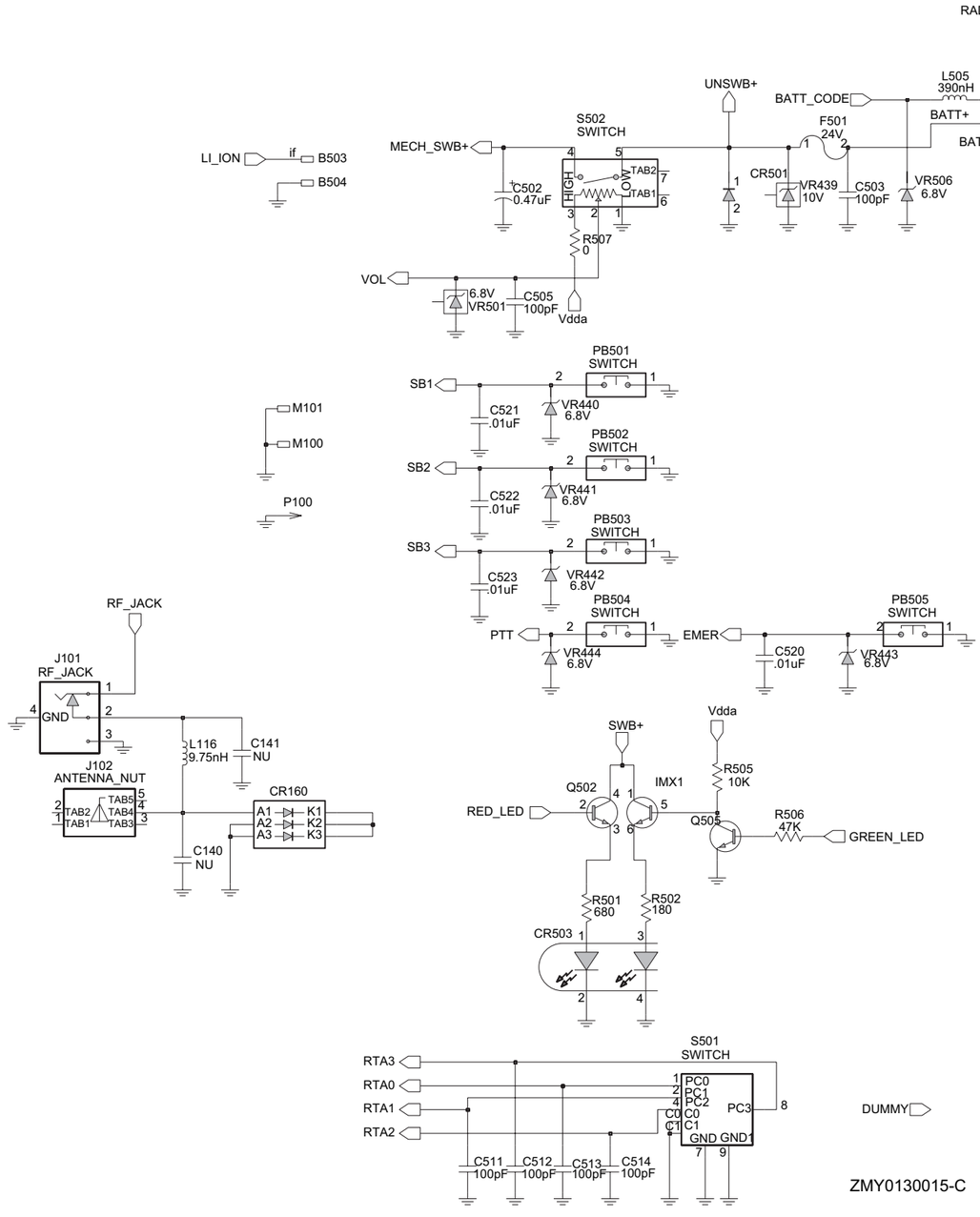
10.0 UHF PCB 8480450Z13/14 Schematics



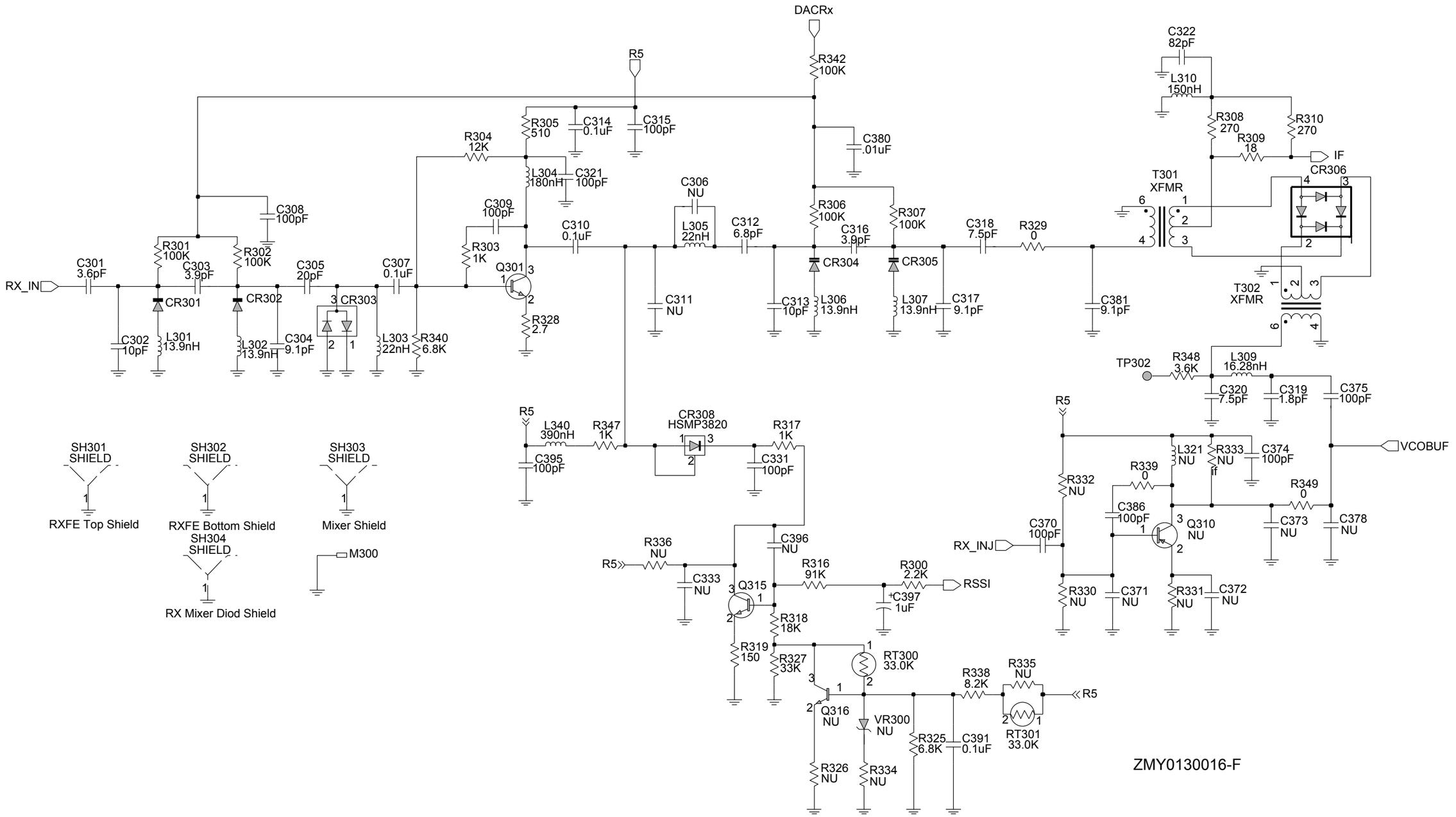
UHF (403-470MHz) Main Board Top Side



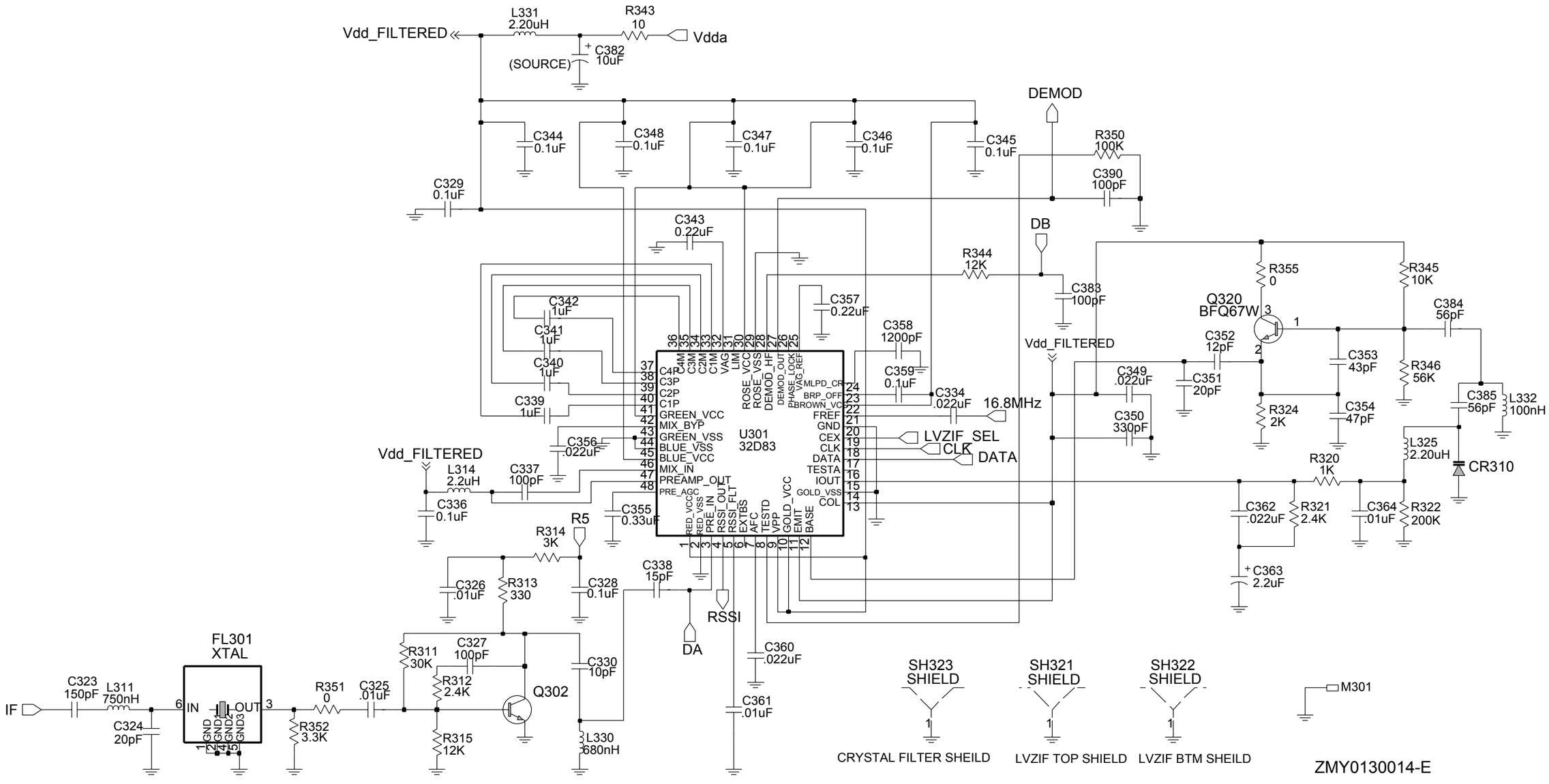
UHF (403-470 MHz) Main Board Bottom Side



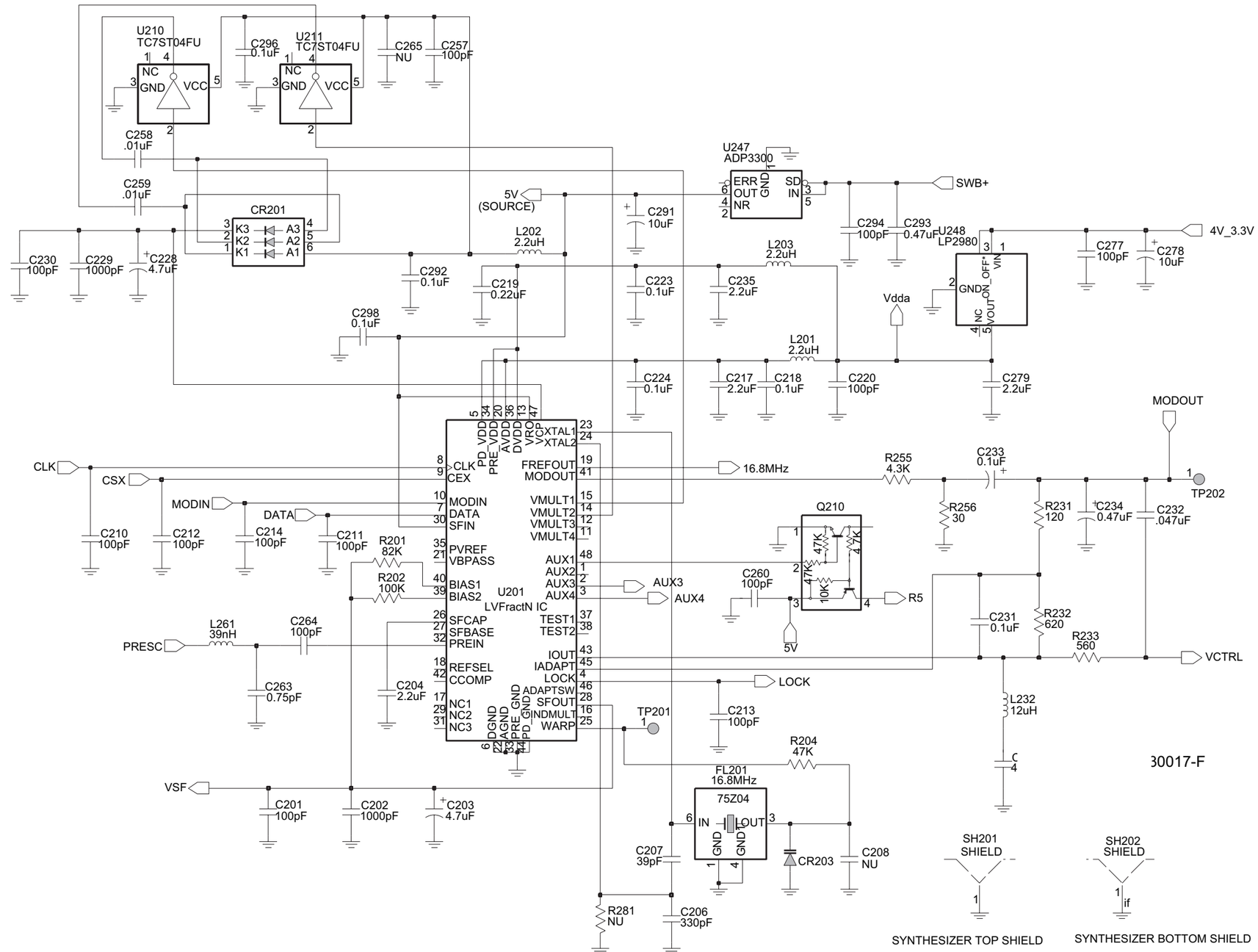
UHF (403-470 MHz) Controls and Switches



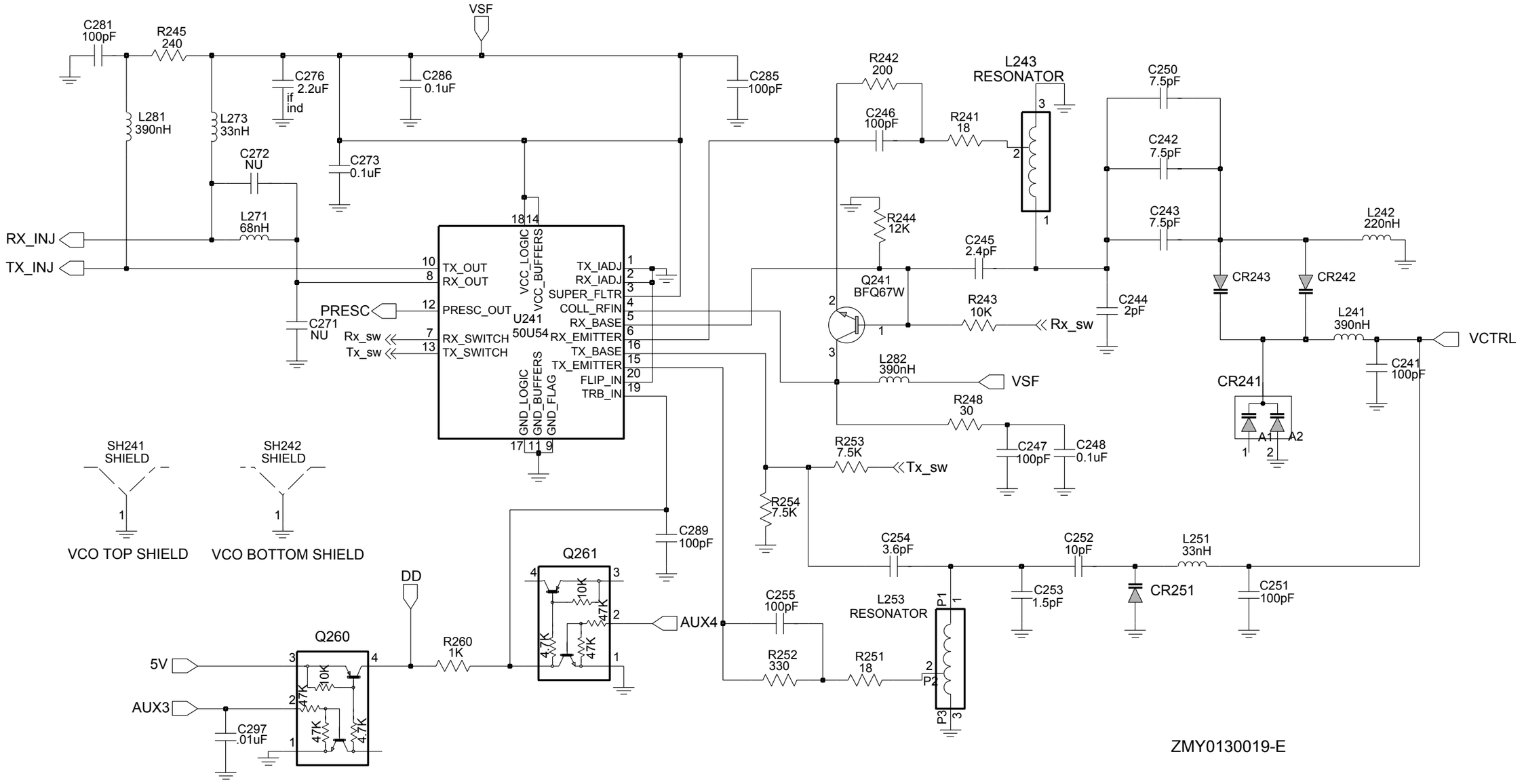
UHF (403 - 470 MHz) Receiver Front End



UHF (403-470 MHz) Receiver Back End

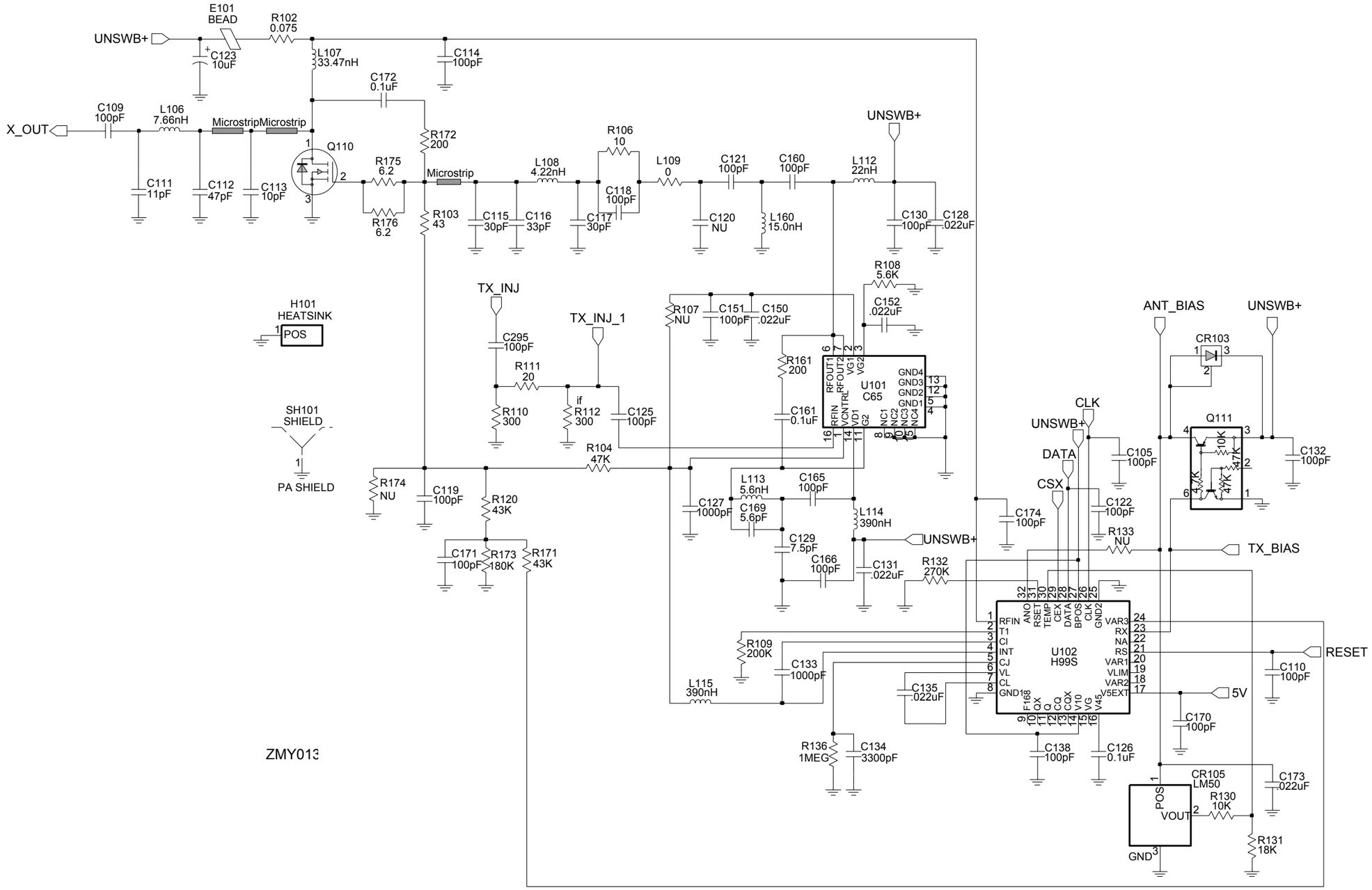


UHF (403-470 MHz) Synthesizer



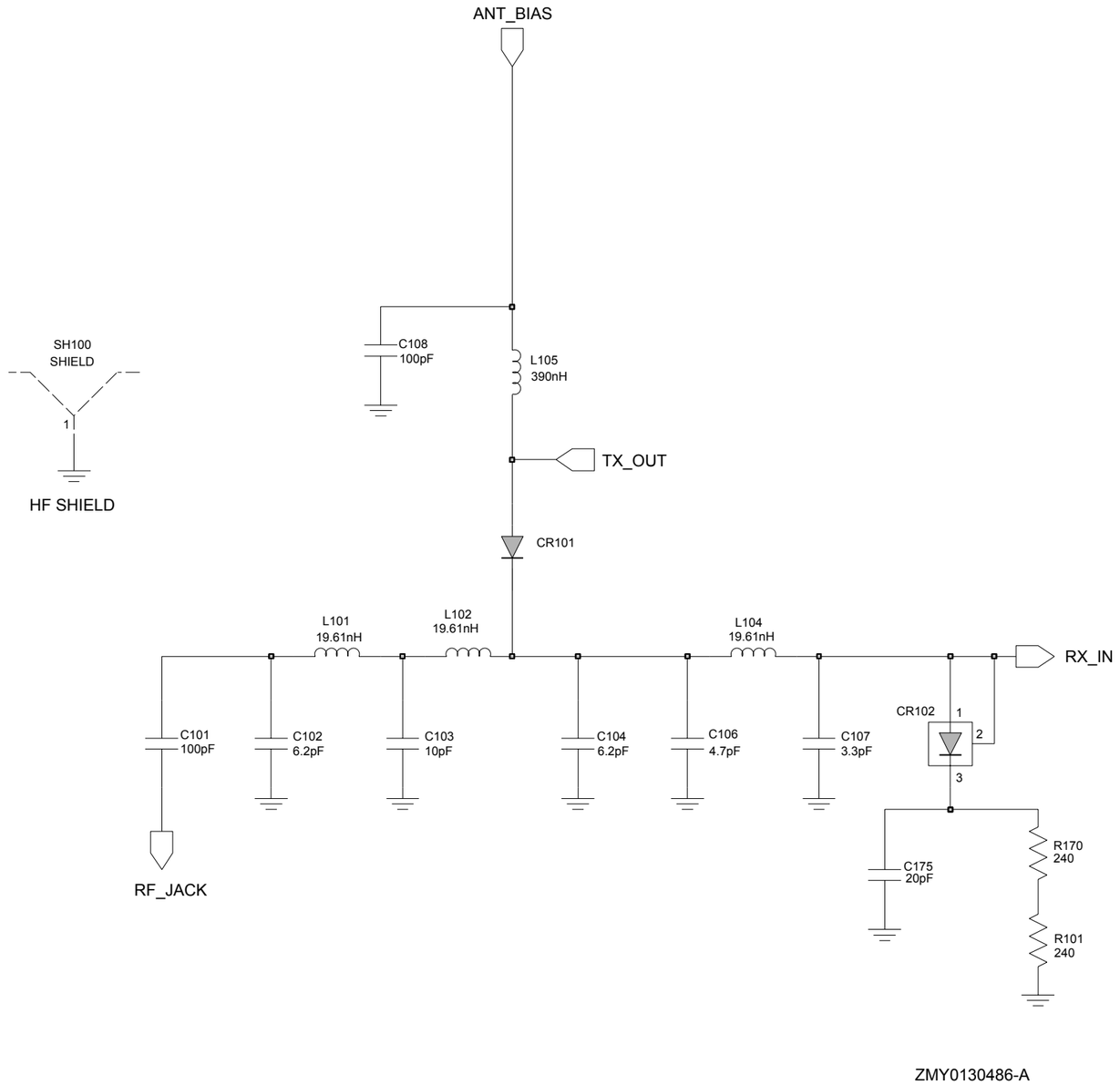
ZMY0130019-E

UHF (403-470 MHz) Voltage Controlled Oscillator



ZMY013

UHF (403-470 MHz) Transmitter



UHF (403-470 MHz) Harmonic Filter

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11.0 UHF PCB 8480450Z13/14 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	Battery Contact Module
B503	3980502Z01	Backup battery B+ (not used in GP640/GP240)
B504	3980501Z01	Backup battery B- (not used in GP640/GP240)
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F27	10pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2113740F30	13pF
C112	2180605Z32	47pF
C113	2180605Z16	10pF
C114	2113743N50	100pF
C115	2113743N30	15pF
C116	2113743N38	33pF
C117	2113743N37	30pF
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	NOT PLACED	
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A18	10uF
C125	2113743N50	100pF
C126	2113743M24	100000pF
C127	2113743L17	1000pF
C128	2113743M08	22000pF
C129	2113743N23	7.5pF
C130	2113743N50	100pF
C131	2113743M08	22000pF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	2113743L29	3300pF
C135	2113743M08	22000pF
C138	2113743N50	100pF
C140	NOT PLACED	
C141	NOT PLACED	
C150	2113743M08	22000pF
C151	2113743N50	100pF
C152	2113743M08	22000pF
C160	2113743N50	100pF
C161	2113743M24	100000pF
C165	2113743N50	100pF
C166	2113743N50	100pF
C169	2113743N20	5.6 pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113740F51	100pF
C173	2113743M08	22000pF
C174	2113743N50	100pF
C175	2113740L25	20pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2311049A56	4.7uF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N40	39pF
C208	NOT PLACED	
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C217	2104993J02	2.2uF
C218	2113743M24	100000pF
C219	2113743K16	0.220uF
C220	2113743N50	100pF
C223	2113743M24	100000pF
C224	2113743M24	100000pF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	100000pF
C232	2113743E12	0.047uF
C233	2311049A01	0.1uF
C234	2311049A05	0.47uF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N23	7.5pF
C243	2113743N23	7.5pF
C244	2113740F10	2.0pF
C245	2113743N11	2.4pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	100000pF
C250	2113743N23	7.5pF
C251	2113743N50	100pF
C252	2113743N26	10pF
C253	2113740F09	1.8pF
C254	2113743N15	3.6pF
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	10000pF
C259	2113743L41	10000pF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C265	NOT PLACED	
C271	NOT PLACED	
C272	NOT PLACED	
C273	2113743M24	100000pF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A09	2.2uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C285	2113743N50	100pF
C286	2113743M24	100000pF
C289	2113743N50	100pF
C291	2311049A69	10uF
C292	2113743M24	100000pF
C293	2113743A27	0.470uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	100000pF
C297	2113743L41	10000pF
C298	2113743M24	100000pF
C301	2113743N15	3.6pF
C302	2113743N26	10pF
C303	2113740L08	3.9pF
C304	2113743N26	10pF
C305	2113743N33	20pF
C306	NOT PLACED	
C307	2113743M24	100000pF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743M24	100000pF
C311	NOT PLACED	
C312	2113743N25	9.1pF
C313	2113743N26	10pF
C314	2113743M24	100000pF
C315	2113743N50	100pF
C316	2113740L08	3.9pF
C317	2113743N25	9.1pF
C318	2113743N23	7.5pF
C319	2113743N69	1.8pF
C320	2113743N23	7.5pF
C321	2113743N50	100pF
C322	2113743N48	82pF
C323	2113743N54	150pF
C324	2113743N33	20pF
C325	2113743L41	10000pF
C326	2113743L41	10000pF
C327	2113743N50	100pF
C328	2113743M24	100000pF
C329	2113743M24	100000pF
C330	2113743N26	10pF
C331	2113743N50	100pF
C333	NOT PLACED	
C334	2113743M08	22000pF
C336	2113743M24	100000pF
C337	2113743N50	100pF
C338	2113743N30	15pF
C339	2180478Z20	1uF
C340	2180478Z20	1uF
C341	2180478Z20	1uF
C342	2180478Z20	1uF
C343	2113743A23	0.220uF
C344	2113743M24	100000pF
C345	2113743M24	100000pF
C346	2113743M24	100000pF
C347	2113743M24	100000pF
C348	2113743M24	100000pF
C349	2113743E07	0.022uF
C350	2113743L05	330pF
C351	2113743N33	20pF
C352	2113743N28	12pF
C353	2113743N41	43pF
C354	2113743N42	47pF
C355	2113743A24	0.330uF
C356	2113743M08	22000pF
C357	2113743A23	0.220uF
C358	2113741A23	1200pF
C359	2109720D14	0.1uF
C360	2113743E07	0.022uF
C361	2113741F49	10nF
C362	2113743M08	22000pF
C363	2311049A40	2.2uF
C364	2113743L41	10000pF
C370	2113743N50	100pF
C371	NOT PLACED	
C372	NOT PLACED	
C373	NOT PLACED	
C374	2113743N50	100pF
C375	2113743N50	100pF
C378	NOT PLACED	
C380	2113743L41	10000pF

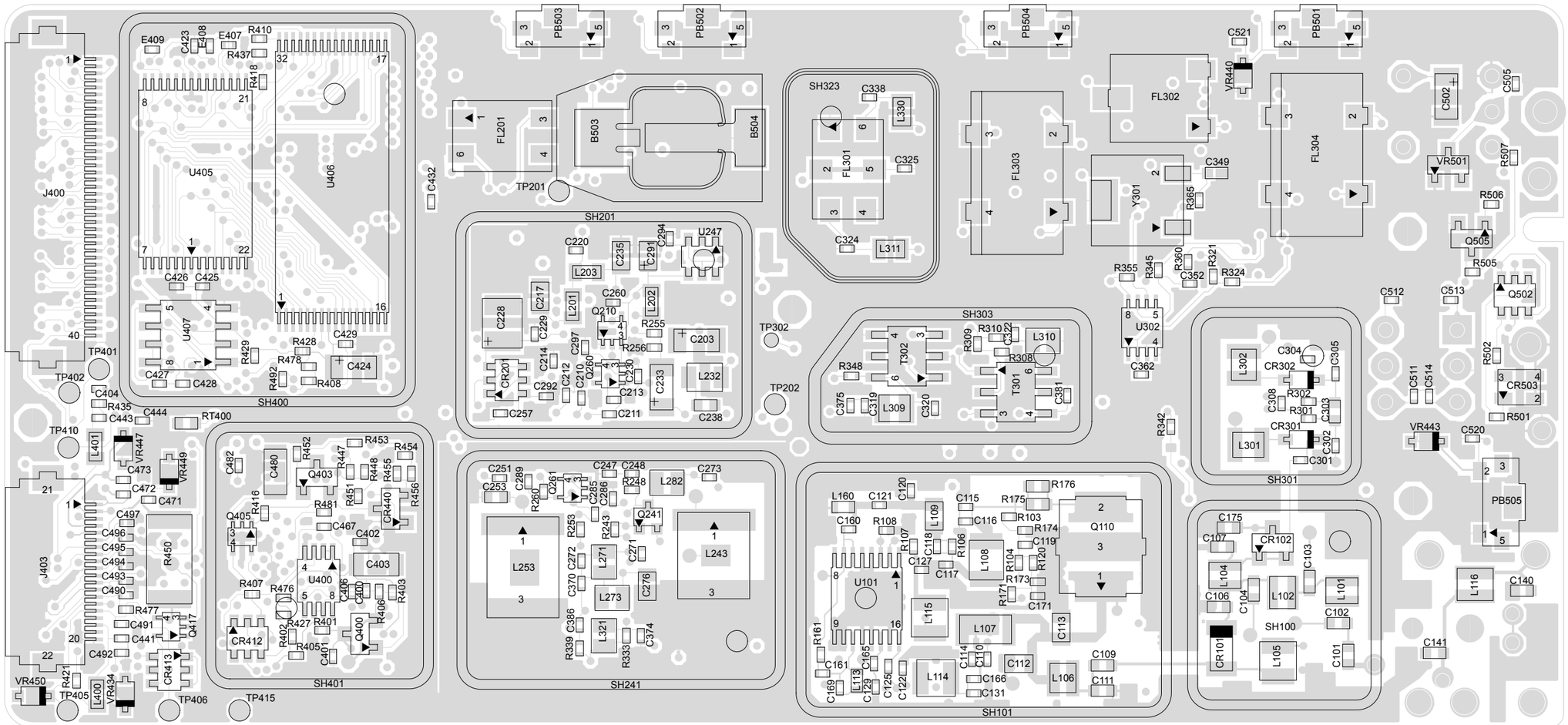
Circuit Ref	Motorola Part No.	Description
C381	2113743N21	6.2pF
C382	2311049A59	10uF
C383	2113743N50	100pF
C384	2113743N44	56pF
C385	2113743N44	56pF
C386	2113743N50	100pF
C390	2113743N50	100pF
C391	NOT PLACED	
C395	2113743N50	100pF
C396	NOT PLACED	
C397	2311049A05	0.47uF
C400	2113743L41	10000pF
C401	2113743M24	100000pF
C402	2113743M24	100000pF
C403	2113928D08	10uF
C404	NOT PLACED	
C405	NOT PLACED	
C406	NOT PLACED	
C407	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	100000pF
C410	2113928N01	0.1uF
C411	2113743M24	100000pF
C414	2113743M24	100000pF
C415	2185895Z01	0.01uF
C416	2113928N01	0.1uF
C419	NOT PLACED	
C420	2113743L41	10000pF
C421	2113928N01	0.1uF
C422	2113743M24	100000pF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	100000pF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	100000pF
C429	2113743M24	100000pF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C432	NOT PLACED	
C433	2113743L41	10000pF
C434	2113928N01	0.1uF (not used in GP640/ GP240)
C435	2113743M24	100000pF
C436	2113743N34	22pF (not used in GP640GP240)
C437	2113743N34	22pF (not used in GP640/ GP240)
C440	2113743G26	4.7F
C441	2113743N50	100pF
C442	2113743E20	0.10uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	22000pF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C450	NOT PLACED	
C451	2113743M08	22000pF
C452	2113743B29	1uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF
C480	2113928D08	10uF
C481	2113928N01	0.1uF
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C502	2311049A05	0.47uF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	10000pF
C521	2113743L41	10000pF
C522	2113743L41	10000pF
C523	2113743L41	10000pF
C524	2113743N50	100pF
C525	2113743N50	100pF
C526	2113743N50	100pF
C527	2113743N50	100pF
C528	2113743N50	100pF
C529	2113743N50	100pF
C701	2180478Z20	1.0uF used in GP1280 only
C702	2113928N01	0.1uF used in GP1280 only
C703	2113743N50	100 pF used in GP1280 only
C704	2113928N01	0.1uF used in GP1280 only
C705	2113928N01	0.1uF used in GP1280 only
C707	2113928N01	0.1uF used in GP1280 only
C708	2113928N01	0.1uF used in GP1280 only
C709	2113743L17	1000 pF used in GP1280 only
C710	2311049A30	33 uF used in GP1280 only
C711	2113743L41	0.1 uF used in GP1280 only
C713	2113928N01	0.1 uF used in GP1280 only
C714	2113928N01	0.1 uF used in GP1280 only
C715	2113928N01	0.1 uF used in GP1280 only
C717	2113928N01	0.1 uF used in GP1280 only
C718	2113743L17	1000pF used in GP1280 only
C719	2113928N01	0.1uF used in GP1280 only
CR101	4880973Z02	Pin diode
CR102	4802245J41	Pin diode
CR103	4802245J41	Pin diode
CR105	5185963A15	Temperature sensor
CR160	NOT PLACED	
CR201	4802233J09	Triple diode (SOT 25)
CR203	4862824C03	Varactor
CR241	4805649Q13	Varactor
CR242	4862824C08	Varactor
CR243	4862824C08	Varactor
CR251	4802245J22	Varactor
CR301	4862824C08	Varactor
CR302	4862824C08	Varactor
CR303	4880154K03	Dual common anode-cathode diode
CR304	4862824C08	Varactor
CR305	4862824C08	Varactor
CR306	4802245J42	Ring Quad diode (SOT-143)
CR308	4802245J41	Pin diode
CR310	4862824C08	Varactor
CR411	4802245J62	Diode Schottky
CR412	4802245J62	Diode Schottky
CR413	4802245J62	Diode Schottky
CR440	4813833C02	Dual common cathode diode
CR501	4880107R01	Rectifier
CR503	4805729G49	LED Red/Yellow
E101	2484657R01	Ferrite bead
E400	2480640Z01	Ferrite bead
E401	2480640Z01	Ferrite bead
E402	2480640Z01	Ferrite bead
E403	2480640Z01	Ferrite bead
E404	2480640Z01	Ferrite bead
E405	2480640Z01	Ferrite bead
E406	2480640Z01	Ferrite bead
E407	2480640Z01	Ferrite bead
E408	2480640Z01	Ferrite bead
E409	2480640Z01	Ferrite bead
F501	6580542Z01	3A fuse
FL201	4805875Z04	16.8MHz Xtal oscillator
FL301	4802245J43	Xtal Filter 45.1MHz
FL401	4870368G02	Xtal Oscillator 38.4kHz (not used in GP640/240)
H101	2680499Z01	Heat spreader
J101	0985613Z01	RF Jack
J102	0280519Z02	Antenna nut
J400	0905505Y04	40-pin connector
J403	0905505Y02	20-pin connector
L101	2479990B02	19.61nH
L102	2479990B02	19.61nH
L104	2479990B02	19.61nH
L105	2462587N22	390nH
L106	2479990A02	7.66nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L109	0662057C01	0
L112	2462587N45	22nH
L113	2413926H09	5.6nH
L114	2462587N45	22nH
L115	2462587N22	390nH
L116	2479990A03	9.75nH
L160	2413926H14	15nH
L201	2462587Q20	2200nH
L202	2462587Q20	2200nH
L203	2462587Q20	2200nH

Circuit Ref	Motorola Part No.	Description
L232	2462587P25	12000nH
L241	2462587V41	390nH
L242	2462587V38	220nH
L243	2460593C01	Multi-layered Teflon resonator, Rx
L251	2462587V28	33nH
L253	2460593C02	Multi-layered Teflon resonator, Tx
L261	2462587V29	39nH
L271	2462587V32	68nH
L273	2462587V28	33nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990C01	13.9nH
L302	2479990C01	13.9nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V26	22nH
L306	2479990C01	13.9nH
L307	2479990C01	13.9nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH
L311	2462587N65	750nH
L314	2462587N72	2200nH
L321	NOT PLACED	
L325	2480646Z20	2.2uH
L330	2462587N64	680nH
L331	2480646Z20	2.2uH
L332	2462587N53	100nH
L340	2462587V41	390nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
P100	3905643V01	Ground contact finger
PB501	4080523Z01	Tactile switch, pushbutton
PB502	4080523Z01	Tactile switch, pushbutton
PB503	4080523Z01	Tactile switch, pushbutton
PB504	4080523Z01	Tactile switch, pushbutton
PB505	4080523Z01	Tactile switch, pushbutton
Q110	4813828A09	RF PA
Q111	4802245J50	Dual NPN/PNP transistor
Q210	4802245J50	Dual NPN/PNP transistor
Q241	4805218N63	RF NPN transistor
Q260	4802245J50	Dual NPN/PNP transistor
Q261	4802245J50	Dual NPN/PNP transistor
Q301	4802245J44	NPN Transistor
Q302	4802245J44	NPN Transistor
Q310	NOT PLACED	
Q315	4880214G02	NPN
Q316	NOT PLACED	
Q320	4805218N63	RF NPN transistor
Q400	4809579E18	Mosfet P - channel
Q403	4813824A17	Bipolar Transistor, PNP
Q405	4802245J54	Dual NPN Transistor
Q410	4802245J54	Dual NPN Transistor
Q416	4809579E18	Mosfet P - channel (not used in GP640/GP240)
Q417	4802245J50	Dual NPN/PNP transistor
Q502	5180159R01	DUAL TRANS NPNS
Q505	4880214G02	NPN
R101	0662057A34	240
R102	0680539Z01	0.1
R103	0662057M41	43
R104	0662057N15	47k
R106	0662057M26	10
R107	NOT PLACED	
R108	0662057M92	5600
R109	0662057N30	200k
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43k
R130	0662057M98	10k
R131	0662057N05	18k
R132	0662057N33	270k
R133	NOT PLACED	
R136	0662057N47	1M
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43k
R172	0662057A32	200
R173	0662057N29	180k
R174	0662057N15	47k
R175	0662057B67	6.2
R176	0662057B67	6.2
R201	0662057N21	82k
R202	0662057N23	100k
R204	0662057N15	47k
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M57	200
R243	0662057M98	10k
R244	0662057N01	12k
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M32	18
R252	0662057M62	330
R253	0662057M95	7500
R254	0662057M95	7500
R255	0662057M89	4300
R256	0662057M37	30
R260	0662057M74	1000
R281	NOT PLACED	
R300	0662057M82	2200
R301	0662057N23	100k
R302	0662057N23	100k
R303	0662057M74	1000
R304	0662057N01	12k
R305	0662057M67	510
R306	0662057N23	100k
R307	0662057N23	100k
R308	0662057M60	270
R309	0662057M32	18
R310	0662057M60	270
R311	0662057N10	30k
R312	0662057M83	2400
R313	0662057M62	330
R314	0662057M85	3000
R315	0662057N01	12k
R316	0662057A96	91K
R317	0662057M74	1000
R318	0662057A79	18
R319	0662057A29	150
R320	0662057M74	1000
R321	0662057M83	2400
R322	0662057N30	200k
R324	0662057M81	2000
R325	0662057M94	6800
R326	NOT PLACED	
R327	0662057N11	33k
R328	0662057M12	2.7
R329	0662057M01	0
R330	NOT PLACED	
R331	NOT PLACED	
R332	NOT PLACED	
R333	NOT PLACED	
R334	NOT PLACED	
R335	NOT PLACED	
R336	NOT PLACED	
R338	NOT PLACED	
R339	0662057M01	0
R340	0662057M94	6800
R342	0662057N23	100k
R343	0662057M26	10
R344	0662057N01	12k
R345	0662057M98	10k
R346	0662057N17	56k
R347	0662057M74	1000
R348	0662057M87	3600
R349	0662057C01	0
R350	0662057N23	100k
R351	0662057C01	0
R352	0662057M86	3300
R355	0662057M01	0
R400	0662057N15	47k
R401	0662057M01	0
R402	NOT PLACED	
R403	NOT PLACED	
R405	0662057M01	0
R406	0662057N20	75k
R407	0662057N19	68k
R408	NOT PLACED	
R409	0662057M98	10k
R410	0662057N23	100k
R411	0662057M98	10k
R413	0662057M01	0
R414	0662057V34	180k
R415	0662057V26	91k
R416	0662057M98	10k
R418	0662057M01	0
R419	0662057M67	510
R420	0662057B46	10M (not used in GP640/240)
R421	0662057M81	2000
R423	0662057N39	470k
R424	0662057N12	36k
R425	0662057N10	30k
R426	0662057N35	330k (not used in GP640/240)
R427	0662057M84	2700
R428	0662057M10	2.2
R429	0662057M98	10k
R431	0662057N39	470k
R432	0662057N16	51k
R434	0662057M62	330
R435	0662057M81	2000
R436	0662057M01	0
R445	0662057N08	24k
R447	0662057N23	100k
R448	0662057M98	10k
R449	0662057N08	24k
R450	0683962T45	68 ohms, 1W
R451	0662057N03	15k
R452	0662057N23	100k

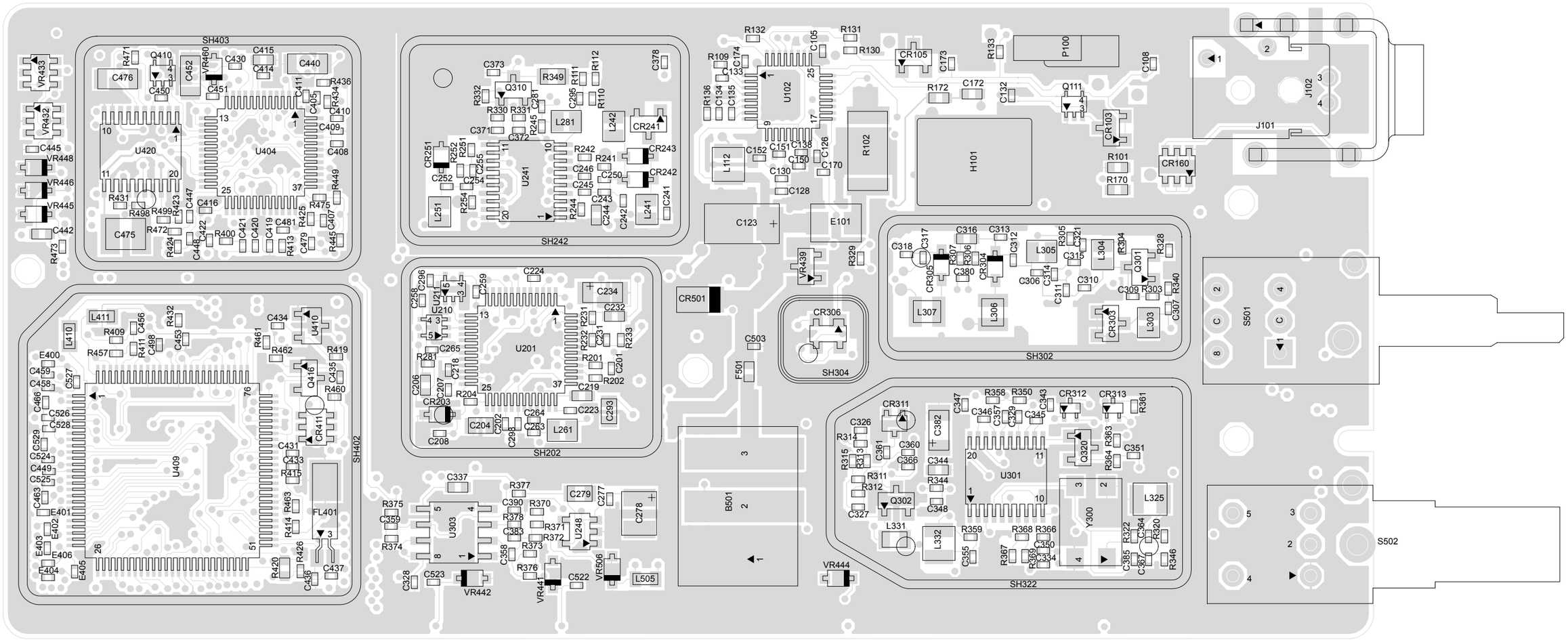
Circuit Ref	Motorola Part No.	Description
R453	NOT PLACED	
R454	NOT PLACED	
R455	NOT PLACED	
R456	0662057M01	0
R457	0662057M98	10k
R460	0662057M90	4700
R461	0662057M56	180 (not used in GP640/ GP240)
R462	0662057M98	10k (not used in GP640/ GP240)
R463	0662057M61	300
R471	0662057N06	20k
R472	0662057N12	36k
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N08	24k
R477	0662057M74	1000
R478	0662057M98	10k
R481	0662057N08	24k
R492	0662057M01	0
R498	0662057M98	10k
R499	0662057M98	10k (not used in GP640/ GP240)
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10k
R506	0662057N15	47k
R507	0662057M01	0
R701	0662057N05	18K used in GP1280 only
R702	0662057N05	18K used in GP1280 only
R703	0662057M74	1K used in GP1280 only
R704	0662057N13	39K used in GP1280 only
R705	0662057N13	39K used in GP1280 only
R706	0662057N17	56K used in GP1280 only
R707	0662057M91	5.1K used in GP1280 only
R708	0662057N41	560K used in GP1280 only
R709	0662057N47	1.0 MEG used in GP1280 only
R710	0662057N39	470K used in GP1280 only
R716	0662057N01	12K used in GP1280 only
R717	0662057M82	2.2K used in GP1280 only
RT300	0680590Z01	THERMISTOR_33K
RT301	NOT PLACED	
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z01	CHANNEL SWITCH used in GP640/GP240 only
	4080710Z02	CHANNEL SWITCH not used in GP640/GP240
S502	1880619Z02	Volume/on-off switch
SH100	2680507Z01	Harmonic Filter shield
SH101	2680510Z01	RF PA shield
SH201	2680511Z01	Synthesizer top shield
SH202	2680511Z01	Synthesizer bottom shield
SH241	2680513Z01	Resonators shield
SH242	2680514Z01	VCO Buffer IC shield
SH301	2680554Z01	Receiver front end shield
SH302	2680555Z01	Receiver front end bottom shield
SH303	2680509Z01	Mixer shield
SH304	2680624Z01	Mixer diode shield
SH321	2680508Z01	LVZIF 2nd LO shield
SH322	2680514Z01	LVZIF shield
SH323	2680553Z01	Crystal Filter shield
SH400	2680505Z01	Controller Memory Shield
SH401	2680506Z01	Controller on-off shield
SH402	2680515Z01	Microprocessor shield
SH403	2680516Z01	Asfic_Cmp/Audio PA shield
SH701	2680677Z01	SHIELD(VOICE STORAGE BOTTOM) used in GP1280 only
T301	2580541Z01	Balun transformer
T302	2580541Z01	Balun transformer

* Motorola Depot Servicing only
** Not Field Serviceable

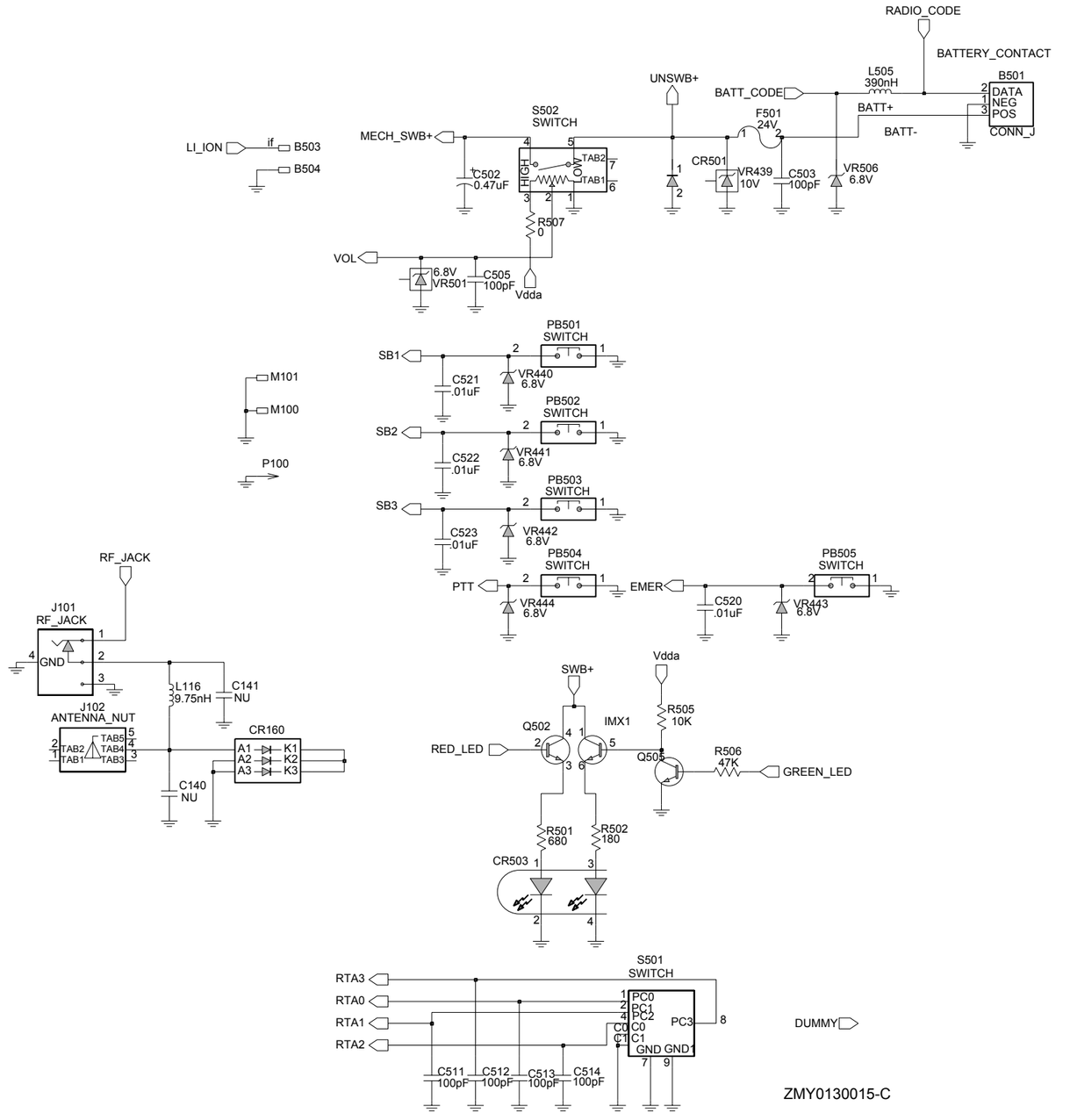
12.0 UHF PCB 8486458Z03 Schematics



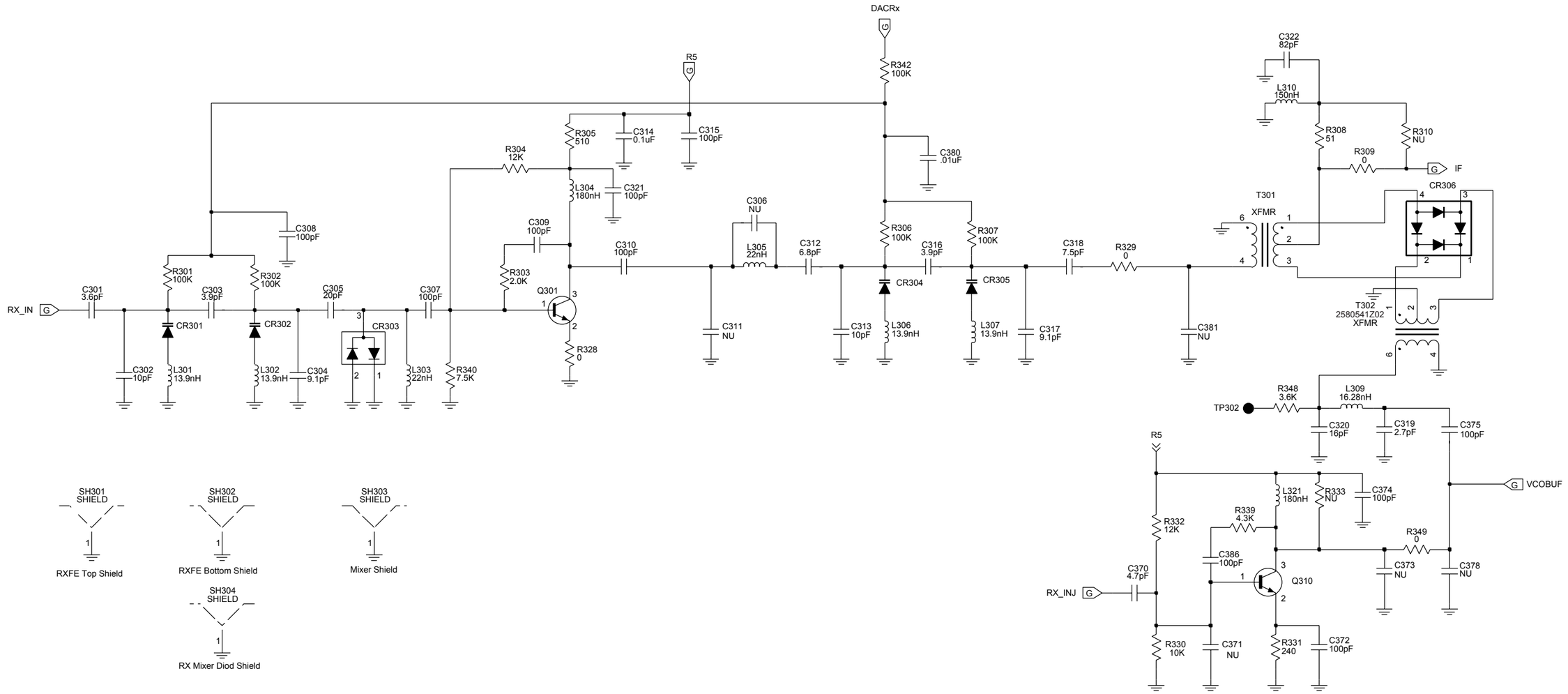
UHF (403-470MHz) Main Board Top Side



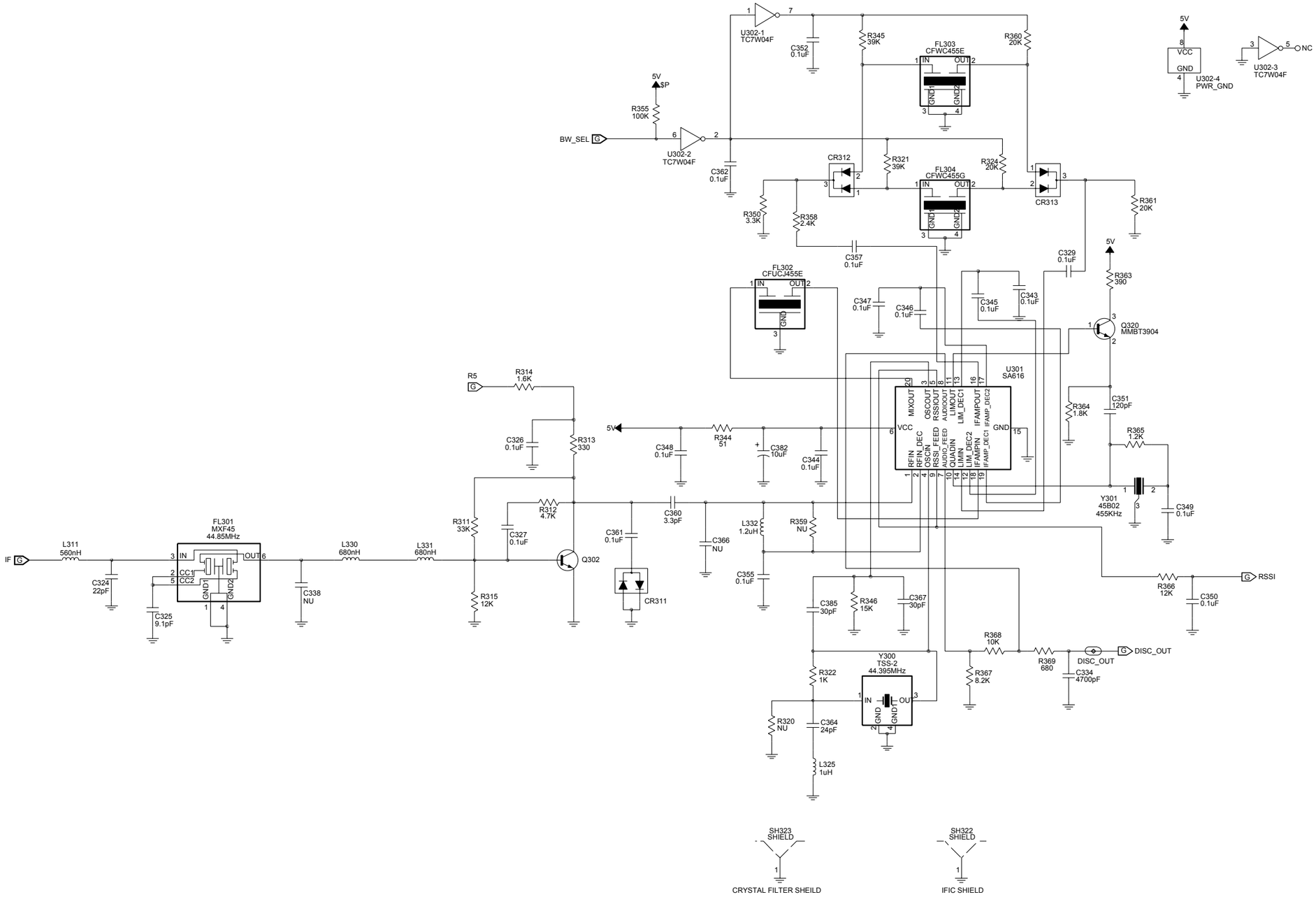
UHF (403-470 MHz) Main Board Bottom Side



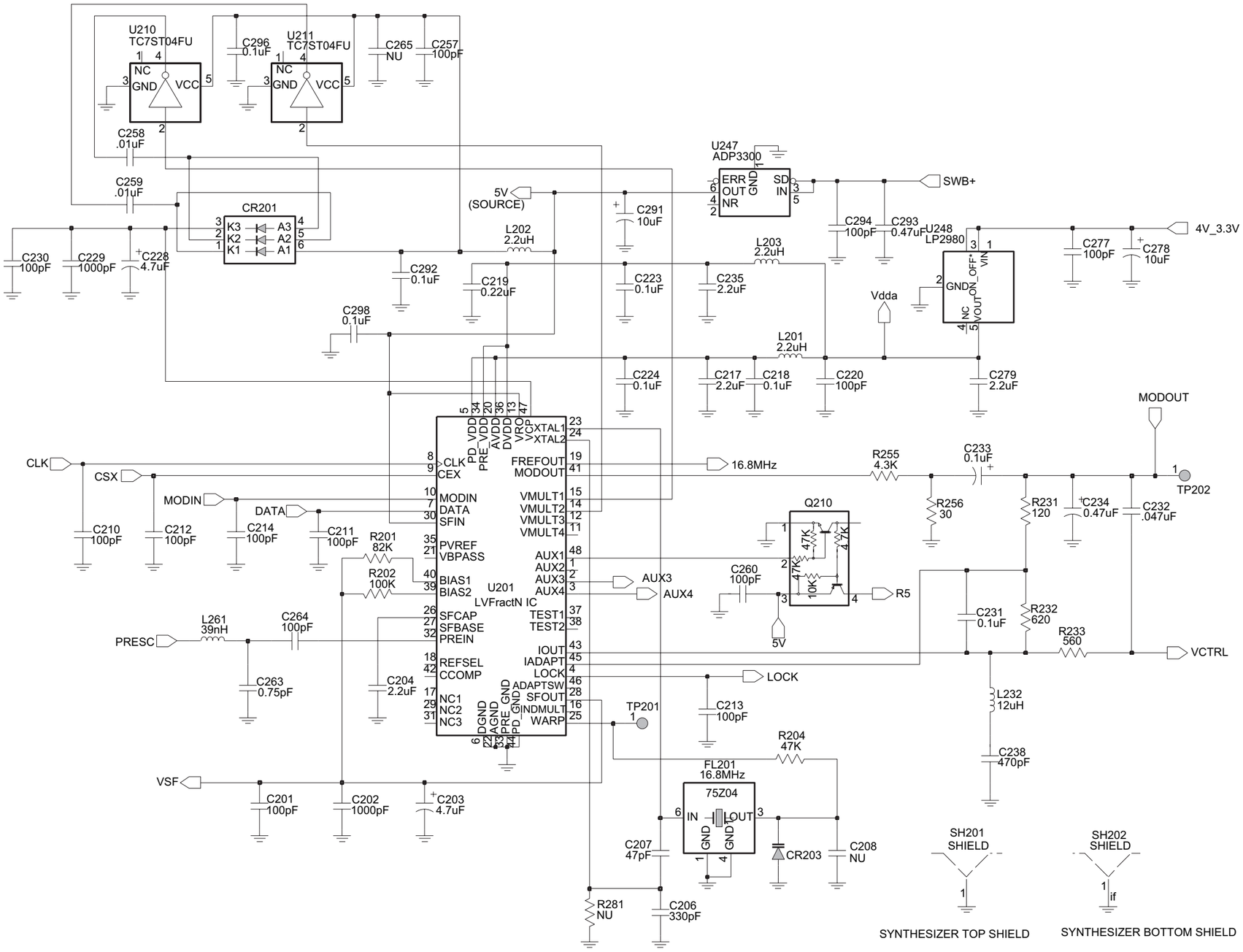
UHF (403-470 MHz) Controls and Switches



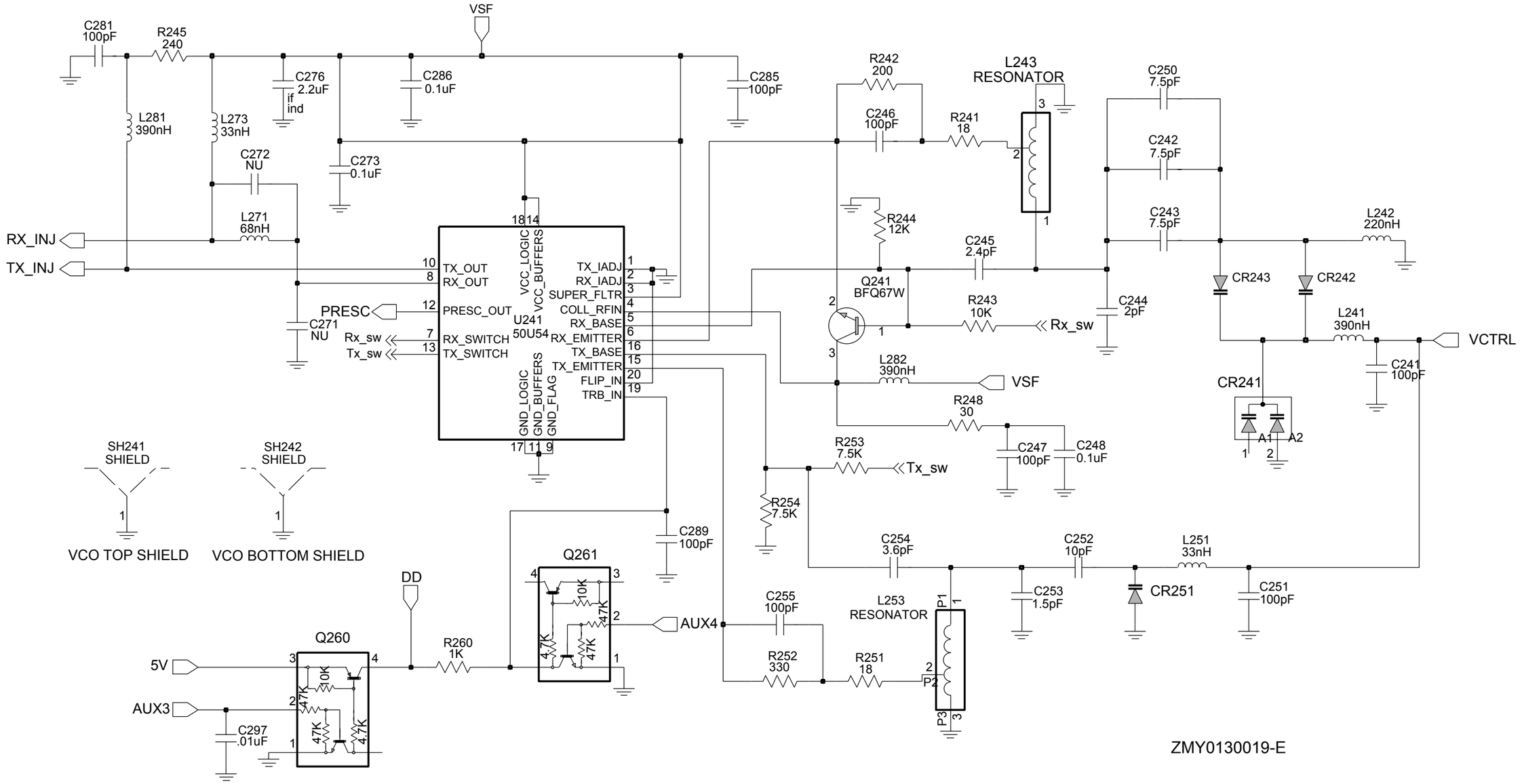
UHF (403 - 470 MHz) Receiver Front End



UHF (403-470 MHz) Receiver Back End

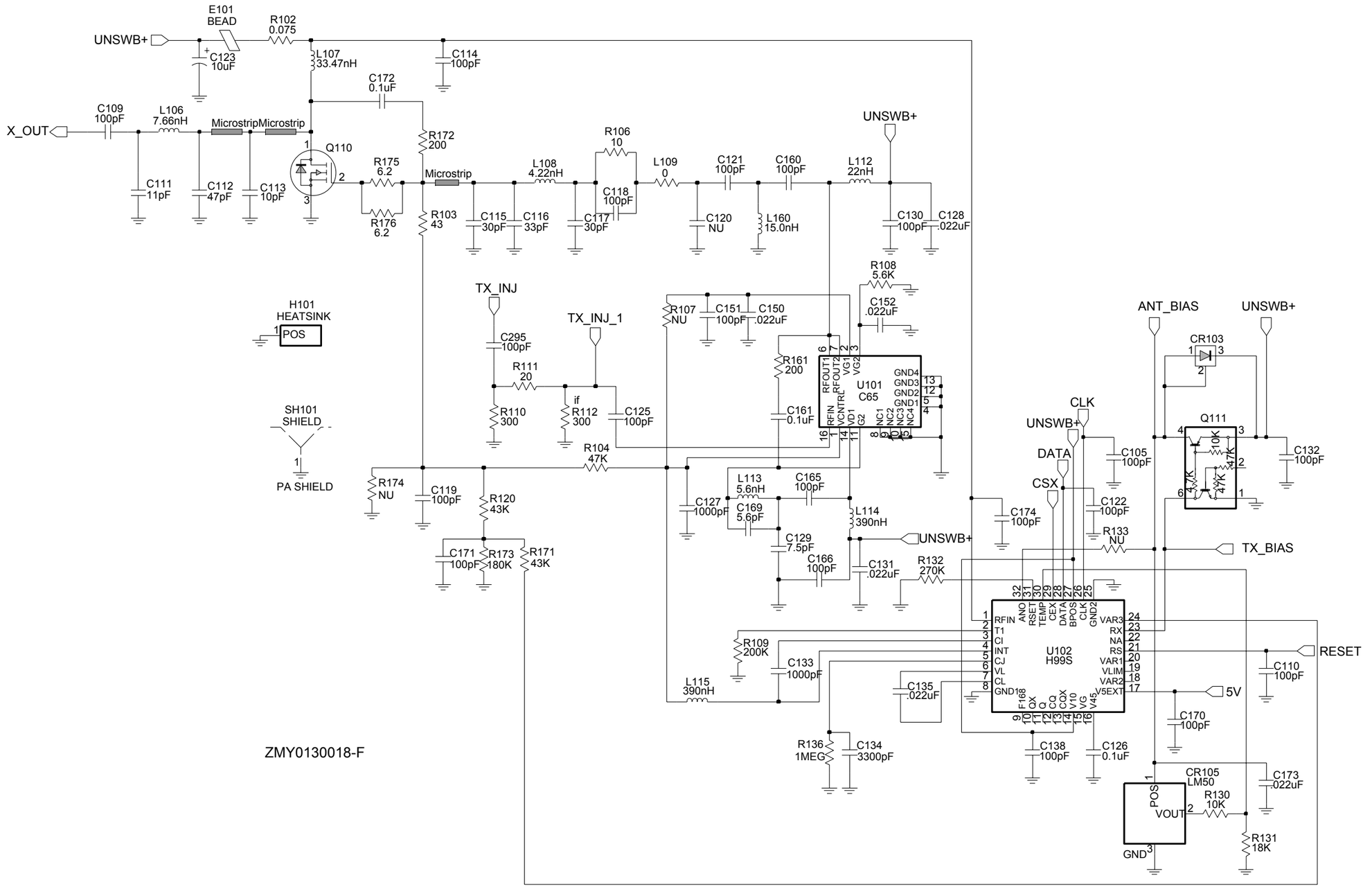


UHF (403-470 MHz) Synthesizer



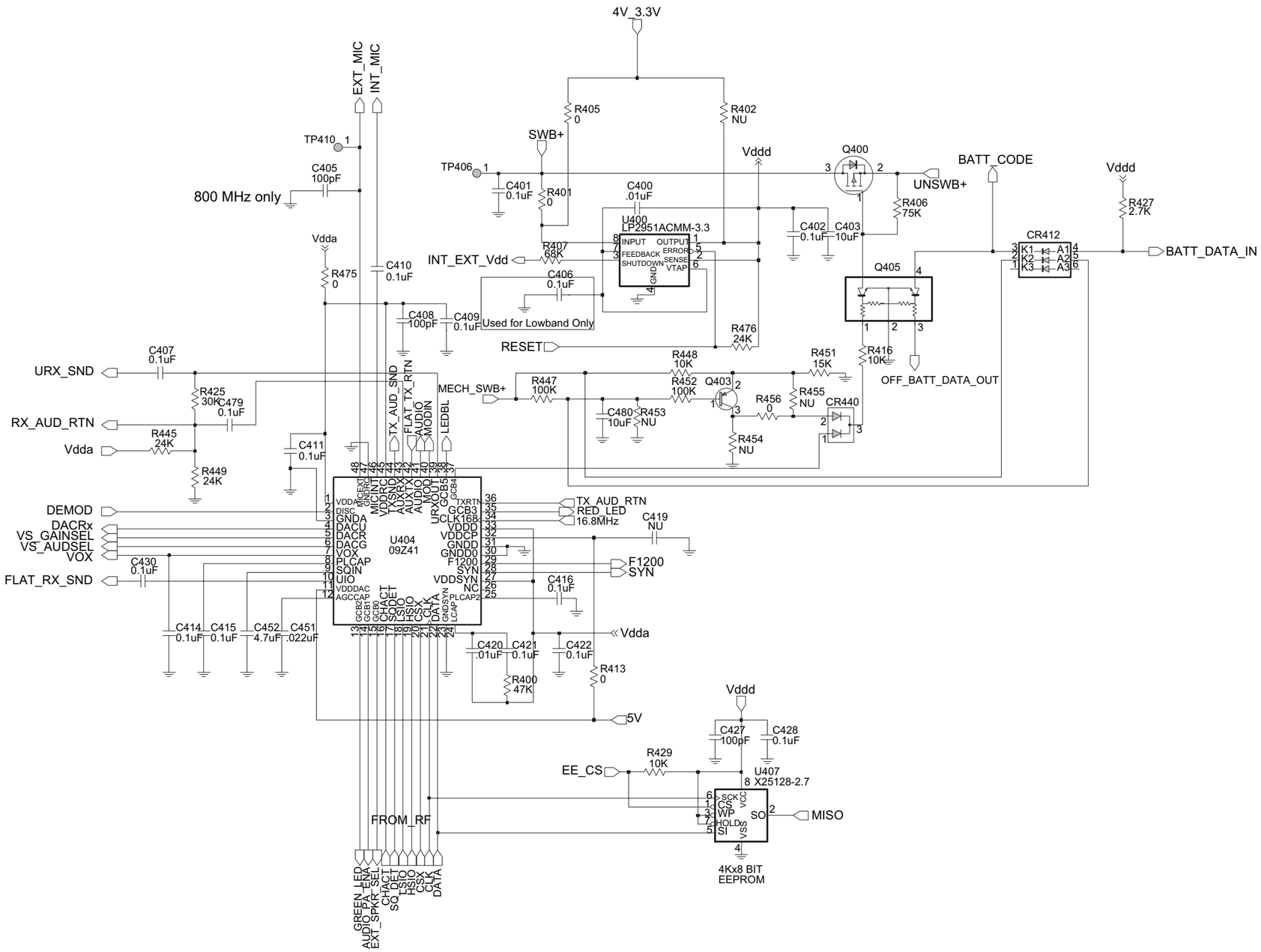
ZMY0130019-E

UHF (403-470 MHz) Voltage Controlled Oscillator



ZMY0130018-F

UHF (403-470 MHz) Transmitter



UHF (403-470 MHz) Harmonic Filter

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13.0 UHF PCB 8486458Z03 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	Battery Contact Module
B503	3980502Z01	Backup Contact, B + (not placed in GP140/GP240/ GP340)
B504	3980501Z01	Backup Contact, B - (not placed in GP140/GP240/ GP340)
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F27	10pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2113740F31	15pF
C112	2180605Z32	47pF
C113	2180605Z16	10pF
C114	2113743N50	100pF
C115	2113743N35	24pF
C116	2113743N35	24pF
C117	2113743N34	22pF
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N27	11pF
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A96	33uF
C125	2113743N50	100pF
C126	2113743M24	100000pF
C127	2113743L17	1000pF
C128	2113743M08	22000pF
C129	2113743N23	7.5pF
C130	2113743N50	100pF
C131	2113743M08	22000pF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	2113743L29	3300pF
C135	2113743M08	22000pF
C138	2113743N50	100pF
C140	0662057A67	5600
C141	NOTPLACED	
C150	2113743M08	22000pF
C151	2113743N50	100pF
C152	2113743M08	22000pF
C160	2113743N50	100pF
C161	2113743M24	100000pF
C165	2113743N50	100pF
C166	2113743N50	100pF
C169	2113743N20	5.6pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113740F51	100pF
C173	2113743M08	22000pF
C174	2113743N50	100pF
C175	2113740F51	100pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2113928L05	4.7uF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N42	47pF
C208	NOTPLACED	
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C217	2104993J02	2.2uF
C218	2113743M24	100000pF
C219	2113743K16	0.22uF
C220	2113743N50	100pF
C223	2113743M24	100000pF
C224	2113743M24	100000pF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	100000pF
C232	2113743E12	0.047uF
C233	2311049A01	0.1uF
C234	2311049A05	0.47uF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N23	7.5pF
C243	2113743N23	7.5pF
C244	2113740F10	2.0pF
C245	2113743N11	2.4pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	100000pF
C250	2113743N23	7.5pF
C251	2113743N50	100pF
C252	2113743N26	10pF
C253	2113740F09	1.8pF
C254	2113743N15	3.6pF
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	10000pF
C259	2113743L41	10000pF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C265	NOTPLACED	
C271	NOTPLACED	
C272	NOTPLACED	
C273	2113743M24	100000pF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A57	10uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C285	2113743N50	100pF
C286	2113743M24	100000pF
C289	2113743N50	100pF
C291	2311049A69	10uF
C292	2113743M24	100000pF
C293	2113743A27	0.47uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	100000pF
C297	2113743L41	10000pF
C298	2113743M24	100000pF
C301	2113743N15	3.6pF
C302	2113743N26	10pF
C303	2113740L08	3.9pF
C304	2113743N26	10pF
C305	2113743N33	20pF
C306	NOTPLACED	
C307	2113743N50	100pF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743N50	100pF
C311	NOTPLACED	
C312	2113743N25	9.1pF
C313	2113743N26	10pF
C314	2113743M24	100000pF
C315	2113743N50	100pF
C316	2113740L08	3.9pF
C317	2113743N25	9.1pF
C318	2113743N23	7.5pF
C319	2113743N12	2.7pF
C320	2113743N31	16pF
C321	2113743N50	100pF
C322	2113743N48	82pF
C324	2113743N34	22pF
C325	2109445U26	9.1pF
C326	2113743M24	100000pF
C327	2113743M24	100000pF
C328	2113743M24	100000pF
C329	2113743M24	100000pF
C334	2113743L33	4700pF
C337	NOTPLACED	
C338	NOTPLACED	
C343	2113743M24	100000pF
C344	2113743E20	0.1uF
C345	2113743M24	100000pF
C346	2113743M24	100000pF
C347	2113743M24	100000pF
C348	2113743M24	100000pF
C349	2113743E20	0.1uF
C350	2113743M24	100000pF
C351	2113743N52	120pF
C352	2113743M24	100000pF
C355	2113743M24	100000pF
C357	2113743M24	100000pF
C358	NOTPLACED	
C359	NOTPLACED	
C360	2113743N14	3.3pF
C361	2113743M24	100000pF
C362	2113743M24	100000pF
C364	2113743N35	24pF
C366	NOTPLACED	
C367	2113743N37	30pF
C370	2113743N18	4.7pF
C371	NOTPLACED	
C372	2113743N50	100pF
C373	NOTPLACED	
C374	2113743N50	100pF
C375	2113743N50	100pF
C378	NOTPLACED	
C380	2113743L41	10000pF
C381	NOTPLACED	
C382	2311049A59	10uF
C383	NOTPLACED	
C385	2113743N37	30pF
C386	2113743N50	100pF
C390	NOTPLACED	
C400	2113743L41	10000pF
C401	2113743M24	100000pF
C402	2113743M24	100000pF
C403	2113743G24	2.2uF
C404	NOTPLACED	
C405	2113743N50	100pF
C406	NOTPLACED	
C407	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	100000pF
C410	2113928N01	0.1uF
C411	2113743M24	100000pF
C414	2113743M24	100000pF

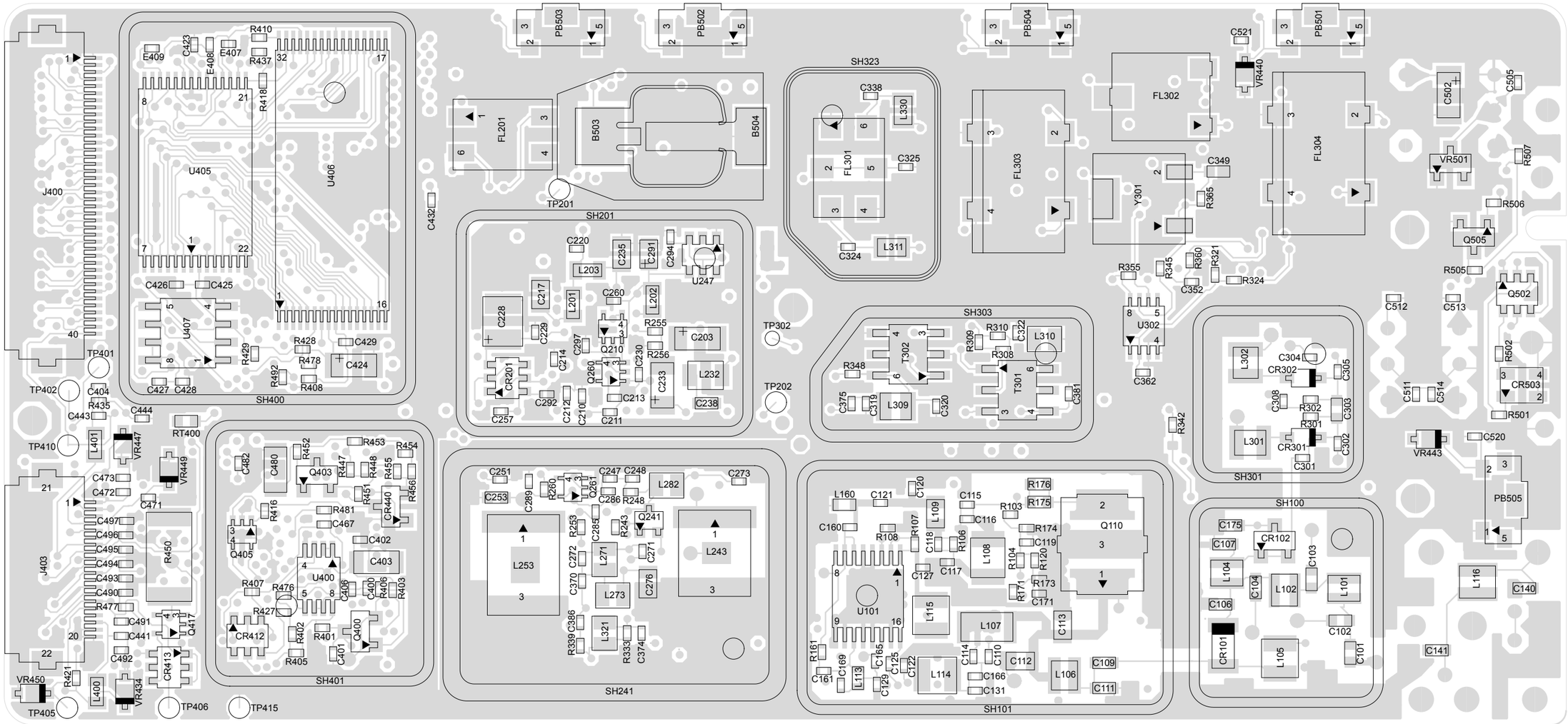
Circuit Ref	Motorola Part No.	Description
C415	2185895Z01	0.01uF
C416	2113928N01	0.1uF
C419	NOTPLACED	
C420	2113743L41	10000pF
C421	2113928N01	0.1uF
C422	2113743M24	100000pF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	100000pF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	100000pF
C429	2113743M24	100000pF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C432	NOTPLACED	
C433	2113743L41	10000pF
C434	2113928N01	0.1uF (not placed in GP340)
C435	2113743M24	100000pF
C436	2113743N34	22pF (not placed in GP340)
C437	2113743N34	22pF (not placed in GP340)
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	0.1uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	22000pF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C450	NOTPLACED	
C451	2113743M08	22000pF
C452	2113743B29	1uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF
C480	2113928D08	10uF
C481	2113928N01	0.1uF
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C498	NOTPLACED	
C502	2311049A05	0.47uF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	10000pF
C521	2113743L41	10000pF
C522	2113743L41	10000pF
C523	2113743L41	10000pF
C524	2113743N50	100pF
C525	2113743N50	100pF
C526	2113743N50	100pF
C527	2113743N50	100pF
C528	2113743N50	100pF
C529	2113743N50	100pF
CR101	4880973Z02	Pin Diode
CR102	4802245J41	Pin Diode
CR103	4802245J41	Pin Diode
CR105	5185963A15	Temperature Sensor
CR160	NOTPLACED	
CR201	4802233J09	Triple Diode
CR203	4862824C03	Varactor
CR241	4805649Q13	Varactor
CR242	4862824C08	Varactor
CR243	4862824C08	Varactor
CR251	4802245J22	Varactor
CR301	4862824C08	Varactor
CR302	4862824C08	Varactor
CR303	4880154K03	Dual Schottky Diode
CR304	4862824C08	Varactor
CR305	4862824C08	Varactor
CR306	4802245J42	Ring Quad Diode
CR311	4813825A19	Diode Schottky
CR312	4802245J97	Switch Diode
CR313	4802245J97	Switch Diode
CR411	4802245J62	Diode Schottky
CR412	4802245J62	Diode Schottky
CR413	4802245J62	Diode Schottky
CR440	4813833C02	Dual Common Cathode Diode
CR501	4880107R01	Rectifier
CR503	4805729G49	Red/Yellow LED
E101	2484657R01	FERRITE BEAD
E400	2480640Z01	FERRITE BEAD
E401	2480640Z01	FERRITE BEAD
E402	2480640Z01	FERRITE BEAD
E403	2480640Z01	FERRITE BEAD
E404	2480640Z01	FERRITE BEAD
E405	2480640Z01	FERRITE BEAD
E406	2480640Z01	FERRITE BEAD
E407	2480640Z01	FERRITE BEAD
E408	2480640Z01	FERRITE BEAD
E409	2480640Z01	FERRITE BEAD
F501	6580542Z01	Fuse 3A
FL201	4805875Z04	16.8 MHZ Xtal Filter
FL301	9180022M11	Xtal Filter 44.85MHz
FL302	9180468V05	455kHz 4-pole ceramic filter
FL303	9180469V05	455kHz 6-pole ceramic filter
FL304	9180469V03	455kHz 6-pole ceramic filter
FL401	4870368G02	Real Time Clock Xtal Oscillator 38.4kHz (not placed in GP329)
H101	2680499Z01	Heat Spreader
J101	0985613Z01	RF Jack
J102	0280519Z02	Antenna Nut
J400	0905505Y04	40-Pin Connector
J403	0905505Y02	20-Pin Connector
L101	2479990B02	19.61nH
L102	2479990B02	19.61nH
L104	2479990B02	19.61nH
L105	2462587N22	390nH
L106	2479990A02	7.66nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L109	2479990B01	11.03nH
L112	2462587N45	22nH
L113	2413926H09	5.6nH
L114	2462587N45	22nH
L115	2462587N22	390nH
L116	2479990A03	9.75nH
L160	2413926H14	15nH
L201	2462587Q20	2200nH
L202	2462587Q20	2200nH
L203	2462587Q20	2200nH
L232	2462587P25	12000nH
L241	2462587V41	390nH
L242	2462587V38	220nH
L243	2485776Z01	Multi-layered Teflon resonator, Rx
L251	2462587V28	33nH
L253	2460593C02	Multi-layered Teflon resonator, Tx
L261	2462587V29	39nH
L271	2462587V32	68nH
L273	2462587V28	33nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990C01	13.9nH
L302	2479990C01	13.9nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V26	22nH
L306	2479990C01	13.9nH
L307	2479990C01	13.9nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH
L311	2413926K32	560nH
L321	2462587V37	180nH
L325	2462587N68	1000nH
L330	0662057C01	0
L331	2413926K33	680nH
L332	2413923A25	1200nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
P100	3905643V01	Ground Contact Finger
PB501	4086470Z01	Tactile Switch
PB502	4086470Z01	Tactile Switch
PB503	4086470Z01	Tactile Switch
PB504	4086470Z01	Tactile Switch
PB505	4086470Z01	Tactile Switch
Q110	4813828A09	RF PA
Q111	4809939C05	DUAL NPN/PNP Transistor
Q210	4809939C05	DUAL NPN/PNP Transistor
Q241	4805218N63	RF NPN Transistor
Q260	4809939C05	DUAL NPN/PNP Transistor
Q261	4809939C05	DUAL NPN/PNP Transistor
Q301	4802245J44	NPN Transistor
Q302	4802197J95	NPN Transistor
Q310	4802245J44	NPN Transistor
Q320	4813824A10	RF NPN transistor
Q400	4809579E18	MOSFET P-Channel
Q403	4813824A17	PNP Transistor
Q405	4802245J54	Dual NPN Transistor
Q410	4802245J54	Dual NPN Transistor
Q416	4809579E18	MOSFET P-Channel (not placed in GP340)
Q417	4809939C05	DUAL NPN/PNP Transistor
Q502	5180159R01	Dual NPN Transistor
Q505	4880214G02	NPN Transistor
R101	0662057A34	240
R102	0680539Z01	0.1
R103	0662057M41	43
R104	0662057N15	47K

Circuit Ref	Motorola Part No.	Description
R106	0662057M26	10
R107	NOTPLACED	
R108	0662057M92	5600
R109	0662057N30	200K
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43K
R130	0662057M98	10K
R131	0662057N05	18K
R132	0662057N33	270K
R133	NOTPLACED	
R136	NOTPLACED	
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43K
R172	0662057A32	200
R173	0662057N29	180K
R174	0662057N15	47K
R175	0662057B59	3
R176	0662057B59	3
R201	0662057N21	82K
R202	0662057N23	100K
R204	0662057N15	47K
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M57	200
R243	0662057M98	10K
R244	0662057N01	12K
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M32	18
R252	0662057M62	330
R253	0662057M95	7500
R254	0662057M95	7500
R255	0662057M89	4300
R256	0662057M37	30
R260	0662057M74	1000
R281	NOTPLACED	
R301	0662057N23	100K
R302	0662057N23	100K
R303	0662057M81	2000
R304	0662057N01	12K
R305	0662057M67	510
R306	0662057N23	100K
R307	0662057N23	100K
R308	0662057M43	51
R309	0662057M01	0
R310	NOTPLACED	
R311	0662057N11	33K
R312	0662057M90	4700
R313	0662057M62	330
R314	0662057M79	1600
R315	0662057N01	12K
R320	NOTPLACED	
R321	0662057N13	39K
R322	0662057M74	1000
R324	0662057N06	20K
R328	0662057M01	0
R329	0662057M01	0
R330	0662057M98	10K
R331	0662057M57	200
R332	0662057N01	12K
R333	NOTPLACED	
R339	0662057M89	4300
R340	0662057M95	7500
R342	0662057N23	100K
R344	0662057M43	51
R345	0662057N13	39K
R346	0662057N03	15K
R348	0662057M87	3600
R349	0662057C01	0
R350	0662057M86	3300
R355	0662057N23	100K
R358	0662057M83	2400
R359	NOTPLACED	
R360	0662057N06	20K
R361	0662057N06	20K
R363	0662057M64	390
R364	0662057M80	1800
R365	0662057M76	1200
R366	0662057N01	12K
R367	0662057V04	12K
R368	0662057V02	10K
R369	0662057M70	680
R370	0662057M01	0
R371	NOTPLACED	
R372	NOTPLACED	
R373	NOTPLACED	
R374	NOTPLACED	
R375	NOTPLACED	
R376	NOTPLACED	
R377	NOTPLACED	
R378	NOTPLACED	
R400	0662057N15	47K
R401	0662057M01	0
R402	NOTPLACED	
R403	NOTPLACED	
R405	0662057M01	0
R406	0662057N20	75K
R407	0662057N19	68K
R408	NOTPLACED	
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057M98	10K
R418	0662057M01	0
R419	0662057M67	510
R420	0662057B46	10M (not placed in GP340)
R421	0662057M81	2000
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R426	0662057N35	330K (not placed in GP340)
R427	0662057M84	2700
R428	0662057M10	2.2
R429	0662057N20	75K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2000
R436	0662057M01	0
R437	NOTPLACED	
R445	0662057N08	24K
R447	0662057N23	100K
R448	0662057M98	10K
R449	0662057N08	24K
R450	0683962T45	68
R451	0662057N03	15K
R452	0662057N23	100K
R453	NOTPLACED	
R454	NOTPLACED	
R455	NOTPLACED	
R456	0662057M01	0
R457	0662057M98	10K
R460	0662057M90	4700
R461	0662057M56	180 (not placed in GP340)
R462	0662057M98	10K (not placed in GP340)
R463	0662057M61	300
R471	0662057N06	20K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N35	330K
R477	0662057M74	1000
R478	0662057M98	10K
R481	0662057N08	24K
R492	0662057M01	0
R498	0662057M98	10K
R499	0662057M98	10K (not placed in GP340)
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10K
R506	0662057N15	47K
R507	0662057M01	0
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z01	Frequency Switch (For GP340 Only)
S501	4080710Z02	Frequency Switch (For GP380 Only)
S502	1880619Z02	Volume / On-off Switch
SH100	2680507Z01	Harmonic Filter Shield
SH101	2680510Z01	PA Shield
SH201	2680511Z01	Synthesizer Top Shield
SH202	2680511Z01	Synthesizer Bottom Shield
SH241	2680513Z01	VCO Resonators Shield
SH242	2680514Z01	VCO Buffer IC Shield
SH301	2686583Z01	Receiver Front-End Shield
SH302	2680555Z01	Receiver Back-End Bottom Shield
SH303	2680509Z01	Mixer Shield
SH304	2680624Z01	Mixer Diode Shield
SH322	2686528Z01	IFIC Shield
SH323	2686527Z01	Crystal Filter Shield
SH400	2680505Z01	Controller Memory Shield
SH401	2680506Z01	Controller On-off Shield
SH402	2680515Z01	Microprocessor Shield
SH403	2680516Z01	Asfic_Cmp, Audio PA Shield
T301	2580541Z02	Balun Transformer
T302	2580541Z02	Balun Transformer
U101	5185130C65	LDMOS PA Driver
U102	5185765B26	PCIC
U201	5185963A27	LVFRACN Synthesizer IC
U210	5102463J61	Inverter
U211	5102463J61	Inverter
U241	5105750U54	VCO Buffer IC
U247	5105739X05	5V Regulator
U248	5102463J58	3.3V Regulator
U301	5186144B01	FM IFIC SA616
U302	5109522E10	LMOS Inverter
U303	NOTPLACED	
U400	5102463J40	3.3V Regulator
U404	5185130C53	ASFIC_CMP IC
U405	5102463J36	Static RAM 32K X 8
U406	5102463J60	Flash ROM 512K X 8
U407	5102495J05	EEPROM 16K X 8
U409	5102226J56	Micro Processor
U410	5102463J57	3.3V Regulator (not placed in GP329)

Circuit Ref	Motorola Part No.	Description
U420	5102463J44	Audio PA
VR432	4805656W08	5.6V Zener
VR433	4805656W08	5.6V Zener
VR434	4802245J73	Zener Diode 6.8V
VR439	4880140L17	Zener Diode 12V
VR440	4802245J73	Zener Diode 6.8V
VR441	4802245J73	Zener Diode 6.8V
VR442	4802245J73	Zener Diode 6.8V
VR443	4802245J73	Zener Diode 6.8V
VR444	4802245J73	Zener Diode 6.8V
VR445	4802245J74	Zener Diode 10V
VR446	4802245J74	Zener Diode 10V
VR447	4802245J74	Zener Diode 10V
VR448	4802245J74	Zener Diode 10V
VR449	4802245J74	Zener Diode 10V
VR450	4802245J75	Zener Diode 12V
VR460	4802245J73	Zener Diode 6.8V
VR501	4813830A18	DIODE 6.8V
VR506	4802245J73	Zener Diode 6.8V
Y300	4802245J84	Xtal Oscillator 44.395MHz
Y301	9186145B02	455kHz Ceramic Discriminator
	1485777Z01	INSULATOR (KAPTON)
	8486458Z03	LAZARUS UHF B1 PC Board

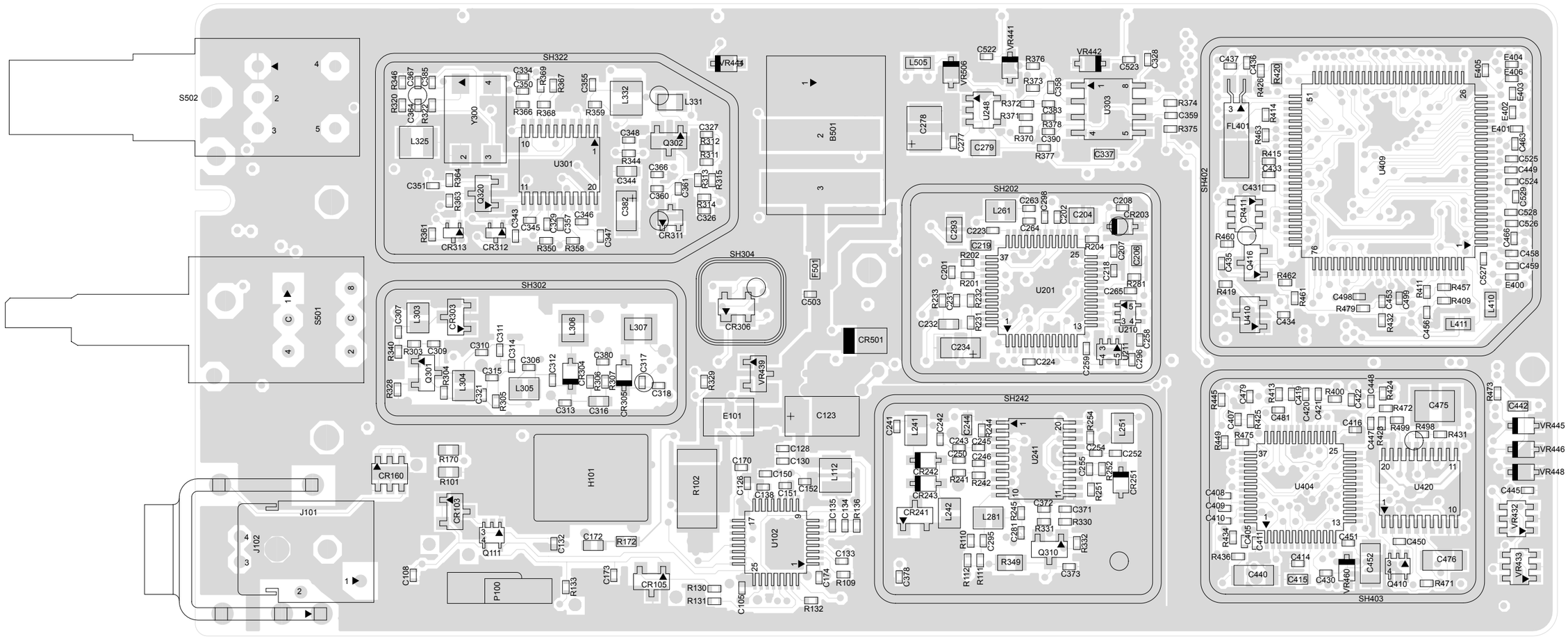
* Motorola Depot Servicing only

14.0 UHF PCB 8415234H01 Schematics



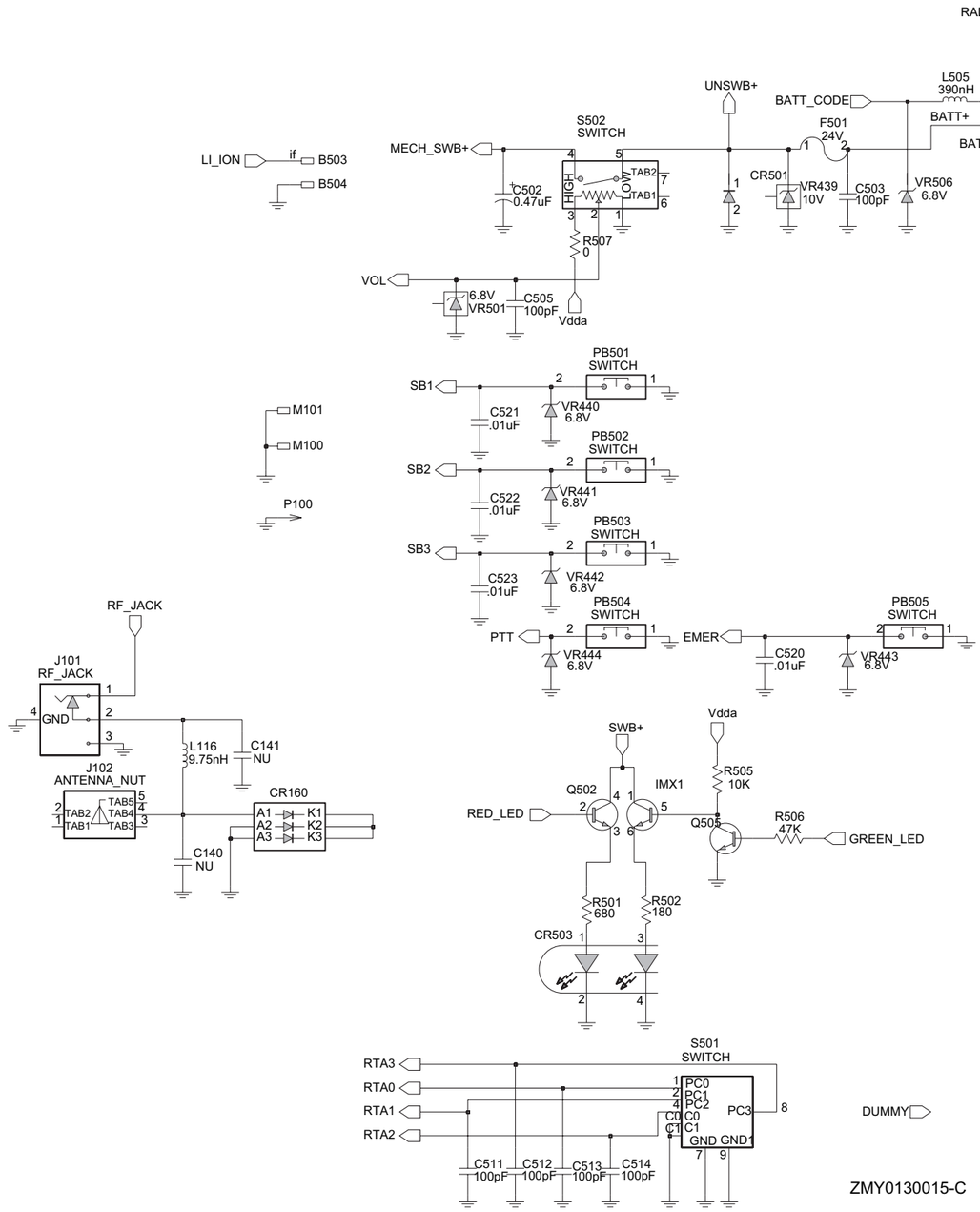
ZMY30004-O

UHF (403-470MHz) Main Board Top Side PCB No. 8415234H01

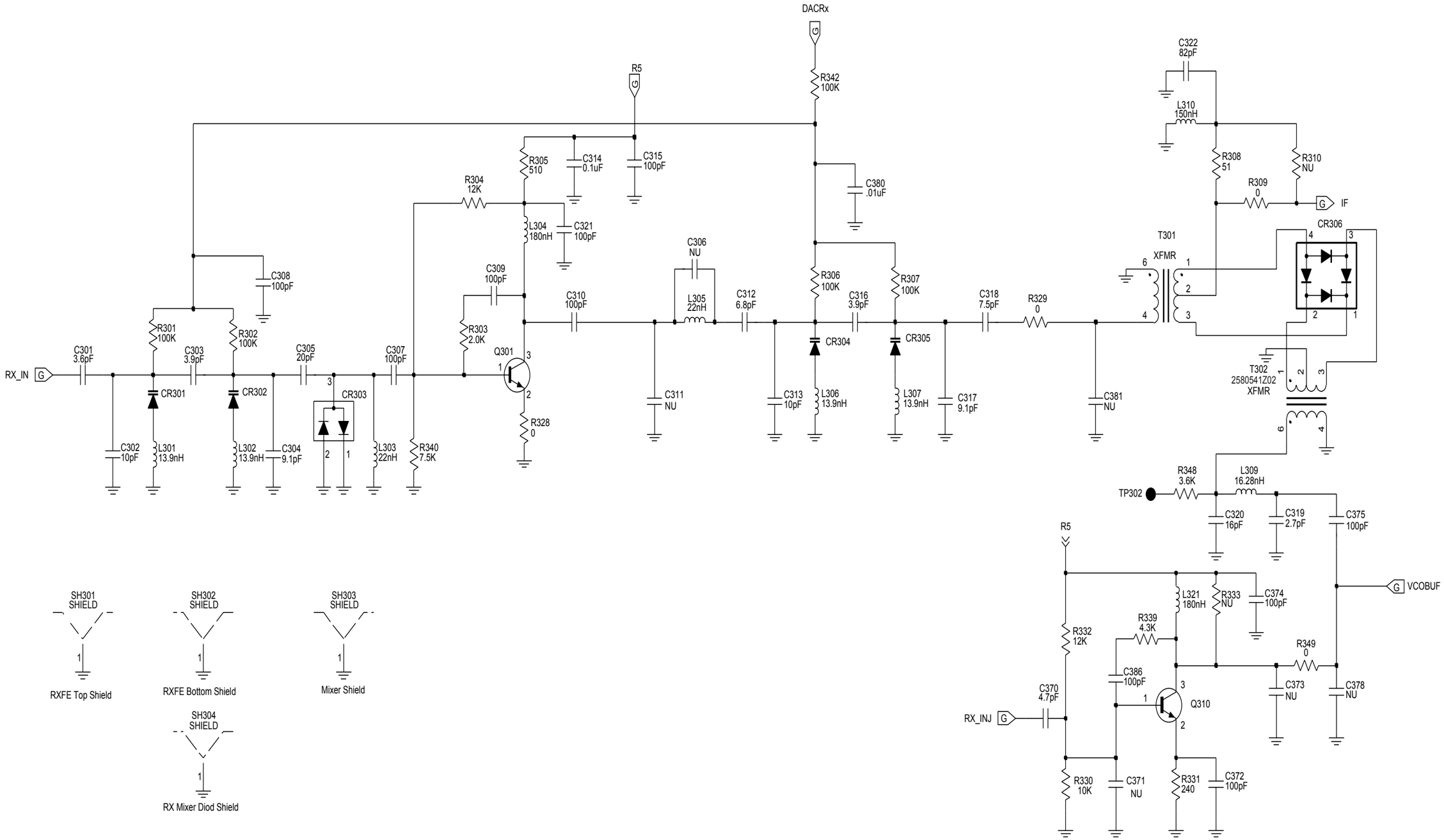


ZMY30005-O

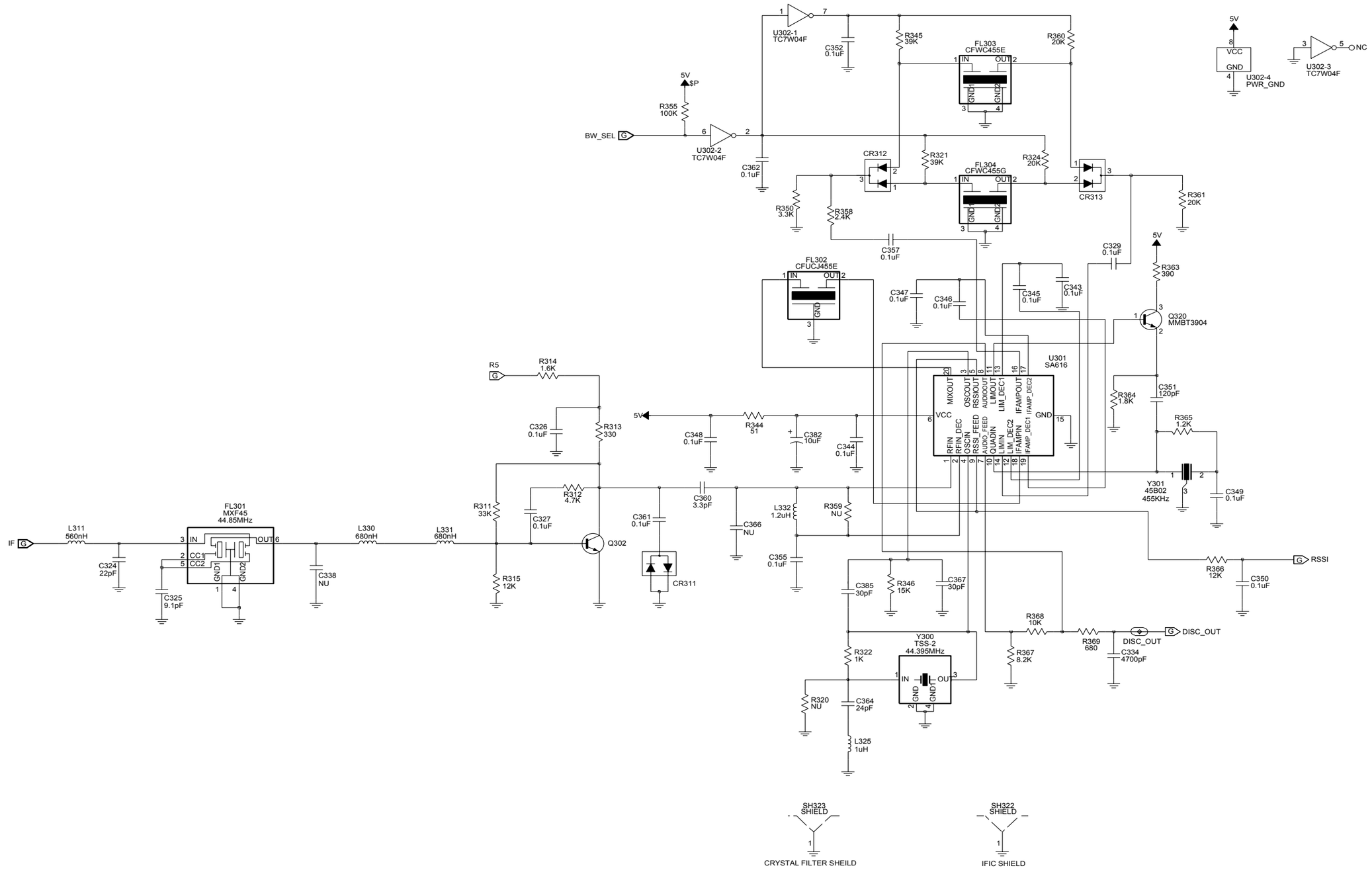
UHF (403-470MHz) Main Board Bottom Side



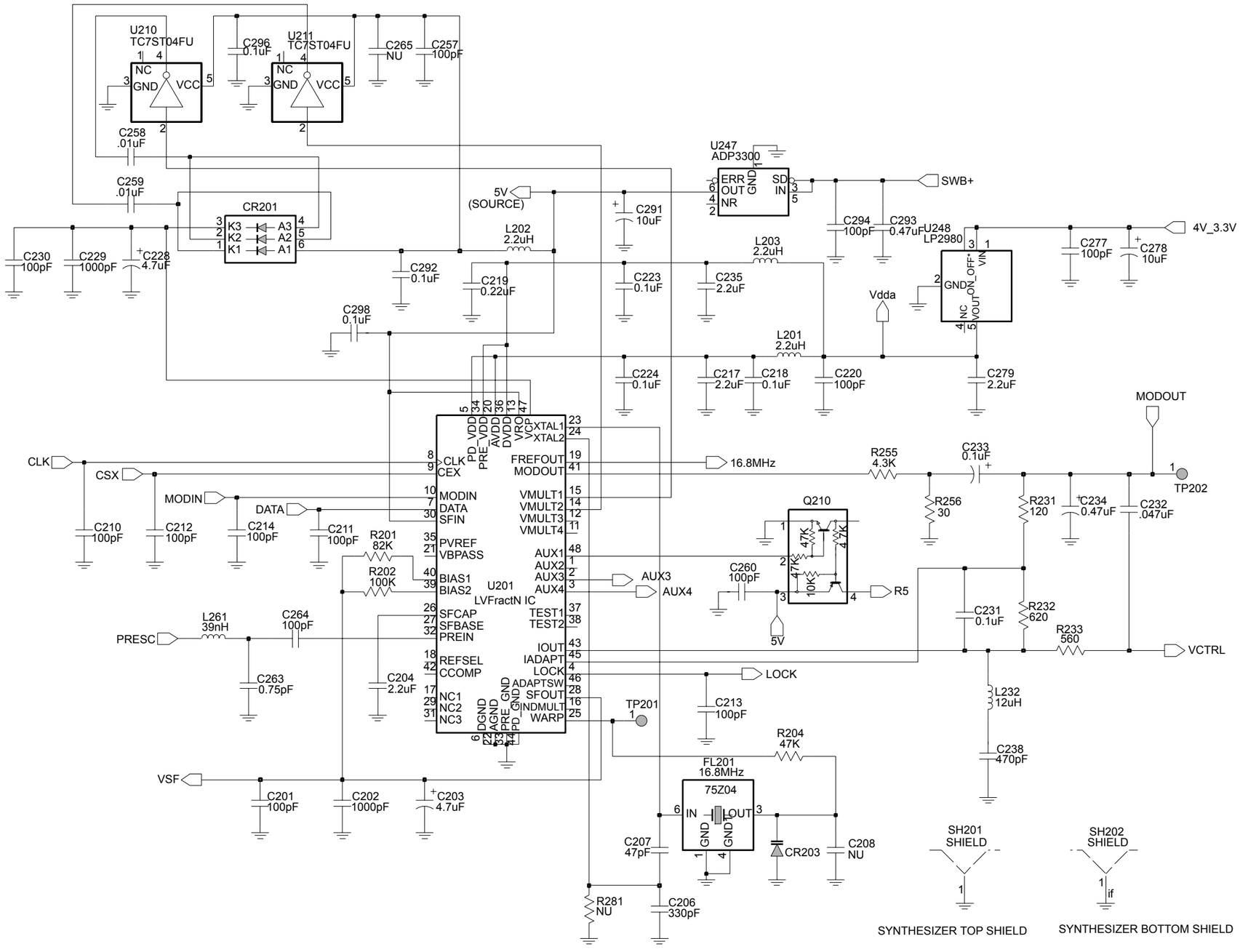
UHF (403-470 MHz) Controls And Switches Schematic Diagram



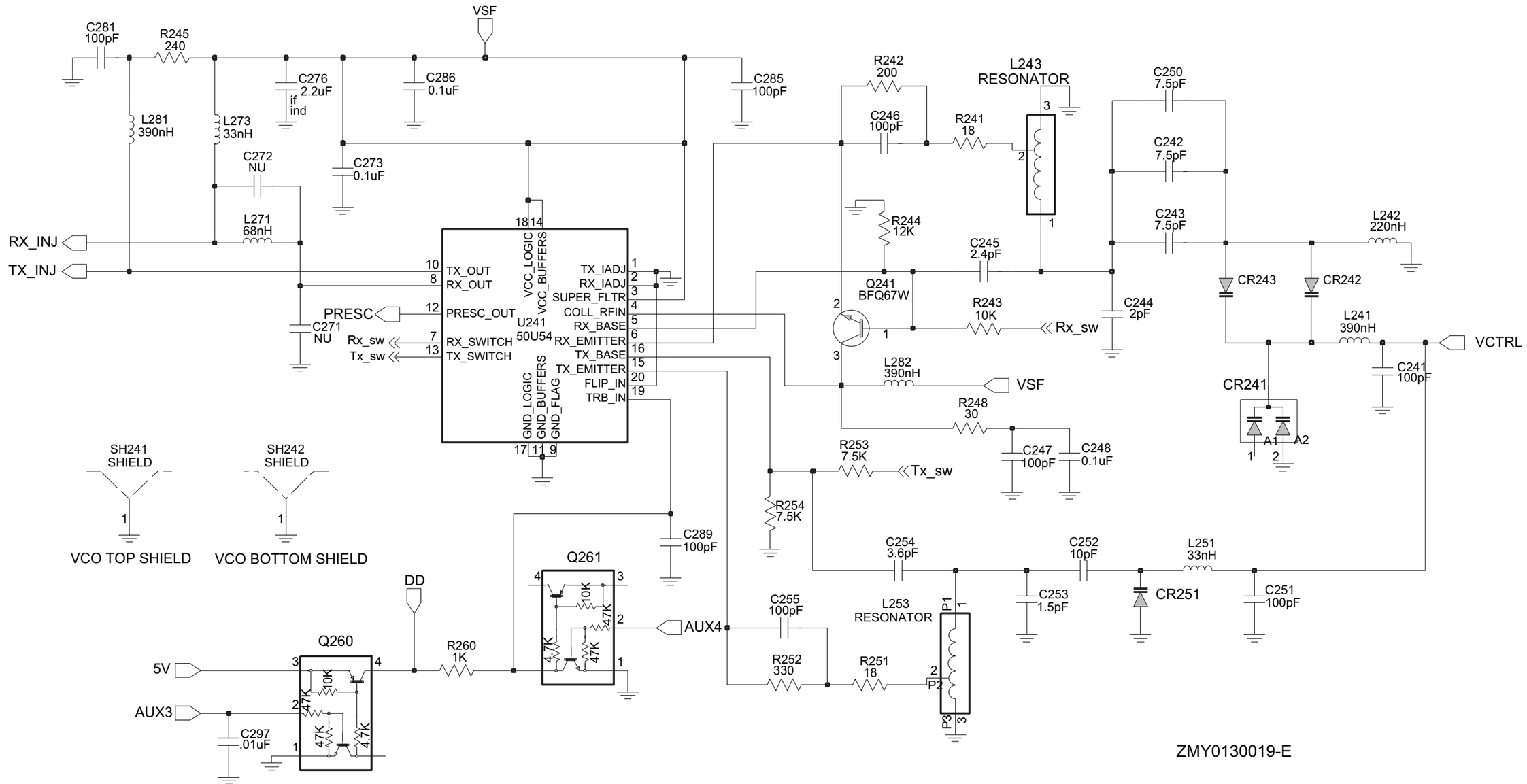
UHF (403-470 MHz) Receiver Front End Schematic Diagram



UHF (403-470 MHz) Receiver Back End Schematic Diagram

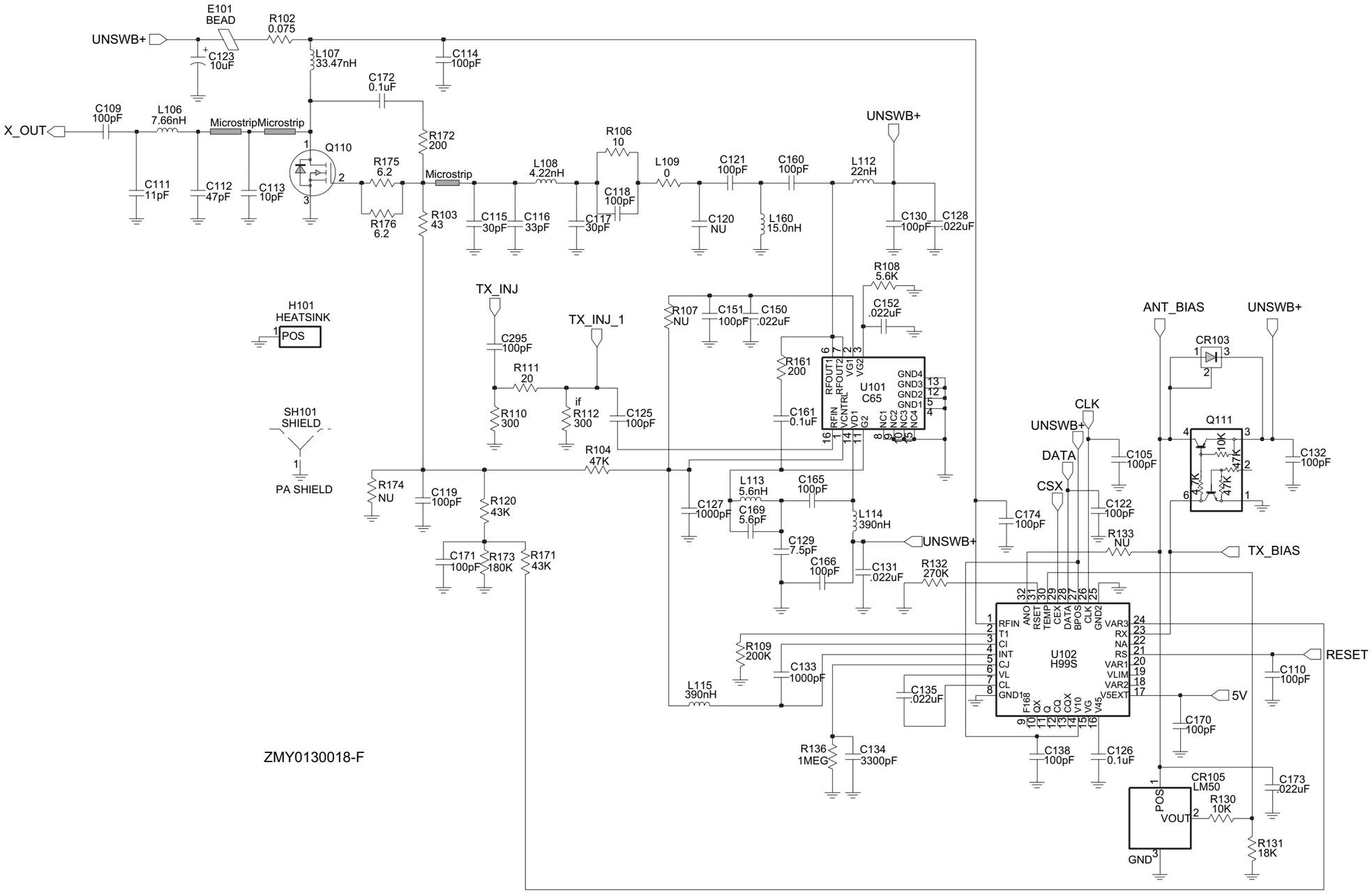


UHF (403-470 MHz) Synthesizer Schematic Diagram



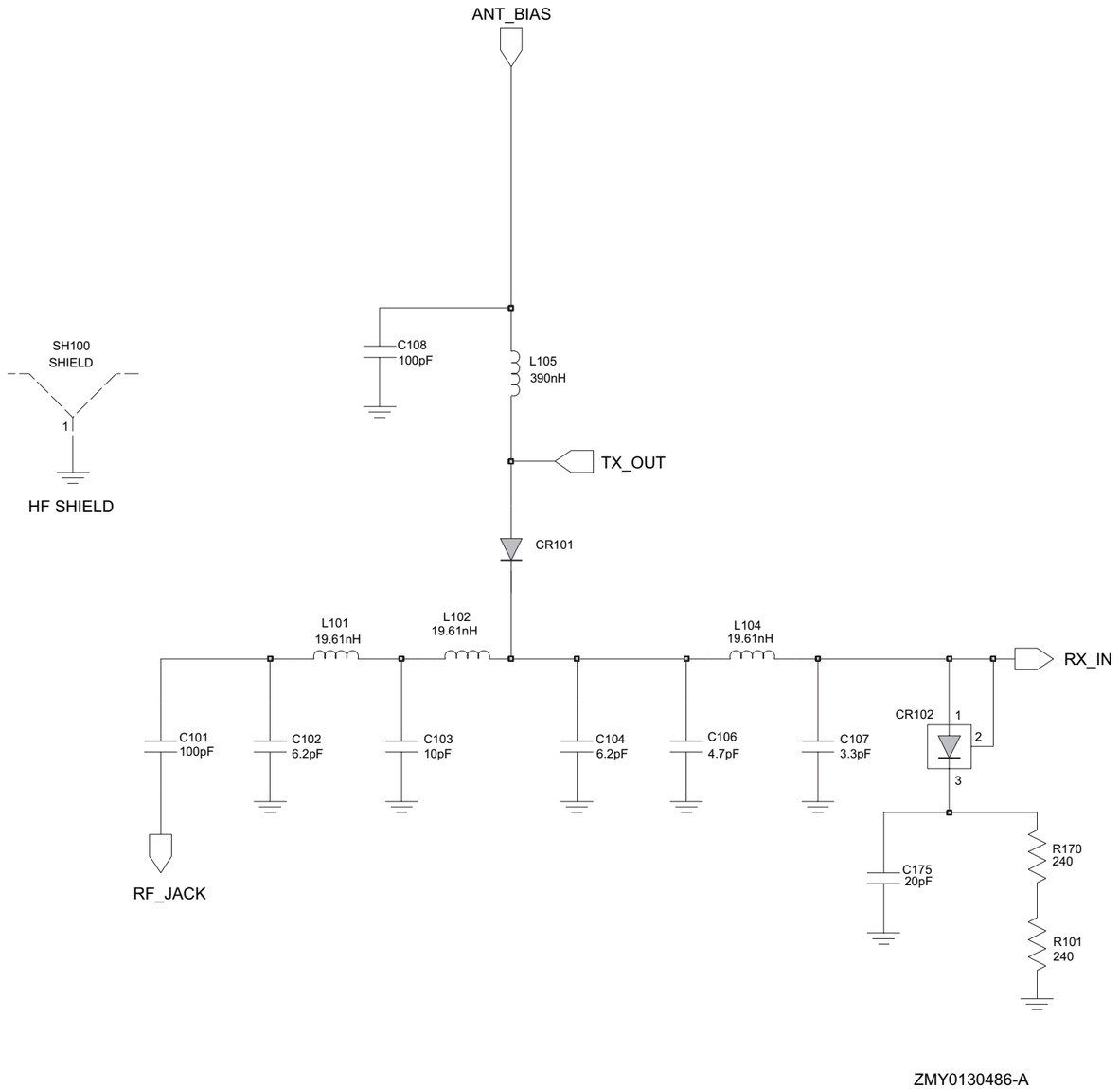
ZMY0130019-E

UHF (403-470 MHz) Voltage Controlled Oscillator Schematic Diagram



ZMY0130018-F

UHF (403-470 MHz) Transmitter Schematic Diagram



UHF (403-470 MHz) Harmonic Filter Schematic Diagram

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15.0 UHF PCB 8415234H01 (EPP) Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	Connector (Contact Battery)
B503	3980502Z01	Contact, Backup B+
B504	3980501Z01	Contact, Backup B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944C72	CAP,FXD,6.2PF,.25PF+/- ,50V-DC,060
C103	2113944C30	CAP CER CHP 10.0PF 50V +/- 0.5PF
C104	2113944C72	CAP,FXD,6.2PF,.25PF+/- ,50V-DC,060
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25PF
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25PF
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2113944C32	CAP CER CHP 15.0PF 50V 5%
C112	2180605Z32	Chip Capacitor, HIGH Q, 47PF
C113	2180605Z16	Chip Capacitor, HIGH Q, 10PF
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2115075H01	CAP,CERAMIC CHIP,24PF,+5%,-5%,50V-
C116	2115075H01	CAP,CERAMIC CHIP,24PF,+5%,-5%,50V-
C117	2113944A29	CAP CER CHP 22.0PF 50V 5%
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C
C121	2113944A40	CAP CER CHP 100.0PF 50V 5%
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2313960F04	CAP TANT 33 UF 10% 16V 6032-28
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946K02	CAP CER CHP 0.10UF 16V
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C129	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C132	2113944A40	CAP CER CHP 100.0PF 50V 5%
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C140	0613952H91	CER CHIP RES 5600 OHM 5% 0603
C141	NOTPLACED	-
C150	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C151	2113944A40	CAP CER CHP 100.0PF 50V 5%
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C160	2113944A40	CAP CER CHP 100.0PF 50V 5%
C161	2113946K02	CAP CER CHP 0.10UF 16V
C165	2113944A40	CAP CER CHP 100.0PF 50V 5%
C166	2113944A40	CAP CER CHP 100.0PF 50V 5%
C169	2113944A19	CAP CER CHP 5.6PF 50V +/- 0.5PF
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113944A40	CAP CER CHP 100.0PF 50V 5%
C172	2113944C45	CAP CER CHP 100.0PF 50V 5%
C173	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C175	2113944C45	CAP CER CHP 100.0PF 50V 5%
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2113928L05	CAP CERAMIC CHIP 4.7 UF
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A33	CAP CER CHP 47.0PF 50V 5%
C208	NOTPLACED	-
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP TANT 4.7 UF 10% 16V 3528-21
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%
C231	2113946K02	CAP CER CHP 0.10UF 16V
C232	2113945D02	CAP CER CHP 47,000PF 25V 10%
C233	2313960A26	CAP TANT 0.1 UF 10% 35V 3216-18
C234	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%,50V-DC,0603,
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C243	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C244	2113944C13	CAP CER CHP 2.0PF 50V +/- 0.25PF
C245	2113944A10	CAP CER CHP 2.4PF 50V +/- 0.25PF
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5PF
C253	2113944C12	CAP CER CHP 1.8PF 50V +/- 0.25PF
C254	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25PF
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/- ,50V-DC,040
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C265	NOTPLACED	-
C271	NOTPLACED	-
C272	NOTPLACED	-
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP TANT 10 UF 10% 16V 3528-21
C279	2113946N03	CAP CER CHP 2.2UF 16V
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C286	2113946K02	CAP CER CHP 0.10UF 16V
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP TANT 10 UF 10% 6.3V 2012-12
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-DC,080
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25PF
C302	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5PF
C303	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25PF
C304	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5PF
C305	2113944A80	CAP,FXD,20PF,+5%,-5%,50V-DC,0402,C
C306	NOTPLACED	-
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOTPLACED	-
C312	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5PF
C313	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5PF
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25PF
C317	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5PF
C318	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C319	2113944A11	CAP CER CHP 2.7PF 50V +/- 0.25PF
C320	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,0402,C
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2113944A29	CAP CER CHP 22.0PF 50V 5%
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C328	2113946K02	CAP CER CHP 0.10UF 16V
C329	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C337	NOTPLACED	-
C338	NOTPLACED	-
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945D04	CAP CER CHP 100,000PF 25V 10%
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V
C348	2113946K02	CAP CER CHP 0.10UF 16V
C349	2113945D04	CAP CER CHP 100,000PF 25V 10%
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C352	2113946K02	CAP CER CHP 0.10UF 16V
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C358	NOTPLACED	-
C359	NOTPLACED	-
C360	2113944A13	CAP CER CHP 3.3PF 50V +/- 0.25PF
C361	2113946K02	CAP CER CHP 0.10UF 16V
C362	2113946K02	CAP CER CHP 0.10UF 16V
C364	2115075H01	CAP,CERAMIC CHIP,24PF,+5%,-5%,50V-
C366	NOTPLACED	-
C367	2115075H02	CAP,CERAMIC CHIP,30PF,+5%,-5%,50V-
C370	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25PF
C371	NOTPLACED	-
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOTPLACED	-
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%
C375	2113944A40	CAP CER CHP 100.0PF 50V 5%
C378	NOTPLACED	-
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOTPLACED	-
C382	2313960B57	CAP,TANTA-LUM,10UF,+10%,-10%,4V-DC,S
C383	NOTPLACED	-
C385	2115075H02	CAP,CERAMIC CHIP,30PF,+5%,-5%,50V-
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C390	NOTPLACED	-
C400	2113945B02	CAP CER CHP 10,000PF 25V 10%
C401	2113946K02	CAP CER CHP 0.10UF 16V
C402	2113946K02	CAP CER CHP 0.10UF 16V
C403	2113743G24	CAP CHIP 2.2 UF 16V+80-20%
C404	NOTPLACED	-
C405	2113944A40	CAP CER CHP 100.0PF 50V 5%
C406	NOTPLACED	-
C407	2113946B04	CAP CER CHP 0.10UF 10V 10%
C408	2113944A40	CAP CER CHP 100.0PF 50V 5%
C409	2113946K02	CAP CER CHP 0.10UF 16V
C410	2113946B04	CAP CER CHP 0.10UF 10V 10%
C411	2113946K02	CAP CER CHP 0.10UF 16V
C414	2113946K02	CAP CER CHP 0.10UF 16V
C415	2185895Z01	CAPACITOR CER LOW DIST .01UF
C416	2113946B04	CAP CER CHP 0.10UF 10V 10%
C419	NOTPLACED	-
C420	2113945B02	CAP CER CHP 10,000PF 25V 10%
C421	2113946B04	CAP CER CHP 0.10UF 10V 10%
C422	2113946K02	CAP CER CHP 0.10UF 16V
C423	2113944A40	CAP CER CHP 100.0PF 50V 5%
C424	2313960B57	CAP,TANTA-LUM,10UF,+10%,-10%,4V-DC,S
C425	2113946K02	CAP CER CHP 0.10UF 16V
C426	2113944A40	CAP CER CHP 100.0PF 50V 5%
C427	2113944A40	CAP CER CHP 100.0PF 50V 5%
C428	2113946K02	CAP CER CHP 0.10UF 16V
C429	2113946K02	CAP CER CHP 0.10UF 16V
C430	2113946B04	CAP CER CHP 0.10UF 10V 10%
C431	2113944A40	CAP CER CHP 100.0PF 50V 5%
C432	NOTPLACED	-
C433	2113945B02	CAP CER CHP 10,000PF 25V 10%
C434	2113946B04	CAP CER CHP 0.10UF 10V 10%
C435	2113946K02	CAP CER CHP 0.10UF 16V
C436	2113944A29	CAP CER CHP 22.0PF 50V 5%
C437	2113944A29	CAP CER CHP 22.0PF 50V 5%
C440	2113946Q01	CAP CER CHP 4.7UF 16V
C441	2113944A40	CAP CER CHP 100.0PF 50V 5%
C442	2113945D04	CAP CER CHP 100,000PF 25V 10%
C443	2113946B04	CAP CER CHP 0.10UF 10V 10%
C444	2113944A40	CAP CER CHP 100.0PF 50V 5%
C445	2113944A40	CAP CER CHP 100.0PF 50V 5%
C447	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C448	2113946B04	CAP CER CHP 0.10UF 10V 10%
C449	2113944A40	CAP CER CHP 100.0PF 50V 5%
C450	NOTPLACED	-
C451	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C452	2113743B29	CAP CHIP 1.00 UF 10% 16V
C453	2113944A40	CAP CER CHP 100.0PF 50V 5%
C456	2113944A40	CAP CER CHP 100.0PF 50V 5%
C458	2113944A40	CAP CER CHP 100.0PF 50V 5%
C459	2113944A40	CAP CER CHP 100.0PF 50V 5%
C463	2113944A40	CAP CER CHP 100.0PF 50V 5%

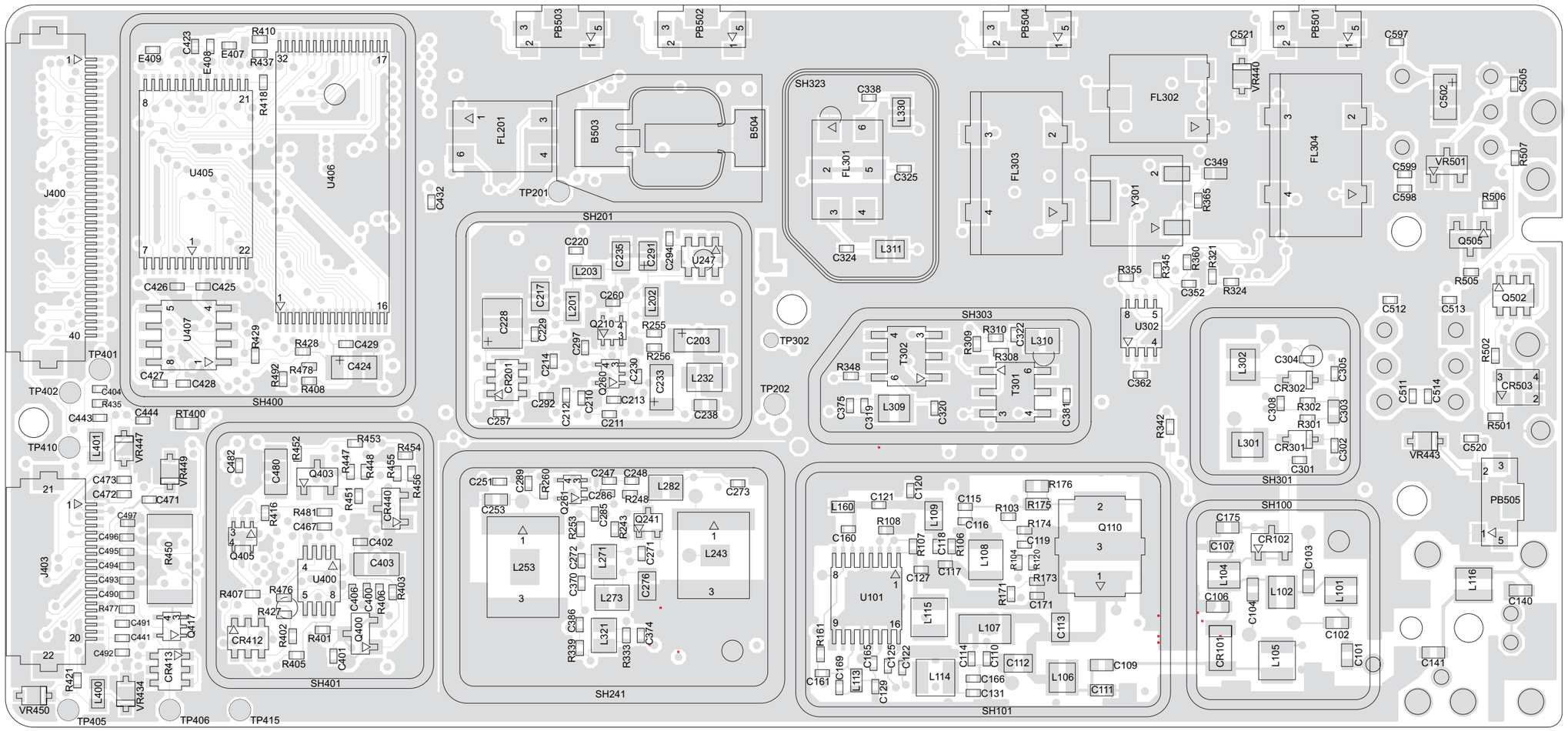
Circuit Ref	Motorola Part No.	Description
C466	2113944A40	CAP CER CHP 100.0PF 50V 5%
C467	2113946B04	CAP CER CHP 0.10UF 10V 10%
C471	2113944A40	CAP CER CHP 100.0PF 50V 5%
C472	2113945A05	CAP CER CHP 470PF 50V 10%
C473	2113945A05	CAP CER CHP 470PF 50V 10%
C475	2113743H14	CAP CHIP 10.0 UF 16V +80-20%
C476	2113946R01	CAP CER CHP 10.0UF 10V
C479	2113946B04	CAP CER CHP 0.10UF 10V 10%
C480	2113946R01	CAP CER CHP 10.0UF 10V
C481	2113946B04	CAP CER CHP 0.10UF 10V 10%
C482	2113946B04	CAP CER CHP 0.10UF 10V 10%
C490	2113944A40	CAP CER CHP 100.0PF 50V 5%
C491	2113944A40	CAP CER CHP 100.0PF 50V 5%
C492	2113944A40	CAP CER CHP 100.0PF 50V 5%
C493	2113944A40	CAP CER CHP 100.0PF 50V 5%
C494	2113944A40	CAP CER CHP 100.0PF 50V 5%
C495	2113944A40	CAP CER CHP 100.0PF 50V 5%
C496	2113944A40	CAP CER CHP 100.0PF 50V 5%
C497	2113944A40	CAP CER CHP 100.0PF 50V 5%
C498	NOTPLACED	-
C499	2113946B04	CAP CER CHP 0.10UF 10V 10%
C502	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C503	2113944A40	CAP CER CHP 100.0PF 50V 5%
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C524	2113944A40	CAP CER CHP 100.0PF 50V 5%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%
C610	2113944A40	CAP CER CHP 100.0PF 50V 5%
C611	2113944A40	CAP CER CHP 100.0PF 50V 5%
C612	2113944A40	CAP CER CHP 100.0PF 50V 5%
C613	2113944A40	CAP CER CHP 100.0PF 50V 5%
C615	2113944A40	CAP CER CHP 100.0PF 50V 5%
C616	2113944A40	CAP CER CHP 100.0PF 50V 5%
C618	2113944A40	CAP CER CHP 100.0PF 50V 5%
C619	2113944A40	CAP CER CHP 100.0PF 50V 5%
C620	2113944A40	CAP CER CHP 100.0PF 50V 5%
C621	2113944A40	CAP CER CHP 100.0PF 50V 5%
C622	2113944A40	CAP CER CHP 100.0PF 50V 5%
CR101	4880973Z02	Pin Diode
CR102	4815257H01	Surface Mount Pin Diodes
CR103	4815257H01	Surface Mount Pin Diodes
CR105	5115022H01	IC,TEMP SENS,LM50C,SM,SOT-23
CR160	NOTPLACED	-
CR201	4815011H01	DIODE,SWG,300MA,80V
CR203	4815072H01	DIODE,VCTR,1SV232,30V
CR241	4815071H01	DIODE,VCTR,1SV228,15V
CR242	4815279H01	BBY5503WE6327 From Infineon
CR243	4815279H01	BBY5503WE6327 From Infineon
CR251	4815322H01	VHF Variable Capacitance Diode
CR301	4815279H01	BBY5503WE6327 From Infineon
CR302	4815279H01	BBY5503WE6327 From Infineon
CR303	4815048H01	Diode,SHTK,MMBD353LT1,SM,7V
CR304	4815279H01	BBY5503WE6327 From Infineon
CR305	4815279H01	BBY5503WE6327 From Infineon
CR306	4802245J42	Ring Quad Diode SOT-143 PKG
CR311	4813974A19	Diode Schottky Barrier Series
CR312	4815047H01	Diode,SWG,DAN235EFTL,35V
CR313	4815047H01	Diode,SWG,DAN235EFTL,35V
CR411	4815067H01	Diode Array,SWG,RB731UFT108,SMD,1M
CR412	4815067H01	Diode Array,SWG,RB731UFT108,SMD,1M
CR413	4815067H01	Diode Array,SWG,RB731UFT108,SMD,1M
CR440	4813978C02	PB Free, Not Completely Enriched
CR501	4815155H01	Rectifier
CR503	4805729G49	Diode Red/Yel
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
E101	2484657R01	Inductor Bead Chip
E400	2480640Z01	Surface Mount Ferrite Bead
E401	2480640Z01	Surface Mount Ferrite Bead
E402	2480640Z01	Surface Mount Ferrite Bead
E403	2480640Z01	Surface Mount Ferrite Bead
E404	2480640Z01	Surface Mount Ferrite Bead
E405	2480640Z01	Surface Mount Ferrite Bead
E406	2480640Z01	Surface Mount Ferrite Bead
E407	2480640Z01	Surface Mount Ferrite Bead
E408	2480640Z01	Surface Mount Ferrite Bead
E409	2480640Z01	Surface Mount Ferrite Bead
E634	2480640Z01	Surface Mount Ferrite Bead
E637	2480640Z01	Surface Mount Ferrite Bead
E638	2480640Z01	Surface Mount Ferrite Bead
E639	2480640Z01	Surface Mount Ferrite Bead
E640	2480640Z01	Surface Mount Ferrite Bead
E641	2480640Z01	Surface Mount Ferrite Bead
E642	2480640Z01	Surface Mount Ferrite Bead
E643	2480640Z01	Surface Mount Ferrite Bead
E644	2480640Z01	Surface Mount Ferrite Bead
E645	2480640Z01	Surface Mount Ferrite Bead
F501	6515076H01	Fuse,FST BLW,3A,24V,Fuse Chip SMT T
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL302	9180468V05	SMD455KHZ 4 ELEMENT CER FLTR
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
FL401	4870368G02	Reflowable Clock OSC XTAL
H101	2680499Z02	Heat Spreader
J101	0985613Z01	Jack,RF
J102	0280519Z02	Nut, Antenna
J400	0915064H03	Connector, ZIF (40 PINS)
J403	0915064H02	CONN,CONN,F,20CONT,CONNECTOR, ZIF
J601	0980521ZO3	CONN, ZIF Vertical, 40PINS
J602	0915064H01	CONN,CONN,F,18CONT,Connector, ZIF
L101	2479990B02	Air Wound Coil/Green Color 19.61NH
L102	2479990B02	Air Wound Coil/Green Color 19.61NH
L104	2479990B02	Air Wound Coil/Green Color 19.61NH
L105	2462587N22	CHIP IND 390 NH 10%
L106	2479990A02	Air Wound Coil/Green Color 7.66NH
L107	2479990G01	Air Wound Coil/Green Color 33.47NH
L108	2479990A01	Air Wound Coil/Green Color 4.22NH
L109	2479990B01	Air Wound Coil/Green Color 11.03NH
L112	2462587N45	CHIP IND 22 NH 5%
L113	2415016H01	IDCTR,CHIP,5.6NH,5%,1A,CER,SM
L114	2462587N45	CHIP IND 22 NH 5%

Circuit Ref	Motorola Part No.	Description
L115	2462587N22	CHIP IND 390 NH 10%
L116	2479990A03	Air Wound Coil/Green Color 9.75NH
L160	2414017H14	IND CHIP 15.0 NH 5%
L201	2462587Q20	IND CHIP 2,200NH 20%
L202	2462587Q20	IND CHIP 2,200NH 20%
L203	2462587Q20	IND CHIP 2,200NH 20%
L232	2462587P25	CHIP IND 12000 NH 5%
L241	2462587V41	IND CHIP 390 NH 10%
L242	2462587V38	CHIP IND 220 NH 5% 0805
L243	2485776Z01	Coil Teflon Resonator (KAP-TON)
L251	2415043H02	Fixed Inductor,RF,33NH,5%,S
L253	2460593C02	Coil MULT Layered Tap TEF RESN
L261	2462587V29	CHIP IND 39 NH 5% 0805
L271	2415043H03	Fixed Induc-tor,RF,68NH,5%,CER,
L273	2415043H02	Fixed Inductor,RF,33NH,5%,S
L281	2462587V41	IND CHIP 390 NH 10%
L282	2462587V41	IND CHIP 390 NH 10%
L301	2479990C01	Air Wound Coil/Green Color 13.9NH
L302	2479990C01	Air Wound Coil/Green Color 13.9NH
L303	2462587V26	CHIP IND 22 NH 5% 0805
L304	2462587V37	CHIP IND 180 NH 5% 0805
L305	2462587V26	CHIP IND 22 NH 5% 0805
L306	2479990C01	Air Wound Coil/Green Color 13.9NH
L307	2479990C01	Air Wound Coil/Green Color 13.9NH
L309	2479990C02	Air Wound Coil/Green Color 16.28NH
L310	2462587V36	CHIP IND 150NH 5% 0805
L311	2414017K32	IND CER CHIP 560.0 NH 5%
L321	2462587V37	CHIP IND 180 NH 5% 0805
L325	2462587N68	CHIP IND 1000 NH 5%
L330	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
L331	2415045H01	Fixed Induc-tor,CHIP,680NH,5%,50MA,
L332	2415042H03	Fixed Induc-tor,RF,1.2UH,2%,CER,
L400	2462587Q42	IND CHIP 390NH 10%
L401	2462587Q42	IND CHIP 390NH 10%
L410	2462587Q42	IND CHIP 390NH 10%
L411	2462587Q42	IND CHIP 390NH 10%
L505	2462587Q42	IND CHIP 390NH 10%
P100	3905643V01	Contact ANT GRD
PB501	4086470Z01	Tact Switch
PB502	4086470Z01	Tact Switch
PB503	4086470Z01	Tact Switch
PB504	4086470Z01	Tact Switch
PB505	4086470Z01	Tact Switch
Q110	4813976A03	TSTR, 450 MHZ, 8W, 7.5V, PLD 1.5
Q111	4815055H01	XSTR,GEN Purpose Small SIG,NPN AND
Q210	4815055H01	XSTR,GEN Purpose Small SIG,NPN AND
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	XSTR,GEN Purpose Small SIG,NPN AND
Q261	4815055H01	XSTR,GEN Purpose Small SIG,NPN AND
Q301	4802245J44	NPN Silicon Bipolar Transistor
Q302	4802197J95	RF Transistor PBR941
Q310	4802245J44	NPN Silicon Bipolar Transistor
Q320	4813973M07	TSTR NPN 40V .2A GEN PURP
Q400	4815069H02	TSTR MOSFET P-CHAN
Q403	4813973A13	XSTR,BIP GP SS,PNP,TO-236,SOT-23,
Q405	4815066H01	XSTR,OTHR,UMG5NFTR,250MHZ
Q410	4815066H01	XSTR,OTHR,UMG5NFTR,250MHZ
Q416	4815069H02	TSTR MOSFET P-CHAN
Q417	4815055H01	XSTR,GEN Purpose Small SIG,NPN AND
Q502	4815154H01	DUAL TRANS NPN
Q505	4815056H01	XSTR,BIP GP SS,NPN,MMBT3904LT1G,SO
Q601	4815125H01	SOT STR RH Low Profile MMBT
Q602	4815056H01	XSTR,BIP GP SS,NPN,MMBT3904LT1G,SO
Q603	4815056H01	XSTR,BIP GP SS,NPN,MMBT3904LT1G,SO
R101	0613952H58	CER CHIP RES 240 OHM 5% 0603
R102	0680539Z01	Power Metal Strip Resistors
R103	0613952Q40	CER CHIP RES 43.0 OHM 5% 0402
R104	0613952R17	CER CHIP RES 47K OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5% 0402
R107	NOTPLACED	-
R108	0613952Q91	CER CHIP RES 5600 OHM 5% 0402
R109	0613952R32	CER CHIP RES 200K OHM 5% 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R111	0613952Q32	CER CHIP RES 20.0 OHM 5% 0402
R112	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R120	0613952R16	CER CHIP RES 43K OHM 5% 0402
R130	0613952R01	CER CHIP RES 10K OHM 5% 0402
R131	0613952R07	CER CHIP RES 18K OHM 5% 0402
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	NOTPLACED	-
R136	NOTPLACED	-
R161	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R170	0613952H58	CER CHIP RES 240 OHM 5% 0603
R171	0613952R16	CER CHIP RES 43K OHM 5% 0402
R172	0613952H56	CER CHIP RES 200 OHM 5% 0603
R173	0613952R31	CER CHIP RES 180K OHM 5% 0402
R174	0613952R17	CER CHIP RES 47K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R201	0613952R23	CER CHIP RES 82K OHM 5% 0402
R202	0613952R25	CER CHIP RES 100K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402
R231	0613952Q51	CER CHIP RES 120 OHM 5% 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5% 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5% 0402
R241	0613952Q31	CER CHIP RES 18.0 OHM 5% 0402
R242	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R03	CER CHIP RES 12K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5% 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R251	0613952Q31	CER CHIP RES 18.0 OHM 5% 0402
R252	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R254	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R255	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R281	NOTPLACED	-
R301	0613952R25	CER CHIP RES 100K OHM 5% 0402
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402
R303	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R309	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R310	NOTPLACED	-
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5% 0402

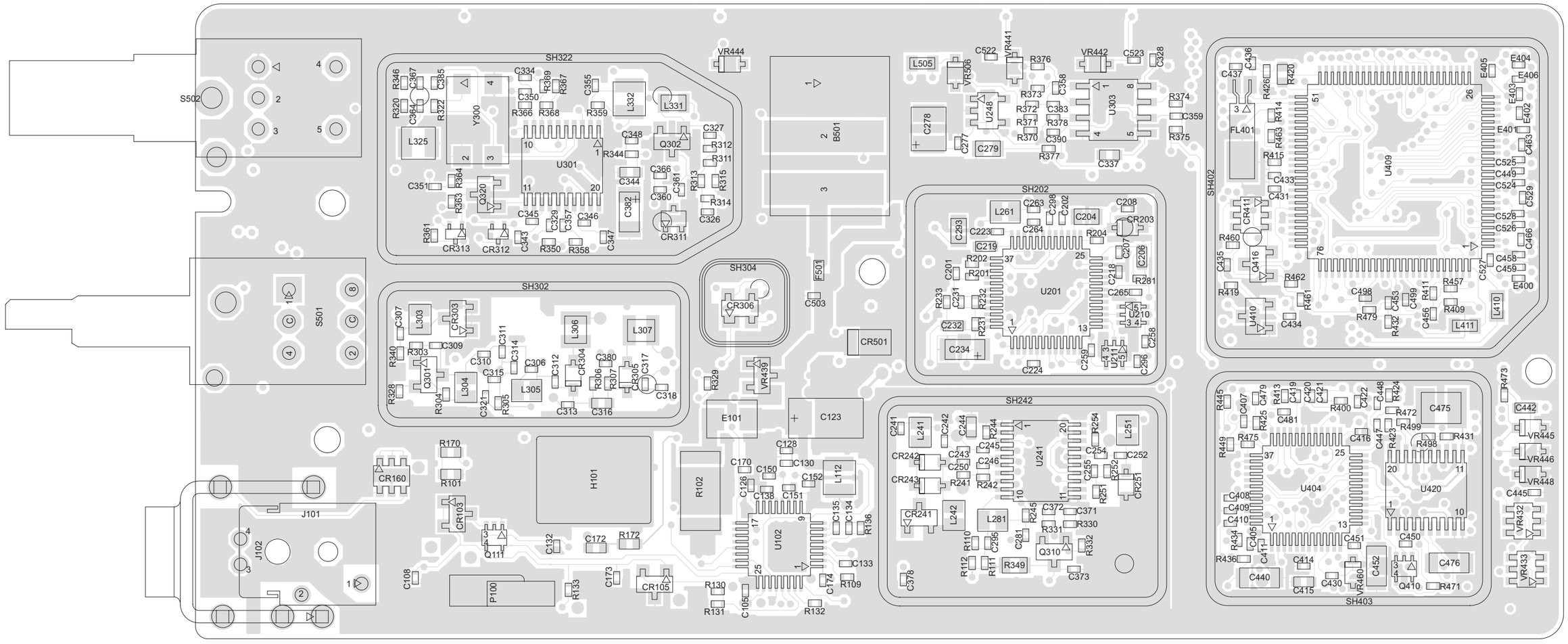
Circuit Ref	Motorola Part No.	Description
R314	0613952Q78	CER CHIP RES 1600 OHM 5% 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOTPLACED	-
R321	0613952R15	CER CHIP RES 39K OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R324	0613952R08	CER CHIP RES 20K OHM 5% 0402
R328	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R329	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402
R331	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOTPLACED	-
R339	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R340	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R345	0613952R15	CER CHIP RES 39K OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5% 0402
R349	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R350	0613952Q85	CER CHIP RES 3300 OHM 5% 0402
R355	0613952R25	CER CHIP RES 100K OHM 5% 0402
R358	0613952Q82	CER CHIP RES 2400 OHM 5% 0402
R359	NOTPLACED	-
R360	0613952R08	CER CHIP RES 20K OHM 5% 0402
R361	0613952R08	CER CHIP RES 20K OHM 5% 0402
R363	0613952Q63	CER CHIP RES 390 OHM 5% 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5% 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5% 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952N09	CER CHIP RES 12.1K OHM 1% 0402
R368	0613952N01	CER CHIP RES 10.0K OHM 1% 0402
R369	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R370	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R371	NOTPLACED	-
R372	NOTPLACED	-
R373	NOTPLACED	-
R374	NOTPLACED	-
R375	NOTPLACED	-
R376	NOTPLACED	-
R377	NOTPLACED	-
R378	NOTPLACED	-
R400	0613952R17	CER CHIP RES 47K OHM 5% 0402
R401	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R402	NOTPLACED	-
R403	NOTPLACED	-
R405	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R406	0613952R22	CER CHIP RES 75K OHM 5% 0402
R407	0613952R21	CER CHIP RES 68K OHM 5% 0402
R408	NOTPLACED	-
R409	0613952R01	CER CHIP RES 10K OHM 5% 0402
R410	0613952R25	CER CHIP RES 100K OHM 5% 0402
R411	0613952R01	CER CHIP RES 10K OHM 5% 0402
R413	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R414	0613952P25	CER CHIP RES 178K OHM 1% 0402
R415	0613952N93	CER CHIP RES 90.9K OHM 1% 0402
R416	0613952R01	CER CHIP RES 10K OHM 5% 0402
R418	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R419	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R420	0613952J73	CER CHIP RES 10.0M OHM 5% 0603
R421	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R423	0613952R41	CER CHIP RES 470K OHM 5% 0402
R424	0613952R14	CER CHIP RES 36K OHM 5% 0402
R425	0613952R12	CER CHIP RES 30K OHM 5% 0402
R426	0613952R37	CER CHIP RES 330K OHM 5% 0402
R427	0613952Q83	CER CHIP RES 2700 OHM 5% 0402
R428	0613952Q09	CER CHIP RES 2.2 OHM 5% 0402
R429	0613952R22	CER CHIP RES 75K OHM 5% 0402
R431	0613952R41	CER CHIP RES 470K OHM 5% 0402
R432	0613952R18	CER CHIP RES 51K OHM 5% 0402
R434	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R435	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R436	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R437	NOTPLACED	-
R445	0613952R10	CER CHIP RES 24K OHM 5% 0402
R447	0613952R25	CER CHIP RES 100K OHM 5% 0402
R448	0613952R01	CER CHIP RES 10K OHM 5% 0402
R449	0613952R10	CER CHIP RES 24K OHM 5% 0402
R450	0613959Y45	CER CHIP RES 68.0 OHM 5% 2512
R451	0613952R05	CER CHIP RES 15K OHM 5% 0402
R452	0613952R25	CER CHIP RES 100K OHM 5% 0402
R453	NOTPLACED	-
R454	NOTPLACED	-
R455	NOTPLACED	-
R456	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R457	0613952R01	CER CHIP RES 10K OHM 5% 0402
R460	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R461	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R462	0613952R01	CER CHIP RES 10K OHM 5% 0402
R463	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R471	0613952R08	CER CHIP RES 20K OHM 5% 0402
R472	0613952R14	CER CHIP RES 36K OHM 5% 0402
R473	0613952Q25	CER CHIP RES 10.0 OHM 5% 0402
R475	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R476	0613952R37	CER CHIP RES 330K OHM 5% 0402
R477	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R478	0613952R01	CER CHIP RES 10K OHM 5% 0402
R479	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R481	0613952R10	CER CHIP RES 24K OHM 5% 0402
R492	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R498	0613952R01	CER CHIP RES 10K OHM 5% 0402
R499	0613952R01	CER CHIP RES 10K OHM 5% 0402
R501	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R506	0613952R17	CER CHIP RES 47K OHM 5% 0402
R507	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R601	0613952Z67	RES,MF,51KOHM,1%,.0625 W,SM,0402,200
R602	0613952Z67	RES,MF,51KOHM,1%,.0625 W,SM,0402,200
R603	0613952N12	CER CHIP RES 13.0K OHM 1% 0402

Circuit Ref	Motorola Part No.	Description
R604	0613952Z58	RES,MF,22KOHM,1%,.0625 W,SM,0402,200
R605	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R606	0613952P12	CER CHIP RES 130K OHM 1% 0402
R607	0613952N12	CER CHIP RES 13.0K OHM 1% 0402
R608	0613952Z58	RES,MF,22KOHM,1%,.0625 W,SM,0402,200
R609	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R610	0613952P12	CER CHIP RES 130K OHM 1% 0402
R611	0613952R18	CER CHIP RES 51K OHM 5% 0402
R612	0613952R43	CER CHIP RES 560K OHM 5% 0402
R613	0613952R49	CER CHIP RES 1.0M OHM 5% 0402
R614	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R617	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R618	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R619	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R620	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R621	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R622	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R623	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R626	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R627	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R631	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R632	0613952R25	CER CHIP RES 100K OHM 5% 0402
R633	0613952R25	CER CHIP RES 100K OHM 5% 0402
R646	0613952R25	CER CHIP RES 100K OHM 5% 0402
R647	0613952Q84	CER CHIP RES 3000 OHM 5% 0402
R648	0613952R25	CER CHIP RES 100K OHM 5% 0402
R649	0613952R17	CER CHIP RES 47K OHM 5% 0402
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z21	Switch, Frequency
S502	1880619Z04	VOL POTENTIOMETER with hi temp cam
SH100	2680507Z02	Shield, Harmonic Filter
SH101	2680510Z02	Shield, PA
SH201	2680511Z02	Shield, Synthesizer
SH202	2680511Z02	Shield, Synthesizer
SH241	2604120G02	AOBA VCO Shield
SH242	2680514Z02	Shield, VCO Bottom/LVZIF
SH301	2686583Z01	Shield,RFI/ EMI,12.51MMLG,12MMW,2.9
SH302	2680555Z02	Shield, Receiver F/End Bottom
SH303	2680509Z01	Shield, Mixer
SH304	2680624Z02	Shield, Mixer Diode
SH322	2686528Z01	Shield,RFI/EMI,CRS,TIN
SH323	2686527Z02	Shield, RFI/EMI, CRS, TIN
SH400	2680505Z02	Shield, Controller Top Left
SH401	2680506Z02	Shield, Controller Top Right
SH402	2680515Z02	Shield, Controller Bottom Left
SH403	2680516Z02	Shield, Controller BTM Right
T301	2515121H01	Balun, Transformer
T302	2515121H01	Balun, Transformer
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIVER IC
U102	5185765B26	IC PWR CTRL IN MOS20
U201	5115060H01	IC,FREQ SYN,AT24701-OT4X
U210	5115266H01	Inverter TC7ST04FU SS0P5-P-A
U211	5115266H01	Inverter TC7ST04FU SS0P5-P-A
U241	5105750U56	IC PKG DIE VCO Buffer
U247	5115026H01	IC,LOW Dropout,SM,SOT-23/6,P
U248	5115019H01	IC,LOW Dropout,SOT-23,SOT-23
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U302	5115070H01	IC,INVTR,TC7W04FU,SSOP
U303	NOTPLACED	-
U400	5115012H01	IC,ADJ LOW DROPOUT,SM,POS P
U404	5115062H01	IC,CUST,TQFP48
U405	NOTPLACED	-
U406	5115250H02	Need CGISS Description In ICCS
U407	5115033H01	IC,EEPROM,16K X 8,SM
U409	5185143E03	IC,MICROP,QFP,QFP100,3.7 MHZ
U410	5102463J57	Regulator 3.3V, ILC7062CM-33
U420	5115280H01	Audio Amplifier TDA8547TS
U602	5115014H01	IC,COMPTR,SM,SOT-23/5
VR432	4815057H01	Diode Array,ZEN,MMQA5V6T1,SM, 3A,5.
VR433	4815057H01	Diode Array,ZEN,MMQA5V6T1,SM, 3A,5.
VR434	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
VR439	4815068H01	Diode Array,ZEN,MMBZ5242BLT1G, SM,
VR440	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
VR441	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
VR442	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
VR443	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
VR444	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
VR445	4815039H01	Diode Array,ZEN,MM3Z10VT1G,SM, 10V
VR446	4815039H01	Diode Array,ZEN,MM3Z10VT1G,SM, 10V
VR447	4815039H01	Diode Array,ZEN,MM3Z10VT1G,SM, 10V
VR448	4815039H01	Diode Array,ZEN,MM3Z10VT1G,SM, 10V
VR449	4815039H01	Diode Array,ZEN,MM3Z10VT1G,SM, 10V
VR450	4815040H01	Diode Array ,ZEN,MM3Z12VT1G,SM,12
VR460	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
VR501	4813977M14	Diode,ZEN,SOT-23,6.8V,.225W,PB
VR506	4815038H01	Diode Array,ZEN,SM,SOD-323,6.93V,
Y300	4802245J84	XTAL 44.395MHz, 3RD OT, SMD
Y301	9186145B02	CER.DISCR. CDBCA455CX36-TC
	8415234H01	UHF B1 PC Board

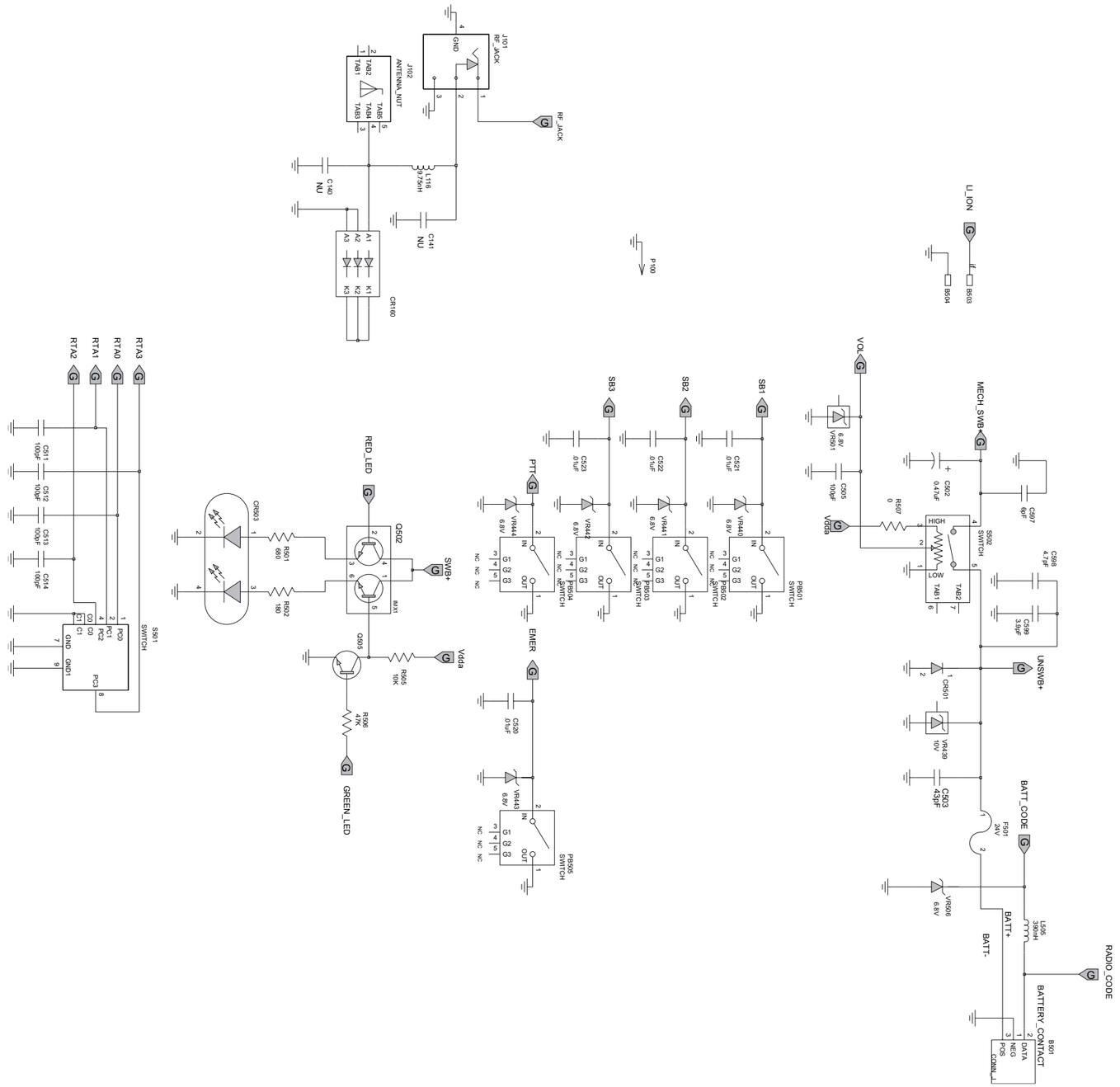
16.0 UHF PCB 8415234H02 Schematics



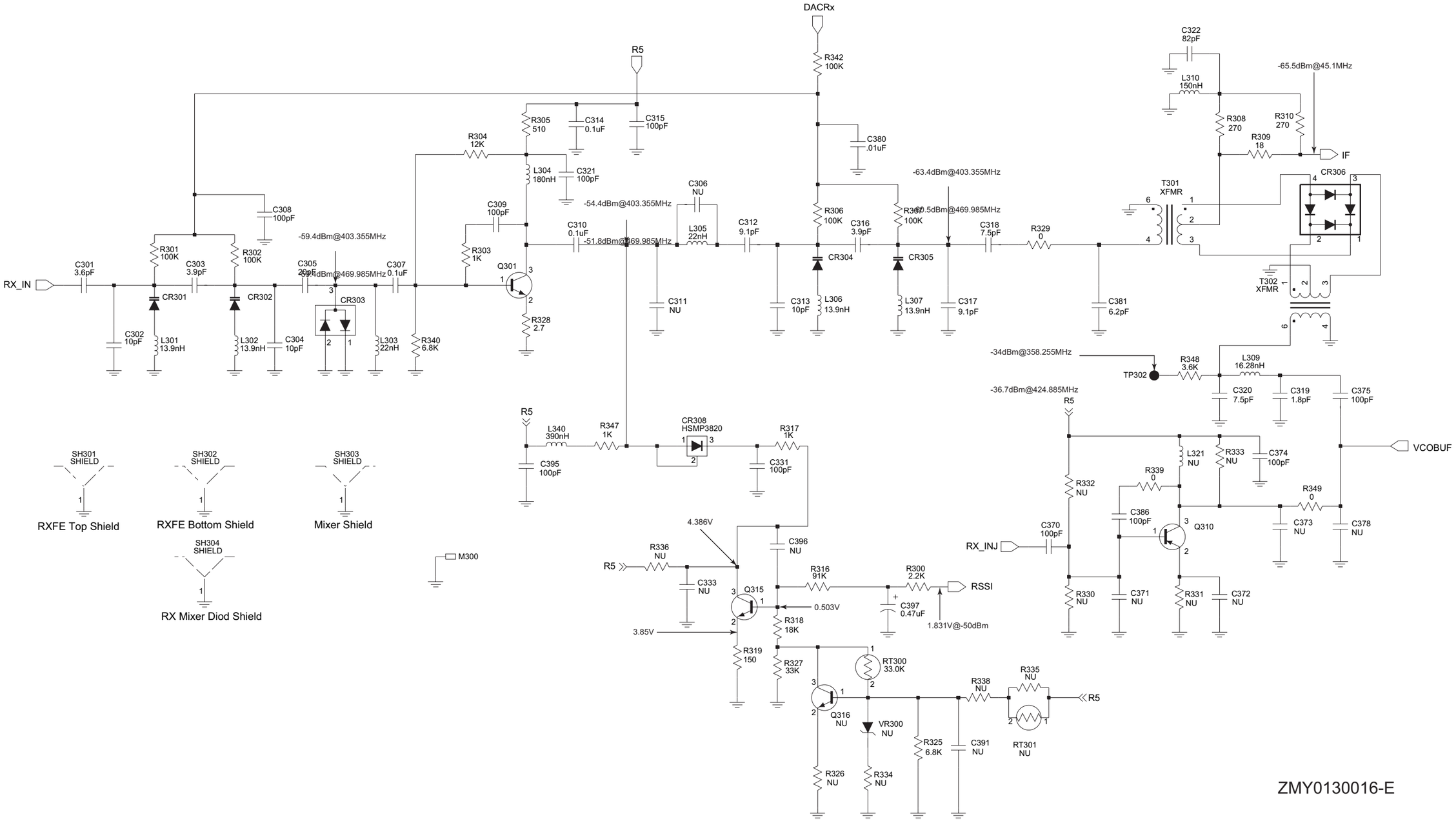
UHF (403-470MHz) Main Board Top Side GP640/680



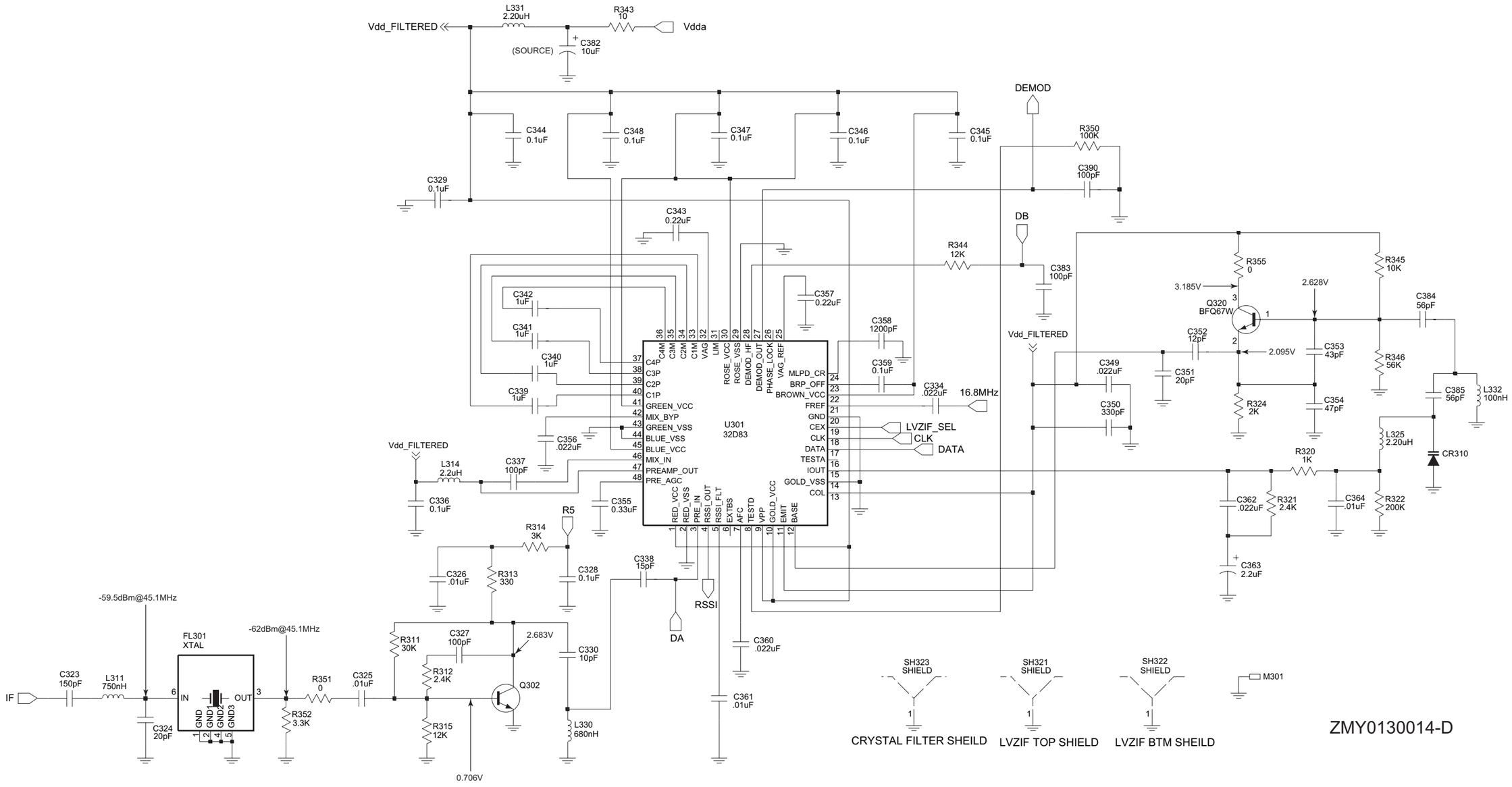
UHF (403-470MHz) Main Board Bottom Side GP640/GP680



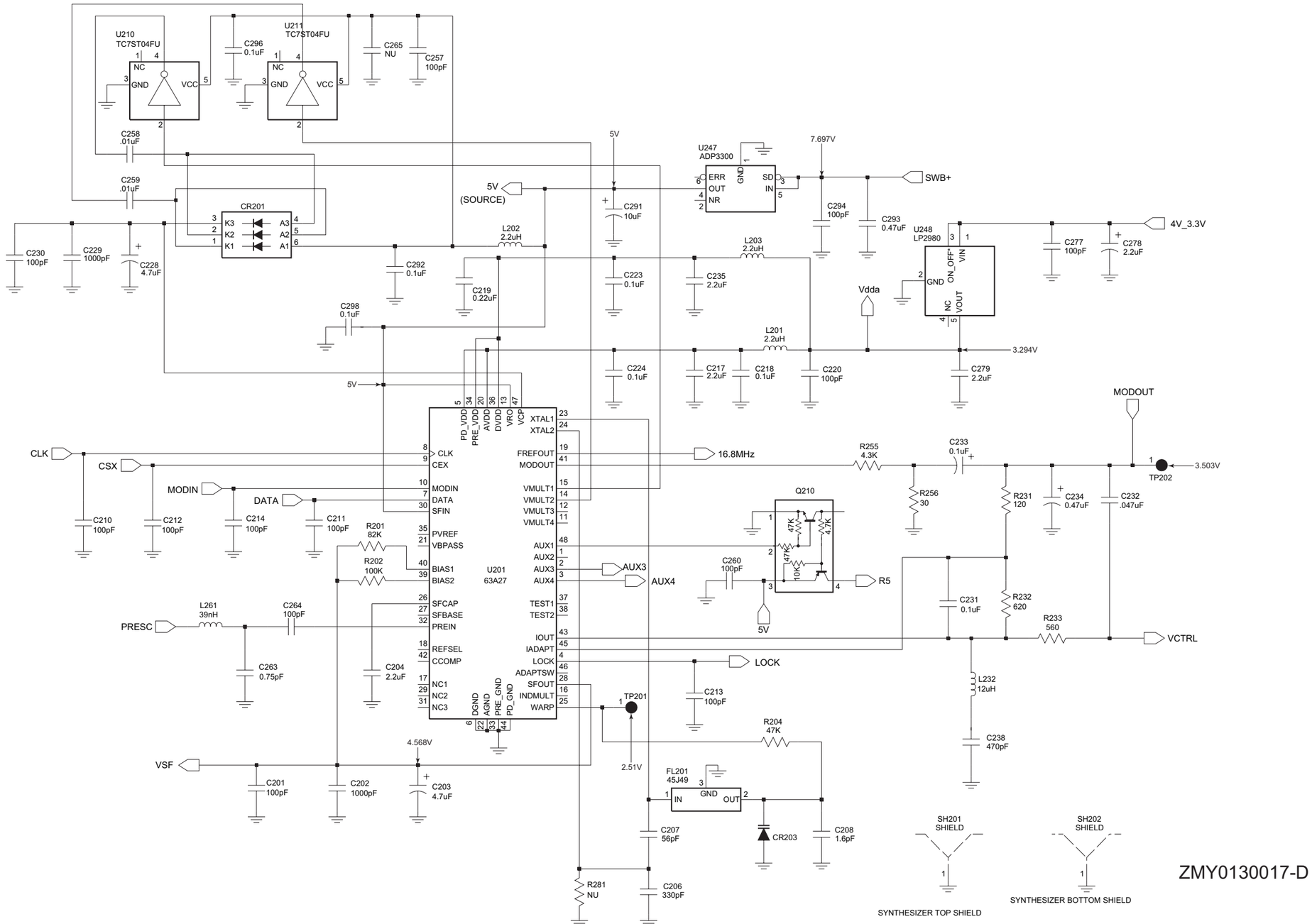
UHF (403-470 MHz) Controls And Switches Schematic Diagram



UHF (403-470 MHz) Receiver Front End

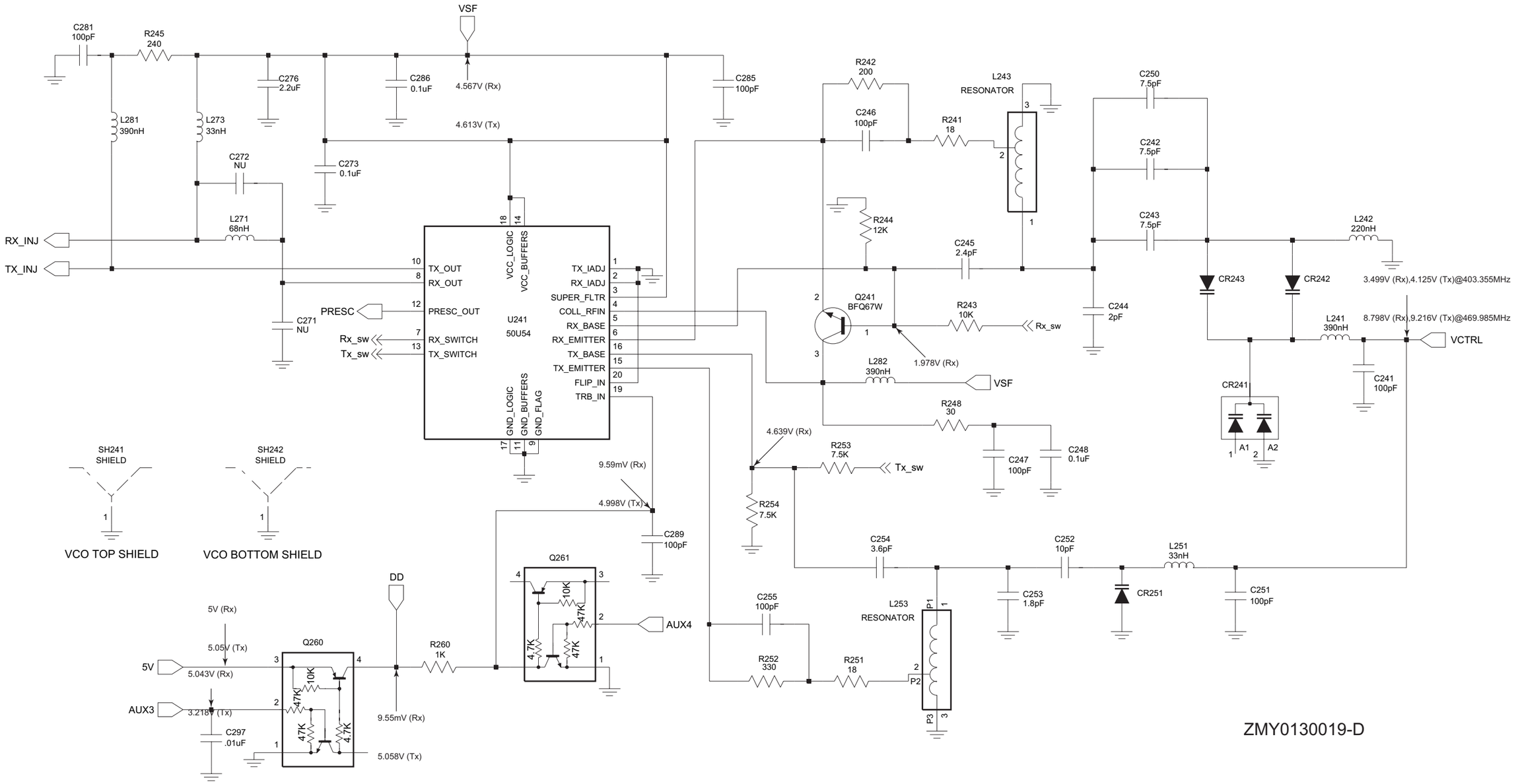


UHF (403-470 MHz) Receiver Back End



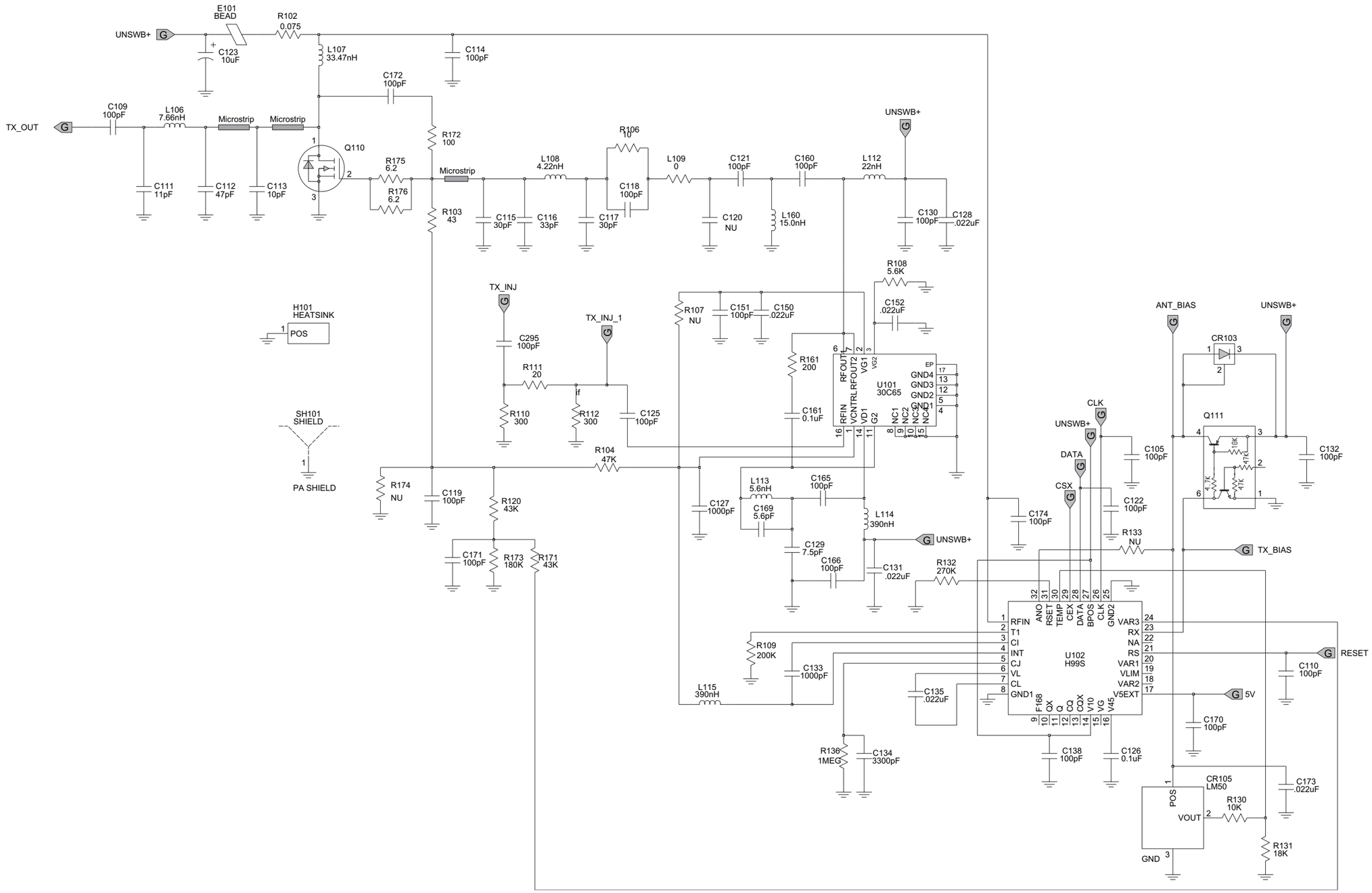
ZMY0130017-D

UHF Synthesizer Schematic Diagram

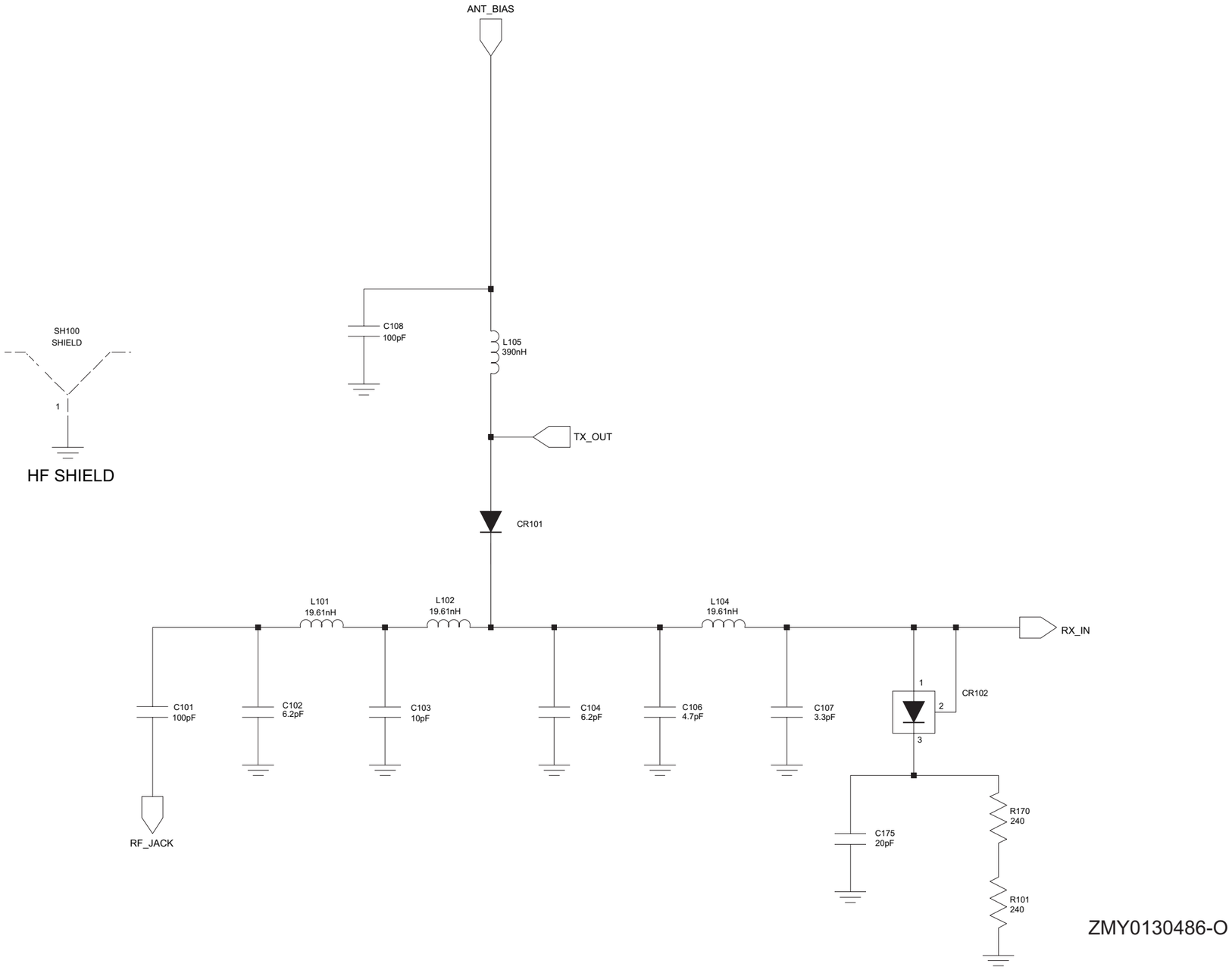


ZMY0130019-D

UHF Voltage Controlled Oscillator Schematic



UHF Transmitter Schematic Diagram (PCB No. 8415234H02)



UHF Harmonic Filter Schematic

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17.0 UHF PCB 8415234H02 Parts List

Circuit Ref.	Motorola Part No.	Description
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944C72	CAP,FXD,6.2PF,.25PF+/-,50V-DC,0603,C0G,-55DEG CMIN,125DEG CMAX
C103	2113944C30	CAP CER CHP 10.0PF 50V +/- 0.5PF
C104	2113944C72	CAP,FXD,6.2PF,.25PF+/-,50V-DC,0603,C0G,-55DEG CMIN,125DEG CMAX
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25PF
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25PF
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2113944C32	CAP CER CHP 15.0PF 50V 5%
C112	2115937H04	HIGH Q CHIP CAPACITOR, 47PF
C113	2115937H01	HIGH Q CHIP CAPACITOR, 10PF
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C116	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C117	2113944A29	CAP CER CHP 22.0PF 50V 5%
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C121	2113944A40	CAP CER CHP 100.0PF 50V 5%
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2313960F04	CAP TANT 33 UF 10% 16V 6032-28
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946K02	CAP CER CHP 0.10UF 16V
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,0402,X7R,-55DEG CMIN,125DEG CMA
C129	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,0402,X7R,-55DEG CMIN,125DEG CMA
C132	2113944A40	CAP CER CHP 100.0PF 50V 5%
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,0402,X7R,-55DEG CMIN,125DEG CMA
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C140	0613952H91	CER CHIP RES 5600 OHM 5 0603
C141	NOTPLACED	-
C150	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,0402,X7R,-55DEG CMIN,125DEG CMA
C151	2113944A40	CAP CER CHP 100.0PF 50V 5%
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,0402,X7R,-55DEG CMIN,125DEG CMA
C160	2113944A40	CAP CER CHP 100.0PF 50V 5%
C161	2113946K02	CAP CER CHP 0.10UF 16V
C165	2113944A40	CAP CER CHP 100.0PF 50V 5%
C166	2113944A40	CAP CER CHP 100.0PF 50V 5%
C169	2113944A19	CAP CER CHP 5.6PF 50V +/- 0.5PF
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113944A40	CAP CER CHP 100.0PF 50V 5%
C172	2113944C45	CAP CER CHP 100.0PF 50V 5%
C173	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,0402,X7R,-55DEG CMIN,125DEG CMA
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C175	2113944C45	CAP CER CHP 100.0PF 50V 5%
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2113946H01	CAP CER CHP 4.7UF 10V 10%
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A33	CAP CER CHP 47.0PF 50V 5%
C208	NOTPLACED	-
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP,FXD,4.7UF,+10%,-10%,16V-DC,SM,-55DEG CMIN,125DEG CMAX,156MA
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%
C231	2113946K02	CAP CER CHP 0.10UF 16V
C232	2113945D02	CAP CER CHP 47,000PF 25V 10%
C233	2313960A26	CAP,FXD,.1UF,+10%,-10%,35V-DC,SM,-55DEG CMIN,125DEG CMAX,61MA,E
C234	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%,50V-DC,0603,X7R,-55DEG CMIN,125DEG CMAX,P
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C243	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C244	2113944C13	CAP CER CHP 2.0PF 50V +/- 0.25PF
C245	2113944A10	CAP CER CHP 2.4PF 50V +/- 0.25PF
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5PF
C253	2113944C12	CAP CER CHP 1.8PF 50V +/- 0.25PF
C254	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25PF
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%

Circuit Ref.	Motorola Part No.	Description
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/-,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C265	NOTPLACED	-
C271	NOTPLACED	-
C272	NOTPLACED	-
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP,FXD,10,+10,-10,16,SM,-55MIN,125MAX,174,EPXY,PB-FREE
C279	2113946N03	CAP CER CHP 2.2UF 16V
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%
C286	2113946K02	CAP CER CHP 0.10UF 16V
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP,FXD,10UF,+10%,-10%,6.3V-DC,SM,-55DEG CMIN,125DEG CMAX,96MA
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-DC,0805,X7R,-55DEG CMIN,125DEG CMAX
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A14	CAP CER CHP 3.6PF 50V +/-0.25PF
C302	2113944A25	CAP CER CHP 10.0PF 50V +/-0.5PF
C303	2113944C20	CAP CER CHP 3.9PF 50V +/-0.25PF
C304	2113944A25	CAP CER CHP 10.0PF 50V +/-0.5PF
C305	2113944A80	CAP,FXD,20PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C306	NOTPLACED	-
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOTPLACED	-
C312	2113944A24	CAP CER CHP 9.1PF 50V +/-0.5PF
C313	2113944A25	CAP CER CHP 10.0PF 50V +/-0.5PF
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944C20	CAP CER CHP 3.9PF 50V +/-0.25PF
C317	2113944A24	CAP CER CHP 9.1PF 50V +/-0.5PF
C318	2113944A22	CAP CER CHP 7.5PF 50V +/-0.5PF
C319	2113944A11	CAP CER CHP 2.7PF 50V +/-0.25PF
C320	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2113944A29	CAP CER CHP 22.0PF 50V 5%
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C328	2113946K02	CAP CER CHP 0.10UF 16V
C329	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C337	NOTPLACED	-
C338	NOTPLACED	-
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945D04	CAP CER CHP 100,000PF 25V 10%
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V
C348	2113946K02	CAP CER CHP 0.10UF 16V
C349	2113945D04	CAP CER CHP 100,000PF 25V 10%
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C352	2113946K02	CAP CER CHP 0.10UF 16V
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C358	NOTPLACED	-
C359	NOTPLACED	-
C360	2113944A13	CAP CER CHP 3.3PF 50V +/-0.25PF
C361	2113946K02	CAP CER CHP 0.10UF 16V
C362	2113946K02	CAP CER CHP 0.10UF 16V
C364	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C366	NOTPLACED	-
C367	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C370	2113944A17	CAP CER CHP 4.7PF 50V +/-0.25PF
C371	NOTPLACED	-
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOTPLACED	-
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%
C375	2113944A40	CAP CER CHP 100.0PF 50V 5%
C378	NOTPLACED	-
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOTPLACED	-
C382	2313960B57	CAP,TANTALUM,10UF,+10%,-10%,4V-DC,S
C383	NOTPLACED	-
C385	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,0402,C0G,-55DEG CMIN,125DEG CMAX,PB
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C390	NOTPLACED	-
C404	NOTPLACED	-
C406	NOTPLACED	-
C432	NOTPLACED	-
C502	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C503	2113743N41	CAP CHIP 43.0 PF 5% COG
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%
C530	2113944A40	CAP CER CHP 100.0PF 50V 5%
C531	2113944A40	CAP CER CHP 100.0PF 50V 5%
C532	2113944A40	CAP CER CHP 100.0PF 50V 5%
C533	2113944A40	CAP CER CHP 100.0PF 50V 5%
C534	2113944A40	CAP CER CHP 100.0PF 50V 5%
C535	2113944A40	CAP CER CHP 100.0PF 50V 5%
C536	2113944A40	CAP CER CHP 100.0PF 50V 5%
C537	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref.	Motorola Part No.	Description
C538	2113944A40	CAP CER CHP 100.0PF 50V 5%
C539	NOTPLACED	-
C540	NOTPLACED	-
C541	NOTPLACED	-
C542	NOTPLACED	-
C543	NOTPLACED	-
C544	2113944A40	CAP CER CHP 100.0PF 50V 5%
C545	2113944A40	CAP CER CHP 100.0PF 50V 5%
C546	2113944A40	CAP CER CHP 100.0PF 50V 5%
C547	2113944A40	CAP CER CHP 100.0PF 50V 5%
C548	NOTPLACED	-
C549	2113944A40	CAP CER CHP 100.0PF 50V 5%
C550	2113944A40	CAP CER CHP 100.0PF 50V 5%
C551	2113944A40	CAP CER CHP 100.0PF 50V 5%
C552	2113944A40	CAP CER CHP 100.0PF 50V 5%
C553	2113944A40	CAP CER CHP 100.0PF 50V 5%
C555	2113944A40	CAP CER CHP 100.0PF 50V 5%
C597	NOTPLACED	CAP CER CHP 6.0PF
C598	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25PF
C599	2113944A15	CAP CER CHP 3.9PF 50V +/- 0.25PF
CR101	4880973Z02	PIN DIODE
CR102	4815257H01	SURFACE MOUNT PIN DIODES
CR103	4815257H01	SURFACE MOUNT PIN DIODES
CR105	5115022H01	IC,TEMP SENS,LM50C,SM,SOT-23
CR160	NOTPLACED	-
CR201	4815011H01	DIODE TRIPLE
CR203	4815072H01	DIODE VARACTOR
CR241	4885094Y01	DIODE VARACTOR ISV228 W18
CR242	4815279H01	BBY5503WE6327 FROM INFINEON
CR243	4815279H01	BBY5503WE6327 FROM INFINEON
CR251	4815322H01	VHF VARIABLE CAPACITANCE DIODE
CR301	4815279H01	BBY5503WE6327 FROM INFINEON
CR302	4815279H01	BBY5503WE6327 FROM INFINEON
CR303	4815048H01	SOT MMBD353 DIODE DUAL SCHT
CR304	4815279H01	BBY5503WE6327 FROM INFINEON
CR305	4815279H01	BBY5503WE6327 FROM INFINEON
CR306	4815923H02	SCHOTTKY DIODE-NEW LEADFREE
CR311	4813974A19	DIODE ARRAY,MXR,SM,SOT-323,7V,.2W,SHTK,2,PB-FREE
CR312	4815047H01	DIODE,SWG,DAN235EFTL,35V
CR313	4815047H01	DIODE,SWG,DAN235EFTL,35V
CR501	4815155H01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
D101	4813978C06	DIODE DUAL 75V A2X MMBD2836LT1
E101	2415954H02	INDUCTOR BEAD CHIP EPP WITH EPOXY
F501	6515076H01	FUSE CHIP SMT TR/1608FF 3A
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL302	9180468V04	SMD455KHZ 4 ELEMENT CER FLTR
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
H101	2680499Z02	HEAT SPREADER
J101	0985613Z01	JACK, RF
J102	0280519Z06	NUT, ANTENNA
J200	0915064H03	CONNECTOR, ZIF (40 PINS)
L101	2460591C52	COIL AIR WOUND INDUC 21.93
L102	2479990B02	AIR WOUND COIL/GREEN COLOR 19.61NH
L104	2479990B02	AIR WOUND COIL/GREEN COLOR 19.61NH
L105	2414032B22	IDCTR,WW,390NH,10%,620MA,1.12OHM,CER,30Q,465MHZSRF,SM,LEAD-
L106	2479990A02	AIR WND COIL/GREEN COLOR7.66NH
L107	2479990G01	AIR WOUND COIL/GREEN COLOR 33.47NH
L108	2479990A01	AIR WOUND COIL/GREEN COLOR 4.22NH
L109	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L112	2414032B45	IDCTR,WW,22NH,5%,1A,.12OHM,CER,5
L113	2414017N09	IDCTR,CHIP,5.6NH,600MA,.2OHM,CER,12Q,3GHZSRF,SM,0603,PB-FRE
L114	2414032B45	IDCTR,WW,22NH,5%,1A,.12OHM,CER,5
L115	2414032B22	IDCTR,WW,390NH,10%,620MA,1.12OHM,CER,30Q,465MHZSRF,SM,LEAD-
L116	2479990A03	AIR WOUND COIL/GREEN COLOR 9.75NH
L160	2414017N14	IDCTR,CHIP,15NH,5%,600MA,.4OHM,CER,13Q,1.8GHZSRF,SM,0603,PB-
L201	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OHM,FER
L202	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OHM,FER
L203	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OHM,FER
L232	2414032L25	IDCTR,WW,12UH,5%,150MA,3.8OHM,FERR,25 Q,23MHZSRF,SM,LEAD-F
L241	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OHM,CER,40 Q,730MHZ SRF,SM,LEAD
L242	2414032F38	IDCTR,WW,220NH,5%,400MA,.7OHM,CER,30 Q,630MHZ SRF,SM,LEAD-F
L243	2485776Z01	COIL TEFLON RESONATOR (KAPTON)
L251	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,CER,40 Q,1.8GHZ SRF,SM,LEAD-F
L253	2460593C02	COIL MULT LAYERED TAP TEF RESN
L261	2414032F29	IDCTR,WW,39NH,5%,500MA,.29OHM,CER,40 Q,1.6GHZ SRF,SM,LEAD-F
L271	2414032F32	IDCTR,WW,68NH,5%,500MA,.38OHM,CER,40 Q,1.2GHZ SRF,SM,LEAD-F
L273	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,CER,40 Q,1.8GHZ SRF,SM,LEAD-F
L281	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OHM,CER,40 Q,730MHZ SRF,SM,LEAD
L282	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OHM,CER,40 Q,730MHZ SRF,SM,LEAD
L301	2479990C01	AIR WOUND COIL/GREEN COLOR 13.9NH
L302	2479990C01	AIR WOUND COIL/GREEN COLOR 13.9NH
L303	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,CER,45 Q,2.2GHZ SRF,SM,LEAD-F
L304	2414032F37	IDCTR,WW,180NH,5%,400MA,.64OHM,CER,35 Q,710MHZ SRF,SM,LEAD-
L305	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,CER,45 Q,2.2GHZ SRF,SM,LEAD-F
L306	2479990C01	AIR WOUND COIL/GREEN COLOR 13.9NH
L307	2479990C01	AIR WOUND COIL/GREEN COLOR 13.9NH
L309	2479990C02	AIR WOUND COIL/GREEN COLOR 16.28NH
L310	2414032F36	IDCTR,WW,150NH,5%,400MA,.56OHM,CER,35 Q,780MHZ SRF,SM,LEAD-
L311	2414017K32	IDCTR,CHIP,560NH,5%,50MA,5OHM,CER,11Q,150MHZSRF,SM,0805,PB-F
L321	2414032F37	IDCTR,WW,180NH,5%,400MA,.64OHM,CER,35 Q,710MHZ SRF,SM,LEAD-
L325	2414032B68	IDCTR,WW,1UH,5%,460MA,1.75OHM,CER,33Q,290MHZ SRF,SM,LEAD-FRE
L330	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
L331	2414017K33	IND CER CHIP 680.0 NH 5%
L332	2414015A25	IDCTR,CHIP,1.2UH,2%,440MA,2OHM,CER,
L505	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65OHM,FERR,25Q,135MHZSRF,SM,0805
P100	3905643V01	CONTACT ANT GRD
PB501	4070354A01	LIGHT TOUCH SWITCH-SMD
PB502	4070354A01	LIGHT TOUCH SWITCH-SMD

Circuit Ref.	Motorola Part No.	Description
PB504	4070354A01	LIGHT TOUCH SWITCH-SMD
PB505	4070354A01	LIGHT TOUCH SWITCH-SMD
Q110	4813976A03	TSTR, 450 MHZ, 8W, 7.5V, PLD 1.5
Q111	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q210	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q261	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q301	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q302	4802197J95	RF TRANSISTOR PBR941
Q310	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q320	4813973M07	XSTR,BIP GP SS,NPN,TO-236,SMT,40V,.225W,200MA, 300MHZ,PB-FREE
Q502	4815154H01	DUAL TRANS NPN
Q505	4813973M07	XSTR,BIP GP SS,NPN,TO-236,SMT,40V,.225W,200MA, 300MHZ,PB-FREE
R101	0613952H58	CER CHIP RES 240 OHM 5% 0603
R102	0680539Z01	POWER METAL STRIP RESISTORS
R103	0613952Q40	CER CHIP RES 43.0 OHM 5 0402
R104	0613952R17	CER CHIP RES 47K OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5 0402
R107	NOTPLACED	-
R108	0613952Q91	CER CHIP RES 5600 OHM 5 0402
R109	0613952R32	CER CHIP RES 200K OHM 5% 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5 0402
R111	0613952Q32	CER CHIP RES 20.0 OHM 5% 0402
R112	0613952Q60	CER CHIP RES 300 OHM 5 0402
R120	0613952R16	CER CHIP RES 43K OHM 5 0402
R130	0613952R01	CER CHIP RES 10K OHM 5% 0402
R131	0613952R07	CER CHIP RES 18K OHM 5% 0402
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	NOTPLACED	-
R136	NOTPLACED	-
R161	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R170	0613952H58	CER CHIP RES 240 OHM 5% 0603
R171	0613952R16	CER CHIP RES 43K OHM 5 0402
R172	0613952H56	CER CHIP RES 200 OHM 5 0603
R172	0613952H49	CER CHIP RES 200 OHM 5% 0603
R173	0613952R31	CER CHIP RES 180K OHM 5% 0402
R174	0613952R17	CER CHIP RES 47K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R201	0613952R23	CER CHIP RES 82K OHM 5% 0402
R202	0613952R25	CER CHIP RES 100K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402
R231	0613952Q51	CER CHIP RES 120 OHM 5% 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5% 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5 0402
R241	0613952Q31	CER CHIP RES 18.0 OHM 5% 0402
R242	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R03	CER CHIP RES 12K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5% 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R251	0613952Q31	CER CHIP RES 18.0 OHM 5% 0402
R252	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R254	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R255	0613952Q88	CER CHIP RES 4300 OHM 5 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R281	NOTPLACED	-
R301	0613952R25	CER CHIP RES 100K OHM 5% 0402
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402
R303	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R309	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R310	NOTPLACED	-
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R314	0613952Q78	CER CHIP RES 1600 OHM 5% 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOTPLACED	-
R321	0613952R15	CER CHIP RES 39K OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R324	0613952R08	CER CHIP RES 20K OHM 5 0402
R328	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R329	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402
R331	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOTPLACED	-
R339	0613952Q88	CER CHIP RES 4300 OHM 5 0402
R340	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R345	0613952R15	CER CHIP RES 39K OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5 0402
R349	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R350	0613952Q85	CER CHIP RES 3300 OHM 5% 0402
R355	0613952R25	CER CHIP RES 100K OHM 5% 0402
R358	0613952Q82	CER CHIP RES 2400 OHM 5 0402
R359	NOTPLACED	-
R360	0613952R08	CER CHIP RES 20K OHM 5 0402
R361	0613952R08	CER CHIP RES 20K OHM 5 0402
R363	0613952Q63	CER CHIP RES 390 OHM 5 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952N09	CER CHIP RES 12.1K OHM 1% 0402
R368	0613952N01	CER CHIP RES 10.0K OHM 1 0402

Circuit Ref.	Motorola Part No.	Description
R369	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R370	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R371	NOTPLACED	-
R372	NOTPLACED	-
R373	NOTPLACED	-
R374	NOTPLACED	-
R375	NOTPLACED	-
R376	NOTPLACED	-
R377	NOTPLACED	-
R378	NOTPLACED	-
R402	NOTPLACED	-
R501	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R506	0613952R17	CER CHIP RES 47K OHM 5% 0402
R507	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R509	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R510	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R511	NOTPLACED	-
S501	4080710Z19	SWITCH, FREQUENCY
S502	1880619Z04	VOL POTENTIOMETER WITH HI TEMP CAM
SH100	2680507Z02	SHIELD, HARMONIC FILTER
SH101	2680510Z02	SHIELD, PA
SH201	2680511Z02	SHIELD, SYNTHESIZER
SH202	2680511Z02	SHIELD, SYNTHESIZER
SH241	2604120G02	AOBA VCO SHIELD
SH242	2680514Z02	SHIELD, VCO BOTTOM/ LVZIF
SH301	2686583Z02	SHIELD, RECEIVER FRONT END TOP
SH302	2680555Z02	SHIELD, RECEIVER F/END BOTTOM
SH303	2680509Z02	SHIELD, MIXER
SH304	2680624Z02	SHIELD, MIXER DIODE
SH322	2686528Z02	SHIELD, IF SECTION
SH323	2615924H01	SHIELD, CRYSTAL FILTER
T301	2515121H01	BALUN, TRANSFORMER W18 COMP
T302	2515121H01	BALUN, TRANSFORMER W18 COMP

Circuit Ref.	Motorola Part No.	Description
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIVER IC
U102	5185765B26	IC PWR CTRL IN MOS20
U201	5185177Y01	IC TESTED AT25016 48 PIN W18
U210	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U211	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U241	5105750U56	IC PKG DIE VCO BUFFER
U247	5115026H01	IC,LOW DROPOUT,SM,SOT-23/6,P
U248	5115019H01	3.3V REGULATOR IN SOT23-5 PKG
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U302	5115070H01	IC 3-INV LMOS TC7W04FU
U303	NOTPLACED	-
VR439	4813977M21	DIODE,ZEN,MBZ5242,SM,SOT-23,12V,10MA,.225W,ZEN,PB-FREE
VR440	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR441	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR443	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR444	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR501	4813977M14	DIODE,ZEN,MBZ5235,SM,SOT-23,6.8V,10MA,.225W,ZEN,PB-FREE
VR506	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
Y300	4802245J84	XTAL 44.395MHz, 3RD OT, SMD
Y301	9186145B02	CER.DISCR. CDBCA455CX36-TC
	8415563H03	BOARD, PC, UHF1 RF

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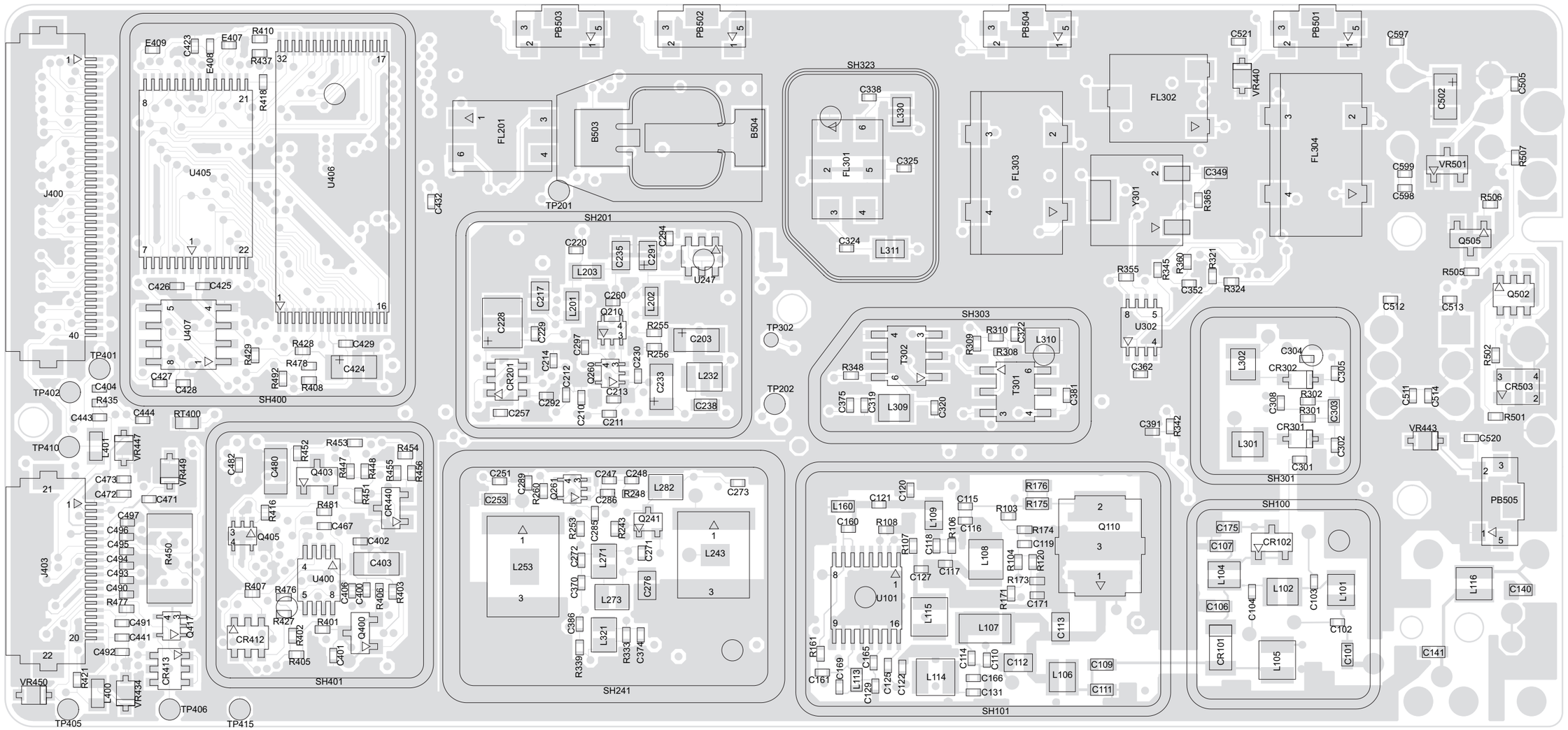
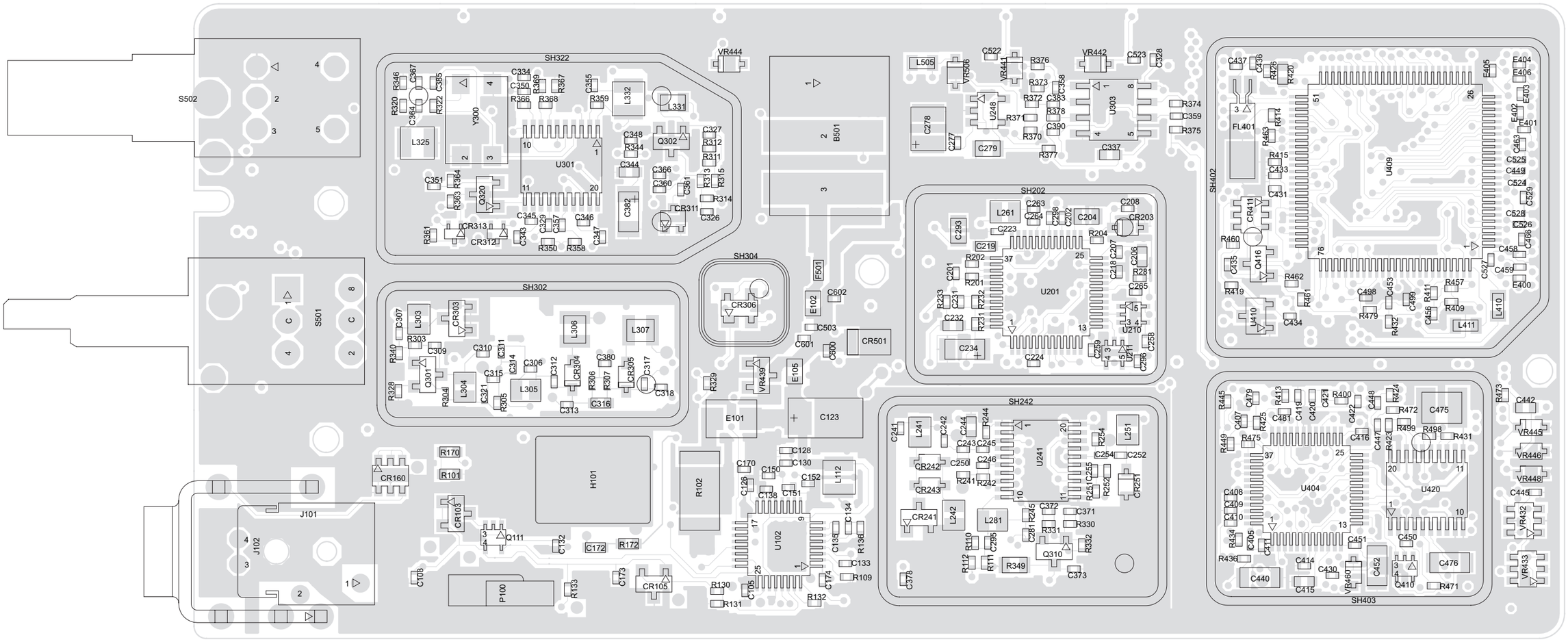
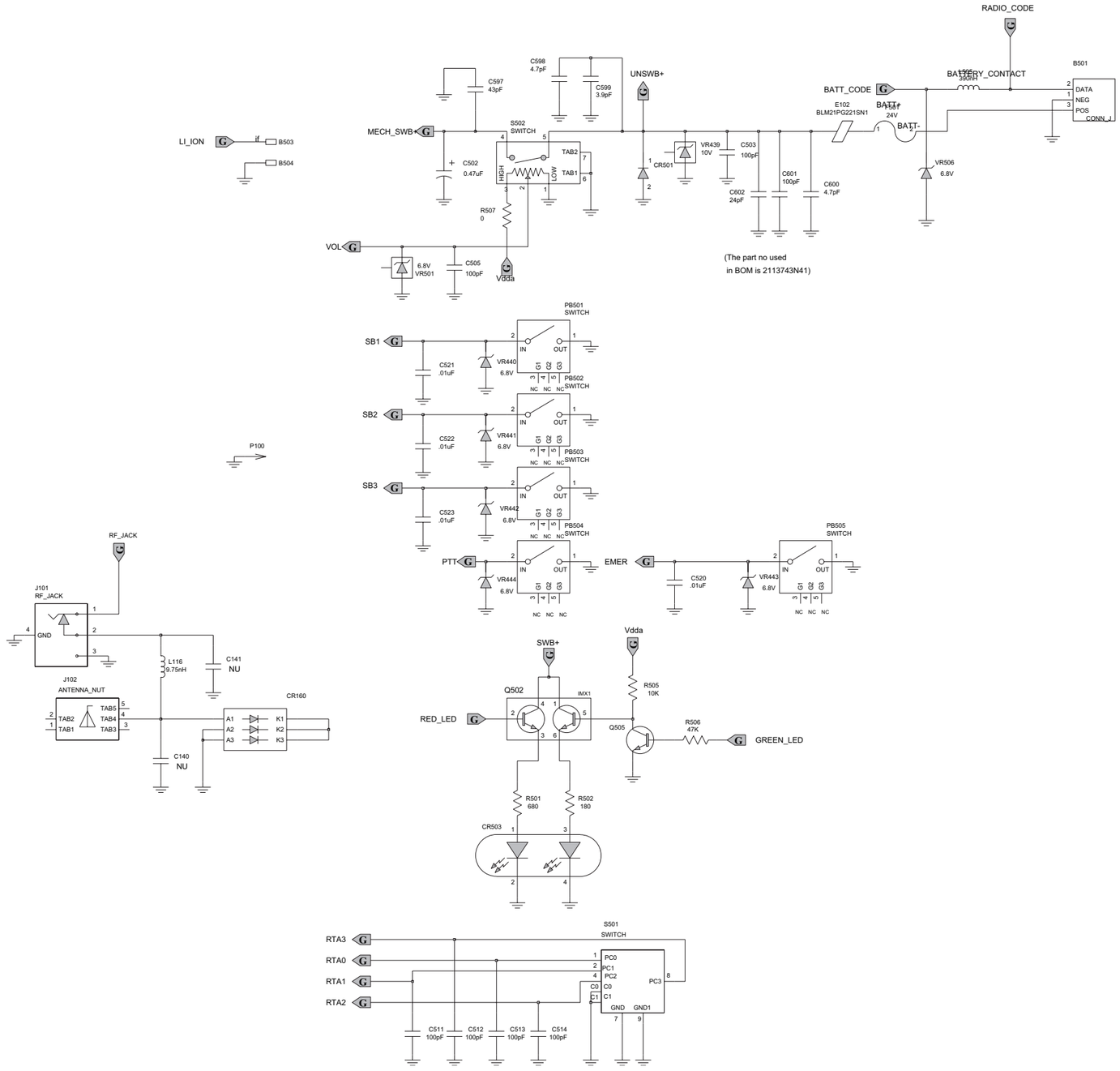
18.0 Circuit Board/Schematic Diagrams and Parts List (PCB No. 8415234H05)



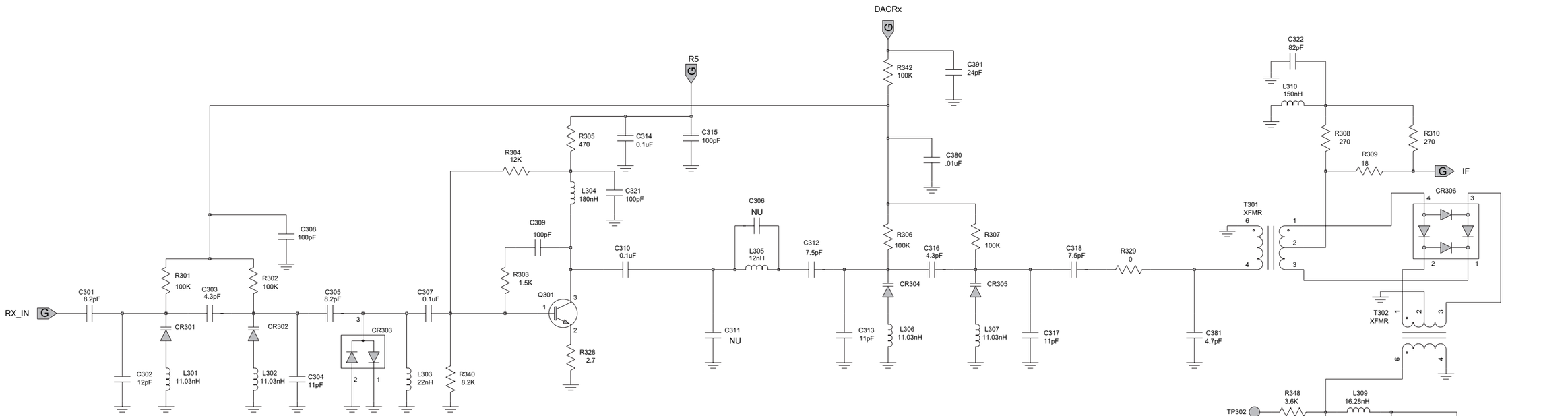
UHF (403-470MHz) Main Board Top Side (GP640 & GP680)

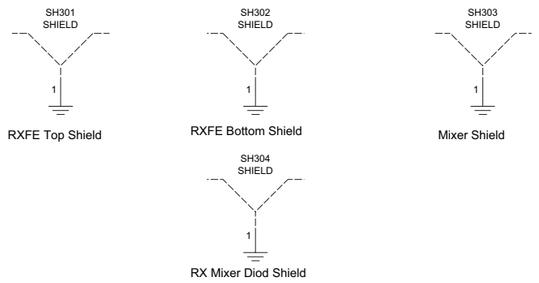


UHF (403-470MHz) Main Board Bottom Side GP640/GP680

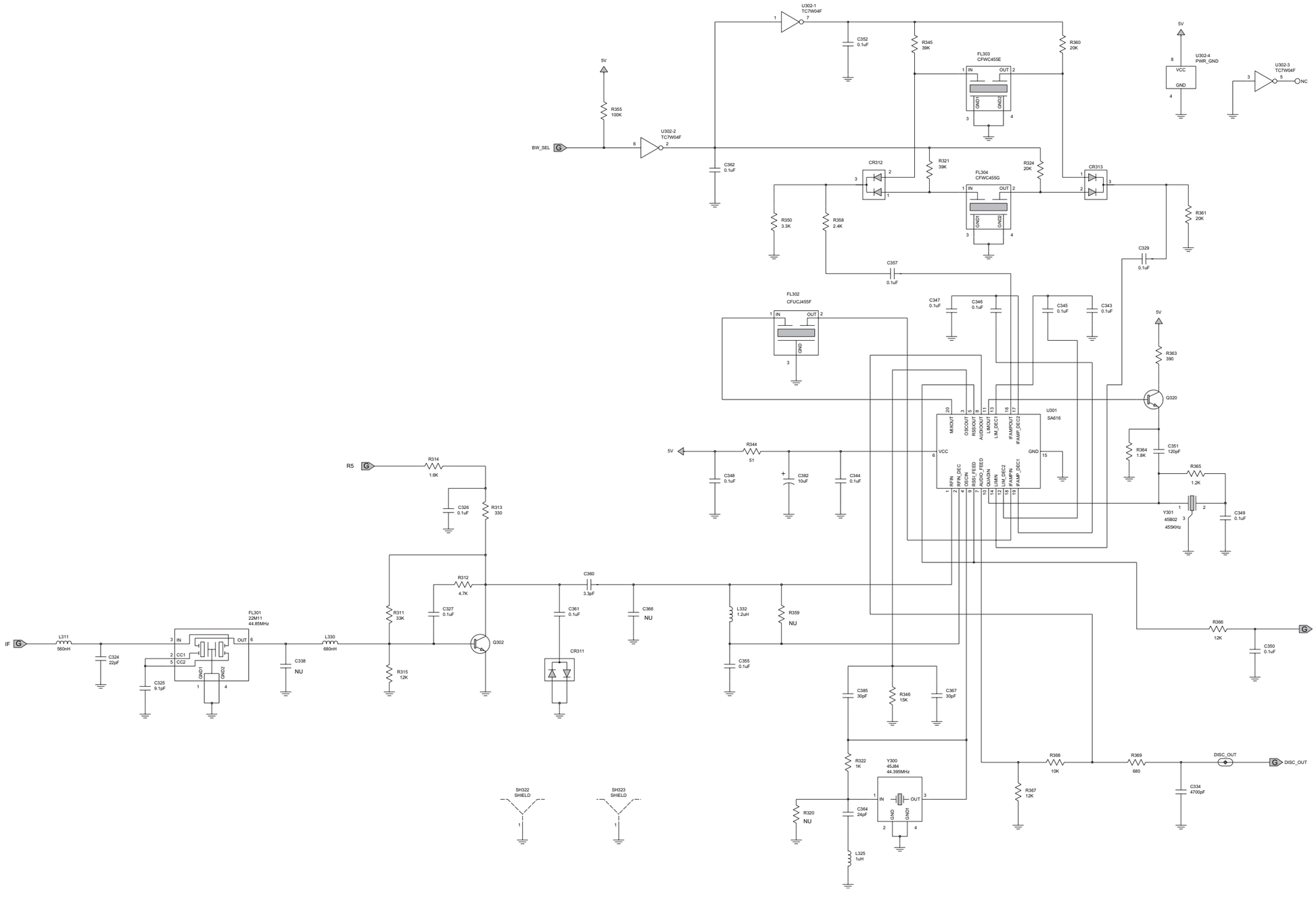


UHF (403-470 MHz) Controls And Switches Schematic Diagram

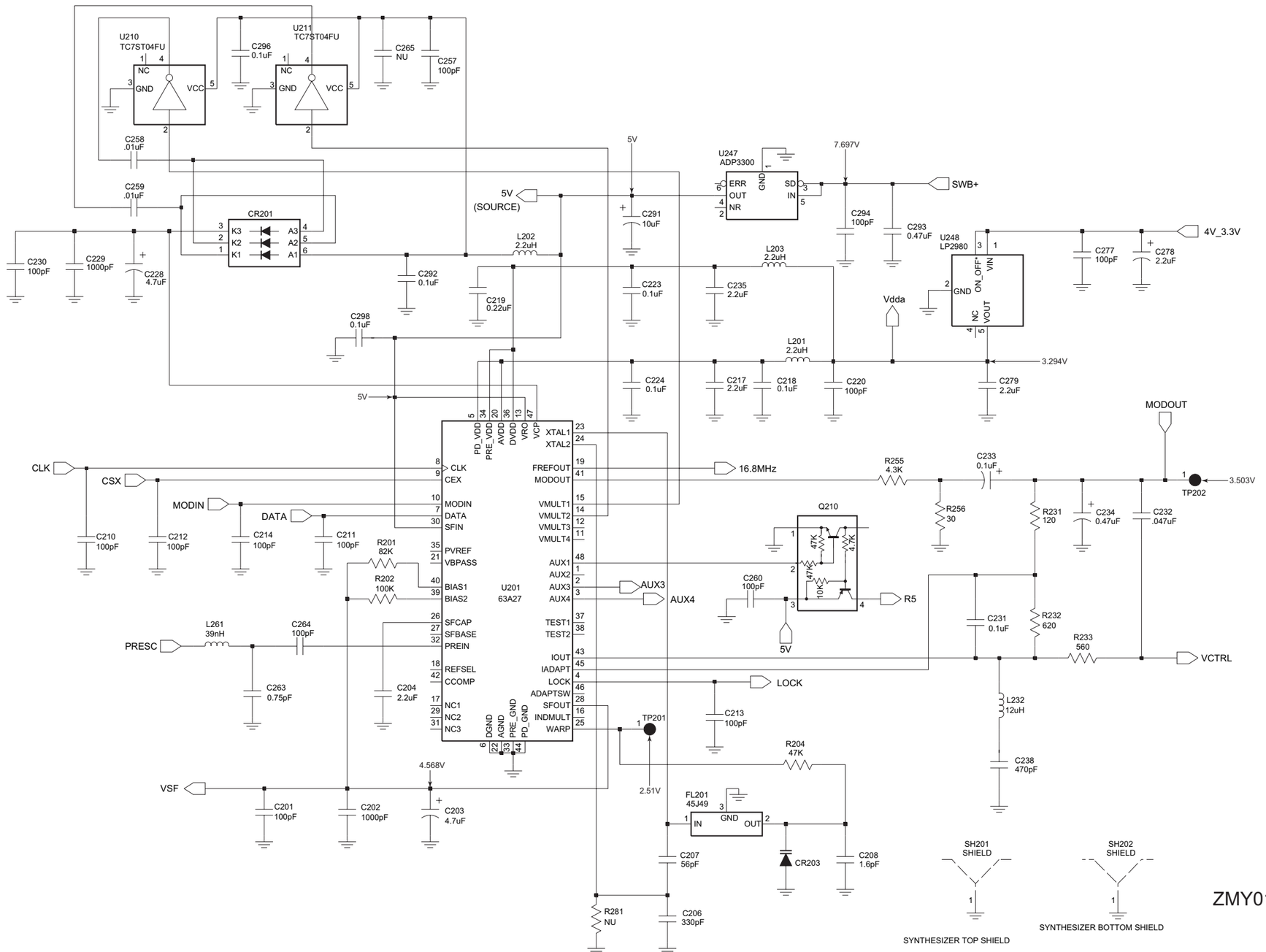




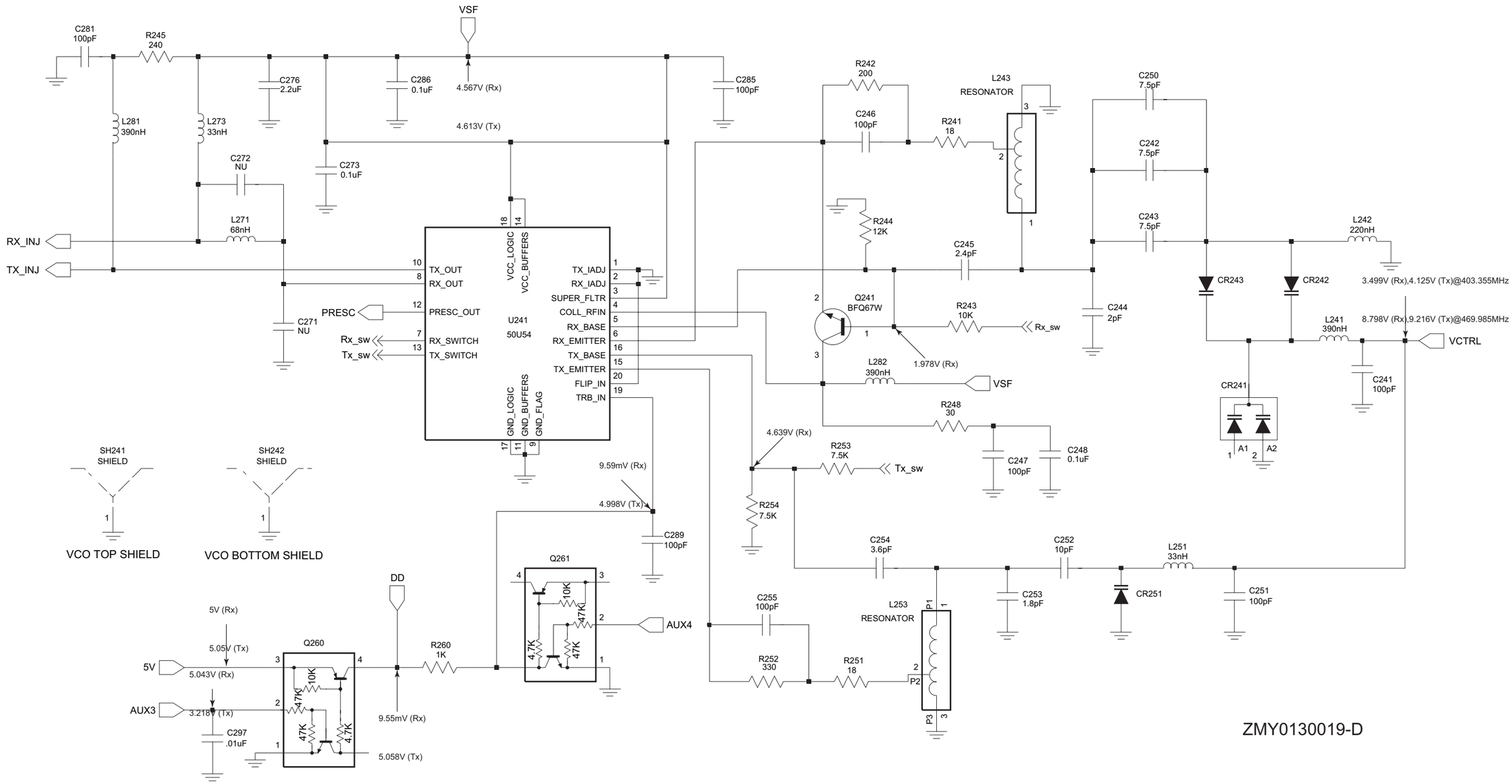
UHF (403-470 MHz) Receiver Front End



UHF (403-470 MHz) Receiver Back End Schematic Diagram

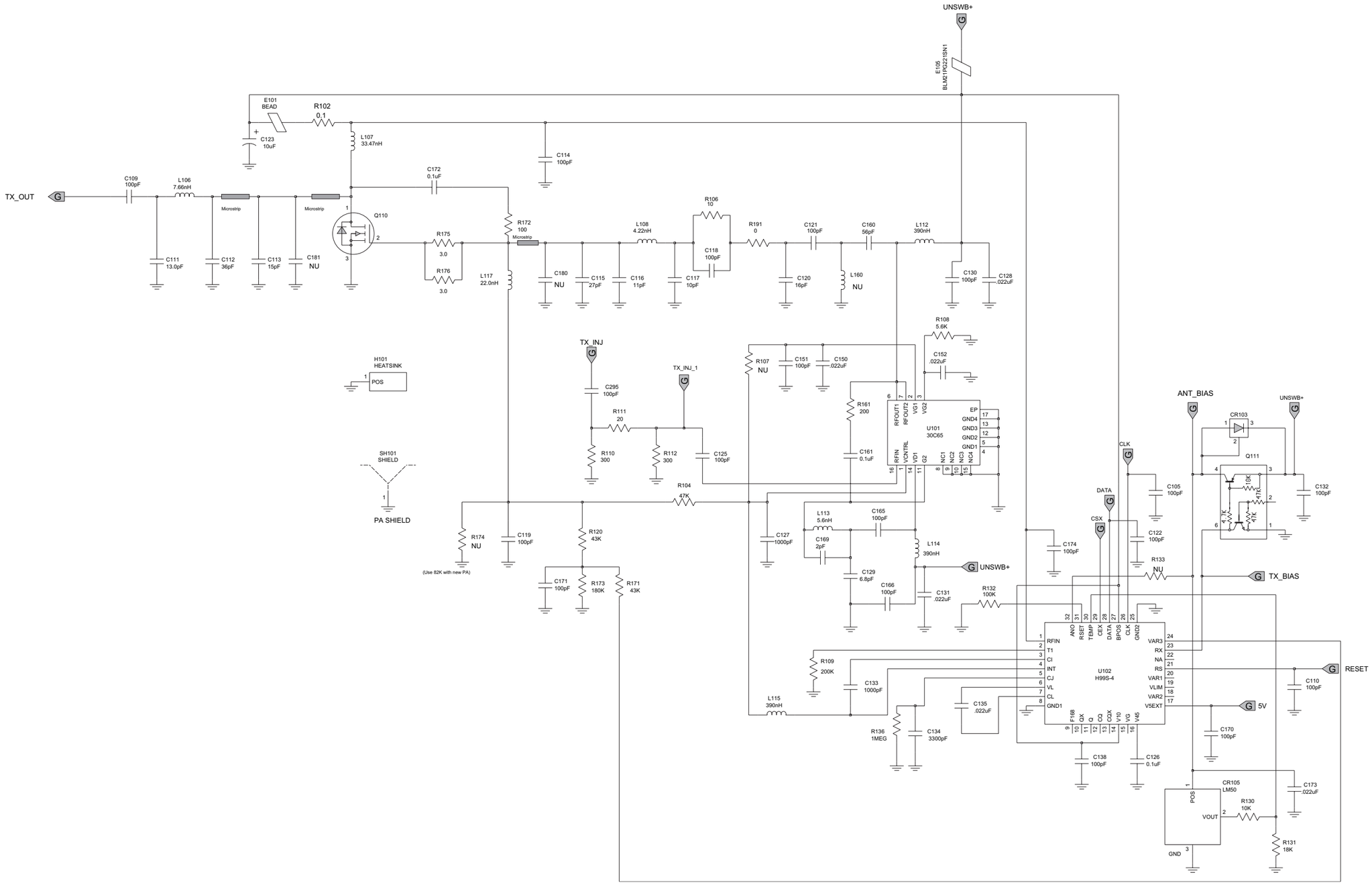


UHF (403-470 MHz) Synthesizer Schematic Diagram

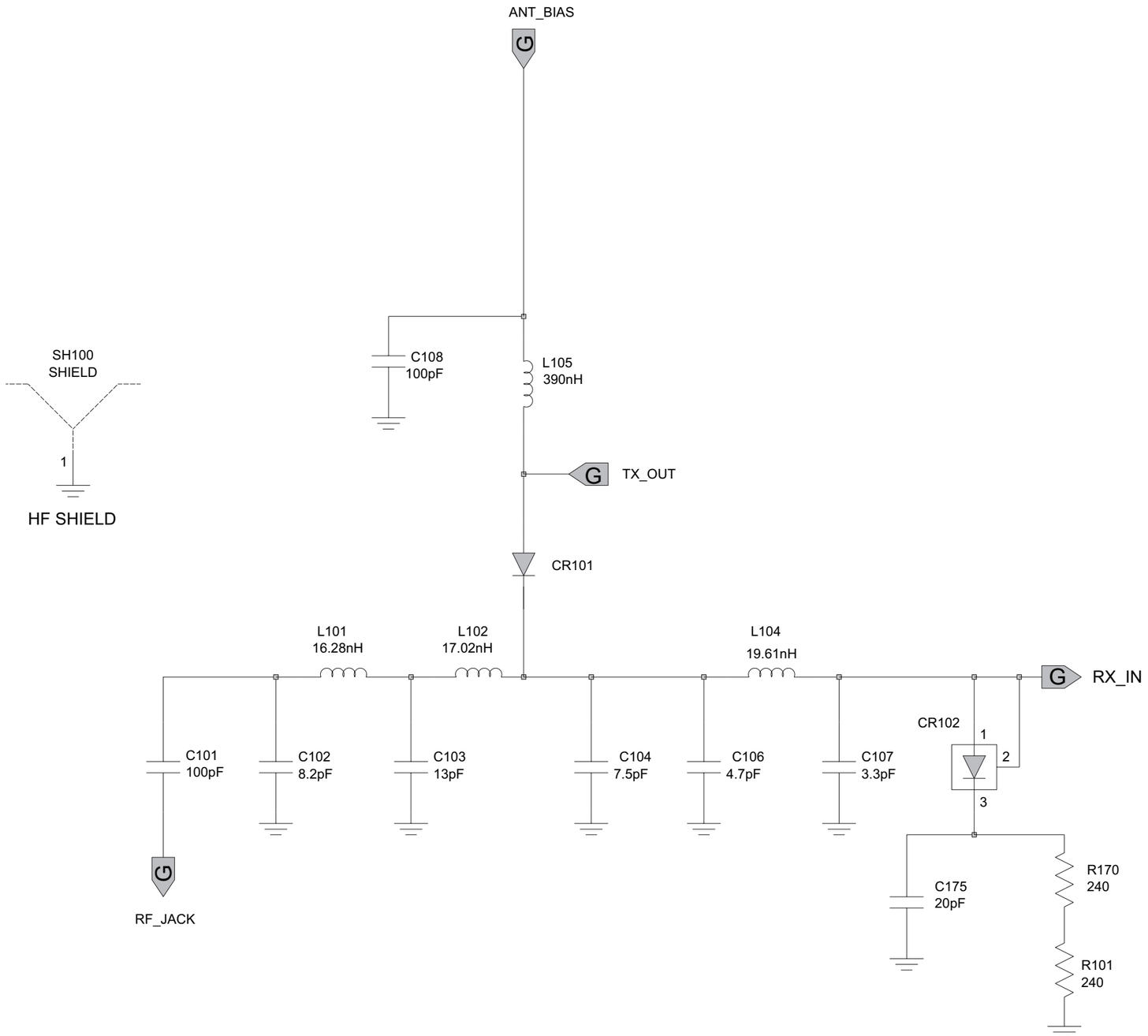


ZMY0130019-D

UHF (403-470 MHz) Voltage Controlled Oscillator Schematic Diagram



UHF (403-470 MHz) Transmitter Schematic Diagram



UHF (403-470 MHz) Harmonic Filter Schematic Diagram

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19.0 UHF PCB 8415234H05 (EPP) Parts List

Circuit Ref	Motorola Part No.	Description
	8415234H05	PC BOARD, UHF BAND 1
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944M16	CAP,FXD,8.2PF,.1PF+/-,50V-DC,0603,C0G,-55DEG CMIN,125DEG CMAX
C103	2113944M21	CAP,FXD,13PF,,+2%,-2%,50V-DC,0603,C
C104	2113944M15	CAP,FXD,7.5PF,.1PF+/-,50V-DC,0603,C0G,-55DEG CMIN,125DEG CMAX
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2113944C32	CAP CER CHP 15.0PF 50V 5%
C112	2115937H04	HIGH Q CHIP CAPACITOR, 47PF
C113	2115937H01	HIGH Q CHIP CAPACITOR, 10PF
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C116	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C117	2113944A29	CAP CER CHP 22.0PF 50V 5%
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,04
C121	2113944A40	CAP CER CHP 100.0PF 50V 5%
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2313960F04	CAP TANT 33 UF 10% 16V 6032-28
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946K02	CAP CER CHP 0.10UF 16V
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C129	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C132	2113944A40	CAP CER CHP 100.0PF 50V 5%
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C140	0613952H91	CER CHIP RES 5600 OHM 5 0603
C141	NOTPLACED	GCAM DUMMY PART NUMBER
C150	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C151	2113944A40	CAP CER CHP 100.0PF 50V 5%
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C160	2113944A40	CAP CER CHP 100.0PF 50V 5%
C161	2113946K02	CAP CER CHP 0.10UF 16V
C165	2113944A40	CAP CER CHP 100.0PF 50V 5%
C166	2113944A40	CAP CER CHP 100.0PF 50V 5%
C169	2113944A19	CAP CER CHP 5.6PF 50V +/- 0.5P
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113944A40	CAP CER CHP 100.0PF 50V 5%
C172	2113944C45	CAP CER CHP 100.0PF 50V 5%
C173	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C175	2113944C45	CAP CER CHP 100.0PF 50V 5%
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2113946H01	CAP CER CHP 4.7UF 10V 10%
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A33	CAP CER CHP 47.0PF 50V 5%
C208	NOTPLACED	GCAM DUMMY PART NUMBER
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP,FXD,4.7UF,+10%,-10%,16V-DC
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%
C231	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C232	2113945D02	CAP CER CHP 47,000PF 25V 10%
C233	2313960A26	CAP,FXD,.1UF,+10%,-10%,35V-DC,
C234	2313960A55	CAP,FXD,.47UF,+10%,-10%,25V-DC
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%,50V-DC,0
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C243	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C244	2113944C13	CAP CER CHP 2.0PF 50V +/- 0.25
C245	2113944A10	CAP CER CHP 2.4PF 50V +/- 0.25
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C253	2113944C12	CAP CER CHP 1.8PF 50V +/- 0.25
C254	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/-,50V-DC,
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C265	NOTPLACED	GCAM DUMMY PART NUMBER
C271	NOTPLACED	GCAM DUMMY PART NUMBER
C272	NOTPLACED	GCAM DUMMY PART NUMBER
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP,FXD,10,+10,-10,16,SM,,-55M
C279	2113946N03	CAP CER CHP 2.2UF 16V
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%
C286	2113946K02	CAP CER CHP 0.10UF 16V
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP,FXD,10UF,+10%,-10%,6.3V-DC
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-DC
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25
C302	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C303	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25
C304	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C305	2113944A80	CAP,FXD,20PF,+5%,-5%,50V-DC,04
C306	NOTPLACED	GCAM DUMMY PART NUMBER
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOTPLACED	GCAM DUMMY PART NUMBER
C312	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C313	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25
C317	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C318	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C319	2113944A11	CAP CER CHP 2.7PF 50V +/- 0.25
C320	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,04
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2113944A29	CAP CER CHP 22.0PF 50V 5%
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C328	2113946K02	CAP CER CHP 0.10UF 16V
C329	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C337	NOTPLACED	GCAM DUMMY PART NUMBER
C338	NOTPLACED	GCAM DUMMY PART NUMBER
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945D04	CAP CER CHP 100,000PF 25V 10%
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C348	2113946K02	CAP CER CHP 0.10UF 16V
C349	2113945D04	CAP CER CHP 100,000PF 25V 10%
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C352	2113946K02	CAP CER CHP 0.10UF 16V
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C358	NOTPLACED	GCAM DUMMY PART NUMBER
C359	NOTPLACED	GCAM DUMMY PART NUMBER
C360	2113944A13	CAP CER CHP 3.3PF 50V +/- 0.25
C361	2113946K02	CAP CER CHP 0.10UF 16V
C362	2113946K02	CAP CER CHP 0.10UF 16V
C364	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C366	NOTPLACED	GCAM DUMMY PART NUMBER
C367	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,04
C370	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25
C371	NOTPLACED	GCAM DUMMY PART NUMBER
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOTPLACED	GCAM DUMMY PART NUMBER
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%
C375	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C378	NOTPLACED	GCAM DUMMY PART NUMBER
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOTPLACED	GCAM DUMMY PART NUMBER
C382	2313960B57	CAP,FXD,10UF,+10%,-10%,6.3V-DC
C383	NOTPLACED	GCAM DUMMY PART NUMBER
C385	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,04
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C390	NOTPLACED	GCAM DUMMY PART NUMBER
C391	2113944A81	CAP CHIP 24.0 PF 5% COG
C400	2113945B02	CAP CER CHP 10,000PF 25V 10%
C401	2113946K02	CAP CER CHP 0.10UF 16V
C402	2113946K02	CAP CER CHP 0.10UF 16V
C403	2113955D33	CAP,FXD,2.2UF,+10%,-10%,16V-DC
C404	NOTPLACED	GCAM DUMMY PART NUMBER
C405	2113944A40	CAP CER CHP 100.0PF 50V 5%
C406	NOTPLACED	GCAM DUMMY PART NUMBER
C407	2113946B04	CAP CER CHP 0.10UF 10V 10%
C408	2113944A40	CAP CER CHP 100.0PF 50V 5%
C409	2113946K02	CAP CER CHP 0.10UF 16V
C410	2113946B04	CAP CER CHP 0.10UF 10V 10%

Circuit Ref	Motorola Part No.	Description
C411	2113946K02	CAP CER CHP 0.10UF 16V
C414	2113946K02	CAP CER CHP 0.10UF 16V
C415	2185895Z01	CAPACITOR CER LOW DIST .01UF
C416	2113946B04	CAP CER CHP 0.10UF 10V 10%
C419	NOTPLACED	GCAM DUMMY PART NUMBER
C420	2113945B02	CAP CER CHP 10,000PF 25V 10%
C421	2113946B04	CAP CER CHP 0.10UF 10V 10%
C422	2113946K02	CAP CER CHP 0.10UF 16V
C423	2113944A40	CAP CER CHP 100.0PF 50V 5%
C424	2313960B57	CAP,FXD,10UF,+10%,-10%,6.3V-DC
C425	2113946K02	CAP CER CHP 0.10UF 16V
C426	2113944A40	CAP CER CHP 100.0PF 50V 5%
C427	2113944A40	CAP CER CHP 100.0PF 50V 5%
C428	2113946K02	CAP CER CHP 0.10UF 16V
C429	2113946K02	CAP CER CHP 0.10UF 16V
C430	2113946B04	CAP CER CHP 0.10UF 10V 10%
C431	2113944A40	CAP CER CHP 100.0PF 50V 5%
C432	NOTPLACED	GCAM DUMMY PART NUMBER
C433	2113945B02	CAP CER CHP 10,000PF 25V 10%
C434	2113946B04	CAP CER CHP 0.10UF 10V 10%
C435	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C436	2113944A29	CAP CER CHP 22.0PF 50V 5%
C437	2113944A29	CAP CER CHP 22.0PF 50V 5%
C440	2113946Q01	CAP CER CHP 4.7UF 16V
C441	2113944A40	CAP CER CHP 100.0PF 50V 5%
C442	2113945D04	CAP CER CHP 100,000PF 25V 10%
C443	2113946B04	CAP CER CHP 0.10UF 10V 10%
C444	2113944A40	CAP CER CHP 100.0PF 50V 5%
C445	2113944A40	CAP CER CHP 100.0PF 50V 5%
C447	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C448	2113946B04	CAP CER CHP 0.10UF 10V 10%
C449	2113944A40	CAP CER CHP 100.0PF 50V 5%
C450	NOTPLACED	GCAM DUMMY PART NUMBER
C451	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C452	2113955D31	CAP,FXD,1UF,,+10%,-10%,16V-DC,
C453	2113944A40	CAP CER CHP 100.0PF 50V 5%
C456	2113944A40	CAP CER CHP 100.0PF 50V 5%
C458	2113944A40	CAP CER CHP 100.0PF 50V 5%
C459	2113944A40	CAP CER CHP 100.0PF 50V 5%
C463	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C466	2113944A40	CAP CER CHP 100.0PF 50V 5%
C467	2113946B04	CAP CER CHP 0.10UF 10V 10%
C471	2113944A40	CAP CER CHP 100.0PF 50V 5%
C472	2113945A05	CAP CER CHP 470PF 50V 10%
C473	2113945A05	CAP CER CHP 470PF 50V 10%
C475	2113956E91	CAP,FXD,10UF,+10%,-10%,16V-DC,
C476	2113946R01	CAP CER CHP 10.0UF 10V
C479	2113946B04	CAP CER CHP 0.10UF 10V 10%
C480	2113946R01	CAP CER CHP 10.0UF 10V
C481	2113946B04	CAP CER CHP 0.10UF 10V 10%
C482	2113946B04	CAP CER CHP 0.10UF 10V 10%
C490	2113944A40	CAP CER CHP 100.0PF 50V 5%
C491	2113944A40	CAP CER CHP 100.0PF 50V 5%
C492	2113944A40	CAP CER CHP 100.0PF 50V 5%
C493	2113944A40	CAP CER CHP 100.0PF 50V 5%
C494	2113944A40	CAP CER CHP 100.0PF 50V 5%
C495	2113944A40	CAP CER CHP 100.0PF 50V 5%
C496	2113944A40	CAP CER CHP 100.0PF 50V 5%
C497	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C498	NOTPLACED	GCAM DUMMY PART NUMBER
C499	2113946B04	CAP CER CHP 0.10UF 10V 10%
C502	2313960A55	CAP,FXD,.47UF,+10%,-10%,25V-DC
C503	2113944A84	CAP,FXD,43PF,+5%,-5%,50V-DC,04
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C524	2113944A40	CAP CER CHP 100.0PF 50V 5%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C597	2113944A84	CAP,FXD,43PF,+5%,-5%,50V-DC,0402,C0
C598	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25
C599	2113944A15	CAP CER CHP 3.9PF 50V +/- 0.25
C600	2113944A81	CAP CHIP 24.0 PF 5% COG
C601	2113944A40	CAP CHIP 100 PF 5% COG
C602	2113944A17	CAP CHIP 4.7 PF +-.25PF COG
C610	2113944A40	CAP CER CHP 100.0PF 50V 5%
C611	2113944A40	CAP CER CHP 100.0PF 50V 5%
C612	2113944A40	CAP CER CHP 100.0PF 50V 5%
C613	2113944A40	CAP CER CHP 100.0PF 50V 5%
C615	2113944A40	CAP CER CHP 100.0PF 50V 5%
C616	2113944A40	CAP CER CHP 100.0PF 50V 5%
C618	2113944A40	CAP CER CHP 100.0PF 50V 5%
C619	2113944A40	CAP CER CHP 100.0PF 50V 5%
C620	2113944A40	CAP CER CHP 100.0PF 50V 5%
C621	2113944A40	CAP CER CHP 100.0PF 50V 5%
C622	2113944A40	CAP CER CHP 100.0PF 50V 5%
CR101	4880973Z02	PIN DIODE
CR102	4815257H01	SURFACE MOUNT PIN DIODES

Circuit Ref	Motorola Part No.	Description
CR103	4815257H01	SURFACE MOUNT PIN DIODES
CR105	5115022H01	IC TEMPERATURE SENSOR
CR160	NOTPLACED	GCAM DUMMY PART NUMBER
CR201	4815011H01	DIODE TRIPLE
CR203	4815072H01	DIODE VARACTOR
CR241	4885094Y01	DIODE VARACTOR ISV228 W18
CR242	4815279H01	BBY5503WE6327 FROM INFINEON
CR243	4815279H01	BBY5503WE6327 FROM INFINEON
CR251	4815322H01	VHF VARIABLE CAPACITANCE DIODE
CR301	4815279H01	BBY5503WE6327 FROM INFINEON
CR302	4815279H01	BBY5503WE6327 FROM INFINEON
CR303	4815048H01	SOT MMBD353 DIODE DUAL SCHT
CR304	4815279H01	BBY5503WE6327 FROM INFINEON
CR305	4815279H01	BBY5503WE6327 FROM INFINEON
CR306	4815923H02	SCHOTTKY DIODE-NEW LEADFREE
CR311	4813974A19	DIODE ARRAY,MXR,SM,SOT-323,7V,
CR312	4815047H01	BAND SWITCHIND DIODE,ROHM DAN
CR313	4815047H01	BAND SWITCHIND DIODE,ROHM DAN
CR411	4815067H01	DIODE SCHOTTKY, RB731U

Circuit Ref	Motorola Part No.	Description
CR412	4815067H01	DIODE SCHOTTKY, RB731U
CR413	4815067H01	DIODE SCHOTTKY, RB731U
CR440	4813978C02	PB FREE, NOT COMPLETELY ENRICH
CR501	4815155H01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
E101	2415954H01	INDUCTOR BEAD CHIP
E102	7686949J14	FLTR,FERRITE BEAD,2A,SM
E105	7686949J14	FLTR,FERRITE BEAD,,,,2A,,,,,SM,0805
E400	2480640Z01	SURFACE MOUNT FERRITE BEAD
E401	2480640Z01	SURFACE MOUNT FERRITE BEAD
E402	2480640Z01	SURFACE MOUNT FERRITE BEAD
E403	2480640Z01	SURFACE MOUNT FERRITE BEAD
E404	2480640Z01	SURFACE MOUNT FERRITE BEAD
E405	2480640Z01	SURFACE MOUNT FERRITE BEAD
E406	2480640Z01	SURFACE MOUNT FERRITE BEAD
E407	2480640Z01	SURFACE MOUNT FERRITE BEAD

Circuit Ref	Motorola Part No.	Description
E408	2480640Z01	SURFACE MOUNT FERRITE BEAD
E409	2480640Z01	SURFACE MOUNT FERRITE BEAD
E634	2480640Z01	SURFACE MOUNT FERRITE BEAD
E637	2480640Z01	SURFACE MOUNT FERRITE BEAD
E638	2480640Z01	SURFACE MOUNT FERRITE BEAD
E639	2480640Z01	SURFACE MOUNT FERRITE BEAD
E640	2480640Z01	SURFACE MOUNT FERRITE BEAD
E641	2480640Z01	SURFACE MOUNT FERRITE BEAD
E642	2480640Z01	SURFACE MOUNT FERRITE BEAD
E643	2480640Z01	SURFACE MOUNT FERRITE BEAD
E644	2480640Z01	SURFACE MOUNT FERRITE BEAD
E645	2480640Z01	SURFACE MOUNT FERRITE BEAD
F501	6515076H01	FUSE CHIP SMT TR/ 1608FF 3A
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL302	9180468V05	SMD455KHZ 4 ELEMENT CER FLTR
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
FL401	4870368G02	REFLOWABLE CLOCK OSC XTAL
H101	2680499Z02	HEAT SPREADER
J101	0985613Z01	JACK, RF

Circuit Ref	Motorola Part No.	Description
J102	0280519Z06	NUT, ANTENNA
J400	0915064H03	CONNECTOR, ZIF (40 PINS)
J403	0915064H02	ZIF (20 PINS)
J601	0980521Z03	CONN, ZIF VERTICAL, 40PINS
J602	0915064H01	ZIF (18 PINS)
L101	2460591C16	COIL AIR WOUND INDUC 16
L102	2460591C40	COIL AIR WOUND INDUC 17.02
L104	2479990B02	AIR WOUND COIL/GREEN COLOR 19.
L105	2414032B22	IDCTR,WW,390NH,10%,620MA,1.12O
L106	2479990A02	AIR WND COIL/GREEN COLOR7.66NH
L107	2479990G01	AIR WOUND COIL/GREEN COLOR 33.
L108	2479990A01	AIR WOUND COIL/GREEN COLOR 4.2
L109	2479990B01	AIR WOUND COIL/GREEN COLOR 11.
L112	2414032B45	IDCTR,WW,22NH,5%,1A,.12OHM,CER
L113	2414017N09	IDCTR,CHIP,5.6NH,600MA,.2OHM,C
L114	2414032B45	IDCTR,WW,22NH,5%,1A,.12OHM,CER
L115	2414032B22	IDCTR,WW,390NH,10%,620MA,1.12O
L116	2479990A03	AIR WOUND COIL/GREEN COLOR 9.7
L160	2414017N14	IDCTR,CHIP,15NH,5%,600MA,.4OHM
L201	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH

Circuit Ref	Motorola Part No.	Description
L202	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH
L203	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH
L232	2414032L25	IDCTR,WW,12UH,5%,150MA,3.8OHM,
L241	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L242	2414032F38	IDCTR,WW,220NH,5%,400MA,.7OHM,
L243	2485776Z01	COIL TEFLON RESONATOR (KAPTON)
L251	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,
L253	2460593C02	COIL MULT LAYERED TAP TEF RESN
L261	2414032F29	IDCTR,WW,39NH,5%,500MA,.29OHM,
L271	2414032F32	IDCTR,WW,68NH,5%,500MA,.38OHM,
L273	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,
L281	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L282	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L301	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L302	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L303	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,
L304	2414032F37	IDCTR,WW,180NH,5%,400MA,.64OHM
L305	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,
L306	2479990C01	AIR WND COIL/GREEN COLOR13.9NH

Circuit Ref	Motorola Part No.	Description
L307	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L309	2479990C02	AIR WOUND COIL/GREEN COLOR 16.
L310	2414032F36	IDCTR,WW,150NH,5%,400 MA,.56OHM
L311	2414017K32	IDCTR,CHIP,560NH,5%,50 MA,5OHM,
L321	2414032F37	IDCTR,WW,180NH,5%,400 MA,.64OHM
L325	2414032B68	IDCTR,WW,1UH,5%,460M A,1.75OHM,
L330	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
L331	2414017K33	IDCTR,CHIP,680NH,5%,50 MA,5.5OH
L332	2414015A25	IDCTR,CHIP,1.2UH,2%,440 MA,2OHM
L400	2414017Q42	IDCTR,FXD,390NH,10%,20 0MA,.65O
L401	2414017Q42	IDCTR,FXD,390NH,10%,20 0MA,.65O
L410	2414017Q42	IDCTR,FXD,390NH,10%,20 0MA,.65O
L411	2414017Q42	IDCTR,FXD,390NH,10%,20 0MA,.65O
L505	2414017Q42	IDCTR,FXD,390NH,10%,20 0MA,.65O
P100	3905643V01	CONTACT ANT GRD
PB501	4086470Z01	TACT SWITCH
PB502	4086470Z01	TACT SWITCH
PB503	4086470Z01	TACT SWITCH
PB504	4086470Z01	TACT SWITCH
PB505	4086470Z01	TACT SWITCH
Q110	4813976A03	450MHZ 8W 7.5V PLD-1.5 T&R
Q111	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q210	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q261	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q301	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q302	4802197J95	RF TRANSISTOR PBR941
Q310	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q320	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
Q400	4815069H02	TSTR MOSFET P-CHAN
Q403	4813973A13	XSTR,BIP GP SS,,PNP,,TO-236,SO
Q405	4815066H01	UMG5N DIGITAL TRANSISTOR
Q410	4815066H01	UMG5N DIGITAL TRANSISTOR
Q416	4815069H02	TSTR MOSFET P-CHAN
Q417	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q502	4815154H01	DUAL TRANS NPN
Q505	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
Q601	4815125H01	SOT STR RH LOW PROFILE MMBT
Q602	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
Q603	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
R101	0613952H58	CER CHIP RES 240 OHM 5 0603
R102	0615043C01	RES POWER METAL STRIP W18 COMP
R103	0613952Q40	CER CHIP RES 43.0 OHM 5 0402
R104	0613952R17	CER CHIP RES 47K OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5 0402
R107	NOTPLACE D	GCAM DUMMY PART NUMBER
R108	0613952Q91	CER CHIP RES 5600 OHM 5 0402
R109	0613952R32	CER CHIP RES 200K OHM 5 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5 0402
R111	0613952Q32	CER CHIP RES 20.0 OHM 5 0402
R112	0613952Q60	CER CHIP RES 300 OHM 5 0402
R120	0613952R16	CER CHIP RES 43K OHM 5 0402
R130	0613952R01	CER CHIP RES 10K OHM 5% 0402
R131	0613952R07	CER CHIP RES 18K OHM 5% 0402
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	NOTPLACE D	GCAM DUMMY PART NUMBER
R136	NOTPLACE D	GCAM DUMMY PART NUMBER
R161	0613952Q56	CER CHIP RES 200 OHM 5 0402
R170	0613952H58	CER CHIP RES 240 OHM 5 0603
R171	0613952R16	CER CHIP RES 43K OHM 5 0402
R172	0613952H49	CER CHIP RES 100 OHM 5% 0603
R173	0613952R31	CER CHIP RES 180K OHM 5% 0402
R174	0613952R17	CER CHIP RES 47K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5 0603
R201	0613952R23	CER CHIP RES 82K OHM 5% 0402
R202	0613952R25	CER CHIP RES 100K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402
R231	0613952Q51	CER CHIP RES 120 OHM 5 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5 0402
R241	0613952Q31	CER CHIP RES 18.0 OHM 5 0402
R242	0613952Q56	CER CHIP RES 200 OHM 5 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R03	CER CHIP RES 12K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5 0402
R251	0613952Q31	CER CHIP RES 18.0 OHM 5 0402

Circuit Ref	Motorola Part No.	Description
R252	0613952Q61	CER CHIP RES 330 OHM 5 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R254	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R255	0613952Q88	CER CHIP RES 4300 OHM 5 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R281	NOTPLACED	GCAM DUMMY PART NUMBER
R301	0613952R25	CER CHIP RES 100K OHM 5% 0402
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402
R303	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q66	CER CHIP RES 510 OHM 5 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5 0402
R309	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R310	NOTPLACED	GCAM DUMMY PART NUMBER
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5 0402
R314	0613952Q78	CER CHIP RES 1600 OHM 5 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOTPLACED	GCAM DUMMY PART NUMBER
R321	0613952R15	CER CHIP RES 39K OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R324	0613952R08	CER CHIP RES 20K OHM 5 0402
R328	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R329	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402
R331	0613952Q56	CER CHIP RES 200 OHM 5 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOTPLACED	GCAM DUMMY PART NUMBER
R339	0613952Q88	CER CHIP RES 4300 OHM 5 0402
R340	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5 0402
R345	0613952R15	CER CHIP RES 39K OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5 0402
R349	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R350	0613952Q85	CER CHIP RES 3300 OHM 5 0402
R355	0613952R25	CER CHIP RES 100K OHM 5% 0402
R358	0613952Q82	CER CHIP RES 2400 OHM 5 0402
R359	NOTPLACED	GCAM DUMMY PART NUMBER
R360	0613952R08	CER CHIP RES 20K OHM 5 0402
R361	0613952R08	CER CHIP RES 20K OHM 5 0402
R363	0613952Q63	CER CHIP RES 390 OHM 5 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952N09	CER CHIP RES 12.1K OHM 1 0402
R368	0613952N01	CER CHIP RES 10.0K OHM 1 0402
R369	0613952Q69	CER CHIP RES 680 OHM 5 0402
R370	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R371	NOTPLACED	GCAM DUMMY PART NUMBER
R372	NOTPLACED	GCAM DUMMY PART NUMBER
R373	NOTPLACED	GCAM DUMMY PART NUMBER
R374	NOTPLACED	GCAM DUMMY PART NUMBER
R375	NOTPLACED	GCAM DUMMY PART NUMBER
R376	NOTPLACED	GCAM DUMMY PART NUMBER
R377	NOTPLACED	GCAM DUMMY PART NUMBER
R378	NOTPLACED	GCAM DUMMY PART NUMBER
R400	0613952R17	CER CHIP RES 47K OHM 5% 0402
R401	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R402	NOTPLACED	GCAM DUMMY PART NUMBER
R403	NOTPLACED	GCAM DUMMY PART NUMBER
R405	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R406	0613952R22	CER CHIP RES 75K OHM 5 0402
R407	0613952R21	CER CHIP RES 68K OHM 5% 0402
R408	NOTPLACED	GCAM DUMMY PART NUMBER
R409	0613952R01	CER CHIP RES 10K OHM 5% 0402
R410	0613952R25	CER CHIP RES 100K OHM 5% 0402
R411	0613952R01	CER CHIP RES 10K OHM 5% 0402
R413	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R414	0613952P25	CER CHIP RES 178K OHM 1 0402
R415	0613952N93	CER CHIP RES 90.9K OHM 1 0402

Circuit Ref	Motorola Part No.	Description
R416	0613952R01	CER CHIP RES 10K OHM 5% 0402
R418	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R419	0613952Q66	CER CHIP RES 510 OHM 5 0402
R420	0613952J73	CER CHIP RES 10.0M OHM 5% 0603
R421	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R423	0613952R41	CER CHIP RES 470K OHM 5% 0402
R424	0613952R14	CER CHIP RES 36K OHM 5 0402
R425	0613952R12	CER CHIP RES 30K OHM 5 0402
R426	0613952R37	CER CHIP RES 330K OHM 5% 0402
R427	0613952Q83	CER CHIP RES 2700 OHM 5 0402
R428	0613952Q09	CER CHIP RES 2.2 OHM 5 0402
R429	0613952R22	CER CHIP RES 75K OHM 5 0402
R431	0613952R41	CER CHIP RES 470K OHM 5% 0402
R432	0613952R18	CER CHIP RES 51K OHM 5 0402
R434	0613952Q61	CER CHIP RES 330 OHM 5 0402
R435	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R436	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R437	NOTPLACED	GCAM DUMMY PART NUMBER
R445	0613952R10	CER CHIP RES 24K OHM 5 0402
R447	0613952R25	CER CHIP RES 100K OHM 5% 0402
R448	0613952R01	CER CHIP RES 10K OHM 5% 0402
R449	0613952R10	CER CHIP RES 24K OHM 5 0402
R450	0613959Y45	CER CHIP RES OHM 5% 2512
R451	0613952R05	CER CHIP RES 15K OHM 5% 0402
R452	0613952R25	CER CHIP RES 100K OHM 5% 0402
R453	NOTPLACED	GCAM DUMMY PART NUMBER
R454	NOTPLACED	GCAM DUMMY PART NUMBER
R455	NOTPLACED	GCAM DUMMY PART NUMBER
R456	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R457	0613952R01	CER CHIP RES 10K OHM 5% 0402
R460	0613952Q89	CER CHIP RES 4700 OHM 5 0402
R461	0613952Q55	CER CHIP RES 180 OHM 5 0402
R462	0613952R01	CER CHIP RES 10K OHM 5% 0402
R463	0613952Q60	CER CHIP RES 300 OHM 5 0402
R471	0613952R08	CER CHIP RES 20K OHM 5 0402
R472	0613952R14	CER CHIP RES 36K OHM 5 0402
R473	0613952Q25	CER CHIP RES 10.0 OHM 5 0402
R475	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R476	0613952R37	CER CHIP RES 330K OHM 5% 0402
R477	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R478	0613952R01	CER CHIP RES 10K OHM 5% 0402
R479	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R481	0613952R10	CER CHIP RES 24K OHM 5 0402
R492	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R498	0613952R01	CER CHIP RES 10K OHM 5% 0402
R499	0613952R01	CER CHIP RES 10K OHM 5% 0402
R501	0613952Q69	CER CHIP RES 680 OHM 5 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R506	0613952R17	CER CHIP RES 47K OHM 5% 0402
R507	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R601	0613952Z67	RES,MF,51KOHM,1%,.062 5W,SM,040
R602	0613952Z67	RES,MF,51KOHM,1%,.062 5W,SM,040
R603	0613952N12	CER CHIP RES 13.0K OHM 1 0402
R604	0613952Z58	RES,MF,22KOHM,1%,.062 5W,SM,040
R605	0613952N62	CER CHIP RES 43.2K OHM 1 0402
R606	0613952P12	CER CHIP RES 130K OHM 1 0402
R607	0613952N12	CER CHIP RES 13.0K OHM 1 0402
R608	0613952Z58	RES,MF,22KOHM,1%,.062 5W,SM,040
R609	0613952N62	CER CHIP RES 43.2K OHM 1 0402
R610	0613952P12	CER CHIP RES 130K OHM 1 0402
R611	0613952R18	CER CHIP RES 51K OHM 5 0402
R612	0613952R43	CER CHIP RES 560K OHM 5% 0402
R613	0613952R49	CER CHIP RES 1.0M OHM 5% 0402
R614	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R617	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R618	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R619	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R620	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R621	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R622	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R623	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R626	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R627	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R631	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R632	0613952R25	CER CHIP RES 100K OHM 5% 0402

Circuit Ref	Motorola Part No.	Description
R633	0613952R25	CER CHIP RES 100K OHM 5% 0402
R646	0613952R25	CER CHIP RES 100K OHM 5% 0402
R647	0613952Q84	CER CHIP RES 3000 OHM 5 0402
R648	0613952R25	CER CHIP RES 100K OHM 5% 0402
R649	0613952R17	CER CHIP RES 47K OHM 5% 0402
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z21	SWITCH, FREQUENCY
S502	1880619Z06	POTENTIOMETER, VOLUME
SH100	2680507Z02	SHIELD, HARMONIC FILTER
SH101	2680510Z02	SHIELD, PA
SH201	2680511Z02	SHIELD, SYNTHESIZER
SH202	2680511Z02	SHIELD, SYNTHESIZER
SH241	2604120G02	AOBA VCO SHIELD
SH242	2680514Z02	SHIELD, VCO BOTTOM/ LVZIF
SH301	2686583Z02	SHIELD, RECEIVER FRONT END TOP
SH302	2680555Z02	SHIELD, RECEIVER F/END BOTTOM
SH303	2680509Z02	SHIELD, MIXER
SH304	2680624Z02	SHIELD, MIXER DIODE
SH322	2686528Z02	SHIELD, IF SECTION
SH323	2686527Z02	SHIELD, RFI/EMI, CRS, TIN
SH400	2680505Z02	SHIELD, CONTROLLER TOP LEFT
SH401	2680506Z02	SHIELD, CONTROLLER TOP RIGHT
SH402	2680515Z02	SHIELD, CONTROLLER BOTTOM LEFT
SH403	2680516Z02	SHIELD, CONTROLLER BTM RIGHT
T301	2515121H01	BALUN, TRANSFORMER W18 COMP
T302	2515121H01	BALUN, TRANSFORMER W18 COMP
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIV
U102	5185765B26	IC PWR CTRL IN MOS20
U201	5185177Y01	IC TESTED AT25016 48 PIN W18
U210	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U211	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U241	5105750U56	IC PKG DIE VCO BUFFER
U247	5115026H01	MAX SUPPLY VOL 16V
U248	5115019H01	3.3V REGULATOR IN SOT23-5 PKG
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U302	5115070H01	IC 3-INV LMOS TC7W04FU
U303	NOTPLACED	GCAM DUMMY PART NUMBER
U400	5115012H01	MAX SUPPLY VOL 30V
U404	5115062H01	IC ASFIC_CMP
U405	NOTPLACED	GCAM DUMMY PART NUMBER
U406	5115250H02	NEED CGISS DESCRIPTION IN ICCS
U407	5115033H01	16K X 8 SPI SERIAL ROM
U409	5185143E03	HC11FL0 (3V) ASIC MICRO-P
U410	5115044H01	REGULATOR 3.3V,ILC7062CM-33
U420	5115280H01	AUDIO AMPLIFIER TDA8547TS
U602	5115014H01	CMOS,MAX SUPPLY VOL 15.5V
VR432	4813979P10	DIODE ARRAY,TRANSIENT PROTECTI
VR433	4813979P10	DIODE ARRAY,TRANSIENT PROTECTI
VR434	4815038H01	ZENER DIODE-6.8V
VR439	4813977M21	DIODE,ZEN,MBZ5242,SM, SOT-23,12
VR440	4815038H01	ZENER DIODE-6.8V
VR441	4815038H01	ZENER DIODE-6.8V
VR442	4815038H01	ZENER DIODE-6.8V
VR443	4815038H01	ZENER DIODE-6.8V
VR444	4815038H01	ZENER DIODE-6.8V
VR445	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR446	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR447	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR448	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR449	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR450	4815040H01	ZENER DIODE-12V
VR460	4815038H01	ZENER DIODE-6.8V
VR501	4813977M14	DIODE,ZEN,MBZ5235,SM, SOT-23,6.
VR506	4815038H01	ZENER DIODE-6.8V
Y300	4802245J84	XTAL 44.395MHZ, 3RD OT, SMD
Y301	9186145B02	CER.DISCR. CDBCA455CX36-TC

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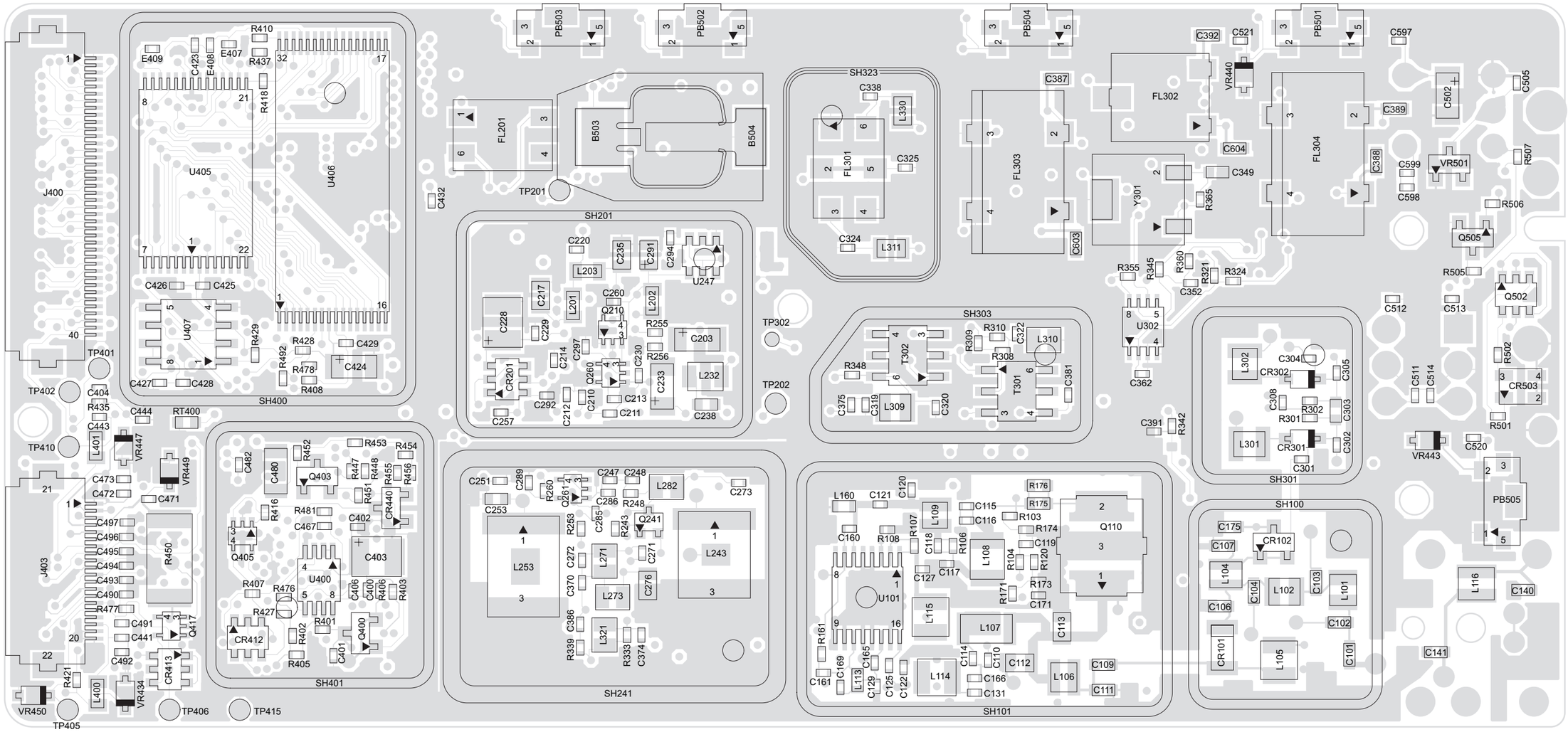
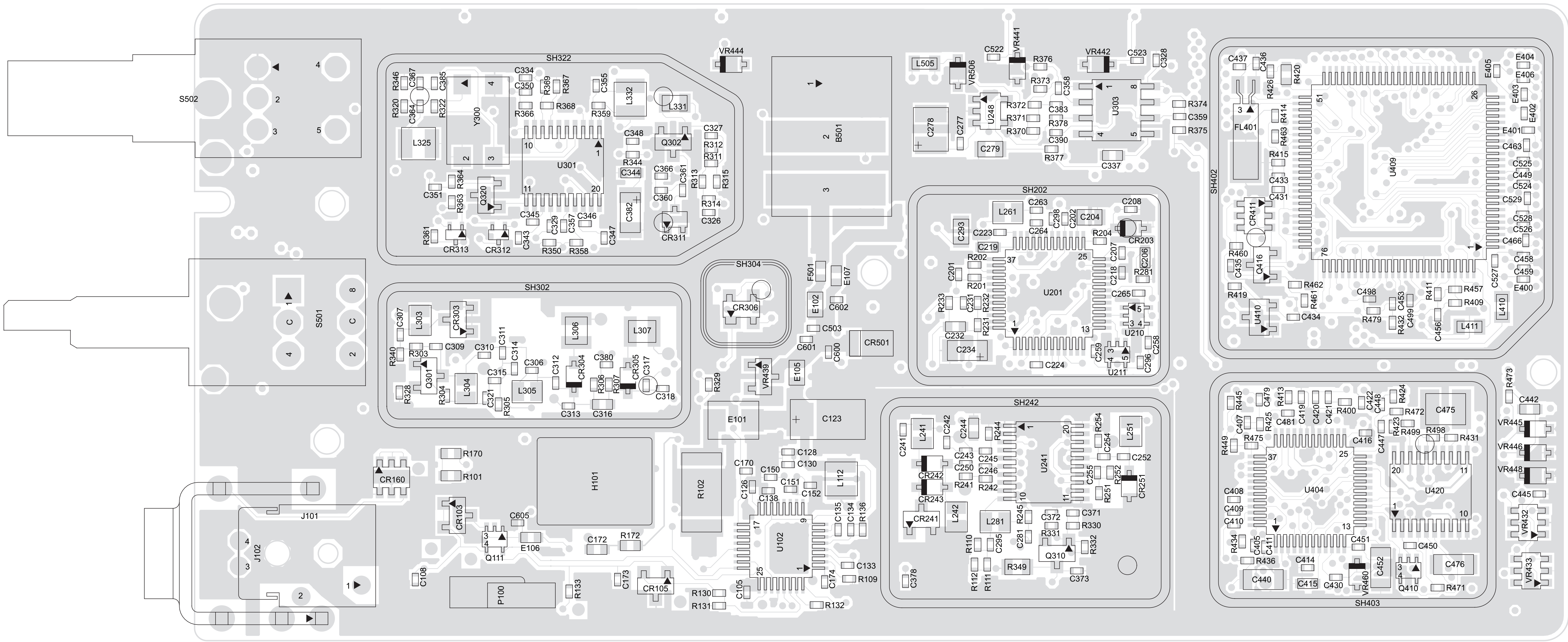
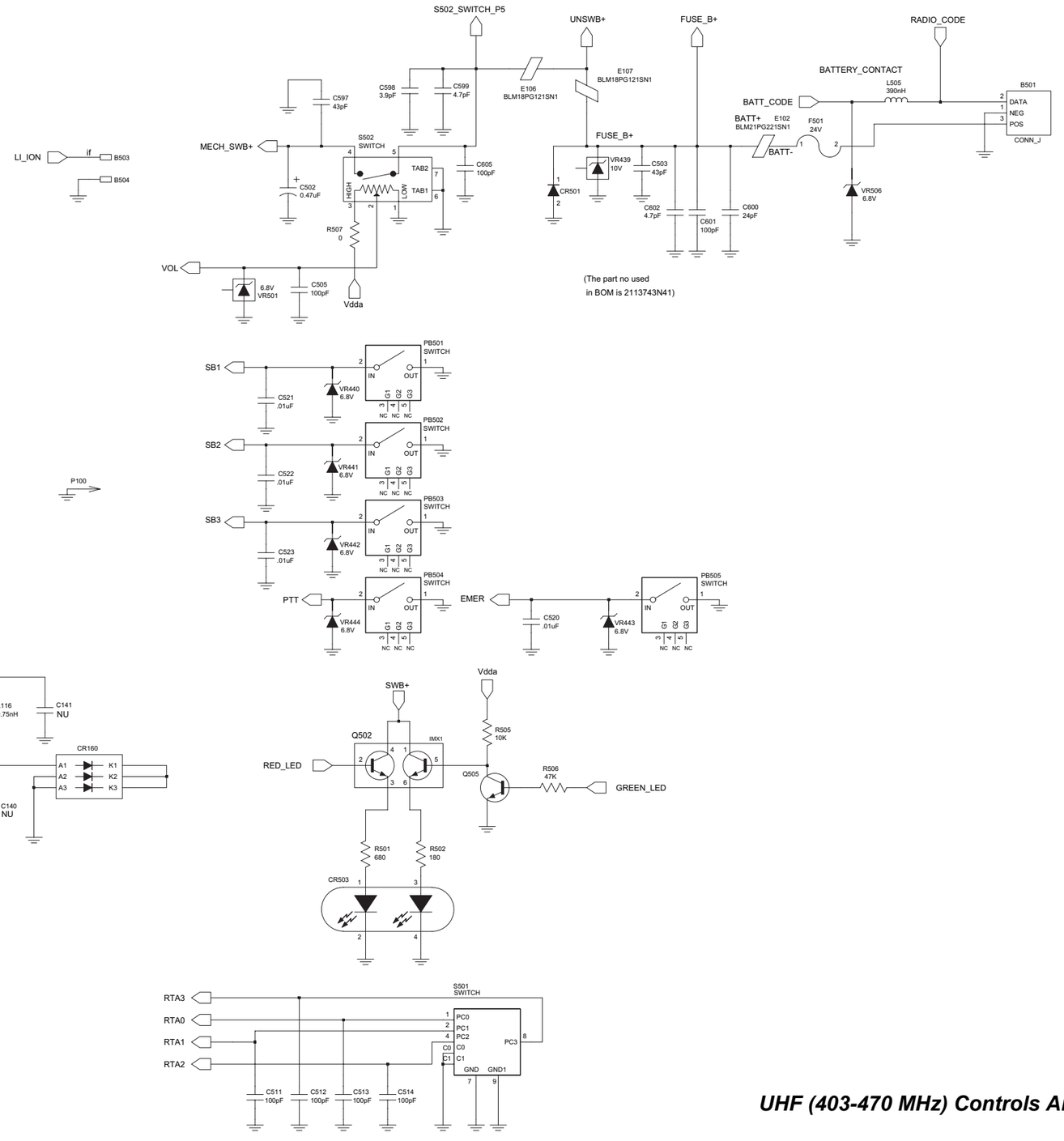
20.0 UHF PCB 8415234H08 Schematics



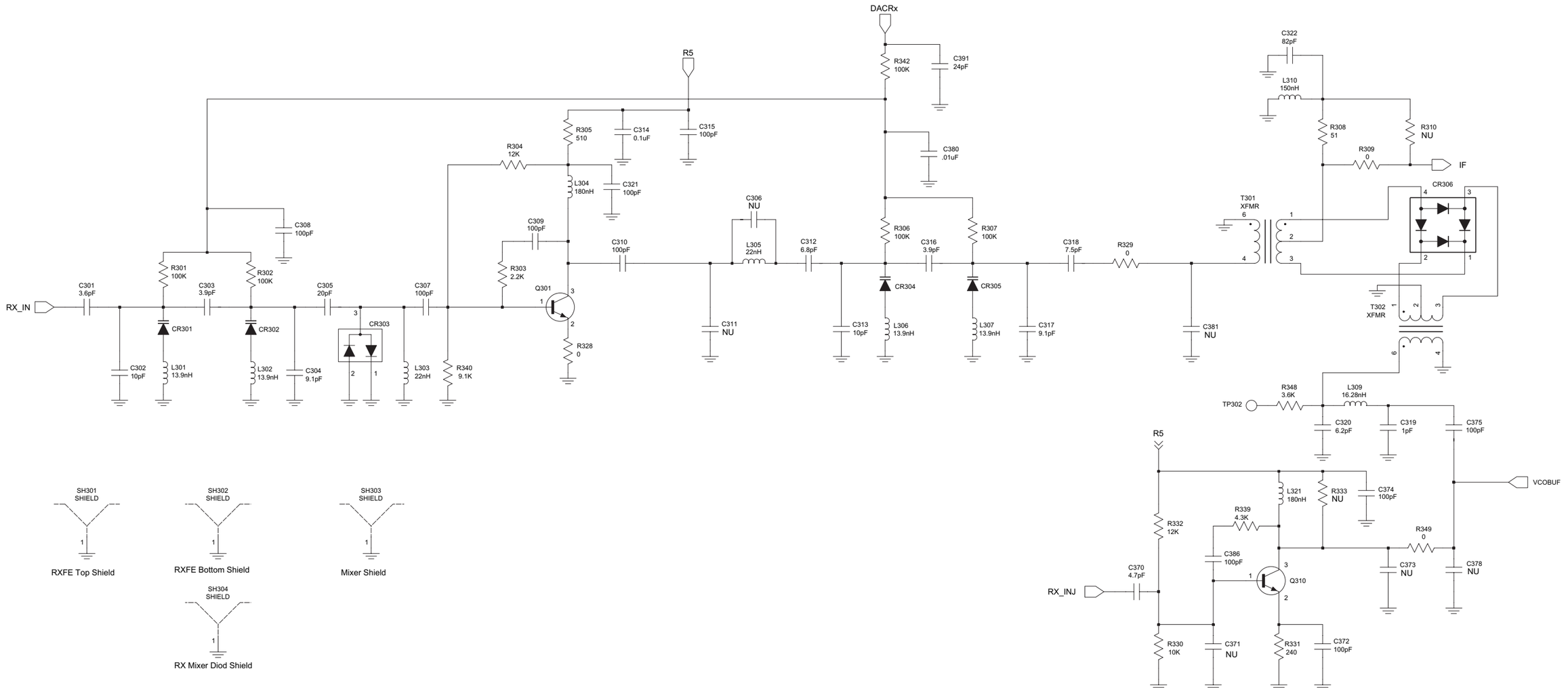
UHF (403-470MHz) Main Board Top Side



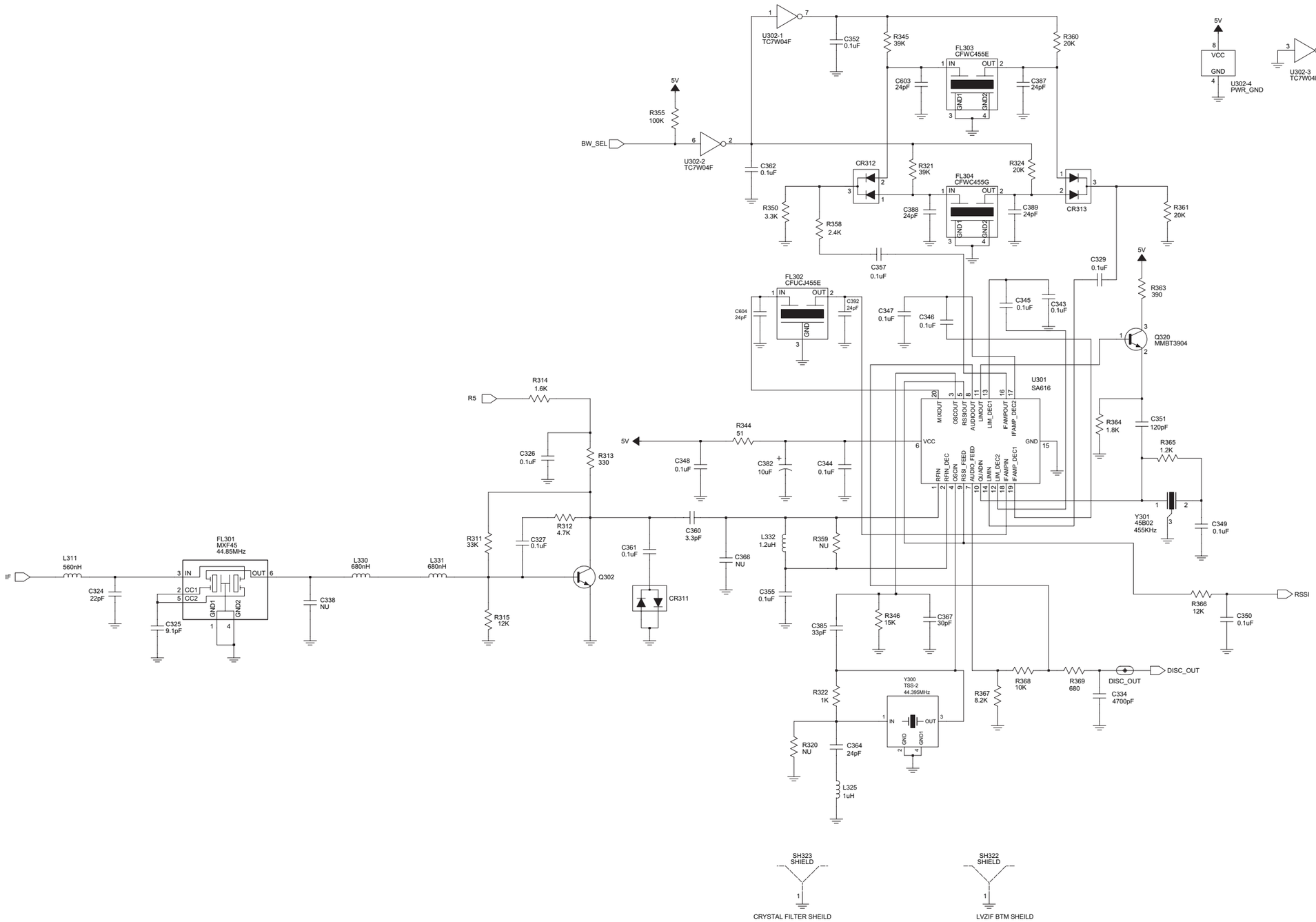
UHF (403-470MHz) Main Board Bottom Side



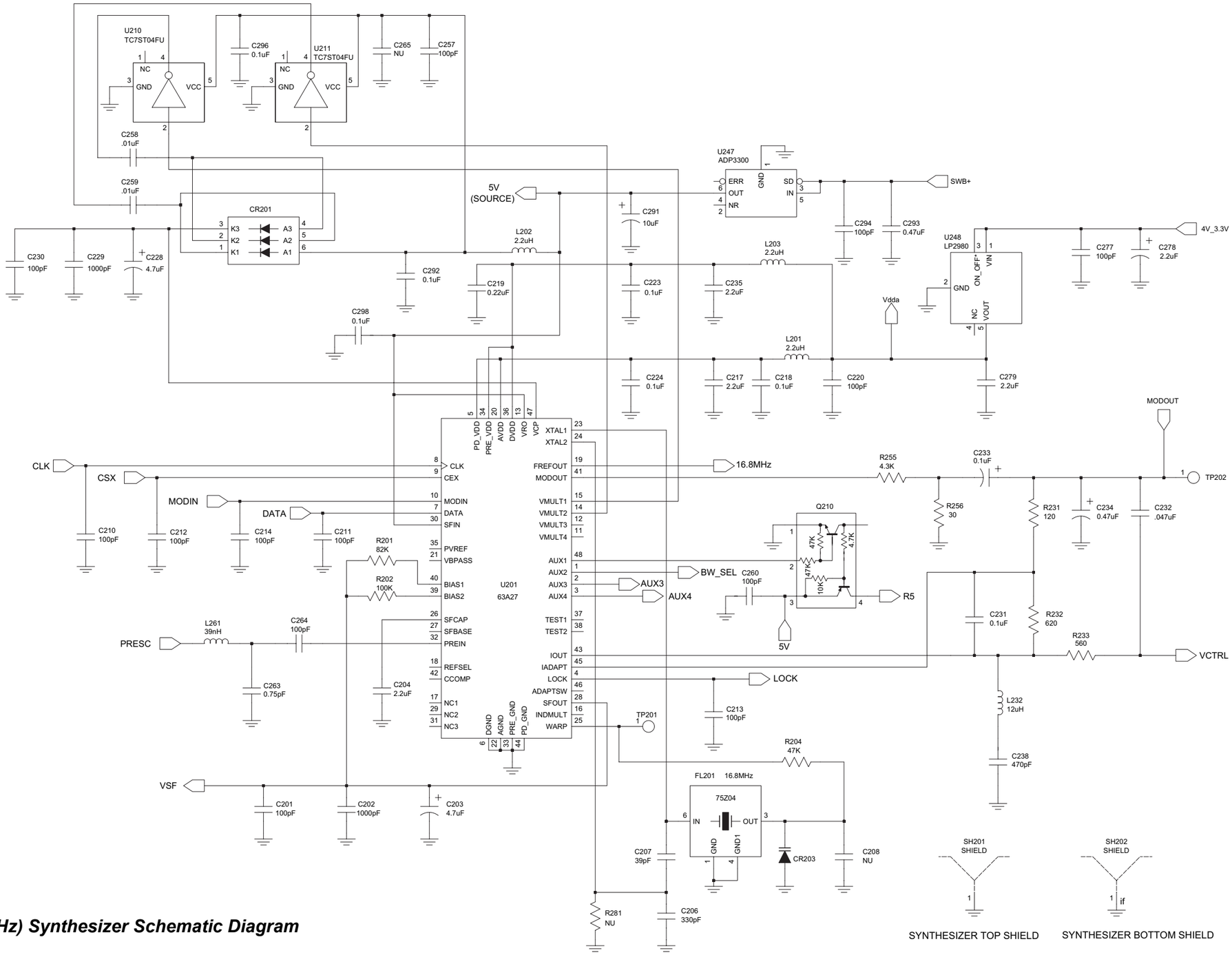
UHF (403-470 MHz) Controls And Switches Schematic Diagram



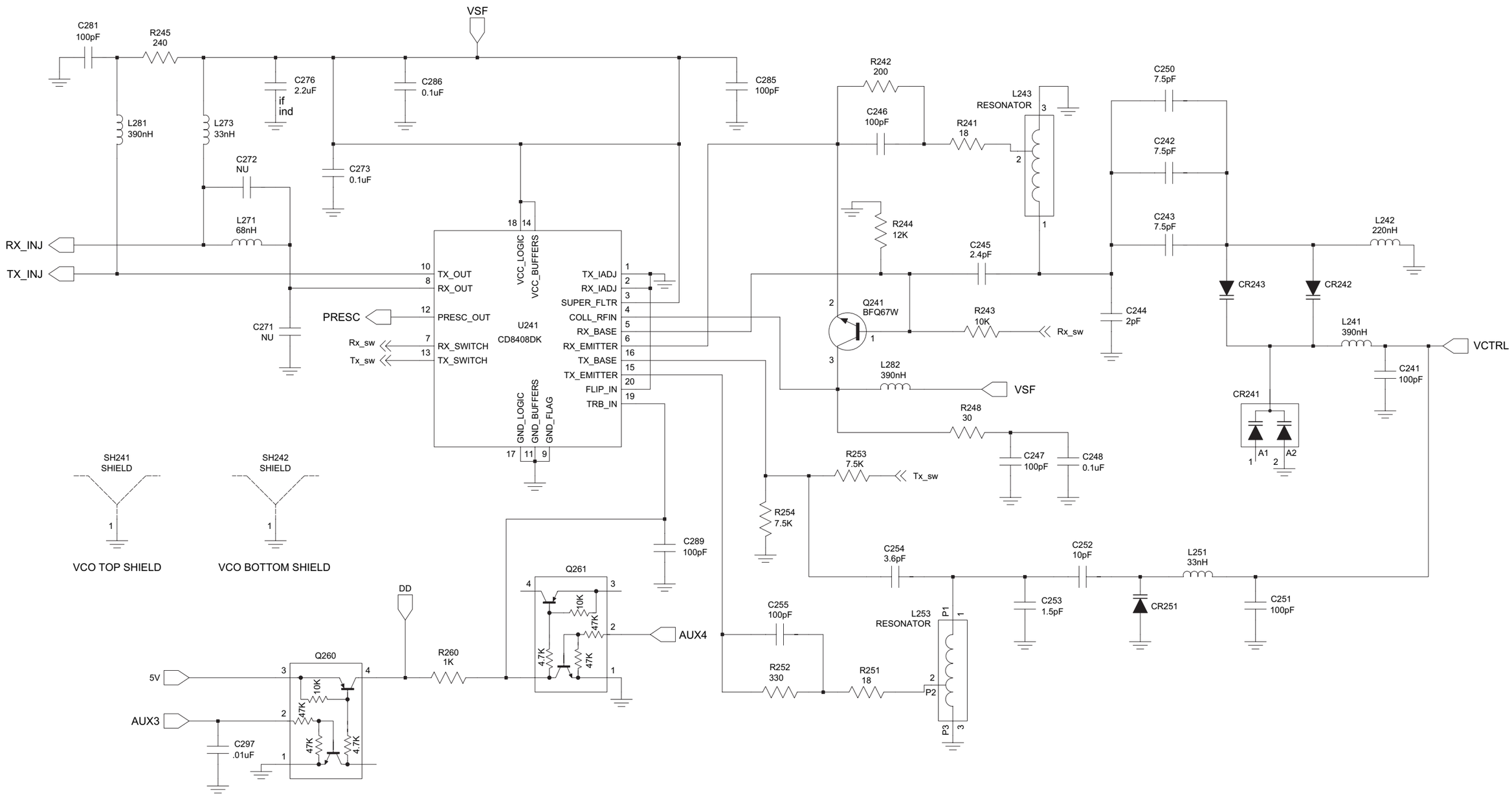
UHF (403-470 MHz) Receiver Front End



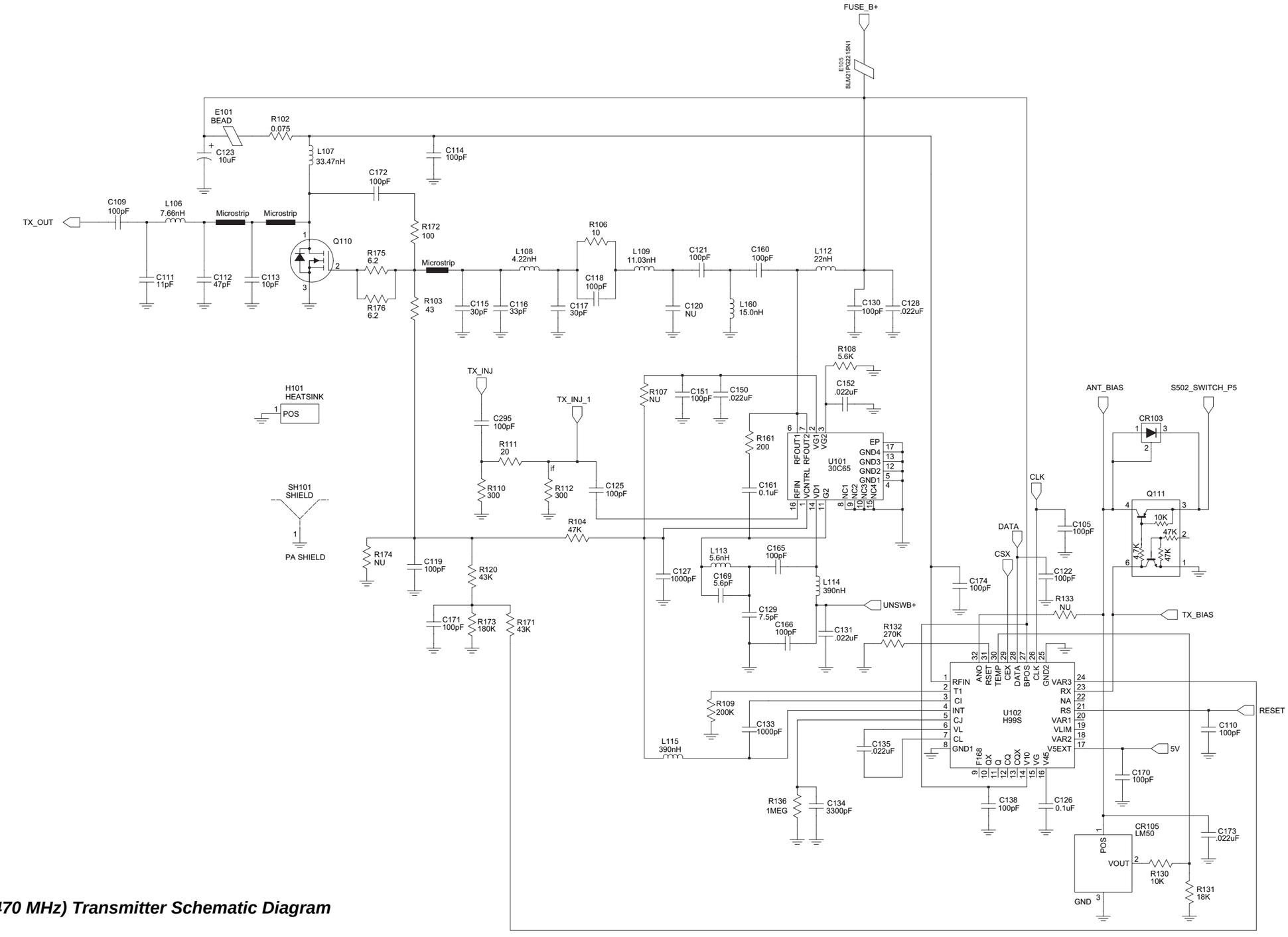
UHF (403-470 MHz) Receiver Back End Schematic Diagram



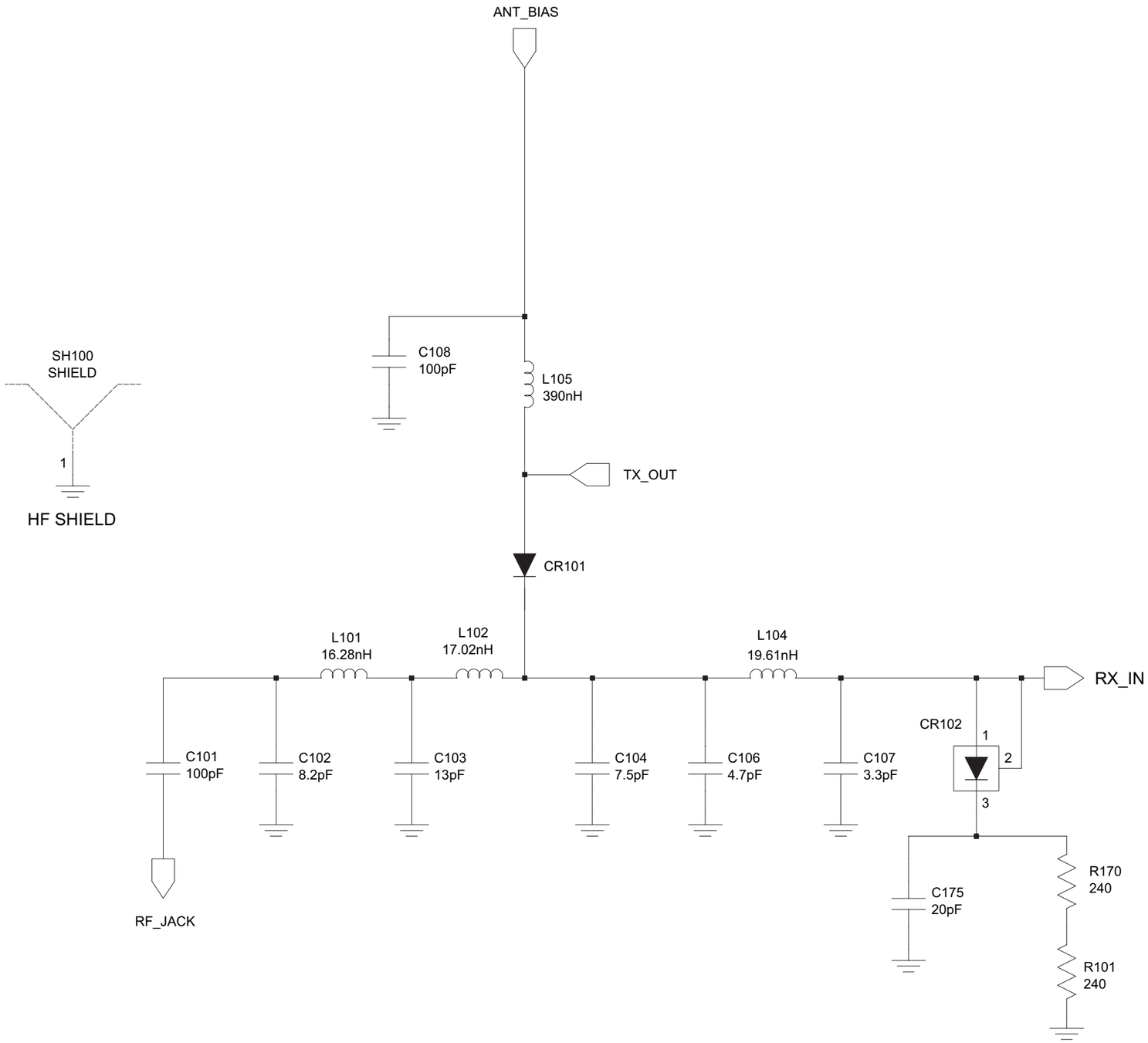
UHF (403-470 MHz) Synthesizer Schematic Diagram



UHF (403-470 MHz) Voltage Controlled Oscillator Schematic Diagram



UHF (403-470 MHz) Transmitter Schematic Diagram



UHF (403-470 MHz) Harmonic Filter Schematic Diagram

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21.0 UHF PCB 8415234H08 Parts List

Circuit Ref	Motorola Part No.	Description
	8415234H05	PC BOARD, UHF BAND 1
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944M16	CAP,FXD,8.2PF,.1PF+/-,50V-DC,0603,C0G,-55DEG CMIN,125DEG CMAX
C103	2113944M21	CAP,FXD,13PF,,+2%,-2%,50V-DC,0603,C
C104	2113944M15	CAP,FXD,7.5PF,.1PF+/-,50V-DC,0603,C0G,-55DEG CMIN,125DEG CMAX
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2113944C32	CAP CER CHP 15.0PF 50V 5%
C112	2115937H04	HIGH Q CHIP CAPACITOR, 47PF
C113	2115937H01	HIGH Q CHIP CAPACITOR, 10PF
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C116	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C117	2113944A29	CAP CER CHP 22.0PF 50V 5%
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,04
C121	2113944A40	CAP CER CHP 100.0PF 50V 5%
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2313960F04	CAP TANT 33 UF 10% 16V 6032-28
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946K02	CAP CER CHP 0.10UF 16V
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C129	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C140	0613952H91	CER CHIP RES 5600 OHM 5 0603
C141	NOTPLACED	GCAM DUMMY PART NUMBER
C150	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C151	2113944A40	CAP CER CHP 100.0PF 50V 5%
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C160	2113944A40	CAP CER CHP 100.0PF 50V 5%
C161	2113946K02	CAP CER CHP 0.10UF 16V
C165	2113944A40	CAP CER CHP 100.0PF 50V 5%
C166	2113944A40	CAP CER CHP 100.0PF 50V 5%
C169	2113944A19	CAP CER CHP 5.6PF 50V +/- 0.5P
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113944A40	CAP CER CHP 100.0PF 50V 5%
C172	2113944C45	CAP CER CHP 100.0PF 50V 5%
C173	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C175	2113944C45	CAP CER CHP 100.0PF 50V 5%
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2113946H01	CAP CER CHP 4.7UF 10V 10%
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A33	CAP CER CHP 47.0PF 50V 5%
C208	NOTPLACED	GCAM DUMMY PART NUMBER
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP,FXD,4.7UF,+10%,-10%,16V-DC
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%
C231	2113946K02	CAP CER CHP 0.10UF 16V
C232	2113945D02	CAP CER CHP 47,000PF 25V 10%

Circuit Ref	Motorola Part No.	Description
C233	2313960A26	CAP,FXD,.1UF,+10%,-10%,35V-DC,
C234	2313960A55	CAP,FXD,.47UF,+10%,-10%,25V-DC
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%,50V-DC,0
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C243	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C244	2113944C13	CAP CER CHP 2.0PF 50V +/- 0.25
C245	2113944A10	CAP CER CHP 2.4PF 50V +/- 0.25
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C253	2113944C12	CAP CER CHP 1.8PF 50V +/- 0.25
C254	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/-,50V-DC,
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C265	NOTPLACED	GCAM DUMMY PART NUMBER
C271	NOTPLACED	GCAM DUMMY PART NUMBER
C272	NOTPLACED	GCAM DUMMY PART NUMBER
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP,FXD,10,+10,-10,16,SM,,-55M
C279	2113946N03	CAP CER CHP 2.2UF 16V
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%
C286	2113946K02	CAP CER CHP 0.10UF 16V
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP,FXD,10UF,+10%,-10%,6.3V-DC
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-DC
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25
C302	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C303	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25
C304	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C305	2113944A80	CAP,FXD,20PF,+5%,-5%,50V-DC,04
C306	NOTPLACED	GCAM DUMMY PART NUMBER
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOTPLACED	GCAM DUMMY PART NUMBER
C312	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C313	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25
C317	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C318	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C319	2113944A11	CAP CER CHP 2.7PF 50V +/- 0.25
C320	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,04
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2113944A29	CAP CER CHP 22.0PF 50V 5%
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C328	2113946K02	CAP CER CHP 0.10UF 16V
C329	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C337	NOTPLACED	GCAM DUMMY PART NUMBER
C338	NOTPLACED	GCAM DUMMY PART NUMBER
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945D04	CAP CER CHP 100,000PF 25V 10%
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V
C348	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C349	2113945D04	CAP CER CHP 100,000PF 25V 10%
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C352	2113946K02	CAP CER CHP 0.10UF 16V
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C358	NOTPLACED	GCAM DUMMY PART NUMBER
C359	NOTPLACED	GCAM DUMMY PART NUMBER
C360	2113944A13	CAP CER CHP 3.3PF 50V +/- 0.25
C361	2113946K02	CAP CER CHP 0.10UF 16V
C362	2113946K02	CAP CER CHP 0.10UF 16V
C364	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C366	NOTPLACED	GCAM DUMMY PART NUMBER
C367	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,04
C370	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25
C371	NOTPLACED	GCAM DUMMY PART NUMBER
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOTPLACED	GCAM DUMMY PART NUMBER
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%
C375	2113944A40	CAP CER CHP 100.0PF 50V 5%
C378	NOTPLACED	GCAM DUMMY PART NUMBER

Circuit Ref	Motorola Part No.	Description
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOTPLACED	GCAM DUMMY PART NUMBER
C382	2313960B57	CAP,FXD,10UF,+10%,-10%,6.3V-DC
C383	NOTPLACED	GCAM DUMMY PART NUMBER
C385	2113944A31	CAP CER CHP 33.0PF 50V 5%
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C387	2113944C83	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C388	2113944C84	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C389	2113944C85	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C390	NOTPLACED	GCAM DUMMY PART NUMBER
C391	2113944A81	CAP CHIP 24.0 PF 5% COG
C392	2113944C86	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C400	2113944A40	CAP CER CHP 100.0PF 50V 5%
C401	2113946K02	CAP CER CHP 0.10UF 16V
C402	2113944F54	CAP, 33PF
C403	2113944C81	CAP, 24PF
C404	NOTPLACED	GCAM DUMMY PART NUMBER

Circuit Ref	Motorola Part No.	Description
C405	2113944A40	CAP CER CHP 100.0PF 50V 5%
C406	NOTPLACED	GCAM DUMMY PART NUMBER
C407	2113946B04	CAP CER CHP 0.10UF 10V 10%
C408	2113944A40	CAP CER CHP 100.0PF 50V 5%
C409	2113946K02	CAP CER CHP 0.10UF 16V
C410	2113946B04	CAP CER CHP 0.10UF 10V 10%
C411	2113946K02	CAP CER CHP 0.10UF 16V
C414	2113946K02	CAP CER CHP 0.10UF 16V
C415	2185895Z01	CAPACITOR CER LOW DIST .01UF
C416	2113946B04	CAP CER CHP 0.10UF 10V 10%
C419	NOTPLACED	GCAM DUMMY PART NUMBER
C420	2113945B02	CAP CER CHP 10,000PF 25V 10%
C421	2113946B04	CAP CER CHP 0.10UF 10V 10%
C422	2113946K02	CAP CER CHP 0.10UF 16V
C423	2113944A40	CAP CER CHP 100.0PF 50V 5%
C424	2313960B57	CAP,FXD,10UF,+10%,-10%,6.3V-DC
C425	2113946K02	CAP CER CHP 0.10UF 16V
C426	2113944A40	CAP CER CHP 100.0PF 50V 5%
C427	2113944A40	CAP CER CHP 100.0PF 50V 5%
C428	2113946K02	CAP CER CHP 0.10UF 16V
C429	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C430	2113946B04	CAP CER CHP 0.10UF 10V 10%
C431	2113944A40	CAP CER CHP 100.0PF 50V 5%
C432	NOTPLACED	GCAM DUMMY PART NUMBER
C433	2113945B02	CAP CER CHP 10,000PF 25V 10%
C434	2113946B04	CAP CER CHP 0.10UF 10V 10%
C435	2113946K02	CAP CER CHP 0.10UF 16V
C436	2113944A29	CAP CER CHP 22.0PF 50V 5%
C437	2113944A29	CAP CER CHP 22.0PF 50V 5%
C440	2113946Q01	CAP CER CHP 4.7UF 16V
C441	2113944A40	CAP CER CHP 100.0PF 50V 5%
C442	2113945D04	CAP CER CHP 100,000PF 25V 10%
C443	2113946B04	CAP CER CHP 0.10UF 10V 10%
C444	2113944A40	CAP CER CHP 100.0PF 50V 5%
C445	2113944A40	CAP CER CHP 100.0PF 50V 5%
C447	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C448	2113946B04	CAP CER CHP 0.10UF 10V 10%
C449	2113944A40	CAP CER CHP 100.0PF 50V 5%
C450	NOTPLACED	GCAM DUMMY PART NUMBER
C451	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D

Circuit Ref	Motorola Part No.	Description
C452	2113955D31	CAP,FXD,1UF,,+10%,-10%,16V-DC,
C453	2113944A40	CAP CER CHP 100.0PF 50V 5%
C456	2113944A40	CAP CER CHP 100.0PF 50V 5%
C458	2113944A40	CAP CER CHP 100.0PF 50V 5%
C459	2113944A40	CAP CER CHP 100.0PF 50V 5%
C463	2113944A40	CAP CER CHP 100.0PF 50V 5%
C466	2113944A40	CAP CER CHP 100.0PF 50V 5%
C467	2113946B04	CAP CER CHP 0.10UF 10V 10%
C471	2113944A40	CAP CER CHP 100.0PF 50V 5%
C472	2113945A05	CAP CER CHP 470PF 50V 10%
C473	2113945A05	CAP CER CHP 470PF 50V 10%
C475	2113956E91	CAP,FXD,10UF,+10%,-10%,16V-DC,
C476	2113946R01	CAP CER CHP 10.0UF 10V
C479	2113946B04	CAP CER CHP 0.10UF 10V 10%
C480	2113946R01	CAP CER CHP 10.0UF 10V
C481	2113946B04	CAP CER CHP 0.10UF 10V 10%
C482	2113946B04	CAP CER CHP 0.10UF 10V 10%
C490	2113944A40	CAP CER CHP 100.0PF 50V 5%
C491	2113944A40	CAP CER CHP 100.0PF 50V 5%
C492	2113944A40	CAP CER CHP 100.0PF 50V 5%
C493	2113944A40	CAP CER CHP 100.0PF 50V 5%
C494	2113944A40	CAP CER CHP 100.0PF 50V 5%
C495	2113944A40	CAP CER CHP 100.0PF 50V 5%
C496	2113944A40	CAP CER CHP 100.0PF 50V 5%
C497	2113944A40	CAP CER CHP 100.0PF 50V 5%
C498	NOTPLACED	GCAM DUMMY PART NUMBER
C499	2113946B04	CAP CER CHP 0.10UF 10V 10%
C502	2313960A55	CAP,FXD,.47UF,+10%,-10%,25V-DC
C503	2113944A84	CAP,FXD,43PF,+5%,-5%,50V-DC,04
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C524	2113944A40	CAP CER CHP 100.0PF 50V 5%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%
C597	2113944A84	CAP,FXD,43PF,+5%,-5%,50V-DC,0402,C0
C598	2113944A15	CAP CER CHP 3.9PF 50V +/- 0.25
C599	2113944A15	CAP CER CHP 4.7PF 50V +/- 0.25
C600	2113944A81	CAP CHIP 24.0 PF 5% COG
C601	2113944A40	CAP CHIP 100 PF 5% COG
C602	2113944A17	CAP CHIP 4.7 PF +-.25PF COG
C603	2113944C81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C604	2113944C82	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C605	2113944A40	CAP CER CHP 100.0PF 50V 5%
C610	2113944A40	CAP CER CHP 100.0PF 50V 5%
C611	2113944A40	CAP CER CHP 100.0PF 50V 5%
C612	2113944A40	CAP CER CHP 100.0PF 50V 5%
C613	2113944A40	CAP CER CHP 100.0PF 50V 5%
C615	2113944A40	CAP CER CHP 100.0PF 50V 5%
C616	2113944A40	CAP CER CHP 100.0PF 50V 5%
C618	2113944A40	CAP CER CHP 100.0PF 50V 5%
C619	2113944A40	CAP CER CHP 100.0PF 50V 5%
C620	2113944A40	CAP CER CHP 100.0PF 50V 5%
C621	2113944A40	CAP CER CHP 100.0PF 50V 5%
C622	2113944A40	CAP CER CHP 100.0PF 50V 5%
CR101	4880973Z02	PIN DIODE
CR102	4815257H01	SURFACE MOUNT PIN DIODES
CR103	4815257H01	SURFACE MOUNT PIN DIODES
CR105	5115022H01	IC TEMPERATURE SENSOR
CR160	NOTPLACED	GCAM DUMMY PART NUMBER
CR201	4815011H01	DIODE TRIPLE
CR203	4815072H01	DIODE VARACTOR
CR241	4885094Y01	DIODE VARACTOR ISV228 W18
CR242	4815279H01	BBY5503WE6327 FROM INFINEON
CR243	4815279H01	BBY5503WE6327 FROM INFINEON
CR251	4815322H01	VHF VARIABLE CAPACITANCE DIODE

Circuit Ref	Motorola Part No.	Description
CR301	4815279H01	BBY5503WE6327 FROM INFINEON
CR302	4815279H01	BBY5503WE6327 FROM INFINEON
CR303	4815048H01	SOT MMBD353 DIODE DUAL SCHT
CR304	4815279H01	BBY5503WE6327 FROM INFINEON
CR305	4815279H01	BBY5503WE6327 FROM INFINEON
CR306	4815923H02	SCHOTTKY DIODE-NEW LEADFREE
CR311	4813974A19	DIODE ARRAY,MXR,SM,SOT-323,7V,
CR312	4815047H01	BAND SWITCHIND DIODE,ROHM DAN
CR313	4815047H01	BAND SWITCHIND DIODE,ROHM DAN
CR411	4815067H01	DIODE SCHOTTKY, RB731U
CR412	4815067H01	DIODE SCHOTTKY, RB731U
CR413	4815067H01	DIODE SCHOTTKY, RB731U
CR440	4813978C02	PB FREE, NOT COMPLETELY ENRICH
CR501	4815155H01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
E101	2415954H01	INDUCTOR BEAD CHIP
E102	7686949J14	FLTR,FERRITE BEAD,2A,SM
E105	7686949J14	FLTR,FERRITE BEAD,,,,2A,,,,,SM,0805
E106	7686949J15	FLTR, FERR,,,, 2A,,,, SM, 0603
E107	7686949J15	FLTR, FERR,,,, 2A,,,, SM, 0603
E400	2480640Z01	SURFACE MOUNT FERRITE BEAD
E401	2480640Z01	SURFACE MOUNT FERRITE BEAD
E402	2480640Z01	SURFACE MOUNT FERRITE BEAD
E403	2480640Z01	SURFACE MOUNT FERRITE BEAD
E404	2480640Z01	SURFACE MOUNT FERRITE BEAD
E405	2480640Z01	SURFACE MOUNT FERRITE BEAD
E406	2480640Z01	SURFACE MOUNT FERRITE BEAD
E407	2480640Z01	SURFACE MOUNT FERRITE BEAD
E408	2480640Z01	SURFACE MOUNT FERRITE BEAD
E409	2480640Z01	SURFACE MOUNT FERRITE BEAD
E634	2480640Z01	SURFACE MOUNT FERRITE BEAD
E637	2480640Z01	SURFACE MOUNT FERRITE BEAD
E638	2480640Z01	SURFACE MOUNT FERRITE BEAD
E639	2480640Z01	SURFACE MOUNT FERRITE BEAD
E640	2480640Z01	SURFACE MOUNT FERRITE BEAD
E641	2480640Z01	SURFACE MOUNT FERRITE BEAD
E642	2480640Z01	SURFACE MOUNT FERRITE BEAD
E643	2480640Z01	SURFACE MOUNT FERRITE BEAD
E644	2480640Z01	SURFACE MOUNT FERRITE BEAD
E645	2480640Z01	SURFACE MOUNT FERRITE BEAD
F501	6515076H01	FUSE CHIP SMT TR/ 1608FF 3A
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL302	9180468V04	SMD455KHZ 4 ELEMENT CER FLTR
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
FL401	4870368G02	REFLOWABLE CLOCK OSC XTAL
H101	2680499Z02	HEAT SPREADER
J101	0985613Z01	JACK, RF
J102	0280519Z06	NUT, ANTENNA
J400	0915064H03	CONNECTOR, ZIF (40 PINS)
J403	0915064H02	ZIF (20 PINS)
J601	0980521Z03	CONN, ZIF VERTICAL, 40PINS
J602	0915064H01	ZIF (18 PINS)
L101	2460591C16	COIL AIR WOUND INDUC 16.28NH
L102	2460591C40	COIL AIR WOUND INDUC 17.02NH
L104	2479990B02	AIR WOUND COIL/GREEN COLOR 19.
L105	2414032B22	IDCTR,WW,390NH,10%,620MA,1.12O
L106	2479990A02	AIR WND COIL/GREEN COLOR7.66NH
L107	2479990G01	AIR WOUND COIL/GREEN COLOR 33.
L108	2479990A01	AIR WOUND COIL/GREEN COLOR 4.2
L109	2479990B01	AIR WOUND COIL/GREEN COLOR 11.
L112	2414032B45	IDCTR,WW,22NH,5%,1A,.12OHM,CER
L113	2414017N09	IDCTR,CHIP,5.6NH,600MA,.2OHM,C
L114	2414032B45	IDCTR,WW,22NH,5%,1A,.12OHM,CER
L115	2414032B22	IDCTR,WW,390NH,10%,620MA,1.12O
L116	2479990A03	AIR WOUND COIL/GREEN COLOR 9.7
L160	2414017N14	IDCTR,CHIP,15NH,5%,600MA,.4OHM
L201	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH
L202	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH
L203	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH
L232	2414032L25	IDCTR,WW,12UH,5%,150MA,3.8OHM,
L241	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L242	2414032F38	IDCTR,WW,220NH,5%,400MA,.7OHM,
L243	2485776Z01	COIL TEFLON RESONATOR (KAPTON)
L251	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,

Circuit Ref	Motorola Part No.	Description
L253	2460593C02	COIL MULT LAYERED TAP TEF RESN
L261	2414032F29	IDCTR,WW,39NH,5%,500MA,.29OHM,
L271	2414032F32	IDCTR,WW,68NH,5%,500MA,.38OHM,
L273	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,
L281	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L282	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L301	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L302	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L303	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,
L304	2414032F37	IDCTR,WW,180NH,5%,400MA,.64OHM
L305	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,
L306	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L307	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L309	2479990C02	AIR WOUND COIL/GREEN COLOR 16.
L310	2414032F36	IDCTR,WW,150NH,5%,400MA,.56OHM
L311	2414017K32	IDCTR,CHIP,560NH,5%,50MA,5OHM,
L321	2414032F37	IDCTR,WW,180NH,5%,400MA,.64OHM
L325	2414032B68	IDCTR,WW,1UH,5%,460MA,1.75OHM,
L330	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
L331	2414017K33	IDCTR,CHIP,680NH,5%,50MA,5.5OH
L332	2414015A25	IDCTR,CHIP,1.2UH,2%,440MA,2OHM
L400	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L401	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L410	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L411	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L505	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
M400	5085738Z10	SPEAKER, 20 OHM
M401	5015027H01	MIC, MINI ELECTRIC
P100	3905643V01	CONTACT ANT GRD
PB501	4086470Z01	TACT SWITCH
PB502	4086470Z01	TACT SWITCH
PB503	4086470Z01	TACT SWITCH
PB504	4086470Z01	TACT SWITCH
PB505	4086470Z01	TACT SWITCH
Q110	4813976A03	450MHZ 8W 7.5V PLD-1.5 T&R
Q111	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q210	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q261	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q301	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q302	4802197J95	RF TRANSISTOR PBR941
Q310	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q320	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
Q400	4815069H02	TSTR MOSFET P-CHAN
Q403	4813973A13	XSTR,BIP GP SS,,PNP,,TO-236,SO
Q405	4815066H01	UMG5N DIGITAL TRANSISTOR
Q410	4815066H01	UMG5N DIGITAL TRANSISTOR
Q416	4815069H02	TSTR MOSFET P-CHAN
Q417	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q502	4815154H01	DUAL TRANS NPN
Q505	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
Q601	4815125H01	SOT STR RH LOW PROFILE MMBT
Q602	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
Q603	4813973M07	XSTR,BIP GP SS,,NPN,,TO-236,,,
R101	0613952H58	CER CHIP RES 240 OHM 5 0603
R102	0615043C01	RES POWER METAL STRIP W18 COMP
R103	0613952Q40	CER CHIP RES 43.0 OHM 5 0402
R104	0613952R17	CER CHIP RES 47K OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5 0402
R107	NOTPLACED	GCAM DUMMY PART NUMBER
R108	0613952Q91	CER CHIP RES 5600 OHM 5 0402
R109	0613952R32	CER CHIP RES 200K OHM 5 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5 0402
R111	0613952Q32	CER CHIP RES 20.0 OHM 5 0402
R112	0613952Q60	CER CHIP RES 300 OHM 5 0402
R120	0613952R16	CER CHIP RES 43K OHM 5 0402
R130	0613952R01	CER CHIP RES 10K OHM 5% 0402
R131	0613952R07	CER CHIP RES 18K OHM 5% 0402
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	NOTPLACED	GCAM DUMMY PART NUMBER
R136	NOTPLACED	GCAM DUMMY PART NUMBER
R161	0613952Q56	CER CHIP RES 200 OHM 5 0402
R170	0613952H58	CER CHIP RES 240 OHM 5 0603
R171	0613952R16	CER CHIP RES 43K OHM 5 0402
R172	0613952H49	CER CHIP RES 100 OHM 5% 0603
R173	0613952R31	CER CHIP RES 180K OHM 5% 0402
R174	0613952R17	CER CHIP RES 47K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5 0603

Circuit Ref	Motorola Part No.	Description
R201	0613952R23	CER CHIP RES 82K OHM 5% 0402
R202	0613952R25	CER CHIP RES 100K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402
R231	0613952Q51	CER CHIP RES 120 OHM 5 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5 0402
R241	0613952Q31	CER CHIP RES 18.0 OHM 5 0402
R242	0613952Q56	CER CHIP RES 200 OHM 5 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R03	CER CHIP RES 12K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5 0402
R251	0613952Q31	CER CHIP RES 18.0 OHM 5 0402
R252	0613952Q61	CER CHIP RES 330 OHM 5 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R254	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R255	0613952Q88	CER CHIP RES 4300 OHM 5 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R281	NOTPLACED	GCAM DUMMY PART NUMBER
R301	0613952R25	CER CHIP RES 100K OHM 5% 0402
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402
R303	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q66	CER CHIP RES 510 OHM 5 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5 0402
R309	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R310	NOTPLACED	GCAM DUMMY PART NUMBER
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5 0402
R314	0613952Q78	CER CHIP RES 1600 OHM 5 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOTPLACED	GCAM DUMMY PART NUMBER
R321	0613952R15	CER CHIP RES 39K OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R324	0613952R08	CER CHIP RES 20K OHM 5 0402
R328	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R329	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402
R331	0613952Q56	CER CHIP RES 200 OHM 5 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOTPLACED	GCAM DUMMY PART NUMBER
R339	0613952Q88	CER CHIP RES 4300 OHM 5 0402
R340	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5 0402
R345	0613952R15	CER CHIP RES 39K OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5 0402
R349	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R350	0613952Q85	CER CHIP RES 3300 OHM 5 0402
R355	0613952R25	CER CHIP RES 100K OHM 5% 0402
R358	0613952Q82	CER CHIP RES 2400 OHM 5 0402
R359	NOTPLACED	GCAM DUMMY PART NUMBER
R360	0613952R08	CER CHIP RES 20K OHM 5 0402
R361	0613952R08	CER CHIP RES 20K OHM 5 0402
R363	0613952Q63	CER CHIP RES 390 OHM 5 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952N09	CER CHIP RES 12.1K OHM 1 0402
R368	0613952N01	CER CHIP RES 10.0K OHM 1 0402
R369	0613952Q69	CER CHIP RES 680 OHM 5 0402
R370	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R371	NOTPLACED	GCAM DUMMY PART NUMBER
R372	NOTPLACED	GCAM DUMMY PART NUMBER
R373	NOTPLACED	GCAM DUMMY PART NUMBER
R374	NOTPLACED	GCAM DUMMY PART NUMBER
R375	NOTPLACED	GCAM DUMMY PART NUMBER
R376	NOTPLACED	GCAM DUMMY PART NUMBER
R377	NOTPLACED	GCAM DUMMY PART NUMBER
R378	NOTPLACED	GCAM DUMMY PART NUMBER
R400	0613952R17	CER CHIP RES 47K OHM 5% 0402

Circuit Ref	Motorola Part No.	Description
R401	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R402	NOTPLACED	GCAM DUMMY PART NUMBER
R403	NOTPLACED	GCAM DUMMY PART NUMBER
R405	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R406	0613952R22	CER CHIP RES 75K OHM 5 0402
R407	0613952R21	CER CHIP RES 68K OHM 5% 0402
R408	NOTPLACED	GCAM DUMMY PART NUMBER
R409	0613952R01	CER CHIP RES 10K OHM 5% 0402
R410	0613952R25	CER CHIP RES 100K OHM 5% 0402
R411	0613952R01	CER CHIP RES 10K OHM 5% 0402
R413	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R414	0613952P25	CER CHIP RES 178K OHM 1 0402
R415	0613952N93	CER CHIP RES 90.9K OHM 1 0402
R416	0613952R01	CER CHIP RES 10K OHM 5% 0402
R418	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R419	0613952Q66	CER CHIP RES 510 OHM 5 0402
R420	0613952J73	CER CHIP RES 10.0M OHM 5% 0603
R421	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R423	0613952R41	CER CHIP RES 470K OHM 5% 0402
R424	0613952R14	CER CHIP RES 36K OHM 5 0402
R425	0613952R12	CER CHIP RES 30K OHM 5 0402
R426	0613952R37	CER CHIP RES 330K OHM 5% 0402
R427	0613952Q83	CER CHIP RES 2700 OHM 5 0402
R428	0613952Q09	CER CHIP RES 2.2 OHM 5 0402
R429	0613952R22	CER CHIP RES 75K OHM 5 0402
R431	0613952R41	CER CHIP RES 470K OHM 5% 0402
R432	0613952R18	CER CHIP RES 51K OHM 5 0402
R434	0613952Q61	CER CHIP RES 330 OHM 5 0402
R435	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R436	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R437	NOTPLACED	GCAM DUMMY PART NUMBER
R445	0613952R10	CER CHIP RES 24K OHM 5 0402
R447	0613952R25	CER CHIP RES 100K OHM 5% 0402
R448	0613952R01	CER CHIP RES 10K OHM 5% 0402
R449	0613952R10	CER CHIP RES 24K OHM 5 0402
R450	0613959Y45	CER CHIP RES OHM 5% 2512
R451	0613952R05	CER CHIP RES 15K OHM 5% 0402
R452	0613952R25	CER CHIP RES 100K OHM 5% 0402
R453	NOTPLACED	GCAM DUMMY PART NUMBER
R454	NOTPLACED	GCAM DUMMY PART NUMBER
R455	NOTPLACED	GCAM DUMMY PART NUMBER
R456	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R457	0613952R01	CER CHIP RES 10K OHM 5% 0402
R460	0613952Q89	CER CHIP RES 4700 OHM 5 0402
R461	0613952Q55	CER CHIP RES 180 OHM 5 0402
R462	0613952R01	CER CHIP RES 10K OHM 5% 0402
R463	0613952Q60	CER CHIP RES 300 OHM 5 0402
R471	0613952R08	CER CHIP RES 20K OHM 5 0402
R472	0613952R14	CER CHIP RES 36K OHM 5 0402
R473	0613952Q25	CER CHIP RES 10.0 OHM 5 0402
R475	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R476	0613952R37	CER CHIP RES 330K OHM 5% 0402
R477	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R478	0613952R01	CER CHIP RES 10K OHM 5% 0402
R479	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R481	0613952R10	CER CHIP RES 24K OHM 5 0402
R492	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R498	0613952R01	CER CHIP RES 10K OHM 5% 0402
R499	0613952R01	CER CHIP RES 10K OHM 5% 0402
R501	0613952Q69	CER CHIP RES 680 OHM 5 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R506	0613952R17	CER CHIP RES 47K OHM 5% 0402
R507	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R601	0613952Z67	RES,MF,51KOHM,1%,.062 5W,SM,040
R602	0613952Z67	RES,MF,51KOHM,1%,.062 5W,SM,040
R603	0613952N12	CER CHIP RES 13.0K OHM 1 0402
R604	0613952Z58	RES,MF,22KOHM,1%,.062 5W,SM,040
R605	0613952N62	CER CHIP RES 43.2K OHM 1 0402
R606	0613952P12	CER CHIP RES 130K OHM 1 0402
R607	0613952N12	CER CHIP RES 13.0K OHM 1 0402
R608	0613952Z58	RES,MF,22KOHM,1%,.062 5W,SM,040
R609	0613952N62	CER CHIP RES 43.2K OHM 1 0402
R610	0613952P12	CER CHIP RES 130K OHM 1 0402
R611	0613952R18	CER CHIP RES 51K OHM 5 0402
R612	0613952R43	CER CHIP RES 560K OHM 5% 0402

Circuit Ref	Motorola Part No.	Description
R613	0613952R49	CER CHIP RES 1.0M OHM 5% 0402
R614	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R617	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R618	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R619	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R620	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R621	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R622	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R623	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R626	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R627	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R631	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R632	0613952R25	CER CHIP RES 100K OHM 5% 0402
R633	0613952R25	CER CHIP RES 100K OHM 5% 0402
R646	0613952R25	CER CHIP RES 100K OHM 5% 0402
R647	0613952Q84	CER CHIP RES 3000 OHM 5 0402
R648	0613952R25	CER CHIP RES 100K OHM 5% 0402
R649	0613952R17	CER CHIP RES 47K OHM 5% 0402
RT400	0680590Z01	THERMISTOR_33K

Circuit Ref	Motorola Part No.	Description
S501	4080710Z21	SWITCH, FREQUENCY
S502	1880619Z06	POTENTIOMETER, VOLUME
SH100	2680507Z02	SHIELD, HARMONIC FILTER
SH101	2680510Z02	SHIELD, PA
SH201	2680511Z02	SHIELD, SYNTHESIZER
SH202	2680511Z02	SHIELD, SYNTHESIZER
SH241	2604120G02	AOBA VCO SHIELD
SH242	2680514Z02	SHIELD, VCO BOTTOM/ LVZIF
SH301	2686583Z02	SHIELD, RECEIVER FRONT END TOP
SH302	2680555Z02	SHIELD, RECEIVER F/END BOTTOM
SH303	2680509Z02	SHIELD, MIXER
SH304	2680624Z02	SHIELD, MIXER DIODE
SH322	2686528Z02	SHIELD, IF SECTION
SH323	2686527Z02	SHIELD, RFI/EMI, CRS, TIN
SH400	2680505Z02	SHIELD, CONTROLLER TOP LEFT
SH401	2680506Z02	SHIELD, CONTROLLER TOP RIGHT
SH402	2680515Z02	SHIELD, CONTROLLER BOTTOM LEFT
SH403	2680516Z02	SHIELD, CONTROLLER BTM RIGHT
T301	2515121H01	BALUN, TRANSFORMER W18 COMP
T302	2515121H01	BALUN, TRANSFORMER W18 COMP
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIV
U102	5185765B26	IC PWR CTRL IN MOS20

Circuit Ref	Motorola Part No.	Description
U201	5185177Y01	IC TESTED AT25016 48 PIN W18
U210	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U211	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U241	5171121L01	CUSTOM LOW VOLTAGE VCO BUFFER IC
U247	5115026H01	MAX SUPPLY VOL 16V
U248	5115019H01	3.3V REGULATOR IN SOT23-5 PKG
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U302	5115070H01	IC 3-INV LMOS TC7W04FU
U303	NOTPLACED	GCAM DUMMY PART NUMBER
U400	5115012H01	MAX SUPPLY VOL 30V
U404	5115062H01	IC ASFIC_CMP
U405	NOTPLACED	GCAM DUMMY PART NUMBER
U406	5115250H02	NEED CGISS DESCRIPTION IN ICCS
U407	5115033H01	16K X 8 SPI SERIAL ROM
U409	5185143E03	HC11FL0 (3V) ASIC MICRO-P
U410	5115044H01	REGULATOR 3.3V,ILC7062CM-33
U420	5115280H01	AUDIO AMPLIFIER TDA8547TS
U602	5115014H01	CMOS,MAX SUPPLY VOL 15.5V
VR432	4813979P10	DIODE ARRAY,TRANSIENT PROTECTI
VR433	4813979P10	DIODE ARRAY,TRANSIENT PROTECTI

Circuit Ref	Motorola Part No.	Description
VR434	4815038H01	ZENER DIODE-6.8V
VR439	4813977M21	DIODE,ZEN,MBZ5242,SM, SOT-23,12
VR440	4815038H01	ZENER DIODE-6.8V
VR441	4815038H01	ZENER DIODE-6.8V
VR442	4815038H01	ZENER DIODE-6.8V
VR443	4815038H01	ZENER DIODE-6.8V
VR444	4815038H01	ZENER DIODE-6.8V
VR445	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR446	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR447	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR448	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR449	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR450	4815040H01	ZENER DIODE-12V
VR460	4815038H01	ZENER DIODE-6.8V
VR501	4813977M14	DIODE,ZEN,MBZ5235,SM, SOT-23,6.
VR506	4815038H01	ZENER DIODE-6.8V
Y300	4802245J84	XTAL 44.395MHZ, 3RD OT, SMD
Y301	9186145B02	CER.DISCR. CDBCA455CX36-TC

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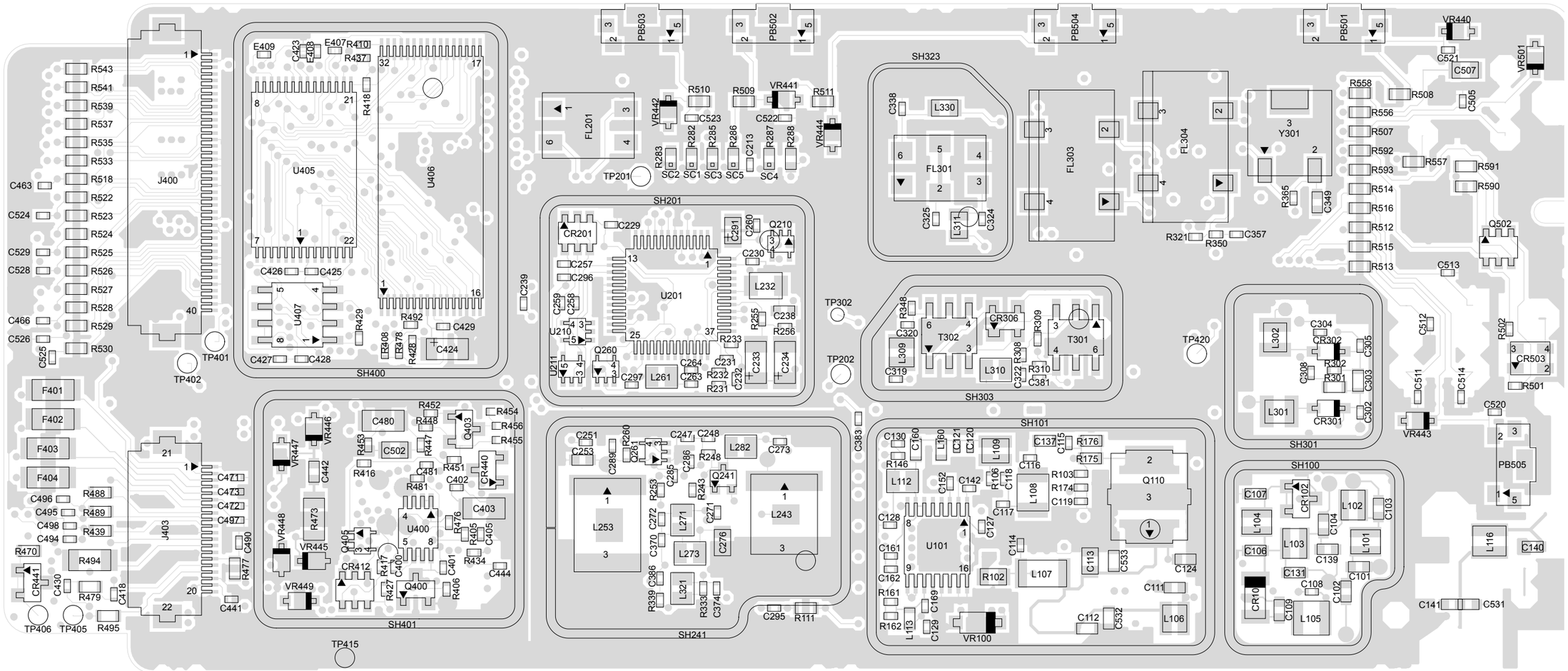
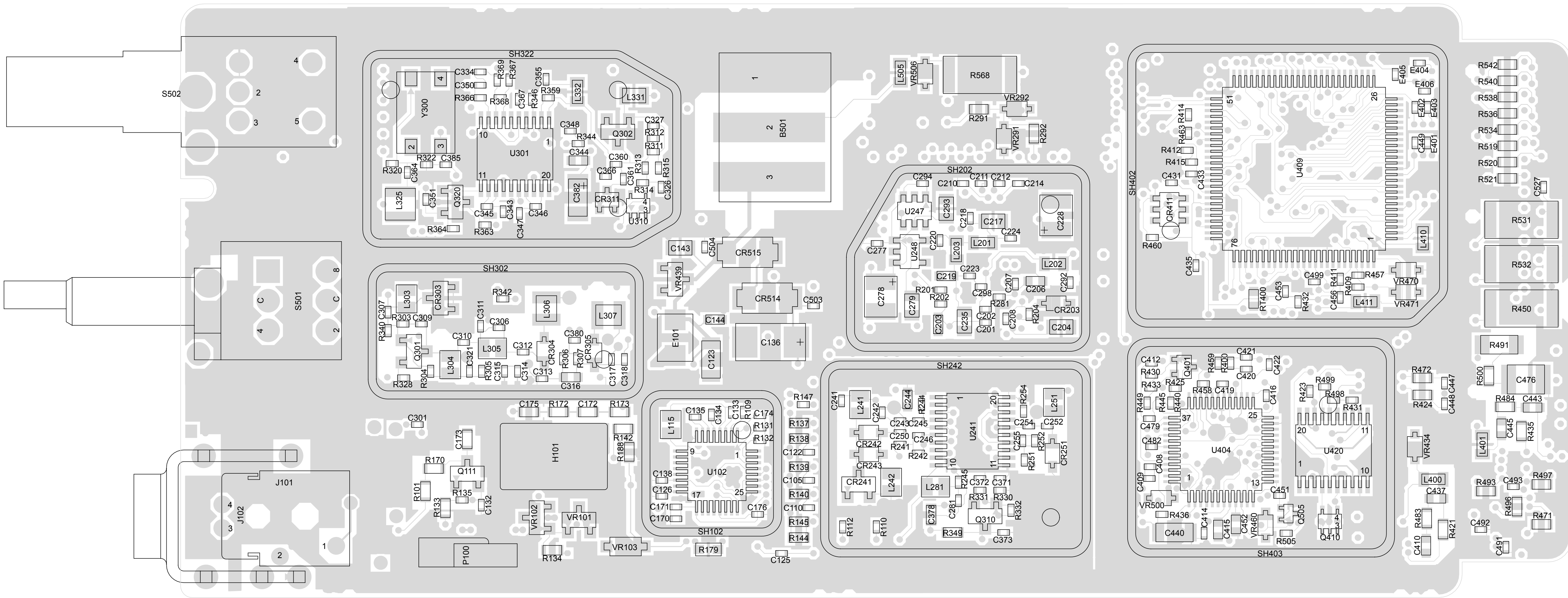
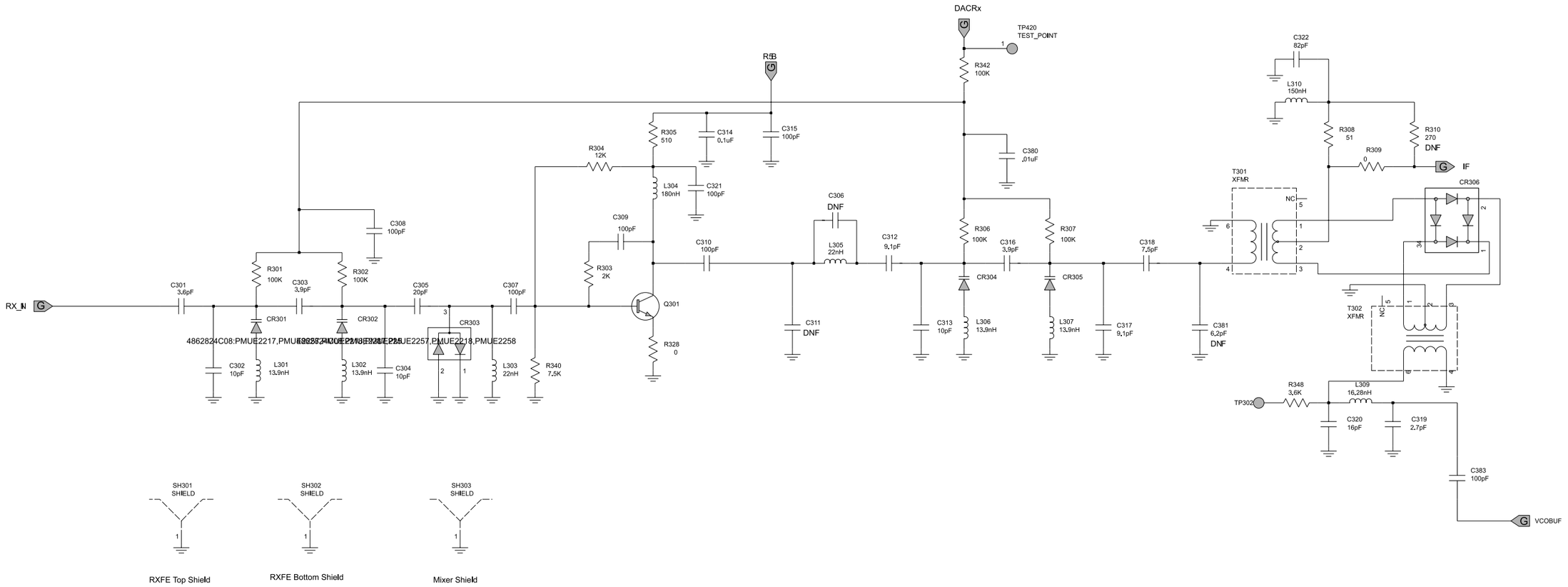
22.0 UHF PCB 8486743Z02 Schematics



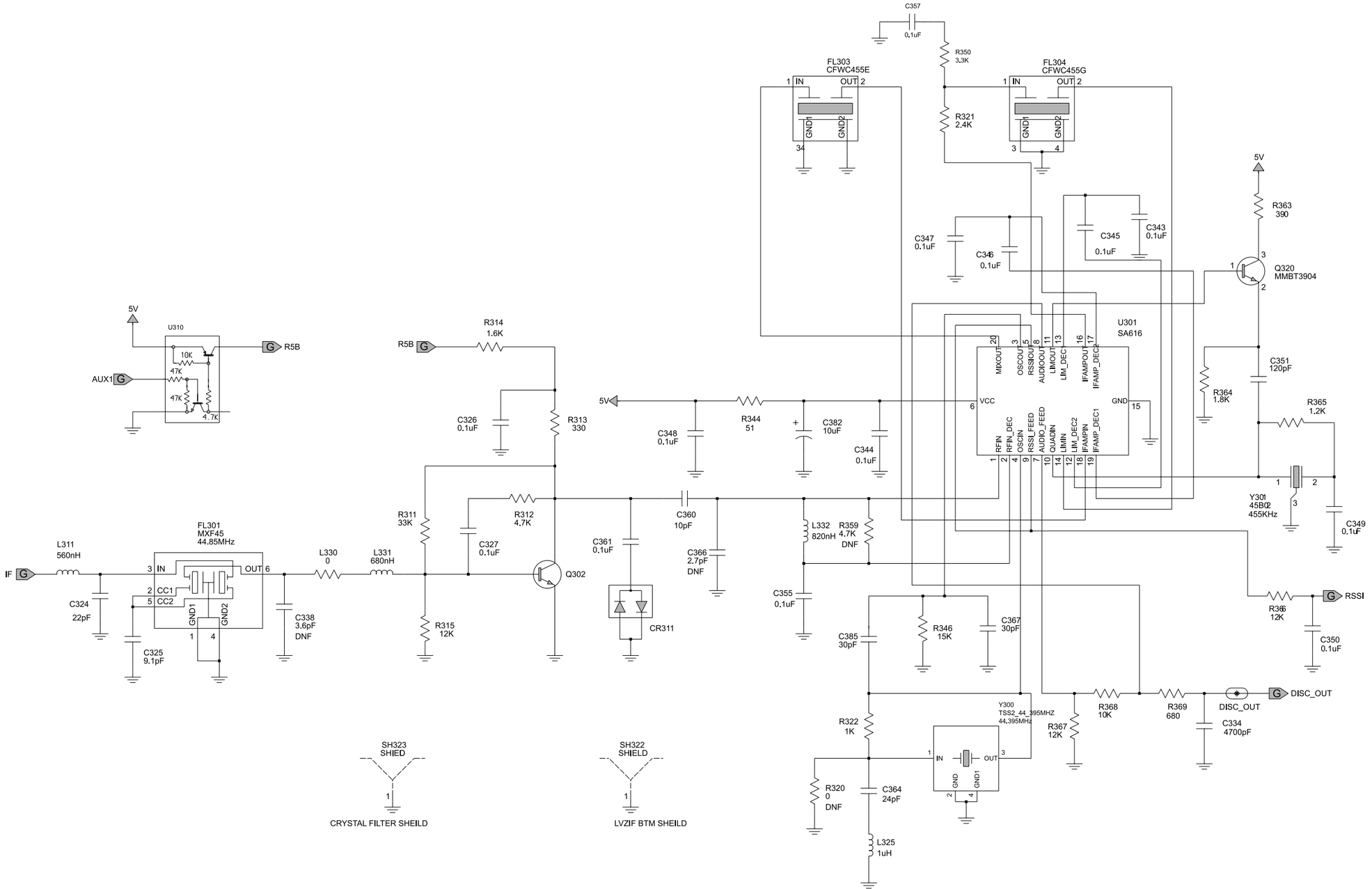
UHF (403-470MHz) Main Board Top Side PCB No. 8486743Z02



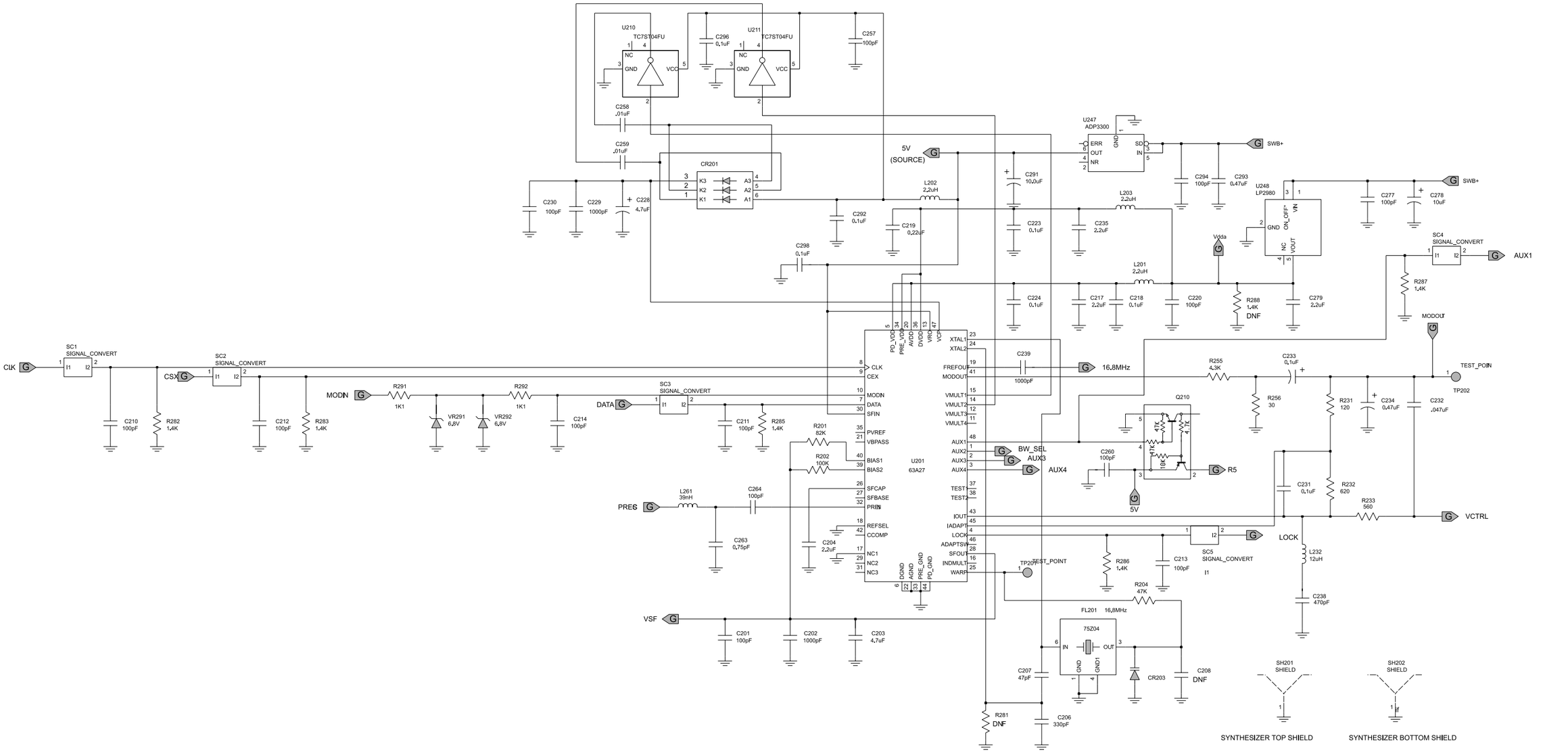
UHF (403-470MHz) Main Board Bottom Side PCB No. 8486743Z02



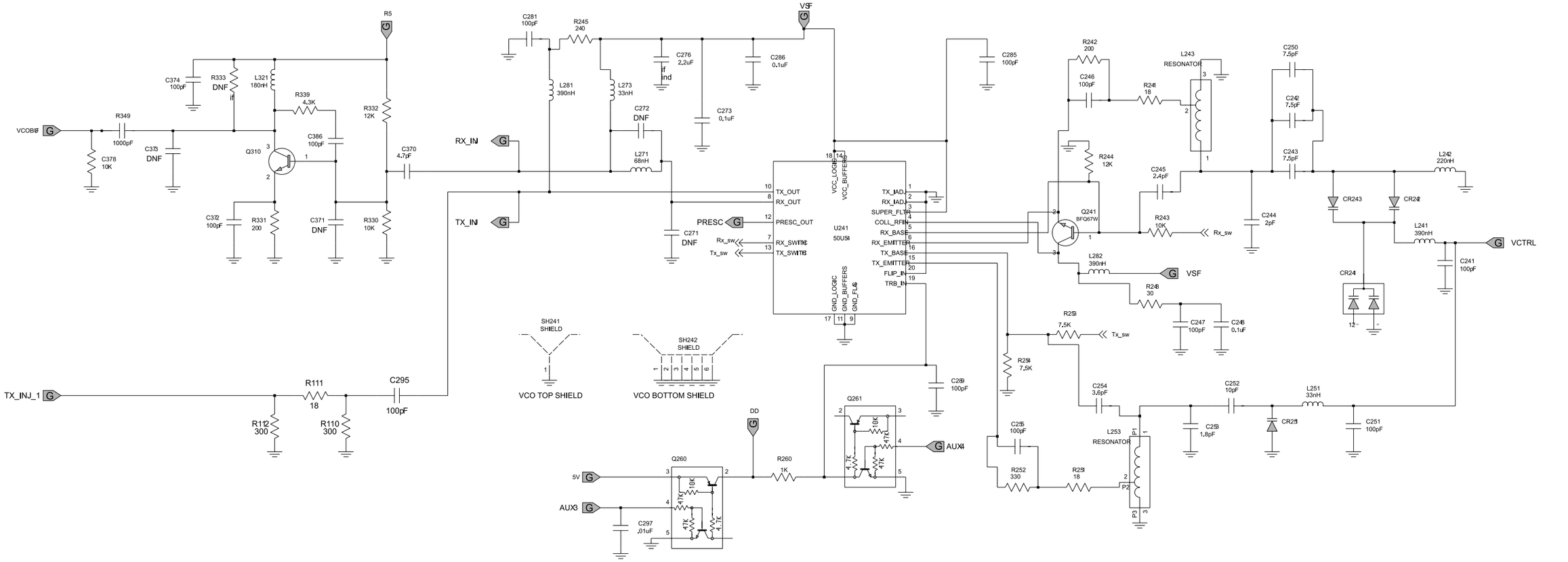
UHF (403-470 MHz) Receiver Front End Schematic Diagram



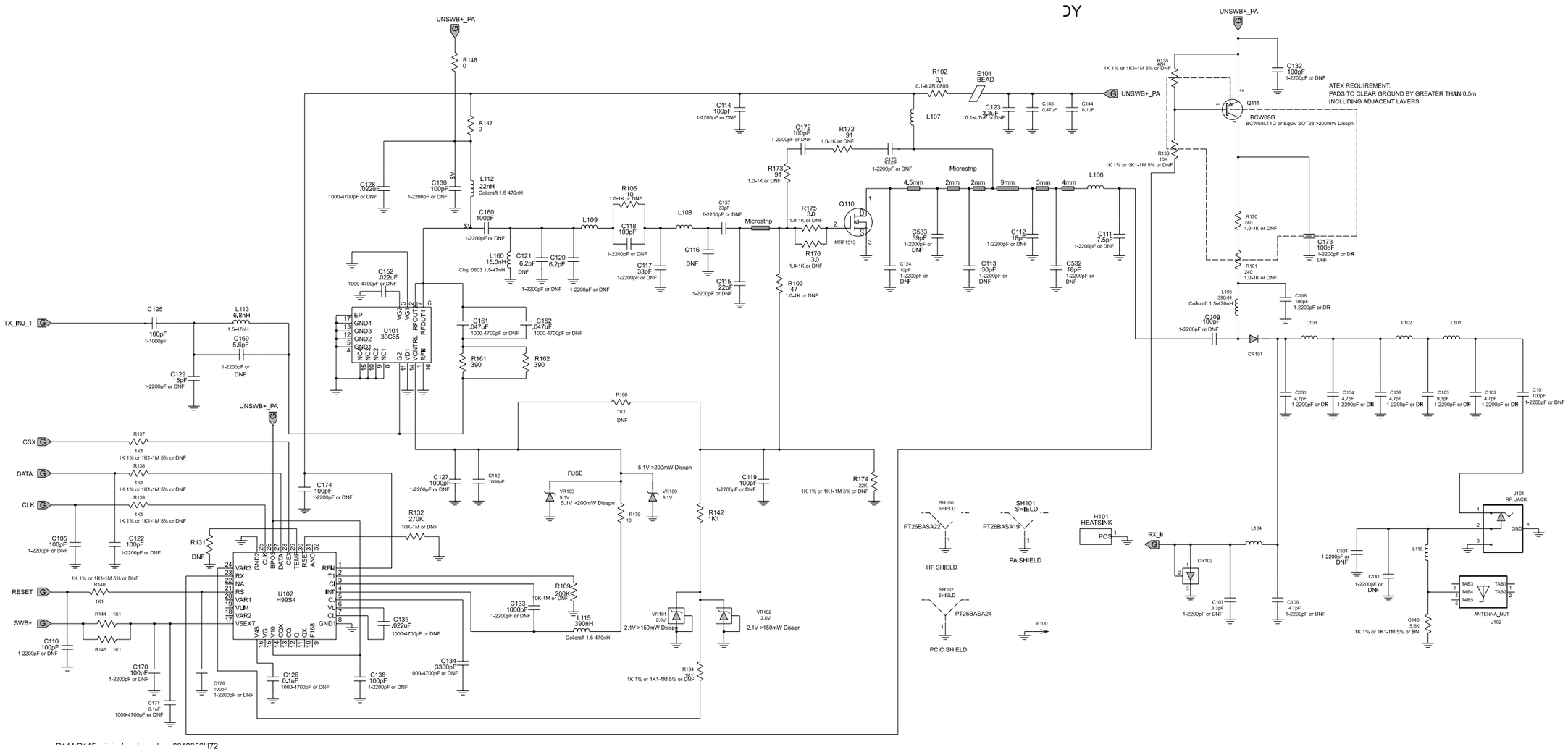
UHF (403-470 MHz) Receiver Back End Schematic Diagram



UHF (403-470 MHz) Synthesizer Schematic Diagram



UHF (403-470 MHz) Voltage Controlled Oscillator Schematic Diagram



UHF (403-470 MHz) Transmitter Schematic Diagram

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23.0 UHF PCB 8486743Z02 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25
C103	2113944C30	CAP CER CHP 10.0PF 50V +/- 0.5
C104	NOTPLACED	-
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2113944C74	CAP,FXD,7.5PF,.25PF+/- 50V-D
C112	2113944C33	CAP CER CHP 18.0PF 50V 5%
C113	NOTPLACED	
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2113944A29	CAP CER CHP 22.0PF 50V 5%
C116	NOTPLACED	-
C117	2113944A31	CAP CER CHP 33.0PF 50V 5%
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A20	CAP CER CHP 6.2PF 50V +/- 0.5P
C121	2113944A20	CAP CER CHP 6.2PF 50V +/- 0.5P
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2113956D43	CAP,FXD,2.2UF,+10%,-10%,10V-D
C124	NOTPLACED	-
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946B04	CAP CER CHP 0.10UF 10V 10%
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-
C129	2113944A27	CAP CER CHP 15.0PF 50V 5%
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25
C132	2113944A40	CAP CER CHP 100.0PF 50V 5%
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-
C136	2313960F01	CAP,FXD,10UF,+10%,-10%,16V-DC,
C137	2113944C36	CAP CER CHP 33.0PF 50V 5%
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C139	2113944C30	CAP CER CHP 10.0PF 50V +/- 0.5
C140	0613952H91	CER CHIP RES 5600 OHM 5% 0603
C141	NOTPLACED	-
C142	2113945A09	CAP CER CHP 1000PF 50V 10%
C143	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-D
C144	2113945C31	CAP,FXD,.1UF,+10%,-10%,50V-DC
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-
C160	2113944C45	CAP CER CHP 100.0PF 50V 5%
C161	2113946B02	CAP CER CHP 0.047UF 10V 10%
C162	2113946B02	CAP CER CHP 0.047UF 10V 10%
C169	NOTPLACED	-
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113946B04	CAP CER CHP 0.10UF 10V 10%
C172	2113944C45	CAP CER CHP 100.0PF 50V 5%
C173	NOTPLACED	-
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C175	2113944C45	CAP CER CHP 100.0PF 50V 5%
C176	2113944A40	CAP CER CHP 100.0PF 50V 5%
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2187906N01	CAP,CHIP,4.7UF,940000PF+/-,+20
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A33	CAP CER CHP 47.0PF 50V 5%
C208	NOTPLACED	-
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP TANT 4.7 UF 10% 16V 3528-2
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%
C231	2113946K02	CAP CER CHP 0.10UF 16V
C232	2113946B02	CAP CER CHP 0.047UF 10V 10%
C233	2313960A26	CAP TANT 0.1 UF 10% 35V 3216-1
C234	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%,50V-DC,
C239	2113945A09	CAP CER CHP 1000PF 50V 10%
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C243	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C244	2113944C13	CAP CER CHP 2.0PF 50V +/- 0.25
C245	2113944A10	CAP CER CHP 2.4PF 50V +/- 0.25
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C253	2113944C69	CAP,FXD,1.8PF,.1PF+/-,50V-DC
C254	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%

Circuit Ref	Motorola Part No.	Description
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/-,50V-D
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C271	NOTPLACED	-
C272	NOTPLACED	-
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP TANT 10 UF 10% 16V 3528-21
C279	2113946N03	CAP CER CHP 2.2UF 16V
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%
C286	2113946K02	CAP CER CHP 0.10UF 16V
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP TANT 10 UF 10% 6.3V 2012-1
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-D
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25
C302	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C303	2113944M08	CAP,FXD,3.9PF,.1PF+/-,50V-DC
C304	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C305	2113944A80	CAP,FXD,20PF,+5%,-5%,50V-DC,0
C306	NOTPLACED	-
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOTPLACED	-
C312	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C313	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944M08	CAP,FXD,3.9PF,.1PF+/-,50V-DC
C317	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C318	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C319	2113944A11	CAP CER CHP 2.7PF 50V +/- 0.25
C320	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,0
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2113944A29	CAP CER CHP 22.0PF 50V 5%
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C338	NOTPLACED	-
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945C31	CAP,FXD,.1UF,+10%,-10%,50V-DC
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V
C348	2113946K02	CAP CER CHP 0.10UF 16V
C349	2113945C31	CAP,FXD,.1UF,+10%,-10%,50V-DC
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C360	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C361	2113946K02	CAP CER CHP 0.10UF 16V
C364	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,0
C366	NOTPLACED	-
C367	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,0
C370	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25
C371	NOTPLACED	-
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOTPLACED	-
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%
C378	0613952J01	CER CHIP RES 10K OHM 5% 0603
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOTPLACED	-
C382	2313960B57	CAP,TANTALUM,10UF,+10%,-10%,4V
C383	2113944A40	CAP CER CHP 100.0PF 50V 5%
C385	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,0
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C400	2113945B02	CAP CER CHP 10,000PF 25V 10%
C401	2113946K02	CAP CER CHP 0.10UF 16V
C402	2113946K02	CAP CER CHP 0.10UF 16V
C403	2113955D33	CAP,FXD,2.2UF,+10%,-10%,16V-D
C405	2113946K02	CAP CER CHP 0.10UF 16V
C408	2113944A40	CAP CER CHP 100.0PF 50V 5%
C409	2113946K02	CAP CER CHP 0.10UF 16V
C410	2113946L03	CAP CER CHP 0.22UF 16V
C412	2113946B04	CAP CER CHP 0.10UF 10V 10%
C414	2113946K02	CAP CER CHP 0.10UF 16V
C415	2185895Z01	CAPACITOR CER LOW DIST .01UF
C416	2113946B04	CAP CER CHP 0.10UF 10V 10%
C418	2113946B04	CAP CER CHP 0.10UF 10V 10%
C419	NOTPLACED	-
C420	2113945B02	CAP CER CHP 10,000PF 25V 10%
C421	2113946B04	CAP CER CHP 0.10UF 10V 10%
C422	2113946K02	CAP CER CHP 0.10UF 16V
C423	2113944A40	CAP CER CHP 100.0PF 50V 5%
C424	NOTPLACED	-
C425	2113946K02	CAP CER CHP 0.10UF 16V
C426	2113944A40	CAP CER CHP 100.0PF 50V 5%
C427	2113944A40	CAP CER CHP 100.0PF 50V 5%
C428	2113946K02	CAP CER CHP 0.10UF 16V
C429	2113946K02	CAP CER CHP 0.10UF 16V
C430	2113946B04	CAP CER CHP 0.10UF 10V 10%
C431	2113944A40	CAP CER CHP 100.0PF 50V 5%
C433	2113945B02	CAP CER CHP 10,000PF 25V 10%
C435	2113946K02	CAP CER CHP 0.10UF 16V
C437	2113946L03	CAP CER CHP 0.22UF 16V
C440	2113946Q01	CAP CER CHP 4.7UF 16V
C441	2113944A40	CAP CER CHP 100.0PF 50V 5%
C442	2113945C31	CAP,FXD,.1UF,+10%,-10%,50V-DC
C443	2113945C31	CAP,FXD,.1UF,+10%,-10%,50V-DC
C444	2113944A40	CAP CER CHP 100.0PF 50V 5%
C445	2113945C31	CAP,FXD,.1UF,+10%,-10%,50V-DC
C447	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-

Circuit Ref	Motorola Part No.	Description
C448	2113946B04	CAP CER CHP 0.10UF 10V 10%
C449	2113944A40	CAP CER CHP 100.0PF 50V 5%
C451	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-
C452	2113946S35	CAP CER CHP 1.0UF 16V 10%
C453	2113944A40	CAP CER CHP 100.0PF 50V 5%
C456	2113944A40	CAP CER CHP 100.0PF 50V 5%
C463	2113944A40	CAP CER CHP 100.0PF 50V 5%
C466	2113944A40	CAP CER CHP 100.0PF 50V 5%
C471	2113944A40	CAP CER CHP 100.0PF 50V 5%
C472	2113945A05	CAP CER CHP 470PF 50V 10%
C473	2113945A05	CAP CER CHP 470PF 50V 10%
C476	2113946J03	CAP CER CHP 10.0UF 16V 10%
C479	2113946B04	CAP CER CHP 0.10UF 10V 10%
C480	2113946R01	CAP CER CHP 10.0UF 10V
C481	2113946B04	CAP CER CHP 0.10UF 10V 10%
C482	2113946B04	CAP CER CHP 0.10UF 10V 10%
C490	2113944A40	CAP CER CHP 100.0PF 50V 5%
C491	2113945A03	CAP CER CHP 330PF 50V 10%
C492	2113945A09	CAP CER CHP 1000PF 50V 10%
C493	2113944A40	CAP CER CHP 100.0PF 50V 5%
C494	2113944A40	CAP CER CHP 100.0PF 50V 5%
C495	2113944A40	CAP CER CHP 100.0PF 50V 5%
C496	2113944A40	CAP CER CHP 100.0PF 50V 5%
C497	2113944A40	CAP CER CHP 100.0PF 50V 5%
C498	2113944A40	CAP CER CHP 100.0PF 50V 5%
C499	2113946K02	CAP CER CHP 0.10UF 16V
C502	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-D
C503	2113944A40	CAP CER CHP 100.0PF 50V 5%
C504	2113944A40	CAP CER CHP 100.0PF 50V 5%
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C507	NOTPLACED	-
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C524	2113944A40	CAP CER CHP 100.0PF 50V 5%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%
C531	NOTPLACED	-
C532	NOTPLACED	-
C533	NOTPLACED	-
C609	NOTPLACED	-
C610	2113944A40	CAP CER CHP 100.0PF 50V 5%
C611	2113944A40	CAP CER CHP 100.0PF 50V 5%
C612	2113944A40	CAP CER CHP 100.0PF 50V 5%
C613	2113944A40	CAP CER CHP 100.0PF 50V 5%
C614	NOTPLACED	-
C615	2113944A40	CAP CER CHP 100.0PF 50V 5%
C616	2113944A40	CAP CER CHP 100.0PF 50V 5%
C619	2113944A40	CAP CER CHP 100.0PF 50V 5%
C620	2113944A40	CAP CER CHP 100.0PF 50V 5%
C621	2113944A40	CAP CER CHP 100.0PF 50V 5%
C622	2113944A40	CAP CER CHP 100.0PF 50V 5%
CR101	4880973Z02	PIN DIODE
CR102	4815257H01	SURFACE MOUNT PIN DIODES
CR201	4815011H01	DIODE,SWG,300MA,80V
CR203	4815072H01	DIODE,VCTR,1SV232,30V
CR241	4885094Y01	DIODE VARACTOR ISV228 W18
CR242	4815279H01	BBY5503WE6327 FROM INFINEON
CR243	4815279H01	BBY5503WE6327 FROM INFINEON
CR251	4815322H01	VHF VARIABLE CAPACITANCE DIODE
CR301	4815279H01	BBY5503WE6327 FROM INFINEON
CR302	4815279H01	BBY5503WE6327 FROM INFINEON
CR303	4815048H01	DIODE,SHTK,MMBD353LT1,SM,7V
CR304	4815279H01	BBY5503WE6327 FROM INFINEON
CR305	4815279H01	BBY5503WE6327 FROM INFINEON
CR306	4802245J42	RING QUAD DIODE SOT-143 PKG
CR311	4813974A19	DIODE SCHOTTKY BARRIER SERIES
CR411	4815067H01	DIODE ARRAY,SWG,RB731UFT108,SM
CR412	4815067H01	DIODE ARRAY,SWG,RB731UFT108,SM
CR440	4813978C02	PB FREE, NOT COMPLETELY ENRICH
CR441	4813978C02	PB FREE, NOT COMPLETELY ENRICH
CR503	4805729G49	DIODE RED/YEL
CR514	4813978A22	DIODE,RECT,SM,SMA,3A,40V,SHT
CR515	4813978A22	DIODE,RECT,SM,SMA,3A,40V,SHT
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
E101	2415954H01	INDUCTOR BEAD CHIP
E401	2480640Z01	SURFACE MOUNT FERRITE BEAD
E402	2480640Z01	SURFACE MOUNT FERRITE BEAD
E403	2480640Z01	SURFACE MOUNT FERRITE BEAD
E404	2480640Z01	SURFACE MOUNT FERRITE BEAD
E405	2480640Z01	SURFACE MOUNT FERRITE BEAD
E406	2480640Z01	SURFACE MOUNT FERRITE BEAD
E407	2480640Z01	SURFACE MOUNT FERRITE BEAD
E408	2480640Z01	SURFACE MOUNT FERRITE BEAD
E409	2480640Z01	SURFACE MOUNT FERRITE BEAD
E634	2480640Z01	SURFACE MOUNT FERRITE BEAD
E637	2480640Z01	SURFACE MOUNT FERRITE BEAD
E638	2480640Z01	SURFACE MOUNT FERRITE BEAD

Circuit Ref	Motorola Part No.	Description
E639	2480640Z01	SURFACE MOUNT FERRITE BEAD
E640	2480640Z01	SURFACE MOUNT FERRITE BEAD
E641	2480640Z01	SURFACE MOUNT FERRITE BEAD
E642	2480640Z01	SURFACE MOUNT FERRITE BEAD
E643	2480640Z01	SURFACE MOUNT FERRITE BEAD
E644	2480640Z01	SURFACE MOUNT FERRITE BEAD
E645	2480640Z01	SURFACE MOUNT FERRITE BEAD
F401	6516070H01	FUSE CHIP SMT
F402	6516070H01	FUSE CHIP SMT
F403	6516070H02	FUSE CHIP SMT 3216FF-375MA
F404	6516070H02	FUSE CHIP SMT 3216FF-375MA
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
H101	2680499Z03	HEAT SPREADER
J101	0985613Z01	JACK,RF
J102	0280519Z02	NUT, ANTENNA
J400	0915064H03	CONNECTOR, ZIF (40 PINS)
J403	0915064H02	CONN,CONN,F,20CONT,CONNECTOR
J601	0915064H03	CONNECTOR, ZIF (40 PINS)
J602	0915064H01	CONN,CONN,F,18CONT,CONNECTOR
L101	2479990B02	AIR WOUND COIL/GREEN COLOR 19.
L102	2479990B02	AIR WOUND COIL/GREEN COLOR 19.
L103	2479990B02	AIR WOUND COIL/GREEN COLOR 19.
L104	2479990B02	AIR WOUND COIL/GREEN COLOR 19.
L105	2414032B22	IDCTR,WW,390NH,10%,620MA,1.12O
L106	2479990A02	AIR WOUND COIL/GREEN COLOR 7.6
L107	2479990G01	AIR WOUND COIL/GREEN COLOR 33.
L108	2479990A01	AIR WOUND COIL/GREEN COLOR 4.2
L109	2479990A02	AIR WOUND COIL/GREEN COLOR 7.6
L112	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,
L113	2471237B04	LASER ETCHED, 1608, [[W18 COMP
L115	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L116	2479990A03	AIR WOUND COIL/GREEN COLOR 9.7
L160	NOTPLACED	-
L201	2414017Q20	IDCTR,FXD,2.2UH,20%-,30MA,.65OH
L202	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH
L203	2414017Q20	IDCTR,FXD,2.2UH,20%,30MA,.65OH
L232	2414032L25	IDCTR,WW,12UH,5%,150MA,3.8OHM,
L241	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L242	2414032F38	IDCTR,WW,220NH,5%,400MA,.7OHM,
L243	2485776Z01	COIL TEFLON RESONATOR (KAPTON)
L251	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,
L253	2460593C02	COIL MULT LAYERED TAP TEF RESN
L261	2414032F29	IDCTR,WW,39NH,5%,500MA,.29OHM,
L271	2414032F32	IDCTR,WW,68NH,5%,500MA,.38OHM,
L273	2414032F28	IDCTR,WW,33NH,5%,500MA,.27OHM,
L281	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L282	2414032F41	IDCTR,WW,390NH,10%,200MA,1.5OH
L301	2479990C01	AIR WOUND COIL/GREEN COLOR 13.
L302	2479990C01	AIR WOUND COIL/GREEN COLOR 13.
L303	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,
L304	2414032F37	IDCTR,WW,180NH,5%,400MA,.64OHM
L305	2414032F26	IDCTR,WW,22NH,5%,500MA,.22OHM,
L306	2479990C01	AIR WOUND COIL/GREEN COLOR 13.
L307	2479990C01	AIR WOUND COIL/GREEN COLOR 13.
L309	2479990C02	AIR WOUND COIL/GREEN COLOR 16.
L310	2414032F36	IDCTR,WW,150NH,5%,400MA,.56OHM
L311	2414017K32	IND CER CHIP 560.0 NH 5%
L321	2414032F37	IDCTR,WW,180NH,5%,400MA,.64OHM
L325	2414032B68	IDCTR,WW,1UH,5%,460MA,1.75OHM,
L330	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
L331	2414017K33	IND CER CHIP 680.0 NH 5%
L332	2414017Q46	IDCTR,FXD,820NH,10%,150MA,1OHM
L400	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L401	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L410	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L411	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
L505	2414017Q42	IDCTR,FXD,390NH,10%,200MA,.65O
M401	5015027H01	MIC,ELECTRET,1.6KOHM,OMNI-DI
P100	3905643V01	CONTACT ANT GRD
PB501	4086470Z01	TACT SWITCH
PB502	4086470Z01	TACT SWITCH
PB503	4086470Z01	TACT SWITCH
PB504	4086470Z01	TACT SWITCH
PB505	4086470Z01	TACT SWITCH
Q110	4813976A02	TSTR, 520 MHZ, 3W, 12.5V, PLD
Q111	4816023H01	QSTR PNP SOT23 LO PROFILE TAPE
Q210	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NP
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NP
Q261	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NP
Q301	4802245J44	NPN SILICON BIPOLAR TRANSISTOR
Q302	4802197J95	RF TRANSISTOR PBR941
Q310	4802245J44	NPN SILICON BIPOLAR TRANSISTOR
Q320	4813973M07	TSTR NPN 40V .2A GEN PURP
Q400	4815069H02	TSTR MOSFET P-CHAN
Q401	4813973A54	XSTR,BIP GP SS,NPN,SOT-323,
Q403	4813973A13	XSTR,BIP GP SS,PNP,TO-236,SO
Q405	4815066H01	XSTR,OTHR,UMG5NFTR,250
Q410	4815066H01	XSTR,OTHR,UMG5NFTR,250
Q502	4815154H01	DUAL TRANS NPN
Q505	4816000H01	BIAS RESISTOR TRANSISTOR LEAD
Q601	4815125H01	SOT STR RH LOW PROFILE MMBT
Q602	4813973M07	TSTR NPN 40V .2A GEN PURP
Q603	4813973M07	TSTR NPN 40V .2A GEN PURP
R101	0613952H58	CER CHIP RES 240 OHM 5% 0603
R102	0686041G25	RES,CHIP,.1OHM,1%, 0805 PB-FRE
R103	0613952Q41	CER CHIP RES 47.0 OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5% 0402
R109	0613952R32	CER CHIP RES 200K OHM 5% 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R111	0613952H31	CER CHIP RES 18.0 OHM 5% 0603
R112	0613952Q60	CER CHIP RES 300 OHM 5% 0402

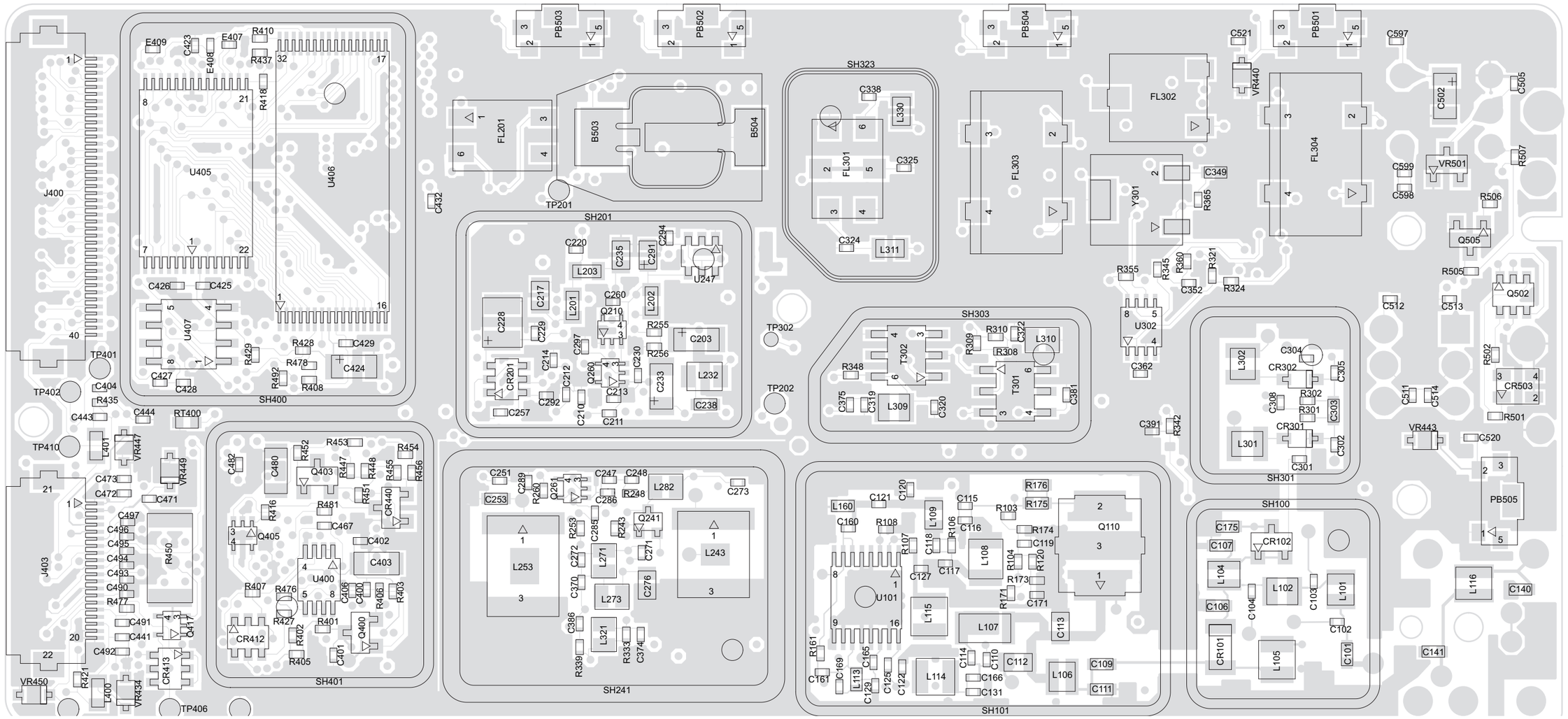
Circuit Ref	Motorola Part No.	Description
R131	NOTPLACED	-
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	0613952J01	CER CHIP RES 10K OHM 5% 0603
R134	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R135	0613952R17	CER CHIP RES 47K OHM 5% 0402
R137	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R138	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R139	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R140	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R142	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R144	0613952H72	CER CHIP RES 910 OHM 5% 0603
R145	0613952H72	CER CHIP RES 910 OHM 5% 0603
R146	NOTPLACED	-
R147	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R161	0613952Q64	CER CHIP RES 430 OHM 5% 0402
R162	0613952Q64	CER CHIP RES 430 OHM 5% 0402
R170	0613952H58	CER CHIP RES 240 OHM 5% 0603
R172	0613952H48	CER CHIP RES 91.0 OHM 5% 0603
R173	0613952H48	CER CHIP RES 91.0 OHM 5% 0603
R174	0613952R09	CER CHIP RES 22K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R179	0616124H19	THIN FILM MELF RES-56 OHM
R188	NOTPLACED	-
R201	0613952R23	CER CHIP RES 82K OHM 5% 0402
R202	0613952R25	CER CHIP RES 100K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402
R231	0613952Q51	CER CHIP RES 120 OHM 5% 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5% 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5% 0402
R241	0613952Q31	CER CHIP RES 18.0 OHM 5% 0402
R242	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R03	CER CHIP RES 12K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5% 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R251	0613952Q31	CER CHIP RES 18.0 OHM 5% 0402
R252	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R254	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R255	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R281	NOTPLACED	
R282	0613952D15	CER CHIP RES 1400 OHM 1% 0603
R283	0613952D15	CER CHIP RES 1400 OHM 1% 0603
R285	0613952D15	CER CHIP RES 1400 OHM 1% 0603
R286	0613952D15	CER CHIP RES 1400 OHM 1% 0603
R287	0613952D15	CER CHIP RES 1400 OHM 1% 0603
R288	NOTPLACED	
R291	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R292	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R301	0613952J25	CER CHIP RES 100K OHM 5% 0603
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402
R303	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R309	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R310	NOTPLACED	-
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R314	0613952Q78	CER CHIP RES 1600 OHM 5% 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOTPLACED	-
R321	0613952Q82	CER CHIP RES 2400 OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R328	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402
R331	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOTPLACED	-
R339	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R340	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5% 0402
R349	2113945L25	CAP,FXD,1000PF,+5%,-5%,50V-DC
R350	0613952Q85	CER CHIP RES 3300 OHM 5% 0402
R359	NOTPLACED	-
R363	0613952Q63	CER CHIP RES 390 OHM 5% 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5% 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5% 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952Z55	RES,MF,12KOHM,1%,.0625 W,SM,040
R368	0613952N01	CER CHIP RES 10.0K OHM 1% 0402
R369	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R400	0613952R17	CER CHIP RES 47K OHM 5% 0402
R405	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R406	0613952R22	CER CHIP RES 75K OHM 5% 0402
R408	NOTPLACED	-
R409	0613952R01	CER CHIP RES 10K OHM 5% 0402
R410	0613952R25	CER CHIP RES 100K OHM 5% 0402
R411	0613952R01	CER CHIP RES 10K OHM 5% 0402
R412	0613952Q89	CER CHIP RES 4700 OHM 5% 0402

Circuit Ref	Motorola Part No.	Description
R414	0613952Z75	RES,MF,180KOHM,1%,.0625 W,SM,04
R415	0613952P01	CER CHIP RES 100K OHM 1% 0402
R416	0613952R01	CER CHIP RES 10K OHM 5% 0402
R417	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R418	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R421	0613952H80	CER CHIP RES 2000 OHM 5% 0603
R423	0613952R41	CER CHIP RES 470K OHM 5% 0402
R424	0613952J14	CER CHIP RES 36K OHM 5% 0603
R425	0613952Q84	CER CHIP RES 3000 OHM 5% 0402
R427	0613952Q85	CER CHIP RES 3300 OHM 5% 0402
R428	0613952Q09	CER CHIP RES 2.2 OHM 5% 0402
R429	0613952R22	CER CHIP RES 75K OHM 5% 0402
R430	0613952R17	CER CHIP RES 47K OHM 5% 0402
R431	0613952R41	CER CHIP RES 470K OHM 5% 0402
R432	0613952R18	CER CHIP RES 51K OHM 5% 0402
R433	0613952R43	CER CHIP RES 560K OHM 5% 0402
R434	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R435	0613952H80	CER CHIP RES 2000 OHM 5% 0603
R436	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R437	NOTPLACED	-
R439	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R440	0613952R11	CER CHIP RES 27K OHM 5% 0402
R445	0613952R10	CER CHIP RES 24K OHM 5% 0402
R447	0613952R25	CER CHIP RES 100K OHM 5% 0402
R448	0613952R01	CER CHIP RES 10K OHM 5% 0402
R449	0613952R10	CER CHIP RES 24K OHM 5% 0402
R450	0613959Y47	CER CHIP RES 82.0 OHM 5% 2512
R451	0613952R05	CER CHIP RES 15K OHM 5% 0402
R452	0613952R25	CER CHIP RES 100K OHM 5% 0402
R453	NOTPLACED	-
R454	NOTPLACED	-
R455	NOTPLACED	-
R456	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R457	0613952R01	CER CHIP RES 10K OHM 5% 0402
R458	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R459	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R460	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R463	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R470	0613952J25	CER CHIP RES 100K OHM 5% 0603
R471	0613952J08	CER CHIP RES 20K OHM 5% 0603
R472	0613952J14	CER CHIP RES 36K OHM 5% 0603
R473	0613958S25	CER CHIP RES 10.0 OHM 5% 1206
R476	0613952R37	CER CHIP RES 330K OHM 5% 0402
R477	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R478	0613952R01	CER CHIP RES 10K OHM 5% 0402
R479	0613952H31	CER CHIP RES 18.0 OHM 5% 0603
R481	0613952R10	CER CHIP RES 24K OHM 5% 0402
R483	0613952H31	CER CHIP RES 18.0 OHM 5% 0603
R484	0613952H31	CER CHIP RES 18.0 OHM 5% 0603
R488	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R489	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R491	2113956D45	CAP,FXD,4.7UF,+10%,-10%,10V-D
R492	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R493	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R494	0613958S31	CER CHIP RES 18.0 OHM 5% 1206
R495	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R496	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R497	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R498	0613952R01	CER CHIP RES 10K OHM 5% 0402
R499	0613952R01	CER CHIP RES 10K OHM 5% 0402
R500	0613952H31	CER CHIP RES 18.0 OHM 5% 0603
R501	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R507	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R508	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R509	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R510	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R511	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R512	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R513	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R514	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R515	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R516	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R518	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R519	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R520	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R521	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R522	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R523	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R524	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R525	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R526	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R527	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R528	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R529	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R530	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R531	0613959Y47	CER CHIP RES 82.0 OHM 5% 2512
R532	0613959Y47	CER CHIP RES 82.0 OHM 5% 2512
R533	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R534	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R535	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R536	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R537	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R538	0613952D05	CER CHIP RES 1100 OHM 1% 0603

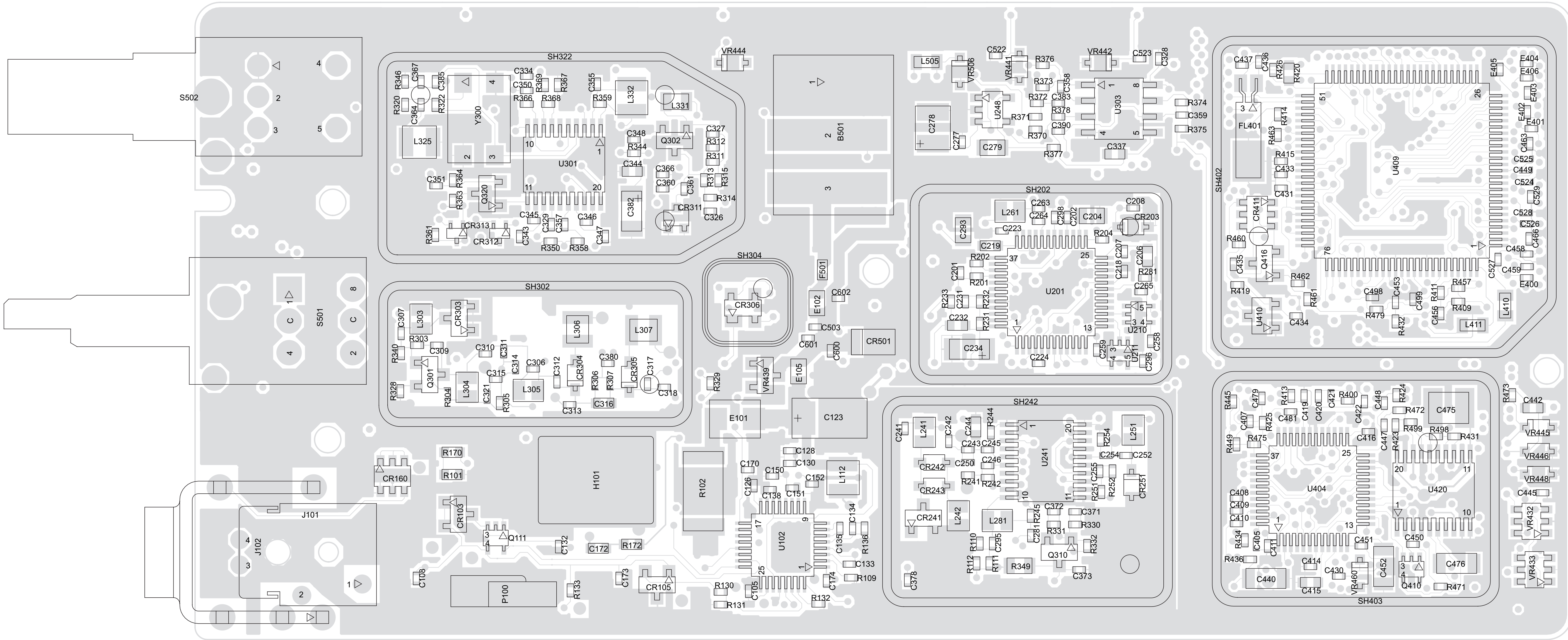
Circuit Ref	Motorola Part No.	Description
R539	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R540	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R541	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R542	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R543	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R556	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R557	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R558	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R568	0613959Y47	CER CHIP RES 82.0 OHM 5% 2512
R590	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R591	0613952D05	CER CHIP RES 1100 OHM 1% 0603
R592	0613952H89	CER CHIP RES 4700 OHM 5% 0603
R593	0613952H79	CER CHIP RES 1800 OHM 5% 0603
R601	0613952Z67	RES,MF,51KOHM,1%,.0625 W,SM,040
R602	0613952Z67	RES,MF,51KOHM,1%,.0625 W,SM,040
R603	0613952N12	CER CHIP RES 13.0K OHM 1% 0402
R604	0613952Z58	RES,MF,22KOHM,1%,.0625 W,SM,040
R605	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R606	0613952P12	CER CHIP RES 130K OHM 1% 0402
R607	0613952N12	CER CHIP RES 13.0K OHM 1% 0402
R608	0613952Z58	RES,MF,22KOHM,1%,.0625 W,SM,040
R609	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R610	0613952P12	CER CHIP RES 130K OHM 1% 0402
R611	0613952R18	CER CHIP RES 51K OHM 5% 0402
R612	0613952R43	CER CHIP RES 560K OHM 5% 0402
R613	0613952R49	CER CHIP RES 1.0M OHM 5% 0402
R614	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R617	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R618	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R619	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R620	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R621	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R622	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R623	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R625	NOTPLACED	-
R626	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R627	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R629	NOTPLACED	-
R630	NOTPLACED	-
R631	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R632	0613952R25	CER CHIP RES 100K OHM 5% 0402
R633	0613952R25	CER CHIP RES 100K OHM 5% 0402
R646	0613952R25	CER CHIP RES 100K OHM 5% 0402
R647	0613952Q84	CER CHIP RES 3000 OHM 5% 0402
R648	0613952R25	CER CHIP RES 100K OHM 5% 0402
R649	0613952R17	CER CHIP RES 47K OHM 5% 0402
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z19	SWITCH, FREQUENCY
S502	1880619Z04	VOL POTENTIOMETER with hi temp
SH100	2615311H01	SHLD,CAN,STL,TIN/LEAD PLATED,1
SH101	2615312H01	SHIELD, PA
SH102	2615306H01	SHLD,CAN,STL,TIN/LEAD PLATED,1
SH201	2680511Z03	SHIELD, SYNTHESIZER
SH202	2615307H01	SHIELD, SYNTHESIZER
SH241	2615313H01	SHIELD, VCO TOP
SH242	2680514Z02	SHIELD, VCO BOTTOM/ LVZIF
SH301	2615306H02	SHIELD,RECEIVER FRONT END TOP
SH302	2615308H01	SHIELD, RECEIVER F/END BOTTOM
SH303	2615314H01	SHIELD, MIXER
SH322	2615309H01	SHIELD,RFI/EMI,CRS,TIN
SH323	2615315H01	SHIELD, CRYSTAL FILTER
SH400	2615316H01	SHIELD,CONTROLLER TOP LEFT
SH401	2615317H01	SHIELD,CONTROLLER TOP RIGHT
SH402	2615310H01	SHIELD, CONTROLLER BOTTOM LEFT
SH403	2680516Z02	SHIELD, CONTROLLER BTM RIGHT
T301	2515121H01	BALUN, TRANSFORMER
T302	2515121H01	BALUN, TRANSFORMER
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIV
U102	5185765B26	IC PWR CTRL IN MOS20
U201	5185177Y01	IC TESTED AT25016 48 PIN W18
U210	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U211	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U241	5105750U56	IC PKG DIE VCO BUFFER
U247	5115026H01	IC,LOW DROPOUT,SM,SOT-23/6,
U248	5115019H01	IC,LOW DROPOUT,SOT-23,SOT-23
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U310	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NP
U400	5115012H01	IC,ADJ LOW DROPOUT,SM
U404	5115062H01	IC,CUST,TQFP48
U405	5115020H01	IC,SRAM,32K X 8,SOIC,3.6V
U406	5115286H01	IC 4M FLASH ROM- NON SHRINK+EP
U407	5115033H01	IC,EEPROM,6K X 8,SM
U409	5.19E+09	IC,MICROP,QFP,QFP100,3.7 MHZ
U420	5115280H01	AUDIO AMPLIFIER TDA8547TS
U602	5115014H01	IC,COMPTR,SM,SOT-23/5
VR1	4813977C12	DIODE,ZEN,MMSZ5232,SM, SOD-123,
VR100	4813977C11	Diode 5.1V 'E1' MMSZ5231BT1G
VR101	5166535A01	IC,VREF,LM4040AIM3-2.0,SOT23,S
VR102	5166535A01	IC,VREF,LM4040AIM3-2.0,SOT23,S
VR103	4813977C11	Diode 5.1V 'E1' MMSZ5231BT1G
VR2	4813977C12	DIODE,ZEN,MMSZ5232,SM, SOD-123,
VR291	4815038H01	DIODE ARRAY,ZEN,M,SOD-323,6
VR292	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR3	4813977C12	DIODE,ZEN,MMSZ5232,SM, SOD-123,
VR4	4813977C12	DIODE,ZEN,MMSZ5232,SM, SOD-123,
VR434	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR439	4813977M21	DIODE 12V ZENER _5242
VR440	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR441	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR442	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR443	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR444	4815038H01	DIODE ARRAY,ZENSM,SOD-323,6
VR445	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR446	4813977A54	DIODE ZENER 0.2W SOD-323 10V

Circuit Ref	Motorola Part No.	Description
VR447	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR448	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR449	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR460	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR470	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR471	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR500	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR501	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6
VR506	4813977A54	DIODE ZENER 0.2W SOD-323 10V
Y300	4802245J84	XTAL 44.395MHz, 3RD OT, SMD
Y301	9186145B02	CER.DISCR. CDBCA455CX36-TC

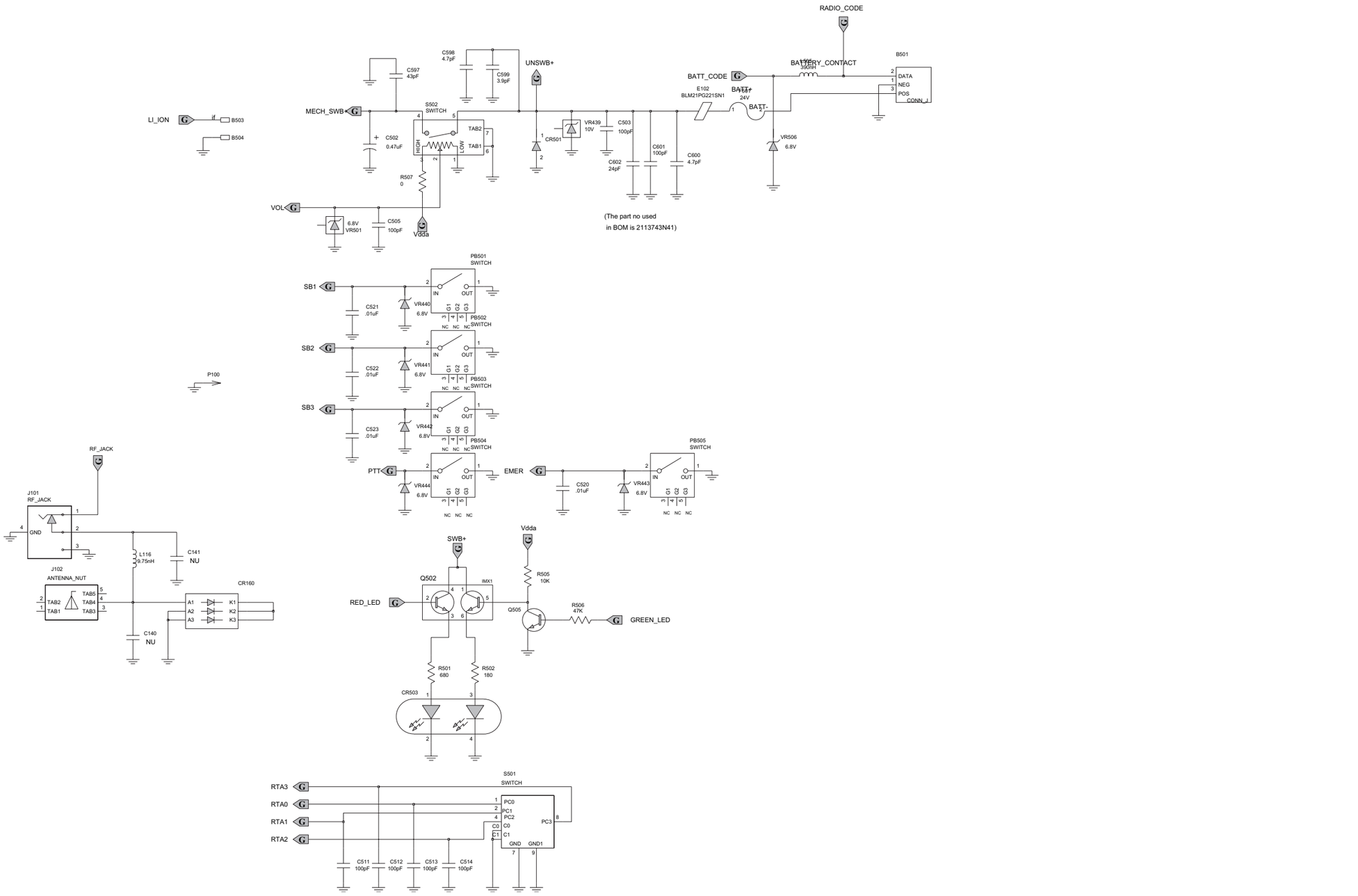
24.0 UHF PCB 8415234H05 450-470 MHz Narrow Band



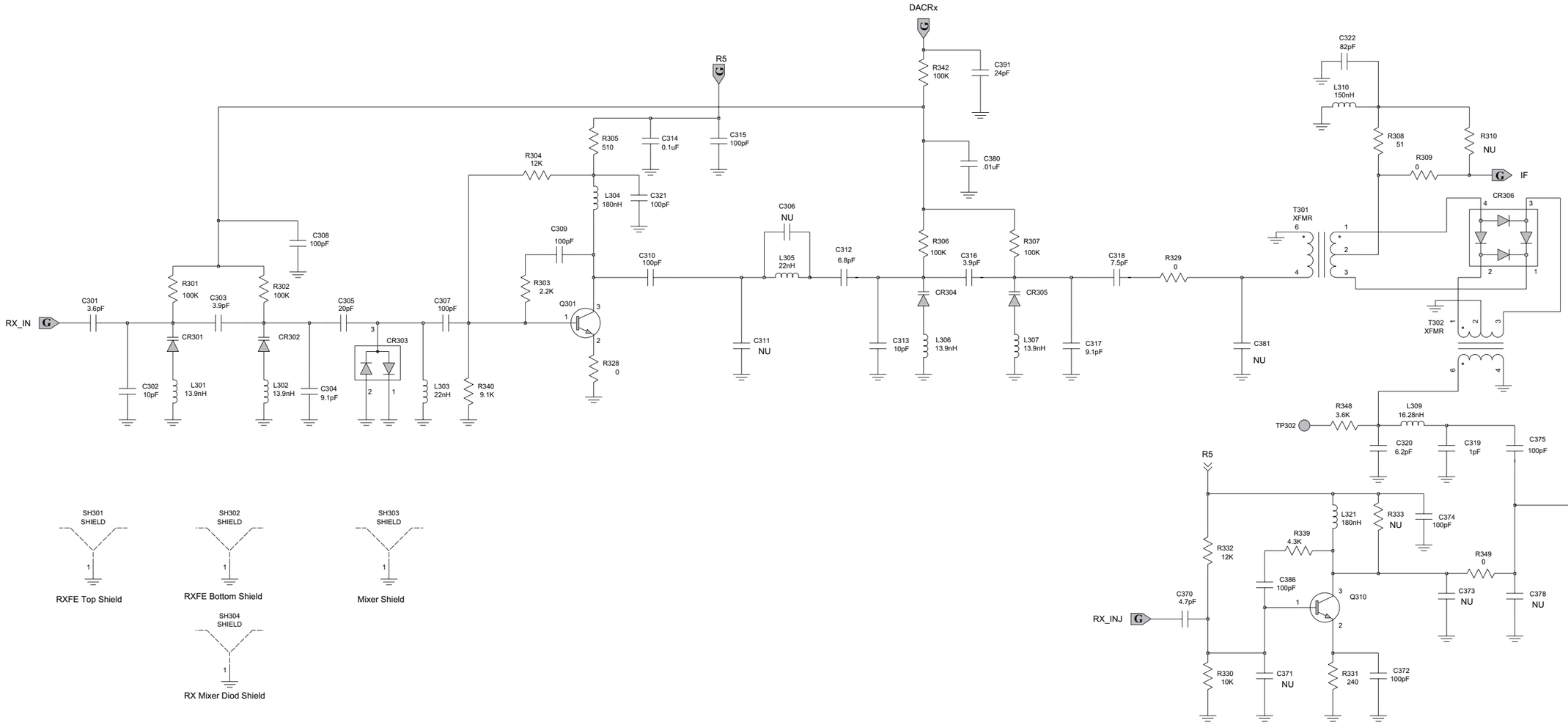
UHF Narrow Band (450-470MHz) Main Board Top Side



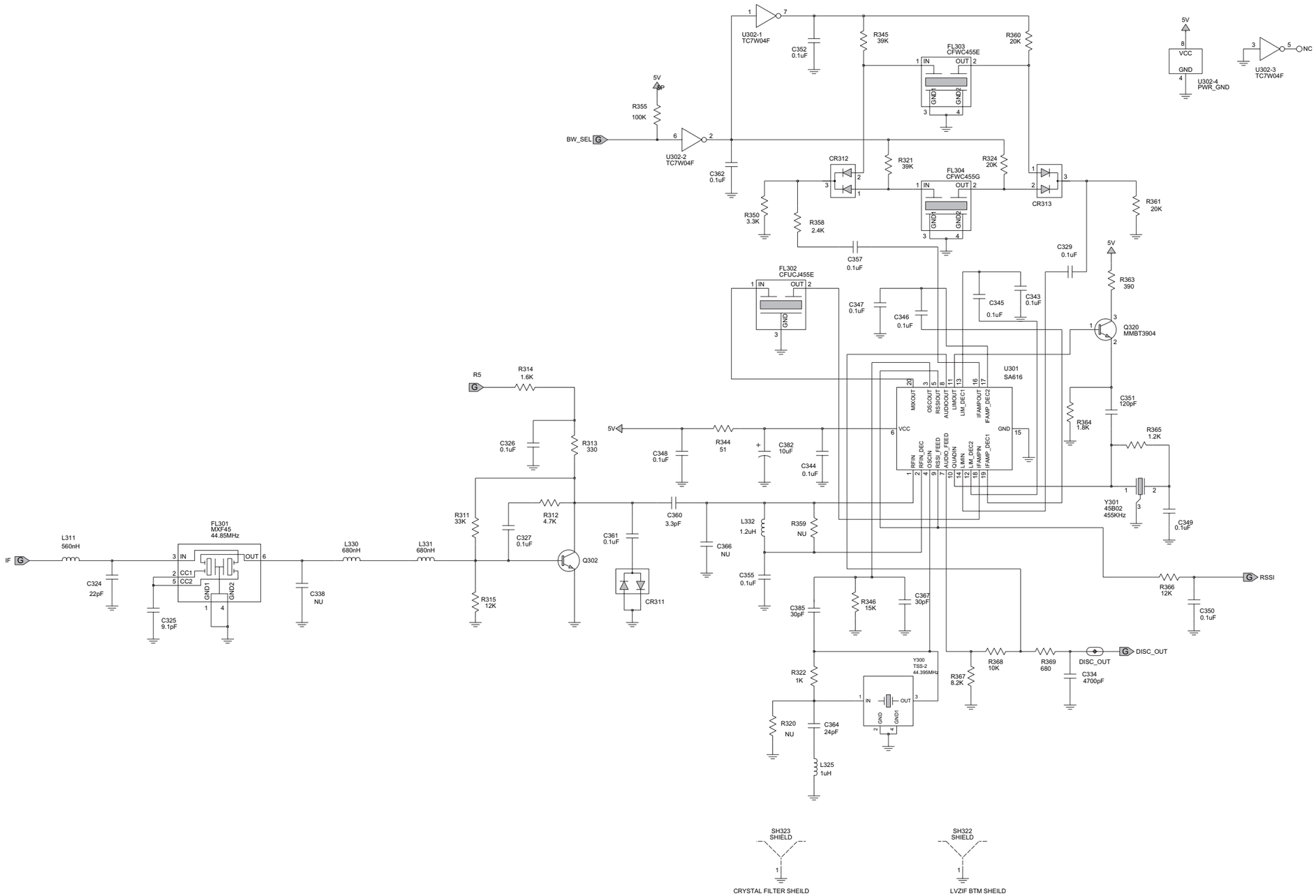
UHF Narrow Band (450-470MHz) Main Board Bottom Side



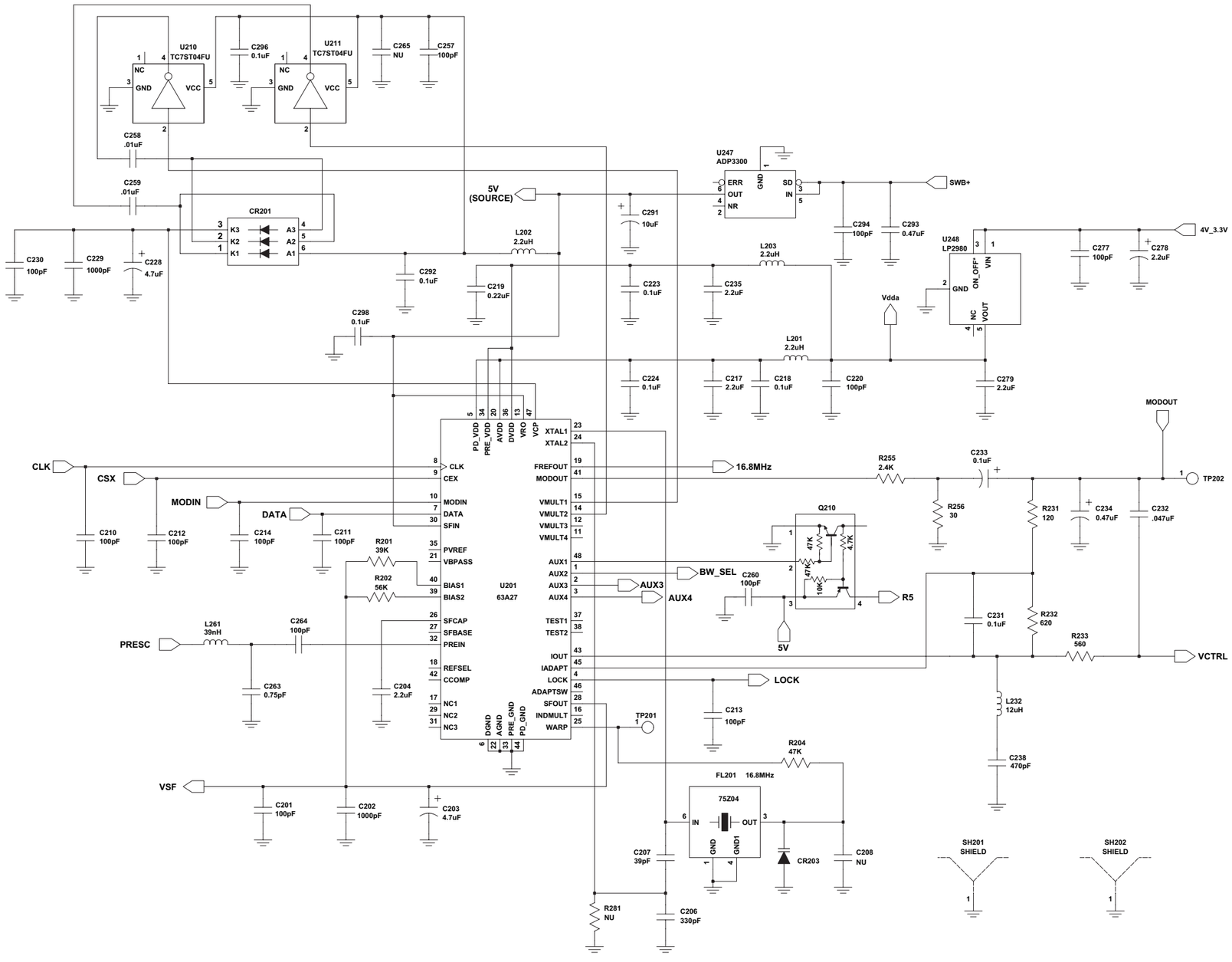
UHF Narrow Band (450-470MHz) Controls And Switches Schematic Diagram



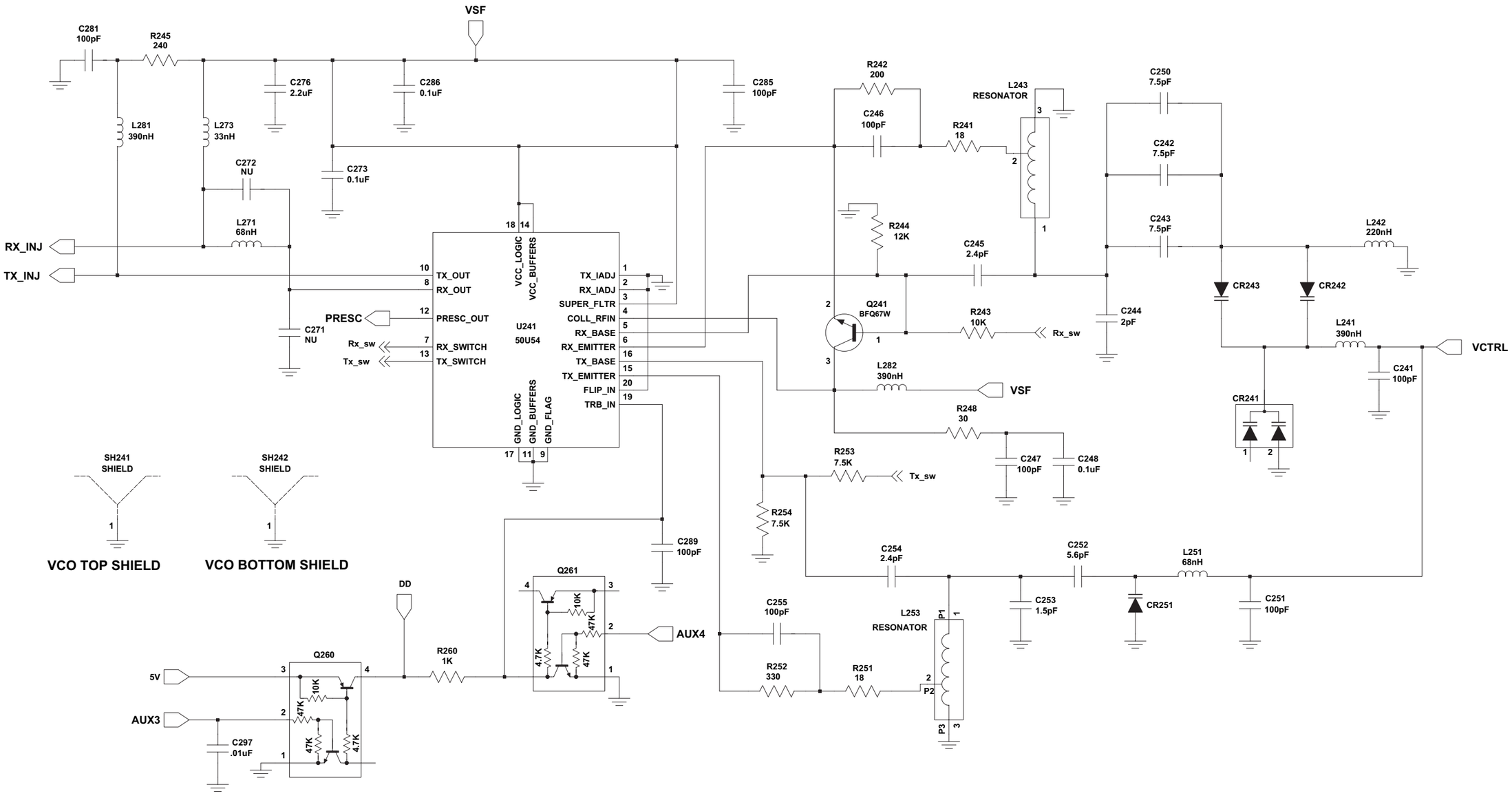
UHF Narrow Band (450-470MHz) Receiver Front End Schematic Diagram



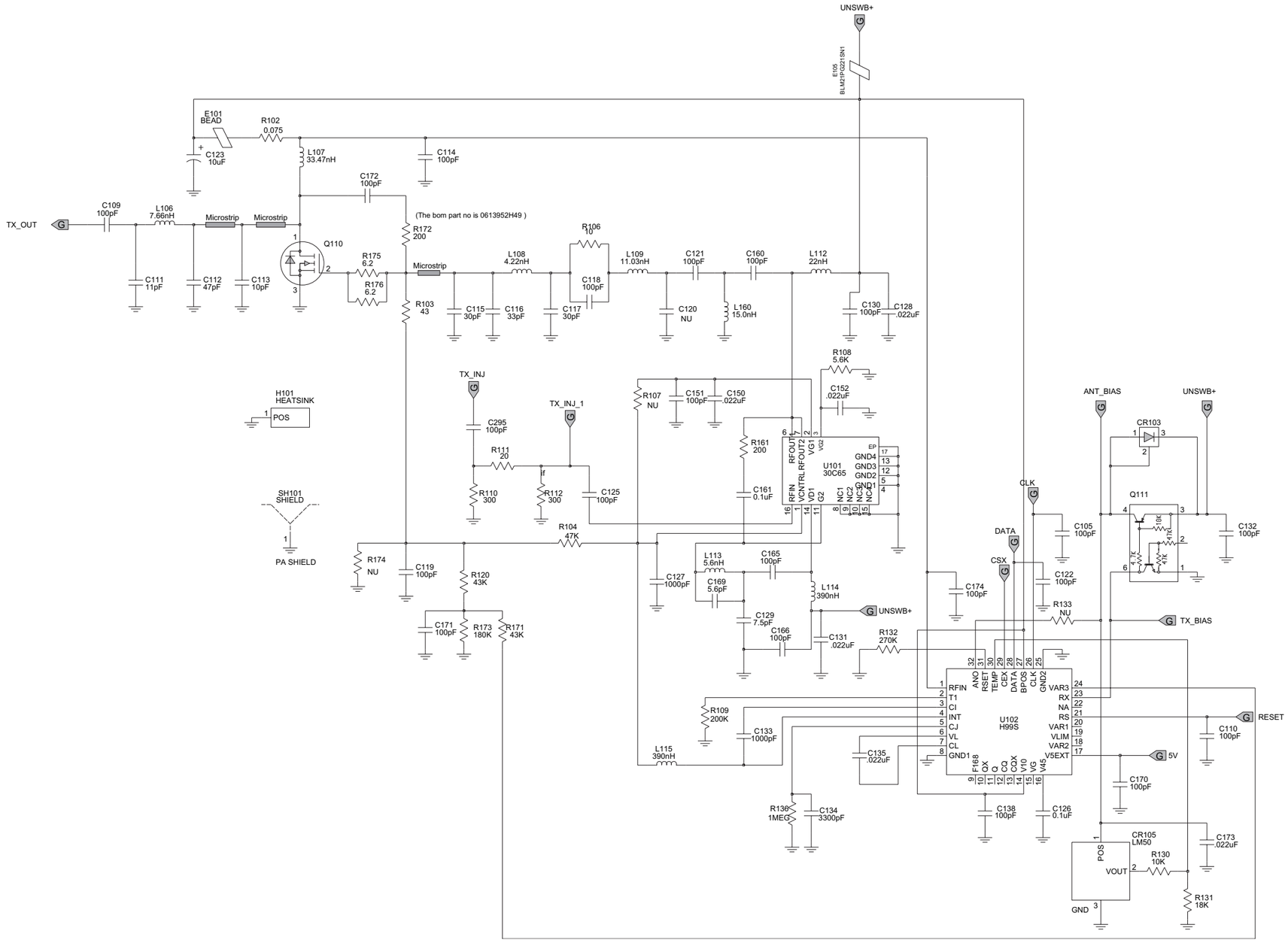
UHF Narrow Band (450-470MHz) Receiver Back End Schematic Diagram



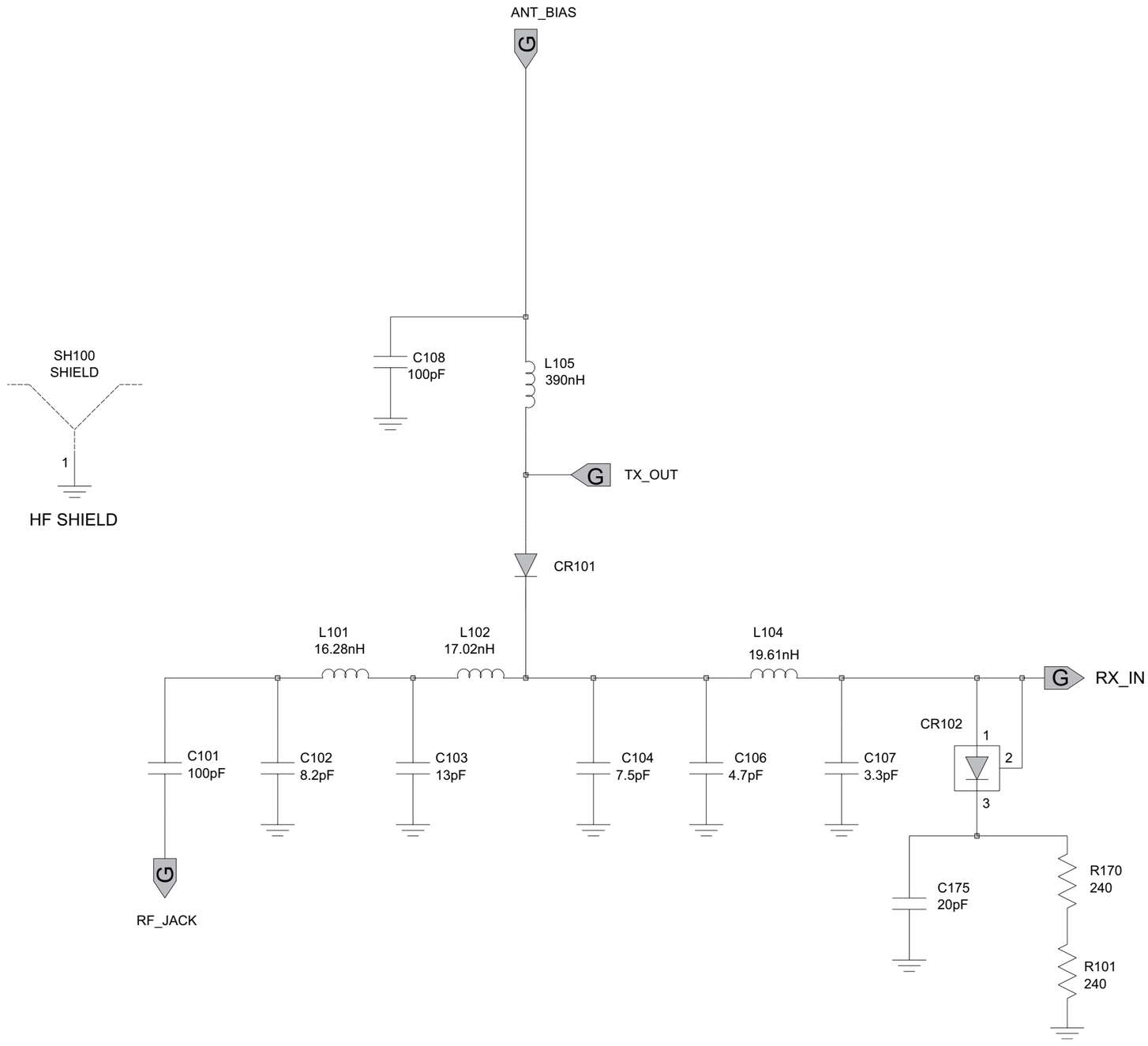
UHF Narrow Band (450-470MHz) Synthesizer Schematic Diagram



UHF Narrow Band (450-470MHz) Voltage Controlled Oscillator Schematic Diagram



UHF Narrow Band (450-470MHz)Transmitter Schematic Diagram



UHF Narrow Band (450-470MHz) Harmonic Filter Schematic Diagram

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25.0 UHF Narrow Band PCB 8415234H05 Parts List

Circuit Ref	Motorola Part No.	Description
	8415234H05	PCB
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944M16	CAP,FXD,8.2PF,.1PF+/-,50V-DC,0
C103	2113944M21	CAP,FXD,13PF,+2%,-2%,50V-DC,0
C104	2113944M15	CAP,FXD,7.5PF,.1PF+/-,50V-DC,0
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2113944C32	CAP CER CHP 15.0PF 50V 5%
C112	2115937H04	HIGH Q CHIP CAPACITOR, 47PF
C113	2115937H01	HIGH Q CHIP CAPACITOR, 10PF
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C116	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C117	2113944A29	CAP CER CHP 22.0PF 50V 5%
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,04
C121	2113944A40	CAP CER CHP 100.0PF 50V 5%
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2313960F04	CAP,FXD,33UF,+10%,-10%,16V-DC,
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946K02	CAP CER CHP 0.10UF 16V
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C129	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C132	2113944A40	CAP CER CHP 100.0PF 50V 5%
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C140	0613952H91	CER CHIP RES 5600 OHM 5 0603
C141	NOTPLACED	GCAM DUMMY PART NUMBER
C150	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C151	2113944A40	CAP CER CHP 100.0PF 50V 5%
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C160	2113944A40	CAP CER CHP 100.0PF 50V 5%
C161	2113946K02	CAP CER CHP 0.10UF 16V
C165	2113944A40	CAP CER CHP 100.0PF 50V 5%
C166	2113944A40	CAP CER CHP 100.0PF 50V 5%
C169	2113944A19	CAP CER CHP 5.6PF 50V +/- 0.5P
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113944A40	CAP CER CHP 100.0PF 50V 5%
C172	2113944C45	CAP CER CHP 100.0PF 50V 5%
C173	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-D
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C175	2113944C45	CAP CER CHP 100.0PF 50V 5%
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2113946H01	CAP CER CHP 4.7UF 10V 10%
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A33	CAP CER CHP 47.0PF 50V 5%
C208	NOTPLACED	GCAM DUMMY PART NUMBER
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP,FXD,4.7UF,+10%,-10%,16V-DC
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%
C231	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C232	2113945D02	CAP CER CHP 47,000PF 25V 10%
C233	2313960A26	CAP,FXD,.1UF,+10%,-10%, 35V-DC,
C234	2313960A55	CAP,FXD,.47UF,+10%, -10%, 25V-DC
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%, 50V-DC,0
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C243	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C244	2113944C13	CAP CER CHP 2.0PF 50V +/- 0.25
C245	2113944A10	CAP CER CHP 2.4PF 50V +/- 0.25
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A19	CAP CER CHP 5.6PF 50V +/- 0.5PF
C253	2113944C12	CAP CER CHP 1.8PF 50V +/- 0.25
C254	2113944A10	CAP CER CHP 2.4PF 50V +/- 0.25PF
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/- ,50V-DC,
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C265	NOTPLACED	GCAM DUMMY PART NUMBER
C271	NOTPLACED	GCAM DUMMY PART NUMBER
C272	NOTPLACED	GCAM DUMMY PART NUMBER
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP,FXD,10UF,+10%, -10%, 16V-DC,
C279	2113946N03	CAP CER CHP 2.2UF 16V
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%
C286	2113946K02	CAP CER CHP 0.10UF 16V
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP,FXD,10UF,+10%, -10%,6.3V-DC
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%, -10%,50V-DC
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A14	CAP CER CHP 3.6PF 50V +/- 0.25
C302	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C303	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25
C304	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C305	2113944A80	CAP,FXD,20PF,+5%,-5%,50V-DC,04
C306	NOTPLACED	GCAM DUMMY PART NUMBER
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOTPLACED	GCAM DUMMY PART NUMBER
C312	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C313	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944C20	CAP CER CHP 3.9PF 50V +/- 0.25
C317	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5P
C318	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5P
C319	2113944A11	CAP CER CHP 2.7PF 50V +/- 0.25
C320	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,04
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2113944A29	CAP CER CHP 22.0PF 50V 5%
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C328	2113946K02	CAP CER CHP 0.10UF 16V
C329	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C337	NOTPLACED	GCAM DUMMY PART NUMBER
C338	NOTPLACED	GCAM DUMMY PART NUMBER
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945D04	CAP CER CHP 100,000PF 25V 10%
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C348	2113946K02	CAP CER CHP 0.10UF 16V
C349	2113945D04	CAP CER CHP 100,000PF 25V 10%
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C352	2113946K02	CAP CER CHP 0.10UF 16V
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C358	NOTPLACED	GCAM DUMMY PART NUMBER
C359	NOTPLACED	GCAM DUMMY PART NUMBER
C360	2113944A13	CAP CER CHP 3.3PF 50V +/- 0.25
C361	2113946K02	CAP CER CHP 0.10UF 16V
C362	2113946K02	CAP CER CHP 0.10UF 16V
C364	2113944A81	CAP,FXD,24PF,+5%,-5%, 50V-DC,04
C366	NOTPLACED	GCAM DUMMY PART NUMBER
C367	2113944A82	CAP,FXD,30PF,+5%,-5%, 50V-DC,04
C370	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25
C371	NOTPLACED	GCAM DUMMY PART NUMBER
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOTPLACED	GCAM DUMMY PART NUMBER
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%
C375	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C378	NOTPLACED	GCAM DUMMY PART NUMBER
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOTPLACED	GCAM DUMMY PART NUMBER
C382	2313960B57	CAP,FXD,10UF,+10%, -10%,6.3V-DC
C383	NOTPLACED	GCAM DUMMY PART NUMBER
C385	2113944A82	CAP,FXD,30PF,+5%,-5%, 50V-DC,04
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C390	NOTPLACED	GCAM DUMMY PART NUMBER
C391	2113944A81	CAP,FXD,24PF,+5%,-5%, 50V-DC,04
C400	2113945B02	CAP CER CHP 10,000PF 25V 10%
C401	2113946K02	CAP CER CHP 0.10UF 16V
C402	2113946K02	CAP CER CHP 0.10UF 16V
C403	2113955D33	CAP,FXD,2.2UF,+10%, -10%, 16V-DC
C404	NOTPLACED	GCAM DUMMY PART NUMBER
C405	2113944A40	CAP CER CHP 100.0PF 50V 5%
C406	NOTPLACED	GCAM DUMMY PART NUMBER
C407	2113946B04	CAP CER CHP 0.10UF 10V 10%
C408	2113944A40	CAP CER CHP 100.0PF 50V 5%
C409	2113946K02	CAP CER CHP 0.10UF 16V
C410	2113946B04	CAP CER CHP 0.10UF 10V 10%

Circuit Ref	Motorola Part No.	Description
C411	2113946K02	CAP CER CHP 0.10UF 16V
C414	2113946K02	CAP CER CHP 0.10UF 16V
C415	2185895Z01	CAPACITOR CER LOW DIST .01UF
C416	2113946B04	CAP CER CHP 0.10UF 10V 10%
C419	NOTPLACED	GCAM DUMMY PART NUMBER
C420	2113945B02	CAP CER CHP 10,000PF 25V 10%
C421	2113946B04	CAP CER CHP 0.10UF 10V 10%
C422	2113946K02	CAP CER CHP 0.10UF 16V
C423	2113944A40	CAP CER CHP 100.0PF 50V 5%
C424	NOTPLACED	GCAM DUMMY PART NUMBER
C425	2113946K02	CAP CER CHP 0.10UF 16V
C426	2113944A40	CAP CER CHP 100.0PF 50V 5%
C427	2113944A40	CAP CER CHP 100.0PF 50V 5%
C428	2113946K02	CAP CER CHP 0.10UF 16V
C429	2113946K02	CAP CER CHP 0.10UF 16V
C430	2113946B04	CAP CER CHP 0.10UF 10V 10%
C431	2113944A40	CAP CER CHP 100.0PF 50V 5%
C432	NOTPLACED	GCAM DUMMY PART NUMBER
C433	2113945B02	CAP CER CHP 10,000PF 25V 10%
C434	2113946B04	CAP CER CHP 0.10UF 10V 10%
C435	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C436	2113944A29	CAP CER CHP 22.0PF 50V 5%
C437	2113944A29	CAP CER CHP 22.0PF 50V 5%
C440	2113946Q01	CAP CER CHP 4.7UF 16V
C441	2113944A40	CAP CER CHP 100.0PF 50V 5%
C442	2113945D04	CAP CER CHP 100,000PF 25V 10%
C443	2113946B04	CAP CER CHP 0.10UF 10V 10%
C444	2113944A40	CAP CER CHP 100.0PF 50V 5%
C445	2113944A40	CAP CER CHP 100.0PF 50V 5%
C447	2113945B04	CAP,FXD,.022UF,+10%, -10%,25V-D
C448	2113946B04	CAP CER CHP 0.10UF 10V 10%
C449	2113944A40	CAP CER CHP 100.0PF 50V 5%
C450	NOTPLACED	GCAM DUMMY PART NUMBER
C451	2113945B04	CAP,FXD,.022UF,+10%, -10%,25V-D
C452	2113955D31	CAP,FXD,1UF,+10%,-10%, 16V-DC,1
C453	2113944A40	CAP CER CHP 100.0PF 50V 5%
C456	2113944A40	CAP CER CHP 100.0PF 50V 5%
C458	2113944A40	CAP CER CHP 100.0PF 50V 5%
C459	2113944A40	CAP CER CHP 100.0PF 50V 5%
C463	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C466	2113944A40	CAP CER CHP 100.0PF 50V 5%
C467	2113946B04	CAP CER CHP 0.10UF 10V 10%
C471	2113944A40	CAP CER CHP 100.0PF 50V 5%
C472	2113945A05	CAP CER CHP 470PF 50V 10%
C473	2113945A05	CAP CER CHP 470PF 50V 10%
C475	2113956E91	CAP,FXD,10UF,+10%,-10%,16V-DC,
C476	2113946R01	CAP CER CHP 10.0UF 10V
C479	2113946B04	CAP CER CHP 0.10UF 10V 10%
C480	2113946R01	CAP CER CHP 10.0UF 10V
C481	2113946B04	CAP CER CHP 0.10UF 10V 10%
C482	2113946B04	CAP CER CHP 0.10UF 10V 10%
C490	2113944A40	CAP CER CHP 100.0PF 50V 5%
C491	2113944A40	CAP CER CHP 100.0PF 50V 5%
C492	2113944A40	CAP CER CHP 100.0PF 50V 5%
C493	2113944A40	CAP CER CHP 100.0PF 50V 5%
C494	2113944A40	CAP CER CHP 100.0PF 50V 5%
C495	2113944A40	CAP CER CHP 100.0PF 50V 5%
C496	2113944A40	CAP CER CHP 100.0PF 50V 5%
C497	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C498	NOTPLACED	GCAM DUMMY PART NUMBER
C498	NOTPLACED	GCAM DUMMY PART NUMBER
C499	2113946B04	CAP CER CHP 0.10UF 10V 10%
C502	2313960A55	CAP,FXD,.47UF,+10%,-10%,25V-DC
C503	2113944A84	CAP,FXD,43PF,+5%,-5%,50V-DC,04
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C524	2113944A40	CAP CER CHP 100.0PF 50V 5%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%
C597	2113944A84	CAP,FXD,43PF,+5%,-5%,50V-DC,04
C598	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25
C599	2113944A15	CAP CER CHP 3.9PF 50V +/- 0.25
C600	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,04
C601	2113944A40	CAP CER CHP 100.0PF 50V 5%
C602	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25
CR101	4880973Z02	PIN DIODE
CR102	4815257H01	SURFACE MOUNT PIN DIODES
CR103	4815257H01	SURFACE MOUNT PIN DIODES
CR105	5115022H01	IC TEMPERATURE SENSOR
CR160	NOTPLACED	GCAM DUMMY PART NUMBER
CR201	4815011H01	DIODE TRIPLE
CR203	4815072H01	DIODE VARACTOR
CR241	4885094Y01	DIODE VARACTOR ISV228 W18
CR242	4815279H01	BBY5503WE6327 FROM INFINEON
CR243	4815279H01	BBY5503WE6327 FROM INFINEON
CR251	4815322H01	VHF VARIABLE CAPACITANCE DIODE
CR301	4815279H01	BBY5503WE6327 FROM INFINEON
CR302	4815279H01	BBY5503WE6327 FROM INFINEON

Circuit Ref	Motorola Part No.	Description
CR303	4815048H01	SOT MMBD353 DIODE DUAL SCHT
CR304	4815279H01	BBY5503WE6327 FROM INFINEON
CR305	4815279H01	BBY5503WE6327 FROM INFINEON
CR306	4815923H02	SCHOTTKY DIODE-NEW LEADFREE
CR311	4813974A19	DIODE ARRAY,MXR,SM,SOT-323,7V,
CR312	4815047H01	BAND SWITCHIND DIODE,ROHM DAN
CR313	4815047H01	BAND SWITCHIND DIODE,ROHM DAN
CR411	4815067H01	DIODE SCHOTTKY, RB731U
CR412	4815067H01	DIODE SCHOTTKY, RB731U
CR413	4815067H01	DIODE SCHOTTKY, RB731U
CR440	4813978C02	PB FREE, NOT COMPLETELY ENRICH
CR501	4815155H01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
E101	2415954H01	INDUCTOR BEAD CHIP
E102	7686949J14	FLTR,FERRITE BEAD,2A,SM
E105	7686949J14	FLTR,FERRITE BEAD,2A,SM
E400	2480640Z01	SURFACE MOUNT FERRITE BEAD
E401	2480640Z01	SURFACE MOUNT FERRITE BEAD
E402	2480640Z01	SURFACE MOUNT FERRITE BEAD

Circuit Ref	Motorola Part No.	Description
E403	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E404	2480640Z01	SURFACE MOUNT FERRITE BEAD
E405	2480640Z01	SURFACE MOUNT FERRITE BEAD
E406	2480640Z01	SURFACE MOUNT FERRITE BEAD
E407	2480640Z01	SURFACE MOUNT FERRITE BEAD
E408	2480640Z01	SURFACE MOUNT FERRITE BEAD
E409	2480640Z01	SURFACE MOUNT FERRITE BEAD
F501	6515076H01	FUSE CHIP SMT TR/ 1608FF 3A
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL302	9180468V05	SMD455KHZ 4 ELEMENT CER FLTR
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
FL401	4870368G02	REFLOWABLE CLOCK OSC XTAL
H101	2680499Z02	HEAT SPREADER
J101	0985613Z01	JACK, RF
J102	0280519Z06	NUT, ANTENNA
J400	0915064H03	CONNECTOR, ZIF (40 PINS)
J403	0915064H02	ZIF (20 PINS)
L101	2460591C16	COIL AIR WOUND INDUC 16.28
L102	2460591C40	COIL AIR WOUND INDUC 17.02
L104	2479990B02	AIR WND COIL/GREEN COLOR 19.61
L105	2414032B22	IDCTR,WW,390NH,10%, 620MA,1.12O
L106	2479990A02	AIR WND COIL/GREEN COLOR7.66NH
L107	2479990G01	AIR WND COIL/GREEN COLOR 33.47
L108	2479990A01	AIR WND COIL/GREEN COLOR4.22NH
L109	2479990B01	AIR WND COIL/GREEN COLOR 11.03
L112	2414032B45	IDCTR,WW,22NH,5%,1A, .12OHM,CER
L113	2414017N09	IDCTR,CHIP,5.6NH,600MA ,.2OHM,C
L114	2414032B45	IDCTR,WW,22NH,5%,1A, .12OHM,CER
L115	2414032B22	IDCTR,WW,390NH,10%, 620MA,1.12O
L116	2479990A03	AIR WND COIL/GREEN COLOR9.75NH
L160	2414017N14	IDCTR,CHIP,15NH,5%, 600MA,.4OHM
L201	2414017Q20	IDCTR,FXD,2.2UH,20%, 30MA,.65OH
L202	2414017Q20	IDCTR,FXD,2.2UH,20%, 30MA,.65OH
L203	2414017Q20	IDCTR,FXD,2.2UH,20%, 30MA,.65OH
L232	2414032L25	IDCTR,WW,12UH,5%, 150MA,3.8OHM,
L241	2414032F41	IDCTR,WW,390NH,10%, 200MA,1.5OH
L242	2414032F38	IDCTR,WW,220NH,5%, 400MA,.7OHM,
L243	2485776Z01	COIL TEFLON RESONATOR (KAPTON)
L251	2414032F32	IDCTR,FXD,68NH,5%, 500MA,.38OHM,
L253	2460593C02	COIL MULT LAYERED TAP TEF RESN
L261	2414032F29	IDCTR,WW,39NH,5%, 500MA,.29OHM,
L271	2414032F32	IDCTR,FXD,68NH,5%, 500MA,.38OHM
L273	2414032F28	IDCTR,WW,33NH,5%, 500MA,.27OHM,
L281	2414032F41	IDCTR,WW,390NH,10%, 200MA,1.5OH
L282	2414032F41	IDCTR,WW,390NH,10%, 200MA,1.5OH
L301	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L302	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L303	2414032F26	IDCTR,WW,22NH,5%, 500MA,.22OHM,
L304	2414032F37	IDCTR,WW,180NH,5%, 400MA,.64OHM
L305	2414032F26	IDCTR,WW,22NH,5%, 500MA,.22OHM,
L306	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L307	2479990C01	AIR WND COIL/GREEN COLOR13.9NH
L309	2479990C02	AIR WND COIL/GREEN COLOR 16.28
L310	2414032F36	IDCTR,WW,150NH,5%, 400MA,.56OHM
L311	2414017K32	IDCTR,CHIP,560NH,5%, 50MA,5OHM,
L321	2414032F37	IDCTR,WW,180NH,5%, 400MA,.64OHM
L325	2414032B68	IDCTR,WW,1UH,5%, 460MA,1.75OHM,
L330	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
L331	2414017K33	IDCTR,CHIP,680NH,5%, 50MA,5.5OH
L332	2414015A25	IDCTR,CHIP,1.2UH,2%, 440MA,2OHM
L400	2414017Q42	IDCTR,FXD,390NH,10%, 200MA,.65O
L401	2414017Q42	IDCTR,FXD,390NH,10%, 200MA,.65O
L410	2414017Q42	IDCTR,FXD,390NH,10%, 200MA,.65O
L411	2414017Q42	IDCTR,FXD,390NH,10%, 200MA,.65O
L505	2414017Q42	IDCTR,FXD,390NH,10%, 200MA,.65O
P100	3905643V01	CONTACT ANT GRD
PB501	4086470Z01	TACT SWITCH
PB502	4086470Z01	TACT SWITCH
PB503	4086470Z01	TACT SWITCH
PB504	4086470Z01	TACT SWITCH
PB505	4086470Z01	TACT SWITCH
Q110	4813976A03	450MHZ 8W 7.5V PLD-1.5 T&R
Q111	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q210	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q261	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q301	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q302	4802197J95	RF TRANSISTOR PBR941

Circuit Ref	Motorola Part No.	Description
Q310	4816531H01	NPN SILICON BIPOLAR TRANSISTOR
Q320	4813973M07	XSTR,BIP GP SS,NPN,T3904,SM,SO
Q400	4815069H02	TSTR MOSFET P-CHAN
Q403	4813973A13	XSTR,BIP GP SS,PNP,T3906,SM,SO
Q405	4815066H01	UMG5N DIGITAL TRANSISTOR
Q410	4815066H01	UMG5N DIGITAL TRANSISTOR
Q416	4815069H02	TSTR MOSFET P-CHAN
Q417	4815055H01	TSTR DUAL NPN/PNP UMH 5
Q502	4815154H01	DUAL TRANS NPN
Q505	4813973M07	XSTR,BIP GP SS,NPN,T3904,SM,SO
R101	0613952H58	CER CHIP RES 240 OHM 5 0603
R102	0615043C01	RES POWER METAL STRIP W18 COMP
R103	0613952Q40	CER CHIP RES 43.0 OHM 5 0402
R104	0613952R17	CER CHIP RES 47K OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5 0402
R107	NOTPLACED	GCAM DUMMY PART NUMBER
R108	0613952Q91	CER CHIP RES 5600 OHM 5 0402
R109	0613952R32	CER CHIP RES 200K OHM 5 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5 0402
R111	0613952Q32	CER CHIP RES 20.0 OHM 5 0402
R112	0613952Q60	CER CHIP RES 300 OHM 5 0402
R120	0613952R16	CER CHIP RES 43K OHM 5 0402
R130	0613952R01	CER CHIP RES 10K OHM 5% 0402
R131	0613952R07	CER CHIP RES 18K OHM 5% 0402
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	NOTPLACED	GCAM DUMMY PART NUMBER
R136	NOTPLACED	GCAM DUMMY PART NUMBER
R161	0613952Q56	CER CHIP RES 200 OHM 5 0402
R170	0613952H58	CER CHIP RES 240 OHM 5 0603
R171	0613952R16	CER CHIP RES 43K OHM 5 0402
R172	0613952H49	CER CHIP RES 100 OHM 5% 0603
R173	0613952R31	CER CHIP RES 180K OHM 5% 0402
R174	0613952R17	CER CHIP RES 47K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5 0603
R201	0613952R15	CER CHIP RES 39K OHM 5% 0402
R202	0613952R19	CER CHIP RES 56K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402
R231	0613952Q51	CER CHIP RES 120 OHM 5 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5 0402
R241	0613952Q31	CER CHIP RES 18.0 OHM 5 0402
R242	0613952Q56	CER CHIP RES 200 OHM 5 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R03	CER CHIP RES 12K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5 0402
R251	0613952Q31	CER CHIP RES 18.0 OHM 5 0402
R252	0613952Q61	CER CHIP RES 330 OHM 5 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R254	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R255	0613952Q82	CER CHIP RES 2400 OHM 5 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R281	NOTPLACED	GCAM DUMMY PART NUMBER
R301	0613952R25	CER CHIP RES 100K OHM 5% 0402
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402
R303	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q66	CER CHIP RES 510 OHM 5 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5 0402
R309	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R310	NOTPLACED	GCAM DUMMY PART NUMBER
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5 0402
R314	0613952Q78	CER CHIP RES 1600 OHM 5 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOTPLACED	GCAM DUMMY PART NUMBER
R321	0613952R15	CER CHIP RES 39K OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R324	0613952R08	CER CHIP RES 20K OHM 5 0402
R328	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R329	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402

Circuit Ref	Motorola Part No.	Description
R331	0613952Q56	CER CHIP RES 200 OHM 5 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOTPLACED	GCAM DUMMY PART NUMBER
R339	0613952Q88	CER CHIP RES 4300 OHM 5 0402
R340	0613952Q94	CER CHIP RES 7500 OHM 5 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5 0402
R345	0613952R15	CER CHIP RES 39K OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5 0402
R349	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R350	0613952Q85	CER CHIP RES 3300 OHM 5 0402
R355	0613952R25	CER CHIP RES 100K OHM 5% 0402
R358	0613952Q82	CER CHIP RES 2400 OHM 5 0402
R359	NOTPLACED	GCAM DUMMY PART NUMBER
R360	0613952R08	CER CHIP RES 20K OHM 5 0402
R361	0613952R08	CER CHIP RES 20K OHM 5 0402
R363	0613952Q63	CER CHIP RES 390 OHM 5 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952N09	CER CHIP RES 12.1K OHM 1 0402
R368	0613952N01	CER CHIP RES 10.0K OHM 1 0402
R369	0613952Q69	CER CHIP RES 680 OHM 5 0402
R370	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R371	NOTPLACED	GCAM DUMMY PART NUMBER
R372	NOTPLACED	GCAM DUMMY PART NUMBER
R373	NOTPLACED	GCAM DUMMY PART NUMBER
R374	NOTPLACED	GCAM DUMMY PART NUMBER
R375	NOTPLACED	GCAM DUMMY PART NUMBER
R376	NOTPLACED	GCAM DUMMY PART NUMBER
R377	NOTPLACED	GCAM DUMMY PART NUMBER
R378	NOTPLACED	GCAM DUMMY PART NUMBER
R400	0613952R17	CER CHIP RES 47K OHM 5% 0402
R401	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R402	NOTPLACED	GCAM DUMMY PART NUMBER
R403	NOTPLACED	GCAM DUMMY PART NUMBER
R405	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R406	0613952R22	CER CHIP RES 75K OHM 5 0402
R407	0613952R21	CER CHIP RES 68K OHM 5% 0402
R408	NOTPLACED	GCAM DUMMY PART NUMBER
R409	0613952R01	CER CHIP RES 10K OHM 5% 0402
R410	0613952R25	CER CHIP RES 100K OHM 5% 0402
R411	0613952R01	CER CHIP RES 10K OHM 5% 0402
R413	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R414	0613952P25	CER CHIP RES 178K OHM 1 0402
R415	0613952N93	CER CHIP RES 90.9K OHM 1 0402
R416	0613952R01	CER CHIP RES 10K OHM 5% 0402
R418	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R419	0613952Q66	CER CHIP RES 510 OHM 5 0402
R420	0613952J73	CER CHIP RES 10.0M OHM 5% 0603
R421	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R423	0613952R41	CER CHIP RES 470K OHM 5% 0402
R424	0613952R14	CER CHIP RES 36K OHM 5 0402
R425	0613952R12	CER CHIP RES 30K OHM 5 0402
R426	0613952R37	CER CHIP RES 330K OHM 5% 0402
R427	0613952Q83	CER CHIP RES 2700 OHM 5 0402
R428	0613952Q09	CER CHIP RES 2.2 OHM 5 0402
R429	0613952R22	CER CHIP RES 75K OHM 5 0402
R431	0613952R41	CER CHIP RES 470K OHM 5% 0402
R432	0613952R18	CER CHIP RES 51K OHM 5 0402
R434	0613952Q61	CER CHIP RES 330 OHM 5 0402
R435	0613952Q80	CER CHIP RES 2000 OHM 5 0402
R436	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R437	NOTPLACED	GCAM DUMMY PART NUMBER
R445	0613952R10	CER CHIP RES 24K OHM 5 0402
R447	0613952R25	CER CHIP RES 100K OHM 5% 0402
R448	0613952R01	CER CHIP RES 10K OHM 5% 0402
R449	0613952R10	CER CHIP RES 24K OHM 5 0402
R450	0613959Y45	CER CHIP RES OHM 5% 2512
R451	0613952R05	CER CHIP RES 15K OHM 5% 0402
R452	0613952R25	CER CHIP RES 100K OHM 5% 0402
R453	NOTPLACED	GCAM DUMMY PART NUMBER
R454	NOTPLACED	GCAM DUMMY PART NUMBER
R455	NOTPLACED	GCAM DUMMY PART NUMBER
R456	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM

Circuit Ref	Motorola Part No.	Description
R457	0613952R01	CER CHIP RES 10K OHM 5% 0402
R460	0613952Q89	CER CHIP RES 4700 OHM 5 0402
R461	0613952Q55	CER CHIP RES 180 OHM 5 0402
R462	0613952R01	CER CHIP RES 10K OHM 5% 0402
R463	0613952Q60	CER CHIP RES 300 OHM 5 0402
R471	0613952R08	CER CHIP RES 20K OHM 5 0402
R472	0613952R14	CER CHIP RES 36K OHM 5 0402
R473	0613952Q25	CER CHIP RES 10.0 OHM 5 0402
R475	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R476	0613952R37	CER CHIP RES 330K OHM 5% 0402
R477	0613952Q73	CER CHIP RES 1000 OHM 5 0402
R478	0613952R01	CER CHIP RES 10K OHM 5% 0402
R479	0613952Q66	CER CHIP RES 510 OHM 5 0402
R481	0613952R10	CER CHIP RES 24K OHM 5 0402
R492	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R498	0613952R01	CER CHIP RES 10K OHM 5% 0402
R499	0613952R01	CER CHIP RES 10K OHM 5% 0402
R501	0613952Q69	CER CHIP RES 680 OHM 5 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R506	0613952R17	CER CHIP RES 47K OHM 5% 0402
R507	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z19	SWITCH, FREQUENCY
S502	1880619Z06	POTENTIOMETER, VOLUME
SH100	2680507Z02	SHIELD, HARMONIC FILTER
SH101	2680510Z02	SHIELD, PA
SH201	2680511Z02	SHIELD, SYNTHESIZER
SH202	2680511Z02	SHIELD, SYNTHESIZER
SH241	2604120G02	AOBA VCO SHIELD
SH242	2680514Z02	SHIELD, VCO BOTTOM/ LVZIF
SH301	2686583Z02	SHIELD, RECEIVER FRONT END TOP
SH302	2680555Z02	SHIELD, RECEIVER F/ END BOTTOM
SH303	2680509Z02	SHIELD, MIXER
SH304	2680624Z02	SHIELD, MIXER DIODE
SH322	2686528Z02	SHIELD, IF SECTION
SH323	2686527Z02	SHIELD, RFI/EMI, CRS, TIN
SH400	2680505Z02	SHIELD, CONTROLLER TOP LEFT
SH401	2680506Z02	SHIELD, CONTROLLER TOP RIGHT
SH402	2680515Z02	SHIELD, CONTROLLER BOTTOM LEFT
SH403	2680516Z02	SHIELD, CONTROLLER BTM RIGHT
T301	2515121H01	BALUN, TRANSFORMER W18 COMP
T302	2515121H01	BALUN, TRANSFORMER W18 COMP
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIV
U102	5185765B26	IC PWR CTRL IN MOS20
U201	5185177Y01	IC TESTED AT25016 48 PIN W18
U210	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U211	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U241	5171121L01	CUSTOM LOW VOLTAGE VCO BUFFER
U247	5115026H01	MAX SUPPLY VOL 16V
U248	5115019H01	3.3V REGULATOR IN SOT23-5 PKG
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U302	5115070H01	IC 3-INV LMOS TC7W04FU
U303	NOTPLACED	GCAM DUMMY PART NUMBER
U400	5115012H01	MAX SUPPLY VOL 30V
U404	5115062H01	IC ASFIC_CMP
U405	5115020H01	STATIC_RAM_32KX8 INDUST TEMP
U406	5115034H01	IC FLASH 4MBIT
U407	5115033H01	16K X 8 SPI SERIAL ROM
U409	5185143E03	HC11FL0 (3V) ASIC MICRO-P
U410	5115044H01	REGULATOR 3.3V,ILC7062CM-33
U420	5115280H01	AUDIO AMPLIFIER TDA8547TS
VR432	4813979P10	DIODE ARRAY,TRANSIENT PROTECTI
VR433	4813979P10	DIODE ARRAY,TRANSIENT PROTECTI
VR434	4815038H01	ZENER DIODE-6.8V
VR439	4813977M21	DIODE,ZEN,MBZ5242,SM, SOT-23,12
VR440	4815038H01	ZENER DIODE-6.8V
VR441	4815038H01	ZENER DIODE-6.8V
VR442	4815038H01	ZENER DIODE-6.8V
VR443	4815038H01	ZENER DIODE-6.8V
VR444	4815038H01	ZENER DIODE-6.8V
VR445	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR446	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR447	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR448	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR449	4813977A54	DIODE,ZEN,MM3Z10V,SM, SOD-323,1
VR450	4815040H01	ZENER DIODE-12V
VR460	4815038H01	ZENER DIODE-6.8V
VR501	4813977M14	DIODE,ZEN,MBZ5235,SM, SOT-23,6.
VR506	4815038H01	ZENER DIODE-6.8V
Y300	4802245J84	XTAL 44.395MHZ, 3RD OT, SMD
Y301	9186145B02	CER.DISCR. CDBCA455CX36-TC

Professional Radio

GP Series

UHF2 (450 - 527MHz)

Service Information

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Chapter 1

THEORY OF OPERATION

1.0 Introduction

This Chapter provides a detailed theory of operation for the UHF circuits in the radio. For details of the theory of operation and trouble shooting for the the associated Controller circuits refer to the Controller Section of this manual.

2.0 UHF Transmitter

(*Refer to Figure 2-1 and the UHF Transmitter schematic diagram*)

The UHF transmitter consists of the following basic circuits:

1. Power amplifier (PA).
2. Antenna switch/harmonic filter.
3. Antenna matching network.
4. Power Control Integrated Circuit (PCIC).

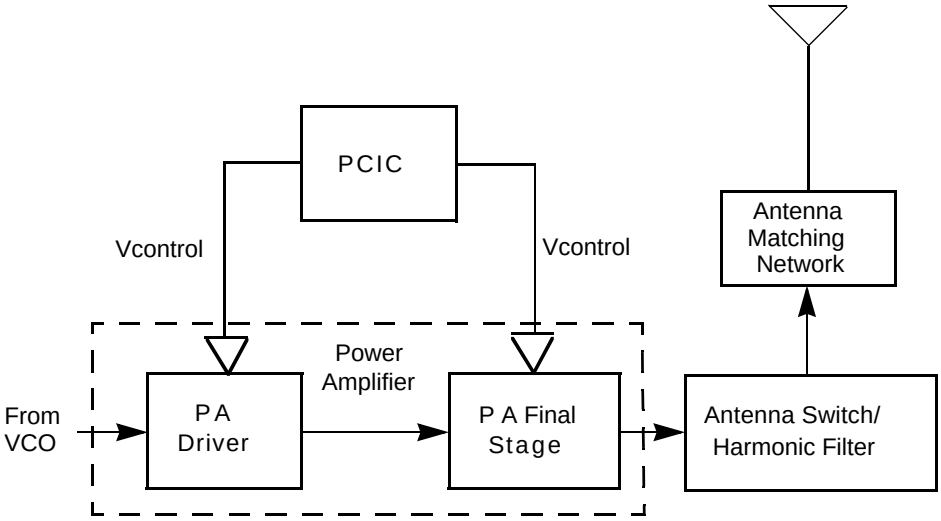

Figure 1-1 UHF Transmitter Block Diagram.

2.1 Power Amplifier

The power amplifier (PA) consists of two principle devices:

1. LDMOS PA driver IC, U101.
2. LDMOS PA final stage, Q110.

The LDMOS driver IC provides 2-stage amplification using a supply voltage of 7.3V. The amplifier is capable of supplying an output power of 0.3W (pins 6 and 7) with an input signal of 2mW at 3dBm (pin16). The current drain is typically 160mA while operating in the frequency range of 450-527MHz.

The LDMOS PA is capable of supplying an output power of 7W with an input signal of 0.3W. The current drain is typically 1300mA while operating in the frequency range of 450-527MHz. The power output can be varied by changing the bias voltage.

2.2 Antenna Switch

The antenna switch circuit consists of two pin diodes (CR101 and CR102), a pi network (C107, L104 and C106), and two current limiting resistors (R101 and R170). In the transmit mode, B+ at PCIC (U102) pin 23 goes low turning on Q111 which applies a B+ bias to the antenna switch circuit to bias the diodes “on”. The shunt diode (CR102) shorts out the receiver port and the pi network. This operates as a quarter wave transmission line to transform the low impedance of the shunt diode to a high impedance at the input of the harmonic filter. In the receive mode, the diodes are both off, creating a low attenuation path between the antenna and receiver ports.

2.3 Harmonic Filter

The harmonic filter consists of components C104, L102, C103, L101 and C102. The harmonic filter for UHF is a modified Zolotarev design optimized for efficiency of the power module. This type of filter has the advantage that it can give a greater attenuation in the stop-band for a given ripple level. The harmonic filter insertion loss is typically less than 1.2dB.

2.4 Antenna Matching Network

The antenna matching network is made up of inductor L116. This component matches the antenna impedance to the harmonic filter to optimize the performance of the transmitter and receiver.

2.5 Power Control Integrated Circuit (PCIC)

The transmitter uses PCIC, U102, to regulate the power output of the radio. The current to the final stage of the power module is supplied through R101 to provide a voltage proportional to the current drain. This voltage is then fedback to the Automatic Level Control (ALC) within the PCIC to regulate the output power of the transmitter.

The PCIC contains internal digital to analog converters (DACs) that provide a programmable control loop reference voltage through the SPI line of the PCIC.

The PCIC internal resistors, integrators, and external capacitors (C133, C134 and C135) control the transmitter rise and fall times to reduce the power splatter into adjacent channels.

Diode CR105 and its associated components are part of a temperature cut back circuit. This circuit senses the printed circuit board temperature around the transmitter circuits and outputs a DC voltage to the PCIC. If the DC voltage produced exceeds the set threshold of the PCIC, the transmitter output power decreases to reduce the transmitter temperature.

3.0 UHF Receiver (all models except those with PCB 8486686Z02)

The UHF receiver consists of a front end, back end, and automatic gain control circuits. A block diagram of the receiver is shown in Figure 2-2. Detailed descriptions of these features are contained in the paragraphs that follow.

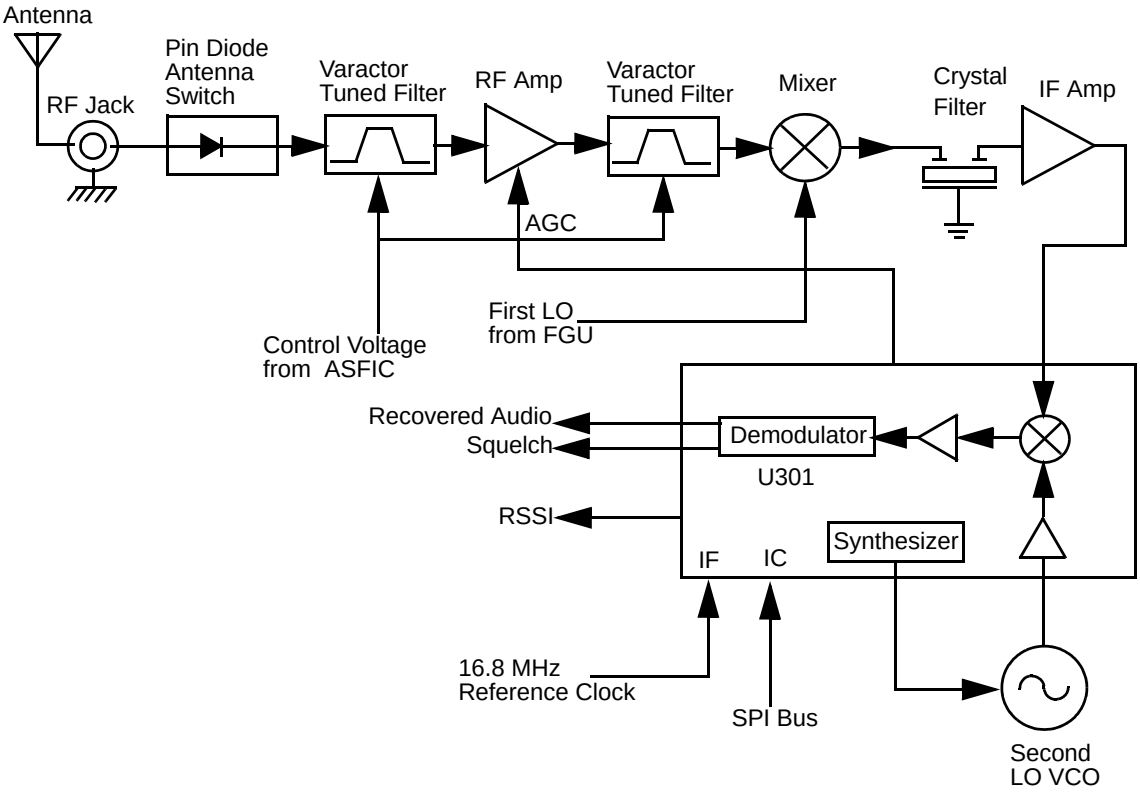

Figure 1-2 UHF Receiver Block Diagram.

3.1 Receiver Front-End

(*Refer to Figure 2-2 and the UHF Receiver Front End schematic diagram)*

The RF signal received by the antenna is applied to a low-pass filter. For UHF, the filter consists of components L101, L102, C102, C103, and C104. The filtered RF signal is passed through the antenna switch circuit consisting of two pin diodes (CR101 and CR102) and a pi network (C106, L104, and C107). The signal is then applied to a varactor tuned bandpass filter.

The UHF bandpass filter consists of components L301, L302, C302, C303, C304, CR301, and CR302. The filter is electronically tuned by DACRx from IC404 which supplies a control voltage to the varactor diodes (CR301 and CR302) in the filter as determined by the microprocessor depending on the carrier frequency. Wideband operation of the filter is achieved by shifting the bandpass filter across the band.

The output of the bandpass filter is coupled to the RF amplifier transistor Q301 via C307. After being amplified by the RF amplifier, the RF signal is further filtered by a second varactor tuned bandpass filter, consisting of L306, L307, C313, C317, CR304 and CR305.

Both the pre and post-RF amplifier varactor tuned filters have similar responses. The 3 dB bandwidth of the filter is approximately 50 MHz. This enables the filters to be electronically controlled by using a single control voltage from DACRx.

The output of the post-RF amplifier filter is connected to the passive double balanced mixer consisting of components T301, T302, and CR306. Matching of the filter to the mixer is provided by C381. After mixing with the first local oscillator (LO) signal from the voltage controlled oscillator (VCO) using low side injection, the RF signal is down-converted to a 45.1 MHz IF signal.

The IF signal coming out of the mixer is transferred to the crystal filter (FL301) through a resistor pad and a diplexer (C322 and L310). Matching to the input of the crystal filter is provided by C324 and L311. The crystal filter provides the necessary selectivity and intermodulation protection.

3.2 Receiver Back-End

(*Refer to Figure 2-2 and the UHF Receiver Back End schematic diagram*)

The output of crystal filter FL301 is matched to the input of IF amplifier transistor Q302 by components L322 and C325. Voltage supply to the IF amplifier is taken from the receive 5 volts (R5). The IF amplifier provides a gain of about 7dB. The amplified IF signal is then coupled into U301 (pin 3) via C330, C338 and L330 which provides matching for the IF amplifier and U301.

The IF signal applied to pin 3 of U301 is amplified, down-converted, filtered, and demodulated, to produce recovered audio at pin 27 of U301. This IF IC is electronically programmable, and the amount of filtering, which is dependent on the radio channel spacing, is controlled by the microprocessor. Additional filtering, once externally provided by the conventional ceramic filters, is replaced by internal filters in IF module U301.

The IF IC uses a type of direct conversion process, whereby the externally generated second LO frequency is divided by two in U301 so that it is very close to the first IF frequency. The IF IC (U301) synthesizes the second LO and phase-locks the VCO to track the first IF frequency. The second LO is designed to oscillate at twice the first IF frequency because of the divide-by-two function in the IF IC.

In the absence of an IF signal, the VCO searches for a frequency, or its frequency will vary close to twice the IF frequency. When an IF signal is received, the VCO locks onto the IF signal. The second LO/VCO is a Colpitts oscillator built around transistor Q320. The VCO has a varactor diode, CR310, to adjust the VCO frequency. The control signal for the varactor is derived from a loop filter consisting of components C362, C363, C364, R320 and R321.

The IF IC (U301) also performs several other functions. It provides a received signal-strength indicator (RSSI) and a squelch output. The RSSI is a dc voltage monitored by the microprocessor, and used as a peak indicator during the bench tuning of the receiver front-end varactor filter. The RSSI voltage is also used to control the automatic gain control (AGC) circuit at the front-end.

The demodulated signal on pin 27 of U301 is also used for squelch control. The signal is routed to U404 (ASFIC) where squelch signal shaping and detection takes place. The demodulated audio signal is also routed to U404 for processing before going to the audio amplifier for amplification.

3.3 Automatic Gain Control (AGC)

(*Refer to the UHF Receiver Front End and Receiver Back End schematic diagrams*)

The front end automatic gain control circuit provides automatic reduction of gain, of the front end RF amplifier via feedback. This action is necessary to prevent overloading of backend circuits. This is achieved by drawing some of the output power from the RF amplifier output. At high radio frequencies, capacitor C331 provides a low impedance path to ground for this purpose. CR308 is a pin diode used for switching the path on or off. A certain amount of forward biasing current is needed to turn the pin diode on. Transistors Q315 and Q311 provide for this current. When Q315 is turned on, current flows via R323, collector and emitter of Q315, and R319 before going to ground. Q315 is an NPN transistor used for switching.

The Radio Signal Strength Indicator (RSS I) voltage signal is used to drive Q315 to saturation, i.e., turned on. RSSI is produced by U301 and is proportional to the gain of the RF amplifier and the input power to the radio.

Resistors R318 and R316 are voltage dividers designed to turn on Q315 at certain RSSI levels. To turn on Q315, the voltage across R318 must be greater or equal to the voltage across R319 + Vbe. Capacitor C397 dampens any instability while the AGC is turning on.

Diode D300 is to ensure that C397 only discharges towards the transistor and not back to U301. The current flowing into the base of Q311, a high current gain PNP transistor, is amplified and fed to the pin diode to turn it on. Maximum current flowing through the pin is limited by resistors R347 and R317. Feedback capacitor C333 provides some stability to this high gain stage. Q316, R325, R326, R327, R338, R339 and R341 make up the temperature compensation circuit for this AGC. RSSI generated by U301 is lower at cold compared to normal operation at room temperature. Q316 is designed to turn on only at cold temperature. When Q316 is turned on, current flows through the collector-emitter junction to ground. Current through R319 and hence voltage across it is reduced. The turn on voltage is lower and this accommodates for the reduction of the RSSI at cold temperature.

4.0 UHF Receiver (Models with PCB 8486686Z02)

The UHF receiver consists of a front and back end. A block diagram of the receiver is shown in Figure 2-3. Detailed descriptions of these features are contained in the paragraphs that follow.

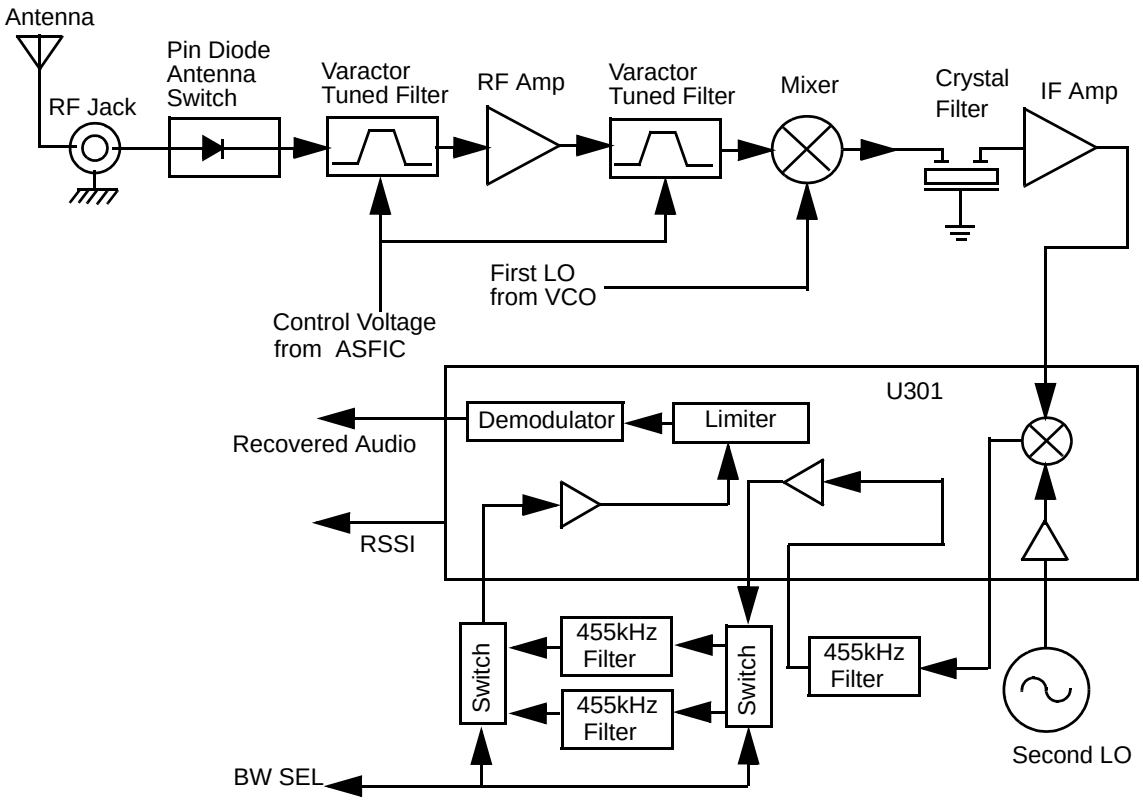

Figure 1-3 UHF Receiver Block Diagram.

4.1 Receiver Front-End

(*Refer to Figure 2-3 and the UHF Receiver Front End schematic diagram for PCB 8486686Z02)*

The RF signal is received by the antenna and applied to a low-pass filter. For UHF, the filter consists of L101, L102, C102, C103, C104. The filtered RF signal is passed through the antenna switch. The antenna switch circuit consists of two PIN diodes(CR101 and CR102) and a pi network (C106, L104 and C107).The signal is then applied to a varactor tuned bandpass filter. The UHF bandpass filter comprises of L301, L302, C302, C303, C304, CR301 and CR302. The bandpass filter is tuned by applying a control voltage to the varactor diodes(CR301 and CR302) in the filter.

The bandpass filter is electronically tuned by the DACRx from IC404 which is controlled by the microprocessor. Depending on the carrier frequency, the DACRx will supply the tuned voltage to the varactor diodes in the filter. Wideband operation of the filter is achieved by shifting the bandpass filter across the band.

The output of the bandpass filter is coupled to the RF amplifier transistor Q301 via C307. After being amplified by the RF amplifier, the RF signal is further filtered by a second varactor tuned bandpass filter, consisting of L306, L307, C313, C317, CR304 and CR305.

Both the pre and post-RF amplifier varactor tuned filters have similar responses. The 3 dB bandwidth of the filter is about 50 MHz. This enables the filters to be electronically controlled by using a single control voltage which is DACRx .

The output of the post-RF amplifier filter which is connected to the passive double balanced mixer consists of T301, T302 and CR306. Matching of the filter to the mixer is provided by C381. After mixing with the first LO signal from the voltage controlled oscillator (VCO) using low side injection, the RF signal is down-converted to the 44.85 MHz IF signal.

The IF signal coming out of the mixer is transfered to the crystal filter (FL301) through a resistor pad and a diplexer (C322 and L310). Matching to the input of the crystal filter is provided by C324 and L311. The crystal filter provides the necessary selectivity and intermodulation protection.

4.2 Receiver Back-End

(*Refer to Figure 2-3 and the UHF Receiver Back End schematic diagram for PCB 8486686Z02*)

The output of crystal filter FL301 is matched to the input of first IF amplifier transistor Q302 by L330. Voltage supply to the IF amplifier is taken from the receive 5 volts (R5). The IF amplifer provides a gain of about 16dB. The amplified first IF signal is then coupled into U301 (pin 1) via C360 and L332 which provides the matching for the first IF amplifier and U301.

Within U301, the first IF 44.85 MHz signal mixes with the 44.395 MHz second local oscillator (2nd LO) to produce the second IF signal at 455 kHz. The 2nd LO signal frequency is determined by crystal Y300. The second IF signal (455 kHz) is then filtered by an external ceramic filter FL302 before being amplified by the second IF amplifier within U301. Again, the signal is filtered by a second external ceramic filter FL303 or FL304 depending on the selected channel spacing. FL303 is used for 20/25 kHz channel spacing whereas FL304, for 12.5 kHz channel spacing. The simple circuit consisting of U302, CR312, CR313 and resistors R345, R360, R321 and R324 divert the second IF signal according to the BW_SEL line. The filtered output of the second IF signal is applied to the limiter input pin of U301.

The IF IC (U301) contains a quadrature detector using a ceramic phase-shift element (Y301) to provide audio detection. Internal amplification provides an audio output level around 120mVrms (@60% deviation) from pin 8 of U301. This demodulated audio is fed to the ASFIC_CMP IC (U404) in the controller section.

The IF IC (U301) also performs several other functions. It provides a received signal-strength indicator (RSSI) with a dynamic range of 70 dB. The RSSI is a dc voltage monitored by the microprocessor, and used as a peak indicator during the bench tuning of the receiver front-end varactor filter.

5.0 Frequency Generation Circuit

(*Refer to Figure 2-4 and the UHF Frequency Synthesizer schematic diagram*)

The frequency generation circuit, shown in Figure 2-4, is composed of Fractional-N synthesizer U201 and VCO/Buffer IC U241. Designed in conjunction to maximize compatibility, the two ICs provide many of the functions that normally require additional circuitry. The synthesizer block diagram illustrates the interconnect and support circuitry used in the region. Refer to the schematic for the reference designator.

The synthesizer is powered by regulated 5V and 3.3V which are provided by ICs U247 and U248 respectively. The 5V signal goes to pins 13 and 30 while the 3.3V signal goes to pins 5, 20, 34 and 36 of U201. The synthesizer in turn generates a superfiltered 5V which powers U241.

In addition to the VCO, the synthesizer also interfaces with the logic and ASFIC circuitry. Programming for the synthesizer is accomplished through the data, clock and chip select lines (pins 7, 8 and 9) from the microprocessor, U409. A 3.3V dc signal from pin 4 indicates to the microprocessor that the synthesizer is locked.

Transmit modulation from the ASFIC is supplied to pin10 of U201. Internally the audio is digitized by the Fractional-N and applied to the loop divider to provide the low-port modulation. The audio runs through an internal attenuator for modulation balancing purposes before going out at pin 41 to the VCO.

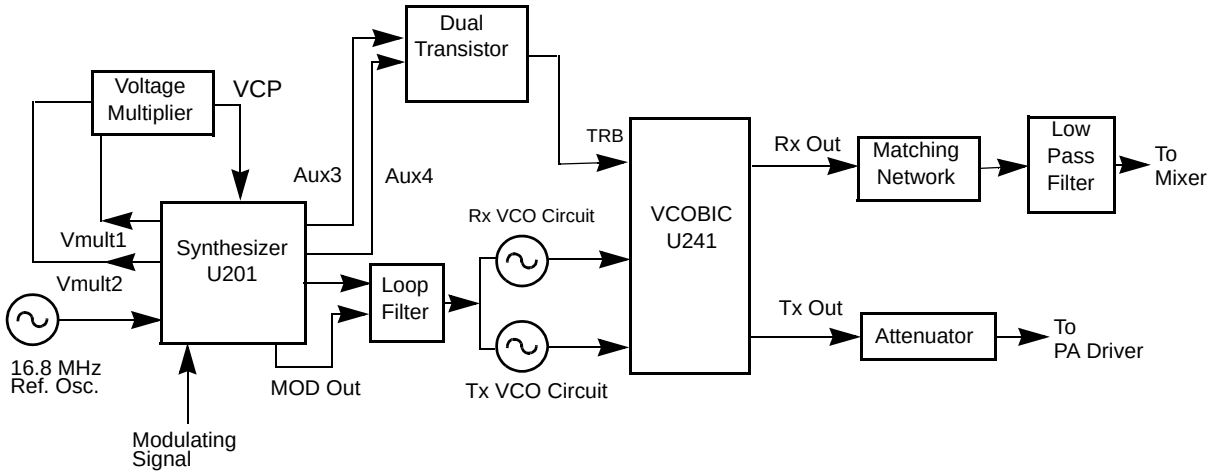

Figure 1-4 UHF Frequency Generation Unit Block Diagram

5.1 Synthesizer

(*Refer to Figure 2-5 and the UHF Synthesizer schematic diagram)*

The Fractional-N synthesizer, shown in Figure 2-5, uses a 16.8MHz crystal (FL201) to provide a reference for the system. The LVFractN IC (U201) further divides this to 2.1MHz, 2.225MHz, and 2.4MHz to be used as reference frequencies. Together with C206, C207, C208, R204 and CR203, they build up the reference oscillator which is capable of 2.5ppm stability over temperatures of -30 to 85°C. It also provides 16.8MHz at pin 19 of U201 for use by the ASFIC and IF.

The loop filter consists of components C231, C232, C233, R231, R232 and R233. This circuit provides the necessary dc steering voltage for the VCO and determines the amount of noise and spur passing through.

To achieve fast locking for the synthesizer, an internal adapt charge pump provides higher current at pin 45 of U201 to put the synthesizer within lock range. The required frequency is then locked by normal mode charge pump at pin 43.

Both the normal and adapt charge pumps get their supply from the capacitive voltage multiplier made up of C258, C259, C228, triple diode CR201, and level shifters U210 and U211. Two 3.3V square waves, 180 degrees out of phase, are first shifted to 5V, then along with regulated 5V, put through arrays of diodes and capacitors to build up 13.3V at pin 47 of U201.

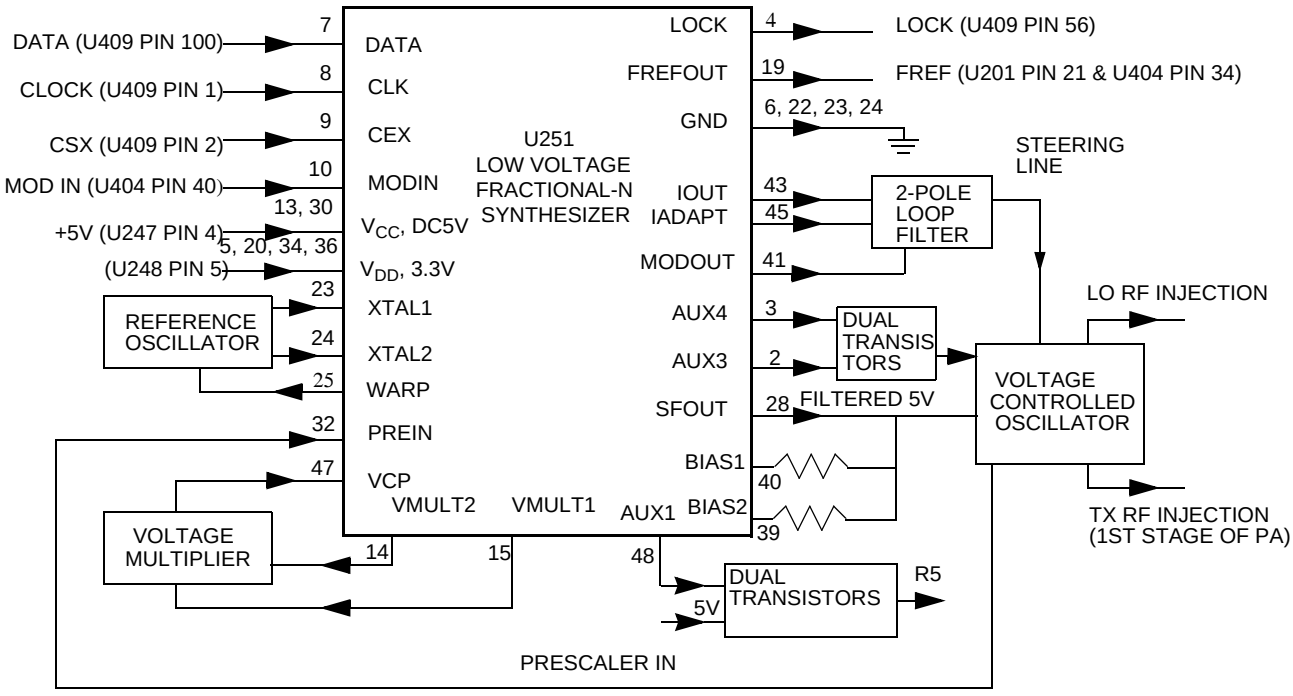

Figure 1-5 UHF Synthesizer Block Diagram

5.2 Voltage Controlled Oscillator (VCO)

(*Refer to Figure 2-6 and the UHF Voltage Controlled Oscillator schematic diagram)*

The VCOB IC (U241), shown in Figure 2-6, in conjunction with the Fractional-N synthesizer (U201) generates RF in both the receive and the transmit modes of operation. The TRB line (U241 pin 19) determines which oscillator and buffer are enabled. A sample of the RF signal from the enabled oscillator is routed from U241, pin 12, through a low pass filter, to the prescaler input (U201 pin 32). After frequency comparison in the synthesizer, a resultant CONTROL VOLTAGE is received at the VCO. This voltage is a DC voltage between 3.5V and 9.5V when the PLL is locked on frequency.

The VCOB IC is operated at 4.54V (VSF) and Fractional-N synthesizer (U201) at 3.3V. This difference in operating voltage requires a level shifter consisting of Q260 and Q261 on the TRB line. The operation logic is shown in Table 2-1.

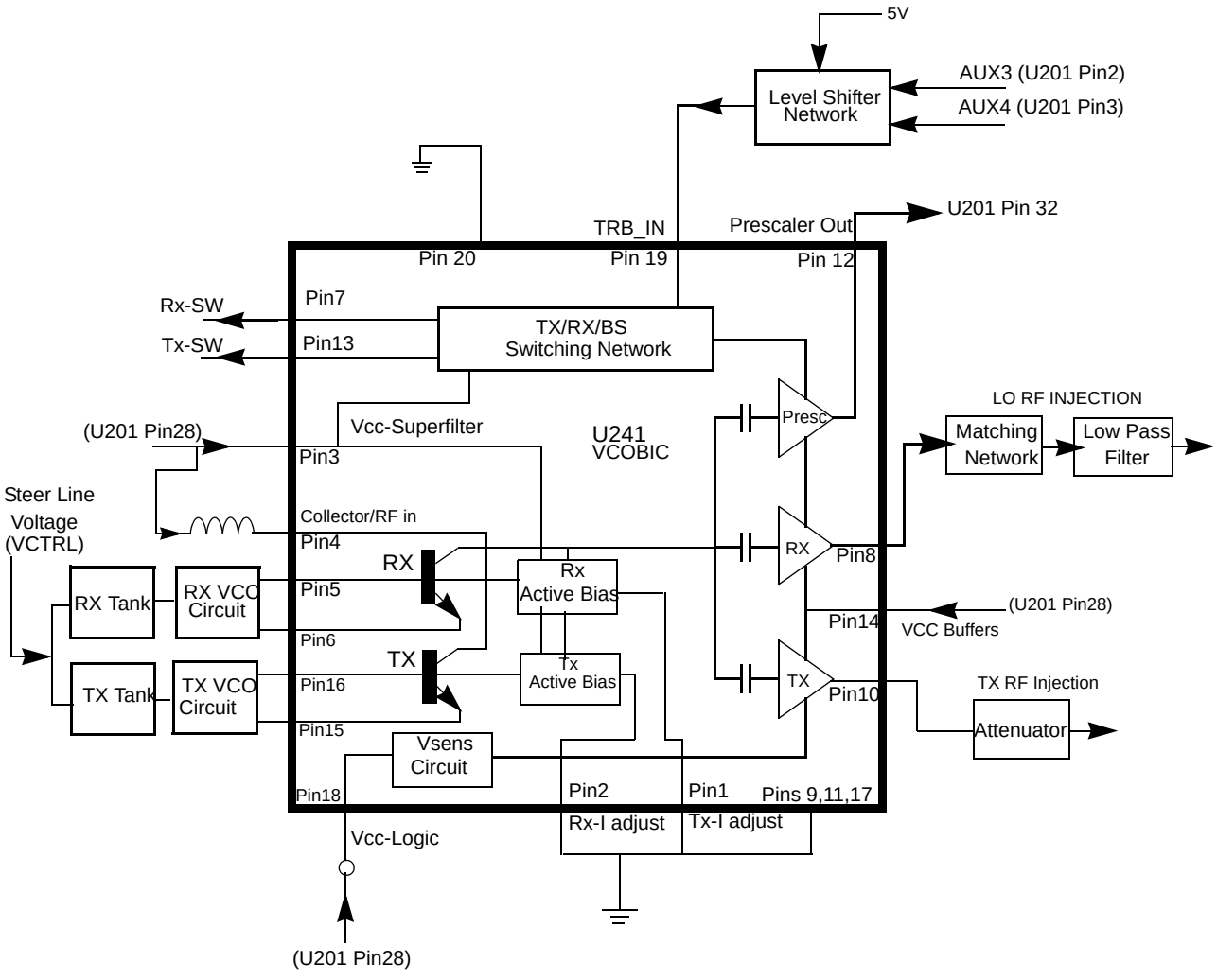

Figure 1-6 UHF VCO Block Diagram

Table 1-1 Level Shifter Logic

Desired Mode	AUX 4	AUX 3	TRB
Tx	Low	High (@3.2V)	High (@4.8V)
Rx	High	Low	Low
Battery Saver	Low	Low	Hi-Z/Float (@2.5V)

In the receive mode, U241 pin 19 is low or grounded. This activates the receive VCO by enabling the receive oscillator and the receive buffer of U241. The RF signal at U241 pin 8 is run through a matching network. The resulting LO RF INJECTION signal is applied to the mixer at T302.

During the transmit condition, when PTT is pressed, five volts is applied to U241 pin 19. This activates the transmit VCO by enabling the transmit oscillator and the transmit buffer of U241. The RF signal at U241 pin 10 is injected into the input of the PA module (U101 pin16). This RF signal is the TX RF INJECTION. Also in transmit mode, the audio signal to be frequency modulated onto the carrier is received through U201, pin 41.

When a high impedance is applied to U241 pin19, the VCO is operating in BATTERY SAVER mode. In this case, both the receive and transmit oscillators as well as the receive transmit and prescaler buffer are turned off.

6.0 Voice Storage (GP1280 Only)

(*Refer to Figure 2-7 and the UHF Voice Storage schematic diagram)*

The Voice Storage feature is offered as standard in the GP1280 and as an Option board for GP340/GP360/GP380 and GP640/GP680 models.

The Voice Storage feature enables users to:

- Record and Playback Personal Memo (Reminders, Notes, etc.).
- Send over-the-air an “Out-Of-Office” message when an incoming call is received but is not available to take up call.
- Over-the-air recording of important voice message being received.

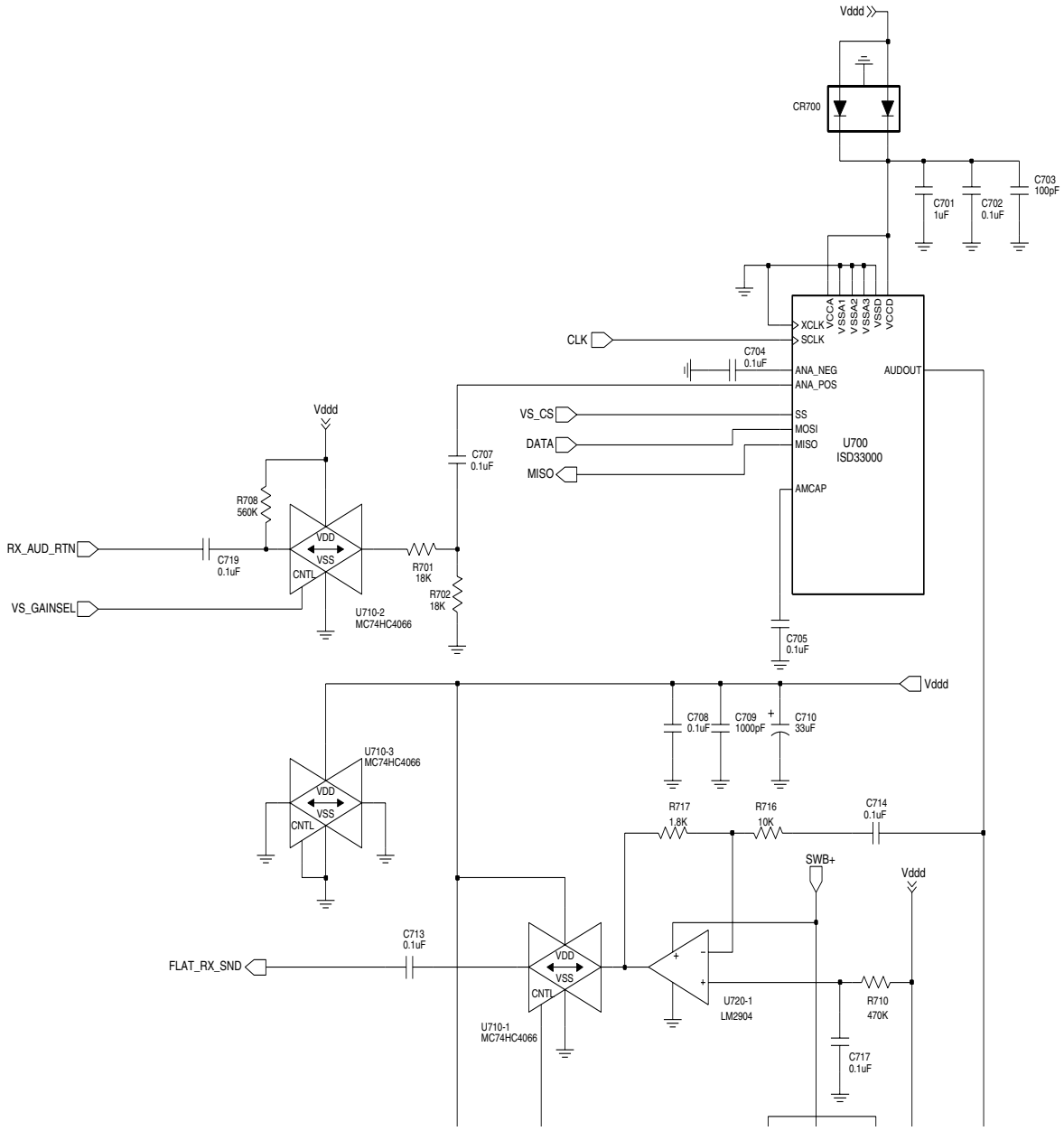

Figure 1-7 Audio path for voice storage connection to interface connector

Audio routing to the Voice Storage circuitry during receive message recording, message playback, personal memo recording and voice prompt transmit over the air are as follows:

Received Message Recording

The receive audio is tapped from the Rx_Aud_Rtn pin of the ASFIC_CMP during receive mode.

Message Playback

Message playback is via the FLAT_RX_SND pin of ASFIC_CMP. In the ASFIC_CMP, the signal is routed via the Side-Tone path to the Receive path where playback audio is routed to the speaker.

Personal Memo Recording

In this mode, voice is pick-up at the Mic. and via the Side-Tone path will be directed to the Rx_Aud_Rtn pin, which is then routed to the voice recording chip.

Voice Prompt transmit over the air

A personal voice prompt or Out-Of-Office Message which is stored in the IC can be transmitted over the air through mic path in the ASFIC_CMP to the calling party. This feature is similar to the Telephone Answering Machine feature when the person called is not available to attend the call.

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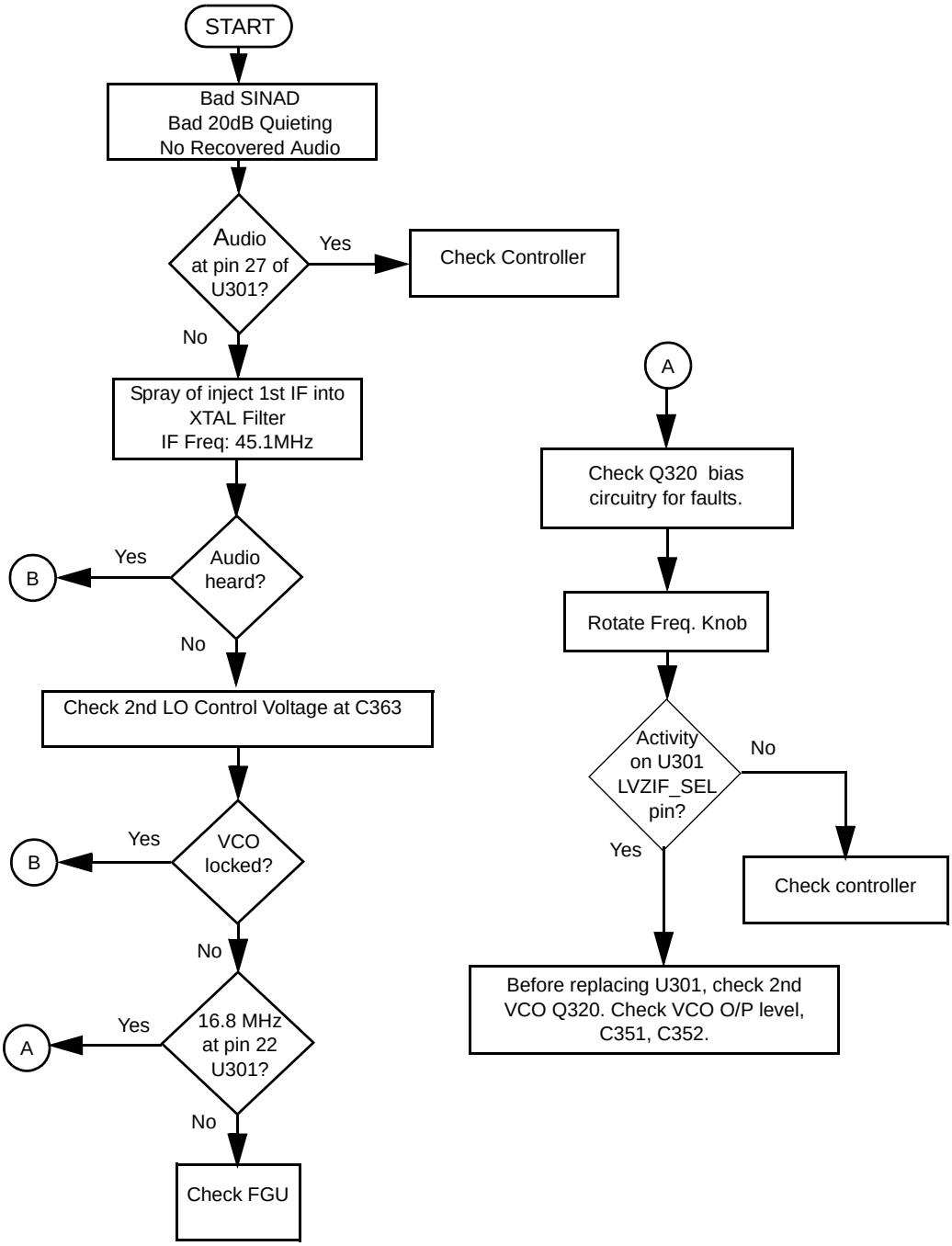
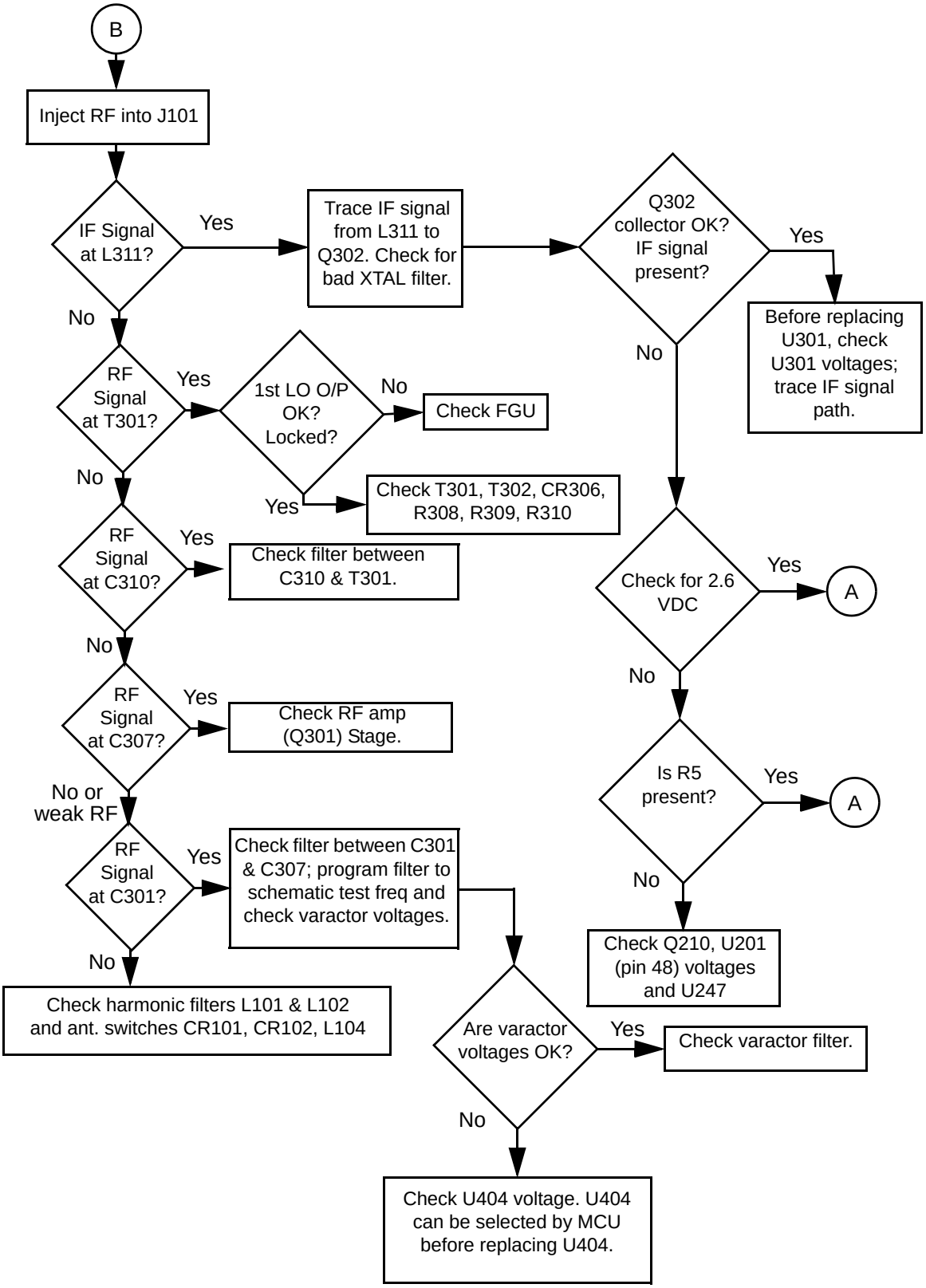
Chapter 2

TROUBLESHOOTING CHARTS

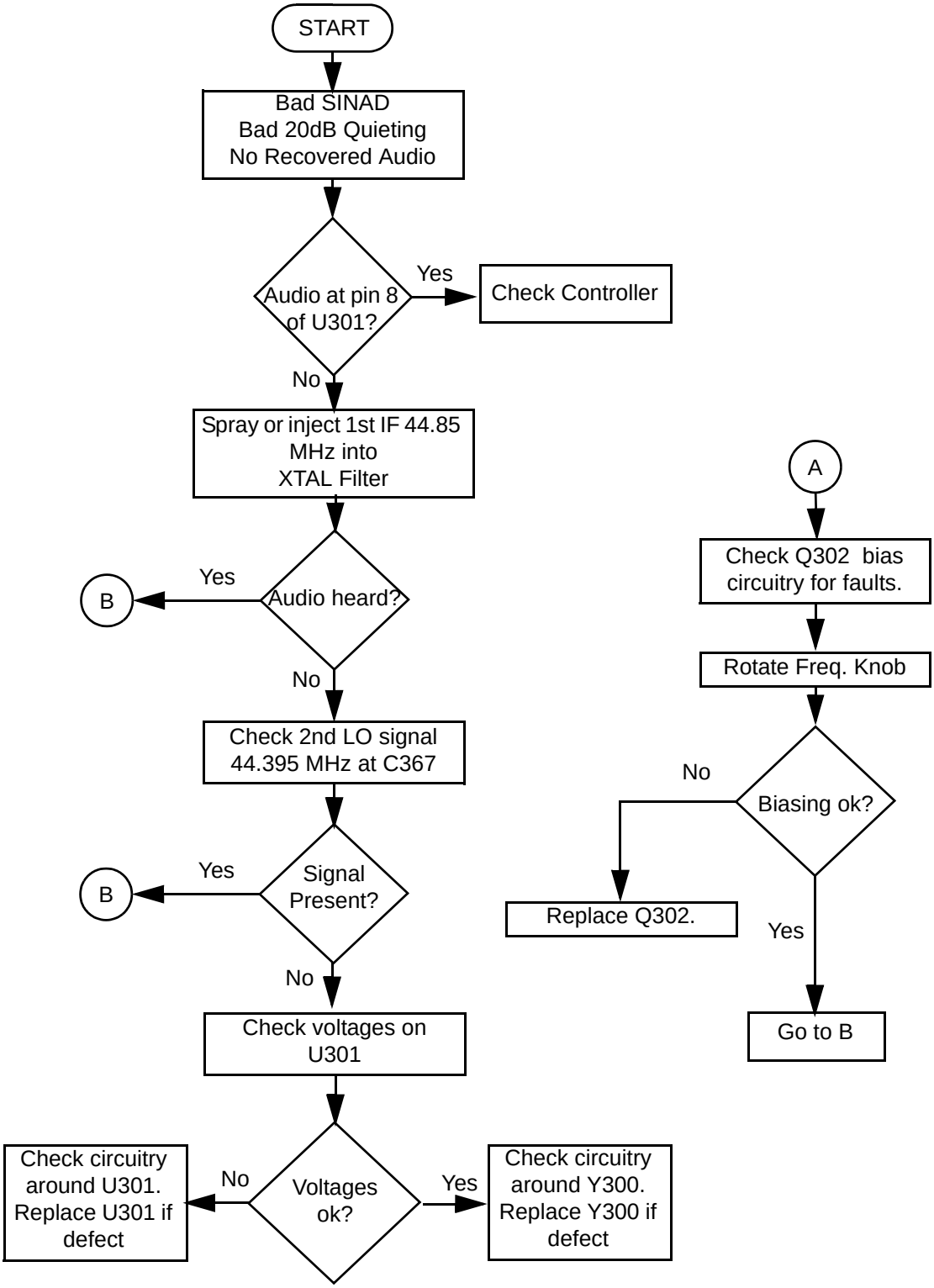
1.0 Troubleshooting Flow Chart for Receiver (All models except those with PCB 8486686Z02) (Sheet 1 of 2)



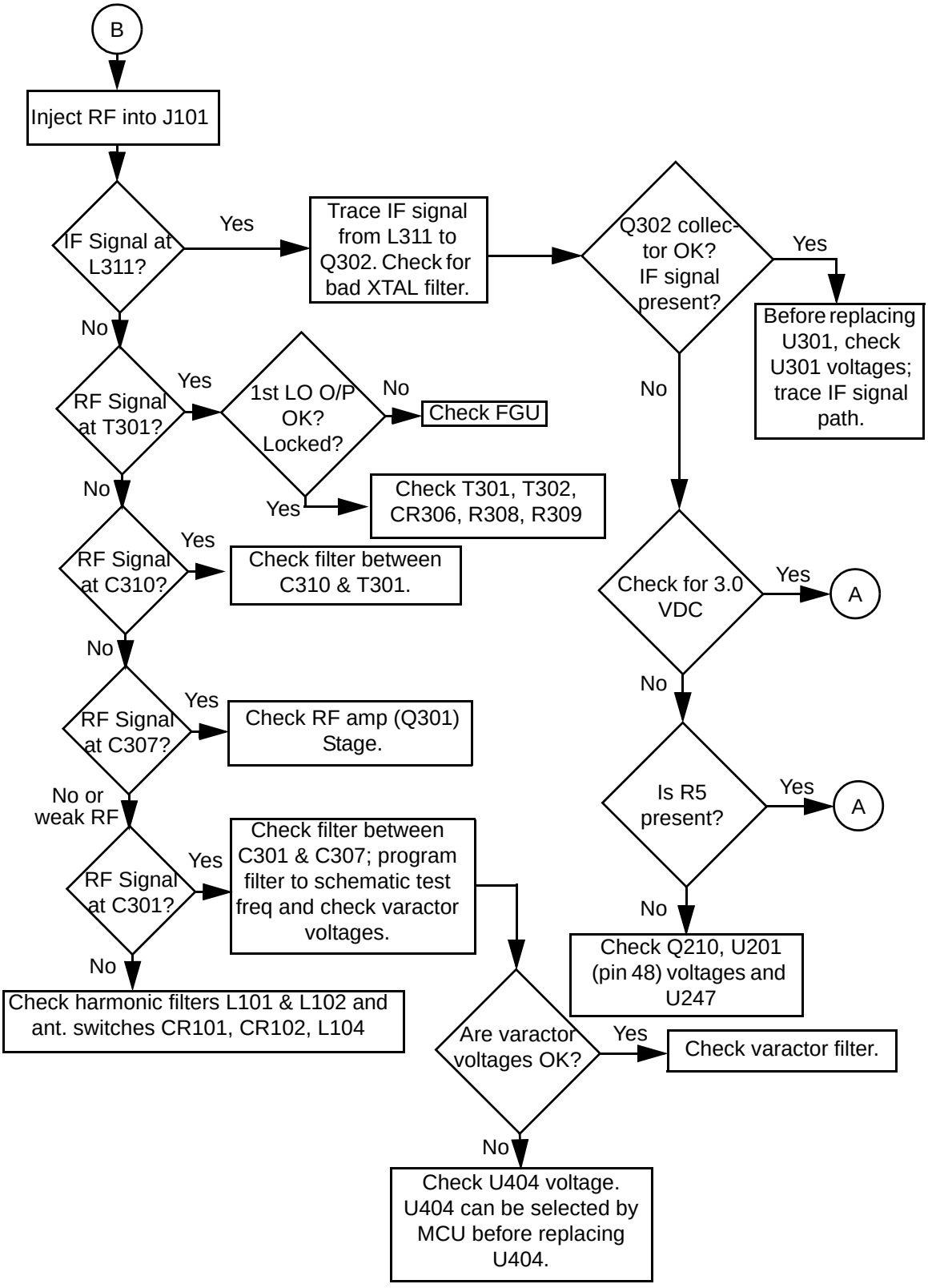
2.0 Troubleshooting Flow Chart for Receiver (All models except those with PCB 8486686Z02) (Sheet 2 of 2)



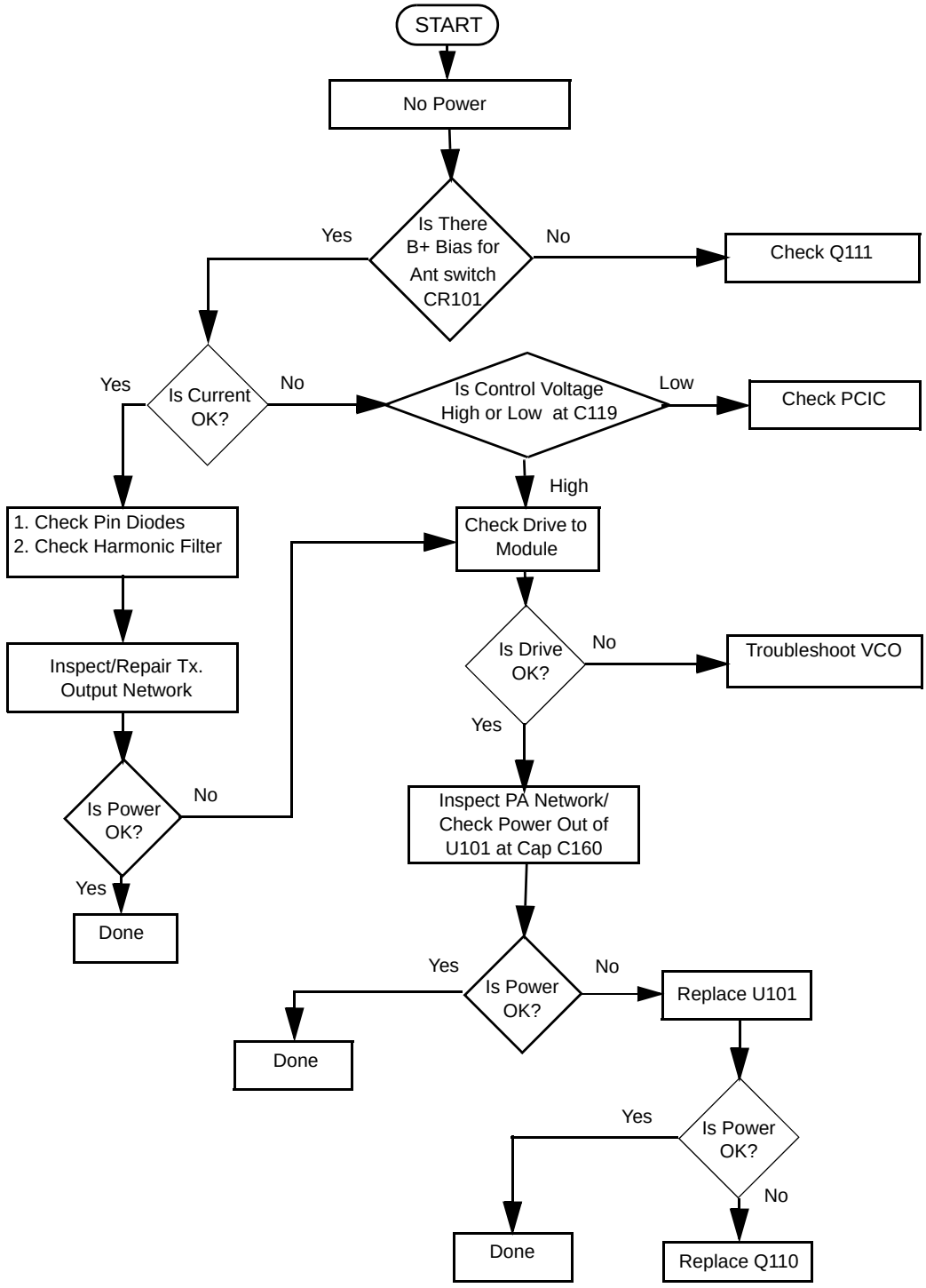
3.0 Troubleshooting Flow Chart for Receiver (Models with PCB 8486686Z02) (Sheet 1 of 2)



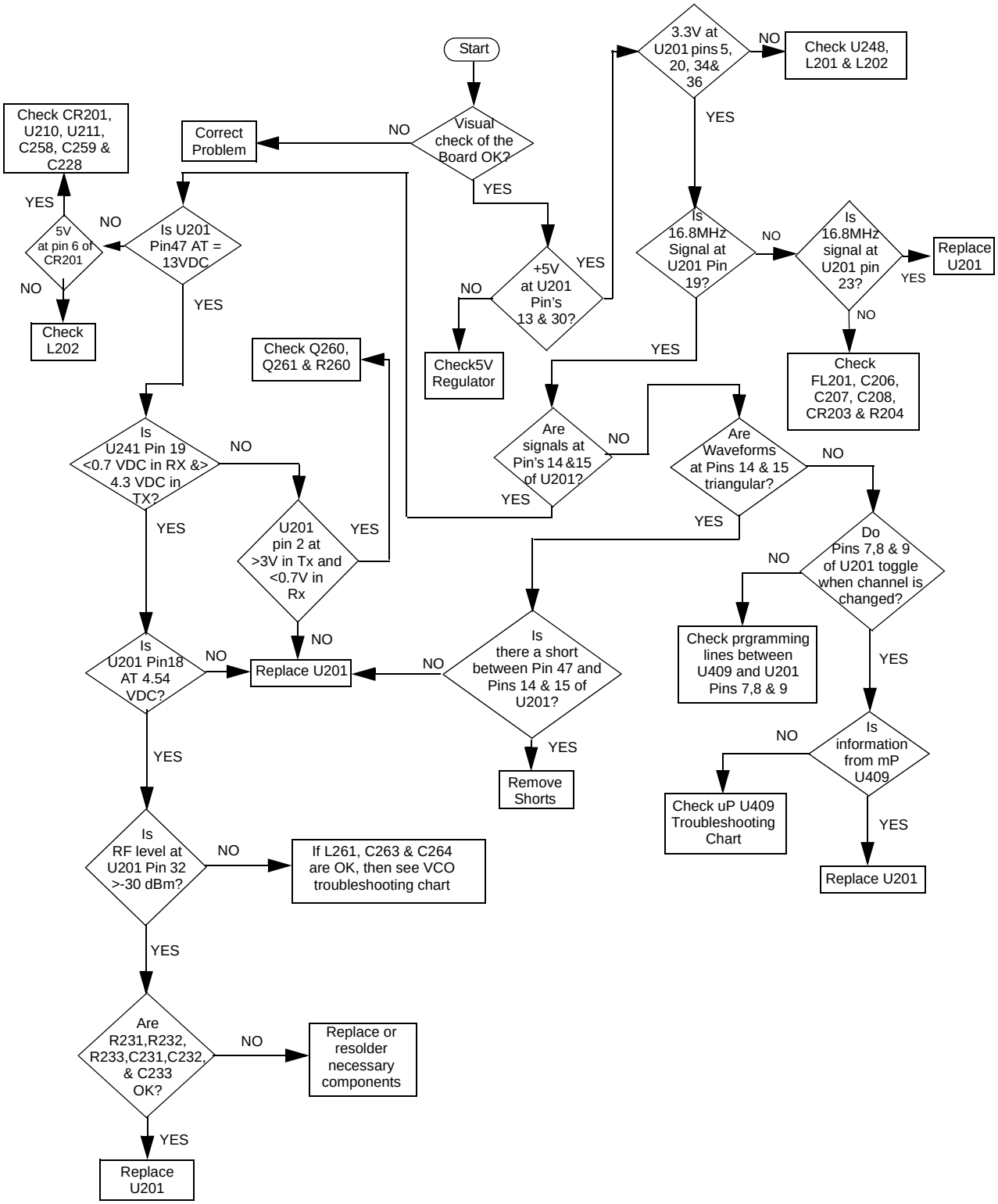
4.0 Troubleshooting Flow Chart for Receiver (Models with PCB 8486686Z02) (Sheet 2 of 2)



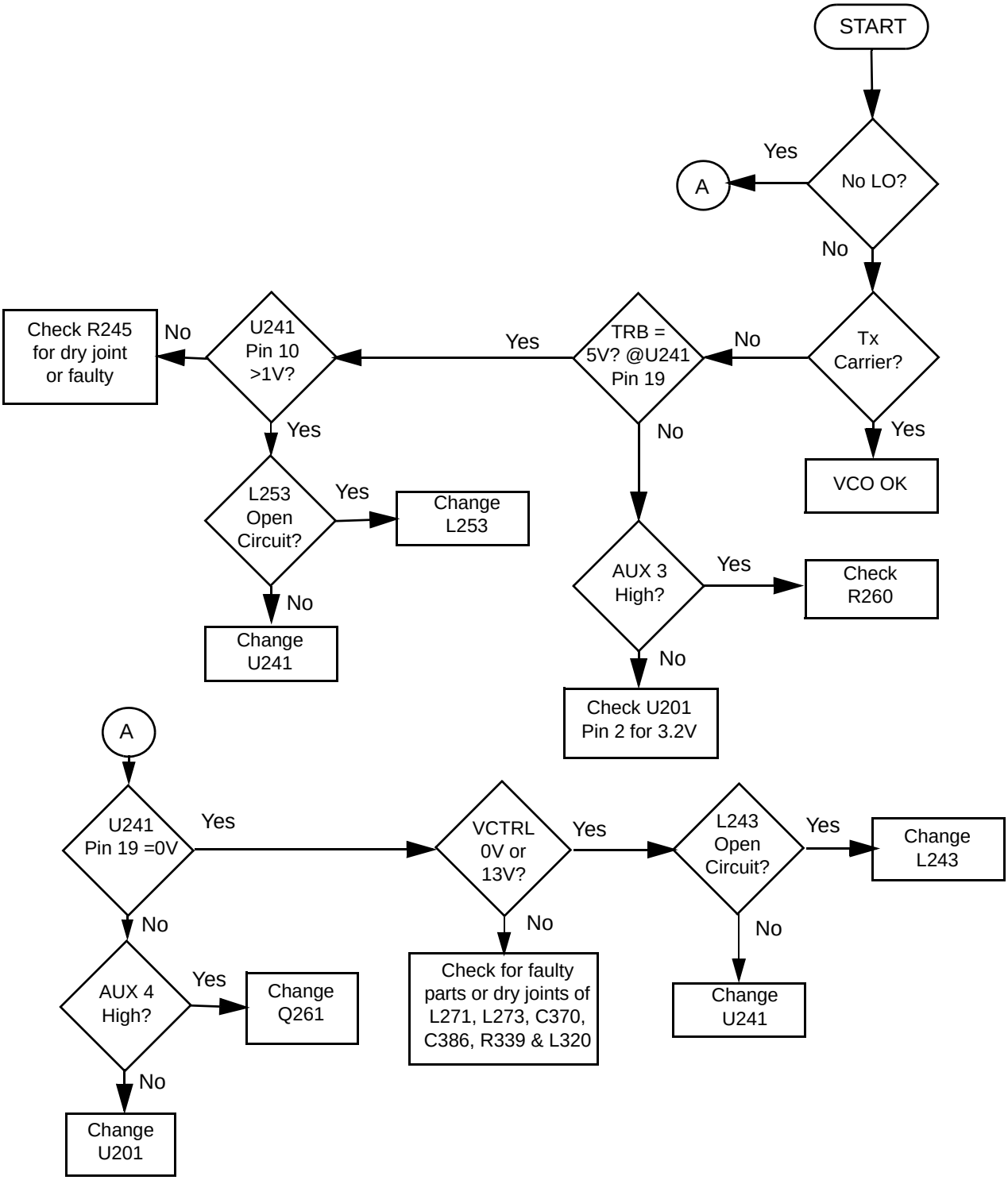
5.0 Troubleshooting Flow Chart for Transmitter



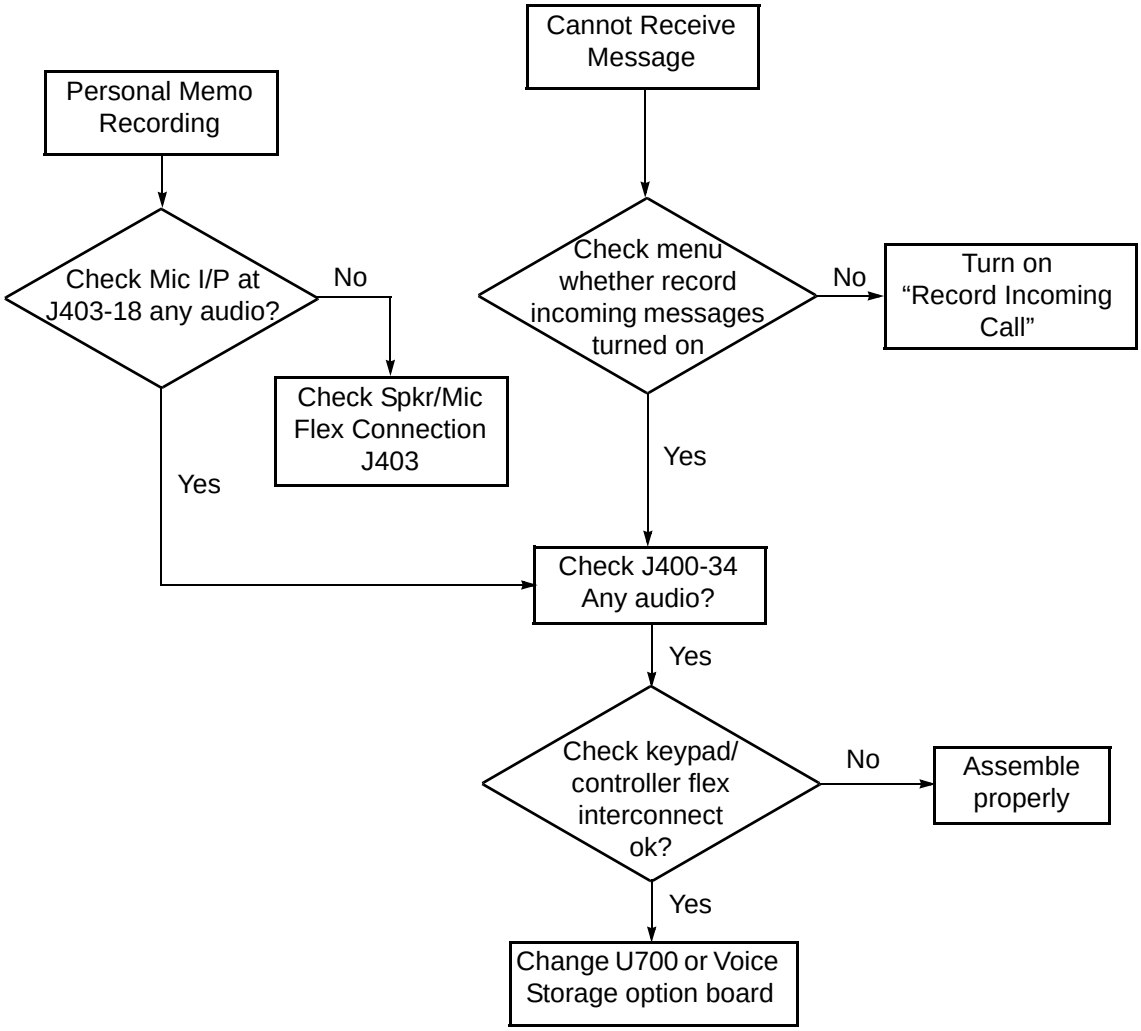
6.0 Troubleshooting Flow Chart for Synthesizer



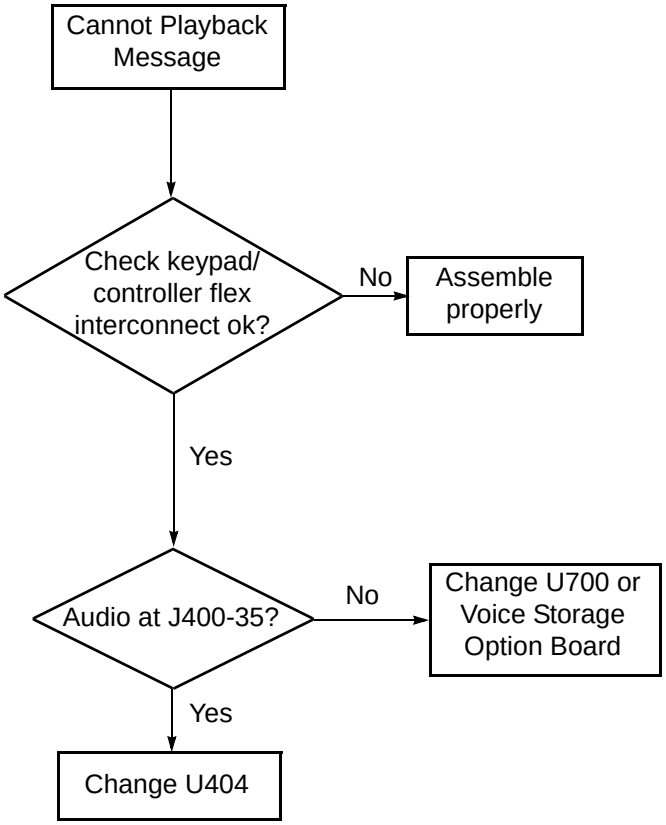
7.0 Troubleshooting Flow Chart for VCO



8.0 Troubleshooting Flow Chart for Receive Message/Personal Memo Recording



9.0 Troubleshooting Flow Chart for Message Playback



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Chapter 3

UHF2 PCB/SCHEMATICS/PARTS LISTS

1.0 Allocation of Schematics and Circuit Boards

1.1 Controller Circuits

The UHF2 circuits are contained on the printed circuit board (PCB) which also contains the Controller circuits. This Chapter shows the schematics for the UHF2 circuits only, refer to the Controller section for details of the related Controller circuits.The PCB component layouts and the Parts Lists in this Chapter show both the Controller and UHF2 circuit components. The UHF2 schematics and the related PCB and parts list are shown in the tables below.

1.2 Voice Storage Facility

The Voice Storage facility is fitted to the GP1280 radio as standard and the schematics, component layout and parts list for these circuits are shown in this Chapter. The Voice Storage facility may be fitted to other radios in the GP Series as an option board; reference must be made to the Option Board manual in this case. The Voice Storage schematic and the related PCBs are shown in Tables 3-3 and 3-4 below.

Table 3-1 UHF2 Drawings and Parts Lists

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Table 3-2 UHF2 Drawings and Parts Lists

Table 3-3 UHF2 GP1280 Drawings and Parts Lists

Table 3-4 UHF2 GP1280 Drawings and Parts Lists

Table 3-5 UHF2 Drawings and Parts Lists

Table 3-6 UHF2 Drawings and Parts Lists

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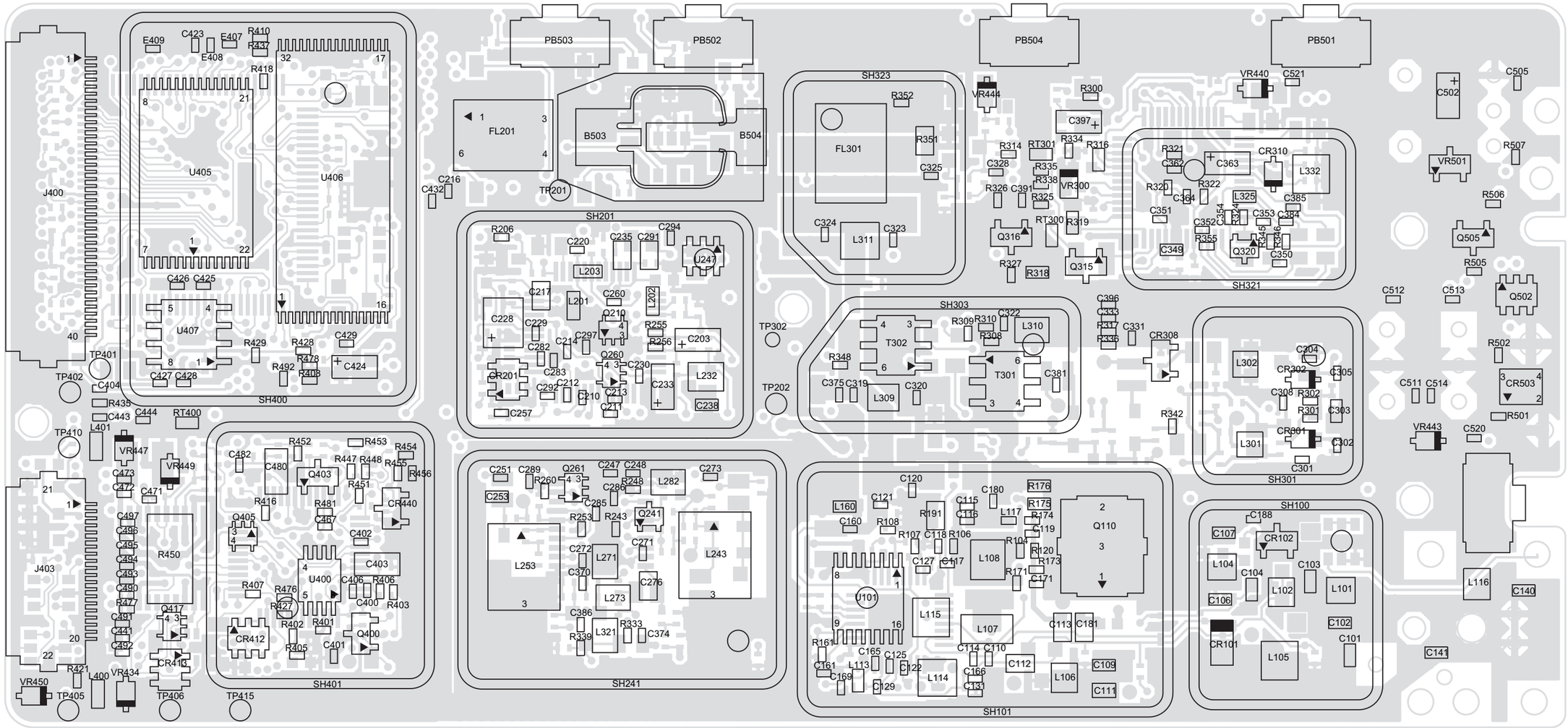
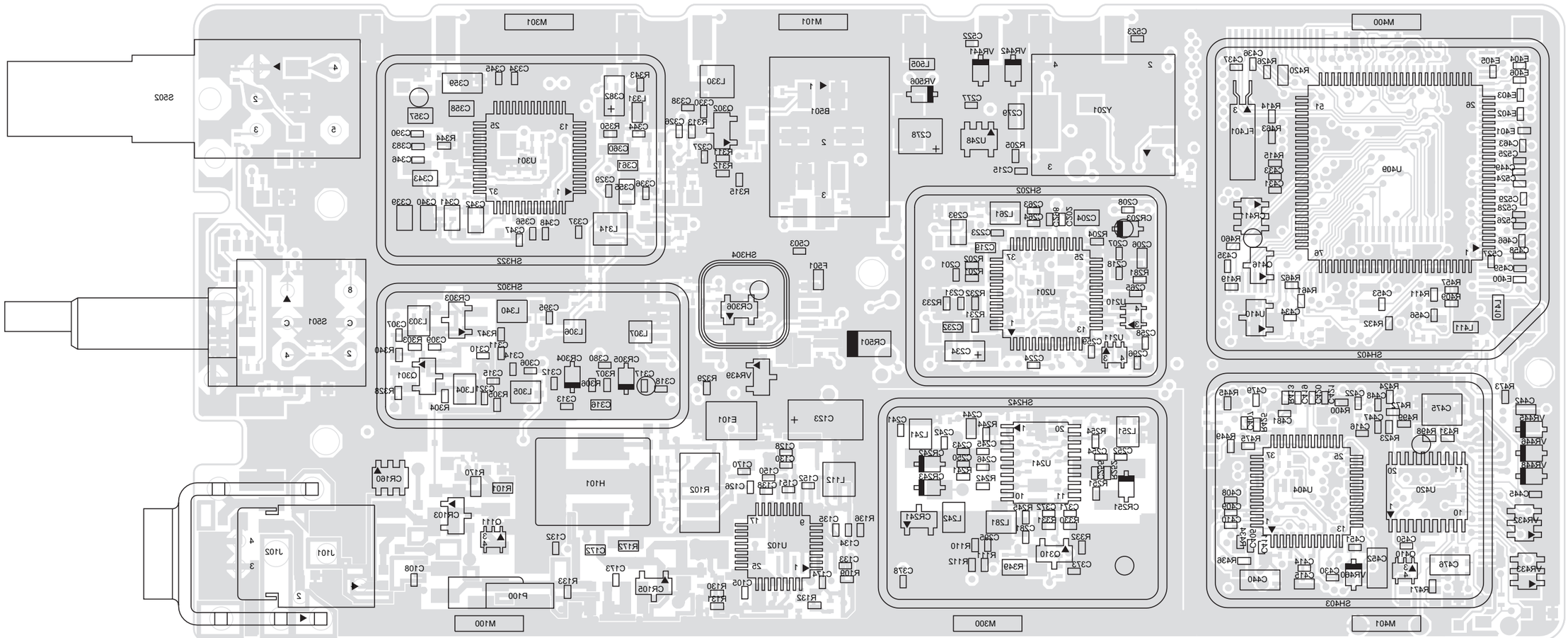
2.0 UHF2 PCB 8485641Z02 Schematics

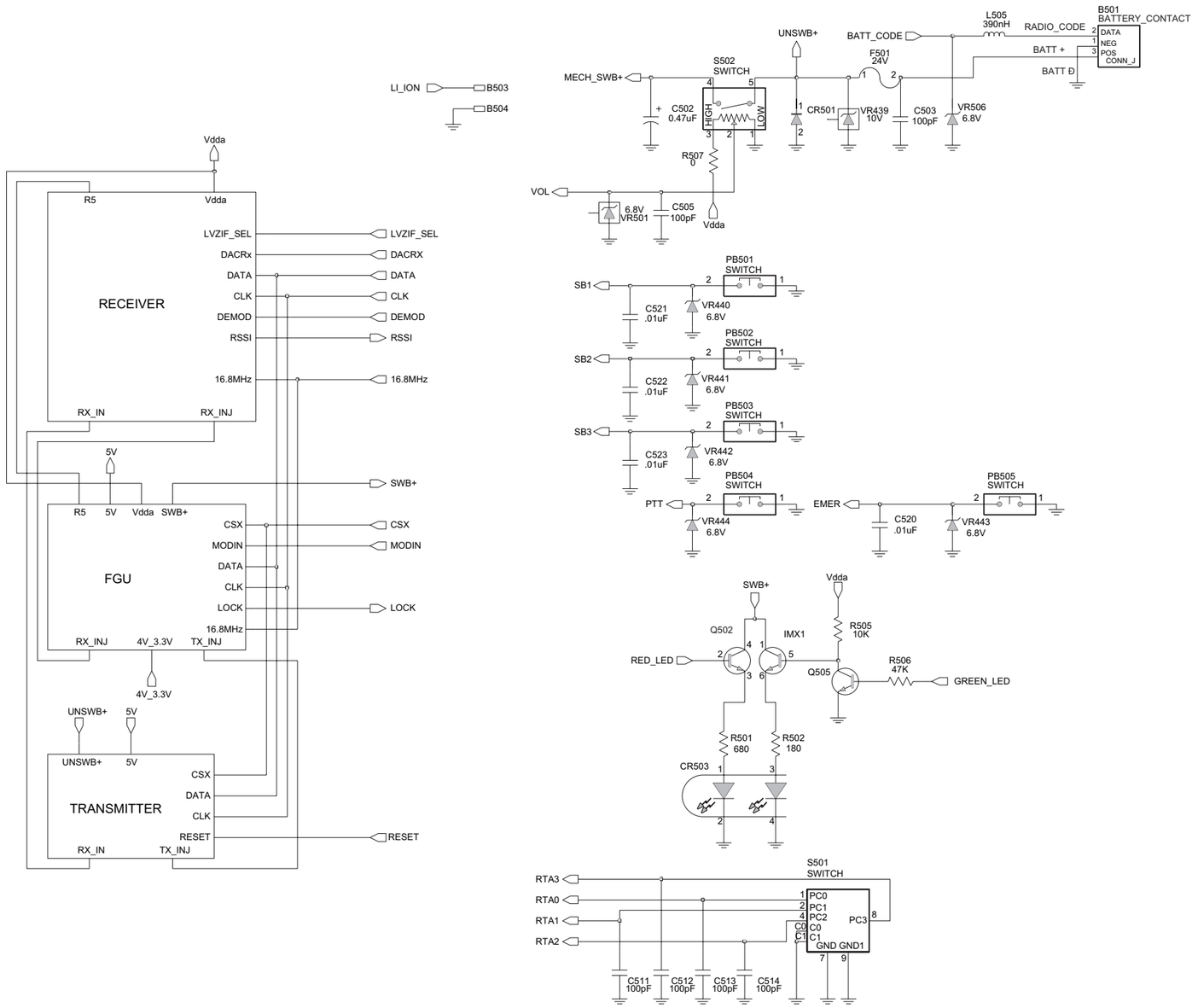


ZMY0130258-A

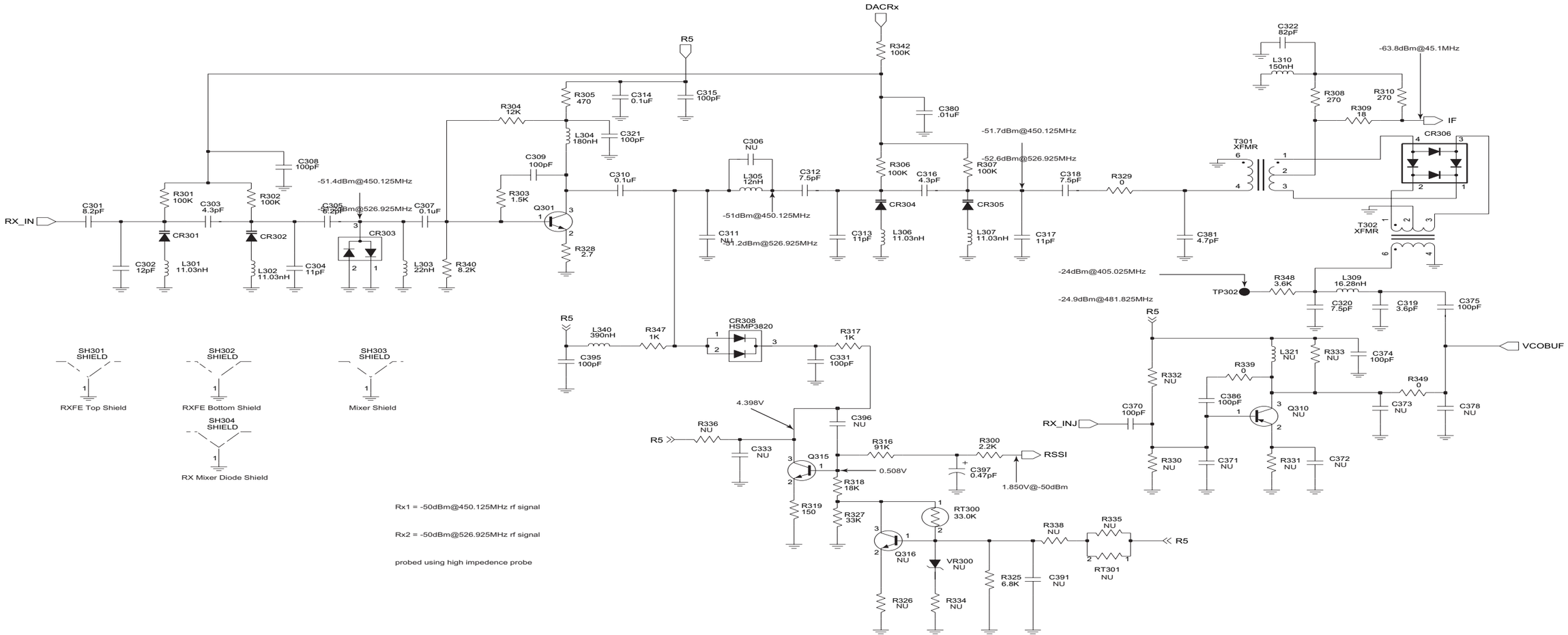
UHF2 (450-527MHz) Main Board Top Side



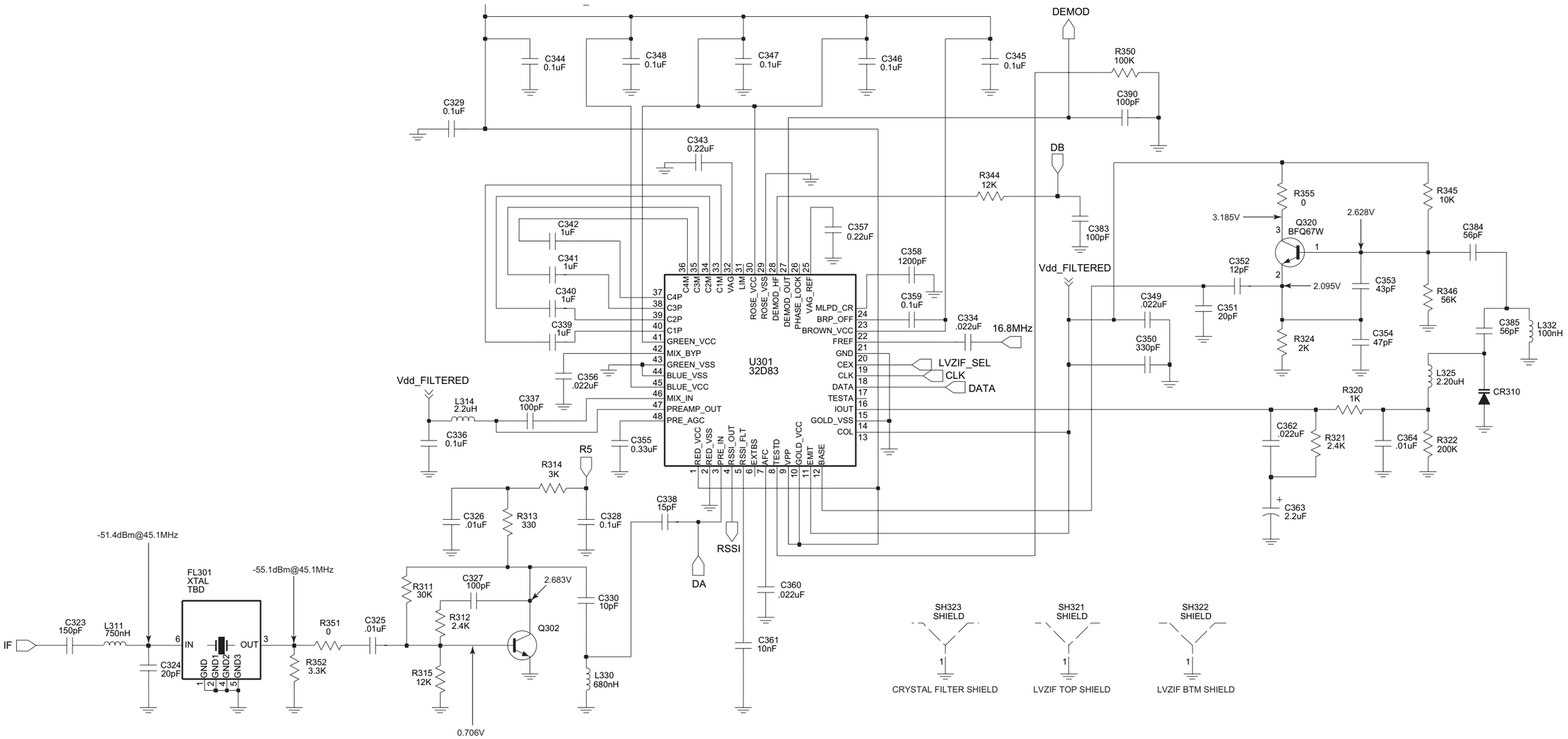
UHF2 (450-527 MHz) Main Board Bottom Side



UHF2 (450-527 MHz) Controls and Switches

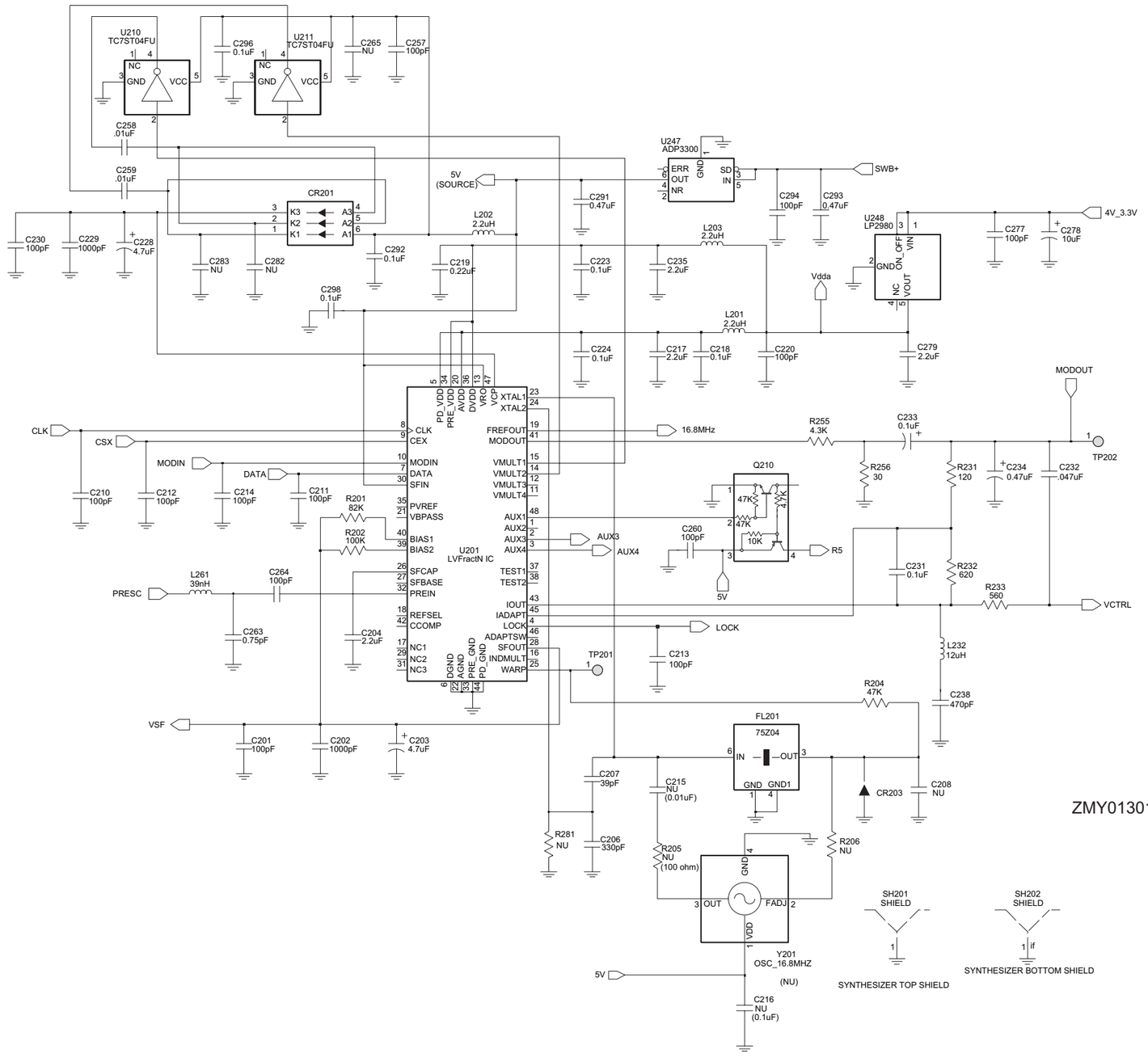


UHF2 (450-527 MHz) Receiver Front End



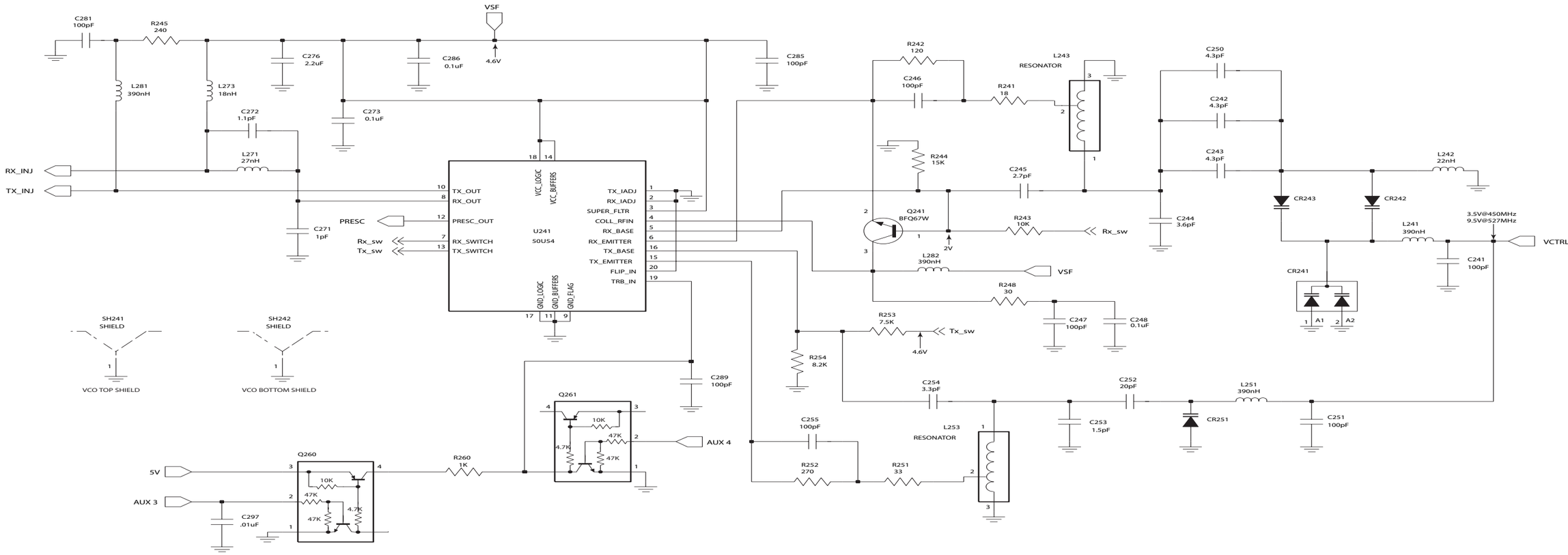
ZMY0130223-A

UHF2 (450-527 MHz) Receiver Back End

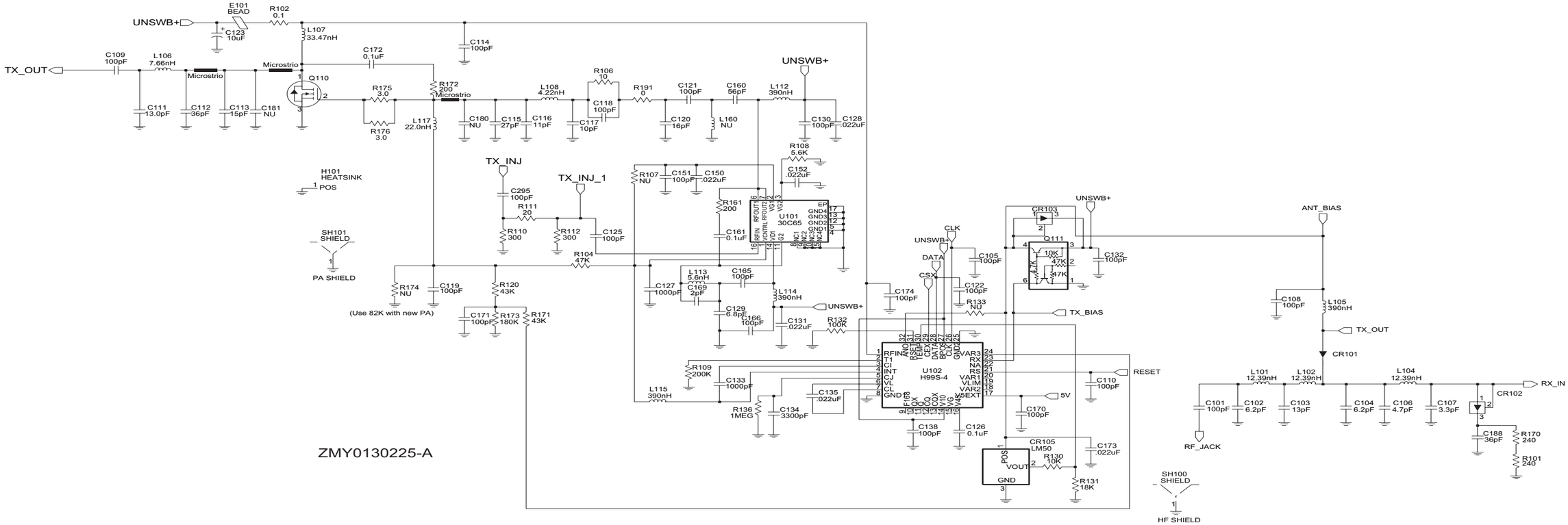


ZMY0130186-C

UHF2 (450-527 MHz) Synthesizer



UHF2 (450-527 MHz) Voltage Controlled Oscillator



UHF2 (450-527 MHz) Transmitter

3.0 UHF2 PCB8485641Z02 / PCB8485677Z02 Parts List

Circuit Ref.	Motorola Part No.	Description
B501	0986237A01	CONNECTOR, CONTACT BATTERY
B503	3980502Z01	CONTACT, BACKUP B+ not used in GP140/GP340 and GP640
B504	3980501Z01	CONTACT, BACKUP B- not used in GP140/GP340 and GP640
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F28	11pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2103689A22	11pF±0.05
C112	2180605Z28	32pF
C113	2180605Z22	18pF
C114	2113743N50	100pF
C115	2113743N36	27pF
C116	2113743N27	11pF
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N25	9.1pF
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A18	10uF
C125	2113743N50	100pF
C126	2113743M24	0.1uF
C127	2113743L17	1000pF
C128	2113743M08	0.022uF
C129	2113743N22	6.8pF
C130	2113743N50	100pF
C131	2113743M08	0.022uF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	2113743L29	3300pF
C135	2113743M08	0.022uF
C138	2113743N50	100pF
C141	2113740F25	8.2pF
C150	2113743M08	0.022uF
C151	2113743N50	100pF
C152	2113743M08	0.022uF
C160	2113743N44	56pF
C161	2113743M24	0.1uF
C165	2113743N50	100pF
C166	2113743N50	100pF
C169	2113743N09	2pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113743E20	0.1uF
C173	2113743M08	0.022uF
C174	2113743N50	100pF
C188	2113743N39	36pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2311049A56	4.7pF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N40	39pF
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C217	2104993J02	2.2uF
C218	2113743M24	0.1uF
C219	2113743K16	0.220uF
C220	2113743N50	100pF
C223	2113743M24	0.1uF
C224	2113743M24	0.1uF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	0.1uF
C232	2113743E12	0.047uF
C233	2311049A01	0.1pF
C234	2311049A05	0.47pF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N17	4.3pF
C243	2113743N17	4.3pF
C244	2113740F14	3.0pF
C245	2113743N12	2.7pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	0.1uF
C250	2113743N17	4.3pF
C251	2113743N50	100pF
C252	2113743N33	20pF
C253	2113740F07	1.5pF
C254	2113743N14	3.3pF
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	0.01uF
C259	2113743L41	0.01uF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C271	2113743N03	1.0pF
C272	2113743N04	1.1pF
C273	2113743M24	0.1uF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A09	2.2uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C285	2113743N50	100pF
C286	2113743M24	0.1uF
C289	2113743N50	100pF
C291	2311049A27	0.47uF
C292	2113743M24	0.1uF
C293	2113743A27	0.470uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	0.1uF
C297	2113743L41	0.01uF
C298	2113743M24	0.1uF
C301	2113743N24	8.2pF
C302	2113743N28	12pF
C303	2113740L09	4.3pF
C304	2113743N27	11pF
C305	2113743N24	8.2pF
C307	2113743M24	0.1uF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743M24	0.1uF
C312	2113743N23	7.5pF
C313	2113743N27	11pF
C314	2113743M24	0.1uF
C315	2113743N50	100pF
C316	2113740L09	4.3pF
C317	2113743N27	11pF
C318	2113743N23	7.5pF
C319	2113743N15	3.6pF
C320	2113743N23	7.5pF
C321	2113743N50	100pF
C322	2113743N48	82.0pF
C323	2113743N54	150pF
C324	2113743N33	20.0pF
C325	2113743L41	0.01uF
C326	2113743L41	0.01uF
C327	2113743N50	100pF
C328	2113743M24	0.1uF
C329	2113743M24	0.1uF
C330	2113743N26	10pF
C331	2113743N50	100pF
C334	2113743M08	0.022uF
C336	2113743M24	0.1uF
C337	2113743N50	100pF
C338	2113743N30	15.0pF
C339	2180478Z20	1.0uF
C340	2180478Z20	1.0uF
C341	2180478Z20	1.0uF
C342	2180478Z20	1.0uF
C343	2113743A23	0.220uF
C344	2113743M24	0.1uF
C345	2113743M24	0.1uF
C346	2113743M24	0.1uF
C347	2113743M24	0.1uF
C348	2113743M24	0.1uF
C349	2113743E07	0.022uF
C350	2113743L05	330pF
C351	2113743N33	20.0pF
C352	2113743N28	12.0pF
C353	2113743N41	43.0pF
C354	2113743N42	47.0pF
C355	2113743A24	0.330uF
C356	2113743M08	0.022uF
C357	2113743A23	0.220uF
C358	2113741A23	1200pF
C359	2109720D14	0.1uF
C360	2113743E07	0.022uF
C361	2113741F49	10nF
C362	2113743M08	0.022uF
C363	2311049A40	2.2uF
C364	2113743L41	0.01uF
C370	2113743N50	100pF
C374	2113743N50	100pF
C375	2113743N50	100pF
C380	2113743L41	0.01uF
C381	2113743N18	4.7pF
C382	2311049A59	10uF
C383	2113743N50	100pF
C384	2113743N44	56.0pF
C385	2113743N44	56.0pF
C386	2113743N50	100pF
C390	2113743N50	100pF
C395	2113743N50	100pF
C397	2311049A07	1.0uF
C400	2113743L41	0.01uF
C401	2113743M24	0.1uF
C402	2113743M24	0.1uF
C403	2113928D08	10.0uF
C407	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	0.1uF

Circuit Ref.	Motorola Part No.	Description
C410	2113928N01	0.1uF
C411	2113743M24	0.1uF
C414	2113743M24	0.1uF
C415	2109720D01	0.01uF
C416	2113928N01	0.1uF
C420	2113743L41	0.01uF
C421	2113928N01	0.1uF
C422	2113743M24	0.1uF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	0.1uF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	0.1uF
C429	2113743M24	0.1uF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C433	2113743L41	0.01uF
C434	2113743M24	0.1uF not used in GP640
C435	2113743M24	0.1uF
C436	2113743N34	22.0pF not used in GP640
C437	2113743N34	22.0pF not used in GP640
C438	2113743L17	1000pF
C439	2113743L17	1000pF
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	10uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	0.022uF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C451	2113743M08	0.022uF
C452	2113743G26	4.7uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10.0uF
C476	2113928D08	10.0uF
C479	2113928N01	0.1uF
C480	2113928D08	10.0uF
C481	2113928N01	0.1uF
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C502	2311049A05	0.47pF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	0.01uF
C521	2113743L41	0.01uF
C522	2113743L41	0.01uF
C523	2113743L41	0.01uF
C701	2180478Z20	1.0uF used in GP1280 only
C702	2113928N01	0.1uF used in GP1280 only
C703	2113743N50	100 pF used in GP1280 only
C704	2113928N01	0.1uF used in GP1280 only
C705	2113928N01	0.1uF used in GP1280 only
C707	2113928N01	0.1uF used in GP1280 only
C708	2113928N01	0.1uF used in GP1280 only
C709	2113743L17	1000 pF used in GP1280 only
C711	2113743L41	0.1 uF used in GP1280 only
C713	2113928N01	0.1 uF used in GP1280 only
C714	2113928N01	0.1 uF used in GP1280 only
C715	2113928N01	0.1 uF used in GP1280 only
C717	2113928N01	0.1 uF used in GP1280 only
C718	2113743L17	1000pF used in GP1280 only
C719	2113928N01	0.1uF used in GP1280 only
CR101	4880973Z02	PIN DIODE
CR102	4802245J41	PIN DIODES
CR105	5185963A15	TEMPERATURE SENSE
CR201	4802233J09	DIODE TRIPLE
CR203	4862824C03	VARACTOR
CR241	4805649Q13	DUAL VARACTOR
CR242	4862824C01	VARACTOR
CR243	4862824C01	VARACTOR
CR251	4862824C01	VARACTOR
CR301	4862824C01	VARACTOR
CR302	4862824C01	VARACTOR
CR303	4880154K03	DUAL COMMON ANODE-CATHODE
CR304	4862824C01	VARACTOR
CR305	4862824C01	VARACTOR
CR306	4802245J42	RING QUAD DIODE
CR308	4802245J41	PIN DIODES
CR310	4862824C01	VARACTOR
CR411	4802245J62	DIODE SCHOTTKY
CR412	4802245J62	DIODE SCHOTTKY
CR413	4802245J62	DIODE SCHOTTKY
CR440	4813833C02	DUAL DIODE COMMON CATHODE
CR501	4880107R01	RECTIFIER
CR503	4805729G49	LED RED/YEL
CR700	4802245J47	DIODE SCHOTTKY used in GP1280 only
E101	2484657R01	FERRITE BEAD
E400	2480640Z01	FERRITE BEAD
E401	2480640Z01	FERRITE BEAD
E402	2480640Z01	FERRITE BEAD
E403	2480640Z01	FERRITE BEAD
E404	2480640Z01	FERRITE BEAD
E405	2480640Z01	FERRITE BEAD
E406	2480640Z01	FERRITE BEAD
E407	2480640Z01	FERRITE BEAD
E408	2480640Z01	FERRITE BEAD
E409	2480640Z01	FERRITE BEAD
F501	6580542Z01	FUSE 3A
FL201	4805875Z04	CRYSTAL 16.8MHZ SMD
FL301	4802245J43	XTAL FILTER 45.1MHZ
FL401	4870368G02	CLOCK OSC XTAL not used in GP640
H101	2680499Z01	HEAT SPREADER
J101	0180117S05	RF JACK ASSEMBLY
J102	0280519Z02	NUT, ANTENNA
J400	0905505Y04	40 PINS CONNECTOR
J403	0905505Y02	20 PINS CONNECTOR
L101	2460591B28	13.37nH
L102	2460591B28	13.37nH
L104	2460591B48	15.22nH
L105	2462587N22	390nH
L106	2460591A19	8.71nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L112	2462587N42	12nH
L113	2413926H09	5.6nH
L114	2462587N42	12nH
L115	2462587N22	390nH
L116	2460591C16	16.28nH
L117	2409154M17	22nH
L160	2413926H14	15.0nH
L201	2462587Q20	2.2UH
L202	2462587Q20	2.2UH
L203	2462587Q20	2.2UH
L232	2462587P25	12UH
L241	2462587V41	390nH
L242	2462587V26	22nH
L243	2460593C03	TEFLON RESONATOR
L251	2462587V41	390nH
L253	2460593C03	TEFLON RESONATOR
L261	2462587V29	39nH
L271	2462587V27	27nH
L273	2462587V25	18nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990B01	11.03nH
L302	2479990B01	11.03nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V23	12nH
L306	2479990B01	11.03nH
L307	2479990B01	11.03nH
L309	2460591C16	16.28nH
L310	2462587V36	150nH
L311	2462587N65	750nH
L314	2462587N72	2.2UH
L325	2480646Z20	2.20UH
L330	2462587N64	680nH
L331	2480646Z20	2.20UH
L332	2462587N53	100nH
L340	2462587V41	390nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
P100	3905643V01	GND CONTACT FINGER
PB501	4080523Z01	TACTILE PUSH BUTTON
PB502	4080523Z01	TACTILE PUSH BUTTON

Circuit Ref.	Motorola Part No.	Description
PB503	4080523Z01	TACTILE PUSH BUTTON
PB504	4080523Z01	TACTILE PUSH BUTTON
PB505	4080523Z01	TACTILE PUSH BUTTON
Q110	4802245J55	RF POWER FET
Q111	4802245J50	DUAL NPN/PNP
Q210	4802245J50	DUAL NPN/PNP
Q241	4805218N63	NPN
Q260	4802245J50	DUAL NPN/PNP
Q261	4802245J50	DUAL NPN/PNP
Q301	4802245J44	NPN
Q302	4802245J44	NPN
Q315	4880214G02	NPN
Q320	4805218N63	NPN
Q400	4809579E18	MOSFET P-CHAN
Q403	4880214G02	NPN
Q405	4802245J54	DUAL NPN
Q410	4802245J54	DUAL NPN
Q411	4802245J54	DUAL NPN
Q416	4809579E18	MOSFET P-CHAN
Q417	4802245J50	DUAL NPN/PNP
Q502	5180159R01	DUAL NPN
Q505	4880214G02	NPN
R101	0662057A34	240
R102	0680735Z01	0.075
R104	0662057N15	47K
R106	0662057M26	10
R108	0662057M92	5.6K
R109	0662057N30	200K
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43K
R130	0662057M98	10K
R131	0662057N05	18K
R132	0662057N33	270K
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43K
R172	0662057A32	200
R173	0662057N29	180K
R191	0662057C01	0 ohm
R201	0662057N21	82K
R202	0662057N23	100K
R204	0662057N15	47K
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M52	120
R243	0662057M98	10K
R244	0662057N03	15K

Circuit Ref.	Motorola Part No.	Description
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M38	33
R252	0662057M60	270
R253	0662057M95	7.5K
R254	0662057M96	8.2K
R255	0662057M89	4.3K
R256	0662057M37	30
R260	0662057M74	1K
R300	0662057M82	2.2K
R301	0662057N23	100K
R302	0662057N23	100K
R303	0662057M78	1.5K
R304	0662057N01	12K
R305	0662057M66	470
R306	0662057N23	100K
R307	0662057N23	100K
R308	0662057M60	270
R309	0662057M32	18
R310	0662057M60	270
R311	0662057N10	30K
R312	0662057M83	2.4K
R313	0662057M62	330
R314	0662057M85	3K
R315	0662057N01	12K
R316	0662057A96	91K
R317	0662057M74	1K
R318	0662057A79	18K
R319	0662057A29	150
R320	0662057M74	1K
R321	0662057M83	2.4K
R322	0662057N30	200K
R324	0662057M81	2K
R325	0662057M94	6.8K
R327	0662057N11	33K
R328	0662057M12	2.7
R329	0662057M01	0
R339	0662057M01	0
R340	0662057M96	8.2K
R342	0662057N23	100K
R343	0662057M26	10
R344	0662057N01	12K
R345	0662057M98	10K
R346	0662057N17	56K
R347	0662057M74	1K
R348	0662057M87	3.6K
R349	0662057C01	0
R350	0662057N23	100K
R351	0662057C01	0
R352	0662057M86	3.3K
R355	0662057M01	0

Circuit Ref.	Motorola Part No.	Description
R400	0662057N15	47K
R401	0662057M01	0
R405	0662057M01	0
R406	0662057N20	75K
R407	0662057N19	68K
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057N13	39K
R418	0662057M01	0
R419	0662057M67	0 not used in GP640
R420	0662057B46	10.0 MEG not used in GP640
R421	0662057M81	2K
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R426	0662057N35	330K not used in GP640
R427	0662057M84	2.7K
R428	0662057M10	2.2
R429	0662057M98	10K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2K
R436	0662057M01	0
R445	0662057N08	24K
R446	0662057N31	220K
R447	0662057N51	1.5MEG
R448	0662057N33	270K
R449	0662057N08	24K
R450	0683962T45	68
R457	0662057M98	10K
R460	0662057M90	4.7K
R461	0662057M56	180 not used in GP640
R462	0662057M98	10K not used in GP640
R463	0662057M61	300
R471	0662057M92	5.6K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N08	24K
R477	0662057M74	1K
R478	0662057M98	10K

Circuit Ref.	Motorola Part No.	Description
R481	0662057N08	24K
R492	0662057M01	0
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10K
R506	0662057N15	47K
R507	0662057M01	0
R701	0662057N05	18K used in GP1280 only
R702	0662057N05	18K used in GP1280 only
R703	0662057M74	1K used in GP1280 only
R704	0662057N13	39K used in GP1280 only
R705	0662057N13	39K used in GP1280 only
R706	0662057N17	56K used in GP1280 only
R707	0662057M91	5.1K used in GP1280 only
R708	0662057N41	560K used in GP1280 only
R709	0662057N47	1.0 MEG used in GP1280 only
R710	0662057N39	470K used in GP1280 only
R716	0662057N01	12K used in GP1280 only
R717	0662057M82	2.2K used in GP1280 only
RT300	0680590Z01	THERMISTOR_33K
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z01	CHANNEL SWITCH used in GP640 only
	4080710Z02	CHANNEL SWITCH not used in GP640
S502	1880619Z01	VOLUME SWITCH
SH100	2680507Z01	SHIELD, HARMONIC FILTER
SH101	2680510Z01	SHIELD, PA
SH201	2680511Z01	SYNTHESIZER TOP SHIELD
SH202	2680511Z01	SYNTHESIZER BOTTOM SHIELD
SH241	2680513Z01	SHIELD, VCO TOP
SH242	2680514Z01	SHIELD, VCO BOTTOM/ LVZIF
SH301	2680554Z01	RX PRE FILTER SHIELD
SH302	2680555Z01	RX POST FILTER/RX AMP
SH303	2680509Z01	SHIELD, MIXER
SH304	2680624Z01	SHIELD, MIXER DIODE
SH321	2680508Z01	SHIELD,LVZIF 2ND LO

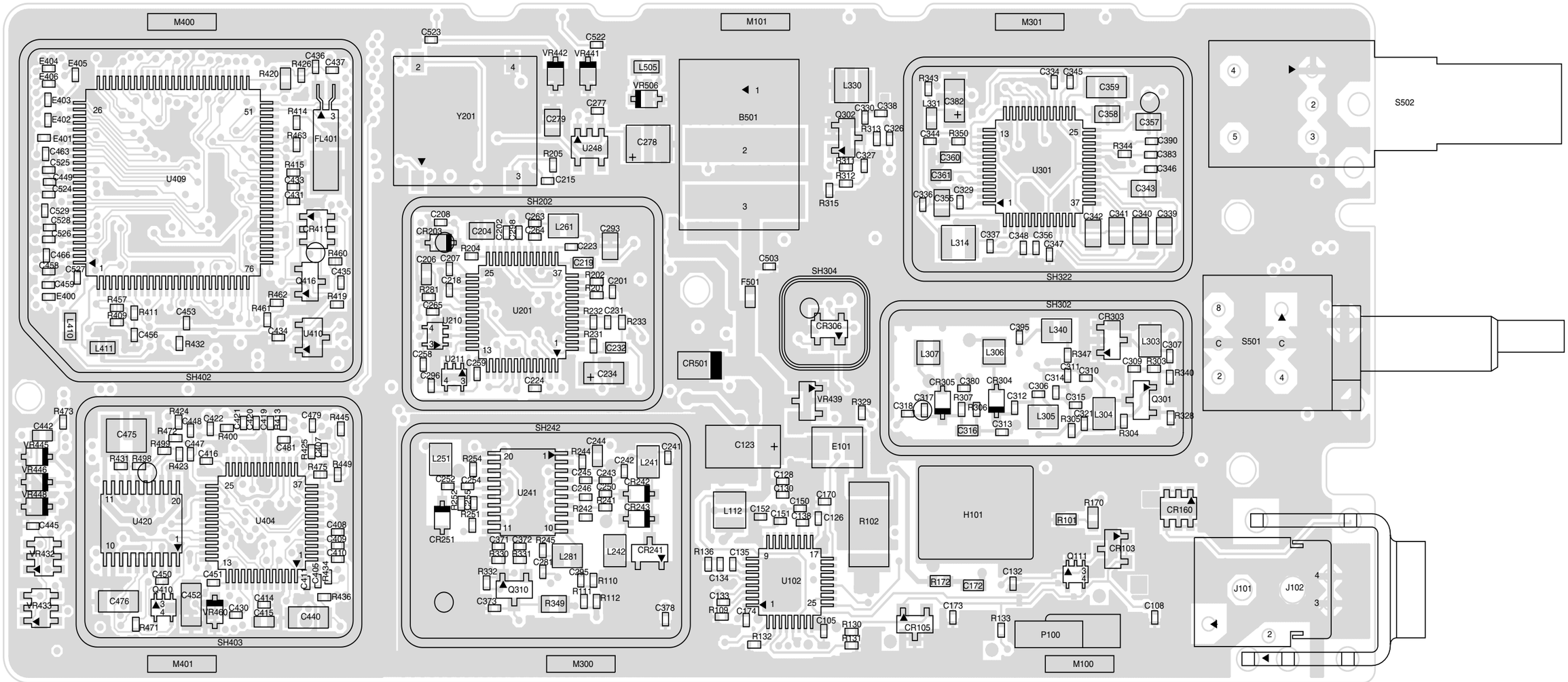
Circuit Ref.	Motorola Part No.	Description
SH322	2680514Z01	ZIF SHIELD
SH323	2680553Z01	SHIELD, CRYSTAL FILTER
SH400	2680505Z01	CONTROLLER MEMORY SHIELD
SH401	2680506Z01	ON/OFF CONTROLLER SHIELD
SH402	2680515Z01	MICROPROCESSOR CONTROLLED SHIELD
SH403	2680516Z01	ASFIC CMP/AUDIO PA CONTROLLER SHIELD
SH701	2680677Z01	SHIELD(VOICE STORAGE BOTTOM) used in GP1280 only
T301	2580541Z01	XFMR COIL
T302	2580541Z01	XFMR COIL
U101	5105109Z67	LDMOS DRIVER UHF IC
U102	5185765B01	POWER CONTROL IC
U201	5185963A27	LVFRACN
U210	5102463J61	INVERTER
U211	5102463J61	INVERTER
U241	5105750U54	VCO BuFFER
U247	5105739X05	REGULATOR LINEAR
U248	5102463J58	3.3V REGULATOR
U301	5109632D83	LVZIF 2.2
U400	5102463J40	3.3V REGULATOR
U404	5185963A53	ASFIC CMP
U405	5102463J36	STATIC_RAM_32KX8
U406	*5102463J60	FLASH ROM 512KX8
U407	*5102463J64	16K X 8 EEPROM
U409	5102226J56	UP HC11FLO
U410	5102463J57	REGULATOR 3.3V not used in GP640
U420	5102463J44	AUDIO PA
U700	5109152M01	IC EEPROM ANLOG used in GP1280 only
U710	5102463J52	QUAD ANALOG SWITCH IC used in GP1280 only
U720	5113818A01	SING SPLY IC used in GP1280 only
VR432	4805656W08	5.6V ZENER
VR433	4805656W08	5.6V ZENER
VR434	4802245J51	ZENER 6.8V
VR439	4880140L15	10V ZENER
VR440	4802245J51	ZENER 6.8V
VR441	4802245J51	ZENER 6.8V
VR442	4802245J51	ZENER 6.8V
VR443	4802245J51	ZENER 6.8V
VR444	4802245J51	ZENER 6.8V
VR445	4802245J53	ZENER_10V
VR446	4802245J53	ZENER_10V
VR447	4802245J53	ZENER_10V
VR448	4802245J53	ZENER_10V
VR449	4802245J53	ZENER_10V
VR450	4802245J53	ZENER_10V
VR501	4813830A18	6.8V ZENER
VR506	4802245J51	ZENER 6.8V
	7580671Z01	PAD (FLEXIBLE CIRCUIT)
	7580671Z01	PAD (FLEXIBLE CIRCUIT)
	8485677Z02	BOARD, PC EXTENDED MAIN
	8485641Z02	BOARD, MAIN

Circuit Ref.	Motorola Part No.	Description
B501	0986237A01	CONNECTOR, CONTACT BATTERY
B503	3980502Z01	CONTACT, BACKUP B+ not used in GP640
B504	3980501Z01	CONTACT, BACKUP B- not used in GP640
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F28	11pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2103689A22	11pF±0.05
C112	2180605Z28	32pF
C113	2180605Z22	18pF
C114	2113743N50	100pF
C115	2113743N36	27pF
C116	2113743N27	11pF
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N25	9.1pF
C121	2113743N50	100pF

* Motorola Depot Servicing only

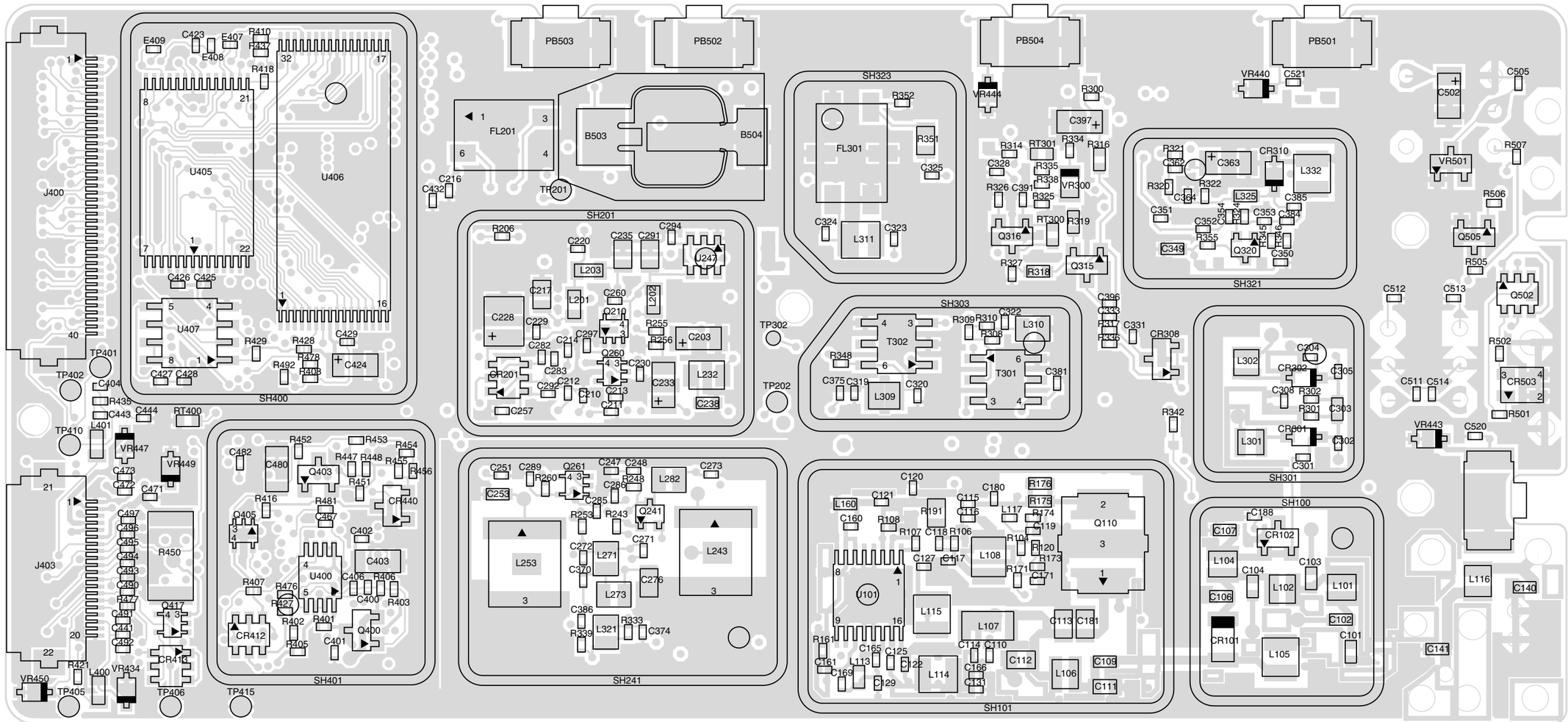
** Not Field Serviceable

4.0 UHF2 PCB 8485641Z06 Schematics



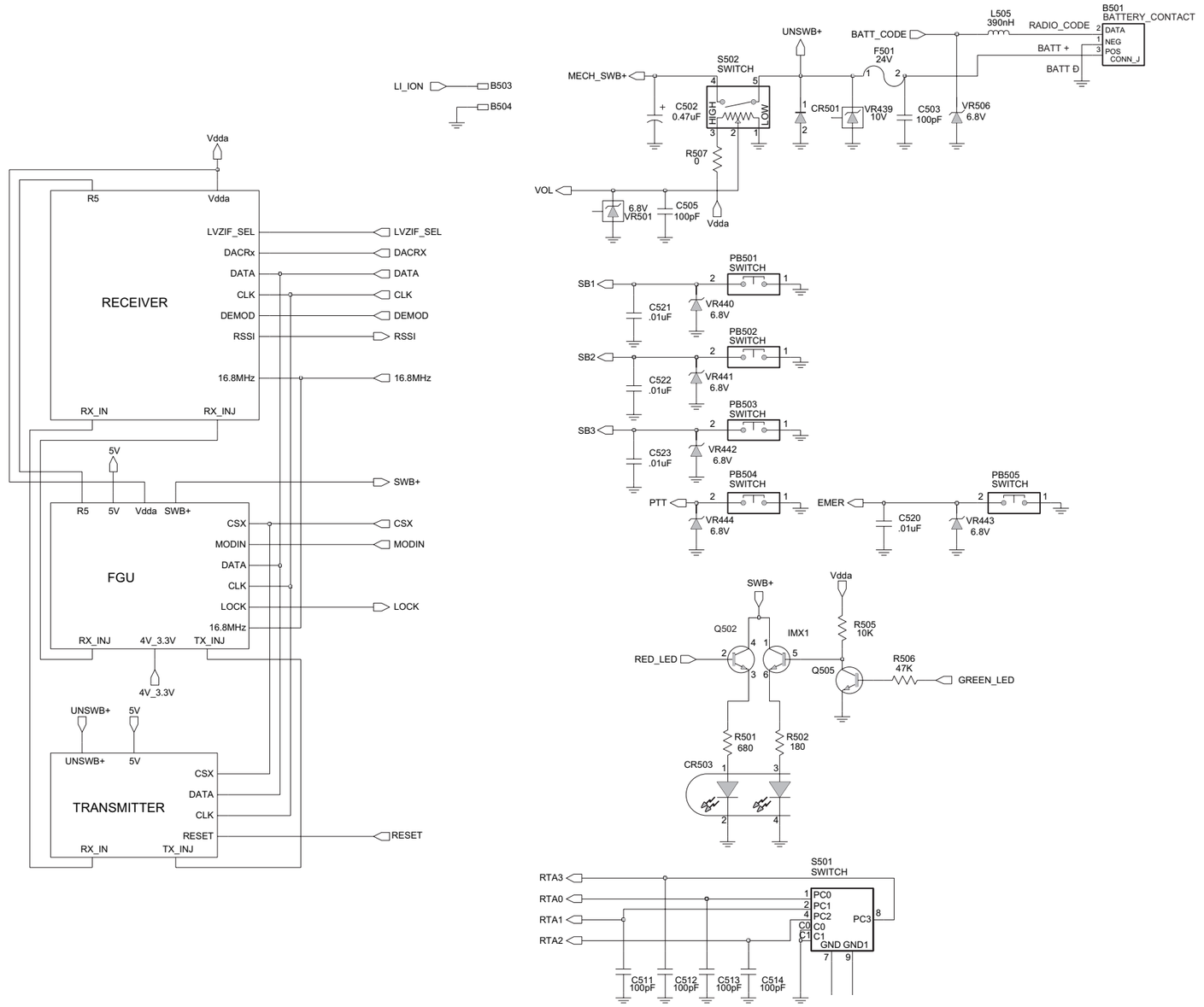
ZMY0130258-B

UHF2 (450-527MHz) Main Board Top Side



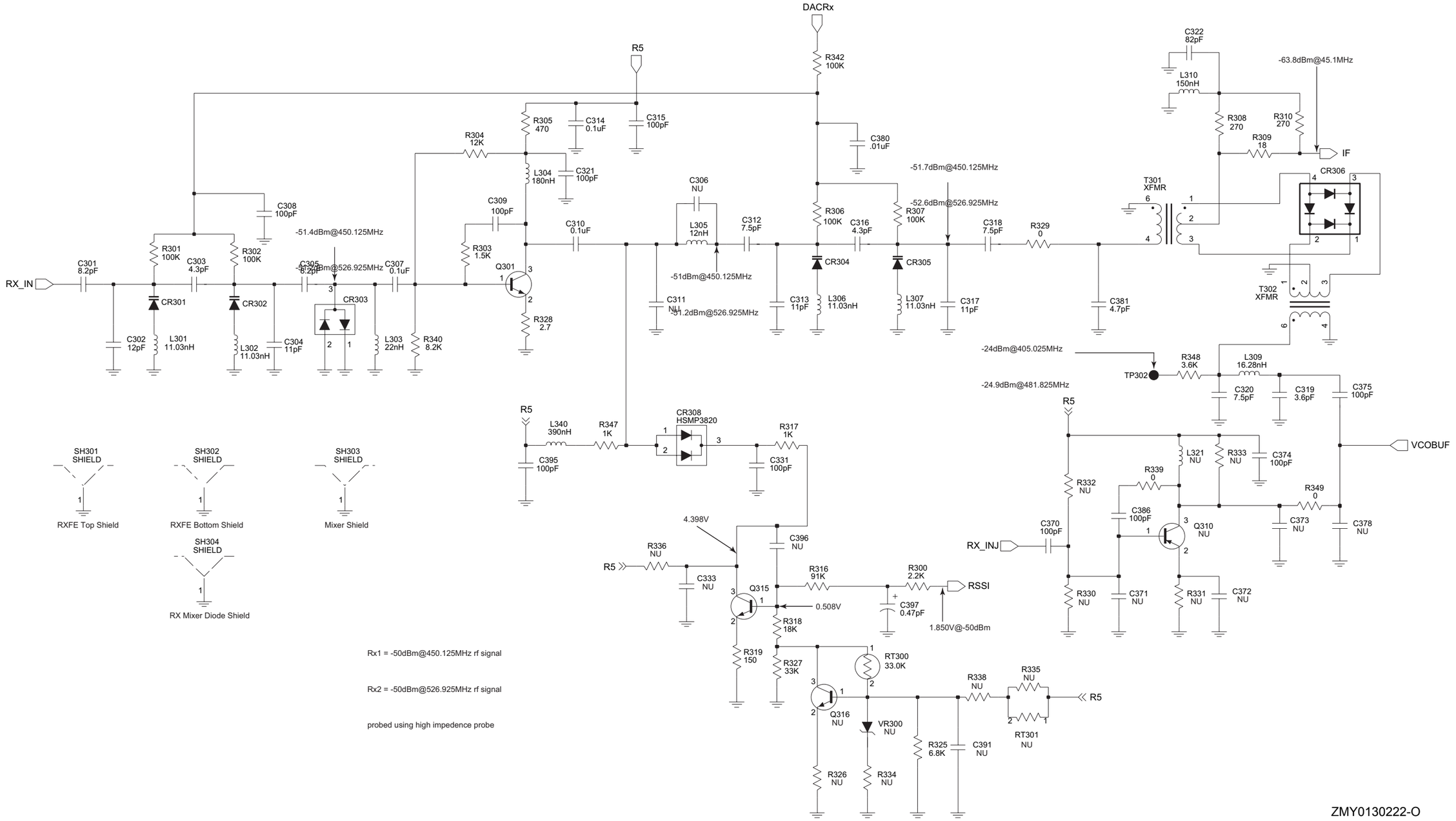
ZMY0130259-B

UHF2 (450-527 MHz) Main Board Bottom Side

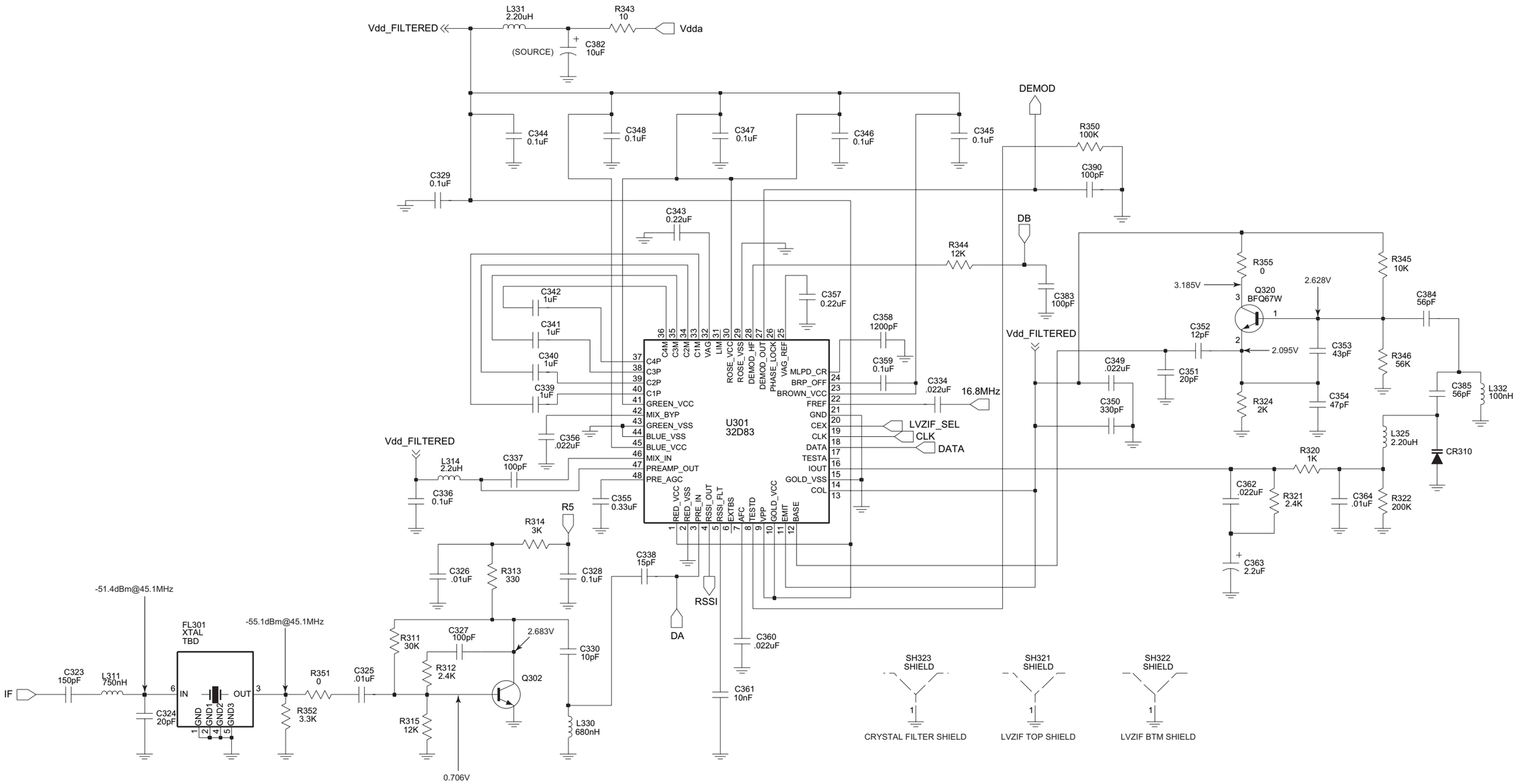


ZMY0130015-A

UHF2 (450-527 MHz) Controls and Switches

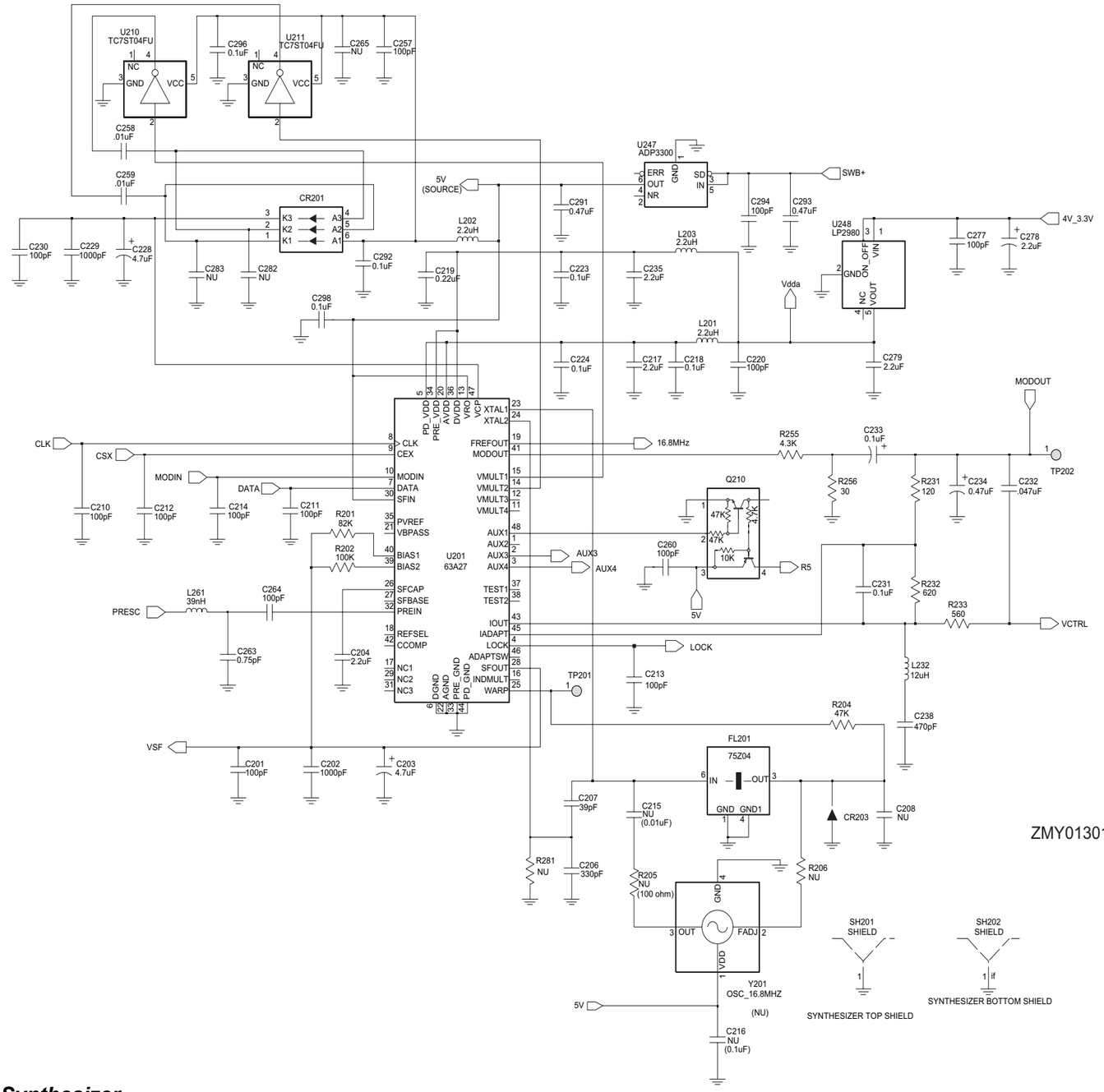


UHF2 (450-527 MHz) Receiver Front End



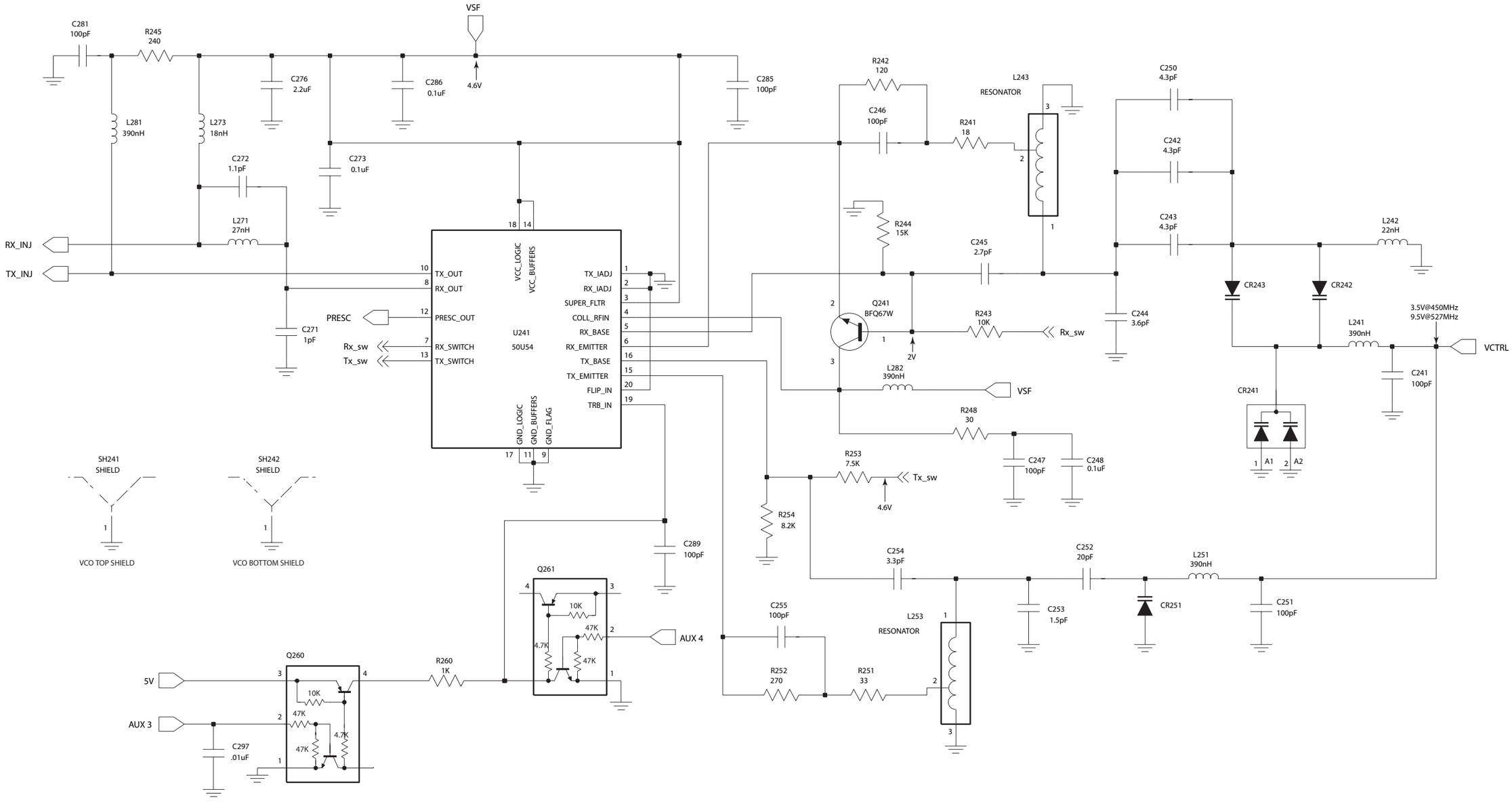
ZMY0130223-O

UHF2 (450-527 MHz) Receiver Back End

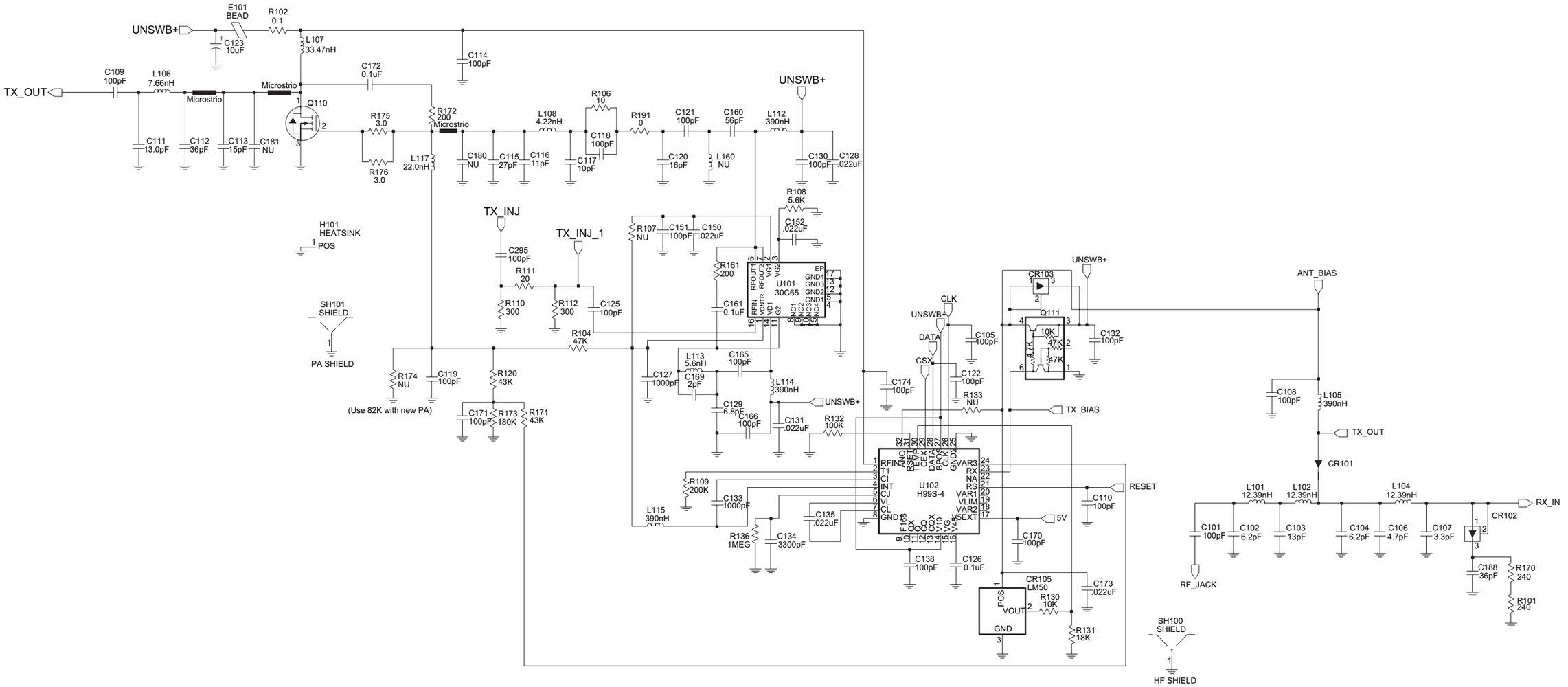


ZMY0130186-B

UHF2 (450-527 MHz) Synthesizer



UHF2 (450-527 MHz) Voltage Controlled Oscillator



UHF2 (450-527 MHz) Transmitter

5.0 UHF2 PCB8485641Z06 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	Battery Contact Module
B503	3980502Z01	Backup battery B+ (not used in GP140/GP240/ GP340/GP640)
B504	3980501Z01	Backup battery B- (not used in GP140/GP240/ GP340/GP640)
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F28	11pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2103689A22	11pF
C112	2180605Z28	33pF
C113	2180605Z22	18pF
C114	2113743N50	100pF
C115	2113743N36	27pF
C116	2113743N27	11pF
C117	NOTPLACED	-
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N23	7.5pF, 0.5
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A18	10uF, 10%, 16V
C125	2113743N50	100pF
C126	2113743M24	100000pF, +80%/-20%
C127	2113743L17	1000pF, 10%
C128	2113743M08	22000pF, +80%/-20%
C129	2113743N22	6.8pF, 0.5
C130	2113743N50	100pF
C131	2113743M08	22000pF, +80%/-20%
C132	2113743N50	100pF
C133	2113743L17	1000pF, 10%
C134	2113743L29	3300pF, 10%
C135	2113743M08	22000pF, +80%/-20%
C138	2113743N50	100pF
C140	NOTPLACED	-
C141	2113740F25	8.2pF
C150	2113743M08	22000pF, +80%/-20%
C151	2113743N50	100pF
C152	2113743M08	22000pF, +80%/-20%
C160	2113743N44	56pF
C161	2113743M24	100000pF, +80%/-20%
C165	2113743N50	100pF
C166	2113743N50	100pF
C169	2113743N09	2.0pF, 0.25
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113743E20	0.10uF, 10%
C173	2113743M08	22000pF, +80%/-20%
C174	2113743N50	100pF
C180	NOTPLACED	-
C181	NOTPLACED	-
C188	2113743N39	36pF
C201	2113743N50	100pF
C202	2113743L17	1000pF, 10%
C203	2311049A56	4.7uF, 20%, 10V
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N40	39pF
C208	NOTPLACED	-
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C215	NOTPLACED	-
C216	NOTPLACED	-
C217	2104993J02	2.2uF
C218	2113743M24	100000pF, +80%/-20%
C219	2113743K16	0.220uF, +80%/-20%
C220	2113743N50	100pF
C223	2113743M24	100000pF, +80%/-20%
C224	2113743M24	100000pF, +80%/-20%
C228	2311049J11	4.7uF, 10%, 16V
C229	2113743L17	1000pF, 10%
C230	2113743N50	100pF
C231	2113743M24	100000pF, +80%/-20%
C232	2113743E12	0.047uF, 10%
C233	2311049A01	0.1uF, 10%, 35V
C234	2311049A05	0.47uF, 10%, 25V
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N17	4.3pF, 0.25
C243	2113743N17	4.3pF, 0.25
C244	2113740F14	3.0pF
C245	2113743N12	2.7pF, 0.25
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	100000pF, +80%/-20%
C250	2113743N17	4.3pF, 0.25
C251	2113743N50	100pF
C252	2113743N33	20pF
C253	2113740F07	1.5pF
C254	2113743N14	3.3pF, 0.25
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	10000pF, 10%
C259	2113743L41	10000pF, 10%
C260	2113743N50	100pF
C263	2113743N02	0.75pF, 0.25
C264	2113743N50	100pF
C265	NOTPLACED	-
C271	2113743N03	1.0pF, 0.25
C272	2113743N04	1.1pF, 0.25
C273	2113743M24	100000pF, +80%/-20%
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A09	2.2uF, 10%, 20V
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C282	NOTPLACED	-
C283	NOTPLACED	-
C285	2113743N50	100pF
C286	2113743M24	100000pF, +80%/-20%
C289	2113743N50	100pF
C291	2311049A69	10uF, 20%, 6.3V
C292	2113743M24	100000pF, +80%/-20%
C293	2113743A27	0.470uF, 10%
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	100000pF, +80%/-20%
C297	2113743L41	10000pF, 10%
C298	2113743M24	100000pF, +80%/-20%
C301	2113743N24	8.2pF, 0.5
C302	2113743N28	12pF
C303	2113740L09	4.3pF, 0.1
C304	2113743N27	11pF
C305	2113743N24	8.2pF, 0.5
C306	NOTPLACED	-
C307	2113743M24	100000pF, +80%/-20%
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743M24	100000pF, +80%/-20%
C311	NOTPLACED	-
C312	2113743N23	7.5pF, 0.5
C313	2113743N27	11pF
C314	2113743M24	100000pF, +80%/-20%
C315	2113743N50	100pF
C316	2113740L09	4.3pF, 0.1
C317	2113743N27	11pF
C318	2113743N23	7.5pF, 0.5
C319	2113743N15	3.6pF, 0.25
C320	2113743N23	7.5pF, 0.5
C321	2113743N50	100pF
C322	2113743N48	82pF
C323	2113743N54	150pF
C324	2113743N33	20pF
C325	2113743L41	10000pF, 10%
C326	2113743L41	10000pF, 10%
C327	2113743N50	100pF
C328	2113743M24	100000pF, +80%/-20%
C329	2113743M24	100000pF, +80%/-20%
C330	2113743N26	10pF
C331	2113743N50	100pF
C333	NOTPLACED	-
C334	2113743M08	22000pF, +80%/-20%
C336	2113743M24	100000pF, +80%/-20%
C337	2113743N50	100pF
C338	2113743N30	15pF
C339	2180478Z20	1uF
C340	2180478Z20	1uF
C341	2180478Z20	1uF
C342	2180478Z20	1uF
C343	2113743A23	0.220uF, 10%
C344	2113743M24	100000pF, +80%/-20%
C345	2113743M24	100000pF, +80%/-20%
C346	2113743M24	100000pF, +80%/-20%
C347	2113743M24	100000pF, +80%/-20%
C348	2113743M24	100000pF, +80%/-20%
C349	2113743E07	0.022uF
C350	2113743L05	330pF, 10%
C351	2113743N33	20pF
C352	2113743N28	12pF
C353	2113743N41	43pF
C354	2113743N42	47pF
C355	2113743A24	0.330uF, 10%
C356	2113743M08	22000pF, +80%/-20%
C357	2113743A23	0.220uF, 10%
C358	2113741A23	1200pF
C359	2109720D14	0.1uF, low distortion
C360	2113743E07	0.022uF
C361	2113741F49	10nF
C362	2113743M08	22000pF, +80%/-20%
C363	2311049A40	2.2uF, 10%, 10V
C364	2113743L41	10000pF, 10%
C370	2113743N50	100pF
C371	NOTPLACED	-
C372	NOTPLACED	-
C373	NOTPLACED	-
C374	2113743N50	100pF
C375	2113743N50	100pF
C378	NOTPLACED	-
C380	2113743L41	10000pF, 10%
C381	2113743N18	4.7pF, 0.25
C382	2311049A59	10uF, 10%, 6V

Circuit Ref	Motorola Part No.	Description
C383	2113743N50	100pF
C384	2113743N44	56pF
C385	2113743N44	56pF
C386	2113743N50	100pF
C390	2113743N50	100pF
C391	NOTPLACED	-
C395	2113743N50	100pF
C396	NOTPLACED	-
C397	2311049A07	1uF, 10%, 16V
C400	2113743L41	10000pF, 10%
C401	2113743M24	100000pF, +80%/-20%
C402	2113743M24	100000pF, +80%/-20%
C403	2113928D08	10uF, +/-80%/-20%
C404	NOTPLACED	-
C405	NOTPLACED	-
C406	NOTPLACED	-
C407	2113928N01	0.1uF , 10%
C408	2113743N50	100pF
C409	2113743M24	100000pF, +80%/-20%
C410	2113928N01	0.1uF , 10%
C411	2113743M24	100000pF, +80%/-20%
C414	2113743M24	100000pF, +80%/-20%
C415	2185895Z01	0.01uF, low distortion
C416	2113928N01	0.1uF , 10%
C419	NOTPLACED	-
C420	2113743L41	10000pF, 10%
C421	2113928N01	0.1uF , 10%
C422	2113743M24	100000pF, +80%/-20%
C423	2113743N50	100pF
C424	2311049A59	10uF, 10%, 6V
C425	2113743M24	100000pF, +80%/-20%
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	100000pF, +80%/-20%
C429	2113743M24	100000pF, +80%/-20%
C430	2113928N01	0.1uF , 10%
C431	2113743N50	100pF
C432	NOTPLACED	-
C433	2113743L41	10000pF, 10%
C434	2113928N01	0.1uF, 10%(not used in GP640)
C435	2113743M24	100000pF, +80%/-20%
C436	2113743N34	22pF (not used in GP640)
C437	2113743N34	22pF (not used in GP640)
C440	2113743G26	4.7uF, +80%/-20%
C441	2113743N50	100pF
C442	2113743E20	0.10uF, 10%
C443	2113928N01	0.1uF , 10%
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	22000pF, +80%/-20%
C448	2113928N01	0.1uF , 10%
C449	2113743N50	100pF
C450	NOTPLACED	-
C451	2113743M08	22000pF, +80%/-20%
C452	2113743B29	1uF, 10%
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF , 10%
C471	2113743N50	100pF
C472	2113743L09	470pF, 10%
C473	2113743L09	470pF, 10%
C475	2113743H14	10uF, +80%/-20%
C476	2113928D08	10uF, +/-80%/-20%
C479	2113928N01	0.1uF , 10%
C480	2113928D08	10uF, +/-80%/-20%
C481	2113928N01	0.1uF , 10%
C482	2113928N01	0.1uF , 10%
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C502	2311049A05	0.47uF, 10%, 25V
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	10000pF, 10%
C521	2113743L41	10000pF, 10%
C522	2113743L41	10000pF, 10%
C523	2113743L41	10000pF, 10%
C524	2113743N50	100pF
C525	2113743N50	100pF
C526	2113743N50	100pF
C527	2113743N50	100pF
C528	2113743N50	100pF
C529	NOTPLACED	-
C701	2180478Z20	1.0uF used in GP1280 only
C702	2113928N01	0.1uF used in GP1280 only
C703	2113743N50	100 pF used in GP1280 only
C704	2113928N01	0.1uF used in GP1280 only
C705	2113928N01	0.1uF used in GP1280 only
C707	2113928N01	0.1uF used in GP1280 only
C708	2113928N01	0.1uF used in GP1280 only
C709	2113743L17	1000 pF used in GP1280 only
C711	2113743L41	0.1 uF used in GP1280 only
C713	2113928N01	0.1 uF used in GP1280 only
C714	2113928N01	0.1 uF used in GP1280 only
C715	2113928N01	0.1 uF used in GP1280 only
C717	2113928N01	0.1 uF used in GP1280 only
C718	2113743L17	1000pF used in GP1280 only
C719	2113928N01	0.1uF used in GP1280 only
CR101	4880973Z02	Pin diode
CR102	4802245J41	Pin diode
CR103	4802245J41	Pin diode
CR105	5185963A15	Temperature sensor
CR160	NOTPLACED	-
CR201	4802233J09	Triple diode (SOT 25)
CR203	4862824C03	Varactor
CR241	4805649Q13	Varactor
CR242	4862824C01	Varactor
CR243	4862824C01	Varactor
CR251	4862824C01	Varactor
CR301	4862824C01	Varactor
CR302	4862824C01	Varactor
CR303	4880154K03	Dual common anode-cathode diode
CR304	4862824C01	Varactor
CR305	4862824C01	Varactor
CR306	4802245J42	Ring Quad diode (SOT-143)
CR308	4802245J41	Pin diode
CR310	4862824C01	Varactor
CR411	4802245J62	Diode Schottky
CR412	4802245J62	Diode Schottky
CR413	4802245J62	Diode Schottky
CR440	4813833C02	Dual common cathode diode
CR501	4880107R01	Rectifier
CR503	4805729G49	LED Red/Yellow
E101	2484657R01	Ferrite bead
E400	2480640Z01	Ferrite bead
E401	2480640Z01	Ferrite bead
E402	2480640Z01	Ferrite bead
E403	2480640Z01	Ferrite bead
E404	2480640Z01	Ferrite bead
E405	2480640Z01	Ferrite bead
E406	2480640Z01	Ferrite bead
E407	2480640Z01	Ferrite bead
E408	2480640Z01	Ferrite bead
E409	2480640Z01	Ferrite bead
F501	6580542Z01	3A fuse
FL201	4805875Z04	16.8MHz Xtal oscillator (not field serviceable)
FL301	4802245J43	Xtal Filter 45.1MHz
FL401	4870368G02	Xtal Oscillator 38.4kHz (not used in GP640)
H101	2680499Z01	Heat spreader
J101	0985613Z01	RF Jack
J102	0280519Z02	Antenna nut
J403	0905505Y02	20-pin connector
L101	2460591B28	13.37nH
L102	2460591B28	13.37nH
L104	2460591B48	15.22nH
L105	2462587N22	390nH
L106	2460591A19	8.71nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L112	2462587N42	12nH, 5%
L113	2413926H09	5.6nH, 0.3
L114	2462587N42	12nH, 5%
L115	2462587N22	390nH
L116	2479990C02	16.28nH
L117	2409154M17	22nH
L160	2413926H14	15nH, 5%
L201	2462587Q20	2200nH, 20%
L202	2462587Q20	2200nH, 20%
L203	2462587Q20	2200nH, 20%
L232	2462587P25	12000nH, 5%
L241	2462587V41	390nH
L242	2462587V26	22nH, 5%
L243	2460593C03	Multi-layered Teflon resonator, Rx
L251	2462587V41	390nH
L253	2460593C03	Multi-layered Teflon resonator, Tx
L261	2462587V29	39nH, 5%
L271	2462587V27	27nH, 5%
L273	2462587V25	18nH, 5%
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990B01	11.03nH

Circuit Ref	Motorola Part No.	Description
L302	2479990B01	11.03nH
L303	2462587V26	22nH, 5%
L304	2462587V37	180nH, 5%
L305	2462587V23	12nH, 5%
L306	2479990B01	11.03nH
L307	2479990B01	11.03nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH, 5%
L311	2462587N65	750nH, 5%
L314	2462587N72	2200nH, 5%
L321	NOTPLACED	-
L325	2480646Z20	2.2uH
L330	2462587N64	680nH, 5%
L331	2480646Z20	2.2uH
L332	2462587N53	100nH, 5%
L340	2462587V41	390nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
P100	3905643V01	Ground contact finger
PB501	4080523Z01	Tactile switch, pushbutton
PB502	4080523Z01	Tactile switch, pushbutton
PB503	4080523Z01	Tactile switch, pushbutton
PB504	4080523Z01	Tactile switch, pushbutton
PB505	4080523Z01	Tactile switch, pushbutton
Q110	4813828A09	RF Power Amplifier
Q111	4802245J50	Dual NPN/PNP transistor
Q210	4802245J50	Dual NPN/PNP transistor
Q241	4805218N63	RF NPN transistor
Q260	4802245J50	Dual NPN/PNP transistor
Q261	4802245J50	Dual NPN/PNP transistor
Q301	4802245J44	NPN Transistor
Q302	4802245J44	NPN Transistor
Q310	NOTPLACED	-
Q315	4880214G02	NPN Transistor
Q316	NOTPLACED	-
Q320	4805218N63	RF NPN transistor
Q400	4809579E18	Mosfet P - channel
Q403	4813824A17	Bipolar Transistor, PNP
Q405	4802245J54	Dual NPN Transistor
Q410	4802245J54	Dual NPN Transistor
Q416	4809579E18	Mosfet P - channel (not used in GP640)
Q417	4802245J50	Dual NPN/PNP transistor
Q502	5180159R01	Dual NPN Transistor
Q505	4880214G02	NPN Transistor
R101	0662057A34	240
R102	0680539Z01	0.1
R104	0662057N15	47k
R106	0662057M26	10
R107	NOTPLACED	-
R108	0662057M92	5600
R109	0662057N30	200k
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43k
R130	0662057M98	10k
R131	0662057N05	18k
R132	0662057N33	270k
R133	NOTPLACED	-
R136	0662057N47	1M
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43k
R172	0662057A32	200
R173	0662057N29	180k
R174	0662057N15	47k
R175	0662057B59	3
R176	0662057B59	3
R191	0662057C01	0
R201	0662057N21	82k
R202	0662057N23	100k
R204	0662057N15	47k
R205	NOTPLACED	-
R206	NOTPLACED	-
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M52	120
R243	0662057M98	10k
R244	0662057N03	15k
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M38	33
R252	0662057M60	270
R253	0662057M95	7500
R254	0662057M96	8200
R255	0662057M89	4300
R256	0662057M37	30
R260	0662057M74	1000
R281	NOTPLACED	-
R300	0662057M82	2200
R301	0662057N23	100k
R302	0662057N23	100k
R303	0662057M78	1500
R304	0662057N01	12k
R305	0662057M66	470
R306	0662057N23	100k
R307	0662057N23	100k
R308	0662057M60	270
R309	0662057M32	18
R310	0662057M60	270
R311	0662057N10	30k
R312	0662057M83	2400
R313	0662057M62	330
R314	0662057M85	3000
R315	0662057N01	12k
R316	0662057A96	91K
R317	0662057M74	1000
R318	0662057A79	18K
R319	0662057A29	150
R320	0662057M74	1000
R321	0662057M83	2400
R322	0662057N30	200k
R324	0662057M81	2000
R325	0662057M94	6800
R326	NOTPLACED	-
R327	0662057N11	33k
R328	0662057M12	2.7
R329	0662057M01	0
R330	NOTPLACED	-
R331	NOTPLACED	-
R332	NOTPLACED	-
R333	NOTPLACED	-
R334	NOTPLACED	-
R335	NOTPLACED	-
R336	NOTPLACED	-
R338	NOTPLACED	-
R339	0662057M01	0
R340	0662057M96	8200
R342	0662057N23	100k
R343	0662057M26	10
R344	0662057N01	12k
R345	0662057M98	10k
R346	0662057N17	56k
R347	0662057M74	1000
R348	0662057M87	3600
R349	0662057C01	0
R350	0662057N23	100k
R351	0662057C01	0
R352	0662057M86	3300
R355	0662057M01	0
R400	0662057N15	47k
R401	0662057M01	0
R402	NOTPLACED	-
R403	NOTPLACED	-
R405	0662057M01	0
R406	0662057N20	75k
R407	0662057N19	68k
R408	NOTPLACED	
R409	0662057M98	10k
R410	0662057N23	100k
R411	0662057M98	10k
R413	0662057M01	0
R414	0662057V34	180k, 1%
R415	0662057V26	91k, 1%
R416	0662057M98	10k
R418	0662057M01	0
R419	0662057M67	510
R420	0662057B46	10M (not used in GP640)
R421	0662057M81	2000
R423	0662057N39	470k
R424	0662057N12	36k
R425	0662057N10	30k
R426	0662057N35	330k (not used in GP640)
R427	0662057M84	2700
R428	0662057M10	2.2
R429	0662057M98	10k
R431	0662057N39	470k
R432	0662057N16	51k
R434	0662057M62	330
R435	0662057M81	2000
R436	0662057M01	0
R437	NOTPLACED	-
R445	0662057N08	24k
R447	0662057N23	100k
R448	0662057M98	10k
R449	0662057N08	24k
R450	0683962T45	68 ohms, 1W
R451	0662057N03	15k
R452	0662057N23	100k
R453	NOTPLACED	-
R454	NOTPLACED	-
R455	NOTPLACED	-
R456	0662057M01	0
R457	0662057M98	10k
R460	0662057M90	4700
R461	0662057M56	180 (not used in GP640)
R462	0662057M98	10k (not used in GP640)
R463	0662057M61	300
R471	0662057N06	20k
R472	0662057N12	36k
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N08	24k
R477	0662057M74	1000
R478	0662057M98	10k
R481	0662057N08	24k
R492	0662057M01	0
R501	0662057M70	680

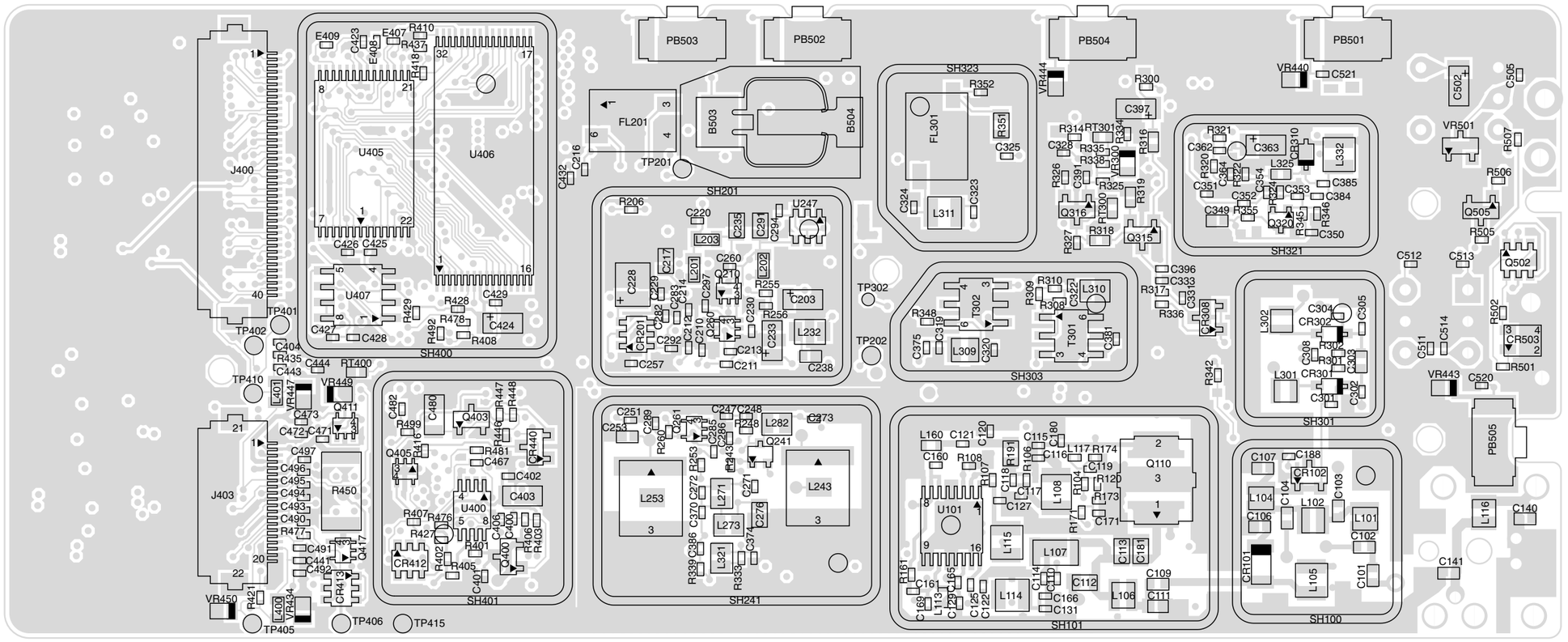
Circuit Ref	Motorola Part No.	Description
R502	0662057M56	180
R505	0662057M98	10k
R506	0662057N15	47k
R507	0662057M01	0
R701	0662057N05	18K used in GP1280 only
R702	0662057N05	18K used in GP1280 only
R703	0662057M74	1K used in GP1280 only
R704	0662057N13	39K used in GP1280 only
R705	0662057N13	39K used in GP1280 only
R706	0662057N17	56K used in GP1280 only
R707	0662057M91	5.1K used in GP1280 only
R708	0662057N41	560K used in GP1280 only
R709	0662057N47	1.0 MEG used in GP1280 only
R710	0662057N39	470K used in GP1280 only
R716	0662057N01	12K used in GP1280 only
R717	0662057M82	2.2K used in GP1280 only
RT300	0680590Z01	THERMISTOR_33K
RT301	NOTPLACED	-
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z01	CHANNEL SWITCH used in GP640 only
	4080710Z02	CHANNEL SWITCH not used in GP640
S502	1880619Z02	Volume/on-off switch
SH100	2680507Z01	Harmonic Filter shield
SH101	2680510Z01	RF PA shield
SH201	2680511Z01	Synthesizer top shield
SH202	2680511Z01	Synthesizer bottom shield
SH241	2680513Z01	Resonators shield
SH242	2680514Z01	VCO Buffer IC shield
SH301	2680554Z01	Receiver front end shield
SH302	2680555Z01	Receiver front end bottom shield
SH303	2680509Z01	Mixer shield
SH304	2680624Z01	Mixer diode shield
SH321	2680508Z01	LVZIF 2nd LO shield
SH322	2680514Z01	LVZIF shield
SH323	2680553Z01	Crystal Filter shield
SH400	2680505Z01	Controller Memory Shield
SH401	2680506Z01	Controller on-off shield
SH402	2680515Z01	Microprocessor shield
SH403	2680516Z01	Asfic_Cmp/Audio PA shield
SH701	2680677Z01	SHIELD(VOICE STORAGE BOTTOM) used in GP1280 only
T301	2580541Z02	Balun transformer
T302	2580541Z02	Balun transformer
U101	5185130C65	IC VHF/UHF/800 MHZ LDMOS DRIVER
U102	5185765B28	PCIC
U201	5185963A27	LVFRACN Synthesizer IC
U210	5102463J61	Inverter
U211	5102463J61	Inverter
U241	5105750U54	VCO BUFFER IC
U247	5105739X05	SOT 5V Regulator
U248	5102463J58	3.3V Regulator
U301	5109632D83	LVZIF IC

* Motorola Depot Servicing only

Reference designators with an asterisk indicate components which are not fieldreplaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

Note: Tolerance
Capacitor - 5% unless specified otherwise
Inductor - 10% unless specified otherwise
Resistor - 5% unless specified otherwise

6.0 UHF2 PCB 8485677Z02 (GP1280) Schematics



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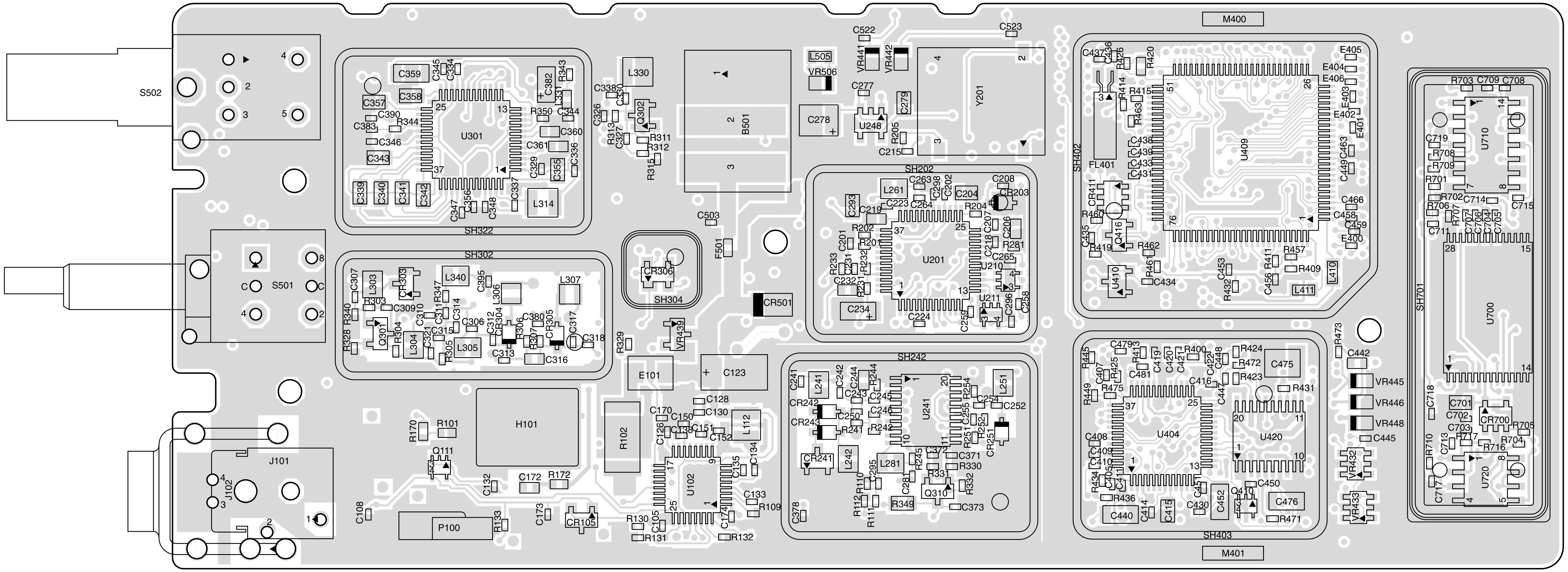
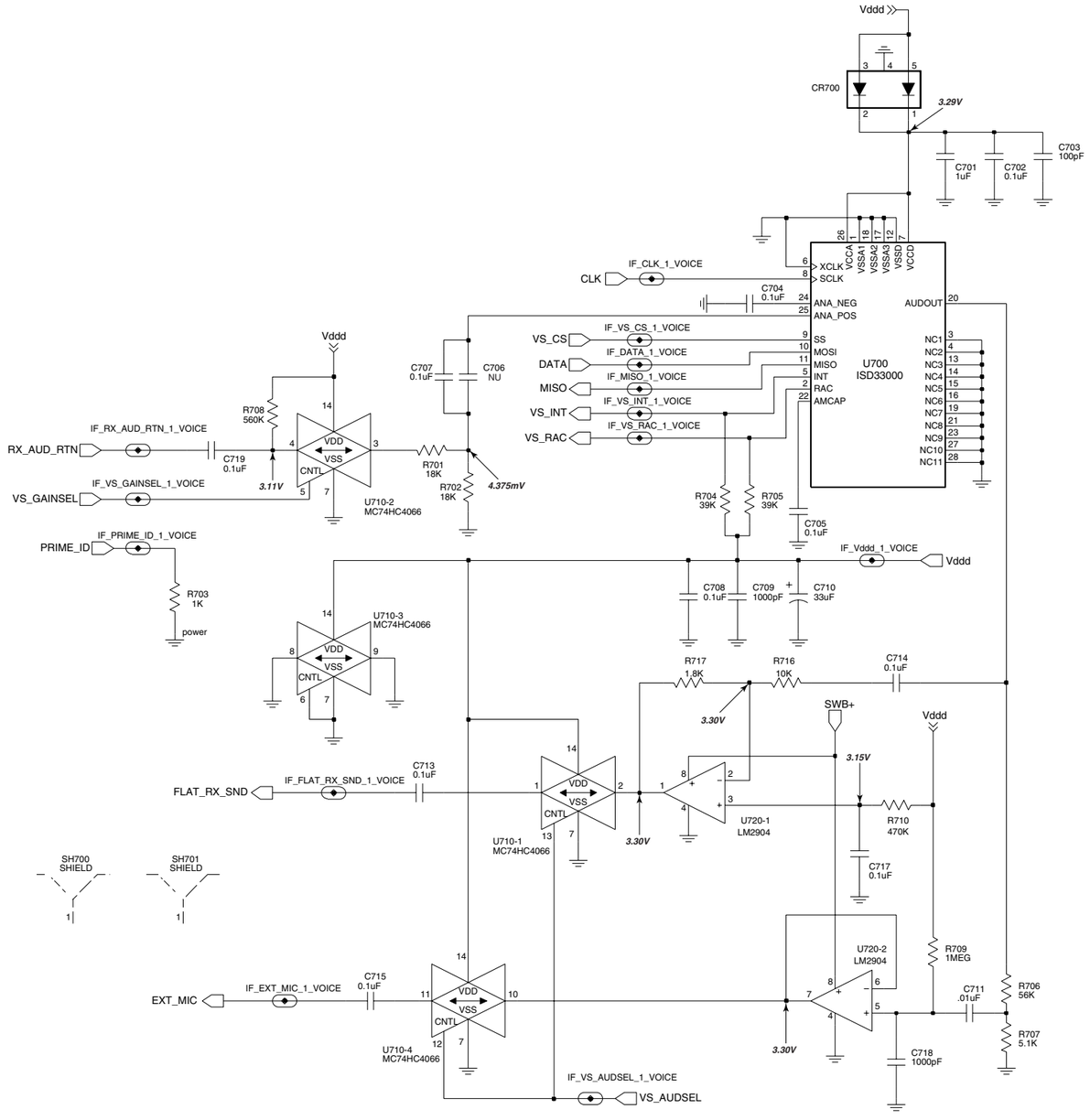
ZMY0130258-O

UHF2 (450-527 MHz) GP1280 Main Board Top Side



ZMY0130259-O

UHF2 (450-527 MHz) GP1280 Main Board Bottom Side



ZMY0130190-A

UHF2 (450-527 MHz) GP1280 - Voice Storage

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7.0 Voice Storage Parts List (GP1280)

Circuit Ref	Motorola Part No.	Description
C601	2311049A57	10uF
C602	2113743L41	.01uF
C603	2311049C07	100uF
C701	2180478Z20	1uF
C702	2113928N01	0.1uF
C703	2113743N50	100pF
C704	2113928N01	0.1uF
C705	2113928N01	0.1uF
C706	2113928N01	0.1uF
C707	2113928N01	0.1uF
C708	2113928N01	0.1uF
C709	2113743N50	100pF
C710	2311049A30	33uF
C711	2113928N01	0.1uF
C713	2113928N01	0.1uF
C714	2113928N01	0.1uF
C715	2113928N01	0.1uF
C716	2113928N01	0.1uF
C717	2180478Z20	1uF
C718	2180478Z20	1uF
CR601	4805129M76	
CR700	4802245J47	
L601	2480570Z01	68uH
R625	0662057M01	
R626	0662057M83	2.4K
R627	0662057M74	1K
R701	0662057N10	30K
R702	0662057M91	5.1K
R703	0662057N15	47K
R704	0662057N23	100K
R705	0662057N23	100K
R706	0662057N17	56K
R707	0662057M91	5.1K
R716	0662057N15	47K
R717	0662057N15	47K
U601	5105109Z74	LM2675
U700	5102463J53	ISD33000
U710	5102463J52	MC74HC4066
U720	5180932W01	LM2904

* Motorola Depot Servicing only

Reference designators with an asterisk indicate components which are not fieldreplaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

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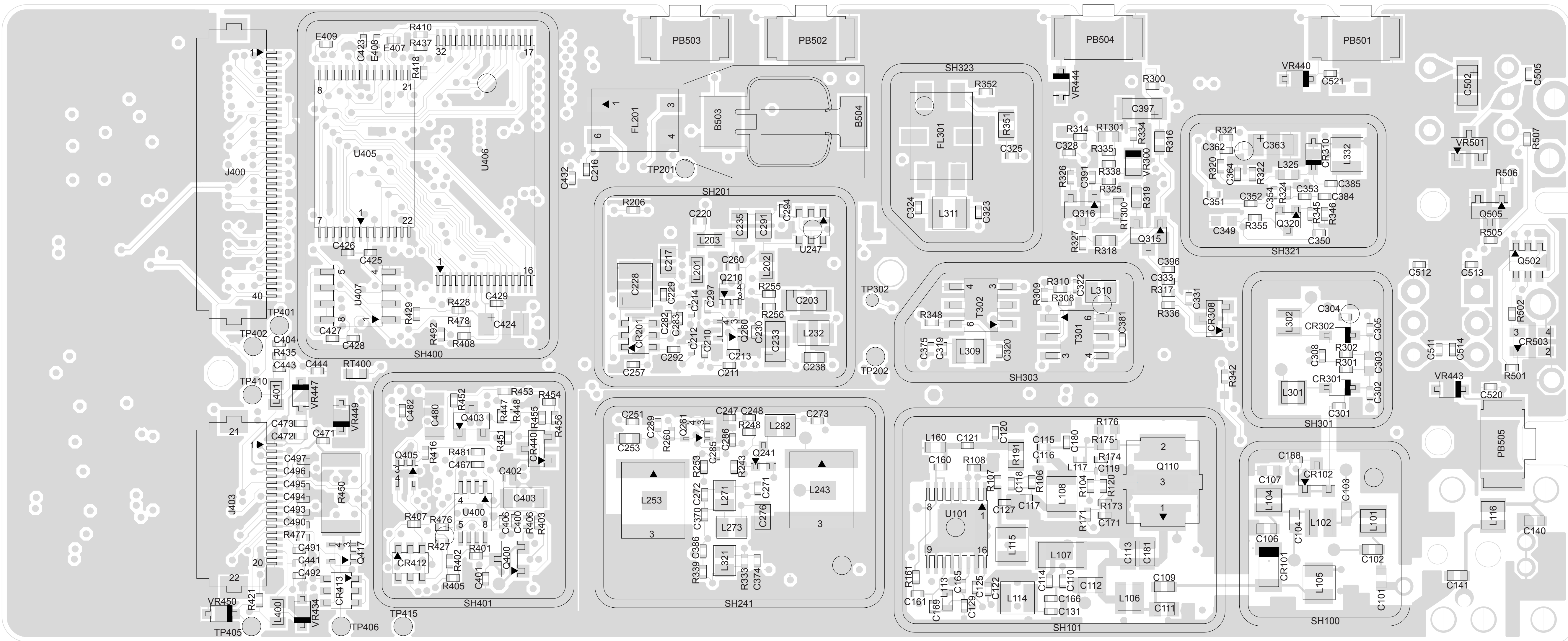
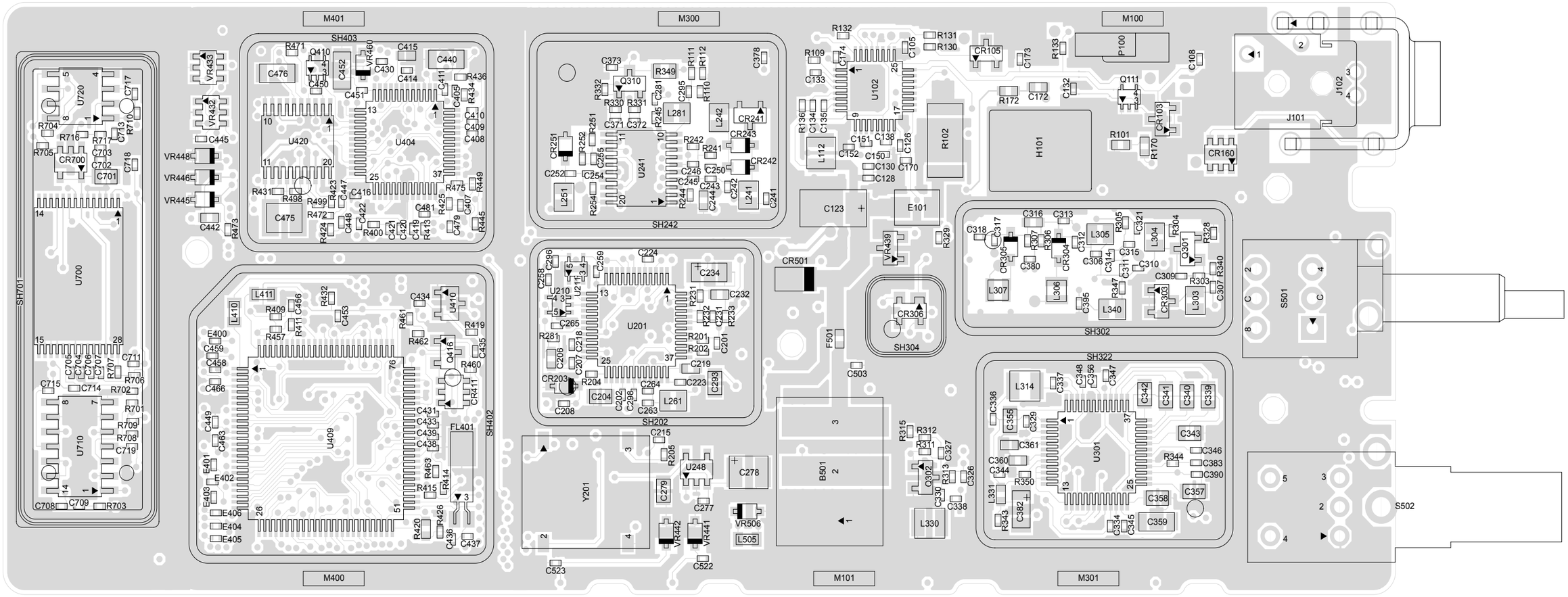
8.0 UHF2 PCB 8485677Z03 (GP1280) Schematics



UHF2 (450-527 MHz) GP1280 Main Board Top Side



UHF2 (450-527 MHz) GP1280 Main Board Bottom Side

9.0 UHF2 PCB 8485677Z03 (GP1280) Parts List

Circuit Ref.	Motorola Part No.	Description
B501	0986237A02	Battery Contact Module
B503	3980502Z01	Backup Contact, B +
B504	3980501Z01	Backup Contact, B -
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F28	11pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2103689A22	11pF
C112	2180605Z28	33pF
C113	2180605Z20	15pF
C114	2113743N50	100pF
C115	2113743N31	16pF
C116	2113743N27	11pF
C117	NOTPLACED	
C118	2113743N50	100pF
C119	2113743N50	100pF
C120	2113743N23	7.5pF
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A96	33uF
C125	2113743N50	100pF
C126	2113743M24	100000pF
C127	2113743L17	1000pF
C128	2113743M08	22000pF
C129	2113743N23	7.5pF
C130	2113743N50	100pF
C131	2113743M08	22000pF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	2113743L29	3300pF
C135	2113743M08	22000pF
C138	2113743N50	100pF
C140	0662057A67	5600pF
C141	2113740F25	8.2pF
C150	2113743M08	22000pF
C151	2113743N50	100pF
C152	2113743M08	22000pF
C160	2113743N44	56pF
C161	2113743M24	100000pF
C165	2113743N44	56pF
C166	2113743N50	100pF
C169	2113743N09	2pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113743E20	0.1uF
C173	2113743M08	22000pF
C174	2113743N50	100pF
C180	NOTPLACED	
C181	NOTPLACED	
C188	2113743N39	36pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2311049A56	4.7uF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N40	39pF
C208	NOTPLACED	
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C215	NOTPLACED	
C216	NOTPLACED	
C217	2104993J02	2.2uF
C218	2113743M24	100000pF
C219	2113743K16	0.22uF
C220	2113743N50	100pF
C223	2113743M24	100000pF
C224	2113743M24	100000pF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	100000pF
C232	2113743E12	0.047uF
C233	2311049A01	0.1uF
C234	2311049A05	0.47uF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N17	4.3pF
C243	2113743N17	4.3pF
C244	2113740F14	3.0pF
C245	2113743N12	2.7pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	100000pF
C250	2113743N17	4.3pF
C251	2113743N50	100pF
C252	2113743N26	10pF
C253	2113740F09	1.8pF
C254	2113743N26	10pF
C255	2113743N50	100pF
C257	2113743N50	100pF
C258	2113743L41	10000pF
C259	2113743L41	10000pF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C265	NOTPLACED	
C271	2113743N03	1pF
C272	2113743N04	1.1pF
C273	2113743M24	100000pF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A57	10uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C282	NOTPLACED	
C283	NOTPLACED	
C285	2113743N50	100pF
C286	2113743M24	100000pF
C289	2113743N50	100pF
C291	2311049A69	10uF
C292	2113743M24	100000pF
C293	2113743A27	0.470uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	100000pF
C297	2113743L41	10000pF
C298	2113743M24	100000pF
C301	2113743N24	8.2pF
C302	2113743N28	12pF
C303	2113740L09	4.3pF
C304	2113743N27	11pF
C305	2113743N24	8.2pF
C306	NOTPLACED	
C307	2113743M24	100000pF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743M24	100000pF
C311	NOTPLACED	
C312	2113743N23	7.5pF
C313	2113743N27	11pF
C314	2113743M24	100000pF
C315	2113743N50	100pF
C316	2113740L09	4.3pF
C317	2113743N27	11pF
C318	2113743N23	7.5pF
C319	2113743N15	3.6pF
C320	2113743N23	7.5pF
C321	2113743N50	100pF
C322	2113743N48	82pF
C323	2113743N54	150pF

Circuit Ref.	Motorola Part No.	Description
C324	2113743N33	20pF
C325	2113743L41	10000pF
C326	2113743L41	10000pF
C327	2113743N50	100pF
C328	2113743M24	100000pF
C329	2113743M24	100000pF
C330	2113743N26	10pF
C331	2113743N50	100pF
C333	NOTPLACED	
C334	2113743M08	22000pF
C336	2113743M24	100000pF
C337	2113743N50	100pF
C338	2113743N30	15pF
C339	2180478Z20	1uF
C340	2180478Z20	1uF
C341	2180478Z20	1uF
C342	2180478Z20	1uF
C343	2113743A23	0.22uF
C344	2113743M24	100000pF
C345	2113743M24	100000pF
C346	2113743M24	100000pF
C347	2113743M24	100000pF
C348	2113743M24	100000pF
C349	2113743E07	0.022uF
C350	2113743L05	330pF
C351	2113743N33	20pF
C352	2113743N28	12pF
C353	2113743N41	43pF
C354	2113743N42	47pF
C355	2113743A24	0.33uF
C356	2113743M08	22000pF
C357	2113743A23	0.22uF
C358	2113741A23	1200pF
C359	2109720D14	0.1uF
C360	2113743E07	0.022uF
C361	2113741F49	10000pF
C362	2113743M08	22000pF
C363	2311049A40	2.2uF

Circuit Ref.	Motorola Part No.	Description
C364	2113743L41	10000pF
C370	2113743N50	100pF
C371	NOTPLACED	
C372	NOTPLACED	
C373	NOTPLACED	
C374	2113743N50	100pF
C375	2113743N50	100pF
C378	NOTPLACED	
C380	2113743L41	10000pF
C381	2113743N18	4.7pF
C382	2311049A59	10uF
C383	2113743N50	100pF
C384	2113743N44	56pF
C385	2113743N44	56pF
C386	2113743N50	100pF
C390	2113743N50	100pF
C391	NOTPLACED	
C395	2113743N50	100pF
C396	NOTPLACED	
C397	2311049A07	1uF
C400	2113743L41	10000pF
C4001	NOTPLACED	
C4002	NOTPLACED	
C4003	NOTPLACED	
C4004	NOTPLACED	
C4005	NOTPLACED	
C4007	NOTPLACED	
C4008	NOTPLACED	
C4009	NOTPLACED	
C401	2113743M24	100000pF
C4010	NOTPLACED	
C4011	NOTPLACED	
C4012	NOTPLACED	
C4013	NOTPLACED	
C4014	NOTPLACED	
C4015	NOTPLACED	
C4016	NOTPLACED	
C402	2113743M24	100000pF

Circuit Ref.	Motorola Part No.	Description
C403	2113743G24	2.2uF
C404	NOTPLACED	
C405	2113743N50	100pF
C406	NOTPLACED	
C407	2113928N01	0.1uF
C408	2113743N50	100pF
C409	2113743M24	100000pF
C410	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C411	2113743M24	100000pF
C414	2113743M24	100000pF
C415	2185895Z01	0.01uF
C416	2113928N01	0.1uF
C419	NOTPLACED	
C420	2113743L41	10000pF
C421	2113928N01	0.1uF
C422	2113743M24	100000pF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	100000pF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	100000pF
C429	2113743M24	100000pF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C432	NOTPLACED	
C433	2113743L41	10000pF
C434	2113928N01	0.1uF
C435	2113743M24	100000pF
C436	2113743N34	22pF
C437	2113743N34	22pF
C438	2113743L17	1000pF
C439	2113743L17	1000pF
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	0.1uF
C443	2113928N01	0.1uF

Circuit Ref.	Motorola Part No.	Description
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	22000pF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C450	NOTPLACED	
C451	2113743M08	22000pF
C452	2113743B29	1uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF
C480	2113928D08	10uF
C481	2113928N01	0.1uF
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C502	2311049A05	0.47uF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF

Circuit Ref.	Motorola Part No.	Description
C514	2113743N50	100pF
C520	2113743L41	10000pF
C521	2113743L41	10000pF
C522	2113743L41	10000pF
C523	2113743L41	10000pF
C601	NOTPLACED	
C602	NOTPLACED	
C603	NOTPLACED	
C701	2180478Z20	1uF
C702	2113928N01	0.1uF
C703	2113743N50	100pF
C704	2113928N01	0.1uF
C705	2113928N01	0.1uF
C706	NOTPLACED	
C707	2113928N01	0.1uF
C708	2113928N01	0.1uF
C709	2113743L17	1000pF
C711	2113743L41	10000pF
C713	2113928N01	0.1uF
C714	2113928N01	0.1uF
C715	2113928N01	0.1uF
C717	2113928N01	0.1uF
C718	2113743L17	1000pF
C719	2113928N01	0.1uF
CR101	4880973Z02	Pin Diode
CR102	4802245J41	Pin Diode
CR103	4802245J41	Pin Diode
CR105	5185963A15	Temperature Sensor
CR160	NOTPLACED	
CR201	4802233J09	Triple Diode
CR203	4862824C03	Varactor
CR241	4805649Q13	Varactor
CR242	4862824C01	Varactor
CR243	4862824C01	Varactor
CR251	4802245J22	Varactor
CR301	4862824C01	Varactor
CR302	4862824C01	Varactor
CR303	4880154K03	Dual Schottky Diode
CR304	4862824C01	Varactor
CR305	4862824C01	Varactor
CR306	4802245J42	Ring Quad Diode
CR308	4802245J41	Pin Diode
CR310	4862824C01	Varactor
CR411	4802245J62	Diode Schottky
CR412	4802245J62	Diode Schottky
CR413	4802245J62	Diode Schottky
CR440	4813833C02	Dual Common Cathode Diode
CR501	4880107R01	Rectifier
CR503	4805729G49	Red/Yellow LED
CR601	NOTPLACED	
CR700	4802245J47	Diode Schottky
E101	2484657R01	FERRITE BEAD
E400	2480640Z01	FERRITE BEAD
E401	2480640Z01	FERRITE BEAD
E402	2480640Z01	FERRITE BEAD
E403	2480640Z01	FERRITE BEAD
E404	2480640Z01	FERRITE BEAD
E405	2480640Z01	FERRITE BEAD
E406	2480640Z01	FERRITE BEAD
E407	2480640Z01	FERRITE BEAD
E408	2480640Z01	FERRITE BEAD
E409	2480640Z01	FERRITE BEAD
F501	6580542Z01	Fuse 3A
FL201	4805875Z04	16.8 MHZ Xtal Filter
FL301	9186153B01	Xtal Filter 45.1MHz
FL401	4870368G02	Real Time Clock Xtal Oscillator 38.4kHz
H101	2680499Z01	Heat Spreader
J101	0985613Z01	RF Jack
J102	0280519Z02	Antenna Nut
J400	0905505Y04	40-Pin Connector
J403	0905505Y02	20-Pin Connector
L101	2460591B28	13.37nH
L102	2460591B28	13.37nH
L104	2460591B48	15.22nH
L105	2462587N22	390nH
L106	2460591A19	8.71nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L112	2462587N42	12nH
L113	2413926H09	5.6nH
L114	2462587N42	12nH
L115	2462587N22	390nH
L116	2479990C02	16.28nH
L117	2409154M17	22nH
L160	2413926H14	15nH
L201	2462587Q20	2,200nH
L202	2462587Q20	2,200nH
L203	2462587Q20	2,200nH
L232	2462587P25	12000nH
L241	2462587V41	390nH
L242	2462587V26	22nH
L243	2485776Z02	RESONATOR
L251	2462587V41	390nH
L253	2460593C03	RESONATOR
L261	2462587V29	39nH
L271	2462587V27	27nH
L273	2462587V25	18nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990B01	11.03nH
L302	2479990B01	11.03nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V23	12nH
L306	2479990B01	11.03nH
L307	2479990B01	11.03nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH
L311	2462587N65	750nH
L314	2462587N72	2200nH
L321	NOTPLACED	
L325	2480646Z20	2.2uH
L330	2462587N64	680nH
L331	2480646Z20	2.2uH
L332	2462587N53	100nH
L340	2462587V41	390nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
L601	NOTPLACED	
P100	3905643V01	Ground Contact Finger
PB501	4080523Z02	Tactile Switch
PB502	4080523Z02	Tactile Switch
PB503	4080523Z02	Tactile Switch
PB504	4080523Z02	Tactile Switch
PB505	4080523Z02	Tactile Switch
Q110	4813828A09	RF PA
Q111	4809939C05	DUAL NPN/PNP Transistor
Q210	4809939C05	DUAL NPN/PNP Transistor
Q241	4805218N63	RF NPN Transistor
Q260	4809939C05	DUAL NPN/PNP Transistor
Q261	4809939C05	DUAL NPN/PNP Transistor
Q301	4802245J44	NPN Transistor
Q302	4802245J44	NPN Transistor
Q310	NOTPLACED	
Q315	4880214G02	NPN Transistor
Q316	NOTPLACED	
Q320	4805218N63	RF NPN Transistor
Q400	4809579E18	MOSFET P-Channel
Q403	4813824A17	PNP Transistor
Q405	4802245J54	Dual NPN Transistor
Q410	4802245J54	Dual NPN Transistor
Q416	4809579E18	MOSFET P-Channel
Q417	4809939C05	DUAL NPN/PNP Transistor
Q502	5180159R01	Dual NPN Transistor
Q505	4880214G02	NPN Transistor
R101	0662057A34	240
R102	0680539Z01	0.1

Circuit Ref.	Motorola Part No.	Description
R104	0662057N15	47K
R106	0662057M26	10
R107	NOTPLACED	
R108	0662057M92	5.6K
R109	0662057N30	200K
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43K
R130	0662057M98	10K
R131	0662057N05	18K
R132	0662057N33	270K
R133	NOTPLACED	
R136	NOTPLACED	
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43K
R172	0662057A32	200
R173	0662057N29	180K
R174	0662057N15	47K
R175	0662057B59	3
R176	0662057B59	3
R191	0662057C01	0
R201	0662057N21	82K
R202	0662057N23	100K
R204	0662057N15	47K
R205	NOTPLACED	
R206	NOTPLACED	
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M32	18
R242	0662057M52	120
R243	0662057M98	10K
R244	0662057N03	15K
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M38	33
R252	0662057M60	270
R253	0662057M95	7.5K
R254	0662057M96	8.2K
R255	0662057M89	4.3K
R256	0662057M37	30
R260	0662057M74	1K
R281	NOTPLACED	
R300	0662057M82	2.2K
R301	0662057N23	100K
R302	0662057N23	100K
R303	0662057M78	1.5K
R304	0662057N01	12K
R305	0662057M66	470
R306	0662057N23	100K
R307	0662057N23	100K
R308	0662057M60	270
R309	0662057M32	18
R310	0662057M60	270
R311	0662057N10	30K
R312	0662057M83	2.4K
R313	0662057M62	330
R314	0662057M85	3K
R315	0662057N01	12K
R316	0662057A96	91K
R317	0662057M74	1K
R318	0662057A79	18K
R319	0662057A29	150
R320	0662057M74	1K
R321	0662057M83	2.4K
R322	0662057N30	200K
R324	0662057M81	2K
R325	0662057M94	6.8K
R326	NOTPLACED	
R327	0662057N11	33K
R328	0662057M12	2.7
R329	0662057M01	0
R330	NOTPLACED	
R331	NOTPLACED	
R332	NOTPLACED	
R333	NOTPLACED	
R334	NOTPLACED	
R335	NOTPLACED	
R336	NOTPLACED	
R338	NOTPLACED	
R339	0662057M01	0
R340	0662057M96	8.2K
R342	0662057N23	100K
R343	0662057M26	10
R344	0662057N01	12K
R345	0662057M98	10K
R346	0662057N17	56K
R347	0662057M74	1K
R348	0662057M87	3.6K
R349	0662057C01	0
R350	0662057N23	100K
R351	0662057C01	0
R352	0662057M86	3.3K
R355	0662057M01	0
R400	0662057N15	47K
R401	0662057M01	0
R402	NOTPLACED	
R403	NOTPLACED	
R405	0662057M01	0
R406	0662057N20	75K
R407	0662057N19	68K
R408	NOTPLACED	
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057M98	10K
R418	0662057M01	0
R419	0662057M67	510
R420	0662057B46	10M
R421	0662057M81	2K
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R426	0662057N35	330K
R427	0662057M84	2.7K
R428	0662057M10	2.2
R429	0662057M98	10K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2K
R436	0662057M95	7500
R437	NOTPLACED	
R445	0662057N08	24K
R447	0662057N23	100K
R448	0662057M98	10K
R449	0662057N08	24K
R450	0683962T45	68
R451	0662057N03	15K
R452	0662057N23	100K
R453	NOTPLACED	
R454	NOTPLACED	
R455	NOTPLACED	
R456	0662057M01	0
R457	0662057M98	10K
R460	0662057M90	4.7K
R461	0662057M56	180
R462	0662057M98	10K
R463	0662057M61	300
R471	0662057N06	20K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N35	330K
R477	0662057M74	1K
R478	0662057M98	10K
R481	0662057N08	24K

Circuit Ref.	Motorola Part No.	Description
R492	0662057M01	0
R498	0662057M98	10K
R499	0662057M98	10K
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10K
R506	0662057N15	47K
R507	0662057M01	0
R625	NOTPLACED	
R626	NOTPLACED	
R627	NOTPLACED	
R701	0662057N05	18K
R702	0662057N05	18K
R703	0662057M74	1K
R704	0662057N13	39K
R705	0662057N13	39K
R706	0662057N17	56K
R707	0662057M91	5.1K
R708	0662057N41	560K
R709	0662057N47	1M
R710	0662057N39	470K
R716	0662057N01	12K
R717	0662057M82	2.2K
RT300	0680590Z01	THERMISTOR_33K
RT301	NOTPLACED	
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z02	Frequency Switch
S502	1880619Z02	Volume / On-off Switch
SH100	2680507Z01	Harmonic Filter Shield
SH101	2680510Z01	PA Shield
SH201	2680511Z01	Synthesizer Top Shield
SH202	2680511Z01	Synthesizer Bottom Shield
SH241	2680513Z01	VCO Resonators Shield
SH242	2680514Z01	VCO Buffer IC Shield
SH301	2680554Z01	Receiver Front-End Shield
SH302	2680555Z01	Receiver Back-End Bottom Shield
SH303	2680509Z01	Mixer Shield

Circuit Ref.	Motorola Part No.	Description
SH304	2680624Z01	Mixer Diode Shield
SH321	2680508Z01	LVZIF 2nd LO Shield
SH322	2680514Z01	LVZIF Shield
SH323	2680553Z01	Crystal Filter Shield
SH400	2680505Z01	Controller Memory Shield
SH401	2680506Z01	Controller On-off Shield
SH402	2680515Z01	Microprocessor Shield
SH403	2680516Z01	Asfic_Cmp, Audio PA Shield
SH701	2680677Z01	Voice Storage Shield
T301	2580541Z02	Balun Transformer
T302	2580541Z02	Balun Transformer
U101	5185130C65	LDMOS PA Driver
U102	5185765B26	PCIC
U201	5185963A27	LVFRACN Synthesizer IC
U210	5102463J61	Inverter
U211	5102463J61	Inverter
U241	5105750U54	VCO Buffer IC
U247	5105739X05	5V Regulator
U248	5102463J58	3.3V Regulator
U301	5109632D83	LVZIF IC
U400	5102463J40	3.3V Regulator
U404	5185130C53	ASFIC_CMP IC
U405	5102463J36	Static RAM_32K X 8
* U406	5102463J60	Flash ROM_512K X 8
* U407	5102495J05	EEPROM_16K X 8
U409	5102226J56	Micro Processor
U410	5102463J57	3.3V Regulator
U420	5102463J44	Audio PA
U601	NOTPLACED	
U700	5185770M01	IC VOICE STORAGE 2 MIN
U710	5102463J52	QUAD ANALOG SWITCH IC
U720	5113818A01	SING Supply IC
VR300	NOTPLACED	
VR432	4805656W08	Zener Diode
VR433	4805656W08	Zener Diode
VR434	4802245J73	Zener Diode 6.8V
VR439	4880140L17	Zener Diode
VR440	4802245J73	Zener Diode 6.8V

Circuit Ref.	Motorola Part No.	Description
VR441	4802245J73	Zener Diode 6.8V
VR442	4802245J73	Zener Diode 6.8V
VR443	4802245J73	Zener Diode 6.8V
VR444	4802245J73	Zener Diode 6.8V
VR445	4802245J74	Zener Diode 10V
VR446	4802245J74	Zener Diode 10V
VR447	4802245J74	Zener Diode 10V
VR448	4802245J74	Zener Diode 10V
VR449	4802245J74	Zener Diode 10V
VR450	4802245J75	Zener Diode 12V
VR460	4802245J73	Zener Diode 6.8V
VR501	4813830A18	DIODE 6.8V
VR506	4802245J73	Zener Diode 6.8V

* Motorola Depot Servicing only

Reference designators with an asterisk indicate components which are not fieldreplaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

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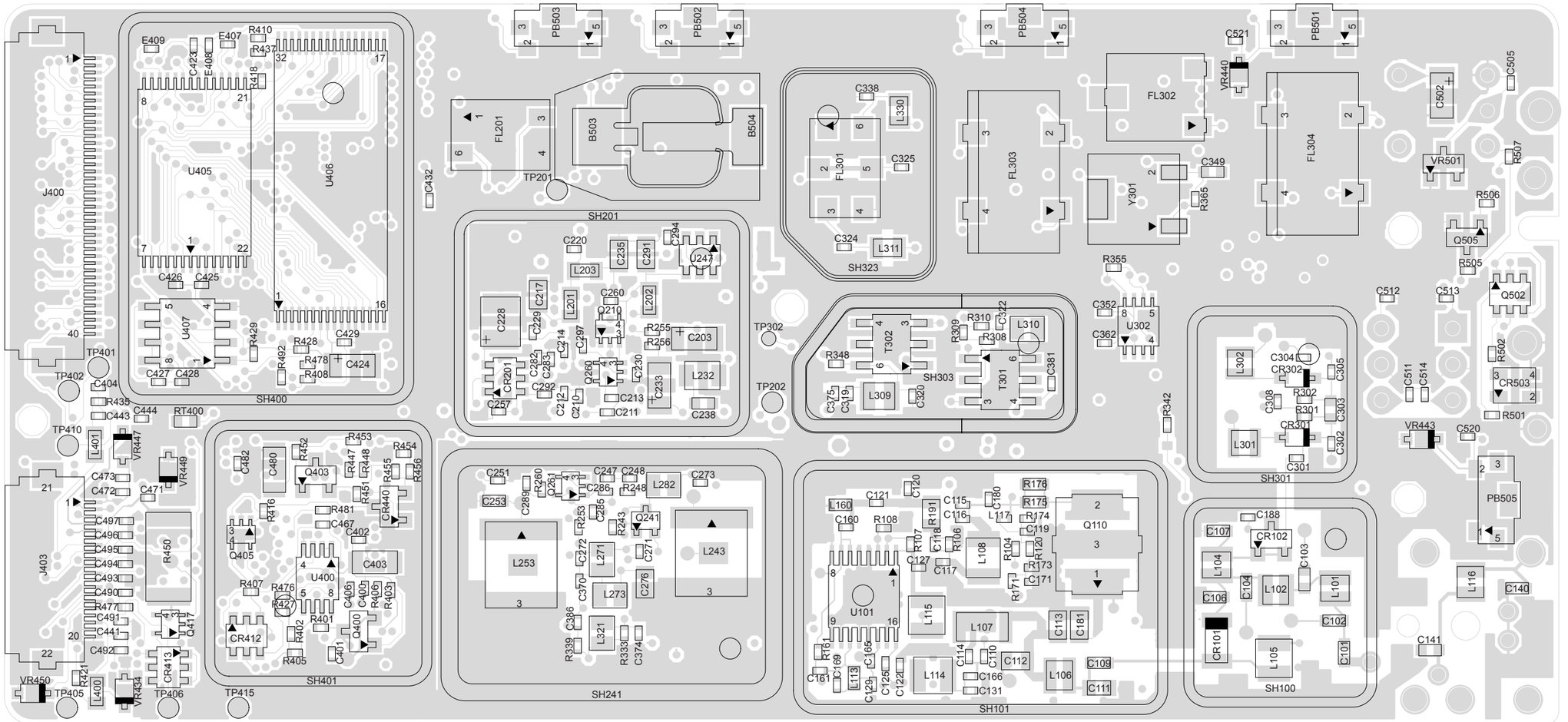
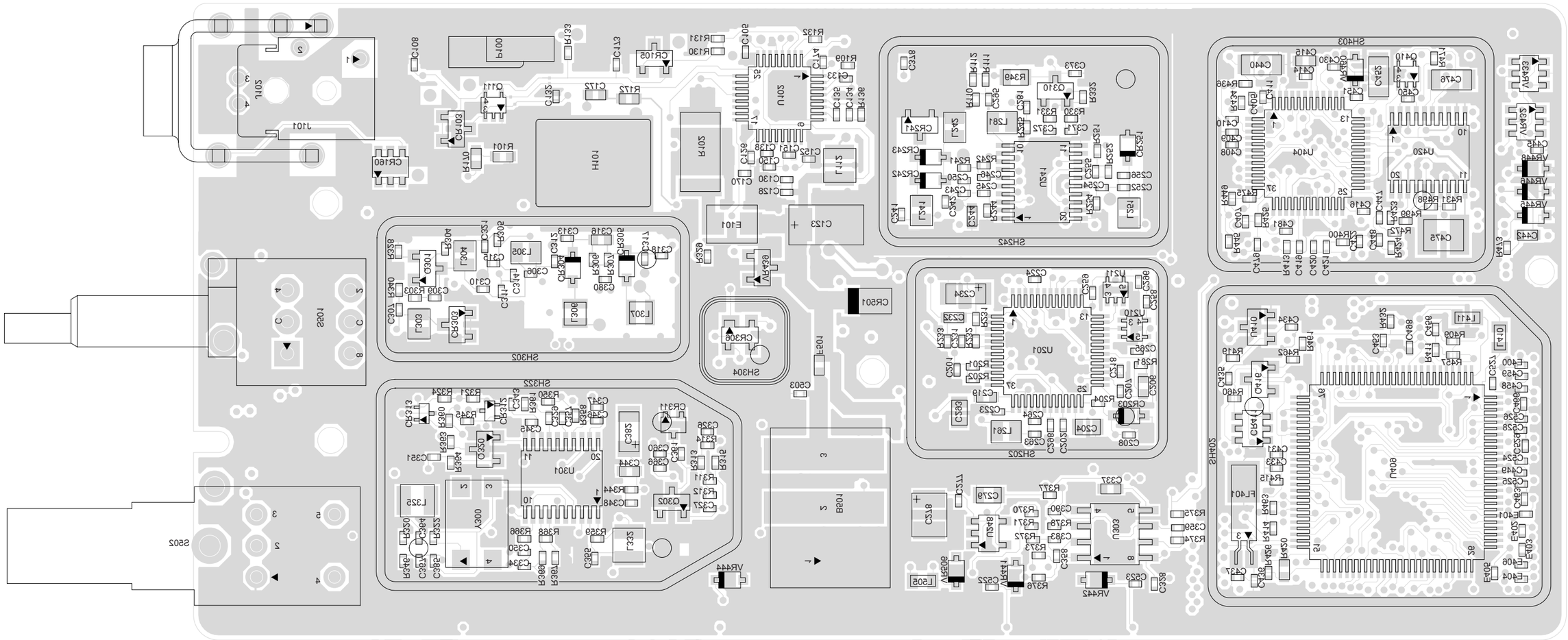
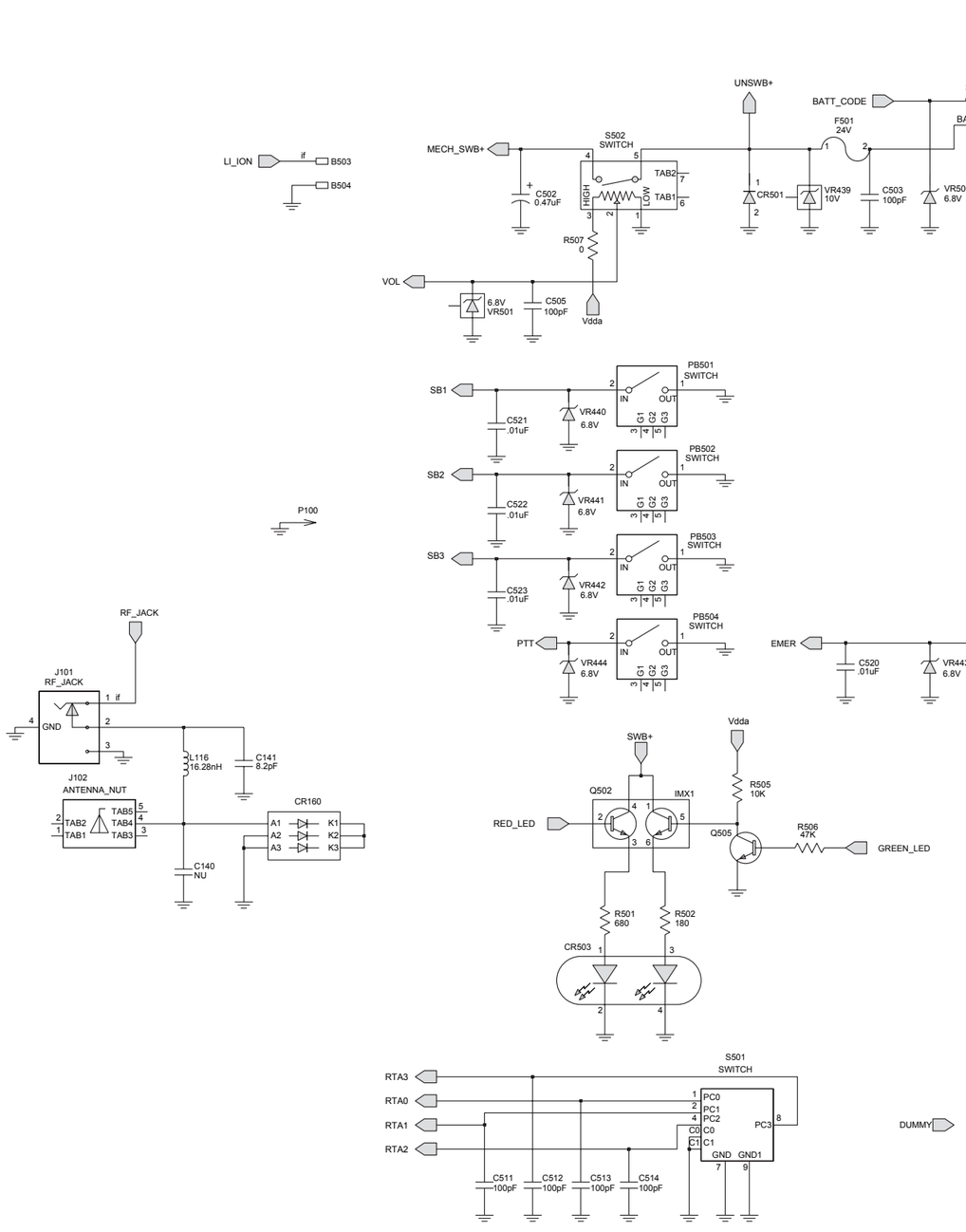
10.0 UHF2 PCB 8486686Z02 Schematics



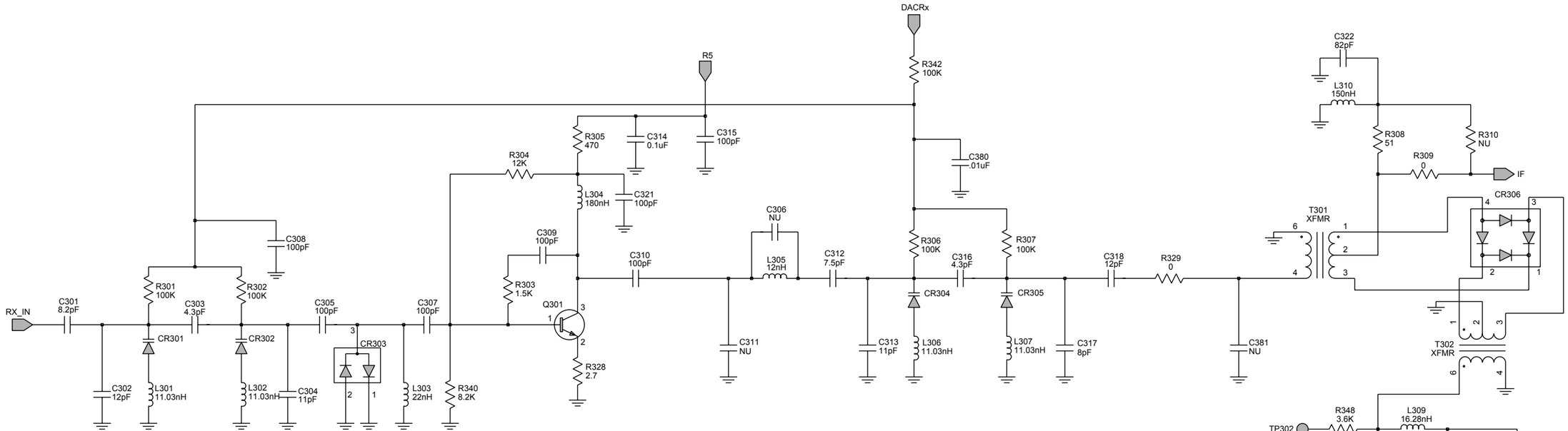
UHF2 (450-527MHz) Main Board Top Side

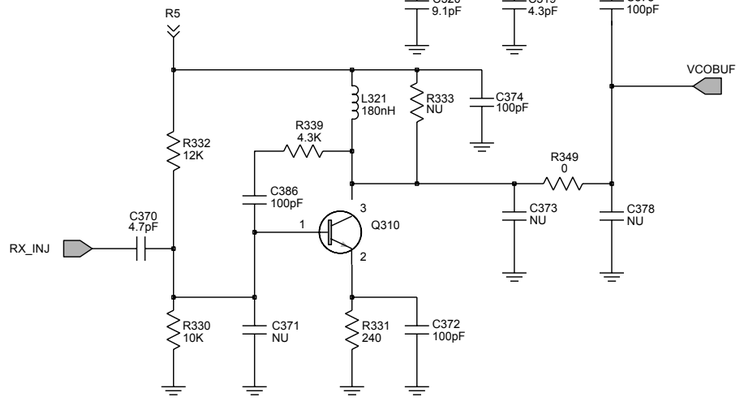


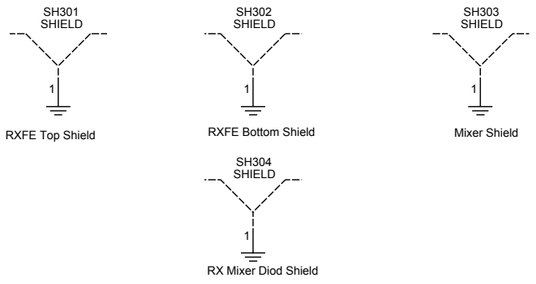
UHF2 (450-527 MHz) Main Board Bottom Side



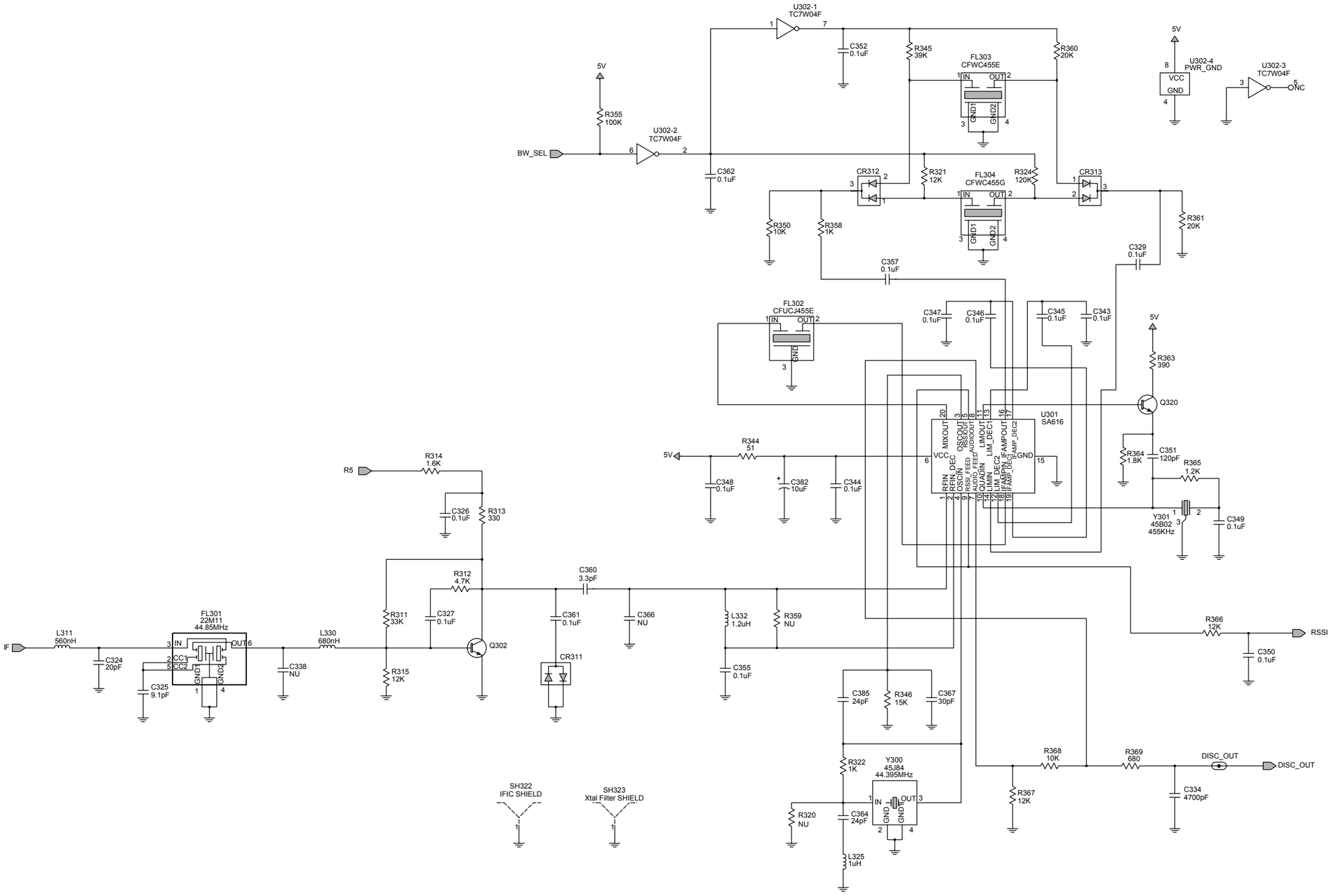
UHF2 (450-527 MHz) Controls and Switches



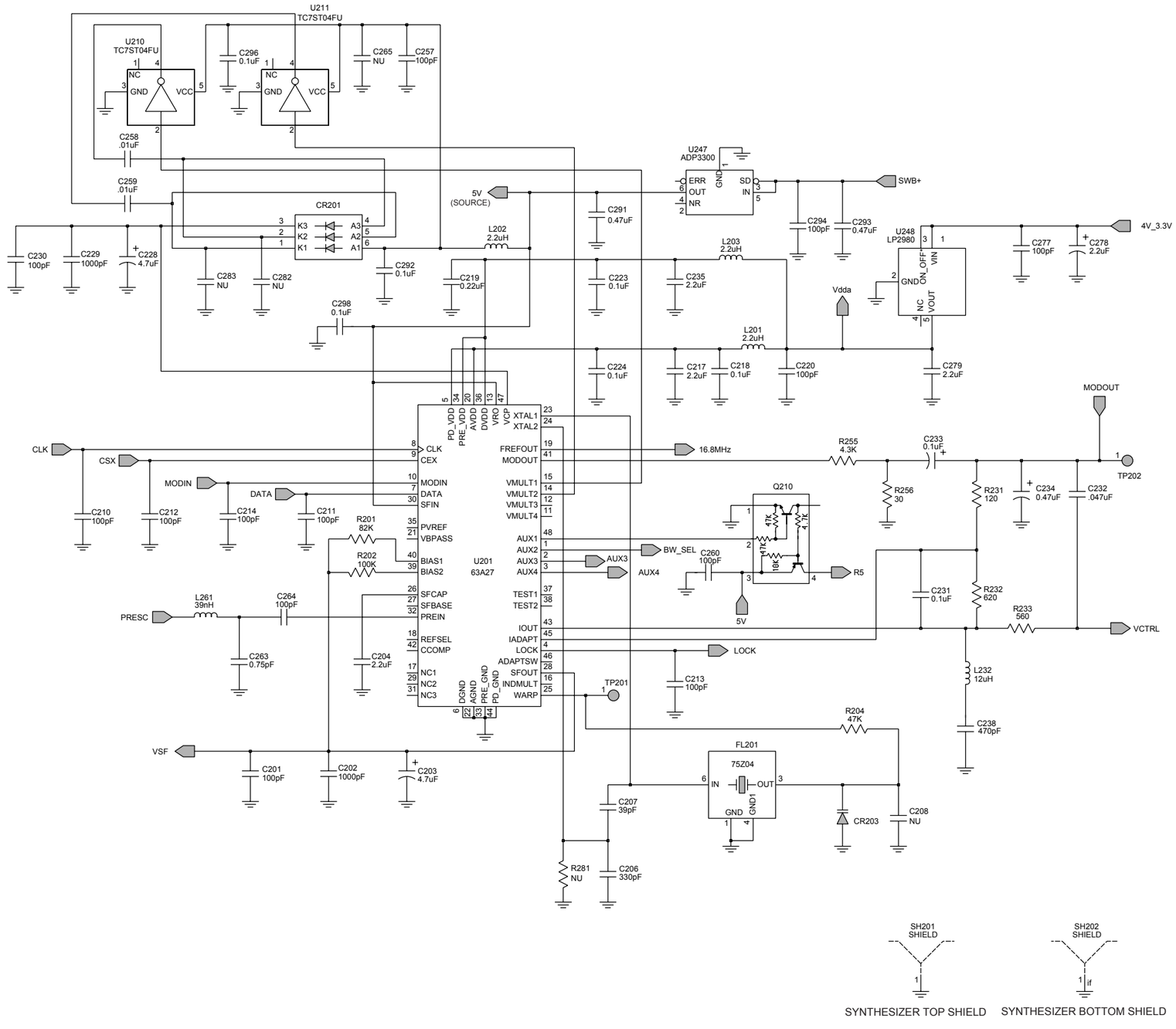




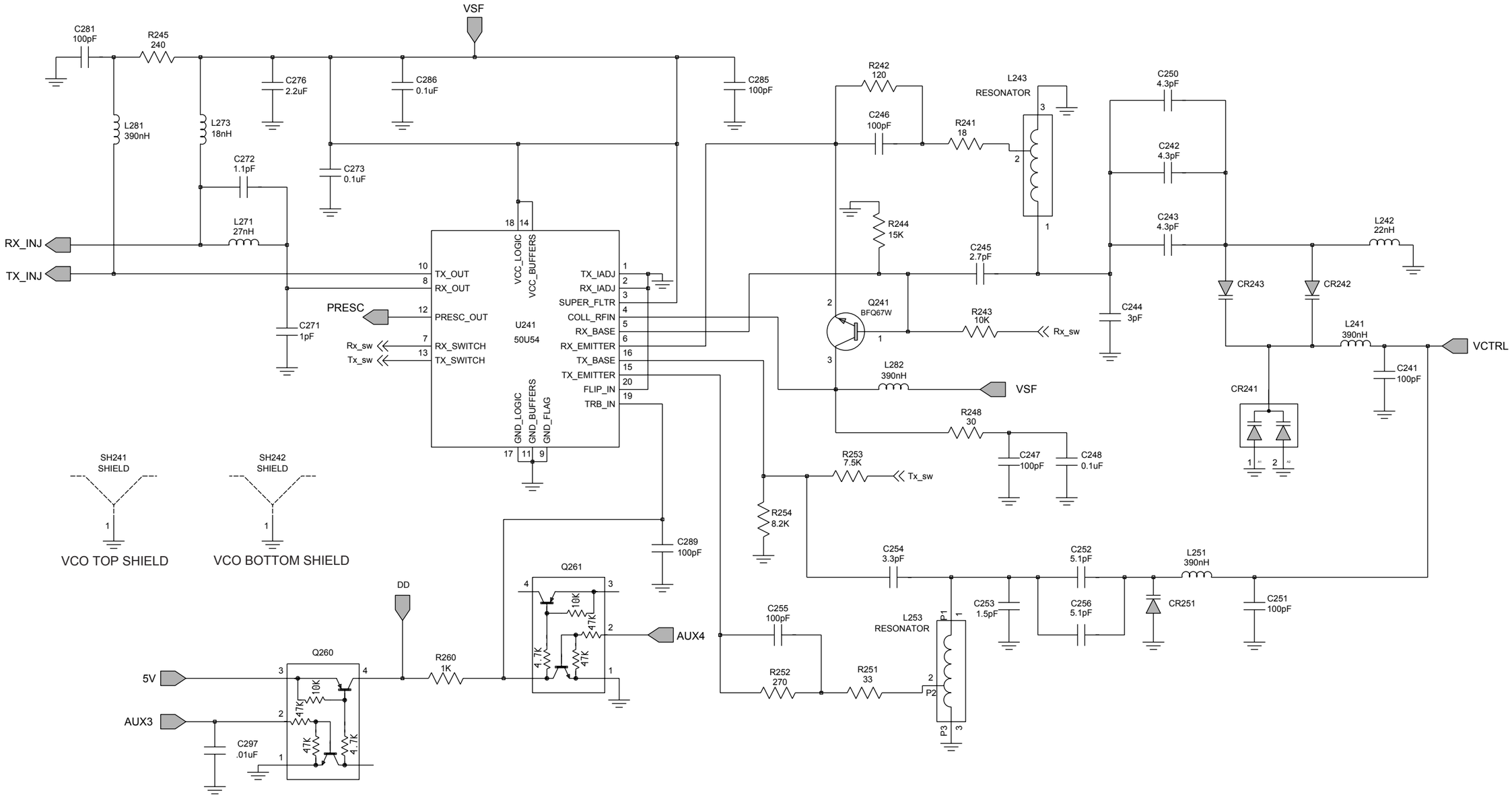
UHF2 (450-527 MHz) Receiver Front End



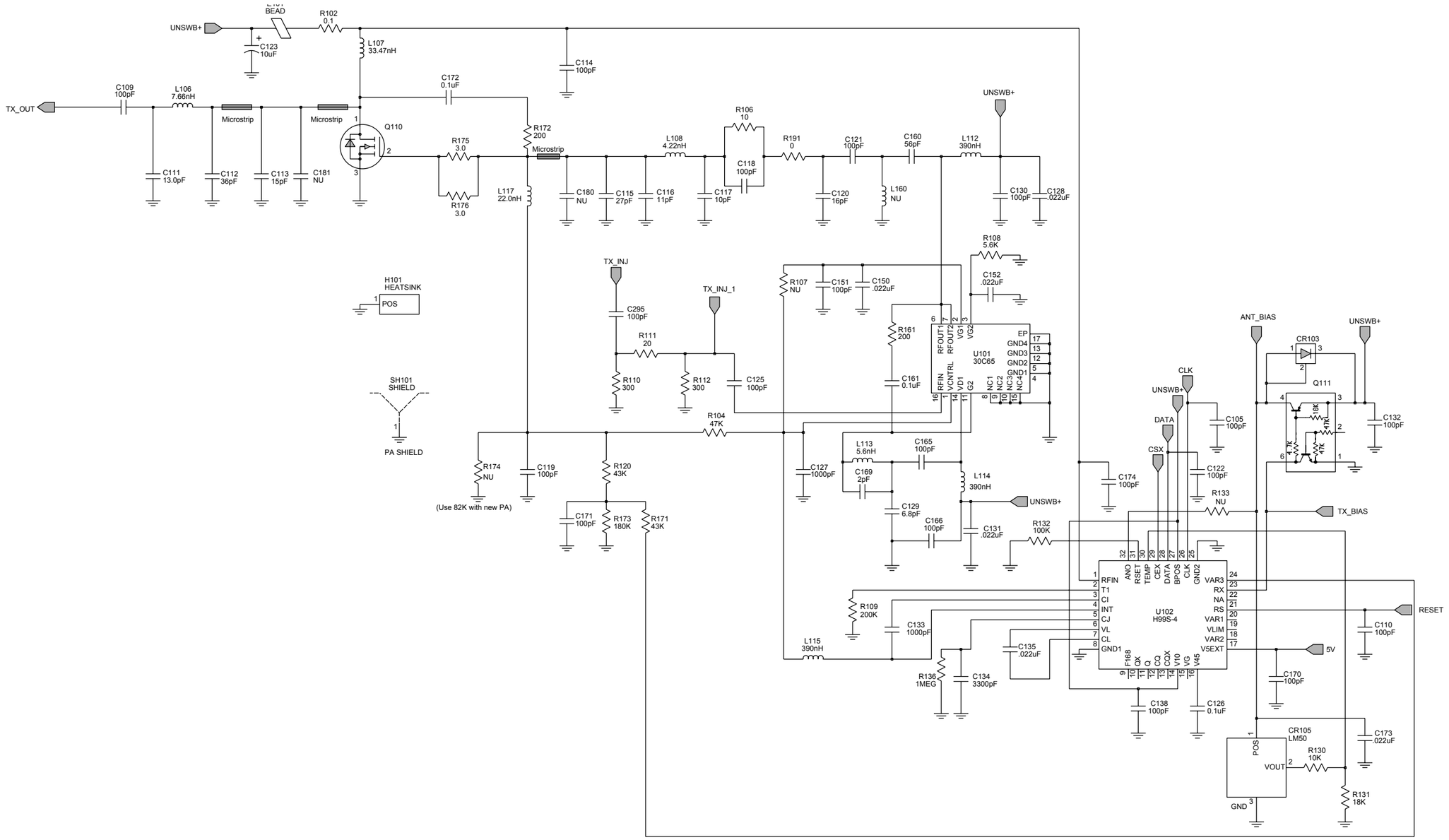
UHF2 (450-527 MHz) Receiver Back End



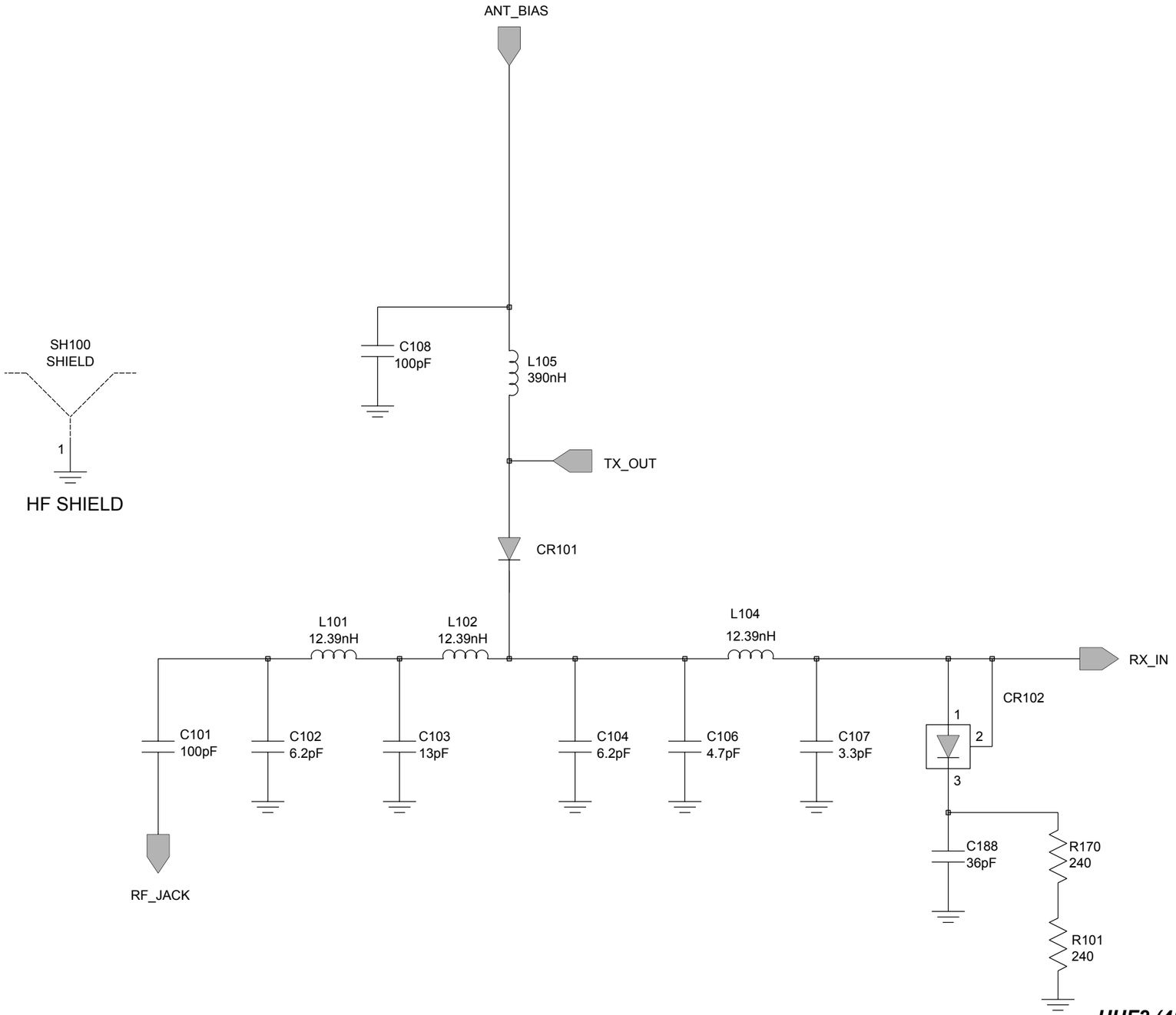
UHF2 (450-527 MHz) Synthesizer



UHF2 (450-527 MHz) Voltage Controlled Oscillator



UHF2 (450-527 MHz) Transmitter



UHF2 (450-527 MHz) Harmonic Filter

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11.0 UHF PCB 8486686Z02 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	Battery Contact Module
B503	3980502Z01	Backup Contact, B + (not placed in GP328/GP329 and GP640)
B504	3980501Z01	Backup Contact, B - (not placed in GP328/GP329 and GP640)
C101	2113740F51	100pF
C102	2113740F22	6.2pF
C103	2113740F28	11pF
C104	2113740F22	6.2pF
C105	2113743N50	100pF
C106	2113740F19	4.7pF
C107	2113740F15	3.3pF
C108	2113743N50	100pF
C109	2113740F51	100pF
C110	2113743N50	100pF
C111	2103689A22	11pF
C112	2180605Z28	33pF
C113	2180605Z20	15pF
C114	2113743N50	100pF
C115	2113743N31	16pF
C116	2113743N27	11pF
C117	NOTPLACED	-
C118	2113743N50	100pF-
C119	2113743N50	100pF
C120	2113743N23	7.5pF
C121	2113743N50	100pF
C122	2113743N50	100pF
C123	2311049A96	33uF
C125	2113743N50	100pF
C126	2113743M24	100000pF
C127	2113743L17	1000pF
C128	2113743M08	22000pF
C129	2113743N23	7.5pF
C130	2113743N50	100pF
C131	2113743M08	22000pF
C132	2113743N50	100pF
C133	2113743L17	1000pF
C134	2113743L29	3300pF
C135	2113743M08	22000pF
C138	2113743N50	100pF
C140	0662057A67	5600
C141	2113740F25	8.2pF
C150	2113743M08	22000pF
C151	2113743N50	100pF
C152	2113743M08	22000pF
C160	2113743N44	56pF
C161	2113743M24	100000pF
C165	2113743N44	56pF
C166	2113743N50	100pF
C169	2113743N09	2pF
C170	2113743N50	100pF
C171	2113743N50	100pF
C172	2113743E20	0.1uF
C173	2113743M08	22000pF
C174	2113743N50	100pF
C180	NOTPLACED	-
C181	NOTPLACED	-
C188	2113743N39	36pF
C201	2113743N50	100pF
C202	2113743L17	1000pF
C203	2311049A56	4.7uF
C204	2104993J02	2.2uF
C206	2113740F63	330pF
C207	2113743N40	39pF
C208	NOTPLACED	
C210	2113743N50	100pF
C211	2113743N50	100pF
C212	2113743N50	100pF
C213	2113743N50	100pF
C214	2113743N50	100pF
C217	2104993J02	2.2uF
C218	2113743M24	100000pF
C219	2113743K16	0.22uF
C220	2113743N50	100pF
C223	2113743M24	100000pF
C224	2113743M24	100000pF
C228	2311049J11	4.7uF
C229	2113743L17	1000pF
C230	2113743N50	100pF
C231	2113743M24	100000pF
C232	2113743E12	0.047uF
C233	2311049A01	0.1uF
C234	2311049A05	0.47uF
C235	2104993J02	2.2uF
C238	2113741F17	470pF
C241	2113743N50	100pF
C242	2113743N17	4.3pF
C243	2113743N17	4.3pF
C244	2113740F14	3pF
C245	2113743N12	2.7pF
C246	2113743N50	100pF
C247	2113743N50	100pF
C248	2113743M24	100000pF
C250	2113743N17	4.3pF
C251	2113743N50	100pF
C252	2113743N19	5.1pF
C253	2113740F09	1.8pF
C254	2113743N26	10pF
C255	2113743N50	100pF
C256	2113743N19	5.1pF
C257	2113743N50	100pF
C258	2113743L41	10000pF
C259	2113743L41	10000pF
C260	2113743N50	100pF
C263	2113743N02	0.75pF
C264	2113743N50	100pF
C265	NOTPLACED	-
C271	NOTPLACED	-
C272	2109445U01	0.5pF
C273	2113743M24	100000pF
C276	2104993J02	2.2uF
C277	2113743N50	100pF
C278	2311049A57	10uF
C279	2104993J02	2.2uF
C281	2113743N50	100pF
C282	NOTPLACED	-
C283	NOTPLACED	-
C285	2113743N50	100pF
C286	2113743M24	100000pF
C289	2113743N50	100pF
C291	2311049A69	10uF
C292	2113743M24	100000pF
C293	2113743A27	0.47uF
C294	2113743N50	100pF
C295	2113743N50	100pF
C296	2113743M24	100000pF
C297	2113743L41	10000pF
C298	2113743M24	100000pF
C301	2113743N24	8.2pF
C302	2113743N28	12pF
C303	2113740L09	4.3pF
C304	2113743N27	11pF
C305	2113743N50	100pF
C306	NOTPLACED	-
C307	2113743N50	100pF
C308	2113743N50	100pF
C309	2113743N50	100pF
C310	2113743N50	100pF
C311	NOTPLACED	-
C312	2113743N23	7.5pF
C313	2113743N27	11pF
C314	2113743M24	100000pF
C315	2113743N50	100pF
C316	2113740L09	4.3pF
C317	2113743N65	8pF
C318	2113743N28	12pF
C319	2113743N17	4.3pF
C320	2113743N25	9.1pF
C321	2113743N50	100pF
C322	2113743N48	82pF
C324	2109445U40	20pF
C325	2109445U26	9.1pF
C326	2113743M24	100000pF
C327	2113743M24	100000pF
C328	2113743M24	100000pF
C329	2113743M24	100000pF
C334	2113743L33	4700pF
C337	NOTPLACED	-
C338	NOTPLACED	-
C343	2113743M24	100000pF
C344	2113743E20	0.1uF
C345	2113743M24	100000pF
C346	2113743M24	100000pF
C347	2113743M24	100000pF
C348	2113743M24	100000pF
C349	2113743E20	0.1uF
C350	2113743M24	100000pF
C351	2113743N52	120pF
C352	2113743M24	100000pF
C355	2113743M24	100000pF
C357	2113743M24	100000pF
C358	NOTPLACED	-
C359	NOTPLACED	-
C360	2113743N14	3.3pF
C361	2113743M24	100000pF
C362	2113743M24	100000pF
C364	2113743N35	24pF
C366	NOTPLACED	-
C367	2113743N37	30pF
C370	2109445U18	4.3pF
C371	NOTPLACED	-
C372	2113743N50	100pF
C373	NOTPLACED	-
C374	2113743N50	100pF
C375	2113743N50	100pF
C378	NOTPLACED	-
C380	2113743L41	10000pF
C381	NOTPLACED	-
C382	2311049A59	10uF
C383	NOTPLACED	-
C385	2113743N35	24pF
C386	2113743N50	100pF
C390	NOTPLACED	-
C400	2113743L41	10000pF
C401	2113743M24	100000pF
C402	2113743M24	100000pF
C403	2113743G24	2.2uF
C404	NOTPLACED	-
C405	2113743N50	100pF
C406	NOTPLACED	-
C407	2113928N01	0.1uF

Circuit Ref	Motorola Part No.	Description
C408	2113743N50	100pF
C409	2113743M24	100000pF
C410	2113928N01	0.1uF
C411	2113743M24	100000pF
C414	2113743M24	100000pF
C415	2185895Z01	0.01uF
C416	2113928N01	0.1uF
C419	NOTPLACED	-
C420	2113743L41	10000pF
C421	2113928N01	0.1uF
C422	2113743M24	100000pF
C423	2113743N50	100pF
C424	2311049A59	10uF
C425	2113743M24	100000pF
C426	2113743N50	100pF
C427	2113743N50	100pF
C428	2113743M24	100000pF
C429	2113743M24	100000pF
C430	2113928N01	0.1uF
C431	2113743N50	100pF
C432	NOTPLACED	-
C433	2113743L41	10000pF
C434	2113928N01	0.1uF (not placed in GP640)
C435	2113743M24	100000pF
C436	2113743N34	22pF (not placed in GP640)
C437	2113743N34	22pF (not placed in GP640)
C440	2113743G26	4.7uF
C441	2113743N50	100pF
C442	2113743E20	0.1uF
C443	2113928N01	0.1uF
C444	2113743N50	100pF
C445	2113743N50	100pF
C447	2113743M08	22000pF
C448	2113928N01	0.1uF
C449	2113743N50	100pF
C450	NOTPLACED	-
C451	2113743M08	22000pF
C452	2113743B29	1uF
C453	2113743N50	100pF
C456	2113743N50	100pF
C458	2113743N50	100pF
C459	2113743N50	100pF
C463	2113743N50	100pF
C466	2113743N50	100pF
C467	2113928N01	0.1uF
C471	2113743N50	100pF
C472	2113743L09	470pF
C473	2113743L09	470pF
C475	2113743H14	10uF
C476	2113928D08	10uF
C479	2113928N01	0.1uF
C480	2113928D08	10uF
C481	2113928N01	0.1uF
C482	2113928N01	0.1uF
C490	2113743N50	100pF
C491	2113743N50	100pF
C492	2113743N50	100pF
C493	2113743N50	100pF
C494	2113743N50	100pF
C495	2113743N50	100pF
C496	2113743N50	100pF
C497	2113743N50	100pF
C498	NOTPLACED	-
C502	2311049A05	0.47uF
C503	2113743N50	100pF
C505	2113743N50	100pF
C511	2113743N50	100pF
C512	2113743N50	100pF
C513	2113743N50	100pF
C514	2113743N50	100pF
C520	2113743L41	10000pF
C521	2113743L41	10000pF
C522	2113743L41	10000pF
C523	2113743L41	10000pF
C524	2113743N50	100pF
C525	2113743N50	100pF
C526	2113743N50	100pF
C527	2113743N50	100pF
C528	2113743N50	100pF
C529	2113743N50	100pF
CR101	4880973Z02	Pin Diode
CR102	4802245J41	Pin Diode
CR103	4802245J41	Pin Diode
CR105	5185963A15	Temperature Sensor
CR160	NOTPLACED	-
CR201	4802233J09	Triple Diode
CR203	4862824C03	Varactor
CR241	4805649Q13	Varactor
CR242	4862824C01	Varactor
CR243	4862824C01	Varactor
CR251	4802245J22	Varactor
CR301	4862824C01	Varactor
CR302	4862824C01	Varactor
CR303	4880154K03	Dual Schottky Diode
CR304	4862824C01	Varactor
CR305	4862824C01	Varactor
CR306	4802245J42	Ring Quad Diode
CR311	4813825A19	Diode Schottky
CR312	4802245J97	Switch Diode
CR313	4802245J97	Switch Diode
CR411	4802245J62	Diode Schottky
CR412	4802245J62	Diode Schottky
CR413	4802245J62	Diode Schottky
CR440	4813833C02	Dual Common Cathode Diode
CR501	4880107R01	Rectifier
CR503	4805729G49	Red/Yellow LED
E101	2484657R01	Ferrite Bead
E400	2480640Z01	Ferrite Bead
E401	2480640Z01	Ferrite Bead
E402	2480640Z01	Ferrite Bead
E403	2480640Z01	Ferrite Bead
E404	2480640Z01	Ferrite Bead
E405	2480640Z01	Ferrite Bead
E406	2480640Z01	Ferrite Bead
E407	2480640Z01	Ferrite Bead
E408	2480640Z01	Ferrite Bead
E409	2480640Z01	Ferrite Bead
F501	6580542Z01	Fuse 3A
FL201	4805875Z04	16.8 MHz Xtal Filter
FL301	9180022M11	Xtal Filter 44.85MHz
FL302	9180468V05	455kHz 4-pole ceramic filter
FL303	9180469V05	455kHz 6-pole ceramic filter
FL304	9180469V03	455kHz 6-pole ceramic filter
FL401	4870368G02	Real Time Clock Xtal Oscillator 38.4kHz (not placed in GP640)
H101	2680499Z01	Heat Spreader
J101	0985613Z01	RF Jack
J102	0280519Z02	Antenna Nut
J400	0905505Y04	40-Pin Connector
J403	0905505Y02	20-Pin Connector
L101	2460591B28	13.37nH
L102	2460591B28	13.37nH
L104	2460591B48	15.22 nH
L105	2462587N22	390nH
L106	2460591A19	8.71nH
L107	2479990G01	33.47nH
L108	2479990A01	4.22nH
L112	2462587N42	12nH
L113	2413926H09	5.6nH
L114	2462587N42	12nH
L115	2462587N22	390nH
L116	2479990C02	16.28nH
L117	2409154M17	22nH
L160	2413926H14	15nH
L201	2462587Q20	2200nH
L202	2462587Q20	2200nH
L203	2462587Q20	2200nH
L232	2462587P25	12000nH
L241	2462587V41	390nH
L242	2462587V26	22nH
L243	2485776Z02	Multi-layered Teflon resonator, Rx
L251	2462587V41	390nH
L253	2460593C03	Multi-layered Teflon resonator, Tx
L261	2462587V29	39nH
L271	2462587V27	27nH
L273	2462587V32	68nH
L281	2462587V41	390nH
L282	2462587V41	390nH
L301	2479990B01	11.03nH
L302	2479990B01	11.03nH
L303	2462587V26	22nH
L304	2462587V37	180nH
L305	2462587V23	12nH
L306	2479990B01	11.03nH
L307	2479990B01	11.03nH
L309	2479990C02	16.28nH
L310	2462587V36	150nH
L311	2413926K32	560nH
L321	2462587V37	180nH
L325	2462587N68	1000nH
L330	2413926K33	680nH
L332	2413923A25	1200nH
L400	2462587Q42	390nH
L401	2462587Q42	390nH
L410	2462587Q42	390nH
L411	2462587Q42	390nH
L505	2462587Q42	390nH
P100	3905643V01	Ground Contact Finger
PB501	4086470Z01	Tactile Switch
PB502	4086470Z01	Tactile Switch
PB503	4086470Z01	Tactile Switch
PB504	4086470Z01	Tactile Switch
PB505	4086470Z01	Tactile Switch
Q110	4813828A09	RF PA
Q111	4809939C05	Dual NPN/PNP Transistor
Q210	4809939C05	Dual NPN/PNP Transistor
Q241	4805218N63	RF NPN Transistor
Q260	4809939C05	Dual NPN/PNP Transistor
Q261	4809939C05	Dual NPN/PNP Transistor
Q301	4802245J44	NPN Transistor
Q302	4802197J95	NPN Transistor
Q310	4802245J44	NPN Transistor
Q320	4813824A10	RF NPN transistor
Q400	4809579E18	MOSFET P-Channel
Q403	4813824A17	PNP Transistor
Q405	4802245J54	Dual NPN Transistor
Q410	4802245J54	Dual NPN Transistor
Q416	4809579E18	MOSFET P-Channel (not placed in GP640)
Q417	4809939C05	DUAL NPN/PNP Transistor
Q502	5180159R01	Dual NPN Transistor
Q505	4880214G02	NPN Transistor

Circuit Ref	Motorola Part No.	Description
R101	0662057A34	240
R102	0680539Z01	0.1
R104	0662057N15	47K
R106	0662057M26	10
R107	NOTPLACED	-
R108	0662057M92	5600
R109	0662057N30	200K
R110	0662057M61	300
R111	0662057M33	20
R112	0662057M61	300
R120	0662057N14	43K
R130	0662057M98	10K
R131	0662057N05	18K
R132	0662057N33	270K
R133	NOTPLACED	-
R136	NOTPLACED	-
R161	0662057M57	200
R170	0662057A34	240
R171	0662057N14	43K
R172	0662057A32	200
R173	0662057N29	180K
R174	0662057N15	47K
R175	0662057B59	3
R176	0662057B59	3
R191	0662057C01	0
R201	0662057N21	82K
R202	0662057N23	100K
R204	0662057N15	47K
R231	0662057M52	120
R232	0662057M69	620
R233	0662057M68	560
R241	0662057M34	22
R242	0662057M52	120
R243	0662057M98	10K
R244	0662057N03	15K
R245	0662057M59	240
R248	0662057M37	30
R251	0662057M38	33
R252	0662057M60	270
R253	0662057M95	7500
R254	0662057M96	8200
R255	0662057M89	4300
R256	0662057M37	30
R260	0662057M74	1000
R281	NOTPLACED	-
R301	0662057N23	100K
R302	0662057N23	100K
R303	0662057M78	1500
R304	0662057N01	12K
R305	0662057M66	470
R306	0662057N23	100K
R307	0662057N23	100K
R308	0662057M43	51
R309	0662057M01	0
R310	NOTPLACED	-
R311	0662057N11	33K
R312	0662057M90	4700
R313	0662057M62	330
R314	0662057M79	1600
R315	0662057N01	12K
R320	NOTPLACED	-
R321	0662057N01	12K
R322	0662057M74	1000
R324	0662057N25	120K
R328	0662057M12	2.7
R329	0662057M01	0
R330	0662057M98	10K
R331	0662057M57	200
R332	0662057N01	12K
R333	NOTPLACED	-
R339	0662057M89	4300
R340	0662057M96	8200
R342	0662057N23	100K
R344	0662057M43	51
R345	0662057N13	39K
R346	0662057N03	15K
R348	0662057M87	3600
R349	0662057C01	0
R350	0662057M98	10K
R355	0662057N23	100K
R358	0662057M74	1000
R359	NOTPLACED	-
R360	0662057N06	20K
R361	0662057N06	20K
R363	0662057M64	390
R364	0662057M80	1800
R365	0662057M76	1200
R366	0662057N01	12K
R367	0662057V04	12K
R368	0662057V02	10K
R369	0662057M70	680
R370	0662057M01	0
R371	NOTPLACED	-
R372	NOTPLACED	-
R373	NOTPLACED	-
R374	NOTPLACED	-
R375	NOTPLACED	-
R376	NOTPLACED	-
R377	NOTPLACED	-
R378	NOTPLACED	-
R400	0662057N15	47K
R401	0662057M01	0
R402	NOTPLACED	-
R403	NOTPLACED	-
R405	0662057M01	0
R406	0662057N20	75K
R407	0662057N19	68K
R408	NOTPLACED	-
R409	0662057M98	10K
R410	0662057N23	100K
R411	0662057M98	10K
R413	0662057M01	0
R414	0662057V34	180K
R415	0662057V26	91K
R416	0662057M98	10K
R418	0662057M01	0
R419	0662057M67	510
R420	0662057B46	10M (not placed in GP640)
R421	0662057M81	2000
R423	0662057N39	470K
R424	0662057N12	36K
R425	0662057N10	30K
R426	0662057N35	330K (not placed in GP640)
R427	0662057M84	2700
R428	0662057M10	2.2
R429	0662057N20	75K
R431	0662057N39	470K
R432	0662057N16	51K
R434	0662057M62	330
R435	0662057M81	2000
R436	0662057M01	0
R437	NOTPLACED	-
R445	0662057N08	24K
R447	0662057N23	100K
R448	0662057M98	10K
R449	0662057N08	24K
R450	0683962T45	68
R451	0662057N03	15K
R452	0662057N23	100K
R453	NOTPLACED	-
R454	NOTPLACED	-
R455	NOTPLACED	-
R456	0662057M01	0
R457	0662057M98	10K
R460	0662057M90	4700
R461	0662057M56	180 (not placed in GP640)
R462	0662057M98	10K (not placed in GP640)
R463	0662057M61	300
R471	0662057N06	20K
R472	0662057N12	36K
R473	0662057M26	10
R475	0662057M01	0
R476	0662057N35	330K
R477	0662057M74	1000
R478	0662057M98	10K
R481	0662057N08	24K
R492	0662057M01	0
R498	0662057M98	10K
R499	0662057M98	10K (not placed in GP640)
R501	0662057M70	680
R502	0662057M56	180
R505	0662057M98	10K
R506	0662057N15	47K
R507	0662057M01	0
RT400	0680590Z01	Thermistor_33K
S501	4080710Z01	Frequency Switch (For GP640 Only)
S501	4080710Z02	Frequency Switch (For PTX760 Only)
S502	1880619Z02	Volume / On-off Switch
SH100	2680507Z01	Harmonic Filter Shield
SH101	2680510Z01	PA Shield
SH201	2680511Z01	Synthesizer Top Shield
SH202	2680511Z01	Synthesizer Bottom Shield
SH241	2604120G01	VCO Resonators Shield
SH242	2680514Z01	VCO Buffer IC Shield
SH301	2686583Z01	Receiver Front-End Shield
SH302	2680555Z01	Receiver Back-End Bottom Shield
SH303	2680509Z01	Mixer Shield
SH304	2680624Z01	Mixer Diode Shield
SH322	2686528Z01	IFIC Shield
SH323	2686527Z01	Crystal Filter Shield
SH400	2680505Z01	Controller Memory Shield
SH401	2680506Z01	Controller On-off Shield
SH402	2680515Z01	Microprocessor Shield
SH403	2680516Z01	Asfic_Cmp, Audio PA Shield
T301	2580541Z02	Balun Transformer
T302	2580541Z02	Balun Transformer
U101	5185130C65	LDMOS PA Driver
U102	5185765B26	PCIC
U201	5185963A27	LVFRACN Synthesizer IC
U210	5102463J61	Inverter
U211	5102463J61	Inverter
U241	5105750U54	VCO Buffer IC
U247	5105739X05	5V Regulator
U248	5102463J58	3.3V Regulator
U301	5186144B01	FM IFIC SA616
U302	5109522E10	LMOS Inverter
U303	NOTPLACED	-
U400	5102463J40	3.3V Regulator
U404	5185130C53	ASFIC_CMP IC
U405	5102463J36	Static RAM 32K X 8
U406	*5102463J60	Flash ROM 512K X 8

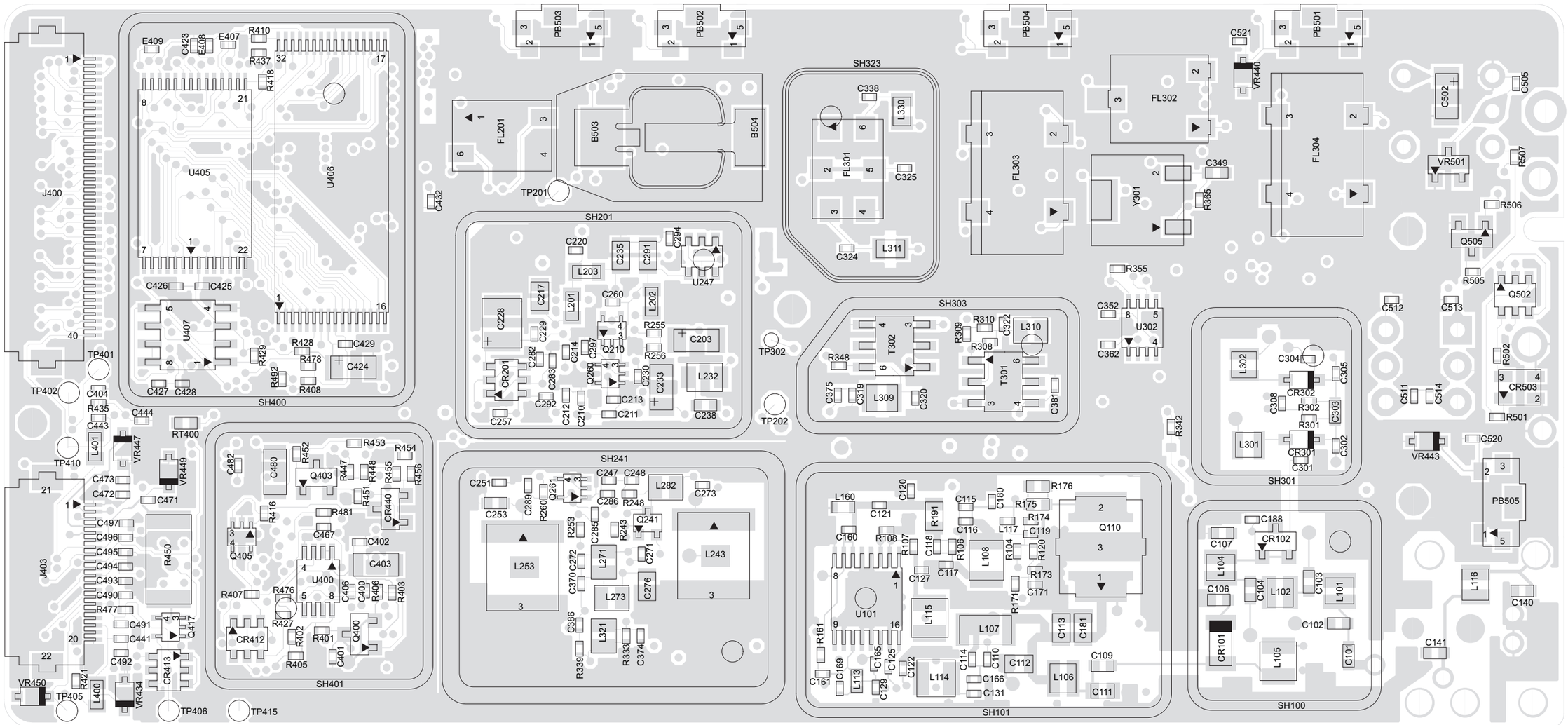
Circuit Ref	Motorola Part No.	Description
U407	*5102495J05	EEPROM 16K X 8
U409	5102226J56	Micro Processor
U410	5102463J57	3.3V Regulator (not placed in GP640)
U420	5102463J44	Audio PA
VR432	4805656W08	5.6V Zener
VR433	4805656W08	5.6V Zener
VR434	4802245J73	Zener Diode 6.8V
VR439	4880140L17	Zener Diode 12V
VR440	4802245J73	Zener Diode 6.8V
VR441	4802245J73	Zener Diode 6.8V
VR442	4802245J73	Zener Diode 6.8V
VR443	4802245J73	Zener Diode 6.8V
VR444	4802245J73	Zener Diode 6.8V
VR445	4802245J74	Zener Diode 10V
VR446	4802245J74	Zener Diode 10V
VR447	4802245J74	Zener Diode 10V
VR448	4802245J74	Zener Diode 10V
VR449	4802245J74	Zener Diode 10V
VR450	4802245J75	Zener Diode 12V
VR460	4802245J73	Zener Diode 6.8V
VR501	4813830A18	Diode 6.8V
VR506	4802245J73	Zener Diode 6.8V
Y300	4802245J84	Xtal Oscillator 44.395MHz
Y301	9186145B02	455kHz Ceramic Discriminator
	1485777Z01	Insulator (KAPTON)
	8486686Z02	UHF B2 PC Board

* Motorola Depot Servicing only

** Not Field Serviceable

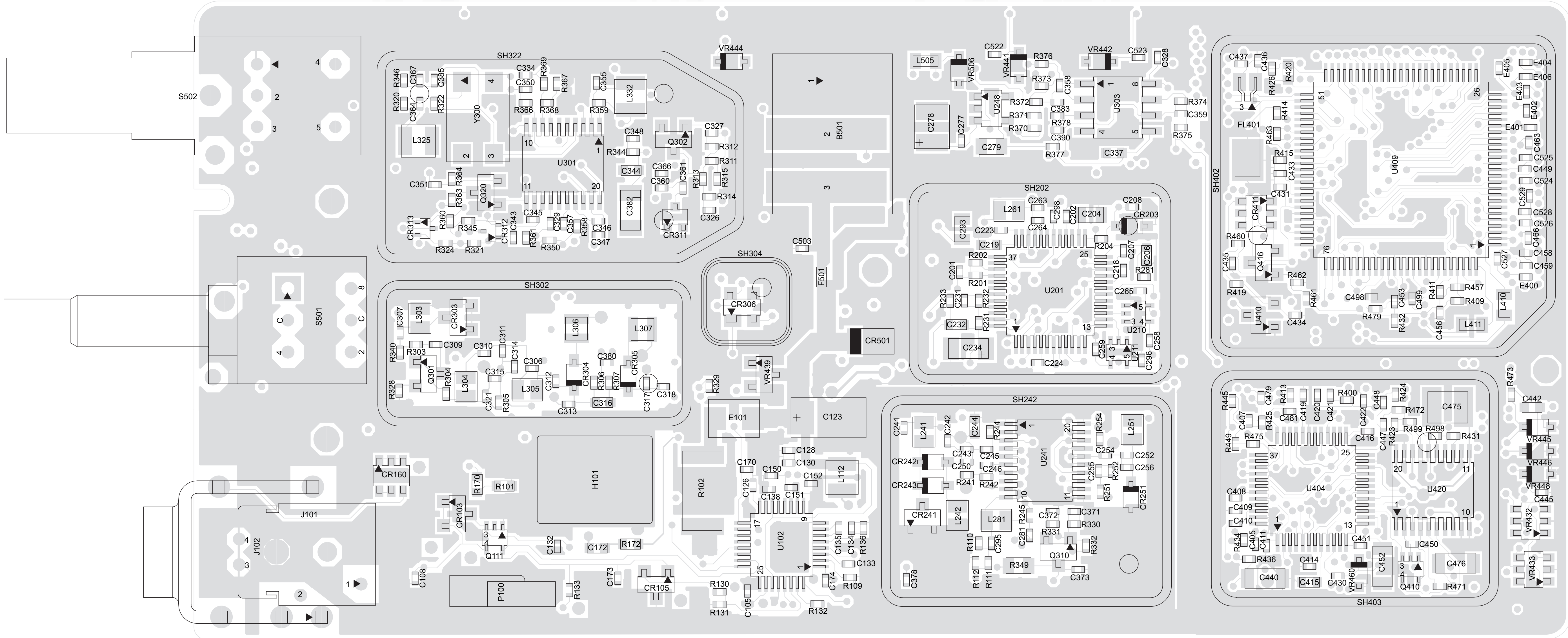
Tolerance
Capacitor - 5% unless specified otherwise
Inductor - 10% unless specified otherwise
Resistor - 5% unless specified otherwise

12.0 UHF2 PCB 8415235H01 & 8415235H05 Schematics (EPP)



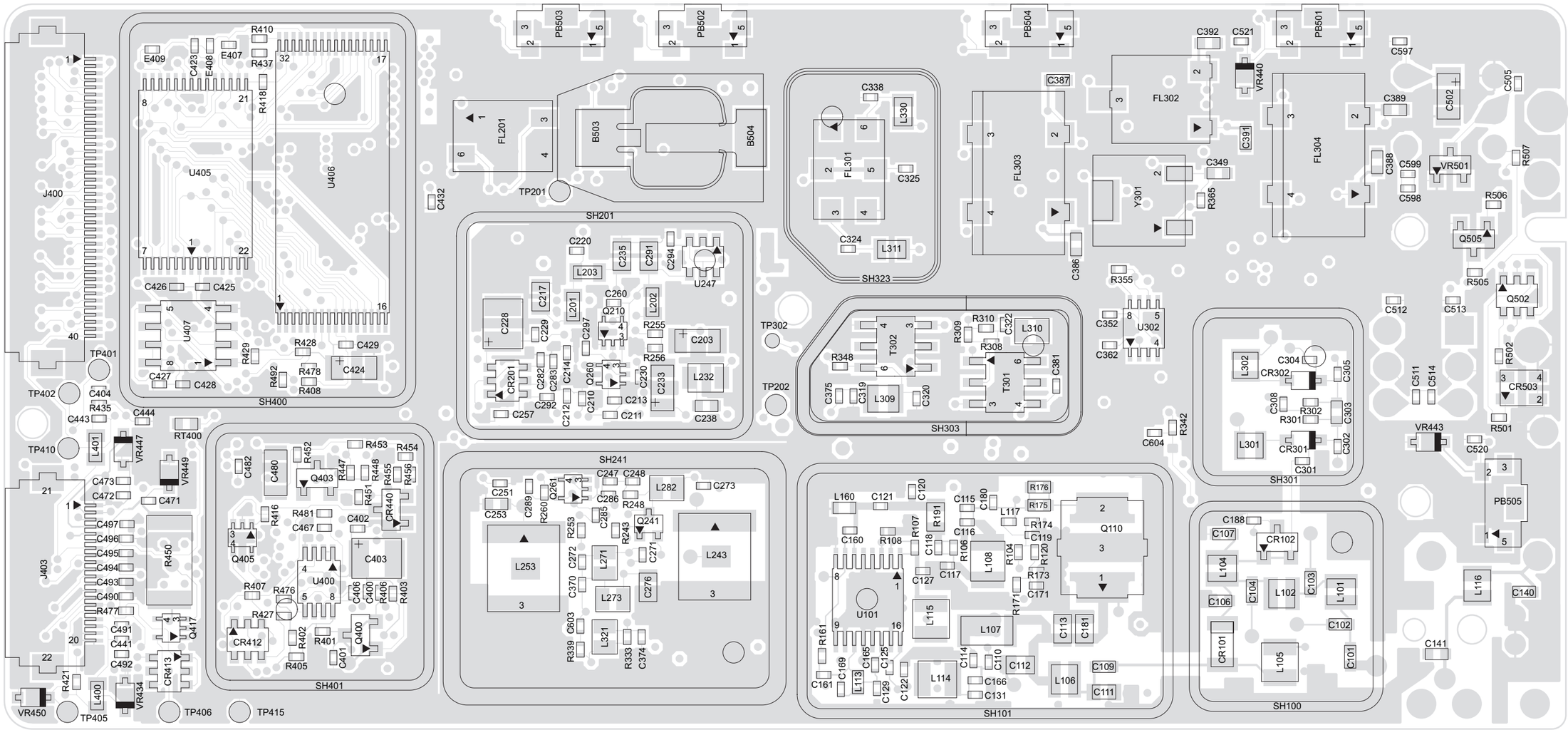
ZMY30006-O

UHF2 (450-527MHz) Main Board Top Side (PCB 841523H01)

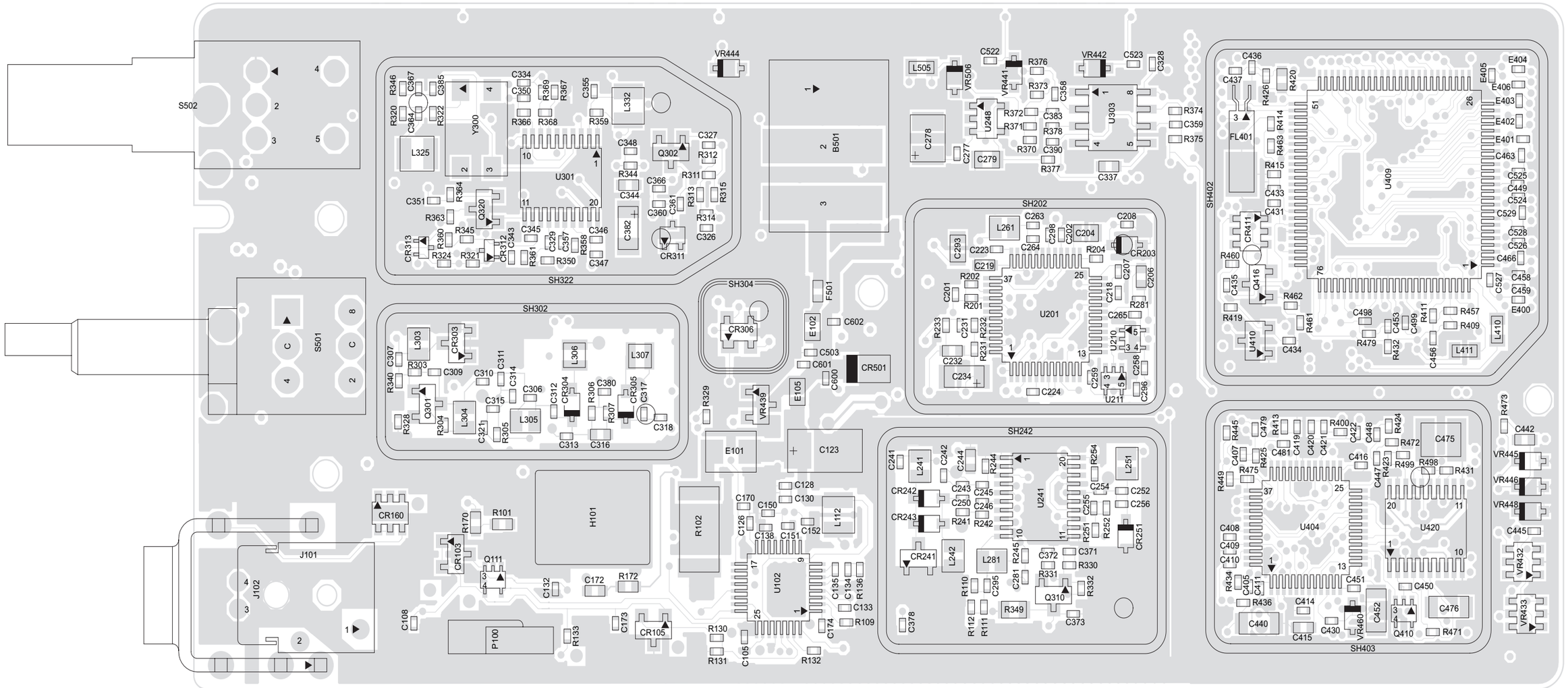


ZMY30007-O

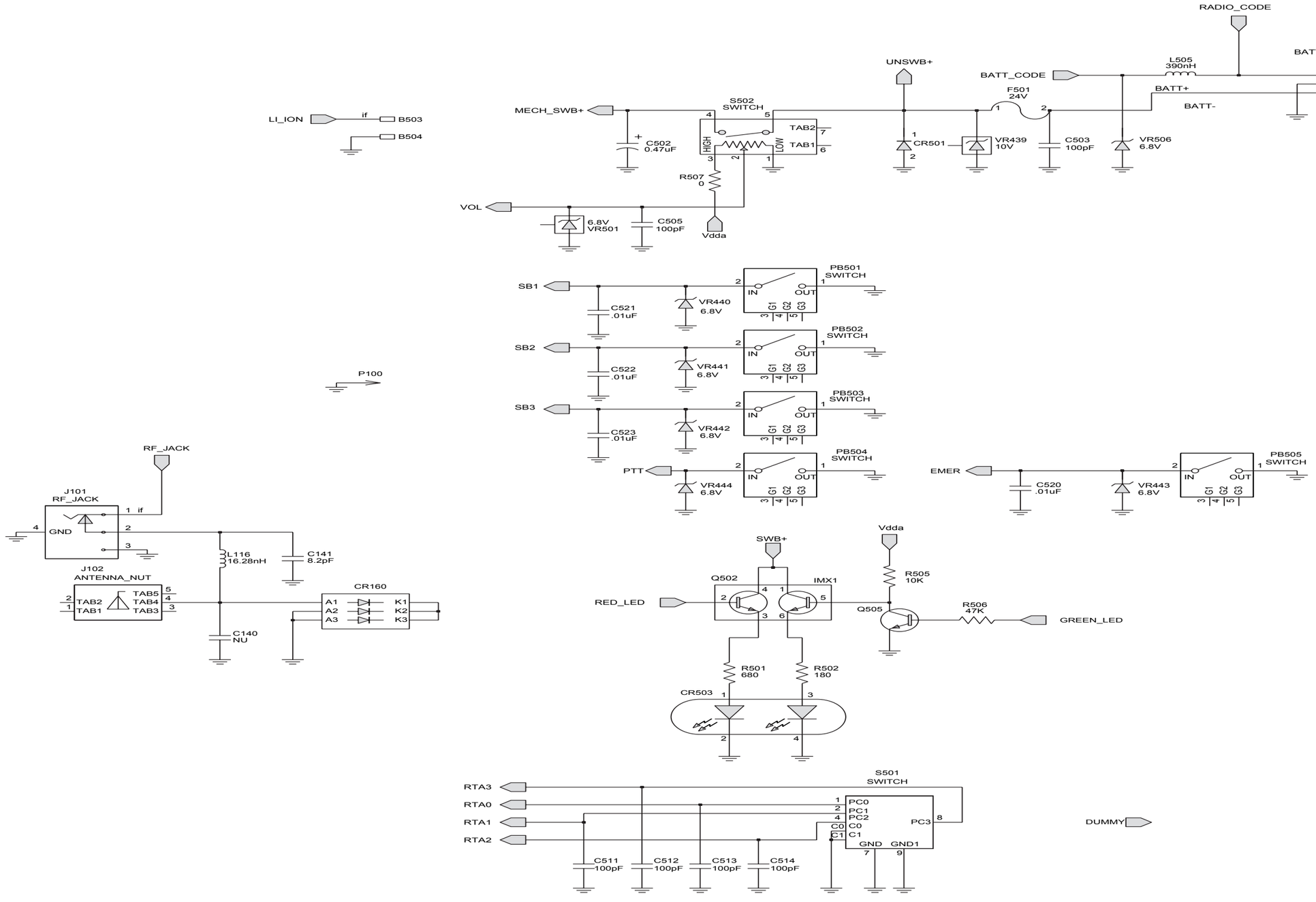
UHF2 (450-527MHz) Main Board Bottom Side (PCB 8415235H01)



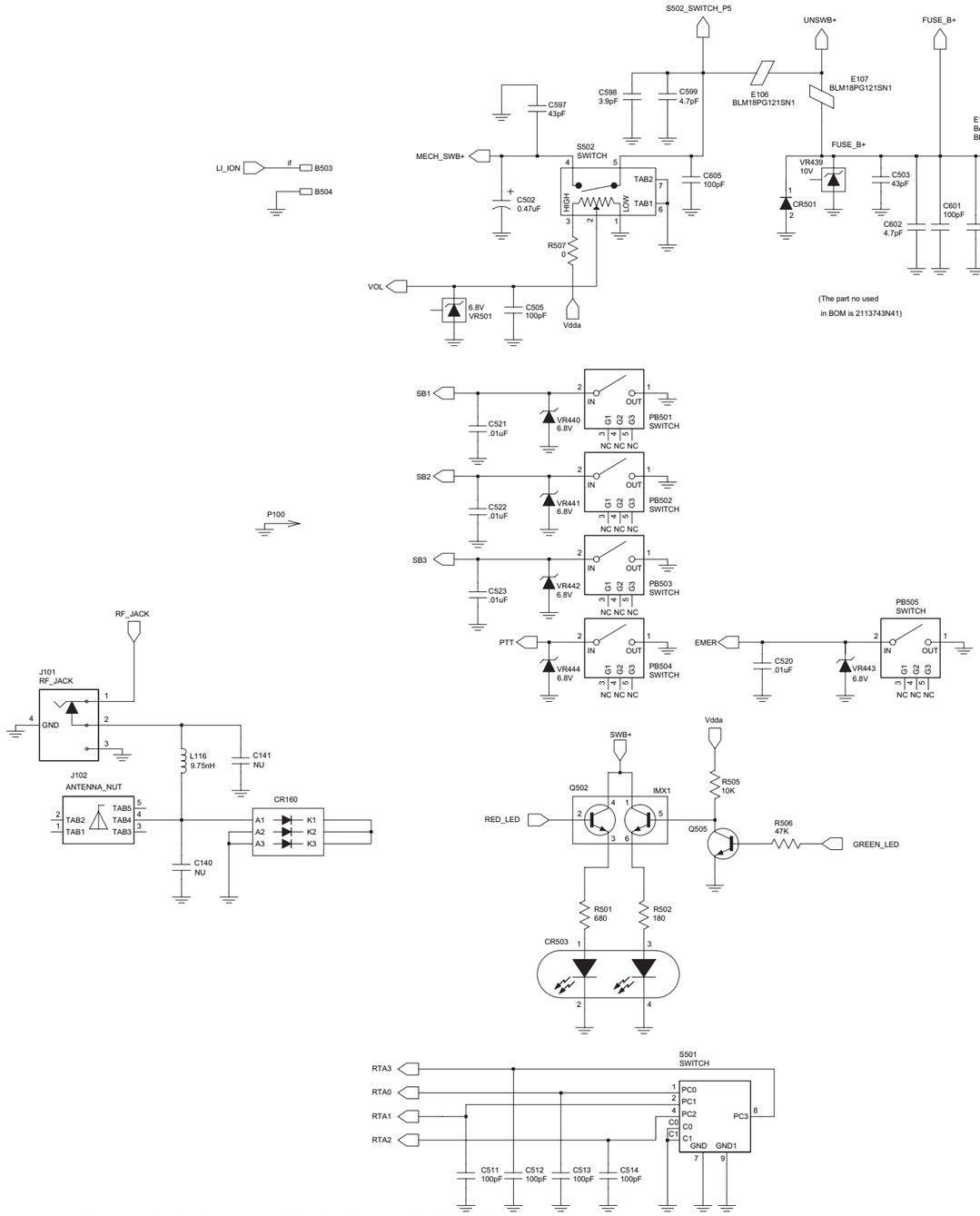
UHF2 (450-527MHz) Main Board Top Side (PCB 8415235H05)



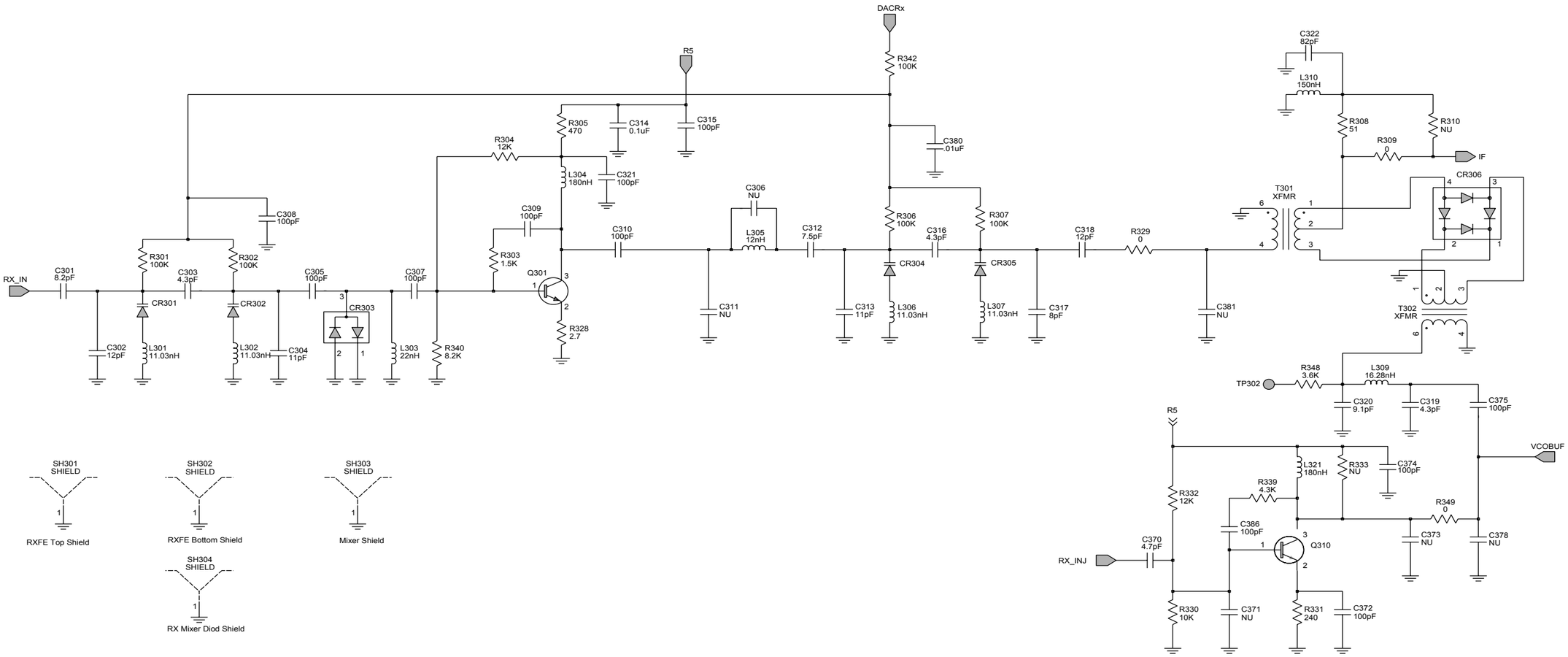
UHF2 (450-527MHz) Main Board Bottom Side (PCB 8415235H05)



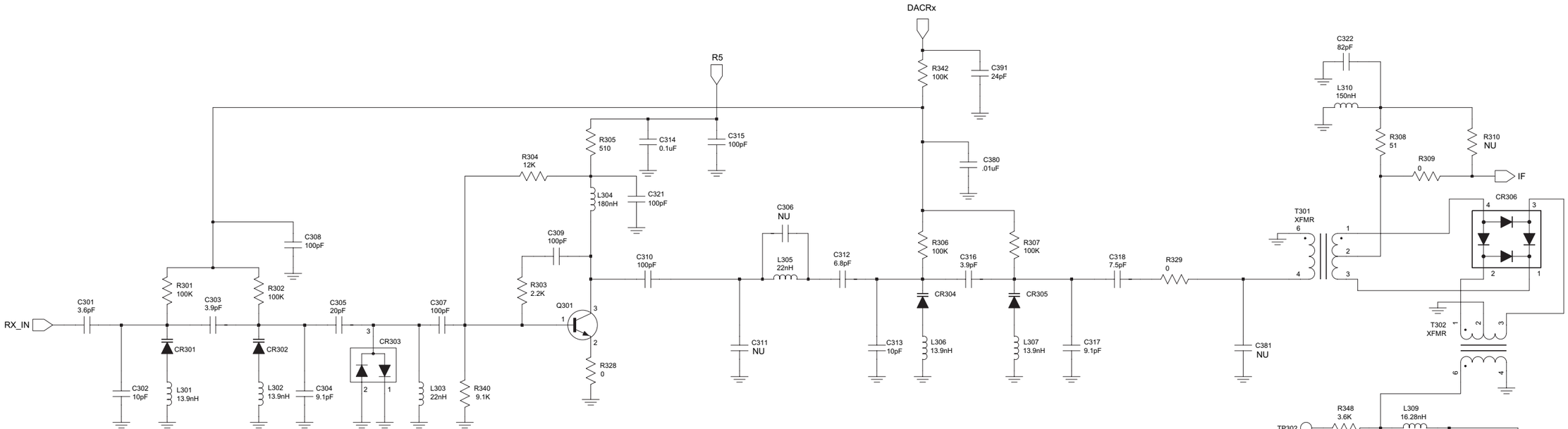
UHF2 (450-527MHz) Controls And Switches (PCB 8415235H01)

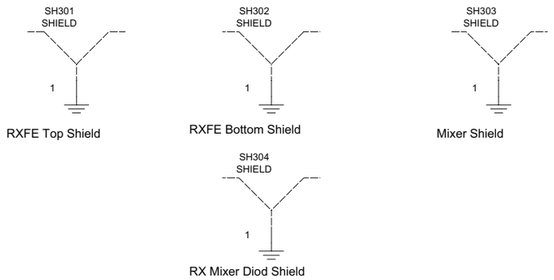


UHF2 (450-527MHz) Controls And Switches (PCB No. 8415235H05)

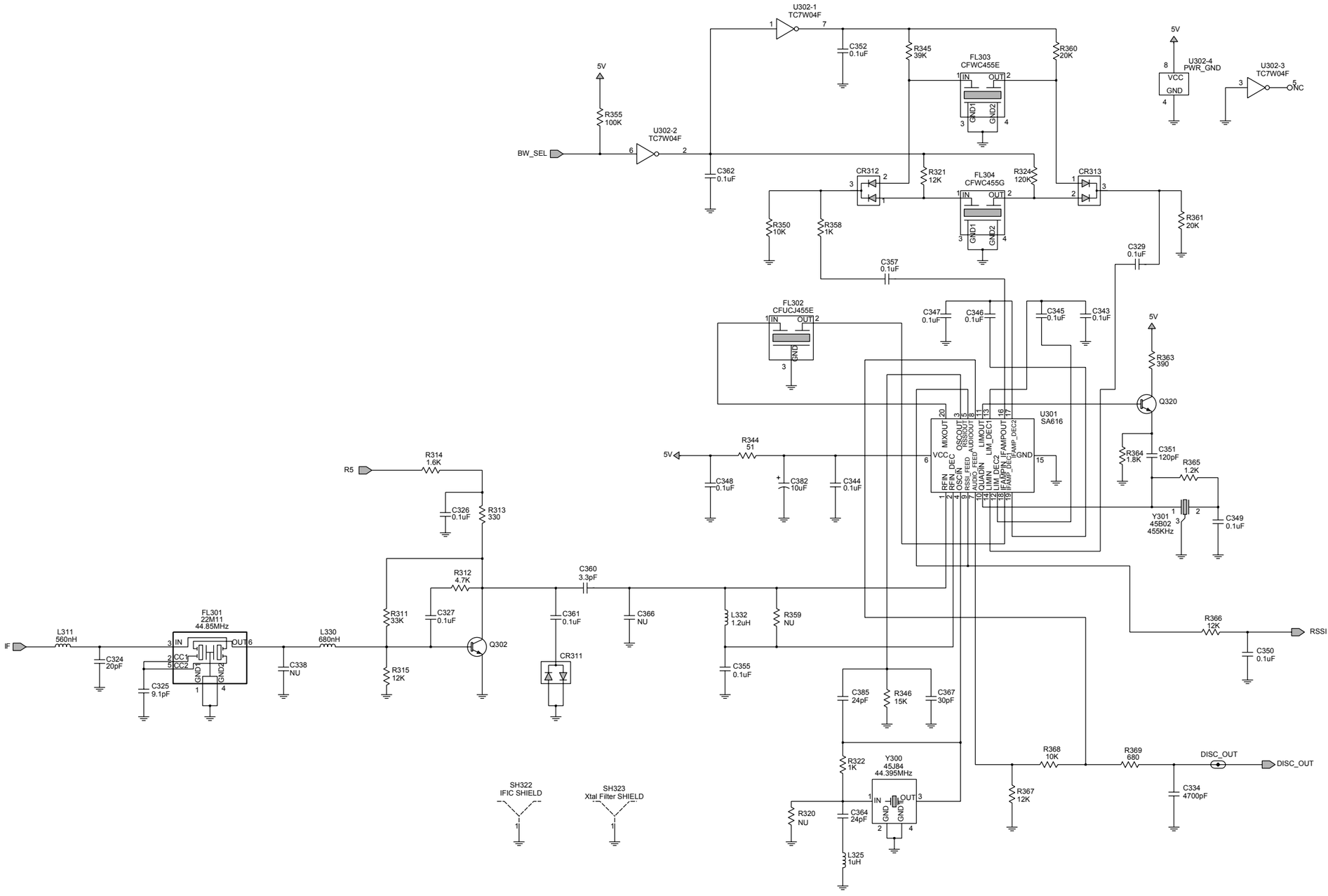


UHF2 (450-527MHz) Receiver Front End (PCB No. 8415235H01)

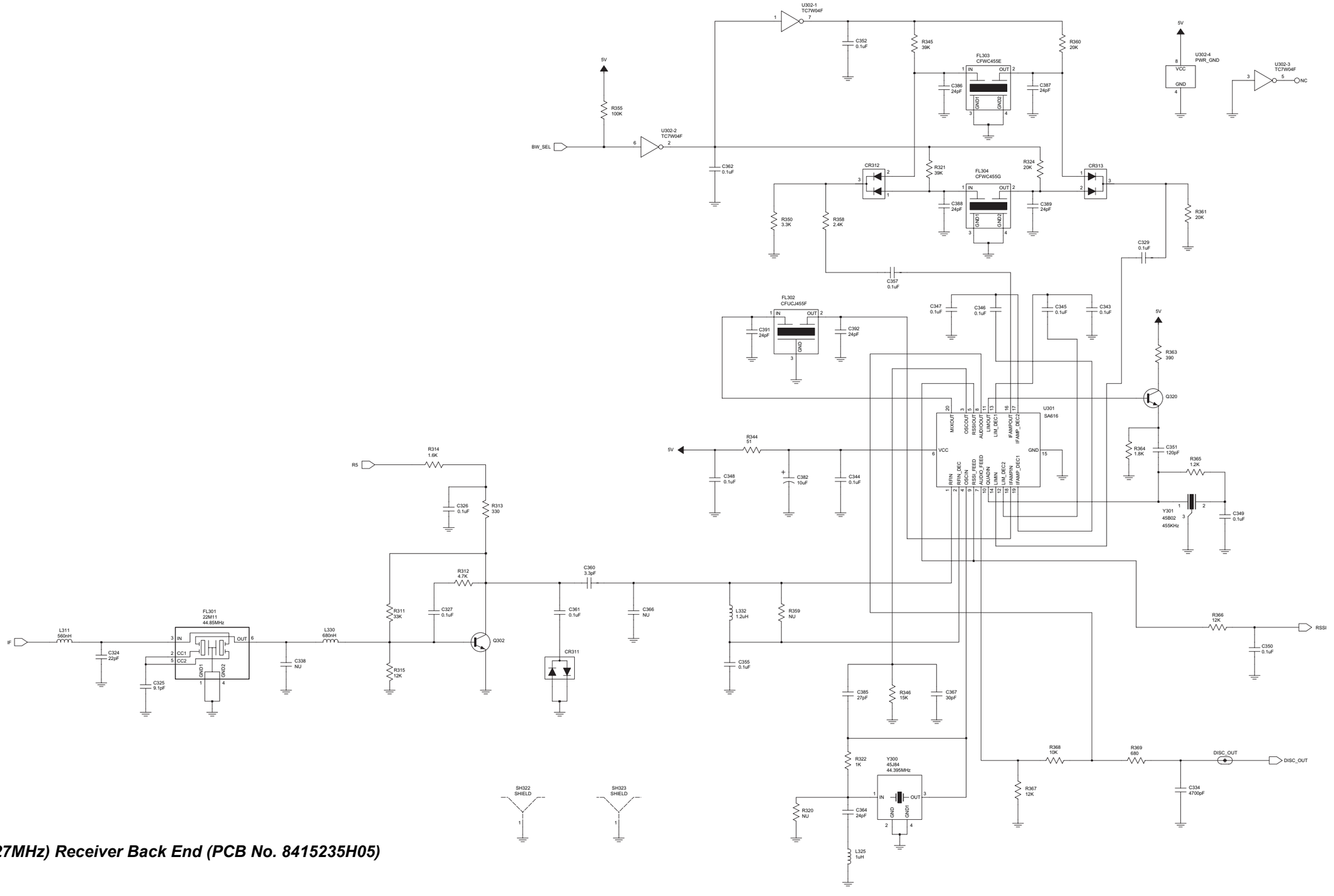




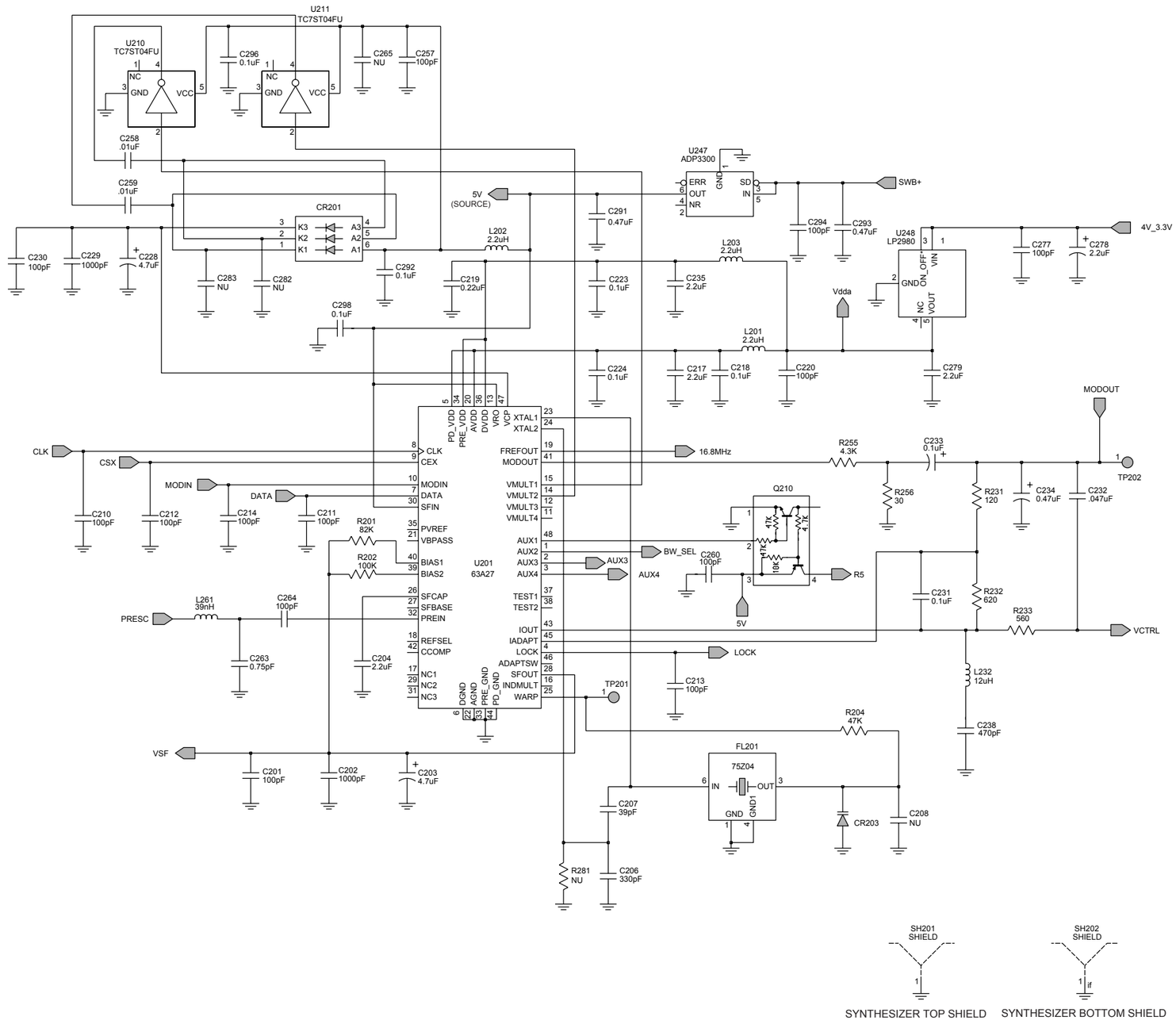
UHF2 (450-527MHz) Receiver Front End (PCB 8415235H05)



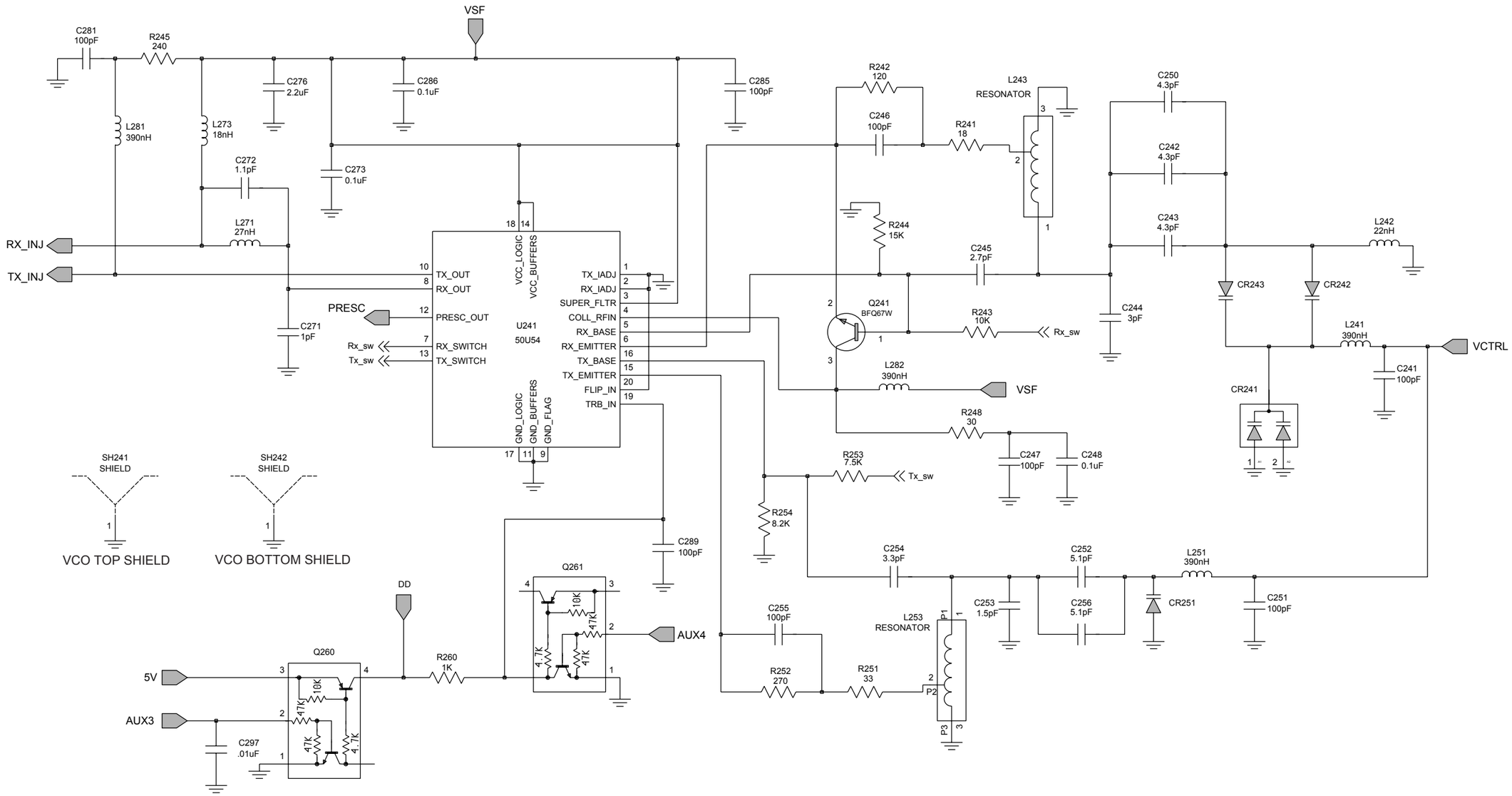
UHF2 (450-527MHz) Receiver Back End (PCB 8415235H01)



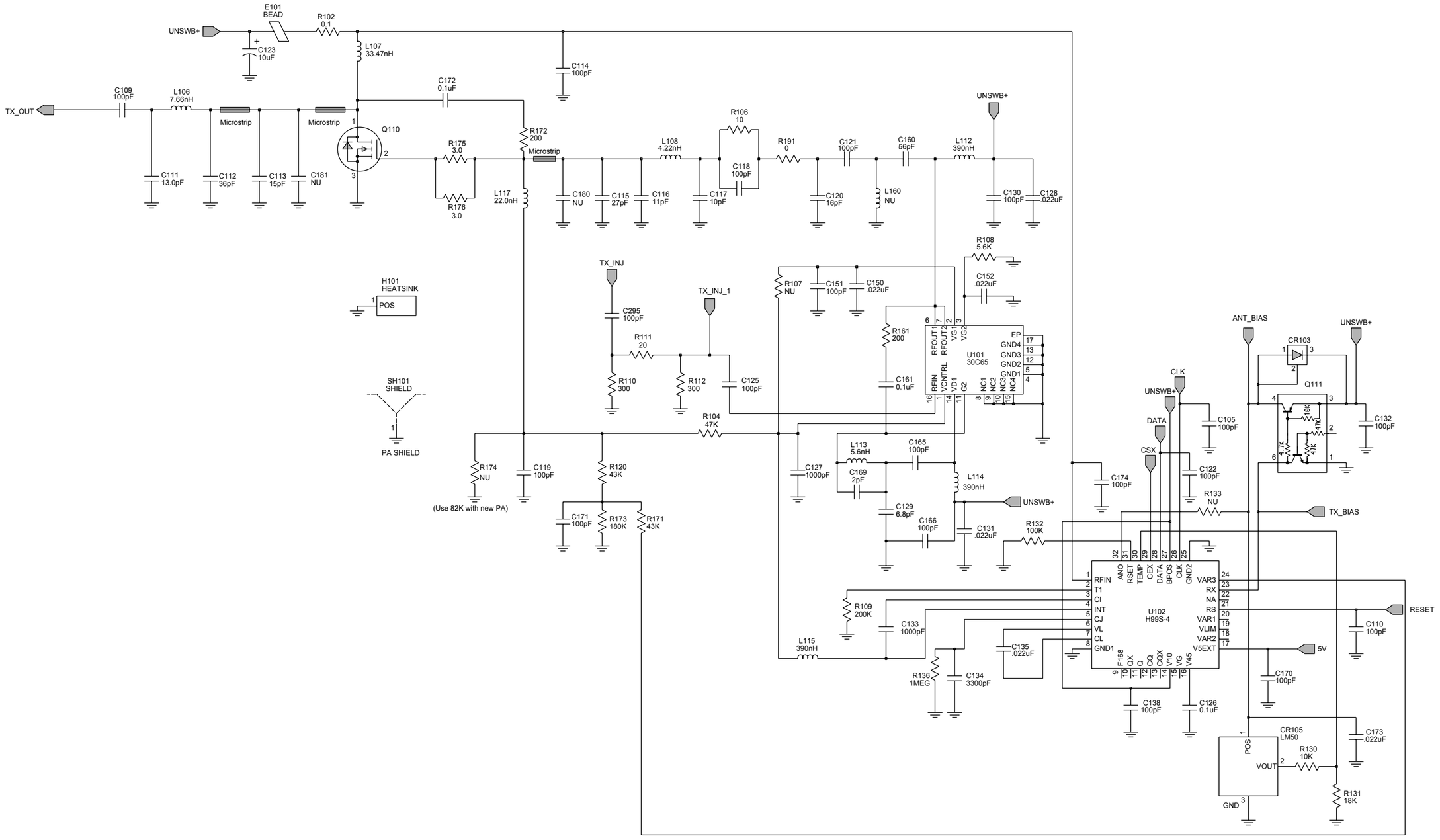
UHF2 (450-527MHz) Receiver Back End (PCB No. 8415235H05)



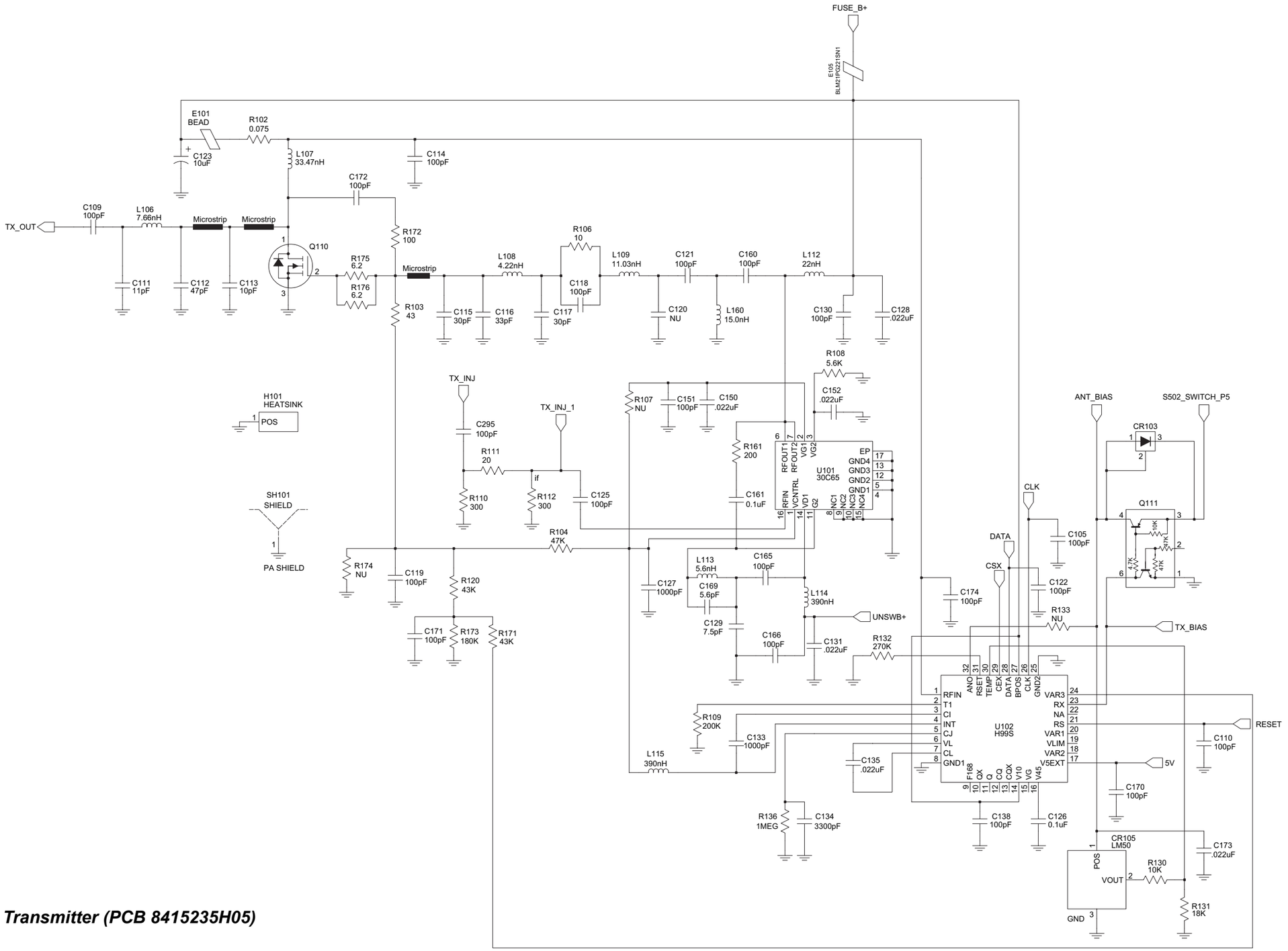
UHF2 (450-527MHz) Synthesizer



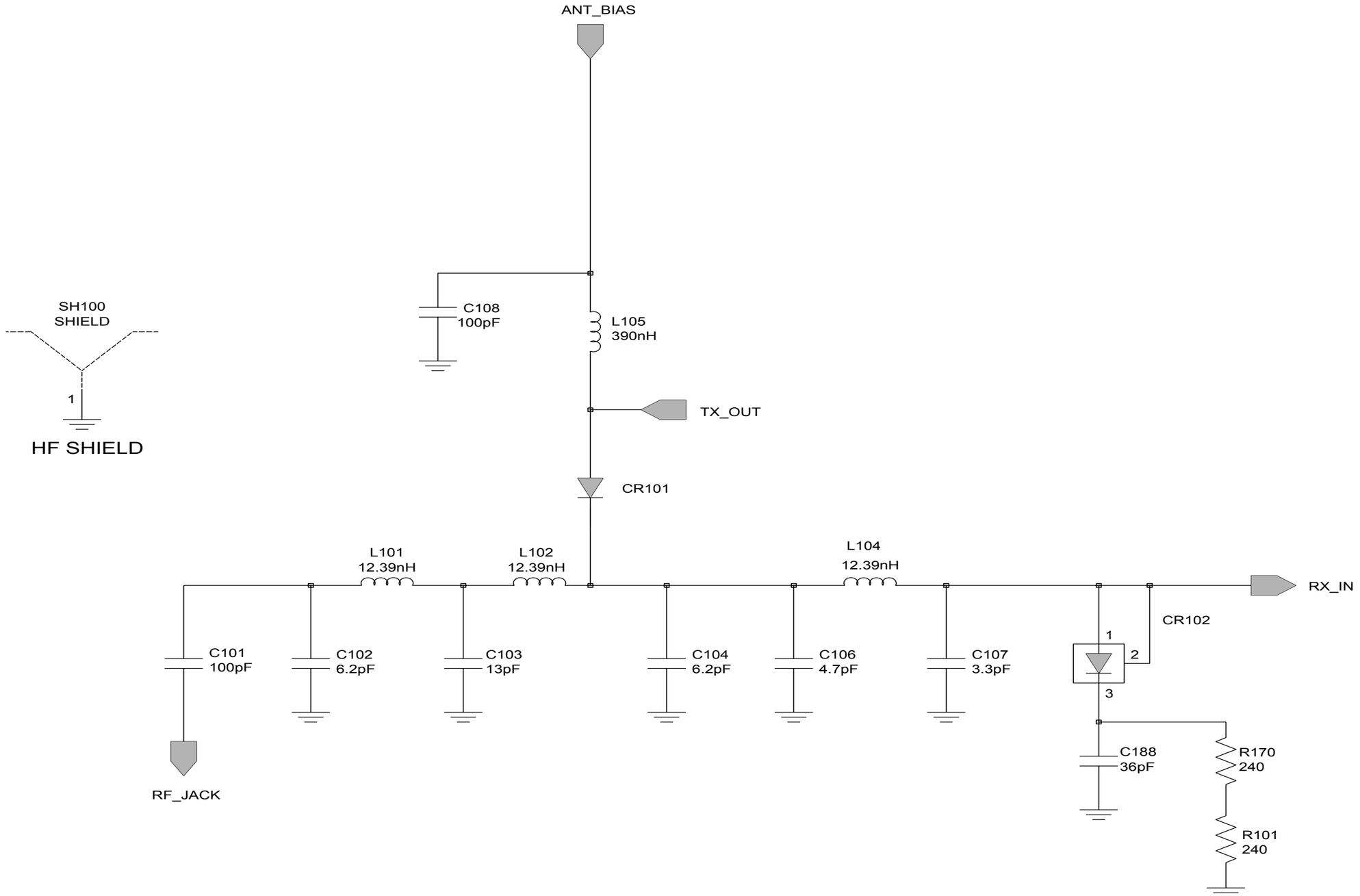
UHF2 (450-527MHz) Voltage Controlled Oscillator



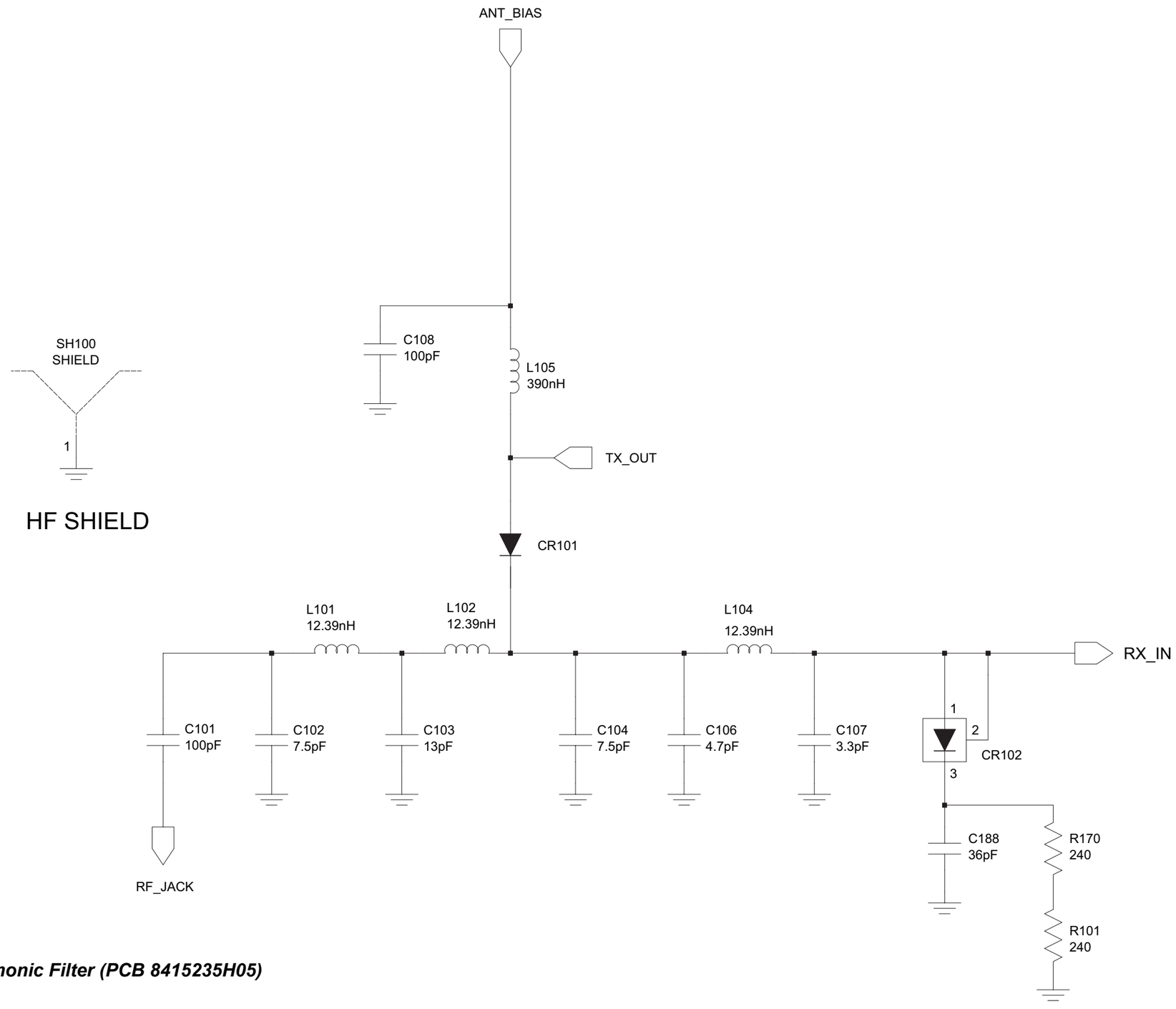
UHF2 (450-527MHz) Transmitter (PCB 8415235H01)



UHF2 (450-527MHz) Transmitter (PCB 8415235H05)



UHF2 (450-527MHz) Harmonic Filter (PCB 8415235H01)



UHF2 (450-527MHz) Harmonic Filter (PCB 8415235H05)

13.0 UHF2 PCB 8415235H01 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944C72	CAP,FXD,6.2PF,.25PF+/-,50V-DC,060
C103	2113944C77	CAP,FXD,11PF,+5%,-5%,50V-DC,0603,C
C104	2113944C72	CAP,FXD,6.2PF,.25PF+/-,50V-DC,060
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25PF
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25PF
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2115938H01	CAP CHIP CL1 11.0 +/-0.05 PF
C112	2115937H03	HIGH Q CHIP CAPACITOR, 33PF
C113	2115937H02	HIGH Q CHIP CAPACITOR, 15PF
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,0402,C
C116	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C
C117	NOTPLACED	-
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C121	2113944A40	CAP CER CHP 100.0PF 50V 5%
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2313960F04	CAP TANT 33 UF 10% 16V 6032-28
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946K02	CAP CER CHP 0.10UF 16V
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C129	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C132	2113944A40	CAP CER CHP 100.0PF 50V 5%
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C140	0613952H91	CER CHIP RES 5600 OHM 5% 0603
C141	2113944C28	CAP CER CHP 8.2PF 50V +/- 0.5PF
C150	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C151	2113944A40	CAP CER CHP 100.0PF 50V 5%
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C160	2113944A34	CAP CER CHP 56.0PF 50V 5%
C161	2113946K02	CAP CER CHP 0.10UF 16V
C165	2113944A34	CAP CER CHP 56.0PF 50V 5%
C166	2113944A40	CAP CER CHP 100.0PF 50V 5%
C169	2113944A08	CAP CER CHP 2.0PF 50V +/- 0.25PF
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113944A40	CAP CER CHP 100.0PF 50V 5%
C172	2113945D04	CAP CER CHP 100,000PF 25V 10%
C173	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C180	NOTPLACED	-
C181	NOTPLACED	-
C188	2113944A83	CAP,FXD,36PF,+5%,-5%,50V-DC,0402,C
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2313960B30	CAP TANT 4.7 UF 10% 10V 3216-18
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A32	CAP CER CHP 39.0PF 50V 5%
C208	NOTPLACED	-
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP TANT 4.7 UF 10% 16V 3528-21
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%
C231	2113946K02	CAP CER CHP 0.10UF 16V
C232	2113945D02	CAP CER CHP 47,000PF 25V 10%
C233	2313960A26	CAP TANT 0.1 UF 10% 35V 3216-18
C234	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%,50V-DC,0603,
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A16	CAP CER CHP 4.3PF 50V +/- 0.25PF
C243	2113944A16	CAP CER CHP 4.3PF 50V +/- 0.25PF
C244	2113944C17	CAP CER CHP 3.0PF 50V +/- 0.25PF
C245	2113944A11	CAP CER CHP 2.7PF 50V +/- 0.25PF
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A16	CAP CER CHP 4.3PF 50V +/- 0.25PF
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A18	CAP CER CHP 5.1PF 50V +/- 0.5PF
C253	2113944C12	CAP CER CHP 1.8PF 50V +/- 0.25PF
C254	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5PF
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%
C256	2113944A18	CAP CER CHP 5.1PF 50V +/- 0.5PF
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/-,50V-DC,040
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C265	NOTPLACED	-
C271	NOTPLACED	-
C272	2115153H01	CAP, CERAMIC, COG
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP TANT 10 UF 10% 16V 3528-21
C279	2113946N03	CAP CER CHP 2.2UF 16V

Circuit Ref	Motorola Part No.	Description
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C282	NOTPLACED	-
C283	NOTPLACED	-
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%
C286	2113946K02	CAP CER CHP 0.10UF 16V
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP TANT 10 UF 10% 6.3V 2012-12
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-DC,080
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A23	CAP CER CHP 8.2PF 50V +/-0.5PF
C302	2113944A26	CAP CER CHP 12.0PF 50V 5%
C303	2113944C21	CAP CER CHP 4.3PF 50V +/-0.25PF
C304	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C
C305	2113944A40	CAP CER CHP 100.0PF 50V 5%
C306	NOTPLACED	-
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOTPLACED	-
C312	2113944A22	CAP CER CHP 7.5PF 50V +/-0.5PF
C313	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944C21	CAP CER CHP 4.3PF 50V +/-0.25PF
C317	2113944A73	CAP,FXD,8PF,.5PF+/-,50V-DC,0402,C
C318	2113944A26	CAP CER CHP 12.0PF 50V 5%
C319	2113944A16	CAP CER CHP 4.3PF 50V +/-0.25PF
C320	2113944A24	CAP CER CHP 9.1PF 50V +/-0.5PF
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2115153H40	CAP, CERAMIC, COG
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C328	2113946K02	CAP CER CHP 0.10UF 16V
C329	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C337	NOTPLACED	-
C338	NOTPLACED	-
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945D04	CAP CER CHP 100,000PF 25V 10%
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V
C348	2113946K02	CAP CER CHP 0.10UF 16V
C349	2113945D04	CAP CER CHP 100,000PF 25V 10%
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C352	2113946K02	CAP CER CHP 0.10UF 16V
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C358	NOTPLACED	-
C359	NOTPLACED	-
C360	2113944A13	CAP CER CHP 3.3PF 50V +/-0.25PF
C361	2113946K02	CAP CER CHP 0.10UF 16V
C362	2113946K02	CAP CER CHP 0.10UF 16V
C364	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,0402,C
C366	NOTPLACED	-
C367	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,0402,C
C370	2115153H18	CAP, CERAMIC, COG
C371	NOTPLACED	-
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOTPLACED	-
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%
C375	2113944A40	CAP CER CHP 100.0PF 50V 5%
C378	NOTPLACED	-
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOTPLACED	-
C382	2313960B57	CAP,TANTA-LUM,10UF,+10%,-10%,4V-DC,S
C383	NOTPLACED	-
C385	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,0402,C
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C390	NOTPLACED	-
C400	2113945B02	CAP CER CHP 10,000PF 25V 10%
C401	2113946K02	CAP CER CHP 0.10UF 16V
C402	2113946K02	CAP CER CHP 0.10UF 16V
C403	2113743G24	CAP CHIP 2.2 UF 16V+80-20%
C404	NOTPLACED	-
C405	2113944A40	CAP CER CHP 100.0PF 50V 5%
C406	NOTPLACED	-
C407	2113946B04	CAP CER CHP 0.10UF 10V 10%
C408	2113944A40	CAP CER CHP 100.0PF 50V 5%
C409	2113946K02	CAP CER CHP 0.10UF 16V
C410	2113946B04	CAP CER CHP 0.10UF 10V 10%
C411	2113946K02	CAP CER CHP 0.10UF 16V
C414	2113946K02	CAP CER CHP 0.10UF 16V
C415	2185895Z01	CAPACITOR CER LOW DIST .01UF
C416	2113946B04	CAP CER CHP 0.10UF 10V 10%
C419	NOTPLACED	-
C420	2113945B02	CAP CER CHP 10,000PF 25V 10%
C421	2113946B04	CAP CER CHP 0.10UF 10V 10%
C422	2113946K02	CAP CER CHP 0.10UF 16V
C423	2113944A40	CAP CER CHP 100.0PF 50V 5%
C424	NOTPLACED	-
C425	2113946K02	CAP CER CHP 0.10UF 16V
C426	2113944A40	CAP CER CHP 100.0PF 50V 5%
C427	2113944A40	CAP CER CHP 100.0PF 50V 5%
C428	2113946K02	CAP CER CHP 0.10UF 16V
C429	2113946K02	CAP CER CHP 0.10UF 16V
C430	2113946B04	CAP CER CHP 0.10UF 10V 10%
C431	2113944A40	CAP CER CHP 100.0PF 50V 5%
C432	NOTPLACED	-
C433	2113945B02	CAP CER CHP 10,000PF 25V 10%
C434	2113946B04	CAP CER CHP 0.10UF 10V 10%
C435	2113946K02	CAP CER CHP 0.10UF 16V
C436	2113944A29	CAP CER CHP 22.0PF 50V 5%
C437	2113944A29	CAP CER CHP 22.0PF 50V 5%
C440	2113946Q01	CAP CER CHP 4.7UF 16V
C441	2113944A40	CAP CER CHP 100.0PF 50V 5%
C442	2113945D04	CAP CER CHP 100,000PF 25V 10%
C443	2113946B04	CAP CER CHP 0.10UF 10V 10%
C444	2113944A40	CAP CER CHP 100.0PF 50V 5%
C445	2113944A40	CAP CER CHP 100.0PF 50V 5%
C447	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C448	2113946B04	CAP CER CHP 0.10UF 10V 10%
C449	2113944A40	CAP CER CHP 100.0PF 50V 5%
C450	NOTPLACED	-
C451	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C452	2113743B29	CAP CHIP 1.00 UF 10% 16V
C453	2113944A40	CAP CER CHP 100.0PF 50V 5%
C456	2113944A40	CAP CER CHP 100.0PF 50V 5%
C458	2113944A40	CAP CER CHP 100.0PF 50V 5%
C459	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C463	2113944A40	CAP CER CHP 100.0PF 50V 5%
C466	2113944A40	CAP CER CHP 100.0PF 50V 5%
C467	2113946B04	CAP CER CHP 0.10UF 10V 10%
C471	2113944A40	CAP CER CHP 100.0PF 50V 5%
C472	2113945A05	CAP CER CHP 470PF 50V 10%
C473	2113945A05	CAP CER CHP 470PF 50V 10%
C475	2113743H14	CAP CHIP 10.0 UF 16V +80-20%
C476	2113946R01	CAP CER CHP 10.0UF 10V
C479	2113946B04	CAP CER CHP 0.10UF 10V 10%
C480	2113946R01	CAP CER CHP 10.0UF 10V
C481	2113946B04	CAP CER CHP 0.10UF 10V 10%
C482	2113946B04	CAP CER CHP 0.10UF 10V 10%
C490	2113944A40	CAP CER CHP 100.0PF 50V 5%
C491	2113944A40	CAP CER CHP 100.0PF 50V 5%
C492	2113944A40	CAP CER CHP 100.0PF 50V 5%
C493	2113944A40	CAP CER CHP 100.0PF 50V 5%
C494	2113944A40	CAP CER CHP 100.0PF 50V 5%
C495	2113944A40	CAP CER CHP 100.0PF 50V 5%
C496	2113944A40	CAP CER CHP 100.0PF 50V 5%
C497	2113944A40	CAP CER CHP 100.0PF 50V 5%
C498	NOTPLACED	-
C499	2113946B04	CAP CER CHP 0.10UF 10V 10%
C502	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C503	2113944A40	CAP CER CHP 100.0PF 50V 5%
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C524	2113944A40	CAP CER CHP 100.0PF 50V 5%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%
C610	2113944A40	CAP CER CHP 100.0PF 50V 5%
C611	2113944A40	CAP CER CHP 100.0PF 50V 5%
C612	2113944A40	CAP CER CHP 100.0PF 50V 5%
C613	2113944A40	CAP CER CHP 100.0PF 50V 5%
C615	2113944A40	CAP CER CHP 100.0PF 50V 5%
C616	2113944A40	CAP CER CHP 100.0PF 50V 5%
C618	2113944A40	CAP CER CHP 100.0PF 50V 5%
C619	2113944A40	CAP CER CHP 100.0PF 50V 5%
C620	2113944A40	CAP CER CHP 100.0PF 50V 5%
C621	2113944A40	CAP CER CHP 100.0PF 50V 5%
C622	2113944A40	CAP CER CHP 100.0PF 50V 5%
CR101	4880973Z02	PIN DIODE
CR102	4815257H01	SURFACE MOUNT PIN DIODES
CR103	4815257H01	SURFACE MOUNT PIN DIODES

Circuit Ref	Motorola Part No.	Description
CR105	5115022H01	IC,TEMP SENS,LM50C,SM,SOT-23
CR160	NOTPLACED	-
CR201	4815011H01	DIODE,SWG,300MA,80V
CR203	4815072H01	DIODE,VCTR,1SV232,30V
CR241	4885094Y01	DIODE VARACTOR ISV228 W18
CR242	4885055Y01	DIODE VARACTOR PB-FREE
CR243	4885055Y01	DIODE VARACTOR PB-FREE
CR251	4815322H01	VHF VARIABLE CAPACI-TANCE DIODE
CR301	4885055Y01	DIODE VARACTOR PB-FREE
CR302	4885055Y01	DIODE VARACTOR PB-FREE
CR303	4815048H01	DIODE,SHTK,MMBD353LT1, SM,7V
CR304	4885055Y01	DIODE VARACTOR PB-FREE
CR305	4885055Y01	DIODE VARACTOR PB-FREE
CR306	4802245J42	RING QUAD DIODE SOT-143 PKG
CR311	4813974A19	DIODE SCHOTTKY BAR-RIER SERIES
CR312	4815047H01	DIODE,SWG,DAN235EFTL,3 5V
CR313	4815047H01	DIODE,SWG,DAN235EFTL,3 5V
CR411	4815067H01	DIODE ARRAY,SWG,RB731UFT108, SMD,1M
CR412	4815067H01	DIODE ARRAY,SWG,RB731UFT108, SMD,1M
CR413	4815067H01	DIODE ARRAY,SWG,RB731UFT108, SMD,1M
CR440	4813978C02	PB FREE, NOT COM-PLETELY ENRICHED
CR501	4815155H01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
E101	2415954H01	INDUCTOR BEAD CHIP
E400	2480640Z01	SURFACE MOUNT FERRITE BEAD
E401	2480640Z01	SURFACE MOUNT FERRITE BEAD
E402	2480640Z01	SURFACE MOUNT FERRITE BEAD

Circuit Ref	Motorola Part No.	Description
E403	2480640Z01	SURFACE MOUNT FERRITE BEAD
E404	2480640Z01	SURFACE MOUNT FERRITE BEAD
E405	2480640Z01	SURFACE MOUNT FERRITE BEAD
E406	2480640Z01	SURFACE MOUNT FERRITE BEAD
E407	2480640Z01	SURFACE MOUNT FERRITE BEAD
E408	2480640Z01	SURFACE MOUNT FERRITE BEAD
E409	2480640Z01	SURFACE MOUNT FERRITE BEAD
E634	2480640Z01	SURFACE MOUNT FERRITE BEAD
E637	2480640Z01	SURFACE MOUNT FERRITE BEAD
E638	2480640Z01	SURFACE MOUNT FERRITE BEAD
E639	2480640Z01	SURFACE MOUNT FERRITE BEAD
E640	2480640Z01	SURFACE MOUNT FERRITE BEAD
E641	2480640Z01	SURFACE MOUNT FERRITE BEAD
E642	2480640Z01	SURFACE MOUNT FERRITE BEAD
E643	2480640Z01	SURFACE MOUNT FERRITE BEAD
E644	2480640Z01	SURFACE MOUNT FERRITE BEAD
E645	2480640Z01	SURFACE MOUNT FERRITE BEAD
F501	6515076H01	FUSE,FST BLW,3A,24V,FUSE CHIP SMT T
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL302	9180468V05	SMD455KHZ 4 ELEMENT CER FLTR
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
FL401	4870368G02	REFLOWABLE CLOCK OSC XTAL
H101	2680499Z02	HEAT SPREADER
J101	0985613Z01	JACK,RF
J102	0280519Z02	NUT, ANTENNA
J400	0915064H03	CONNECTOR, ZIF (40 PINS)
J403	0915064H02	CONN,CONN,F,20CONT,CONNECTOR, ZIF

Circuit Ref	Motorola Part No.	Description
J601	0980521Z03	CONN, ZIF VERTICAL, 40PINS
J602	0915064H01	CONN,CONN,F,18CONT,CONNECTOR, ZIF
L101	2460591B28	COIL AIR WOUND INDUC 13.37
L102	2460591B28	COIL AIR WOUND INDUC 13.37
L104	2460591B48	COIL AIR WOUND INDUC 15.22
L105	2462587N22	CHIP IND 390 NH 10%
L106	2460591A19	COIL AIR WOUND INDUC 8.71
L107	2479990G01	AIR WOUND COIL/GREEN COLOR 33.47NH
L108	2479990A01	AIR WOUND COIL/GREEN COLOR 4.22NH
L112	2462587N42	CHIP IND 12 NH 5%
L113	2414017H09	IND CHIP 5.6 NH +/- 0.3NH
L114	2462587N42	CHIP IND 12 NH 5%
L115	2462587N22	CHIP IND 390 NH 10%
L116	2479990C02	AIR WOUND COIL/GREEN COLOR 16.28NH
L117	2414017P17	IND CER CHIP 22.0 NH 5%
L160	2414017H14	IND CHIP 15.0 NH 5%
L201	2462587Q20	IND CHIP 2,200NH 20%
L202	2462587Q20	IND CHIP 2,200NH 20%
L203	2462587Q20	IND CHIP 2,200NH 20%
L232	2415844H01	CHIP IND 12000 NH 5%
L241	2462587V41	IND CHIP 390 NH 10%
L242	2462587V26	CHIP IND 22 NH 5% 0805
L243	2485776Z02	COIL TEFLON RESONATOR (KAPTON)
L251	2462587V41	IND CHIP 390 NH 10%
L253	2460593C03	COIL MULT LAYERED TAP TEF RESN
L261	2462587V29	CHIP IND 39 NH 5% 0805
L271	2415043H01	FIXED INDUC-TOR,RF,27NH,5%,CER,
L273	2415043H03	FIXED INDUC-TOR,RF,68NH,5%,CER,
L281	2462587V41	IND CHIP 390 NH 10%
L282	2462587V41	IND CHIP 390 NH 10%
L301	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L302	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L303	2462587V26	CHIP IND 22 NH 5% 0805
L304	2462587V37	CHIP IND 180 NH 5% 0805
L305	2462587V23	CHIP IND 12 NH 5% 0805
L306	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L307	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L309	2479990C02	AIR WOUND COIL/GREEN COLOR 16.28NH
L310	2462587V36	CHIP IND 150NH 5% 0805
L311	2414017K32	IND CER CHIP 560.0 NH 5%
L321	2462587V37	CHIP IND 180 NH 5% 0805
L325	2462587N68	CHIP IND 1000 NH 5%
L330	2414017K33	IND CER CHIP 680.0 NH 5%
L332	2414015A25	IDCTR,CHIP,1.2UH,2%,440MA,2OHM,CER,
L400	2462587Q42	IND CHIP 390NH 10%
L401	2462587Q42	IND CHIP 390NH 10%
L410	2462587Q42	IND CHIP 390NH 10%
L411	2462587Q42	IND CHIP 390NH 10%
L505	2462587Q42	IND CHIP 390NH 10%
P100	3905643V01	CONTACT ANT GRD
PB501	4086470Z01	TACT SWITCH
PB502	4086470Z01	TACT SWITCH
PB503	4086470Z01	TACT SWITCH
PB504	4086470Z01	TACT SWITCH
PB505	4086470Z01	TACT SWITCH
Q110	4813976A03	TSTR, 450 MHZ, 8W, 7.5V, PLD 1.5
Q111	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q210	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q261	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q301	4802245J44	NPN SILICON BIPOLAR TRANSISTOR
Q302	4802197J95	RF TRANSISTOR PBR941
Q310	4802245J44	NPN SILICON BIPOLAR TRANSISTOR
Q320	4813973M07	TSTR NPN 40V .2A GEN PURP
Q400	4815069H02	TSTR MOSFET P-CHAN
Q403	4813973A13	XSTR,BIP GP SS,PNP,TO-236,SOT-23,
Q405	4815066H01	XSTR,OTHR,UMG5NFTR,250MHZ
Q410	4815066H01	XSTR,OTHR,UMG5NFTR,250MHZ
Q416	4815069H02	TSTR MOSFET P-CHAN
Q417	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q502	4815154H01	DUAL TRANS NPN
Q505	4813973M07	TSTR NPN 40V .2A GEN PURP
Q601	4815125H01	SOT STR RH LOW PROFILE MMBT
Q602	4813973M07	TSTR NPN 40V .2A GEN PURP
Q603	4813973M07	TSTR NPN 40V .2A GEN PURP
R101	0613952H58	CER CHIP RES 240 OHM 5% 0603
R102	0680539Z01	POWER METAL STRIP RESISTORS
R104	0613952R17	CER CHIP RES 47K OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5% 0402
R107	NOTPLACED	-
R108	0613952Q91	CER CHIP RES 5600 OHM 5% 0402
R109	0613952R32	CER CHIP RES 200K OHM 5% 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R111	0613952Q32	CER CHIP RES 20.0 OHM 5% 0402
R112	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R120	0613952R16	CER CHIP RES 43K OHM 5% 0402
R130	0613952R01	CER CHIP RES 10K OHM 5% 0402
R131	0613952R07	CER CHIP RES 18K OHM 5% 0402
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	NOTPLACED	-
R136	NOTPLACED	-
R161	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R170	0613952H58	CER CHIP RES 240 OHM 5% 0603
R171	0613952R16	CER CHIP RES 43K OHM 5% 0402
R172	0613952H56	CER CHIP RES 200 OHM 5% 0603
R173	0613952R31	CER CHIP RES 180K OHM 5% 0402
R174	0613952R17	CER CHIP RES 47K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R191	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R201	0613952R23	CER CHIP RES 82K OHM 5% 0402
R202	0613952R25	CER CHIP RES 100K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402
R231	0613952Q51	CER CHIP RES 120 OHM 5% 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5% 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5% 0402
R241	0613952Q33	CER CHIP RES 22.0 OHM 5% 0402
R242	0613952Q51	CER CHIP RES 120 OHM 5% 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R05	CER CHIP RES 15K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5% 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R251	0613952Q37	CER CHIP RES 33.0 OHM 5% 0402
R252	0613952Q59	CER CHIP RES 270 OHM 5% 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R254	0613952Q95	CER CHIP RES 8200 OHM 5% 0402
R255	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R281	NOTPLACED	-
R301	0613952R25	CER CHIP RES 100K OHM 5% 0402
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402

Circuit Ref	Motorola Part No.	Description
R303	0613952Q77	CER CHIP RES 1500 OHM 5% 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q65	CER CHIP RES 470 OHM 5% 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R309	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R310	NOTPLACED	-
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R314	0613952Q78	CER CHIP RES 1600 OHM 5% 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOTPLACED	-
R321	0613952R03	CER CHIP RES 12K OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R324	0613952R27	CER CHIP RES 120K OHM 5% 0402
R328	0613952Q11	CER CHIP RES 2.7 OHM 5% 0402
R329	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402
R331	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOTPLACED	-
R339	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R340	0613952Q95	CER CHIP RES 8200 OHM 5% 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R345	0613952R15	CER CHIP RES 39K OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5% 0402
R349	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R350	0613952R01	CER CHIP RES 10K OHM 5% 0402
R355	0613952R25	CER CHIP RES 100K OHM 5% 0402
R358	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R359	NOTPLACED	-
R360	0613952R08	CER CHIP RES 20K OHM 5% 0402
R361	0613952R08	CER CHIP RES 20K OHM 5% 0402
R363	0613952Q63	CER CHIP RES 390 OHM 5% 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5% 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5% 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952N09	CER CHIP RES 12.1K OHM 1% 0402
R368	0613952N01	CER CHIP RES 10.0K OHM 1% 0402
R369	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R370	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R371	NOTPLACED	-
R372	NOTPLACED	-
R373	NOTPLACED	-
R374	NOTPLACED	-
R375	NOTPLACED	-
R376	NOTPLACED	-
R377	NOTPLACED	-
R378	NOTPLACED	-
R400	0613952R17	CER CHIP RES 47K OHM 5% 0402
R401	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R402	NOTPLACED	-
R403	NOTPLACED	-
R405	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R406	0613952R22	CER CHIP RES 75K OHM 5% 0402
R407	0613952R21	CER CHIP RES 68K OHM 5% 0402
R408	NOTPLACED	
R409	0613952R01	CER CHIP RES 10K OHM 5% 0402
R410	0613952R25	CER CHIP RES 100K OHM 5% 0402
R411	0613952R01	CER CHIP RES 10K OHM 5% 0402
R413	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R414	0613952P25	CER CHIP RES 178K OHM 1% 0402
R415	0613952N93	CER CHIP RES 90.9K OHM 1% 0402
R416	0613952R01	CER CHIP RES 10K OHM 5% 0402
R418	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R419	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R420	0613952J73	CER CHIP RES 10.0M OHM 5% 0603
R421	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R423	0613952R41	CER CHIP RES 470K OHM 5% 0402
R424	0613952R14	CER CHIP RES 36K OHM 5% 0402
R425	0613952R12	CER CHIP RES 30K OHM 5% 0402
R426	0613952R37	CER CHIP RES 330K OHM 5% 0402
R427	0613952Q83	CER CHIP RES 2700 OHM 5% 0402
R428	0613952Q09	CER CHIP RES 2.2 OHM 5% 0402
R429	0613952R22	CER CHIP RES 75K OHM 5% 0402
R431	0613952R41	CER CHIP RES 470K OHM 5% 0402
R432	0613952R18	CER CHIP RES 51K OHM 5% 0402
R434	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R435	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R436	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R437	NOTPLACED	-
R445	0613952R10	CER CHIP RES 24K OHM 5% 0402
R447	0613952R25	CER CHIP RES 100K OHM 5% 0402
R448	0613952R01	CER CHIP RES 10K OHM 5% 0402
R449	0613952R10	CER CHIP RES 24K OHM 5% 0402
R450	0613959Y45	CER CHIP RES 68.0 OHM 5% 2512
R451	0613952R05	CER CHIP RES 15K OHM 5% 0402
R452	0613952R25	CER CHIP RES 100K OHM 5% 0402
R453	NOTPLACED	-
R454	NOTPLACED	-
R455	NOTPLACED	-
R456	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R457	0613952R01	CER CHIP RES 10K OHM 5% 0402
R460	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R461	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R462	0613952R01	CER CHIP RES 10K OHM 5% 0402
R463	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R471	0613952R08	CER CHIP RES 20K OHM 5% 0402
R472	0613952R14	CER CHIP RES 36K OHM 5% 0402
R473	0613952Q25	CER CHIP RES 10.0 OHM 5% 0402
R475	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R476	0613952R37	CER CHIP RES 330K OHM 5% 0402
R477	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R478	0613952R01	CER CHIP RES 10K OHM 5% 0402
R479	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R481	0613952R10	CER CHIP RES 24K OHM 5% 0402
R492	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM

Circuit Ref	Motorola Part No.	Description
R498	0613952R01	CER CHIP RES 10K OHM 5% 0402
R499	0613952R01	CER CHIP RES 10K OHM 5% 0402
R501	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R506	0613952R17	CER CHIP RES 47K OHM 5% 0402
R507	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R601	0613952Z67	RES,MF,51KOHM,1%,.0625 W,SM,0402,200
R602	0613952Z67	RES,MF,51KOHM,1%,.0625 W,SM,0402,200
R603	0613952N12	CER CHIP RES 13.0K OHM 1% 0402
R604	0613952Z58	RES,MF,22KOHM,1%,.0625 W,SM,0402,200
R605	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R606	0613952P12	CER CHIP RES 130K OHM 1% 0402
R607	0613952N12	CER CHIP RES 13.0K OHM 1% 0402
R608	0613952Z58	RES,MF,22KOHM,1%,.0625 W,SM,0402,200
R609	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R610	0613952P12	CER CHIP RES 130K OHM 1% 0402
R611	0613952R18	CER CHIP RES 51K OHM 5% 0402
R612	0613952R43	CER CHIP RES 560K OHM 5% 0402
R613	0613952R49	CER CHIP RES 1.0M OHM 5% 0402
R614	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R617	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R618	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R619	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R620	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R621	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R622	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R623	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R626	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R627	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R631	0613952R66	CER CHIP RES 0.0 +/-0.050 OHM
R632	0613952R25	CER CHIP RES 100K OHM 5% 0402
R633	0613952R25	CER CHIP RES 100K OHM 5% 0402
R646	0613952R25	CER CHIP RES 100K OHM 5% 0402
R647	0613952Q84	CER CHIP RES 3000 OHM 5% 0402
R648	0613952R25	CER CHIP RES 100K OHM 5% 0402
R649	0613952R17	CER CHIP RES 47K OHM 5% 0402
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z19	SWITCH, FREQUENCY
S502	1880619Z04	VOL POTENTIOMETER with hi temp cam
SH100	2680507Z02	SHIELD, HARMONIC FILTER
SH101	2680510Z02	SHIELD, PA
SH201	2680511Z02	SHIELD, SYNTHESIZER
SH202	2680511Z02	SHIELD, SYNTHESIZER
SH241	2604120G02	AOBA VCO SHIELD
SH242	2680514Z02	SHIELD, VCO BOTTOM/ LVZIF
SH301	2686583Z02	SHIELD, RECEIVER FRONT END TOP
SH302	2680555Z02	SHIELD, RECEIVER F/END BOTTOM
SH303	2680509Z02	SHIELD, MIXER
SH304	2680624Z02	SHIELD, MIXER DIODE
SH322	2686528Z01	SHIELD,RFI/EMI,CRS,TIN
SH323	2686527Z02	SHIELD, RFI/EMI, CRS, TIN
SH400	2680505Z02	SHIELD, CONTROLLER TOP LEFT
SH401	2680506Z02	SHIELD, CONTROLLER TOP RIGHT
SH402	2680515Z02	SHIELD, CONTROLLER BOTTOM LEFT
SH403	2680516Z02	SHIELD, CONTROLLER BTM RIGHT
T301	2515121H01	BALUN, TRANSFORMER
T302	2515121H01	BALUN, TRANSFORMER
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIVER IC
U102	5185765B26	IC PWR CTRL IN MOS20
U201	5115060H01	IC,FREQ SYN,AT24701-OT4X
U210	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U211	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U241	5105750U56	IC PKG DIE VCO BUFFER
U247	5115026H01	IC,LOW DROPOUT,SM,SOT-23/6,P
U248	5115019H01	IC,LOW DROPOUT,SOT-23,SOT-23
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U302	5115070H01	IC,INVTR,TC7W04FU,SSOP
U303	NOTPLACED	-
U400	5115012H01	IC,ADJ LOW DROP-OUT,SM,POS P
U404	5115062H01	IC,CUST,TQFP48
U405	5115020H01	IC,SRAM,32K X 8,SOIC,3.6V
U406	5115286H01	IC 4M FLASH ROM- NON SHRINK+EPP
U407	5115033H01	IC,EEPROM,16K X 8,SM
U409	5.19E+09	IC,MICROP,QFP,QFP100,3.7 MHZ
U410	5115044H01	IC,LOW DROPOUT,SM,3.3V POS
U420	5115280H01	AUDIO AMPLIFIER TDA8547TS
U602	5115014H01	IC,COMPTR,SM,SOT-23/5
VR432	4813979P10	TRANS SUP 5.6V QUAD
VR433	4813979P10	TRANS SUP 5.6V QUAD
VR434	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR439	4813977M21	DIODE 12V ZENER _5242_
VR440	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR441	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR442	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR443	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR444	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR445	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR446	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR447	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR448	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR449	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR450	4815040H01	DIODE ARRAY ,ZEN,MM3Z12VT1G,SM,12
VR460	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR501	4813977M14	DIODE,ZEN,SOT-23,6.8V,.225W,PB
VR506	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
Y300	4802245J84	XTAL 44.395MHz, 3RD OT, SMD

14.0 UHF2 PCB 8415235H05 Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944C27	CAP CER CHP 7.5PF 50V +/- 0.5PF
C103	2113944C78	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C104	2113944C27	CAP CER CHP 7.5PF 50V +/- 0.5PF
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25PF
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25PF
C108	2113944A40	CAP CER CHP 100.0PF 50V 5%
C109	2113944C45	CAP CER CHP 100.0PF 50V 5%
C110	2113944A40	CAP CER CHP 100.0PF 50V 5%
C111	2115938H01	CAP CHIP CL1 11.0 +/-0.05 PF
C112	2115937H03	HIGH Q CHIP CAPACI-TOR, 33PF
C113	2115937H02	HIGH Q CHIP CAPACI-TOR, 15PF
C114	2113944A40	CAP CER CHP 100.0PF 50V 5%
C115	2113944A79	CAP,FXD,16PF,+5%,-5%,50V-DC,0402,C
C116	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C
C117	NOT-PLACED	-
C118	2113944A40	CAP CER CHP 100.0PF 50V 5%
C119	2113944A40	CAP CER CHP 100.0PF 50V 5%
C120	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C121	2113944A40	CAP CER CHP 100.0PF 50V 5%
C122	2113944A40	CAP CER CHP 100.0PF 50V 5%
C123	2313960F04	CAP TANT 33 UF 10% 16V 6032-28
C125	2113944A40	CAP CER CHP 100.0PF 50V 5%
C126	2113946K02	CAP CER CHP 0.10UF 16V
C127	2113945A09	CAP CER CHP 1000PF 50V 10%
C128	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C129	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C130	2113944A40	CAP CER CHP 100.0PF 50V 5%
C131	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C132	2113944A40	CAP CER CHP 100.0PF 50V 5%
C133	2113945A09	CAP CER CHP 1000PF 50V 10%
C134	2113945A12	CAP CER CHP 3300PF 50V 10%
C135	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C138	2113944A40	CAP CER CHP 100.0PF 50V 5%
C140	0613952H91	CER CHIP RES 5600 OHM 5% 0603
C141	2113944C28	CAP CER CHP 8.2PF 50V +/- 0.5PF
C150	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C151	2113944A40	CAP CER CHP 100.0PF 50V 5%
C152	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C160	2113944A34	CAP CER CHP 56.0PF 50V 5%
C161	2113946K02	CAP CER CHP 0.10UF 16V
C165	2113944A34	CAP CER CHP 56.0PF 50V 5%
C166	2113944A40	CAP CER CHP 100.0PF 50V 5%
C169	2113944A08	CAP CER CHP 2.0PF 50V +/- 0.25PF
C170	2113944A40	CAP CER CHP 100.0PF 50V 5%
C171	2113944A40	CAP CER CHP 100.0PF 50V 5%
C172	2113945D04	CAP CER CHP 100,000PF 25V 10%
C173	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C174	2113944A40	CAP CER CHP 100.0PF 50V 5%
C180	NOT-PLACED	-
C181	NOT-PLACED	-
C188	2113944A83	CAP,FXD,36PF,+5%,-5%,50V-DC,0402,C
C201	2113944A40	CAP CER CHP 100.0PF 50V 5%
C202	2113945A09	CAP CER CHP 1000PF 50V 10%
C203	2313960B30	CAP TANT 4.7 UF 10% 10V 3216-18
C204	2113946N03	CAP CER CHP 2.2UF 16V
C206	2113944C04	CAP CER CHP 330.0PF 50V 5%
C207	2113944A32	CAP CER CHP 39.0PF 50V 5%
C208	NOT-PLACED	-
C210	2113944A40	CAP CER CHP 100.0PF 50V 5%
C211	2113944A40	CAP CER CHP 100.0PF 50V 5%
C212	2113944A40	CAP CER CHP 100.0PF 50V 5%
C213	2113944A40	CAP CER CHP 100.0PF 50V 5%
C214	2113944A40	CAP CER CHP 100.0PF 50V 5%
C217	2113946N03	CAP CER CHP 2.2UF 16V
C218	2113946K02	CAP CER CHP 0.10UF 16V
C219	2113946L03	CAP CER CHP 0.22UF 16V
C220	2113944A40	CAP CER CHP 100.0PF 50V 5%
C223	2113946K02	CAP CER CHP 0.10UF 16V
C224	2113946K02	CAP CER CHP 0.10UF 16V
C228	2313960D05	CAP TANT 4.7 UF 10% 16V 3528-21
C229	2113945A09	CAP CER CHP 1000PF 50V 10%
C230	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C231	2113946K02	CAP CER CHP 0.10UF 16V
C232	2113945D02	CAP CER CHP 47,000PF 25V 10%
C233	2313960A26	CAP TANT 0.1 UF 10% 35V 3216-18
C234	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C235	2113946N03	CAP CER CHP 2.2UF 16V
C238	2113945L17	CAP,FXD,470PF,+5%,-5%,50V-DC,0603,
C241	2113944A40	CAP CER CHP 100.0PF 50V 5%
C242	2113944A16	CAP CER CHP 4.3PF 50V +/- 0.25PF
C243	2113944A16	CAP CER CHP 4.3PF 50V +/- 0.25PF
C244	2113944C17	CAP CER CHP 3.0PF 50V +/- 0.25PF
C245	2113944A11	CAP CER CHP 2.7PF 50V +/- 0.25PF
C246	2113944A40	CAP CER CHP 100.0PF 50V 5%
C247	2113944A40	CAP CER CHP 100.0PF 50V 5%
C248	2113946K02	CAP CER CHP 0.10UF 16V
C250	2113944A16	CAP CER CHP 4.3PF 50V +/- 0.25PF
C251	2113944A40	CAP CER CHP 100.0PF 50V 5%
C252	2113944A18	CAP CER CHP 5.1PF 50V +/- 0.5PF
C253	2113944C12	CAP CER CHP 1.8PF 50V +/- 0.25PF
C254	2113944A25	CAP CER CHP 10.0PF 50V +/- 0.5PF
C255	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C256	2113944A18	CAP CER CHP 5.1PF 50V +/- 0.5PF
C257	2113944A40	CAP CER CHP 100.0PF 50V 5%
C258	2113945B02	CAP CER CHP 10,000PF 25V 10%
C259	2113945B02	CAP CER CHP 10,000PF 25V 10%
C260	2113944A40	CAP CER CHP 100.0PF 50V 5%
C263	2113944A62	CAP,FXD,.75PF,.25PF+/-,50V-DC,040
C264	2113944A40	CAP CER CHP 100.0PF 50V 5%
C265	NOT-PLACED	-
C271	NOT-PLACED	-
C272	2115153H01	CAP, CERAMIC, COG
C273	2113946K02	CAP CER CHP 0.10UF 16V
C276	2113946N03	CAP CER CHP 2.2UF 16V
C277	2113944A40	CAP CER CHP 100.0PF 50V 5%
C278	2313960D07	CAP TANT 10 UF 10% 16V 3528-21
C279	2113946N03	CAP CER CHP 2.2UF 16V
C281	2113944A40	CAP CER CHP 100.0PF 50V 5%
C282	NOT-PLACED	-
C283	NOT-PLACED	-
C285	2113944A40	CAP CER CHP 100.0PF 50V 5%
C286	2113946K02	CAP CER CHP 0.10UF 16V

Circuit Ref	Motorola Part No.	Description
C289	2113944A40	CAP CER CHP 100.0PF 50V 5%
C291	2313960M51	CAP TANT 10 UF 10% 6.3V 2012-12
C292	2113946K02	CAP CER CHP 0.10UF 16V
C293	2113945G98	CAP,FXD,.47UF,+10%,-10%,50V-DC,080
C294	2113944A40	CAP CER CHP 100.0PF 50V 5%
C295	2113944A40	CAP CER CHP 100.0PF 50V 5%
C296	2113946K02	CAP CER CHP 0.10UF 16V
C297	2113945B02	CAP CER CHP 10,000PF 25V 10%
C298	2113946K02	CAP CER CHP 0.10UF 16V
C301	2113944A23	CAP CER CHP 8.2PF 50V +/- 0.5PF
C302	2113944A26	CAP CER CHP 12.0PF 50V 5%
C303	2113944C21	CAP CER CHP 4.3PF 50V +/- 0.25PF
C304	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C
C305	2113944A40	CAP CER CHP 100.0PF 50V 5%
C306	NOT-PLACED	-
C307	2113944A40	CAP CER CHP 100.0PF 50V 5%
C308	2113944A40	CAP CER CHP 100.0PF 50V 5%
C309	2113944A40	CAP CER CHP 100.0PF 50V 5%
C310	2113944A40	CAP CER CHP 100.0PF 50V 5%
C311	NOT-PLACED	-

Circuit Ref	Motorola Part No.	Description
C312	2113944A22	CAP CER CHP 7.5PF 50V +/- 0.5PF
C313	2113944A77	CAP,FXD,11PF,+5%,-5%,50V-DC,0402,C
C314	2113946K02	CAP CER CHP 0.10UF 16V
C315	2113944A40	CAP CER CHP 100.0PF 50V 5%
C316	2113944C21	CAP CER CHP 4.3PF 50V +/- 0.25PF
C317	2113944A73	CAP,FXD,8PF,.5PF+/-,50V-DC,0402,C
C318	2113944A26	CAP CER CHP 12.0PF 50V 5%
C319	2113944A16	CAP CER CHP 4.3PF 50V +/- 0.25PF
C320	2113944A24	CAP CER CHP 9.1PF 50V +/- 0.5PF
C321	2113944A40	CAP CER CHP 100.0PF 50V 5%
C322	2113944A38	CAP CER CHP 82.0PF 50V 5%
C324	2115153H40	CAP, CERAMIC, COG
C325	2115153H26	CAP, CERAMIC, COG
C326	2113946K02	CAP CER CHP 0.10UF 16V
C327	2113946K02	CAP CER CHP 0.10UF 16V
C328	2113946K02	CAP CER CHP 0.10UF 16V
C329	2113946K02	CAP CER CHP 0.10UF 16V
C334	2113945A13	CAP CER CHP 4700PF 50V 10%
C337	NOT-PLACED	-
C338	NOT-PLACED	-
C343	2113946K02	CAP CER CHP 0.10UF 16V
C344	2113945D04	CAP CER CHP 100,000PF 25V 10%

Circuit Ref	Motorola Part No.	Description
C345	2113946K02	CAP CER CHP 0.10UF 16V
C346	2113946K02	CAP CER CHP 0.10UF 16V
C347	2113946K02	CAP CER CHP 0.10UF 16V
C348	2113946K02	CAP CER CHP 0.10UF 16V
C349	2113945D04	CAP CER CHP 100,000PF 25V 10%
C350	2113946K02	CAP CER CHP 0.10UF 16V
C351	2113944A41	CAP CER CHP 120.0PF 50V 5%
C352	2113946K02	CAP CER CHP 0.10UF 16V
C355	2113946K02	CAP CER CHP 0.10UF 16V
C357	2113946K02	CAP CER CHP 0.10UF 16V
C358	NOT-PLACED	-
C359	NOT-PLACED	-
C360	2113944A13	CAP CER CHP 3.3PF 50V +/- 0.25PF
C361	2113946K02	CAP CER CHP 0.10UF 16V
C362	2113946K02	CAP CER CHP 0.10UF 16V
C364	2113944A81	CAP,FXD,24PF,+5%,-5%,50V-DC,0402,C
C366	NOT-PLACED	-
C367	2113944A82	CAP,FXD,30PF,+5%,-5%,50V-DC,0402,C
C370	2115153H18	CAP, CERAMIC, COG
C371	NOT-PLACED	-
C372	2113944A40	CAP CER CHP 100.0PF 50V 5%
C373	NOT-PLACED	-
C374	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C375	2113944A40	CAP CER CHP 100.0PF 50V 5%
C378	NOT-PLACED	-
C380	2113945B02	CAP CER CHP 10,000PF 25V 10%
C381	NOT-PLACED	-
C382	2313960B57	CAP,TANTA-LUM,10UF,+10%,-10%,4V-DC,S
C383	NOT-PLACED	-
C385	2113944A30	CAP CER CHP 27.0PF 50V 5%
C386	2113944A40	CAP CER CHP 100.0PF 50V 5%
C387	2113944C81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C388	2113944C81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C389	2113944C81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C390	NOT-PLACED	-
C391	2113944A81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0402, COG, -55DEG CMIN, 125DEG CMAX, PB
C392	2113944C81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB

Circuit Ref	Motorola Part No.	Description
C400	2113944A40	CAP CER CHP 100.0PF 50V 5%
C401	2113946K02	CAP CER CHP 0.10UF 16V
C402	2113946K02	CAP CER CHP 0.10UF 16V
C403	2316410H03	EPP POSCAP, 10UF, +20%, -20%
C404	NOT-PLACED	-
C405	2113944A40	CAP CER CHP 100.0PF 50V 5%
C406	NOT-PLACED	-
C407	2113946B04	CAP CER CHP 0.10UF 10V 10%
C408	2113944A40	CAP CER CHP 100.0PF 50V 5%
C409	2113946K02	CAP CER CHP 0.10UF 16V
C410	2113946B04	CAP CER CHP 0.10UF 10V 10%
C411	2113946K02	CAP CER CHP 0.10UF 16V
C414	2113946K02	CAP CER CHP 0.10UF 16V
C415	2185895Z01	CAPACITOR CER LOW DIST .01UF
C416	2113946B04	CAP CER CHP 0.10UF 10V 10%
C419	NOT-PLACED	-
C420	2113945B02	CAP CER CHP 10,000PF 25V 10%
C421	2113946B04	CAP CER CHP 0.10UF 10V 10%
C422	2113946K02	CAP CER CHP 0.10UF 16V
C423	2113944A40	CAP CER CHP 100.0PF 50V 5%
C424	NOT-PLACED	-

Circuit Ref	Motorola Part No.	Description
C425	2113946K02	CAP CER CHP 0.10UF 16V
C426	2113944A40	CAP CER CHP 100.0PF 50V 5%
C427	2113944A40	CAP CER CHP 100.0PF 50V 5%
C428	2113946K02	CAP CER CHP 0.10UF 16V
C429	2113946K02	CAP CER CHP 0.10UF 16V
C430	2113946B04	CAP CER CHP 0.10UF 10V 10%
C431	2113944A40	CAP CER CHP 100.0PF 50V 5%
C432	NOT-PLACED	-
C433	2113945B02	CAP CER CHP 10,000PF 25V 10%
C434	2113946B04	CAP CER CHP 0.10UF 10V 10%
C435	2113946K02	CAP CER CHP 0.10UF 16V
C436	2113944A29	CAP CER CHP 22.0PF 50V 5%
C437	2113944A29	CAP CER CHP 22.0PF 50V 5%
C440	2113946Q01	CAP CER CHP 4.7UF 16V
C441	2113944A40	CAP CER CHP 100.0PF 50V 5%
C442	2113945D04	CAP CER CHP 100,000PF 25V 10%
C443	2113946B04	CAP CER CHP 0.10UF 10V 10%
C444	2113944A40	CAP CER CHP 100.0PF 50V 5%
C445	2113944A40	CAP CER CHP 100.0PF 50V 5%
C447	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04

Circuit Ref	Motorola Part No.	Description
C448	2113946B04	CAP CER CHP 0.10UF 10V 10%
C449	2113944A40	CAP CER CHP 100.0PF 50V 5%
C450	NOT-PLACED	-
C451	2113945B04	CAP,FXD,.022UF,+10%,-10%,25V-DC,04
C452	2113743B29	CAP CHIP 1.00 UF 10% 16V
C453	2113944A40	CAP CER CHP 100.0PF 50V 5%
C456	2113944A40	CAP CER CHP 100.0PF 50V 5%
C458	2113944A40	CAP CER CHP 100.0PF 50V 5%
C459	2113944A40	CAP CER CHP 100.0PF 50V 5%
C463	2113944A40	CAP CER CHP 100.0PF 50V 5%
C466	2113944A40	CAP CER CHP 100.0PF 50V 5%
C467	2113946B04	CAP CER CHP 0.10UF 10V 10%
C471	2113944A40	CAP CER CHP 100.0PF 50V 5%
C472	2113945A05	CAP CER CHP 470PF 50V 10%
C473	2113945A05	CAP CER CHP 470PF 50V 10%
C475	2113743H14	CAP CHIP 10.0 UF 16V +80-20%
C476	2113946R01	CAP CER CHP 10.0UF 10V
C479	2113946B04	CAP CER CHP 0.10UF 10V 10%
C480	2113946R01	CAP CER CHP 10.0UF 10V

Circuit Ref	Motorola Part No.	Description
C481	2113946B04	CAP CER CHP 0.10UF 10V 10%
C482	2113946B04	CAP CER CHP 0.10UF 10V 10%
C490	2113944A40	CAP CER CHP 100.0PF 50V 5%
C491	2113944A40	CAP CER CHP 100.0PF 50V 5%
C492	2113944A40	CAP CER CHP 100.0PF 50V 5%
C493	2113944A40	CAP CER CHP 100.0PF 50V 5%
C494	2113944A40	CAP CER CHP 100.0PF 50V 5%
C495	2113944A40	CAP CER CHP 100.0PF 50V 5%
C496	2113944A40	CAP CER CHP 100.0PF 50V 5%
C497	2113944A40	CAP CER CHP 100.0PF 50V 5%
C498	NOT-PLACED	-
C499	2113946B04	CAP CER CHP 0.10UF 10V 10%
C502	2313960A55	CAP TANT 0.47 UF 10% 25V 3216-18
C503	2113944A84	CAP, FXD, 43PF, +5%, -5%, 50V-DC, 0402, C0G, -55DEG CMIN, 125DEG CMAX, PB
C505	2113944A40	CAP CER CHP 100.0PF 50V 5%
C511	2113944A40	CAP CER CHP 100.0PF 50V 5%
C512	2113944A40	CAP CER CHP 100.0PF 50V 5%
C513	2113944A40	CAP CER CHP 100.0PF 50V 5%

Circuit Ref	Motorola Part No.	Description
C514	2113944A40	CAP CER CHP 100.0PF 50V 5%
C520	2113945B02	CAP CER CHP 10,000PF 25V 10%
C521	2113945B02	CAP CER CHP 10,000PF 25V 10%
C522	2113945B02	CAP CER CHP 10,000PF 25V 10%
C523	2113945B02	CAP CER CHP 10,000PF 25V 10%
C524	2113944A40	CAP CER CHP 100.0PF 50V 5%
C525	2113944A40	CAP CER CHP 100.0PF 50V 5%
C526	2113944A40	CAP CER CHP 100.0PF 50V 5%
C527	2113944A40	CAP CER CHP 100.0PF 50V 5%
C528	2113944A40	CAP CER CHP 100.0PF 50V 5%
C529	2113944A40	CAP CER CHP 100.0PF 50V 5%
C597	2113944A84	CAP, FXD, 43PF, +5%, -5%, 50V-DC, 0402, C0G, -55DEG CMIN, 125DEG CMAX, PB
C598	2113944A15	CAP CER CHP 3.9PF 50V +/- 0.25PF
C599	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25PF
C600	2113944A81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0402, C0G, -55DEG CMIN, 125DEG CMAX, PB
C601	2113944A40	CAP CER CHP 100.0PF 50V 5%
C602	2113944A17	CAP CER CHP 4.7PF 50V +/- 0.25PF

Circuit Ref	Motorola Part No.	Description
C603	2113944C81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C604	2113944C81	CAP, FXD, 24PF, +5%, -5%, 50V-DC, 0603, C0G, -55DEG CMIN, 125DEG CMAX, PB
C610	2113944A40	CAP CER CHP 100.0PF 50V 5%
C611	2113944A40	CAP CER CHP 100.0PF 50V 5%
C612	2113944A40	CAP CER CHP 100.0PF 50V 5%
C613	2113944A40	CAP CER CHP 100.0PF 50V 5%
C615	2113944A40	CAP CER CHP 100.0PF 50V 5%
C616	2113944A40	CAP CER CHP 100.0PF 50V 5%
C618	2113944A40	CAP CER CHP 100.0PF 50V 5%
C619	2113944A40	CAP CER CHP 100.0PF 50V 5%
C620	2113944A40	CAP CER CHP 100.0PF 50V 5%
C621	2113944A40	CAP CER CHP 100.0PF 50V 5%
C622	2113944A40	CAP CER CHP 100.0PF 50V 5%
CR101	4880973Z02	PIN DIODE
CR102	4815257H01	SURFACE MOUNT PIN DIODES
CR103	4815257H01	SURFACE MOUNT PIN DIODES
CR105	5115022H01	IC,TEMP SENS,LM50C,SM,SOT-23

Circuit Ref	Motorola Part No.	Description
CR160	NOT-PLACED	-
CR201	4815011H01	DIODE,SWG,300MA,80V
CR203	4815072H01	DIODE,VCTR,1SV232,30V
CR241	4885094Y01	DIODE VARACTOR ISV228 W18
CR242	4885055Y01	DIODE VARACTOR PB-FREE
CR243	4885055Y01	DIODE VARACTOR PB-FREE
CR251	4815322H01	VHF VARIABLE CAPACI-TANCE DIODE
CR301	4885055Y01	DIODE VARACTOR PB-FREE
CR302	4885055Y01	DIODE VARACTOR PB-FREE
CR303	4815048H01	DIODE,SHTK,MMBD353LT 1,SM,7V
CR304	4885055Y01	DIODE VARACTOR PB-FREE
CR305	4885055Y01	DIODE VARACTOR PB-FREE
CR306	4802245J42	RING QUAD DIODE SOT-143 PKG
CR311	4813974A19	DIODE SCHOTTKY BAR-RIER SERIES
CR312	4815047H01	DIODE,SWG,DAN235EFTL ,35V
CR313	4815047H01	DIODE,SWG,DAN235EFTL ,35V
CR411	4815067H01	DIODE ARRAY,SWG,RB731UFT10 8,SMD,1M
CR412	4815067H01	DIODE ARRAY,SWG,RB731UFT10 8,SMD,1M
CR413	4815067H01	DIODE ARRAY,SWG,RB731UFT10 8,SMD,1M
CR440	4813978C02	PB FREE, NOT COM-PLETELY ENRICHED
CR501	4815155H01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
D601	4880479U01	LED
D602	4880479U01	LED
D603	4880479U01	LED
D604	4880479U01	LED
D605	4880479U01	LED
D606	4880479U01	LED
E101	2415954H01	INDUCTOR BEAD CHIP
E102	7686949J14	FLTR, FERRITE BEAD,,,, 2A,,,,, SM, 0805
E105	7686949J14	FLTR, FERRITE BEAD,,,, 2A,,,,, SM, 0805,, CHIP, 220OHM
E400	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E401	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E402	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E403	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E404	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E405	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E406	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E407	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E408	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E409	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E634	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E637	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E638	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E639	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E640	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E641	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E642	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E643	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E644	2480640Z01	SURFACE MOUNT FER-RITE BEAD
E645	2480640Z01	SURFACE MOUNT FER-RITE BEAD
F501	6515076H01	FUSE,FST BLW,3A,24V,FUSE CHIP SMT T
FL201	4805875Z04	CRYSTAL 16.8 MHZ
FL301	9180022M11	XTAL FILTER 44.85MHZ
FL302	9180468V04	SMD455KHZ 4 ELEMENT CER FLTR
FL303	9115811H03	SMD455KHZ 6 ELEMENT
FL304	9115811H01	SMD455KHZ 6 ELEMENT
FL401	4870368G02	REFLOWABLE CLOCK OSC XTAL
H101	2680499Z02	HEAT SPREADER
J101	0985613Z01	JACK,RF
J102	0280519Z02	NUT, ANTENNA
J400	0915064H03	CONNECTOR, ZIF (40 PINS)
J403	0915064H02	CONN,CONN,F,20CONT,C ONNECTOR, ZIF
J601	0980521Z03	CONN, ZIF VERTICAL, 40PINS
J602	0915064H01	CONN,CONN,F,18CONT,C ONNECTOR, ZIF
L101	2460591B28	COIL AIR WOUND INDUC 13.37
L102	2460591B28	COIL AIR WOUND INDUC 13.37
L104	2460591B48	COIL AIR WOUND INDUC 15.22
L105	2462587N22	CHIP IND 390 NH 10%
L106	2460591A19	COIL AIR WOUND INDUC 8.71
L107	2479990G01	AIR WOUND COIL/GREEN COLOR 33.47NH
L108	2479990A01	AIR WOUND COIL/GREEN COLOR 4.22NH
L112	2462587N42	CHIP IND 12 NH 5%
L113	2414017H09	IND CHIP 5.6 NH +/- 0.3NH
L114	2462587N42	CHIP IND 12 NH 5%
L115	2462587N22	CHIP IND 390 NH 10%
L116	2479990C02	AIR WOUND COIL/GREEN COLOR 16.28NH
L117	2414017P17	IND CER CHIP 22.0 NH 5%
L160	2414017H14	IND CHIP 15.0 NH 5%
L201	2462587Q20	IND CHIP 2,200NH 20%
L202	2462587Q20	IND CHIP 2,200NH 20%
L203	2462587Q20	IND CHIP 2,200NH 20%

Circuit Ref	Motorola Part No.	Description
L232	2415844H01	CHIP IND 12000 NH 5%
L241	2462587V41	IND CHIP 390 NH 10%
L242	2462587V26	CHIP IND 22 NH 5% 0805
L243	2485776Z02	COIL TEFLON RESONATOR (KAPTON)
L251	2462587V41	IND CHIP 390 NH 10%
L253	2460593C03	COIL MULT LAYERED TAP TEF RESN
L261	2462587V29	CHIP IND 39 NH 5% 0805
L271	2415043H01	FIXED INDUCTOR,RF,27NH,5%,CER,
L273	2415043H03	FIXED INDUCTOR,RF,68NH,5%,CER,
L281	2462587V41	IND CHIP 390 NH 10%
L282	2462587V41	IND CHIP 390 NH 10%
L301	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L302	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L303	2462587V26	CHIP IND 22 NH 5% 0805
L304	2462587V37	CHIP IND 180 NH 5% 0805
L305	2462587V23	CHIP IND 12 NH 5% 0805
L306	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L307	2479990B01	AIR WOUND COIL/GREEN COLOR 11.03NH
L309	2479990C02	AIR WOUND COIL/GREEN COLOR 16.28NH
L310	2462587V36	CHIP IND 150NH 5% 0805
L311	2414017K32	IND CER CHIP 560.0 NH 5%
L321	2462587V37	CHIP IND 180 NH 5% 0805
L325	2462587N68	CHIP IND 1000 NH 5%
L330	2414017K33	IND CER CHIP 680.0 NH 5%
L332	2414015A25	IDCTR,CHIP,1.2UH,2%,440 MA,2OHM,CER,
L400	2462587Q42	IND CHIP 390NH 10%
L401	2462587Q42	IND CHIP 390NH 10%
L410	2462587Q42	IND CHIP 390NH 10%
L411	2462587Q42	IND CHIP 390NH 10%
L505	2462587Q42	IND CHIP 390NH 10%
P100	3905643V01	CONTACT ANT GRD
PB501	4086470Z01	TACT SWITCH
PB502	4086470Z01	TACT SWITCH
PB503	4086470Z01	TACT SWITCH
PB504	4086470Z01	TACT SWITCH
PB505	4086470Z01	TACT SWITCH
Q110	4813976A03	TSTR, 450 MHZ, 8W, 7.5V, PLD 1.5
Q111	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q210	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q261	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q301	4802245J44	NPN SILICON BIPOLAR TRANSISTOR
Q302	4802197J95	RF TRANSISTOR PBR941
Q310	4802245J44	NPN SILICON BIPOLAR TRANSISTOR
Q320	4813973M07	TSTR NPN 40V .2A GEN PURP
Q400	4815069H02	TSTR MOSFET P-CHAN
Q403	4813973A13	XSTR,BIP GP SS,PNP,TO-236,SOT-23,
Q405	4815066H01	XSTR,OTHR,UMG5NFTR, 250MHZ
Q410	4815066H01	XSTR,OTHR,UMG5NFTR, 250MHZ
Q416	4815069H02	TSTR MOSFET P-CHAN
Q417	4815055H01	XSTR,GEN PURPOSE SMALL SIG,NPN AND
Q502	4815154H01	DUAL TRANS NPN
Q505	4813973M07	TSTR NPN 40V .2A GEN PURP
Q601	4815125H01	SOT STR RH LOW PROFILE MMBT
Q602	4813973M07	TSTR NPN 40V .2A GEN PURP
Q603	4813973M07	TSTR NPN 40V .2A GEN PURP
R101	0613952H58	CER CHIP RES 240 OHM 5% 0603
R102	0680539Z01	POWER METAL STRIP RESISTORS
R104	0613952R17	CER CHIP RES 47K OHM 5% 0402
R106	0613952Q25	CER CHIP RES 10.0 OHM 5% 0402
R107	NOT-PLACED	-
R108	0613952Q91	CER CHIP RES 5600 OHM 5% 0402
R109	0613952R32	CER CHIP RES 200K OHM 5% 0402
R110	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R111	0613952Q32	CER CHIP RES 20.0 OHM 5% 0402
R112	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R120	0613952R16	CER CHIP RES 43K OHM 5% 0402
R130	0613952R01	CER CHIP RES 10K OHM 5% 0402
R131	0613952R07	CER CHIP RES 18K OHM 5% 0402
R132	0613952R35	CER CHIP RES 270K OHM 5% 0402
R133	NOT-PLACED	-
R136	NOT-PLACED	-
R161	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R170	0613952H58	CER CHIP RES 240 OHM 5% 0603
R171	0613952R16	CER CHIP RES 43K OHM 5% 0402
R172	0613952H49	CER CHIP RES 100 OHM 5% 0603
R173	0613952R31	CER CHIP RES 180K OHM 5% 0402
R174	0613952R17	CER CHIP RES 47K OHM 5% 0402
R175	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R176	0613952H12	CER CHIP RES 3.0 OHM 5% 0603
R191	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R201	0613952R23	CER CHIP RES 82K OHM 5% 0402
R202	0613952R25	CER CHIP RES 100K OHM 5% 0402
R204	0613952R17	CER CHIP RES 47K OHM 5% 0402

Circuit Ref	Motorola Part No.	Description
R231	0613952Q51	CER CHIP RES 120 OHM 5% 0402
R232	0613952Q68	CER CHIP RES 620 OHM 5% 0402
R233	0613952Q67	CER CHIP RES 560 OHM 5% 0402
R241	0613952Q33	CER CHIP RES 22.0 OHM 5% 0402
R242	0613952Q51	CER CHIP RES 120 OHM 5% 0402
R243	0613952R01	CER CHIP RES 10K OHM 5% 0402
R244	0613952R05	CER CHIP RES 15K OHM 5% 0402
R245	0613952Q58	CER CHIP RES 240 OHM 5% 0402
R248	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R251	0613952Q37	CER CHIP RES 33.0 OHM 5% 0402
R252	0613952Q59	CER CHIP RES 270 OHM 5% 0402
R253	0613952Q94	CER CHIP RES 7500 OHM 5% 0402
R254	0613952Q95	CER CHIP RES 8200 OHM 5% 0402
R255	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R256	0613952Q36	CER CHIP RES 30.0 OHM 5% 0402
R260	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R281	NOT-PLACED	-
R301	0613952R25	CER CHIP RES 100K OHM 5% 0402
R302	0613952R25	CER CHIP RES 100K OHM 5% 0402
R303	0613952Q77	CER CHIP RES 1500 OHM 5% 0402
R304	0613952R03	CER CHIP RES 12K OHM 5% 0402
R305	0613952Q65	CER CHIP RES 470 OHM 5% 0402
R306	0613952R25	CER CHIP RES 100K OHM 5% 0402
R307	0613952R25	CER CHIP RES 100K OHM 5% 0402
R308	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R309	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R310	NOT-PLACED	-
R311	0613952R13	CER CHIP RES 33K OHM 5% 0402
R312	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R313	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R314	0613952Q78	CER CHIP RES 1600 OHM 5% 0402
R315	0613952R03	CER CHIP RES 12K OHM 5% 0402
R320	NOT-PLACED	-
R321	0613952R03	CER CHIP RES 12K OHM 5% 0402
R322	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R324	0613952R27	CER CHIP RES 120K OHM 5% 0402
R328	0613952Q11	CER CHIP RES 2.7 OHM 5% 0402
R329	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R330	0613952R01	CER CHIP RES 10K OHM 5% 0402
R331	0613952Q56	CER CHIP RES 200 OHM 5% 0402
R332	0613952R03	CER CHIP RES 12K OHM 5% 0402
R333	NOT-PLACED	-
R339	0613952Q88	CER CHIP RES 4300 OHM 5% 0402
R340	0613952Q95	CER CHIP RES 8200 OHM 5% 0402
R342	0613952R25	CER CHIP RES 100K OHM 5% 0402
R344	0613952Q42	CER CHIP RES 51.0 OHM 5% 0402
R345	0613952R15	CER CHIP RES 39K OHM 5% 0402
R346	0613952R05	CER CHIP RES 15K OHM 5% 0402
R348	0613952Q86	CER CHIP RES 3600 OHM 5% 0402
R349	0613958J74	CER CHIP RES 0.0 OHM JMP 0805
R350	0613952R01	CER CHIP RES 10K OHM 5% 0402
R355	0613952R25	CER CHIP RES 100K OHM 5% 0402
R358	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R359	NOT-PLACED	-
R360	0613952R08	CER CHIP RES 20K OHM 5% 0402
R361	0613952R08	CER CHIP RES 20K OHM 5% 0402
R363	0613952Q63	CER CHIP RES 390 OHM 5% 0402
R364	0613952Q79	CER CHIP RES 1800 OHM 5% 0402
R365	0613952Q75	CER CHIP RES 1200 OHM 5% 0402
R366	0613952R03	CER CHIP RES 12K OHM 5% 0402
R367	0613952N09	CER CHIP RES 12.1K OHM 1% 0402
R368	0613952N01	CER CHIP RES 10.0K OHM 1% 0402
R369	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R370	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R371	NOT-PLACED	-
R372	NOT-PLACED	-
R373	NOT-PLACED	-
R374	NOT-PLACED	-
R375	NOT-PLACED	-
R376	NOT-PLACED	-
R377	NOT-PLACED	-
R378	NOT-PLACED	-
R400	0613952R17	CER CHIP RES 47K OHM 5% 0402
R401	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R402	NOT-PLACED	-
R403	NOT-PLACED	-

Circuit Ref	Motorola Part No.	Description
R405	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R406	0613952R22	CER CHIP RES 75K OHM 5% 0402
R407	0613952R21	CER CHIP RES 68K OHM 5% 0402
R408	NOT-PLACED	
R409	0613952R01	CER CHIP RES 10K OHM 5% 0402
R410	0613952R25	CER CHIP RES 100K OHM 5% 0402
R411	0613952R01	CER CHIP RES 10K OHM 5% 0402
R413	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R414	0613952P25	CER CHIP RES 178K OHM 1% 0402
R415	0613952N93	CER CHIP RES 90.9K OHM 1% 0402
R416	0613952R01	CER CHIP RES 10K OHM 5% 0402
R418	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R419	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R420	0613952J73	CER CHIP RES 10.0M OHM 5% 0603
R421	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R423	0613952R41	CER CHIP RES 470K OHM 5% 0402
R424	0613952R14	CER CHIP RES 36K OHM 5% 0402
R425	0613952R12	CER CHIP RES 30K OHM 5% 0402
R426	0613952R37	CER CHIP RES 330K OHM 5% 0402
R427	0613952Q83	CER CHIP RES 2700 OHM 5% 0402
R428	0613952Q09	CER CHIP RES 2.2 OHM 5% 0402
R429	0613952R22	CER CHIP RES 75K OHM 5% 0402
R431	0613952R41	CER CHIP RES 470K OHM 5% 0402
R432	0613952R18	CER CHIP RES 51K OHM 5% 0402
R434	0613952Q61	CER CHIP RES 330 OHM 5% 0402
R435	0613952Q80	CER CHIP RES 2000 OHM 5% 0402
R436	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R437	NOT-PLACED	-
R445	0613952R10	CER CHIP RES 24K OHM 5% 0402
R447	0613952R25	CER CHIP RES 100K OHM 5% 0402
R448	0613952R01	CER CHIP RES 10K OHM 5% 0402
R449	0613952R10	CER CHIP RES 24K OHM 5% 0402
R450	0613959Y45	CER CHIP RES 68.0 OHM 5% 2512
R451	0613952R05	CER CHIP RES 15K OHM 5% 0402
R452	0613952R25	CER CHIP RES 100K OHM 5% 0402
R453	NOT-PLACED	-
R454	NOT-PLACED	-
R455	NOT-PLACED	-
R456	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R457	0613952R01	CER CHIP RES 10K OHM 5% 0402
R460	0613952Q89	CER CHIP RES 4700 OHM 5% 0402
R461	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R462	0613952R01	CER CHIP RES 10K OHM 5% 0402
R463	0613952Q60	CER CHIP RES 300 OHM 5% 0402
R471	0613952R08	CER CHIP RES 20K OHM 5% 0402
R472	0613952R14	CER CHIP RES 36K OHM 5% 0402
R473	0613952Q25	CER CHIP RES 10.0 OHM 5% 0402
R475	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R476	0613952R37	CER CHIP RES 330K OHM 5% 0402
R477	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R478	0613952R01	CER CHIP RES 10K OHM 5% 0402
R479	0613952Q66	CER CHIP RES 510 OHM 5% 0402
R481	0613952R10	CER CHIP RES 24K OHM 5% 0402
R492	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R498	0613952R01	CER CHIP RES 10K OHM 5% 0402
R499	0613952R01	CER CHIP RES 10K OHM 5% 0402
R501	0613952Q69	CER CHIP RES 680 OHM 5% 0402
R502	0613952Q55	CER CHIP RES 180 OHM 5% 0402
R505	0613952R01	CER CHIP RES 10K OHM 5% 0402
R506	0613952R17	CER CHIP RES 47K OHM 5% 0402
R507	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R601	0613952Z67	RES,MF,51KOHM,1%,.062 5W,SM,0402,200
R602	0613952Z67	RES,MF,51KOHM,1%,.062 5W,SM,0402,200
R603	0613952N12	CER CHIP RES 13.0K OHM 1% 0402
R604	0613952Z58	RES,MF,22KOHM,1%,.062 5W,SM,0402,200
R605	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R606	0613952P12	CER CHIP RES 130K OHM 1% 0402
R607	0613952N12	CER CHIP RES 13.0K OHM 1% 0402
R608	0613952Z58	RES,MF,22KOHM,1%,.062 5W,SM,0402,200
R609	0613952N62	CER CHIP RES 43.2K OHM 1% 0402
R610	0613952P12	CER CHIP RES 130K OHM 1% 0402
R611	0613952R18	CER CHIP RES 51K OHM 5% 0402
R612	0613952R43	CER CHIP RES 560K OHM 5% 0402
R613	0613952R49	CER CHIP RES 1.0M OHM 5% 0402
R614	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R617	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM

Circuit Ref	Motorola Part No.	Description
R618	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R619	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R620	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R621	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R622	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R623	0613952Q73	CER CHIP RES 1000 OHM 5% 0402
R626	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R627	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R631	0613952R66	CER CHIP RES 0.0 +/- 0.050 OHM
R632	0613952R25	CER CHIP RES 100K OHM 5% 0402
R633	0613952R25	CER CHIP RES 100K OHM 5% 0402
R646	0613952R25	CER CHIP RES 100K OHM 5% 0402
R647	0613952Q84	CER CHIP RES 3000 OHM 5% 0402
R648	0613952R25	CER CHIP RES 100K OHM 5% 0402
R649	0613952R17	CER CHIP RES 47K OHM 5% 0402
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z19	SWITCH, FREQUENCY
S502	1880619Z04	VOL POTENTIOMETER with hi temp cam
SH100	2680507Z02	SHIELD, HARMONIC FILTER
SH101	2680510Z02	SHIELD, PA

Circuit Ref	Motorola Part No.	Description
SH201	2680511Z02	SHIELD, SYNTHESIZER
SH202	2680511Z02	SHIELD, SYNTHESIZER
SH241	2604120G02	AOBA VCO SHIELD
SH242	2680514Z02	SHIELD, VCO BOTTOM/ LVZIF
SH301	2686583Z02	SHIELD, RECEIVER FRONT END TOP
SH302	2680555Z02	SHIELD, RECEIVER F/ END BOTTOM
SH303	2680509Z02	SHIELD, MIXER
SH304	2680624Z02	SHIELD, MIXER DIODE
SH322	2686528Z01	SHIELD,RFI/EMI,CRS,TIN
SH323	2686527Z02	SHIELD, RFI/EMI, CRS, TIN
SH400	2680505Z02	SHIELD, CONTROLLER TOP LEFT
SH401	2680506Z02	SHIELD, CONTROLLER TOP RIGHT
SH402	2680515Z02	SHIELD, CONTROLLER BOTTOM LEFT
SH403	2680516Z02	SHIELD, CONTROLLER BTM RIGHT
T301	2515121H01	BALUN, TRANSFORMER
T302	2515121H01	BALUN, TRANSFORMER
U101	5115678H01	VHF/UHF/800/900 MHZ LDMOS DRIVER IC
U102	5185765B26	IC PWR CTRL IN MOS20
U201	5115060H01	IC,FREQ SYN,AT24701-OT4X
U210	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U211	5115266H01	INVERTER TC7ST04FU SS0P5-P-A
U241	5171121L01	CUSTOM LOW VOLTAGE VCO BUFFER IC

Circuit Ref	Motorola Part No.	Description
U247	5115026H01	IC,LOW DROP-OUT,SM,SOT-23/6,P
U248	5115019H01	IC,LOW DROPOUT,SOT-23,SOT-23
U301	5115281H01	FM IF IC SA616 FROM PHILIPS
U302	5115070H01	IC,INVTR,TC7W04FU,SSOP
U303	NOT-PLACED	-
U400	5115012H01	IC,ADJ LOW DROP-OUT,SM,POS P
U404	5115062H01	IC,CUST,TQFP48
U405	5115020H01	IC,SRAM,32K X 8,SOIC,3.6V
U406	5115286H01	IC 4M FLASH ROM- NON SHRINK+EPP
U407	5115033H01	IC,EEPROM,16K X 8,SM
U409	5.19E+09	IC,MICROP,QFP,QFP100,3.7MHZ
U410	5115044H01	IC,LOW DROP-OUT,SM,3.3V POS
U420	5115280H01	AUDIO AMPLIFIER TDA8547TS
U602	5115014H01	IC,COMPTR,SM,SOT-23/5
VR432	4813979P10	TRANS SUP 5.6V QUAD
VR433	4813979P10	TRANS SUP 5.6V QUAD
VR434	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR439	4813977M21	DIODE 12V ZENER _5242_
VR440	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,

Circuit Ref	Motorola Part No.	Description
VR441	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR442	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR443	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR444	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR445	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR446	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR447	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR448	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR449	4813977A54	DIODE ZENER 0.2W SOD-323 10V
VR450	4815040H01	DIODE ARRAY ,ZEN,MM3Z12VT1G,SM,12
VR460	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
VR501	4813977M14	DIODE,ZEN,SOT-23,6.8V,.225W,PB
VR506	4815038H01	DIODE ARRAY,ZEN,SM,SOD-323,6.93V,
Y300	4802245J84	XTAL 44.395MHz, 3RD OT, SMD

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	CONNECTOR (CONTACT BATTERY)

Circuit Ref	Motorola Part No.	Description
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113944C45	CAP CER CHP 100.0PF 50V 5%
C102	2113944C72	CAP,FXD,6.2PF,.25PF+/-,50V-DC,060
C103	2113944C77	CAP,FXD,11PF,+5%,-5%,50V-DC,0603,C
C104	2113944C72	CAP,FXD,6.2PF,.25PF+/-,50V-DC,060
C105	2113944A40	CAP CER CHP 100.0PF 50V 5%
C106	2113944C22	CAP CER CHP 4.7PF 50V +/- 0.25PF
C107	2113944C18	CAP CER CHP 3.3PF 50V +/- 0.25PF

Professional Radio

GP Series

800 MHz (806 - 870MHz)

Service Information

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Chapter 1

THEORY OF OPERATION

1.0 Introduction

This Chapter provides a detailed theory of operation for the UHF circuits in the radio. For details of the theory of operation and trouble shooting for the the associated Controller circuits refer to the Controller Section of this manual.

2.0 800 MHz Transmitter

(*Refer to Figure 2-1 and the 800 MHz Transmitter schematic diagram*)

The 800 MHz transmitter consists of the following basic circuits:

1. Power amplifier (PA).
2. Antenna switch.
3. Harmonic filter.
4. Power Control Integrated Circuit (PCIC).

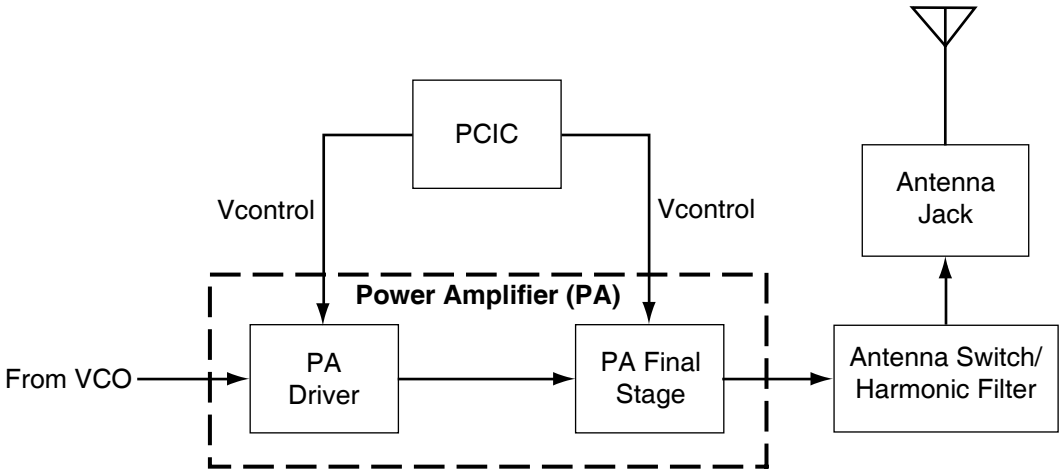

Figure 1-1 800 MHz Transmitter Block Diagram.

2.1 Power Amplifier

The power amplifier (PA) consists of two principle devices:

1. 63J66 driver IC (U101).
2. 85Y73 LDMOS PA (Q101).

The 63J66 driver IC contains a 2 stage amplification with a supply voltage of 7.5V.

This RF driver IC is capable of supplying an output power of 0.3W (pin 13 and 14) with an input signal of 2.5mW (4dBm) (pin16). The current drain would typically be 200mA while operating in the frequency range of 806-870MHz.

The 85Y73 LDMOS PA is capable of supplying an output power of 4.5W with an input signal of 0.3W. The current drain would typically be 1100mA while operating in the frequency range of 806-870MHz. The power out can be varied by changing the biasing voltage and the drive level from the driver IC.

2.2 Antenna Switch

The antenna switch circuit consists of two PIN diodes (CR101 and CR102), a pi network (C109, L103 and C110), and three current limiting resistors (R101, R102, R103). In the transmit mode, B+ at PCIC (U102) pin32 will go high, applying a B+ bias to the antenna switch circuit to bias the diodes “on”. The shunt diode (CR102) shorts out the receiver port, and the pi network, which operates as a quarter wave transmission line, transforms the low impedance of the shunt diode to a high impedance at the input of the harmonic filter. In the receive mode, the diodes are both off, and hence, there exists a low attenuation path between the antenna and receiver ports.

2.3 Harmonic Filter

The harmonic filter consists of C104, L102, C105, C106,C107, L101 and C109. It has been optimized for efficiency of the power amplifier. This type of filter has the advantage that it can give a greater attenuation in the stop-band for a given ripple level. The harmonic filter insertion loss is typically less than 1.2dB.

2.4 Antenna Matching Network

The antenna matching network is made up of inductor L116. This component matches the antenna impedance to the harmonic filter to optimize the performance of the transmitter and receiver.

2.5 Power Control Integrated Circuit (PCIC)

The transmitter uses the Power Control IC (PCIC), U102 to regulate the power output of the radio. The current to the final stage of the power module is supplied through R104, which provides a voltage proportional to the current drain. This voltage is then fed back to the Automatic Level Control (ALC) within the PCIC to regulate the output power of the transmitter.

The PCIC has internal digital to analog converters (DACs) which provide the reference voltage of the control loop. The reference voltage level is programmable through the SPI line of the PCIC.

There are resistors and integrators within the PCIC, and external capacitors (C126, C130 and C132) in controlling the transmitter rising and falling time. These are necessary in reducing the power splatter into adjacent channels.

U103 and its associated components are part of the temperature cut back circuitry. It senses the printed circuit board temperature around the transmitter circuits and provides a DC voltage to the PCIC. If the DC voltage produced exceeds the set threshold in the PCIC, the transmitter output power will be reduced so as to reduce the transmitter temperature.

3.0 800 MHz Receiver

The receiver functions are shown in Figure 2-20 and are described in the paragraphs that follow.

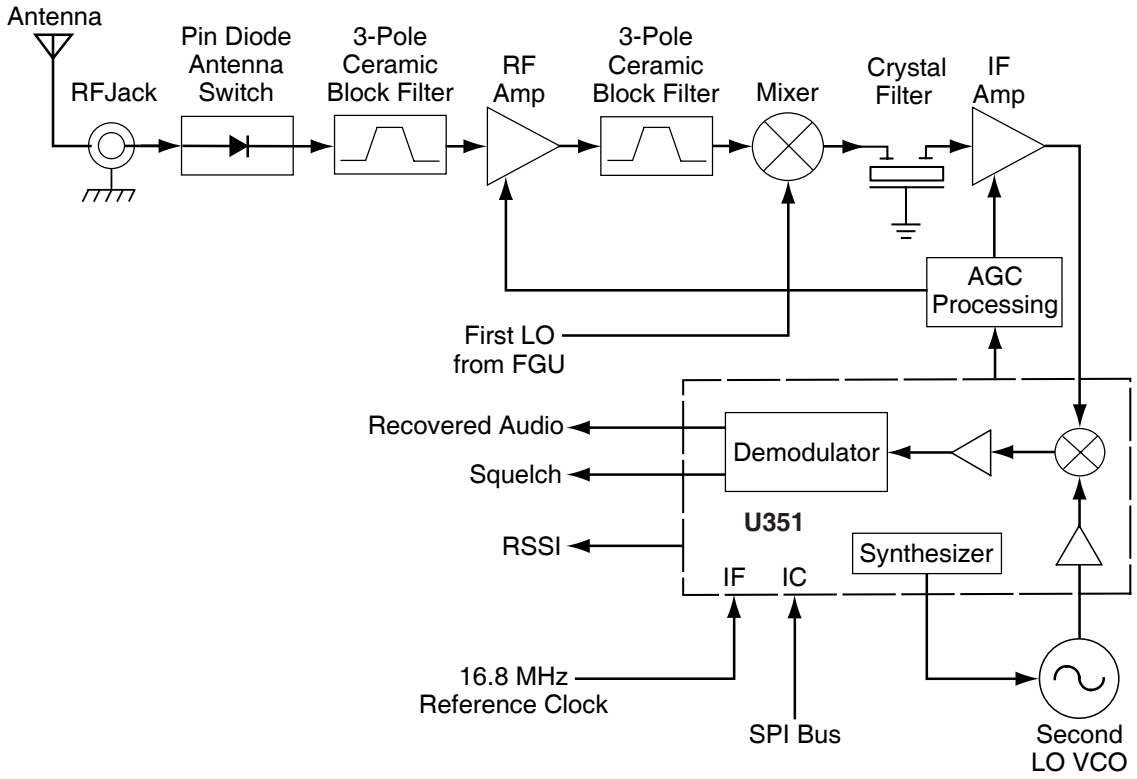

Figure 1-2 800 MHz Receiver Block Diagram.

3.1 Receiver Front-End

(*Refer to Figure 2-2 and the UHF Receiver Front End schematic diagram)*

The RF signal is received by the antenna and applied to a low-pass filter. For 800MHz, the filter consists of L101, L102, C104, C105, C106, C107, C109. The filtered RF signal is passed through the antenna switch. The antenna switch circuit consists of two PIN diodes(CR101 and CR102) and a pi network (C109, L103 and C110).The signal is then applied to a fixed tuned ceramic bandpass filter, FL300.

The output of the bandpass filter is coupled to the RF amplifier transistor Q302 via C300. The RF amplifier provides a gain of approximately 12 dB. After being amplified by the RF amplifier, the RF signal is further filtered by a second fixed tuned ceramic bandpass filter, FL301.

Both the pre and post-RF amplifier ceramic filters have similar responses. The insertion loss of each filter across the 851-870MHz band is typically 1.8dB.

The output of the post-RF amplifier filter is connected to the passive double balanced mixer, U301. After mixing with the first LO signal from the voltage controlled oscillator (VCO) using low side injection, the RF signal is down-converted to the 109.65MHz IF signal.

The IF signal coming out of the mixer is transferred to the crystal filter (FL350) through a resistive pad and a diplexer (C312 and L306). Matching to the input of the crystal filter is provided by L353,L354, C377, and C378. The crystal filter provides the necessary selectivity and intermodulation protection.

3.2 Receiver Back-End

(*Refer to Figure 2-2 and the 800 MHz Receiver Back End schematic diagram*)

The output of crystal filter FL350 is matched to the input of the dual gate MOSFET IF amplifier transistor U352 by components L355, R359 and C376. Voltage supply to the IF amplifier is taken from the receive 5 volts (R5). AGC voltage is applied to the second gate of U352. The IF amplifier provides a gain of about 11 dB. The amplified IF signal is then coupled into U351(pin 3) via L352, R356 and C365 which provides the matching for the IF amplifier and U351.

The IF signal applied to pin 3 of U351 is amplified, down-converted, filtered, and demodulated, to produce the recovered audio at pin 27 of U351. This IF IC is electronically programmable, and the amount of filtering (which is dependent on the radio channel spacing) is controlled by the microprocessor. Additional filtering, once externally provided by the conventional ceramic filters, is replaced by internal filters in the IF module (U351).

The IF IC uses a type of direct conversion process, whereby the externally generated second LO frequency is divided by two in U351 so that it is very close to the first IF frequency. The IF IC (U351) synthesizes the second LO and phase-locks the VCO to track the first IF frequency. The second LO is designed to oscillate at twice the first IF frequency because of the divide-by-two function in the IF IC.

In the absence of an IF signal, the VCO will “search” for a frequency, or its frequency will vary close to twice the IF frequency. When an IF signal is received, the VCO will lock onto the IF signal. The second LO/VCO is a Colpitts oscillator built around transistor Q350. The VCO has a varactor diode, CR350, to adjust the VCO frequency. The control signal for the varactor is derived from a loop filter consisting of R365, C391, and C392.

The IF IC (U351) also performs several other functions. It provides a received signal-strength indicator (RSSI) and a squelch output. The RSSI is a dc voltage monitored by the microprocessor, and used to control the automatic gain control (AGC) circuit in both the front-end and the IF.

The demodulated signal on pin 27 of U351 is also used for squelch control. The signal is routed to U404 (ASFIC) where squelch signal shaping and detection takes place. The demodulated audio signal is also routed to U404 for processing before going to the audio amplifier for amplification.

3.3 Automatic Gain Control (AGC)

(*Refer to the 800 MHz Receiver Front End and Receiver Back End schematic diagrams*)

The automatic gain control circuit provides automatic gain reduction of both the low noise amplifier in the receiver front end and the IF amplifier in the receiver backend. This action is necessary to prevent overloading of the backend IF IC.

The IF automatic gain control circuit provides approximately 50 dB of attenuation range. The signal strength indicator (RSSI) output of the IF IC produces a voltage that is proportional to the RF level at the IF input to the IF IC. This voltage is inverted by U350, R351, R353, R352, R354 and C355 and it determines the RF level at which the backend end AGC is activated as well as the slope of the voltage at the output of U350 vs. the strength of the incoming RF at the antenna. The inverted output of U350 is applied to the second gate of the IF amplifier U352 via R355. As the RF signal into the IF IC increases the following occurs:

- the RSSI voltage increases,
- the output of inverter U350 decreases, and
- the voltage applied to the second gate of the FET is reduced thus reducing the gain of the IF amplifier.

The output of inverter U350 is also used to control the receiver front end AGC.

The receiver front end automatic gain control circuit provides and additional 20 dB of gain reduction. The output of the receiver backend inverter U350 is fed into the receiver front end AGC inverter U302. The components R317, R314, and C318 determine:

- the RF level at which the front end AGC is activated, and
- the slope of the voltage at the output of U302 vs. the strength of the incoming RF at the antenna.

As the RF into the antenna increases the following occurs:

- The output voltage of the receiver backend inverter U350 decreases.
- The voltage at the output of the front end inverter U302 increases.
- The result is the forward biasing of pin diode CR301.

As the diode becomes more and more forward biased the following occurs:

- C310 loads the output of the low noise amplifier Q302 thus reducing the gain of the low noise amplifier.
- R315 and R318 provide a DC path for CR301 and also limit the current through CR301.

The blocking capacitor C317 prevents DC from the AGC stage from appearing at the input of the filter FL301.

4.0 Frequency Generation Circuit

(*Refer to Figure 2-3 and the 800 MHz Frequency Synthesizer schematic diagram*)

The frequency generation circuit is shown in Figure 2-21. The circuit is composed of the two main ICs:

- Fractional-N synthesizer, U201
- VCO/Buffer IC, U250

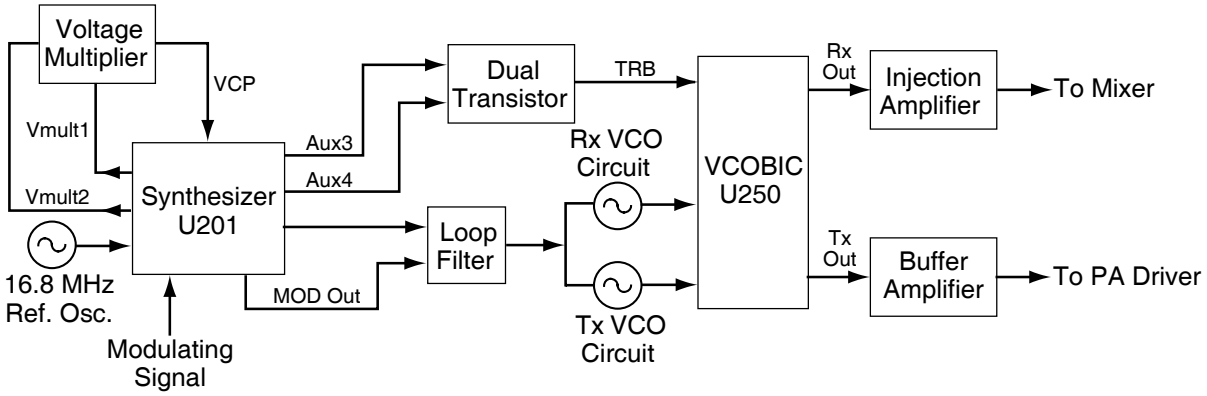

Figure 1-3 800 MHz Frequency Generation Unit Block Diagram

Designed in conjunction to maximize compatibility, the two ICs provide many of the functions that normally would require additional circuitry. The synthesizer block diagram illustrates the interconnect and support circuitry used in the region. Refer to the relevant schematics for the reference designators.

The synthesizer is powered by regulated 5V and 3.3V which come from U247 and U248 respectively. The synthesizer in turn generates a superfiltered 4.5V which powers U250.

In addition to the VCO, the synthesizer must interface with the logic and ASFIC circuitry. Programming for the synthesizer is accomplished through the data, clock and chip select lines from the microprocessor. A 3.3V dc signal from synthesizer lock detect line indicates to the microprocessor that the synthesizer is locked.

Transmit modulation from the ASFIC is supplied to pin10 of U201. Internally the audio is digitized by the Fractional-N and applied to the loop divider to provide the low-port modulation. The audio runs through an internal attenuator for modulation balancing purposes before going out to the VCO.

4.1 Synthesizer

(*Refer to Figure 2-4 and the 800 MHz Synthesizer schematic diagram)*

The Fractional-N Synthesizer uses a 16.8MHz crystal (FL201) to provide a reference for the system. The LVFractN IC (U201) further divides this to 2.1MHz, 2.225MHz, and 2.4MHz as reference frequencies. Together with C235, C236, C237, R211 and CR203, they comprise the reference oscillator which is capable of 2.5ppm stability over temperatures of -30 to 85°C. It also provides 16.8MHz at pin 19 of U201 to be used by ASFIC and LVZIF.

Some models are equipped with a packaged 1.5ppm reference oscillator, Y200. On these models components C235, C236, C237, CR203, FL201, and R211 are not placed. Components C238, C239, C241, R212, R213, R214 and Y200 are placed instead.

The loop filter which consists of C220, C225, C226, R204, R209 and R210 provides the necessary dc steering voltage for the VCO and provides filtering of noise and spurs from U201.

In achieving fast locking for the synthesizer, an internal adapt charge pump provides higher current at pin 45 of U201 to put the synthesizer within the lock range. The required frequency is then locked by the normal mode charge pump at pin 43.

Both the normal and adapt charge pumps get their supply from the capacitive multiplier which is made up of D201, D202, C244, C245, C246, C247, R200, R218, C208, C243, R219, and R220. Two 3.3 V square waves (180 degrees out of phase) are applied to R219 and R220. These square waves switch alternate sets of diodes from D201 and D202, which in turn charge C244, C245, C246, and C247 in a bucket brigade fashion. The resulting output voltage that is applied to pin 47 of U201 is typically 12.8V and allows the steering line voltage (VCO control voltage) to reach 11V.

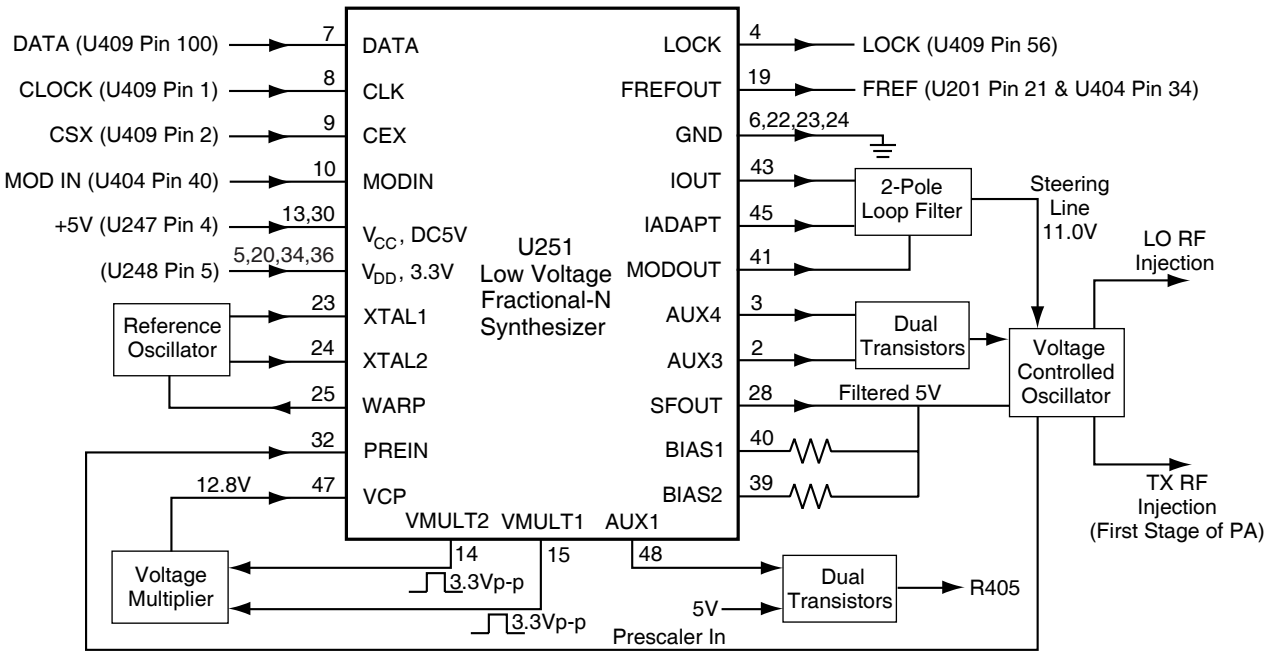

Figure 1-4 800 MHz Synthesizer Block Diagram

4.2 Voltage Controlled Oscillator (VCO)

(*Refer to Figure 2-5 and the 800 MHz Voltage Controlled Oscillator schematic diagram)*

The VCOBIC (U250) in conjunction with the Fractional-N synthesizer (U201) generates RF in both the receive and the transmit modes of operation. The TRB line (U250 pin 19) determines which oscillator and buffer will be enabled. A sample of the RF signal from the enabled oscillator is routed from U250 pin 12, through a low pass filter, to the prescaler input (U201 pin 32). After frequency comparison in the synthesizer, a resultant CONTROL VOLTAGE is received at the VCO. This voltage is a DC voltage between 2.0V (low frequency) and 11.0V (high frequency) when the PLL is locked on frequency.

The VCOBIC(U250) is operated at 4.54 V (VSF) and Fractional-N synthesizer (U201) at 3.3V. This difference in operating voltage requires a level shifter consisting of Q200 and Q252 on the TRB line.

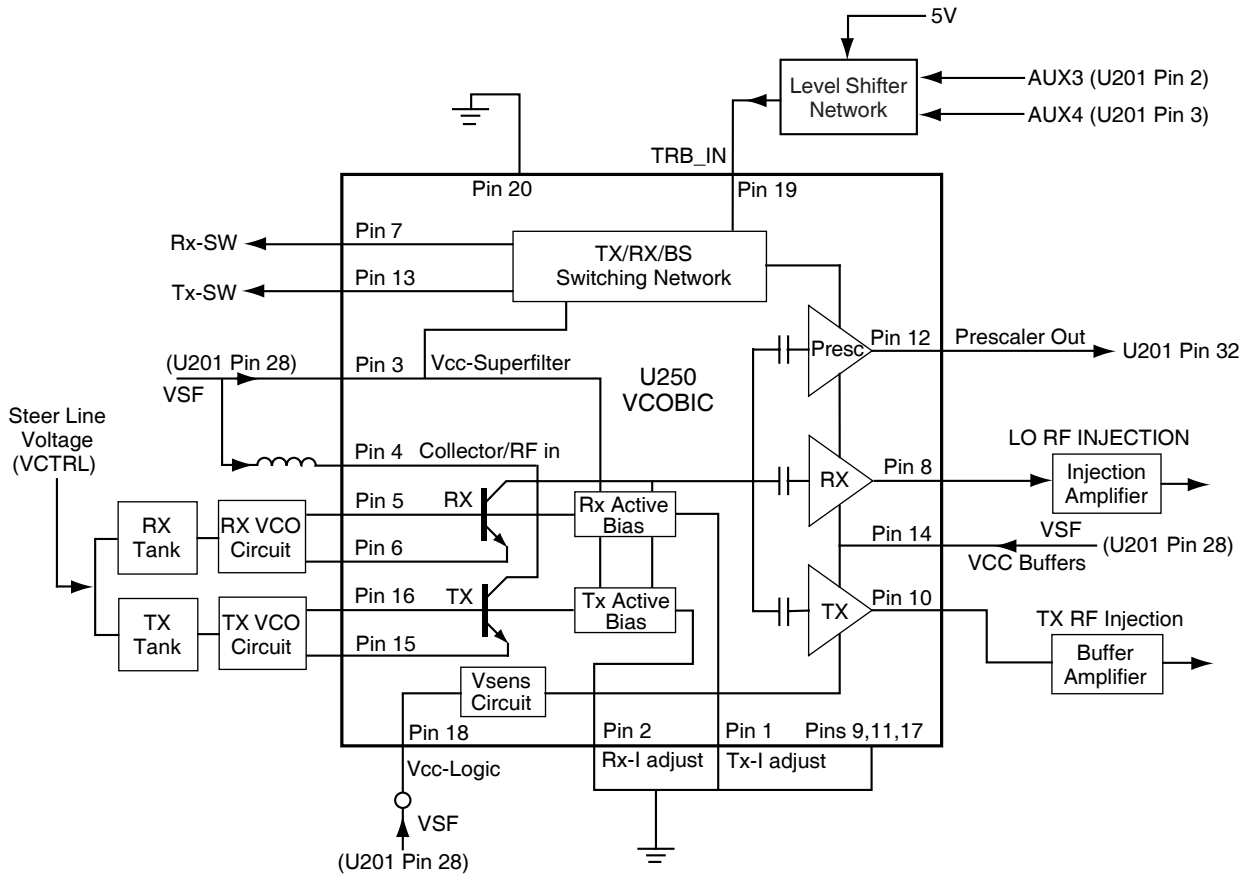

Figure 1-5 UHF VCO Block Diagram

The operation logic is shown in Table 2-1.

Desired Mode	AUX 4	AUX 3	TRB
Tx	Low	High (@3.2V)	High (@4.8V)
Rx	High	Low	Low
Battery Saver	Low	Low	Hi-Z/Float (@2.5V)

Table 1-1 Level Shifter Logic

In the receive mode, U250 pin 19 is low or grounded. This activates the receive VCO by enabling the receive oscillator and the receive buffer of U250. The RF signal at U250 pin 8 is run through an injection amplifier, Q304. The resulting RF signal is the LO RF INJECTION and it is applied to the mixer at U301 (refer to Figure 3-88: 800MHz Receiver Front End Schematic Diagram).

During the transmit condition, when PTT is depressed, five volts is applied to U250 pin 19. This activates the transmit VCO by enabling the transmit oscillator and the transmit buffer of U250. The RF signal at U250 pin 10 is amplified by Q251 and injected into the input of the PA module (U101 pin1). This RF signal is the TX RF INJECTION. Also in transmit mode, the audio signal to be frequency modulated onto the carrier is received through the U201 pin 41.

When a high impedance is applied to U250 pin19, the VCO is operating in BATTERY SAVER mode. In this case, both the receive and transmit oscillators as well as the receive transmit and prescaler buffer are turned off.

4.3 Trunked Radio Systems

Trunked systems allow a large number of users to share a relatively small number of frequencies or repeaters without interfering with each other. The airtime of all the repeaters in a trunked system is pooled, which maximizes the amount of airtime available to any one radio and minimizes channel congestion. A benefit of trunking is that the user is not required to monitor the system before transmitting.

4.3.1 Privacy Plus Trunked Systems

Privacy Plus is a proprietary trunking protocol developed by Motorola which allows a large number of users to share small amounts of frequencies without interfering with each other. The Privacy Plus configuration consists of shared multiple channel repeaters. The Privacy Plus Trunked system includes a Central Controller, which directs the users to the open channels. This kind of Trunked system requires no monitoring of the channel as in conventional systems. The Central Controller places the user in a queue to wait for a free channel. The Central Controller does the monitoring and channels selection for the user.

4.3.2 LTR™ Trunked Systems

LTR is a transmission based trunking protocol developed by the E. F. Johnson Company for primarily single site trunking applications. In transmission trunking, a repeater is used for only the duration of a single transmission. Once a transmission is completed, that repeater becomes available to other users.

4.3.3 MPT Trunked Systems

MPT (Ministry of Post and Telecommunications) developed a signalling standard (MPT1327) for trunked private land mobile radio systems. This standard defines the protocol rules for communication between a trunking system controller (TSC) and user's radio units. The protocol offers a broad range of options which can be implemented in subsets according to user requirements. Also, there is scope for customization for special requirements, and provision made to further standardized features to be added to the protocol in the future. The standard defines only the over-air signalling and imposes only minimum constraints on system design.

4.3.4 PassPort™ Trunked Systems

PassPort is an enhanced trunking protocol developed by Trident Microsystems that supports wide area dispatch networking. A network is formed by linking several trunked sites together to form a single system. This offers users an extended communication coverage area. Additionally, users with PassPort can seamlessly roam among all sites within the network. Seamless roaming means that the radio user does not have to manually change the position on the radio when roaming from site-to-site.

For models which feature PassPort Trunking operation, the standard keypad board is replaced with the PassPort Trunking Controller Board (PTCB). This board also provides advanced voice storage features. Refer to Figure 2-2 for connector and signal routing from, to and through the Radio, PTCB and Liquid Crystal Display (LCD) sub-systems.

Power Supplies

The radio supplies regulated Vdd of 3.3 VDC. This is used to power the Low Speed Data Filter and Voice Storage circuits. The radio also supplies Switched Battery Voltage (SWB+). U612 regulates the SWB+ to 3.3V which is applied to the PTCB microcontroller U601. A filtered voltage (Vdda) of _ Vdd is developed by U603-4 and is used to supply a clean reference bias for the Low Speed Data filter and Voice Storage circuits. The circuit of Q607 which can limit the voltage applied to the Voice Storage chip is not used in portable applications and is disabled by 0 Ohm resistor R614.

Microcontroller (MCU)

PassPort Trunking operation is managed by the reprogrammable FLASH ROM based microcontroller (U601). The MCU clock oscillator uses 8MHz crystal Y601 as a stable resonator. The PTCB communicates with the main radio microcontroller by attaching to the same Serial Peripheral (SPI) bus that passes though the PTCB to the LCD on the CLK, DATA, RDY, and MISO lines. The OPT_EN line is strobed low only for communications with U601.

The MCU includes an on-chip Analog to Digital Converter (ADC). The received and filtered sub-audible low speed trunking data waveform is applied to one of the ADC inputs. The software in the MCU decodes and acts upon the trunking data.

The MCU includes a Digital to Analog Converter (DAC). As required, the MCU software generates appropriate PassPort Low Speed Trunking Data waveforms. These are applied to the Low Speed Data Filter and then to the radio transmitter modulation point. The amplitude of this waveform and the resulting transmitted deviation is controlled by software.

Low Speed Data Filter

This analog circuitry is a 4 pole, 150 Hz cutoff low pass filter comprised of U603-1, U603-2 and associated passive components. In receive mode, it removes noise and voice band signals leaving only the low speed data waveform which is applied to the ADC input of the MCU. U608-4 isolates the receive signal from the filter in transmit mode. When the radio is transmitting PassPort data, the MCU DAC low speed data waveform is applied to the input of the filter which removes harmonics that would interfere with voice and applies the resulting sub-audible data to the radio transmitter modulation point.

Keyboard Circuit

The keyboard consists of a matrix of key switches and resistors as described in section 2.3. U605-2 monitors the column voltage and applies an interrupt signal to the radio microcontroller when any key is pressed.

BackLight Driver and LED's

The logic level signal from the radio microcontroller is translated via Q611 and applied to Q610 which uses Switched Battery Voltage (SWB+) to operate the keypad backlight LED’s.

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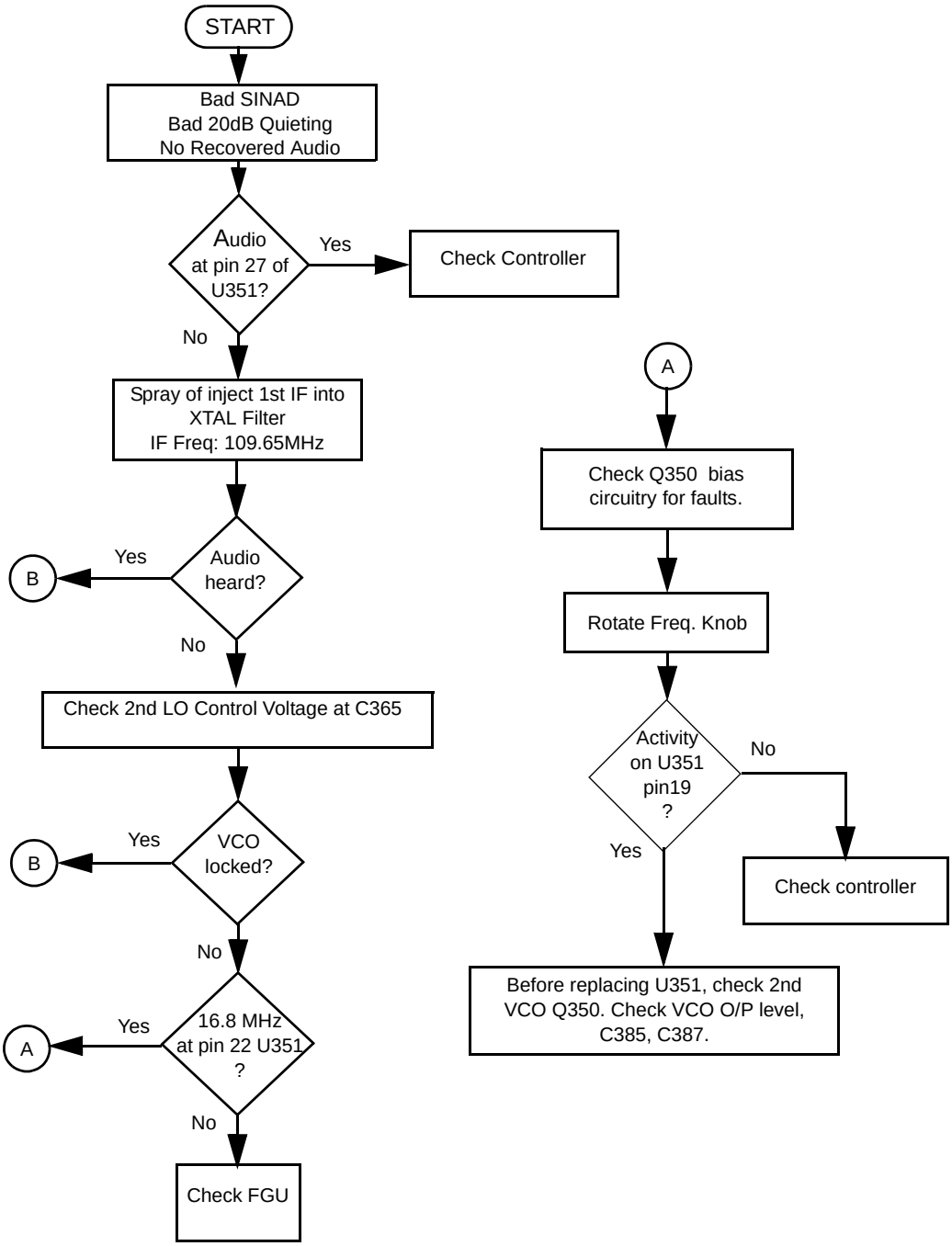
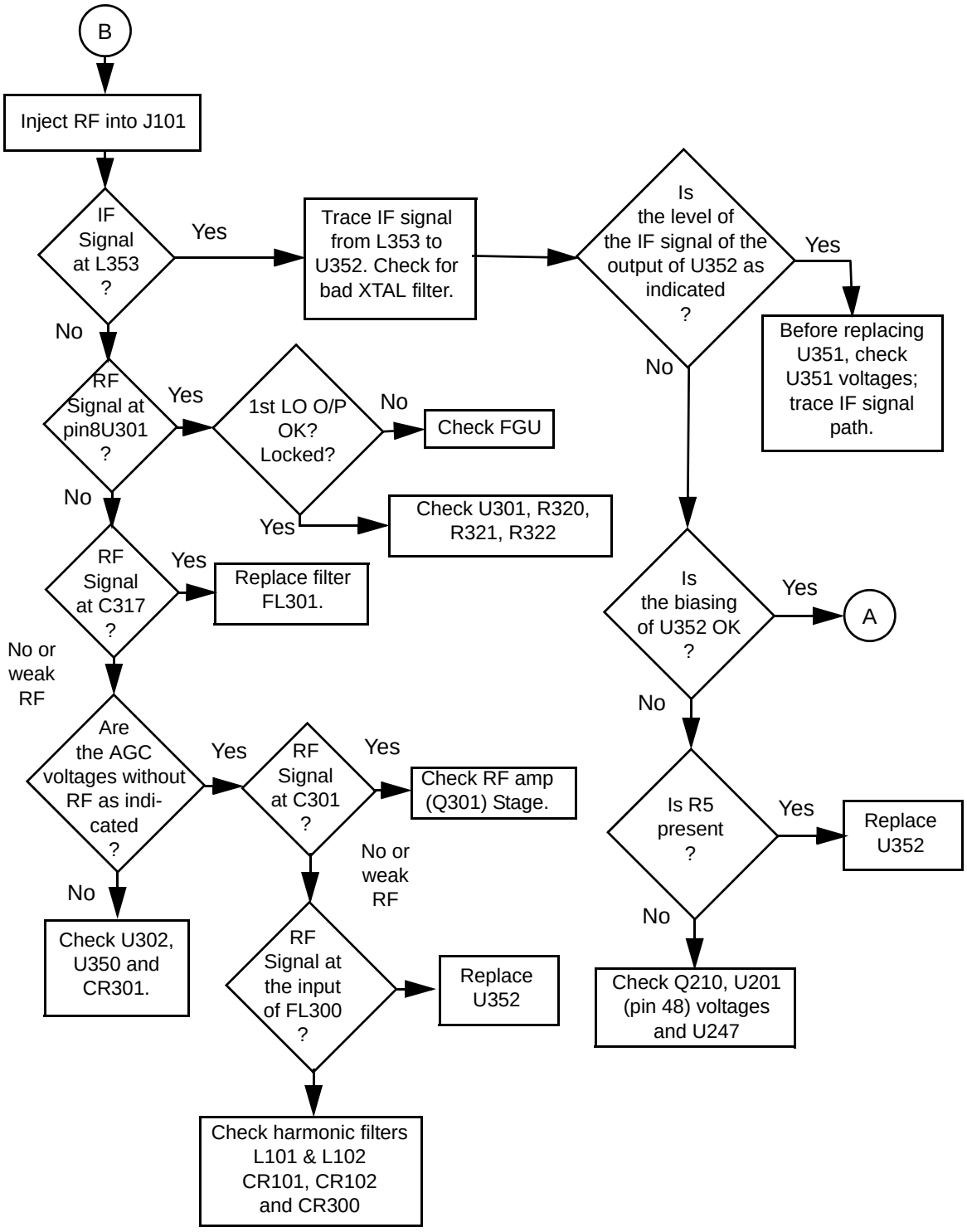
Chapter 2

TROUBLESHOOTING CHARTS

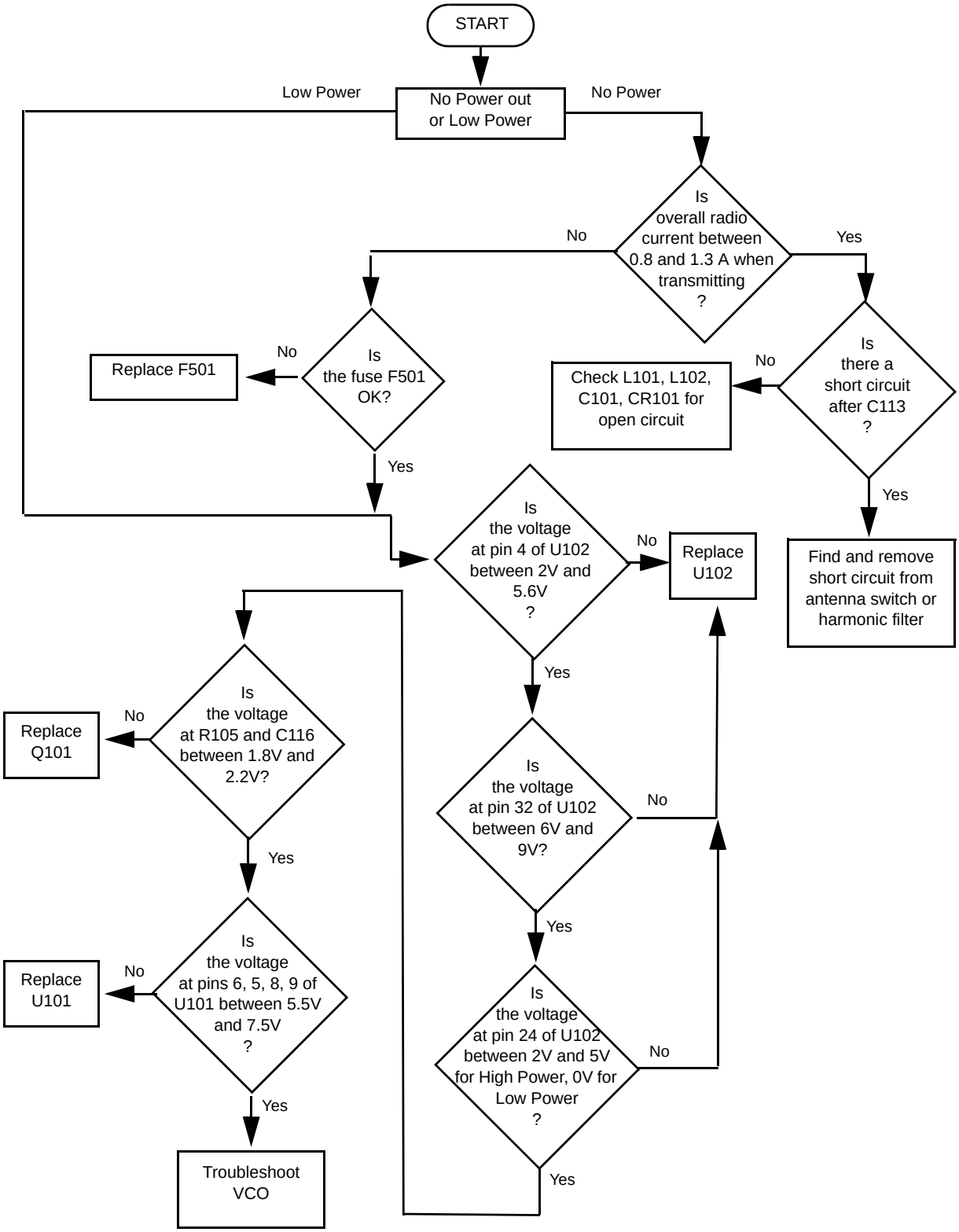
1.0 Troubleshooting Flow Chart for Receiver (Sheet 1 of 2)



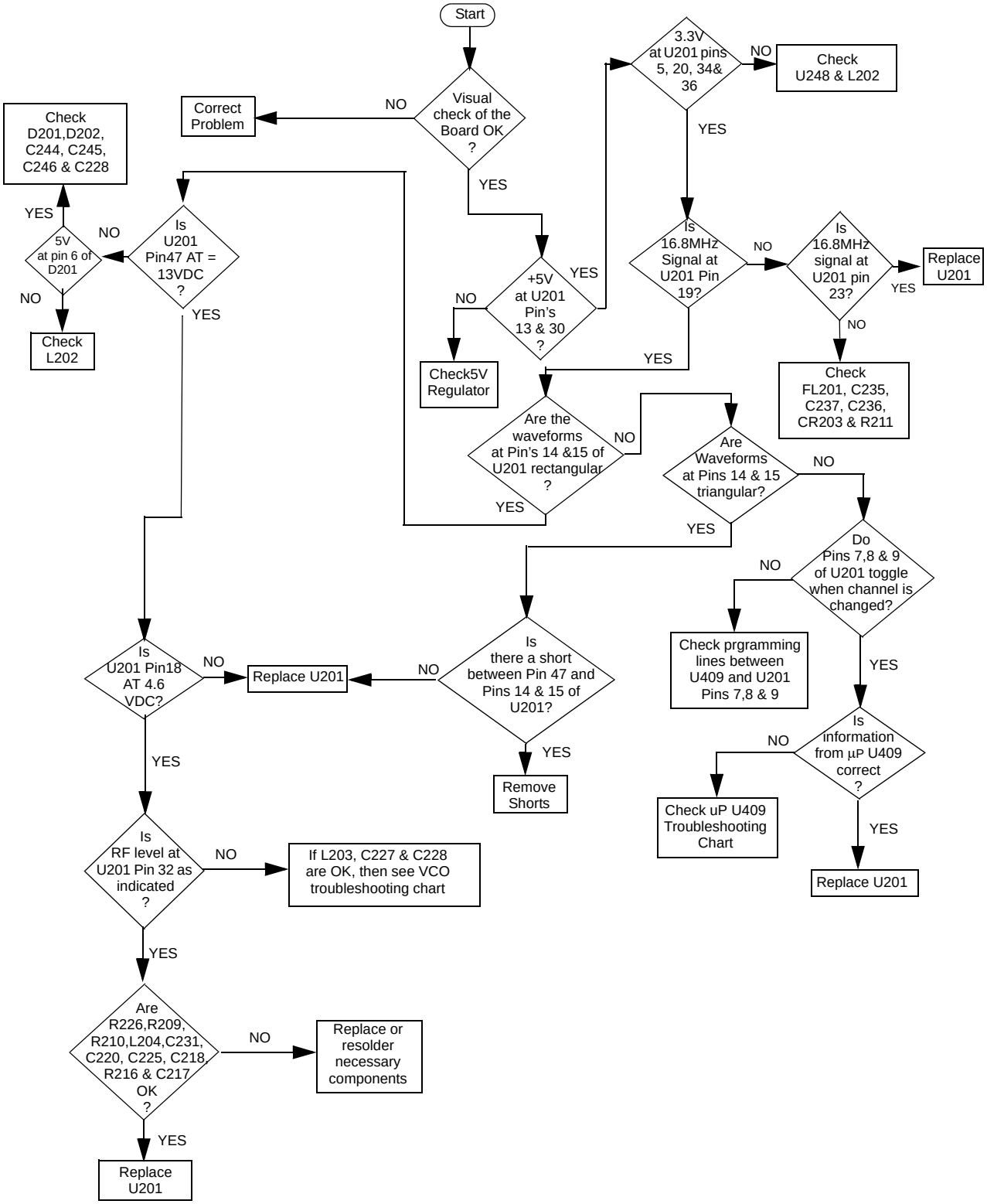
2.0 Troubleshooting Flow Chart for Receiver (Sheet 2 of 2)



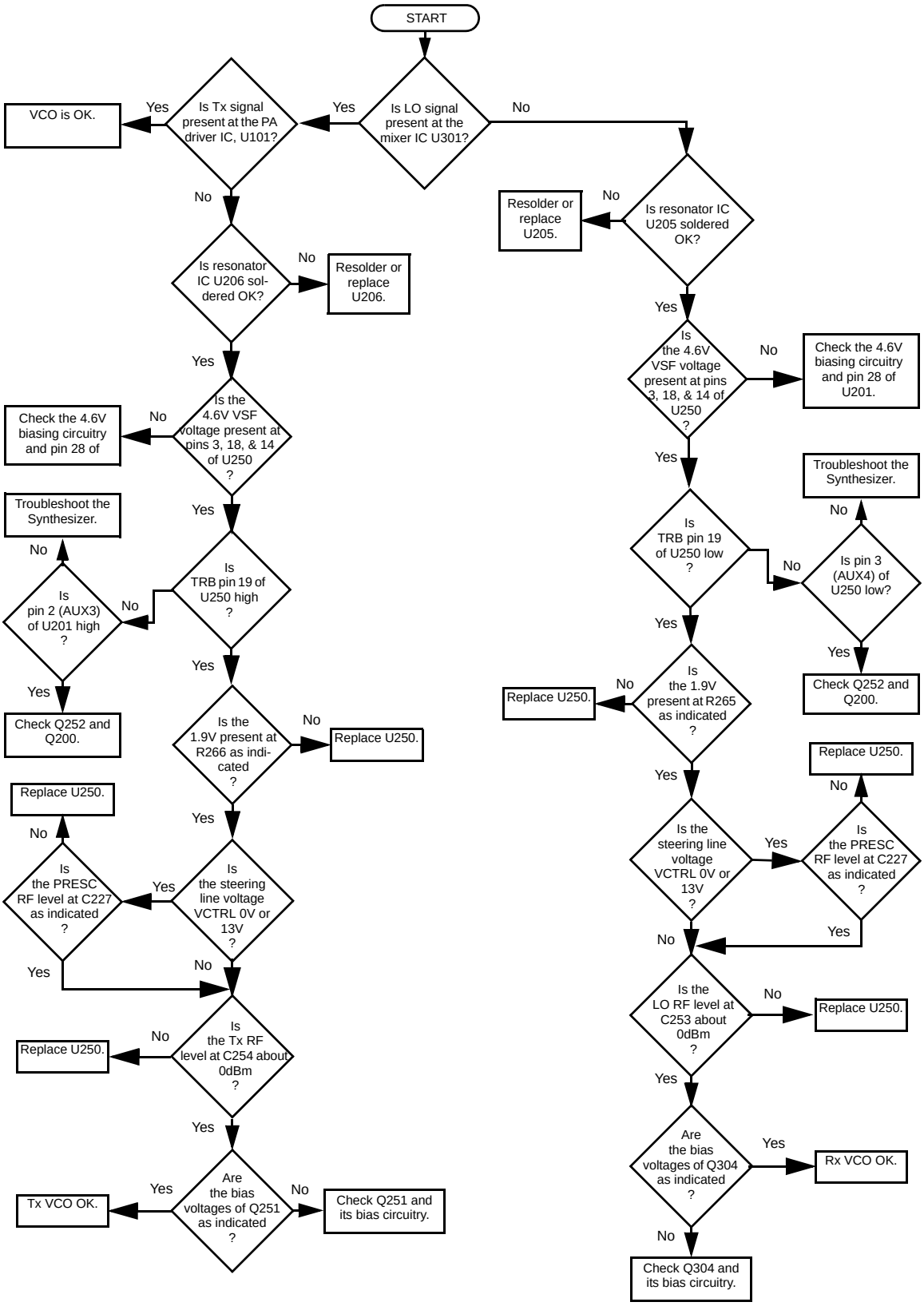
3.0 Troubleshooting Flow Chart for Transmitter



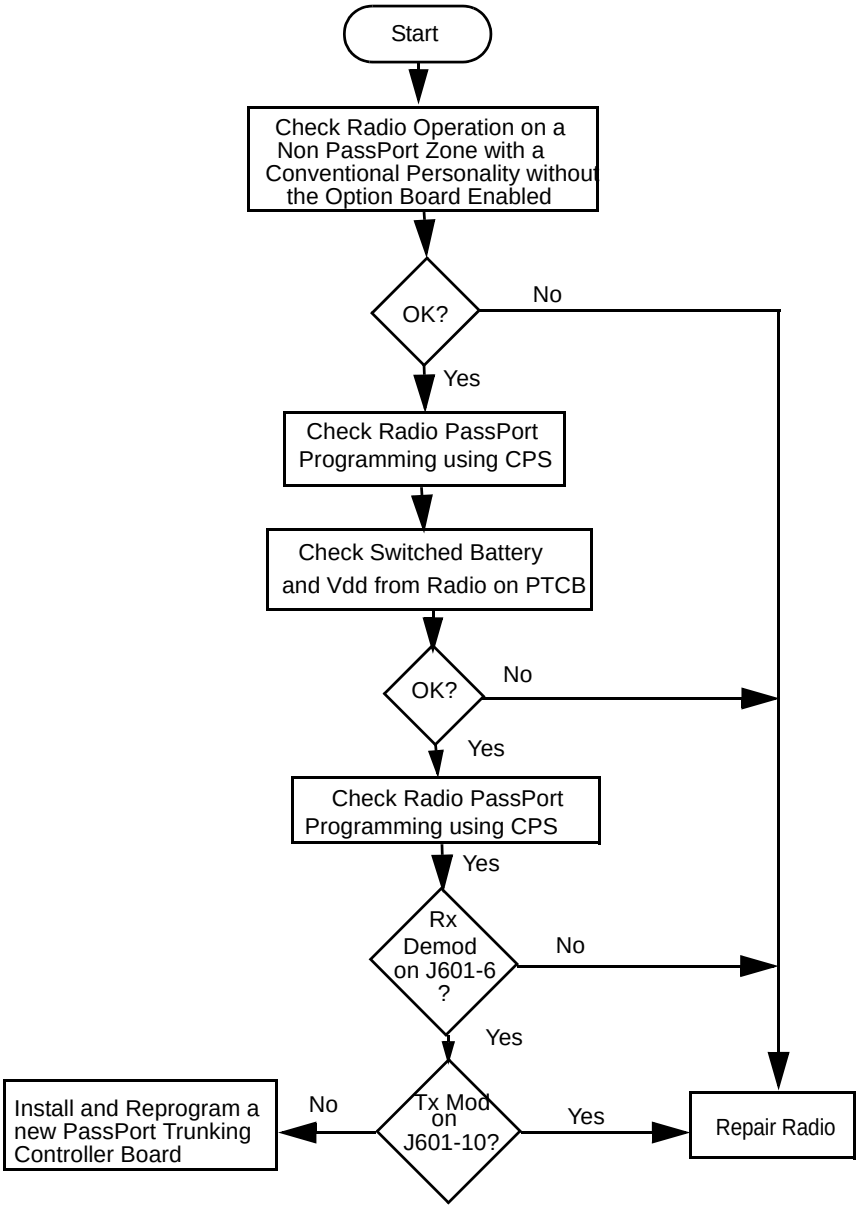
4.0 Troubleshooting Flow Chart for Synthesizer



5.0 Troubleshooting Flow Chart for VCO



6.0 Troubleshooting Flow Chart for PassPort Trunking



Chapter 3

800MHZ /PCB/SCHEMATICS/PARTS LIST

1.0 Allocation of Schematics and Circuit Boards

1.1 Controller Circuits

The 800MHz circuits are contained on the printed circuit board (PCB) which also contains the Controller circuits. This chapter shows the schematics for the 800MHz circuits only, refer to the Controller section for details of the related Controller circuits.The PCB component layouts and the Parts Lists in this Chapter show both the Controller and UHF circuit components. The 800MHz schematics and the related PCB and parts list are shown in the tables below.

Table 3-1 800MHz Diagrams and Parts Lists

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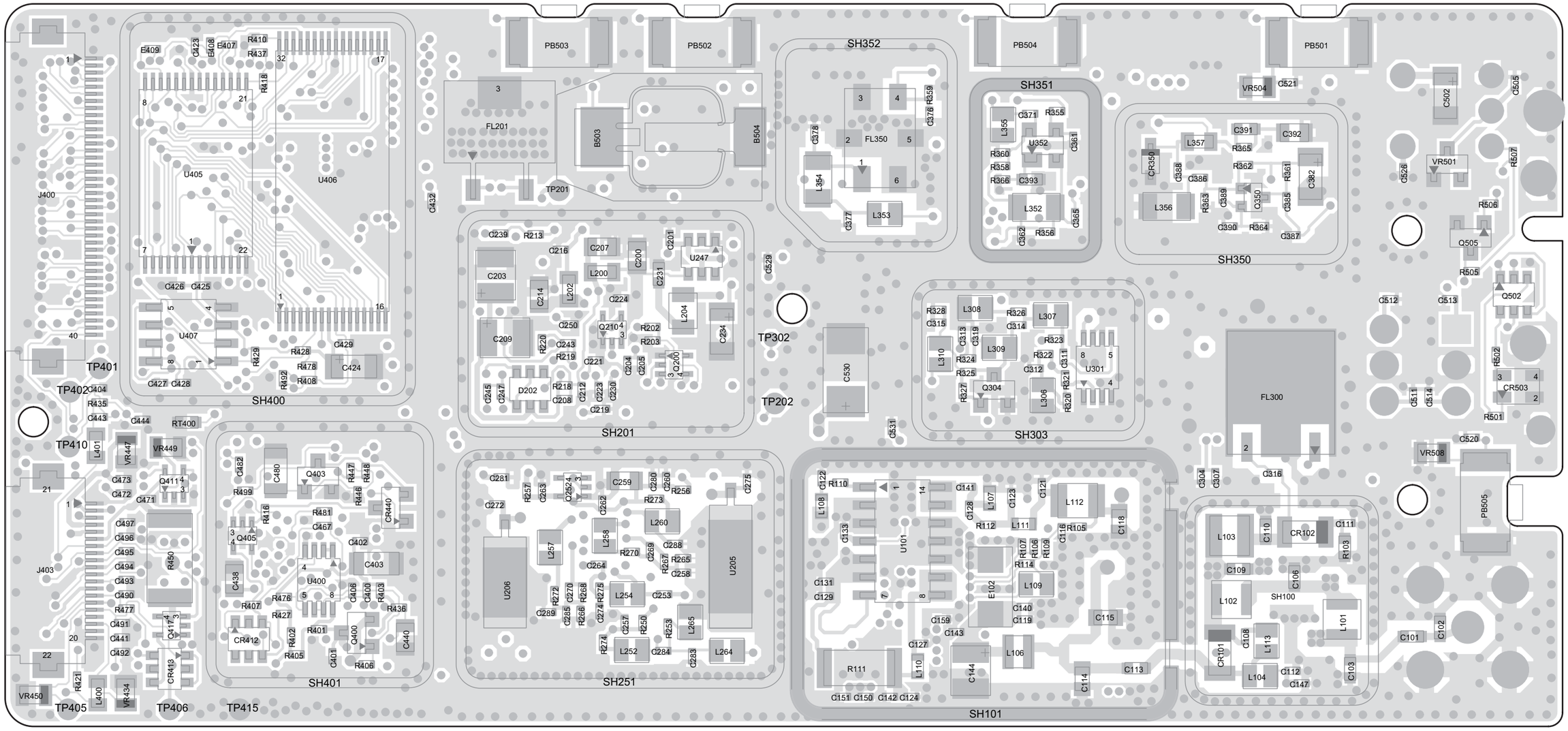
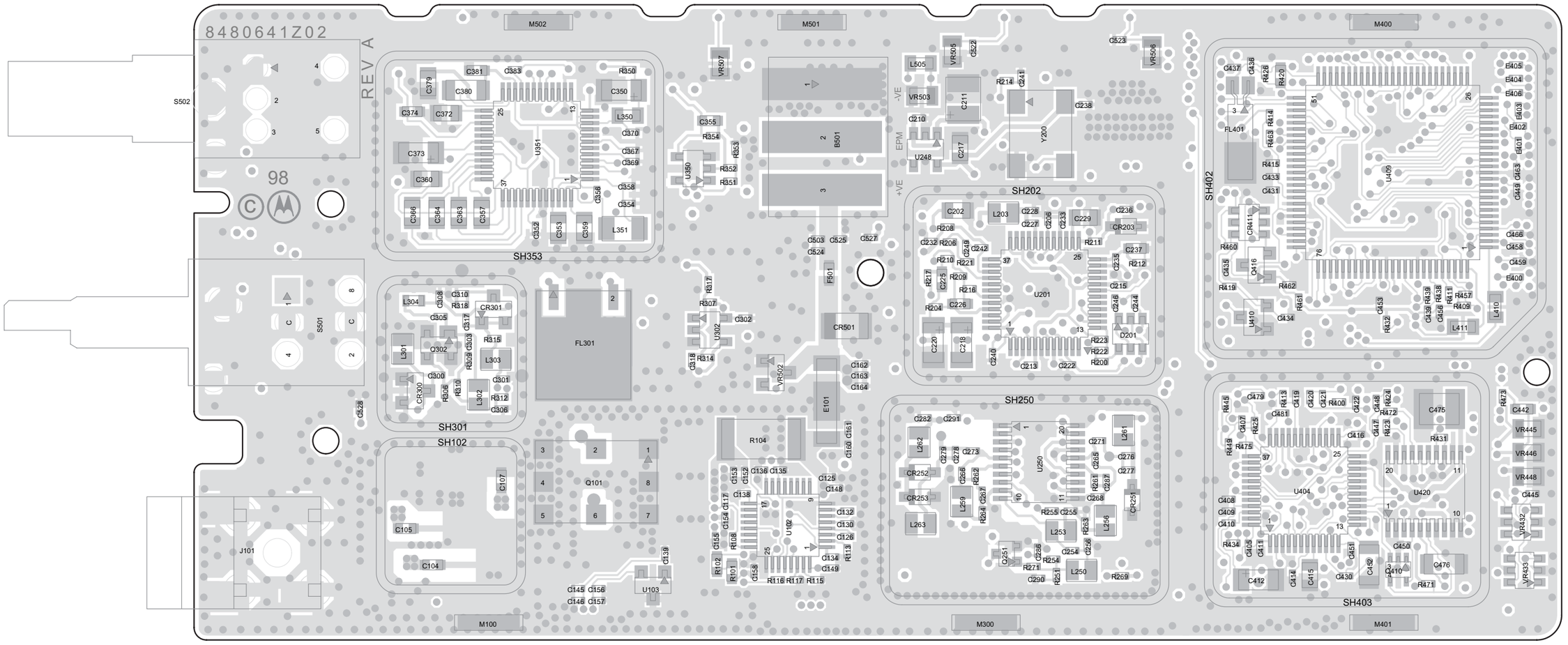
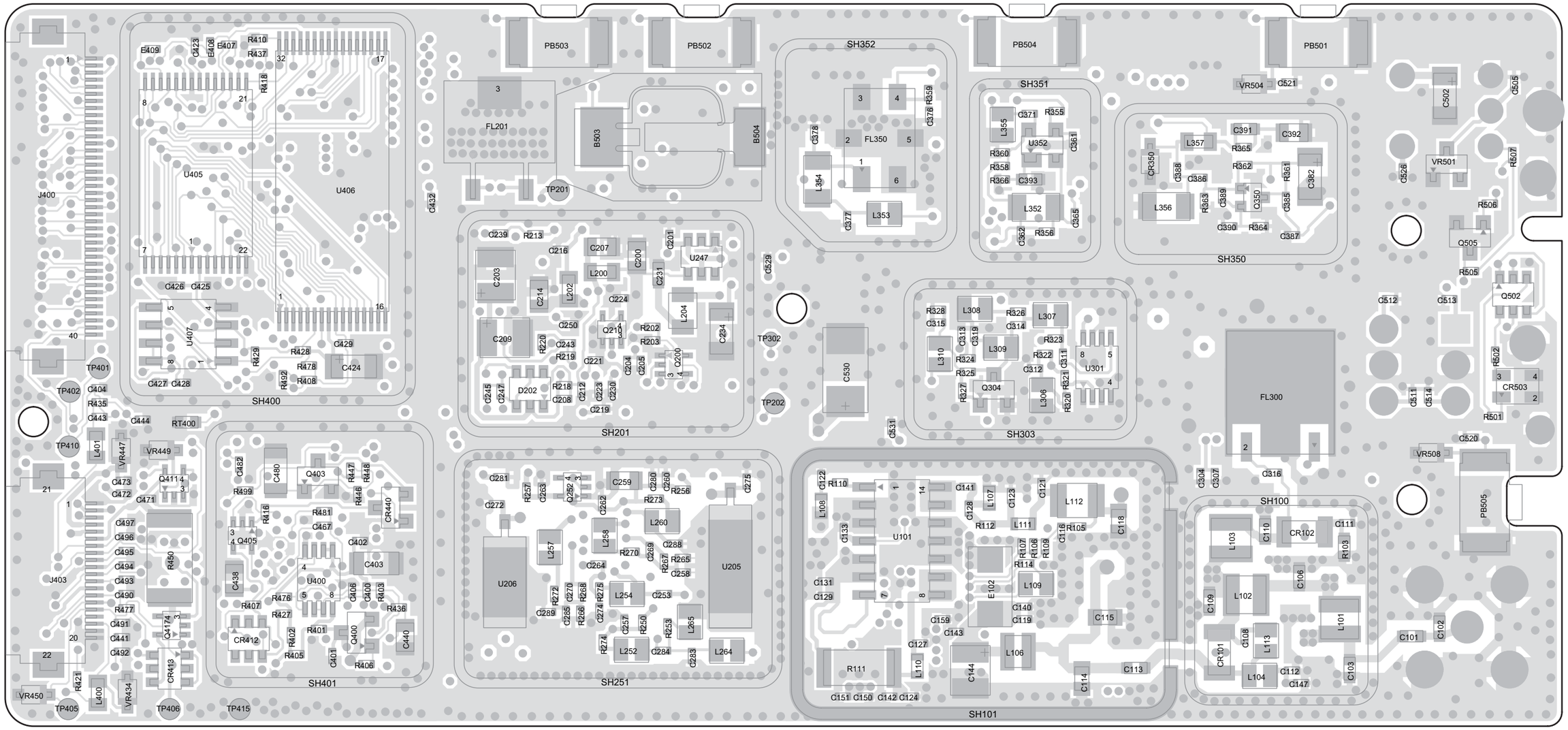
2.0 800MHz PCB 8480641Z02, 8480641Z03, 8480641Z09, 8480641Z10 / Schematics



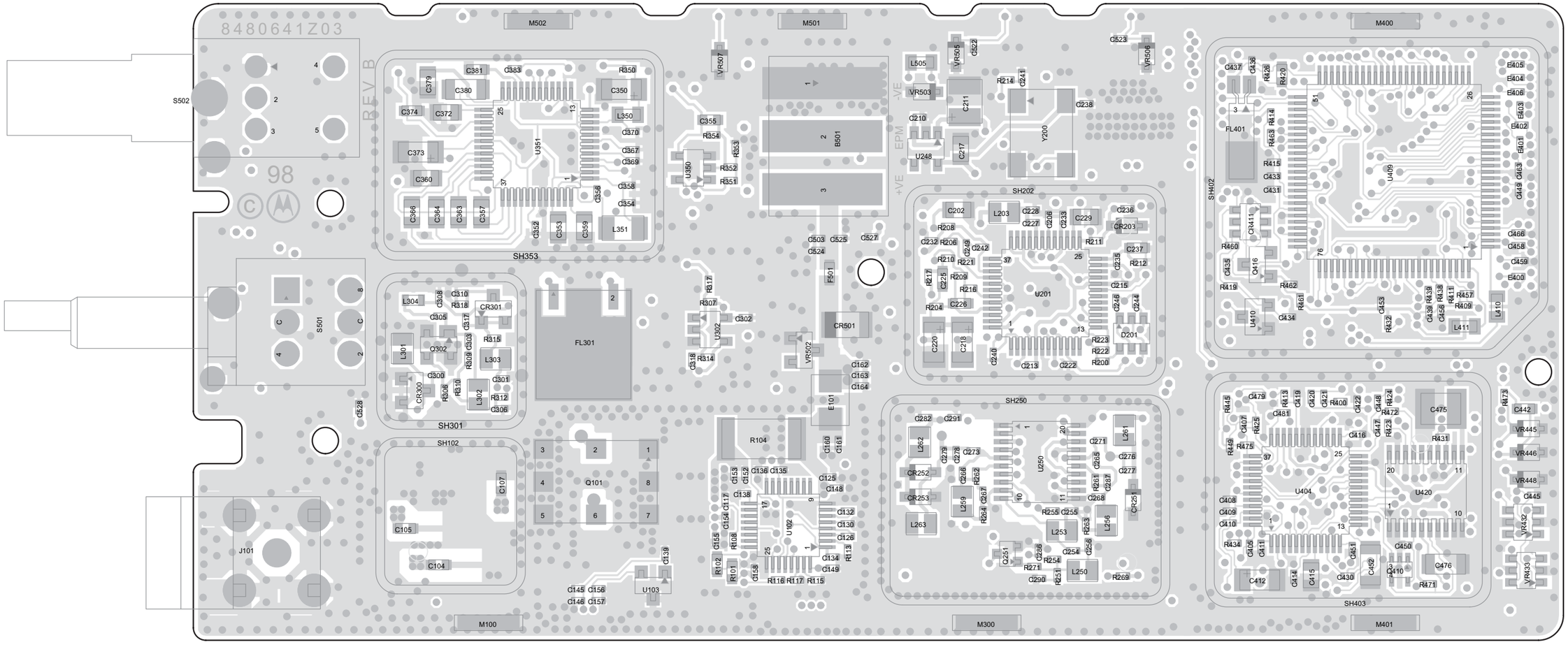
800MHz (806-870MHz) Main Board Top Side
PCB 8480641Z02



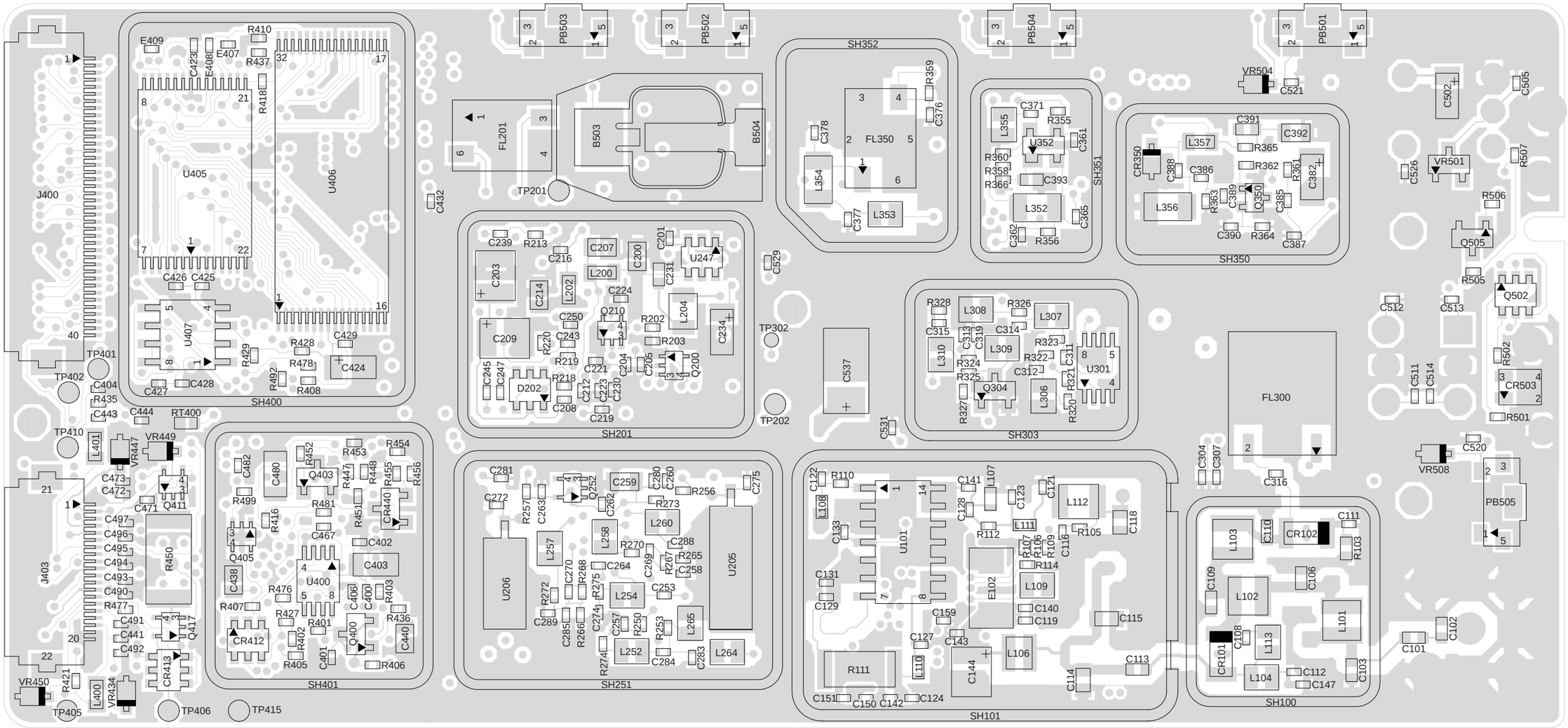
800MHz (806-870 MHz) Main Board Bottom Side
PCB 8480641Z02



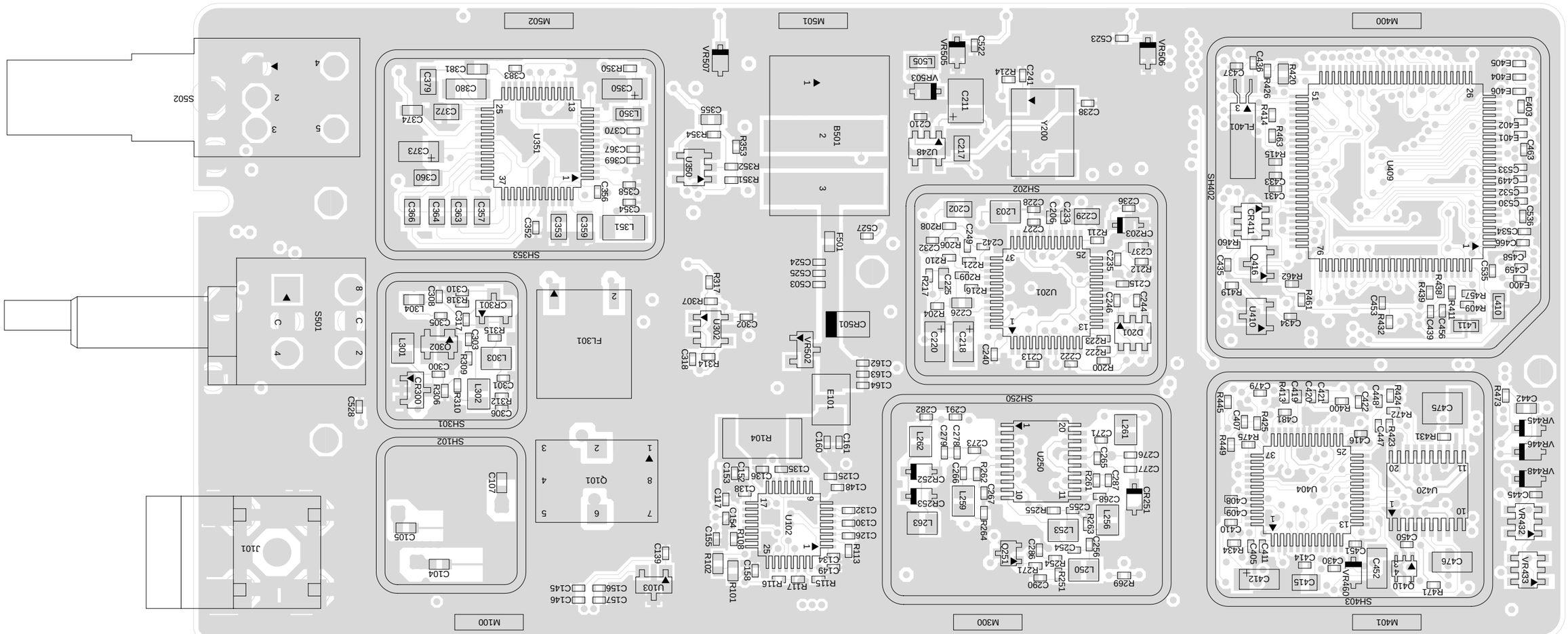
800MHz (806-870MHz) Main Board Top Side
PCB No. 8480641Z03 (Rev B)



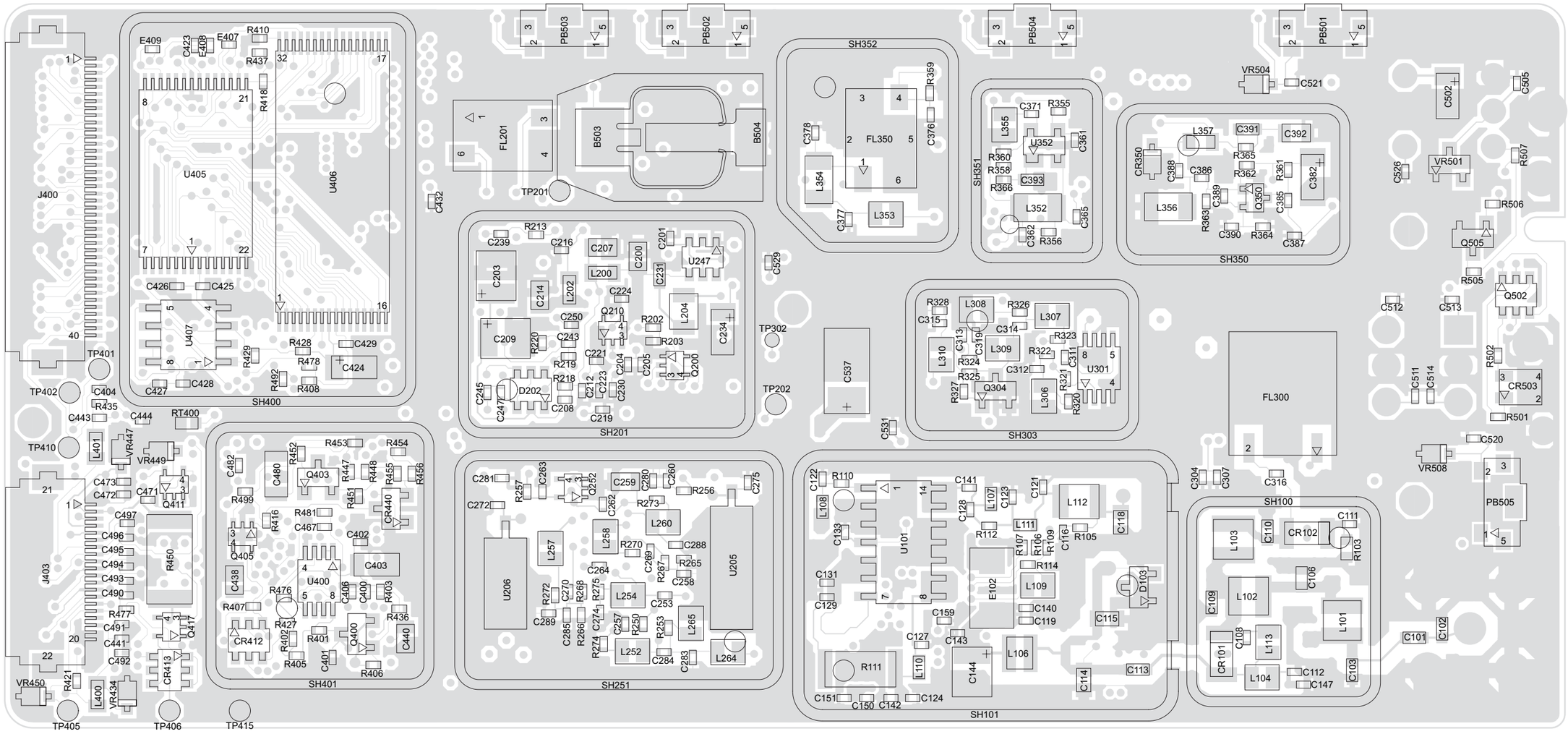
800MHz (806-870MHz) Main Board Bottom Side
PCB No. 8480641Z03 (Rev B)



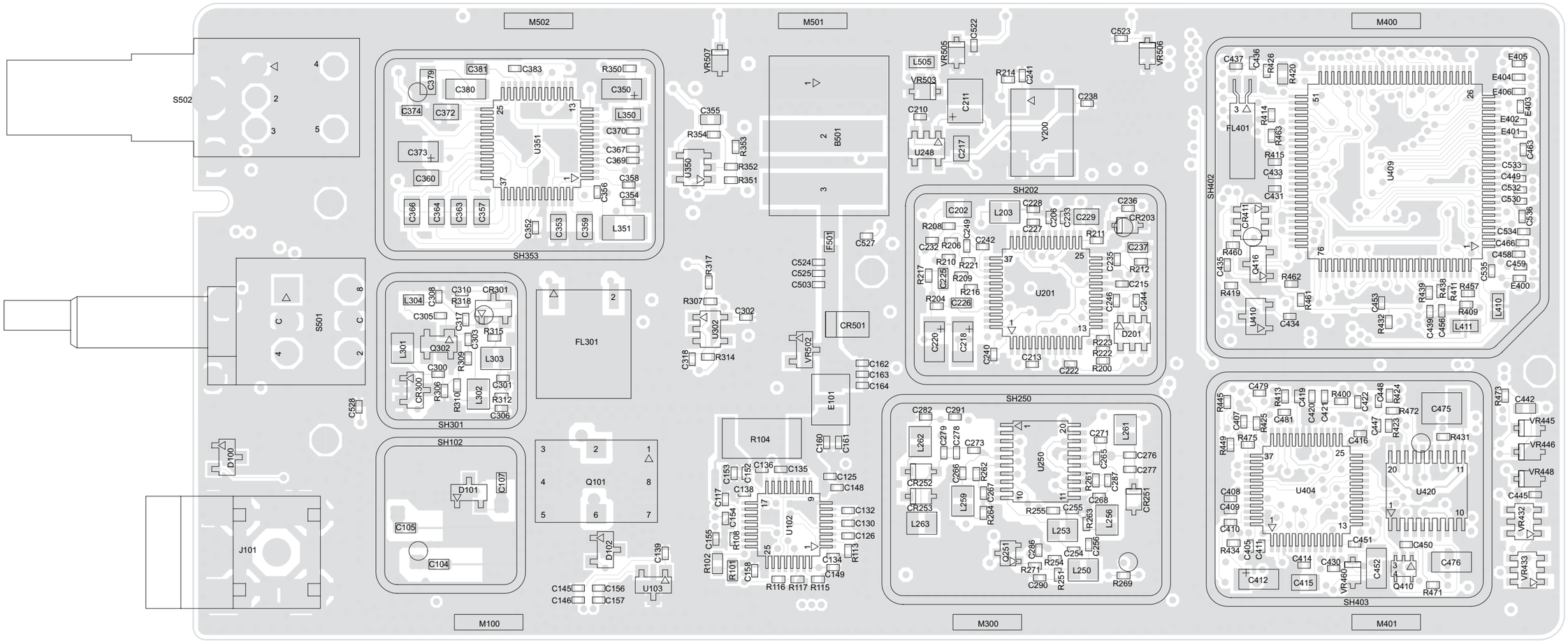
800MHz (806-870MHz) Main Board Top Side
PCB No. 8480641Z09 (Rev H)



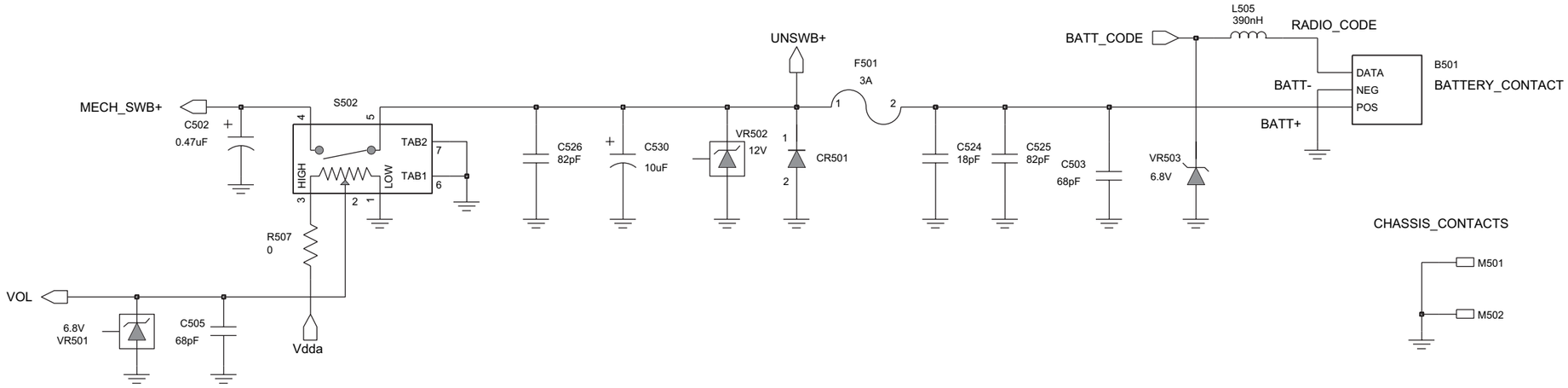
800MHz (806-870MHz) Main Board Bottom Side
PCB No. 8480641Z09 (Rev H)

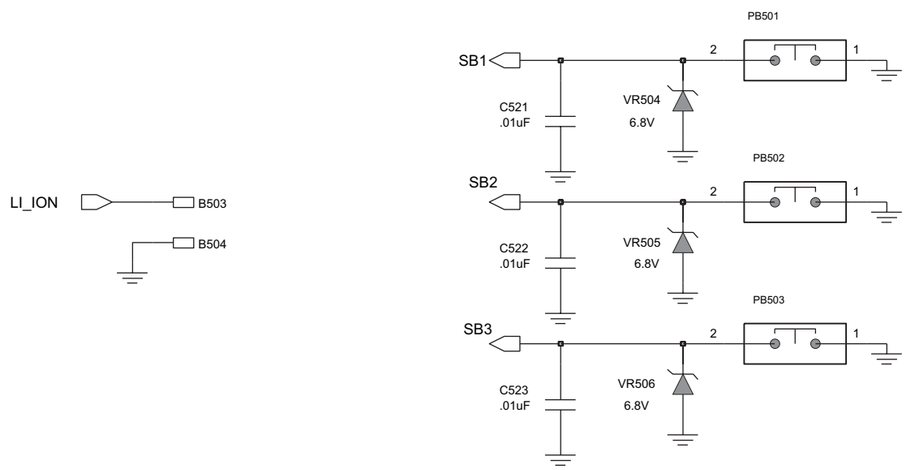


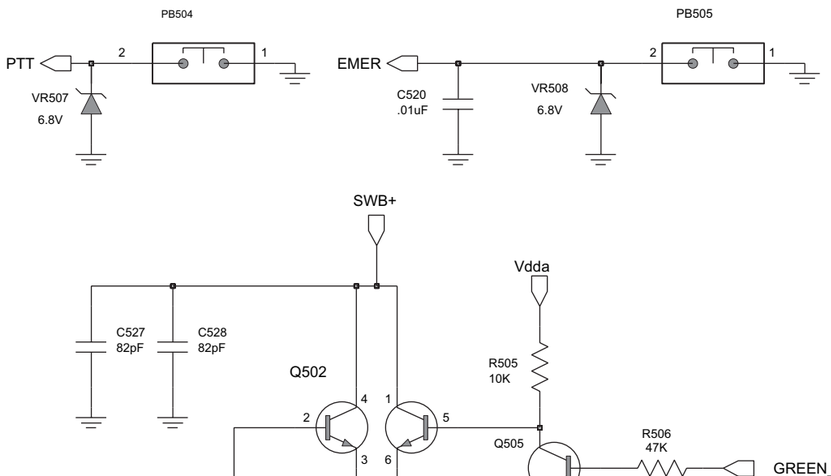
800MHz (806-870MHz) Main Board Top Side
PCB No. 8480641Z10 (Rev J)

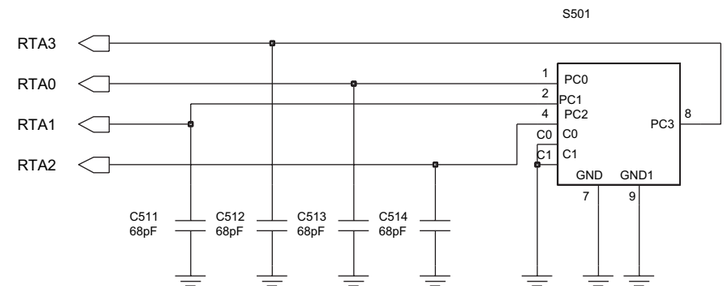


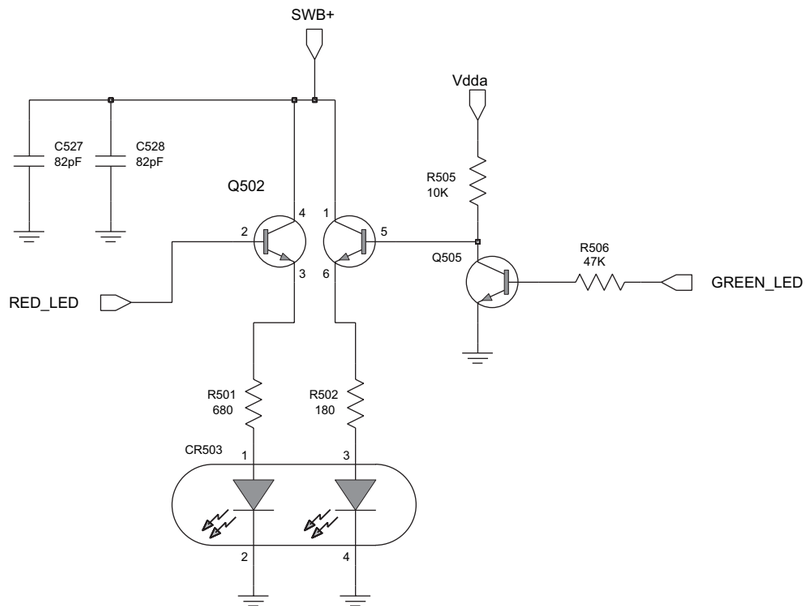
800MHz (806-870MHz) Main Board Bottom Side
PCB No. 8480641Z10 (Rev J)



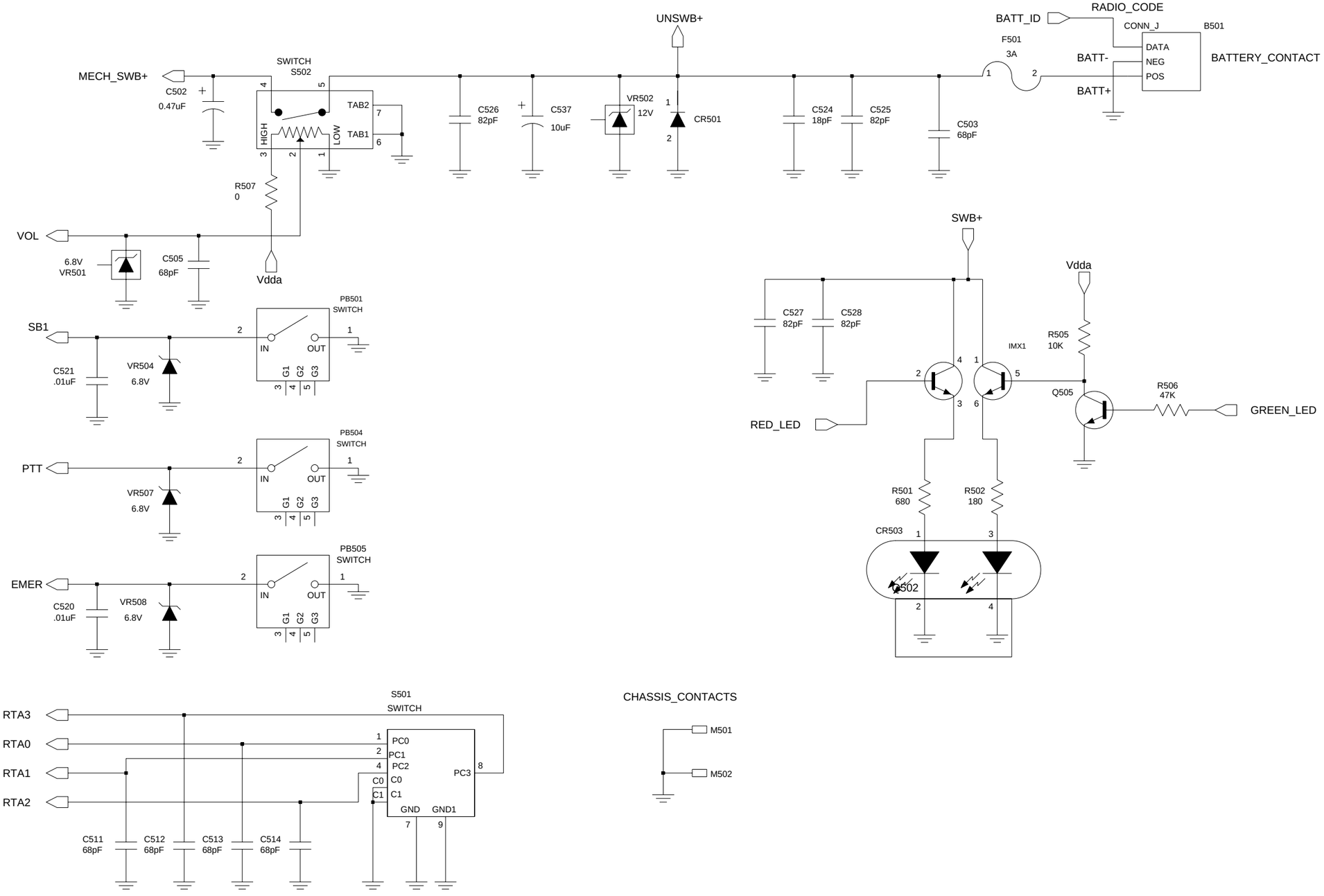




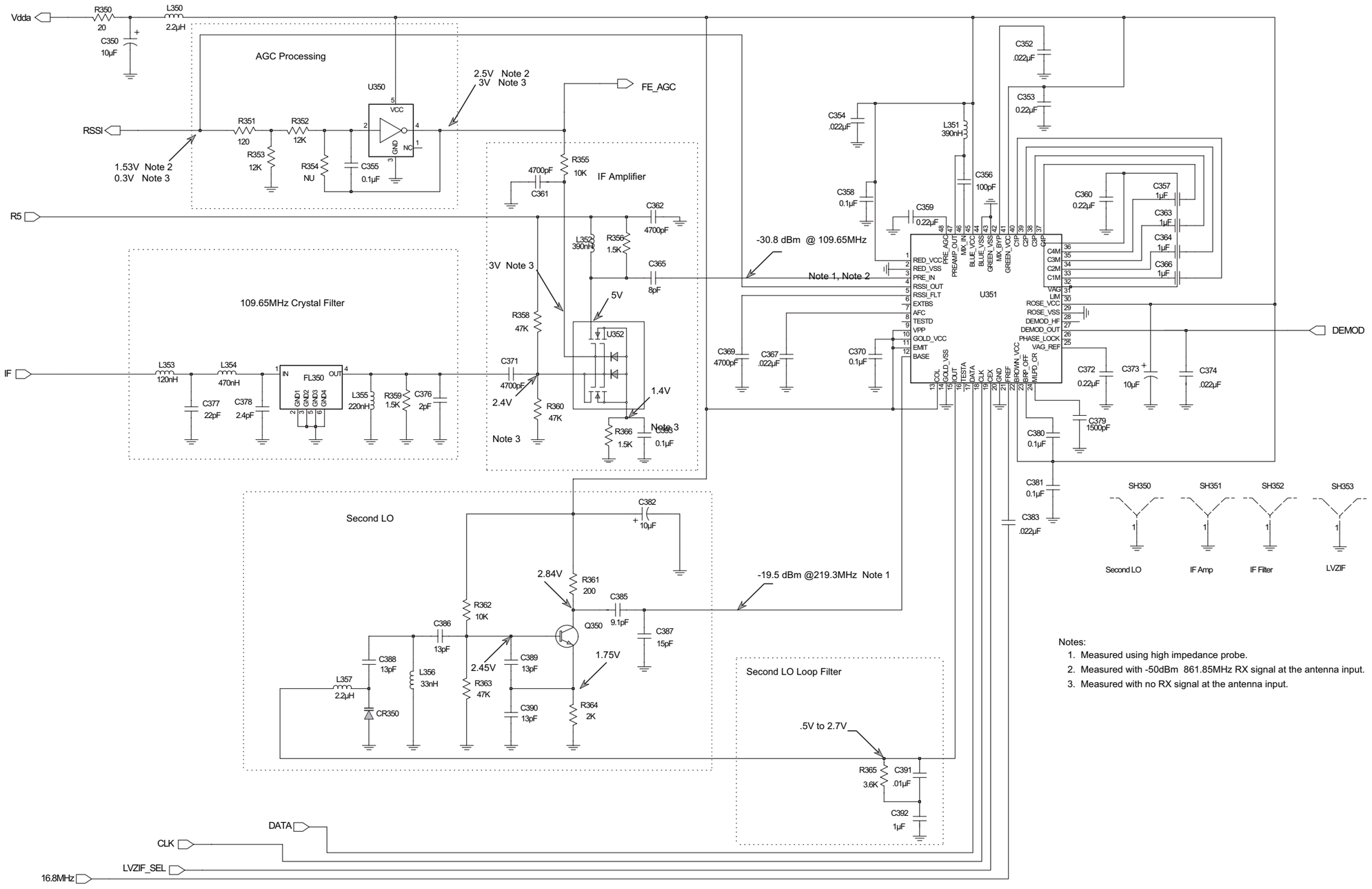




800MHz (806-870MHz) Controls and Switches Rev A/B



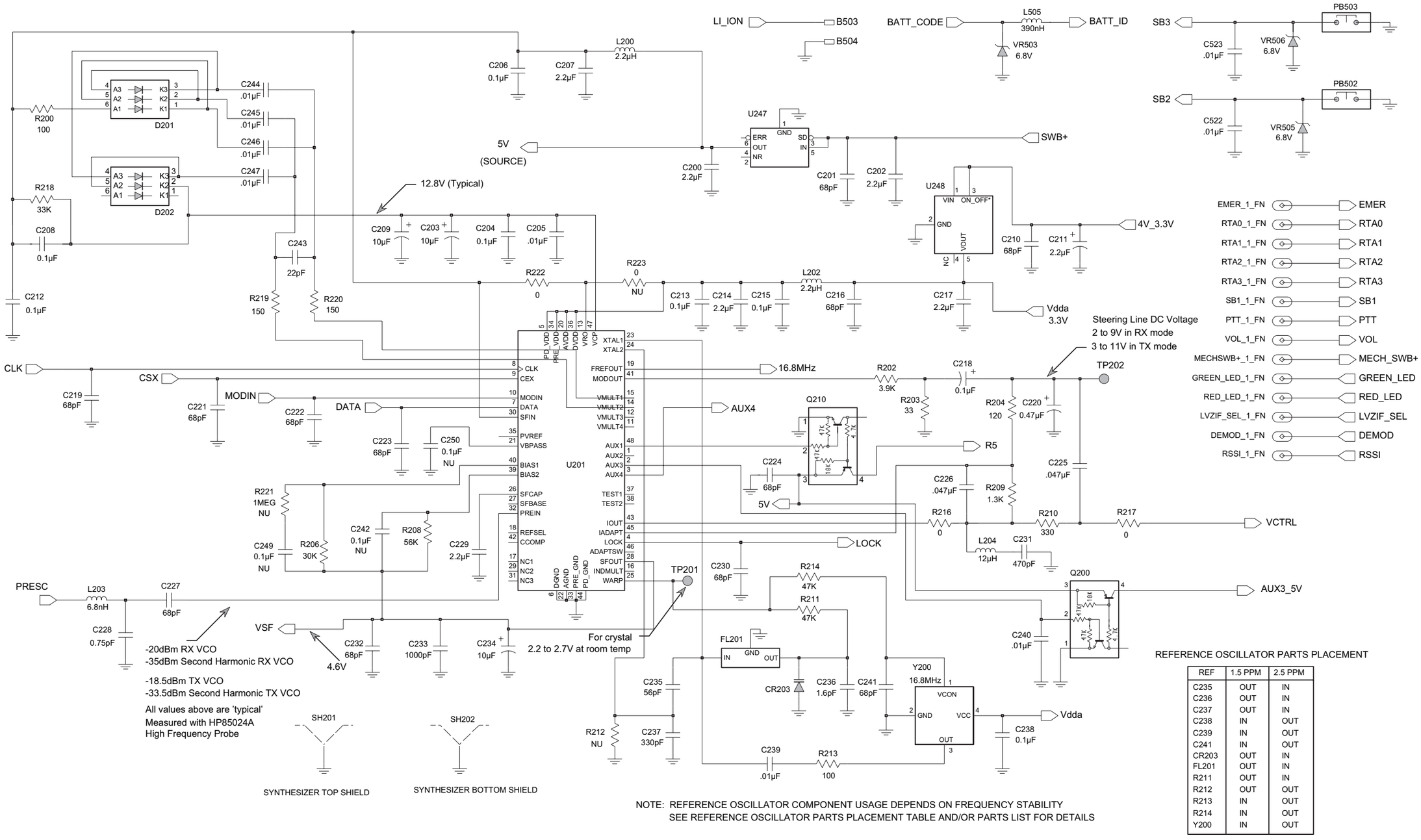
800 MHz Controls And Switches Schematic Diagram (Rev H/J)



Notes:

1. Measured using high impedance probe.
2. Measured with -50dBm 861.85MHz RX signal at the antenna input.
3. Measured with no RX signal at the antenna input.

800MHz (806 - 870 MHz) Receiver Front End

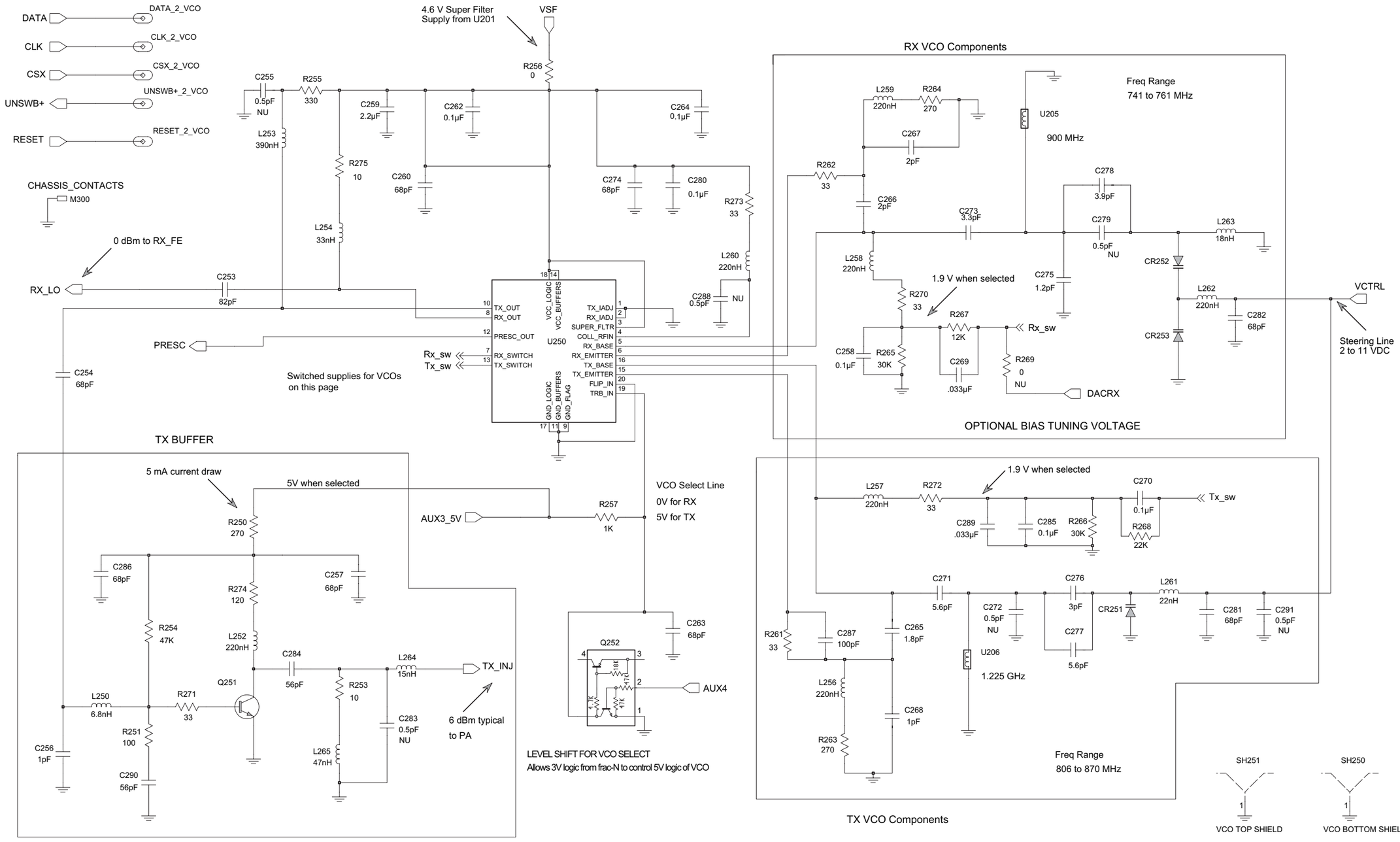


REFERENCE OSCILLATOR PARTS PLACEMENT

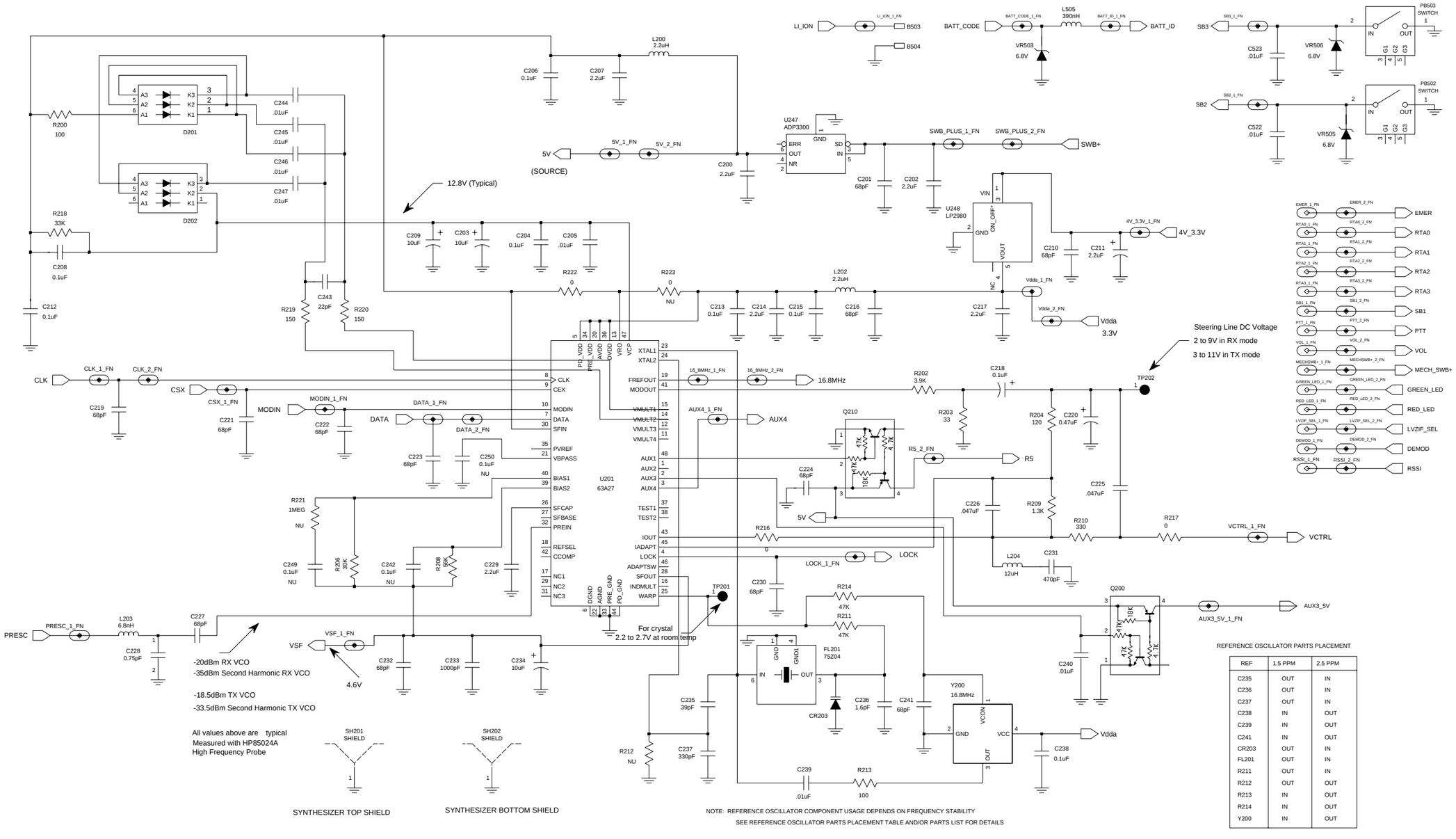
REF	1.5 PPM	2.5 PPM
C235	OUT	IN
C236	OUT	IN
C237	OUT	IN
C238	IN	OUT
C239	IN	OUT
C241	IN	OUT
CR203	OUT	IN
FL201	OUT	IN
R211	OUT	IN
R212	OUT	OUT
R213	IN	OUT
R214	IN	OUT
Y200	IN	OUT

NOTE: REFERENCE OSCILLATOR COMPONENT USAGE DEPENDS ON FREQUENCY STABILITY
SEE REFERENCE OSCILLATOR PARTS PLACEMENT TABLE AND/OR PARTS LIST FOR DETAILS

800MHz (806-870MHz) Receiver Back End

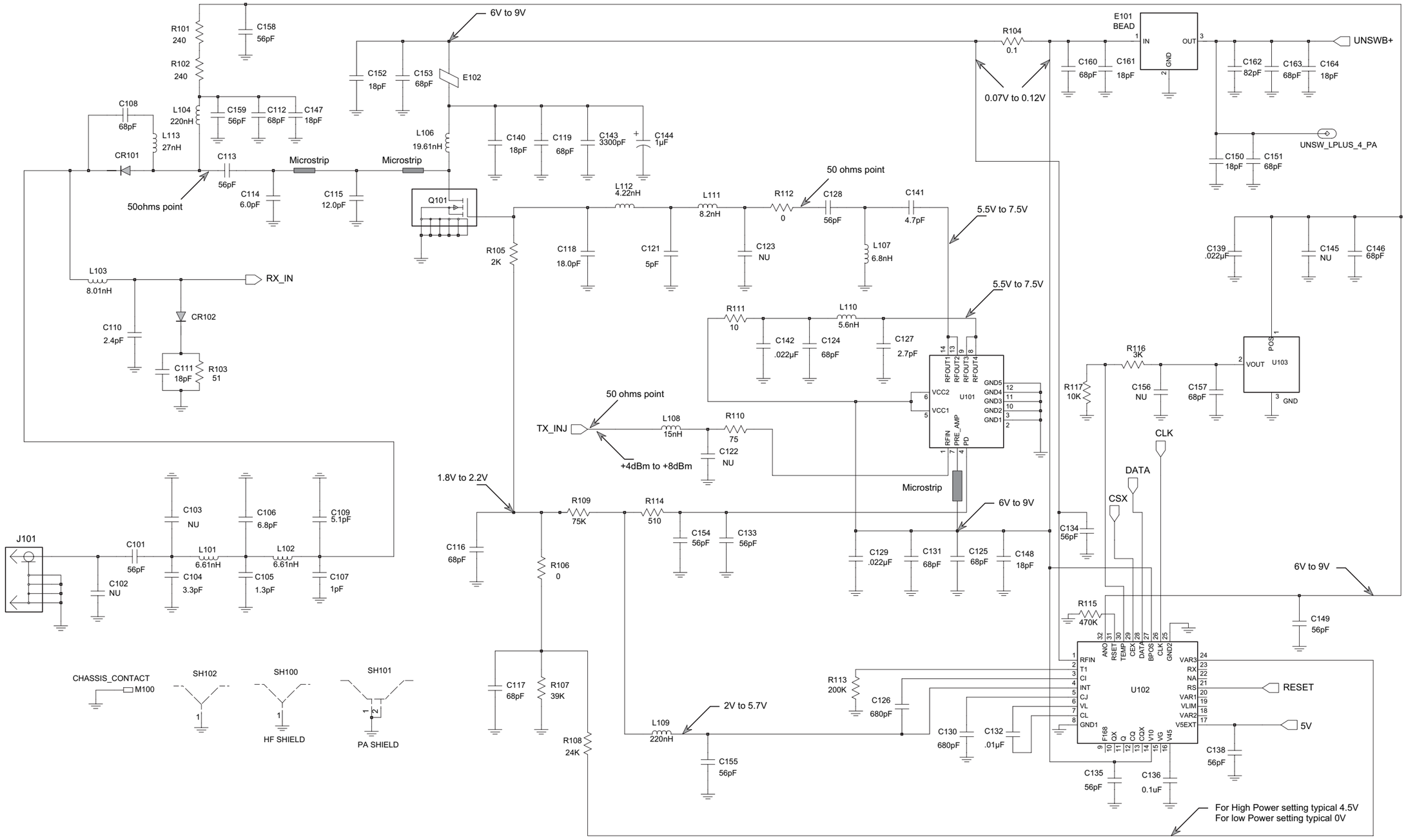


800MHz Synthesizer Schematic Diagram (Rev A/B)

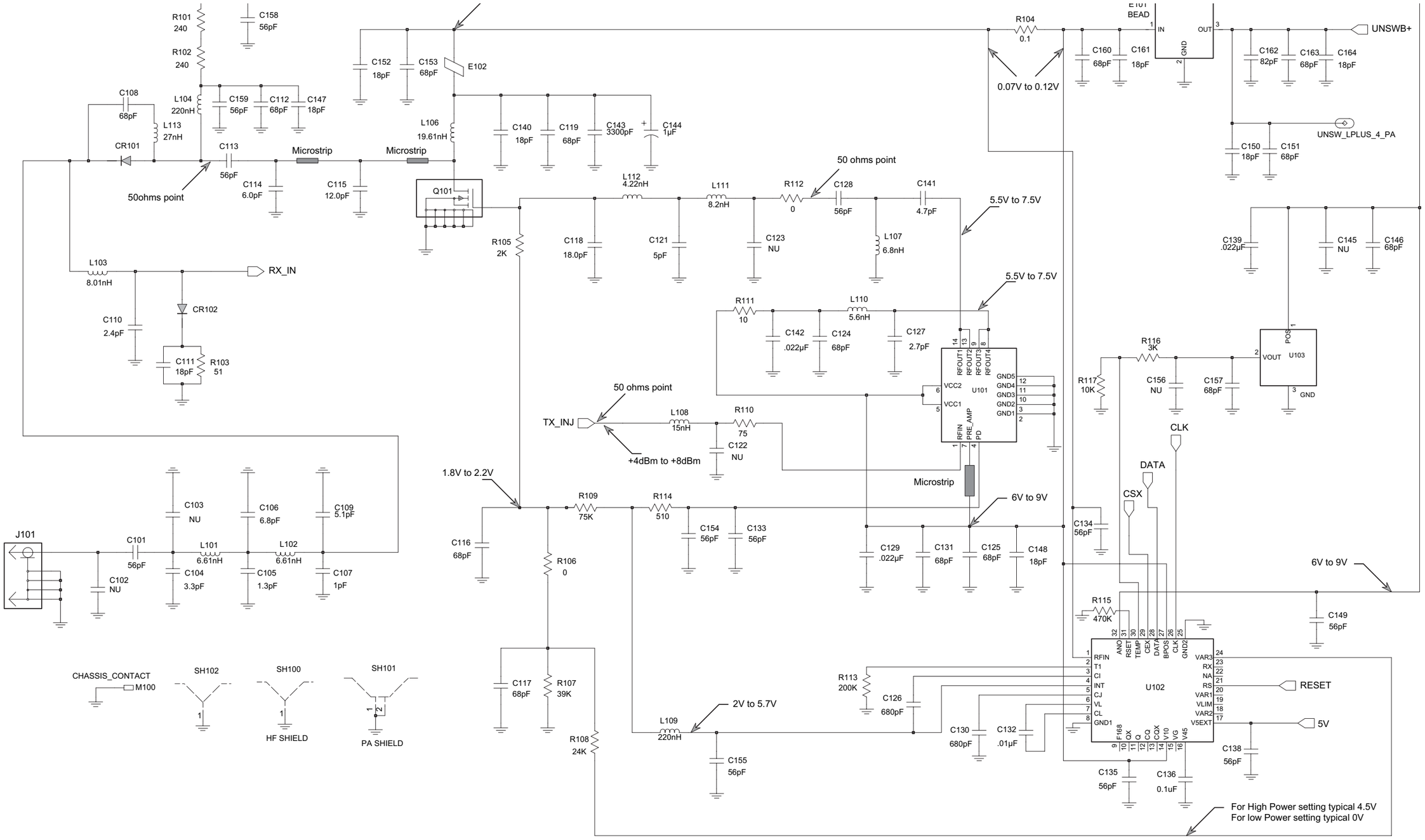


REF	1.5 PPM	2.5 PPM
C235	OUT	IN
C236	OUT	IN
C237	OUT	IN
C238	IN	OUT
C239	IN	OUT
C241	IN	OUT
CR203	OUT	IN
FL201	OUT	IN
R211	OUT	IN
R212	OUT	OUT
R213	IN	OUT
R214	IN	OUT
Y200	IN	OUT

800 MHz Synthesizer Schematic Diagram (Rev H/J)

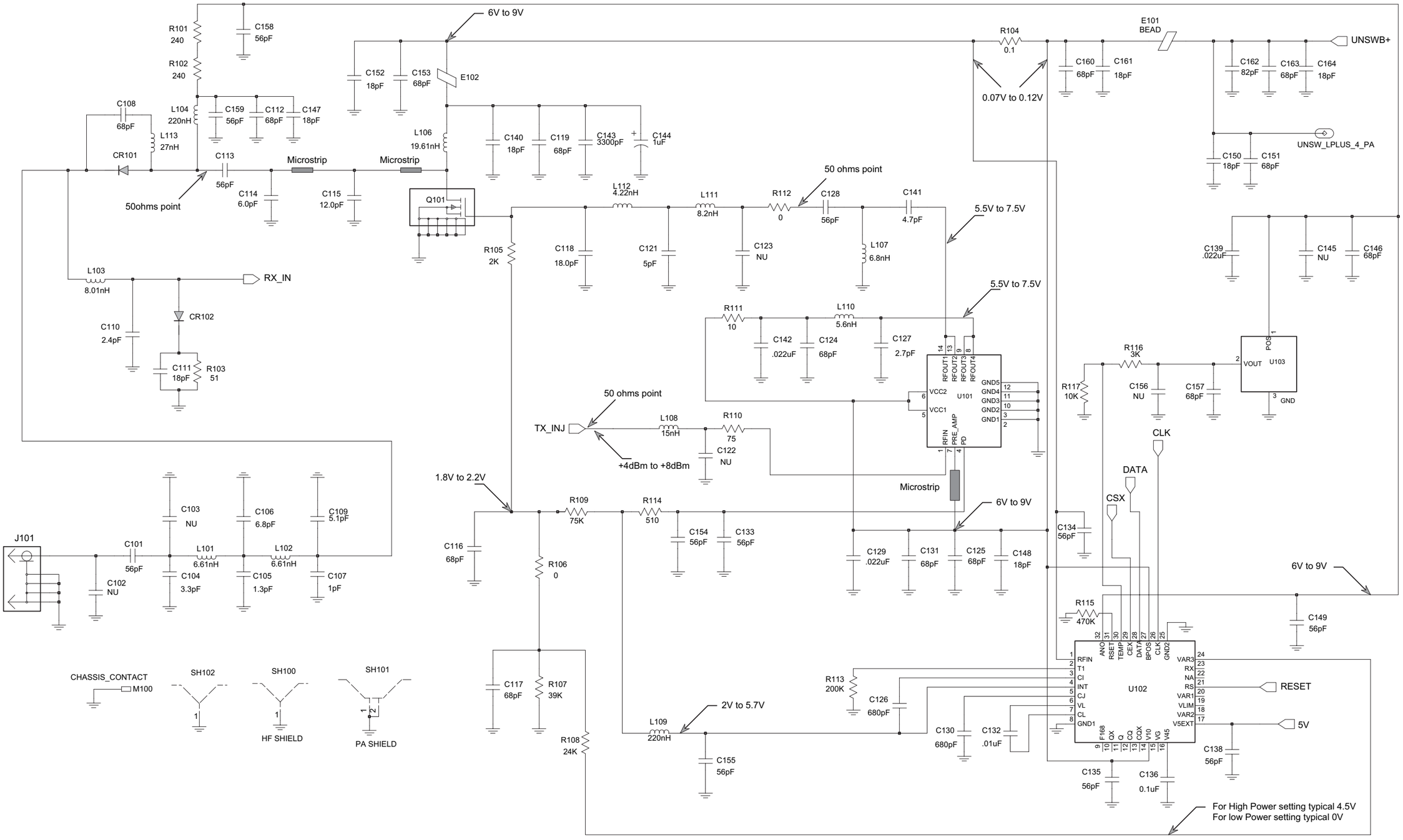


800MHz (806-870MHz) Voltage Controlled Oscillator

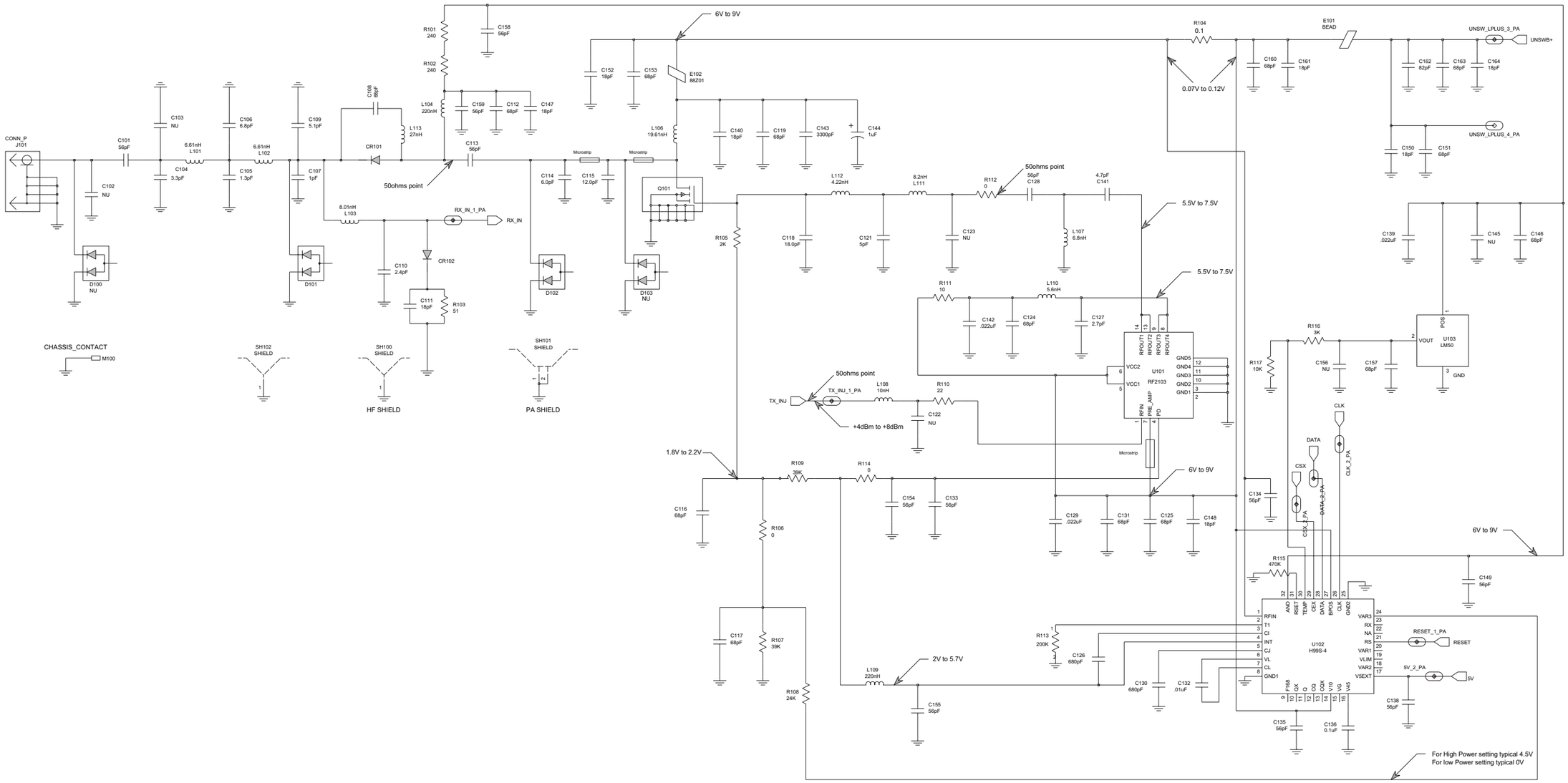


800MHz (806-870MHz) Transmitter (Rev A)

ZMY0130990-O



800MHz Transmitter Schematic Diagram (Rev B/H)



800 MHz Transmitter Schematic Diagram (Rev J)

3.0 800MHz PCB Parts List (Rev A/B)

Circuit Ref	Motorola Part No.	Description
B501	0986237A01	Connector Multi_Pin 37A01
B503	3980502Z01	Mechanical
B504	3980501Z01	Mechanical
C101	2113740F45	Capacitor Chip 56pF
C104	2113740F15	Capacitor Chip 3.3pF
C105	2113740F06	Capacitor Chip 1.3pF
C106	2113740F23	Capacitor Chip 6.8pF
C107	2113740F03	Capacitor Chip 1pF
C108	2113743N46	Capacitor Chip 68pF
C109	2113740F20	Capacitor Chip 5.1pF
C110	2113740F12	Capacitor Chip 2.4pF
C111	2113743N32	Capacitor Chip 18pF
C112	2113743N46	Capacitor Chip 68pF
C113	2113740F45	Capacitor Chip 56pF
C114	2103689A19	Capacitor Chip 6.0pF
C115	2103689A05	Capacitor Chip 12.0pF
C116 to C117	2113743N46	Capacitor Chip 68pF
C118	2103689A08	Capacitor Chip 18.0pF
C119	2113743N46	Capacitor Chip 68pF
C121	2113743N60	Capacitor Chip 5pF
C124 to C125	2113743N46	Capacitor Chip 68pF
C126	2113743L13	Capacitor Chip 680pF
C127	2113743N12	Capacitor Chip 2.7pF
C128	2113743N44	Capacitor Chip 56pF
C129	2113743M08	Capacitor Chip .022µF
C130	2113743L13	Capacitor Chip 680pF
C131	2113743N46	Capacitor Chip 68pF
C132	2113743L41	Capacitor Chip .01µF
C133 to C135	2113743N44	Capacitor Chip 56pF
C136	2113743M24	Capacitor Chip 0.1µF
C138	2113743N44	Capacitor Chip 56pF
C139	2113743M08	Capacitor Chip .022µF
C140	2113743N32	Capacitor Chip 18pF
C141	2113743N18	Capacitor Chip 4.7pF
C142	2113743M08	Capacitor Chip .022µF
C143	2113743L29	Capacitor Chip 3300pF
C144	2311049A08	Capacitor Tantalum 1µF
C146	2113743N46	Capacitor Chip 68pF
C147 to C148	2113743N32	Capacitor Chip 18pF
C149	2113743N44	Capacitor Chip 56pF
C150	2113743N32	Capacitor Chip 18pF
C151	2113743N46	Capacitor Chip 68pF
C152	2113743N32	Capacitor Chip 18pF
C153	2113743N46	Capacitor Chip 68pF
C154 to C155	2113743N44	Capacitor Chip 56pF
C157	2113743N46	Capacitor Chip 68pF
C158 to C159	2113743N44	Capacitor Chip 56pF
C160	2113743N46	Capacitor Chip 68pF
C161	2113743N32	Capacitor Chip 18pF
C162	2113743N48	Capacitor Chip 82pF
C163	2113743N46	Capacitor Chip 68pF
C164	2113743N32	Capacitor Chip 18pF
C200	2113743F18	Capacitor Chip 2.2µF
C201	2113743N46	Capacitor Chip 68pF
C202	2113743F18	Capacitor Chip 2.2µF
C203	2311049A57	Capacitor Tantalum 10µF
C204	2113743M24	Capacitor Chip 0.1µF
C205	2113743L41	Capacitor Chip .01µF
C206	2113743M24	Capacitor Chip 0.1µF
C207	2113743F18	Capacitor Chip 2.2µF
C208	2113743M24	Capacitor Chip 0.1µF
C209	2311049A57	Capacitor Tantalum 10µF
C210	2113743N46	Capacitor Chip 68pF
C211	2311049A09	Capacitor Tantalum 2.2µF
C212 to C213	2113743M24	Capacitor Chip 0.1µF
C214	2113743F18	Capacitor Chip 2.2µF
C215	2113743M24	Capacitor Chip 0.1µF
C216	2113743N46	Capacitor Chip 68pF
C217	2113743F18	Capacitor Chip 2.2µF
C218	2311049A01	Capacitor Tantalum 0.1µF
C219	2113743N46	Capacitor Chip 68pF
C220	2311049A05	Capacitor Tantalum 0.47µF
C221 to C224	2113743N46	Capacitor Chip 68pF
C225 to C226	2113743E12	Capacitor Chip .047µF
C227	2113743N46	Capacitor Chip 68pF
C228	2113743N02	Capacitor Chip 0.75pF
C229	2113743F18	Capacitor Chip 2.2µF
C230	2113743N46	Capacitor Chip 68pF
C231	2113741F17	Capacitor Chip 470pF
C232	2113743N46	Capacitor Chip 68pF
C233	2113743L17	Capacitor Chip 1000pF
C234	2311049A59	Capacitor Tantalum 10µF
C235	2113743N44	Capacitor Chip 56pF (PMUF1046 & PMUF1047 only)
C236	2113743N08	Capacitor Chip 1.6pF (PMUF1046 & PMUF1047 only)
C237	2113740F63	Capacitor Chip 330pF (PMUF1046 & PMUF1047 only)
C238	2113743M24	Capacitor Chip 0.1µF (PMUF1063 & PMUF1064 only)
	2113743L41	Capacitor Chip .01µF C239 (PMUF1063 & PMUF1064 only)
C240	2113743L41	Capacitor Chip .01µF
C241	2113743N46	Capacitor Chip 68pF (PMUF1063 & PMUF1064 only)
C243	2113743N34	Capacitor Chip 22pF
C244 to C247	2113743L41	Capacitor Chip .01µF
C253	2113743N48	Capacitor Chip 82pF
C254	2113743N46	Capacitor Chip 68pF
C256	2113743N03	Capacitor Chip 1pF
C257	2113743N46	Capacitor Chip 68pF
C258	2113743M24	Capacitor Chip 0.1µF
C259	2113743F18	Capacitor Chip 2.2µF
C260	2113743N46	Capacitor Chip 68pF
C262	2113743M24	Capacitor Chip 0.1µF
C263	2113743N46	Capacitor Chip 68pF
C264	2113743M24	Capacitor Chip 0.1µF
C265	2113743N69	Capacitor Chip 1.8pF
C266 to C267	2113743N09	Capacitor Chip 2pF
C268	2113743N03	Capacitor Chip 1pF
C269	2113743M12	Capacitor Chip .033µF
C270	2113743M24	Capacitor Chip 0.1µF
C271	2113743N20	Capacitor Chip 5.6pF
C273	2113743N14	Capacitor Chip 3.3pF
C274	2113743N46	Capacitor Chip 68pF
C275	2113743N05	Capacitor Chip 1.2pF
C276	2113743N13	Capacitor Chip 3pF
C277	2113743N20	Capacitor Chip 5.6pF
C278	2113743N16	Capacitor Chip 3.9pF
C280	2113743M24	Capacitor Chip 0.1µF
C281 to C282	2113743N46	Capacitor Chip 68pF
C284	2113743N44	Capacitor Chip 56pF
C285	2113743M24	Capacitor Chip 0.1µF
C286	2113743N46	Capacitor Chip 68pF
C287	2113743N50	Capacitor Chip 100pF
C289	2113743M12	Capacitor Chip .033µF
C290	2113743N44	Capacitor Chip 56pF
C300	2113743N65	Capacitor Chip 8pF
C301	2113743N46	Capacitor Chip 68pF
C303	2113743N26	Capacitor Chip 10pF
C304	2113743M24	Capacitor Chip 0.1µF
C305	2113743N44	Capacitor Chip 56pF
C306 to C307	2113743N46	Capacitor Chip 68pF
C308	2113743N05	Capacitor Chip 1.2pF
C310	2113743N30	Capacitor Chip 15pF
C311	2113743N48	Capacitor Chip 82pF
C312	2113743N37	Capacitor Chip 30pF
C313 C314	2113743N48	Capacitor Chip 82pF
C315	2113743N65	Capacitor Chip 8pF
C316 to C317	2113743N44	Capacitor Chip 56pF
C350	2311049A59	Capacitor Tantalum 10µF
C352	2113743M08	Capacitor Chip .022µF
C353	2113743A23	Capacitor Chip 0.22µF
C354	2113743M08	Capacitor Chip .022µF
C355	2113743E20	Capacitor Chip 0.1µF
C356	2113743N50	Capacitor Chip 100pF
C357	2113743F16	Capacitor Chip 1µF
C358	2113743M24	Capacitor Chip 0.1µF
C359 to C360	2113743A23	Capacitor Chip 0.22µF
C361 to C362	2113743R33	Capacitor Chip 4700pF
C363 to C364	2113743F16	Capacitor Chip 1µF
C365	2113743N65	Capacitor Chip 8pF
C366	2113743F16	Capacitor Chip 1µF
C367	2113743M08	Capacitor Chip .022µF
C369	2113743R33	Capacitor Chip 4700pF
C370	2113743M24	Capacitor Chip 0.1µF
C371	2113743R33	Capacitor Chip 4700pF
C372	2113743A23	Capacitor Chip 0.22µF
C373	2311049A59	Capacitor Tantalum 10µF
C374	2113743E07	Capacitor Chip .022µF
C376	2113743N09	Capacitor Chip 2pF
C377	2113743N34	Capacitor Chip 22pF
C378	2113743N11	Capacitor Chip 2.4pF
C379	2113740A82	Capacitor Chip 1500pF
C380	2109720D14	Capacitor Chip 0.1µF
C381	2113743E20	Capacitor Chip 0.1µF
C382	2311049A59	Capacitor Tantalum 10µF
C383	2113743M08	Capacitor Chip .022µF
C385	2113743N25	Capacitor Chip 9.1pF
C386	2113743N29	Capacitor Chip 13pF
C387	2113743N30	Capacitor Chip 15pF
C388 to C390	2113743N29	Capacitor Chip 13pF
C391	2113741F49	Capacitor Chip .01µF
C392	2113743F16	Capacitor Chip 1µF
C393	2113743E20	Capacitor Chip 0.1µF
C400	2113743L41	Capacitor Chip .01µF

Circuit Ref	Motorola Part No.	Description
C401 to C402	2113743M24	Capacitor Chip 0.1µF
C403	2113928D08	Capacitor Chip 10µF
C404	2113743N46	Capacitor Chip 68pF
C405	2113743N46	Capacitor Chip 68pF
C407	2113928N01	Capacitor Chip 0.1µF
C408	2113743N46	Capacitor Chip 68pF
C409	2113743M24	Capacitor Chip 0.1µF
C410	2113928N01	Capacitor Chip 0.1µF
C411	2113743M24	Capacitor Chip 0.1µF
C412	2311049A59	Capacitor Tantalum 10µF
C414	2113743M24	Capacitor Chip 0.1µF
C415	2109720D01	Capacitor Chip .01µF
C416	2113928N01	Capacitor Chip 0.1µF
C420	2113743L41	Capacitor Chip .01µF
C421	2113928N01	Capacitor Chip 0.1µF
C422	2113743M24	Capacitor Chip 0.1µF
C423	2113743N46	Capacitor Chip 68pF
C424	2311049A59	Capacitor Tantalum 10µF
C425	2113743M24	Capacitor Chip 0.1µF
C426 to C427	2113743N46	Capacitor Chip 68pF
C428 to C429	2113743M24	Capacitor Chip 0.1µF
C430	2113928N01	Capacitor Chip 0.1µF
C431	2113743N46	Capacitor Chip 68pF
C433	2113743L41	Capacitor Chip .01µF
C434 to C435	2113743M24	Capacitor Chip 0.1µF
C436 to C437	2113743N34	Capacitor Chip 22pF
C438	2113743F18	Capacitor Chip 2.2µF
C439	2113743L17	Capacitor Chip 1000pF
C440	2113743F18	Capacitor Chip 2.2µF
C441	2113743N46	Capacitor Chip 68pF
C442	2113743E20	Capacitor Chip 0.1µF
C443	2113928N01	Capacitor Chip 0.1µF
C444 to C445	2113743N46	Capacitor Chip 68pF
C447	2113743M08	Capacitor Chip .022µF
C448	2113928N01	Capacitor Chip 0.1µF
C449	2113743N46	Capacitor Chip 68pF
C451	2113743M08	Capacitor Chip .022µF
C452	2113743B29	Capacitor Chip 1µF
C453	2113743N46	Capacitor Chip 68pF
C456	2113743N46	Capacitor Chip 68pF
C458 to C459	2113743N46	Capacitor Chip 68pF
C463	2113743N46	Capacitor Chip 68pF
C466	2113743N46	Capacitor Chip 68pF
C467	2113928N01	Capacitor Chip 0.1µF
C471 to C473	2113743N46	Capacitor Chip 68pF
C475	2113743H14	Capacitor Chip 10µF
C476	2113928D08	Capacitor Chip 10µF
C479	2113928N01	Capacitor Chip 0.1µF
C480	2113743G26	Capacitor Chip 4.7µF
C481 to C482	2113928N01	Capacitor Chip 0.1µF
C490 to C497	2113743N46	Capacitor Chip 68pF
C502	2311049A05	Capacitor Tantalum 0.47µF
C503	2113743N46	Capacitor Chip 68pF
C505	2113743N46	Capacitor Chip 68pF
C511 to C514	2113743N46	Capacitor Chip 68pF
C520 to C523	2113743L41	Capacitor Chip .01µF
C524	2113743N32	Capacitor Chip 18pF
C525 to C529	2113743N48	Capacitor Chip 82pF
C530	2311049A18	Capacitor Tantalum 10µF
C531	2113743N48	Capacitor Chip 82pF
CR101 to CR102	4880973Z02	Diode PIN MA4PH261
CR203	4862824C03	Diode Varactor 1SV232 (PMUF1046 & PMUF1047 only)
CR251 to CR253	4862824C01	Diode Varactor 1SV229
CR300	4880154K03	Diode Schottky MMBD353LT1
CR301	4802245J41	Diode Switching HSMP3820
CR350	4862824C01	Diode Varactor 1SV229
CR411 to CR413	4802245J62	Diode Array RB731U
CR440	4813833C02	Diode Dual Common Cathode MMBD6100LT1
CR501	4880107R01	Diode Rectifier BYD17D
CR503	4805729G49	Opto-Device LED BRPY1204W
D201 to D202	4802233J09	Diode Array IMN10
E101	9162002U03	Filter, EMI(for PCB No. 8480641Z02 Rev A only)
E101	2484657R01	2743019447(for PCB No. 8480641Z03 Rev B only)
E102	2405688Z01	2744044446
E400 to E409	2480640Z01	BK1005HM471
F501	6580542Z01	Protector 1608FF
FL201	4802245J49	Oscillator Crystal(PMUF1046 & PMUF1047 only)
FL300 to FL301	9180657Z01	Filter
FL350	4885631B01	Filter 31B01
FL401	4870368G02	Oscillator Crystal 68G02
J101	2880658Z06	Connector
J400	0905505Y04	Connector Multi_pin FH12-40S-0.5SH
J403	0905505Y02	Connector Multi_pin CL586-0523-9
L101 to L102	2460591A29	Inductor Airwound 6.61nH
L103	2460591A49	Inductor Airwound 8.01nH
L104	2462587V38	Inductor 220nH
L106	2479990B02	Inductor Airwound 19.61nH
L107	2413926G05	Inductor 6.8nH
L108	2413926G09	Inductor 15nH
L109	2462587V38	Inductor 220nH
L110	2413926G04	Inductor 5.6nH
L111	2413926G06	Inductor 8.2nH
L112	2479990A01	Inductor Airwound 4.22nH
L113	2462587V27	Inductor 27nH
L200	2462587Q20	Inductor 2.2µH
L202	2462587Q20	Inductor 2.2µH
L203	2462587V21	Inductor 6.8nH
L204	2462587P25	Inductor 12µH
L250	2462587V21	Inductor 6.8nH
L252	2462587V38	Inductor 220nH
L253	2462587V41	Inductor 390nH
L254	2462587V28	Inductor 33nH
L256 to L260	2462587V38	Inductor 220nH
L261	2462587V26	Inductor 22nH
L262	2462587V38	Inductor 220nH
L263	2462587V25	Inductor 18nH
L264	2462587V24	Inductor 15nH
L265	2462587V30	Inductor 47nH
L301	2462587V20	Inductor 3.3nH
L302	2462587V38	Inductor 220nH
L303	2462587V41	Inductor 390nH
L304	2413926G08	Inductor 12nH
L306	2462587V32	Inductor 68nH
L307	2462587V26	Inductor 22nH
L308	2462587V30	Inductor 47nH
L309	2462587V38	Inductor 220nH
L310	2462587V22	Inductor 8.2nH
L350	2462587Q20	Inductor 2.2µH
L351 to L352	2462587T22	Inductor 390nH
L353	2462587V35	Inductor 120nH
L354	2462587T23	Inductor 470nH
L355	2462587V38	Inductor 220nH
L356	2462587T40	Inductor 33nH
L357	2462587Q20	Inductor 2.2µH
L400 to L401	2462587Q42	Inductor 390nH
L410 to L411	2462587Q42	Inductor 390nH
L505	2462587Q42	Inductor 390nH
M100	7585651Z01	Mechanical(for PCB No. 8480641Z02 Rev A only)
M300	7585651Z01	Mechanical (for PCB No. 8480641Z02 Rev A only)
M400 to M401	7585651Z01	Mechanical(for PCB No. 8480641Z02 Rev A only)
M501 to M502	7585651Z01	Mechanical(for PCB No. 8480641Z02 Rev A only)
PB501 to PB505	4080523Z01	Mechanical KSS223G
Q101	5105385Y73	Transistor 85Y73
Q200	4802245J50	Transistor Bipolar
Q210	4802245J50	Transistor Bipolar
Q251	4805218N63	Transistor Bipolar BFQ67W
Q252	4802245J50	Transistor Bipolar
Q302	4802245J56	Transistor Bipolar QSBT0048
Q304	4802245J44	Transistor Bipolar HP415
Q350	4805218N63	Transistor Bipolar BFQ67W
Q400	4809579E18	Transistor FET TP0101T
Q403	4880214G02	Transistor Bipolar MMBT3904L
Q405	4802245J54	Transistor Bipolar UMG5N
Q410	4802245J54	Transistor Bipolar UMG5N
Q416	4809579E18	Transistor FET TP0101T
Q417	4802245J50	Transistor Bipolar
Q502	5180159R01	Transistor Bipolar IMX1
Q505	4880214G02	Transistor Bipolar MMBT3904L
R101 to R102	0662057A34	Resistor Chip 240
R103	0662057A18	Resistor Chip 51
R104	0680539Z01	Resistor Chip 0.1
R105	0662057M81	Resistor Chip 2K
R106	0662057M01	Resistor Chip 0
R107	0662057N13	Resistor Chip 39K

Circuit Ref	Motorola Part No.	Description
R108	0662057N08	Resistor Chip 24K
R109	0662057N20	Resistor Chip 75K
R110	0662057M47	Resistor Chip 75
R111	0680195M01	Resistor Chip 10
R112	0662057M01	Resistor Chip 0
R113	0662057N30	Resistor Chip 200K
R114	0662057M67	Resistor Chip 510
R115	0662057N39	Resistor Chip 470K
R116	0662057M85	Resistor Chip 3K
R117	0662057M98	Resistor Chip 10K
R200	0662057M50	Resistor Chip 100
R202	0662057M88	Resistor Chip 3.9K
R203	0662057M38	Resistor Chip 33
R204	0662057M52	Resistor Chip 120
R206	0662057N10	Resistor Chip 30K
R208	0662057N17	Resistor Chip 56K
R209	0662057M77	Resistor Chip 1.3K
R210	0662057M62	Resistor Chip 330
R211	0662057N15	Resistor Chip 47K (PMUF1046 & PMUF1047 only)
R213	0662057M50	Resistor Chip 100 (PMUF1063 & PMUF1064 only)
R214	0662057N15	Resistor Chip 47K (PMUF1063 & PMUF1064 only)
R216 to R217	0662057M01	Resistor Chip 0
R218	0662057N11	Resistor Chip 33K
R219 to R220	0662057M54	Resistor Chip 150
R222	0662057M01	Resistor Chip 0
R250	0662057M60	Resistor Chip 270
R251	0662057M50	Resistor Chip 100
R253	0662057M26	Resistor Chip 10
R254	0662057N15	Resistor Chip 47K
R255	0662057M62	Resistor Chip 330
R256	0662057M01	Resistor Chip 0
R257	0662057M74	Resistor Chip 1K
R261 to R262	0662057M38	Resistor Chip 33
R263 to R264	0662057M60	Resistor Chip 270
R265 to R266	0662057N10	Resistor Chip 30K
R267	0662057N01	Resistor Chip 12K
R268	0662057N07	Resistor Chip 22K
R270 to R273	0662057M38	Resistor Chip 33
R274	0662057M52	Resistor Chip 120
R275	0662057M26	Resistor Chip 10
R306	0662057M92	Resistor Chip 5.6K
R307	0662057N17	Resistor Chip 56K
R309	0662057M70	Resistor Chip 680
R310	0662057N01	Resistor Chip 12K
R312	0662057M62	Resistor Chip 330
R315	0662057M74	Resistor Chip 1K
R317	0662057M96	Resistor Chip 8.2K
R318	0662057M72	Resistor Chip 820
R320	0662057M52	Resistor Chip 120
R321	0662057M43	Resistor Chip 51
R322	0662057M52	Resistor Chip 120
R323	0662057M87	Resistor Chip 3.6K
R324	0662057M68	Resistor Chip 560
R325	0662057N10	Resistor Chip 30K
R326	0662057M42	Resistor Chip 47
R327	0662057M40	Resistor Chip 39
R328	0662057N03	Resistor Chip 15K
R350	0662057M33	Resistor Chip 20
R351	0662057M52	Resistor Chip 120
R352 to R353	0662057N01	Resistor Chip 12K
R355	0662057M98	Resistor Chip 10K
R356	0662057M78	Resistor Chip 1.5K
R358	0662057N15	Resistor Chip 47K
R359	0662057M78	Resistor Chip 1.5K
R360	0662057N15	Resistor Chip 47K
R361	0662057M57	Resistor Chip 200
R362	0662057M98	Resistor Chip 10K
R363	0662057N15	Resistor Chip 47K
R364	0662057M81	Resistor Chip 2K
R365	0662057M87	Resistor Chip 3.6K
R366	0662057M78	Resistor Chip 1.5K
R400	0662057N15	Resistor Chip 47K
R401	0662057M01	Resistor Chip 0
R405	0662057M01	Resistor Chip 0
R406	0662057N20	Resistor Chip 75K
R407	0662057N19	Resistor Chip 68K
R409	0662057M98	Resistor Chip 10K
R410	0662057N23	Resistor Chip 100K
R411	0662057M98	Resistor Chip 10K
R413	0662057M01	Resistor Chip 0
R414	0662057V34	Resistor Chip 180K
R415	0662057V26	Resistor Chip 91K
R416	0662057M90	Resistor Chip 4.7K
R419	0662057M67	Resistor Chip 510
R420	0662057B46	Resistor Chip 10MEG
R421	0662057M81	Resistor Chip 2K
R423	0662057N39	Resistor Chip 470K
R424	0662057N12	Resistor Chip 36K
R425	0662057N10	Resistor Chip 30K
R426	0662057N35	Resistor Chip 330K
R427	0662057M84	Resistor Chip 2.7K
R428	0662057M10	Resistor Chip 2.2
R429	0662057M98	Resistor Chip 10K
R431	0662057N39	Resistor Chip 470K
R432	0662057N16	Resistor Chip 51K
R434	0662057M62	Resistor Chip 330
R435	0662057M81	Resistor Chip 2K
R436	0662057M74	Resistor Chip 1K
R437	0662057M01	Resistor Chip 0
R438 to R439	0662057N54	Resistor Chip 150
R445	0662057N08	Resistor Chip 24K
R446	0662057N22	Resistor Chip 91K
R447	0662057N38	Resistor Chip 430K
R448	0662057N06	Resistor Chip 20K
R449	0662057N08	Resistor Chip 24K
R450	0683962T45	Resistor Chip 68
R457	0662057M98	Resistor Chip 10K
R460	0662057M90	Resistor Chip 4.7K
R461	0662057M56	Resistor Chip 180
R462	0662057M98	Resistor Chip 10K
R463	0662057M61	Resistor Chip 300
R471	0662057M92	Resistor Chip 5.6K
R472	0662057N12	Resistor Chip 36K
R473	0662057M26	Resistor Chip 10
R475	0662057M01	Resistor Chip 0
R476	0662057N08	Resistor Chip 24K
R477	0662057M74	Resistor Chip 1K
R478	0662057M98	Resistor Chip 10K
R481	0662057N08	Resistor Chip 24K
R492	0662057M01	Resistor Chip 0
R501	0662057M70	Resistor Chip 680
R502	0662057M56	Resistor Chip 180
R505	0662057M98	Resistor Chip 10K
R506	0662057N15	Resistor Chip 47K
R507	0662057M01	Resistor Chip 0
RT400	0680590Z01	Resistor Thermal 33.0K
S501	4080710Z01	Mechanical Rotary Switch(PMUF1046 & PMUF1063 only)
S501	4080710Z02	Mechanical Rotary Switch(PMUF1047 & PMUF1064 only)
S502	1880619Z01	Mechanical
SH100	2680507Z01	Mechanical Shield 07Z01
SH101	2686081B04	Mechanical Shield 81B04
SH102	2680554Z01	Mechanical Shield 54Z01
SH201	2680511Z01	Mechanical Shield 11Z01
SH202	2680511Z01	Mechanical Shield 11Z01
SH250	2680514Z01	Mechanical Shield 14Z01
SH251	2680513Z01	Mechanical Shield 13Z01
SH301	2680554Z01	Mechanical Shield 54Z01
SH303	2680508Z01	Mechanical Shield 08Z01
SH350	2680508Z01	Mechanical Shield 08Z01
SH351	2680697Z01	Mechanical Shield 97Z01
SH352	2680553Z01	Mechanical Shield 53Z01
SH353	2680514Z01	Mechanical Shield 14Z01
SH400	2680505Z01	Mechanical Shield 05Z01
SH401	2680506Z01	Mechanical Shield 06Z01
SH402	2680515Z01	Mechanical Shield 15Z01
SH403	2680516Z01	Mechanical Shield 16Z01
U101	5102463J66	Analog IC Amp RF2103P
U102	5185765B28	Custom IC H99S-4
U103	5185963A15	Analog IC LM50CIM3X
U201	5185963A27	Custom IC ASIC 63A27
U205	4802245J58	Oscillator DRR030KER900TCT
U206	4802245J57	Oscillator DRR030KE1R225TC
U247	5105739X05	Analog IC ADP3300
U248	5102463J58	Analog IC Voltage Regulator LP2980AIM5
U250	5105750U54	Custom IC Buffer/Driver 50U54
U301	5185963A43	Analog IC MA4EX900L-1226
U302	5185623B01	Digital IC Gate TC7SU04FTE85L
U350	5185623B01	Digital IC Gate TC7SU04FTE85L
U351	5109632D83	Custom IC 32D83
U352	4885622B01	Transistor BF904
U400	5102463J40	Analog IC Voltage Regulator LP2951ACMM-3.3
U404	5185963A53	Custom IC 63A53
U405	5102463J36	Digital IC Memory
U406	5102463J60	Digital IC Memory AT49LV040-90T1
U407	5102463J64	Digital IC Memory X25128-2.7
U409	5102226J56	Digital IC Microprocessor MC68HC11FL0PU1
U410	5102463J57	Analog IC Voltage Regulator ILC7062
U420	5102463J44	Analog IC Amp TDA8547TS
VR432 to VR433	4805656W08	Diode MMQA5V6T1
VR434	4802245J73	Diode Zener UDZSTE17

Circuit Ref	Motorola Part No.	Description
VR445 to VR449	4802245J74	Diode Zener UDZSTE17
VR450	4802245J75	Diode Zener UDZSTE17
VR501	4813830A18	Diode Zener MMBZ5235BLT1
VR502	4880140L17	Diode Zener MMBZ5242B
VR503 to VR508	4802245J73	Diode Zener UDZSTE17
Y200	4802245J68	Oscillator Crystal TTS12V(PMUF1063 & PMUF1064 only)
	8480641Z02	PC Board, 800 MHz
	8480641Z03	PC Board, 800 MHz
B501	0986237A01	Connector Multi_Pin 37A01
B503	3980502Z01	Mechanical
B504	3980501Z01	Mechanical
C101	2113740F45	Capacitor Chip 56pF
C104	2113740F15	Capacitor Chip 3.3pF
C105	2113740F06	Capacitor Chip 1.3pF
C106	2113740F23	Capacitor Chip 6.8pF
C107	2113740F03	Capacitor Chip 1pF
C108	2113743N46	Capacitor Chip 68pF
C109	2113740F20	Capacitor Chip 5.1pF
C110	2113740F12	Capacitor Chip 2.4pF
C111	2113743N32	Capacitor Chip 18pF
C112	2113743N46	Capacitor Chip 68pF
C113	2113740F45	Capacitor Chip 56pF
C114	2103689A19	Capacitor Chip 6.0pF
C115	2103689A05	Capacitor Chip 12.0pF
C116 to C117	2113743N46	Capacitor Chip 68pF
C118	2103689A08	Capacitor Chip 18.0pF
C119	2113743N46	Capacitor Chip 68pF
C121	2113743N60	Capacitor Chip 5pF
C124 to C125	2113743N46	Capacitor Chip 68pF
C126	2113743L13	Capacitor Chip 680pF
C127	2113743N12	Capacitor Chip 2.7pF
C128	2113743N44	Capacitor Chip 56pF

* Motorola Depot Servicing only

Reference designators with an asterisk indicate components which are not fieldreplaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

800MHz Radio Parts List (Rev H)

Circuit Ref	Motorola Part No.	Description
B501	0986237A01	Connector Multi_Pin 37A01
B503	3980502Z01	Mechanical
B504	3980501Z01	Mechanical
C101	2113740F45	Capacitor Chip 56pF
C104	2113740F15	Capacitor Chip 3.3pF
C105	2113740F06	Capacitor Chip 1.3pF
C106	2113740F23	Capacitor Chip 6.8pF
C107	2113740F03	Capacitor Chip 1pF
C108	2113743N46	Capacitor Chip 68pF
C109	2113740F20	Capacitor Chip 5.1pF
C110	2113740F12	Capacitor Chip 2.4pF
C111	2113743N32	Capacitor Chip 18pF
C112	2113743N46	Capacitor Chip 68pF
C113	2113740F45	Capacitor Chip 56pF
C114	2103689A19	Capacitor Chip 6.0pF
C115	2103689A05	Capacitor Chip 12.0pF
C116 to C117	2113743N46	Capacitor Chip 68pF
C118	2103689A08	Capacitor Chip 18.0pF
C119	2113743N46	Capacitor Chip 68pF
C121	2113743N60	Capacitor Chip 5pF
C124 to C125	2113743N46	Capacitor Chip 68pF
C126	2113743L13	Capacitor Chip 680pF
C127	2113743N12	Capacitor Chip 2.7pF
C128	2113743N44	Capacitor Chip 56pF
C129	2113743M08	Capacitor Chip .022µF
C130	2113743L13	Capacitor Chip 680pF
C131	2113743N46	Capacitor Chip 68pF
C132	2113743L41	Capacitor Chip .01µF
C133 to C135	2113743N44	Capacitor Chip 56pF
C136	2113743M24	Capacitor Chip 0.1µF
C138	2113743N44	Capacitor Chip 56pF
C139	2113743M08	Capacitor Chip .022µF
C140	2113743N32	Capacitor Chip 18pF
C141	2113743N18	Capacitor Chip 4.7pF
C142	2113743M08	Capacitor Chip .022µF
C143	2113743L29	Capacitor Chip 3300pF
C144	2311049A08	Capacitor Tantalum 1µF
C146	2113743N46	Capacitor Chip 68pF
C147 to C148	2113743N32	Capacitor Chip 18pF
C149	2113743N44	Capacitor Chip 56pF
C150	2113743N32	Capacitor Chip 18pF
C151	2113743N46	Capacitor Chip 68pF
C152	2113743N32	Capacitor Chip 18pF
C153	2113743N46	Capacitor Chip 68pF
C154 to C155	2113743N44	Capacitor Chip 56pF
C157	2113743N46	Capacitor Chip 68pF
C158 to C159	2113743N44	Capacitor Chip 56pF
C160	2113743N46	Capacitor Chip 68pF
C161	2113743N32	Capacitor Chip 18pF
C162	2113743N48	Capacitor Chip 82pF
C163	2113743N46	Capacitor Chip 68pF
C164	2113743N32	Capacitor Chip 18pF
C200	2113743F18	Capacitor Chip 2.2µF
C201	2113743N46	Capacitor Chip 68pF
C202	2113743F18	Capacitor Chip 2.2µF
C203	2311049A57	Capacitor Tantalum 10µF
C204	2113743M24	Capacitor Chip 0.1µF
C205	2113743L41	Capacitor Chip .01µF
C206	2113743M24	Capacitor Chip 0.1µF
C207	2113743F18	Capacitor Chip 2.2µF
C208	2113743M24	Capacitor Chip 0.1µF
C209	2311049A57	Capacitor Tantalum 10µF
C210	2113743N46	Capacitor Chip 68pF
C211	2311049A09	Capacitor Tantalum 2.2µF
C212 to C213	2113743M24	Capacitor Chip 0.1µF
C214	2113743F18	Capacitor Chip 2.2µF
C215	2113743M24	Capacitor Chip 0.1µF
C216	2113743N46	Capacitor Chip 68pF
C217	2113743F18	Capacitor Chip 2.2µF
C218	2311049A01	Capacitor Tantalum 0.1µF
C219	2113743N46	Capacitor Chip 68pF
C220	2311049A05	Capacitor Tantalum 0.47µF
C221 to C224	2113743N46	Capacitor Chip 68pF
C225 to C226	2113743E12	Capacitor Chip .047µF
C227	2113743N46	Capacitor Chip 68pF
C228	2113743N02	Capacitor Chip 0.75pF
C229	2113743F18	Capacitor Chip 2.2µF
C230	2113743N46	Capacitor Chip 68pF
C231	2113741F17	Capacitor Chip 470pF
C232	2113743N46	Capacitor Chip 68pF
C233	2113743L17	Capacitor Chip 1000pF
C234	2311049A59	Capacitor Tantalum 10µF
C235	2113743N40	Capacitor Chip 39pF (PMUF1046 & PMUF1047 only)
C236	2113743N08	Capacitor Chip 1.6pF (PMUF1046 & PMUF1047 only)
C237	2113740F63	Capacitor Chip 330pF (PMUF1046 & PMUF1047 only)
C238	2113743M24	Capacitor Chip 0.1µF (PMUF1063 & PMUF1064 only)
C239	2113743L41	Capacitor Chip .01µF (PMUF1063 & PMUF1064 only)
C240	2113743L41	Capacitor Chip .01µF
C241	2113743N46	Capacitor Chip 68pF (PMUF1063 & PMUF1064 only)
C243	2113743N34	Capacitor Chip 22pF
C244 to C247	2113743L41	Capacitor Chip .01µF
C253	2113743N48	Capacitor Chip 82pF
C254	2113743N46	Capacitor Chip 68pF
C256	2113743N03	Capacitor Chip 1pF
C257	2113743N46	Capacitor Chip 68pF
C258	2113743M24	Capacitor Chip 0.1µF
C259	2113743F18	Capacitor Chip 2.2µF
C260	2113743N46	Capacitor Chip 68pF
C262	2113743M24	Capacitor Chip 0.1µF
C263	2113743N46	Capacitor Chip 68pF
C264	2113743M24	Capacitor Chip 0.1µF
C265	2113743N69	Capacitor Chip 1.8pF
C266 to C267	2113743N09	Capacitor Chip 2pF
C268	2113743N03	Capacitor Chip 1pF
C269	2113743M12	Capacitor Chip .033µF
C270	2113743M24	Capacitor Chip 0.1µF
C271	2113743N20	Capacitor Chip 5.6pF
C273	2113743N14	Capacitor Chip 3.3pF
C274	2113743N46	Capacitor Chip 68pF
C275	2113743N05	Capacitor Chip 1.2pF
C276	2113743N13	Capacitor Chip 3pF
C277	2113743N20	Capacitor Chip 5.6pF
C278	2113743N16	Capacitor Chip 3.9pF
C280	2113743M24	Capacitor Chip 0.1µF
C281 to C282	2113743N46	Capacitor Chip 68pF
C284	2113743N44	Capacitor Chip 56pF
C285	2113743M24	Capacitor Chip 0.1µF
C286	2113743N46	Capacitor Chip 68pF
C287	2113743N50	Capacitor Chip 100pF
C289	2113743M12	Capacitor Chip .033µF
C290	2113743N44	Capacitor Chip 56pF
C300	2113743N65	Capacitor Chip 8pF
C301	2113743N46	Capacitor Chip 68pF
C303	2113743N26	Capacitor Chip 10pF
C304	2113743M24	Capacitor Chip 0.1µF
C305	2113743N44	Capacitor Chip 56pF
C306 to C307	2113743N46	Capacitor Chip 68pF
C308	2113743N05	Capacitor Chip 1.2pF
C310	2113743N30	Capacitor Chip 15pF
C311	2113743N48	Capacitor Chip 82pF
C312	2113743N37	Capacitor Chip 30pF
C313 C314	2113743N48	Capacitor Chip 82pF
C315	2113743N65	Capacitor Chip 8pF
C316 to C317	2113743N44	Capacitor Chip 56pF
C350	2311049A59	Capacitor Tantalum 10µF
C352	2113743M08	Capacitor Chip .022µF
C353	2113743A23	Capacitor Chip 0.22µF
C354	2113743M08	Capacitor Chip .022µF
C355	2113743E20	Capacitor Chip 0.1µF
C356	2113743N50	Capacitor Chip 100pF
C357	2113743F16	Capacitor Chip 1µF
C358	2113743M24	Capacitor Chip 0.1µF
C359 to C360	2113743A23	Capacitor Chip 0.22µF
C361 to C362	2113743R33	Capacitor Chip 4700pF
C363 to C364	2113743F16	Capacitor Chip 1µF
C365	2113743N65	Capacitor Chip 8pF
C366	2113743F16	Capacitor Chip 1µF
C367	2113743M08	Capacitor Chip .022µF
C369	2113743R33	Capacitor Chip 4700pF
C370	2113743M24	Capacitor Chip 0.1µF
C371	2113743R33	Capacitor Chip 4700pF
C372	2113743A23	Capacitor Chip 0.22µF
C373	2311049A59	Capacitor Tantalum 10µF
C374	2113743E07	Capacitor Chip .022µF
C376	2113743N09	Capacitor Chip 2pF
C377	2113743N34	Capacitor Chip 22pF
C378	2113743N11	Capacitor Chip 2.4pF
C379	2113740A82	Capacitor Chip 1500pF
C380	2109720D14	Capacitor Chip 0.1µF
C381	2113743E20	Capacitor Chip 0.1µF
C382	2311049A59	Capacitor Tantalum 10µF
C383	2113743M08	Capacitor Chip .022µF
C385	2113743N25	Capacitor Chip 9.1pF
C386	2113743N29	Capacitor Chip 13pF
C387	2113743N30	Capacitor Chip 15pF
C388 to C390	2113743N29	Capacitor Chip 13pF
C391	2113741F49	Capacitor Chip .01µF
C392	2113743F16	Capacitor Chip 1µF
C393	2113743E20	Capacitor Chip 0.1µF
C400	2113743L41	Capacitor Chip .01µF
C401 to C402	2113743M24	Capacitor Chip 0.1µF
C403	2113928D08	Capacitor Chip 10µF
C404	2113743N46	Capacitor Chip 68pF
C405	2113743N46	Capacitor Chip 68pF
C407	2113928N01	Capacitor Chip 0.1µF
C408	2113743N46	Capacitor Chip 68pF
C409	2113743M24	Capacitor Chip 0.1µF
C410	2113928N01	Capacitor Chip 0.1µF
C411	2113743M24	Capacitor Chip 0.1µF
C412	2311049A59	Capacitor Tantalum 10µF

Circuit Ref	Motorola Part No.	Description
C414	2113743M24	Capacitor Chip 0.1µF
C415	2109720D01	Capacitor Chip .01µF
C416	2113928N01	Capacitor Chip 0.1µF
C420	2113743L41	Capacitor Chip .01µF
C421	2113928N01	Capacitor Chip 0.1µF
C422	2113743M24	Capacitor Chip 0.1µF
C423	2113743N46	Capacitor Chip 68pF
C424	2311049A59	Capacitor Tantalum 10µF
C425	2113743M24	Capacitor Chip 0.1µF
C426 to C427	2113743N46	Capacitor Chip 68pF
C428 to C429	2113743M24	Capacitor Chip 0.1µF
C430	2113928N01	Capacitor Chip 0.1µF
C431	2113743N46	Capacitor Chip 68pF
C433	2113743L41	Capacitor Chip .01µF
C434 to C435	2113743M24	Capacitor Chip 0.1µF
C436 to C437	2113743N34	Capacitor Chip 22pF
C438	2113743F18	Capacitor Chip 2.2µF
C439	Not Placed	
C440	2113743F18	Capacitor Chip 2.2µF
C441	2113743N46	Capacitor Chip 68pF
C442	2113743E20	Capacitor Chip 0.1µF
C443	2113928N01	Capacitor Chip 0.1µF
C444 to C445	2113743N46	Capacitor Chip 68pF
C447	2113743M08	Capacitor Chip .022µF
C448	2113928N01	Capacitor Chip 0.1µF
C449	2113743N46	Capacitor Chip 68pF
C451	2113743M08	Capacitor Chip .022µF
C452	2113743B29	Capacitor Chip 1µF
C453	2113743N46	Capacitor Chip 68pF
C456	2113743N46	Capacitor Chip 68pF
C458 to C459	2113743N46	Capacitor Chip 68pF
C463	2113743N46	Capacitor Chip 68pF
C466	2113743N46	Capacitor Chip 68pF
C467	2113928N01	Capacitor Chip 0.1µF
C471 to C473	2113743N46	Capacitor Chip 68pF
C475	2113743H14	Capacitor Chip 10µF
C476	2113928D08	Capacitor Chip 10µF
C479	2113928N01	Capacitor Chip 0.1µF
C480	2113928D08	Capacitor Chip 10µF
C481 to C482	2113928N01	Capacitor Chip 0.1µF
C490 to C497	2113743N46	Capacitor Chip 68pF
C502	2311049A05	Capacitor Tantalum 0.47µF
C503	2113743N46	Capacitor Chip 68pF
C505	2113743N46	Capacitor Chip 68pF
C511 to C514	2113743N46	Capacitor Chip 68pF
C520 to C523	2113743L41	Capacitor Chip .01µF
C524	2113743N32	Capacitor Chip 18pF
C525 to C529	2113743N48	Capacitor Chip 82pF
C530	2113743N50	Capacitor Chip 100pF
C531	2113743N48	Capacitor Chip 82pF
C532	2113743N50	Capacitor Chip 100pF
C533	2113743N50	Capacitor Chip 100pF
C534	2113743N50	Capacitor Chip 100pF
C535	2113743N50	Capacitor Chip 100pF
C536	2113743N50	Capacitor Chip 100pF
C537	2311049A96	Capacitor Tantalum 33µF
CR101 to CR102	4880973Z02	Diode PIN MA4PH261
CR203	4862824C03	Diode Varactor 1SV232(PMUF1046 & PMUF1047 only)
CR251 to CR253	4862824C01	Diode Varactor 1SV229
CR300	4880154K03	Diode Schottky MMBD353LT1
CR301	4802245J41	Diode Switching HSMP3820
CR350	4862824C01	Diode Varactor 1SV229
CR411 to CR413	4802245J62	Diode Array RB731U
CR440	4813833C02	Diode Dual Common Cathode MMBD6100LT1
CR501	4880107R01	Diode Rectifier BYD17D
CR503	4805729G49	Opto-Device LED BRPY1204W
D201 to D202	4802233J09	Diode Array IMN10
E101	2484657R01	Ferrite Bead
E102	2405688Z01	2744044446
E400 to E409	2480640Z01	BK1005HM471
F501	6580542Z01	Protector 1608FF
FL201	4805875Z04	Crystal 16.8MHz(PMUF1046 & PMUF1047 only)
FL300 to FL301	9180657Z01	Filter
FL350	4885631B01	Filter 31B01
FL401	4870368G02	Oscillator Crystal 68G02
J101	2880658Z06	Connector
J400	0905505Y04	Connector Multi_pin FH12-40S-0.5SH
J403	0905505Y02	Connector Multi_pin CL586-0523-9
L101 to L102	2460591A29	Inductor Airwound 6.61nH
L103	2460591A49	Inductor Airwound 8.01nH
L104	2462587V38	Inductor 220nH
L106	2479990B02	Inductor Airwound 19.61nH
L107	2413926G05	Inductor 6.8nH
L108	2413926G09	Inductor 15nH
L109	2462587V38	Inductor 220nH
L110	2413926G04	Inductor 5.6nH
L111	2413926G06	Inductor 8.2nH
L112	2479990A01	Inductor Airwound 4.22nH
L113	2462587V27	Inductor 27nH
L200	2462587Q20	Inductor 2.2µH
L202	2462587Q20	Inductor 2.2µH
L203	2462587V21	Inductor 6.8nH
L204	2462587P25	Inductor 12µH
L250	2462587V21	Inductor 6.8nH
L252	2462587V38	Inductor 220nH
L253	2462587V41	Inductor 390nH
L254	2462587V28	Inductor 33nH
L256 to L260	2462587V38	Inductor 220nH
L261	2462587V26	Inductor 22nH
L262	2462587V38	Inductor 220nH
L263	2462587V25	Inductor 18nH
L264	2462587V24	Inductor 15nH
L265	2462587V30	Inductor 47nH
L301	2462587V20	Inductor 3.3nH
L302	2462587V38	Inductor 220nH
L303	2462587V41	Inductor 390nH
L304	2413926G08	Inductor 12nH
L306	2462587V32	Inductor 68nH
L307	2462587V26	Inductor 22nH
L308	2462587V30	Inductor 47nH
L309	2462587V38	Inductor 220nH
L310	2462587V22	Inductor 8.2nH
L350	2462587Q20	Inductor 2.2µH
L351 to L352	2462587T22	Inductor 390nH
L353	2462587V35	Inductor 120nH
L354	2462587T23	Inductor 470nH
L355	2462587V38	Inductor 220nH
L356	2462587T40	Inductor 33nH
L357	2462587Q20	Inductor 2.2µH
L400 to L401	2462587Q42	Inductor 390nH
L410 to L411	2462587Q42	Inductor 390nH
L505	2462587Q42	Inductor 390nH
PB501 to PB505	4080523Z01	Mechanical KSS223G
Q101	5115079H01	Transistor 79H01
Q200	4802245J50	Transistor Bipolar
Q210	4802245J50	Transistor Bipolar
Q251	4805218N63	Transistor Bipolar BFQ67W
Q252	4802245J50	Transistor Bipolar
Q302	4802245J56	Transistor Bipolar QSBT0048
Q304	4802245J44	Transistor Bipolar HP415
Q350	4805218N63	Transistor Bipolar BFQ67W
Q400	4809579E18	Transistor FET TP0101T
Q403	4813824A17	PNP Transistor
Q405	4802245J54	Transistor Bipolar UMG5N
Q410	4802245J54	Transistor Bipolar UMG5N
Q416	4809579E18	Transistor FET TP0101T
Q417	4802245J50	Transistor Bipolar
Q502	5180159R01	Transistor Bipolar IMX1
Q505	4880214G02	Transistor Bipolar MMBT3904L
R101 to R102	0662057A34	Resistor Chip 240
R103	0662057A18	Resistor Chip 51
R104	0680539Z01	Resistor Chip 0.1
R105	0662057M81	Resistor Chip 2K
R106	0662057M01	Resistor Chip 0
R107	0662057N13	Resistor Chip 39K
R108	0662057N08	Resistor Chip 24K
R109	0662057N20	Resistor Chip 75K
R110	0662057M47	Resistor Chip 75
R111	0680195M01	Resistor Chip 10
R112	0662057M01	Resistor Chip 0
R113	0662057N30	Resistor Chip 200K
R114	0662057M67	Resistor Chip 510
R115	0662057N39	Resistor Chip 470K
R116	0662057M85	Resistor Chip 3K
R117	0662057M98	Resistor Chip 10K
R200	0662057M50	Resistor Chip 100
R202	0662057M88	Resistor Chip 3.9K
R203	0662057M38	Resistor Chip 33
R204	0662057M52	Resistor Chip 120
R206	0662057N10	Resistor Chip 30K
R208	0662057N17	Resistor Chip 56K
R209	0662057M77	Resistor Chip 1.3K
R210	0662057M62	Resistor Chip 330
R211	0662057N15	Resistor Chip 47K (PMUF1046 & PMUF1047 only)
R213	0662057M50	Resistor Chip 100(PMUF1063 & PMUF1064 only)

Circuit Ref	Motorola Part No.	Description
R214	0662057N15	Resistor Chip 47K (PMUF1063 & PMUF1064 only)
R216 to R217	0662057M01	Resistor Chip 0
R218	0662057N11	Resistor Chip 33K
R219 to R220	0662057M54	Resistor Chip 150
R222	0662057M01	Resistor Chip 0
R250	0662057M60	Resistor Chip 270
R251	0662057M50	Resistor Chip 100
R253	0662057M26	Resistor Chip 10
R254	0662057N15	Resistor Chip 47K
R255	0662057M62	Resistor Chip 330
R256	0662057M01	Resistor Chip 0
R257	0662057M74	Resistor Chip 1K
R261 to R262	0662057M38	Resistor Chip 33
R263 to R264	0662057M60	Resistor Chip 270
R265 to R266	0662057N10	Resistor Chip 30K
R267	0662057N01	Resistor Chip 12K
R268	0662057N07	Resistor Chip 22K
R270 to R273	0662057M38	Resistor Chip 33
R274	0662057M52	Resistor Chip 120
R275	0662057M26	Resistor Chip 10
R306	0662057M92	Resistor Chip 5.6K
R307	0662057N17	Resistor Chip 56K
R309	0662057M70	Resistor Chip 680
R310	0662057N01	Resistor Chip 12K
R312	0662057M62	Resistor Chip 330
R315	0662057M74	Resistor Chip 1K
R317	0662057M96	Resistor Chip 8.2K
R318	0662057M72	Resistor Chip 820
R320	0662057M52	Resistor Chip 120
R321	0662057M43	Resistor Chip 51
R322	0662057M52	Resistor Chip 120
R323	0662057M87	Resistor Chip 3.6K
R324	0662057M68	Resistor Chip 560
R325	0662057N10	Resistor Chip 30K
R326	0662057M42	Resistor Chip 47
R327	0662057M40	Resistor Chip 39
R328	0662057N03	Resistor Chip 15K
R350	0662057M33	Resistor Chip 20
R351	0662057M52	Resistor Chip 120
R352 to R353	0662057N01	Resistor Chip 12K
R355	0662057M98	Resistor Chip 10K
R356	0662057M78	Resistor Chip 1.5K
R358	0662057N15	Resistor Chip 47K
R359	0662057M78	Resistor Chip 1.5K
R360	0662057N15	Resistor Chip 47K
R361	0662057M57	Resistor Chip 200
R362	0662057M98	Resistor Chip 10K
R363	0662057N15	Resistor Chip 47K
R364	0662057M81	Resistor Chip 2K
R365	0662057M87	Resistor Chip 3.6K
R366	0662057M78	Resistor Chip 1.5K
R400	0662057N15	Resistor Chip 47K
R401	0662057M01	Resistor Chip 0
R405	0662057M01	Resistor Chip 0
R406	0662057N20	Resistor Chip 75K
R407	0662057N19	Resistor Chip 68K
R409	0662057M98	Resistor Chip 10K
R410	0662057N23	Resistor Chip 100K
R411	0662057M98	Resistor Chip 10K
R413	0662057M01	Resistor Chip 0
R414	0662057V34	Resistor Chip 180K
R415	0662057V26	Resistor Chip 91K
R416	0662057M98	Resistor Chip 10K
R418	0662057M01	Resistor Chip 0
R419	0662057M67	Resistor Chip 510
R420	0662057B46	Resistor Chip 10MEG
R421	0662057M81	Resistor Chip 2K
R423	0662057N39	Resistor Chip 470K
R424	0662057N12	Resistor Chip 36K
R425	0662057N10	Resistor Chip 30K
R426	0662057N35	Resistor Chip 330K
R427	0662057M84	Resistor Chip 2.7K
R428	0662057M10	Resistor Chip 2.2
R429	0662057M98	Resistor Chip 10K
R431	0662057N39	Resistor Chip 470K
R432	0662057N16	Resistor Chip 51K
R434	0662057M62	Resistor Chip 330
R435	0662057M81	Resistor Chip 2K
R436	0662057M01	Resistor Chip 0
R437	0662057M01	Resistor Chip 0
R438 to R439	0662057M01	Resistor Chip 0
R445	0662057N08	Resistor Chip 24K
R446	0662057N22	Resistor Chip 91K
R447	0662057N23	Resistor Chip 100K
R448	0662057M98	Resistor Chip 10K
R449	0662057N08	Resistor Chip 24K
R450	0683962T45	Resistor Chip 68
R451	0662057N03	Resistor Chip 15K
R452	0662057N23	Resistor Chip 100K
R453	Not Placed	
R454	Not Placed	
R455	Not Placed	
R456	0662057M01	Resistor Chip 0
R457	0662057M98	Resistor Chip 10K
R460	0662057M90	Resistor Chip 4.7K
R461	0662057M56	Resistor Chip 180
R462	0662057M98	Resistor Chip 10K
R463	0662057M61	Resistor Chip 300
R471	0662057M92	Resistor Chip 5.6K
R472	0662057N12	Resistor Chip 36K
R473	0662057M26	Resistor Chip 10
R475	0662057M01	Resistor Chip 0
R476	0662057N08	Resistor Chip 24K
R477	0662057M74	Resistor Chip 1K
R478	0662057M98	Resistor Chip 10K
R481	0662057N08	Resistor Chip 24K
R492	0662057M01	Resistor Chip 0
R501	0662057M70	Resistor Chip 680
R502	0662057M56	Resistor Chip 180
R505	0662057M98	Resistor Chip 10K
R506	0662057N15	Resistor Chip 47K
R507	0662057M01	Resistor Chip 0
RT400	0680590Z01	Resistor Thermal 33.0K
S501	4080710Z01	Mechanical Rotary Switch(PMUF1046 & PMUF1063 only)
S501	4080710Z02	Mechanical Rotary Switch(PMUF1047 & PMUF1064 only)
S502	1880619Z01	Mechanical
SH100	2680507Z01	Mechanical Shield 07Z01
SH101	2686081B04	Mechanical Shield 81B04
SH102	2680554Z01	Mechanical Shield 54Z01
SH201	2680511Z01	Mechanical Shield 11Z01
SH202	2680511Z01	Mechanical Shield 11Z01
SH250	2680514Z01	Mechanical Shield 14Z01
SH251	2680513Z01	Mechanical Shield 13Z01
SH301	2680554Z01	Mechanical Shield 54Z01
SH303	2680508Z01	Mechanical Shield 08Z01
SH350	2680508Z01	Mechanical Shield 08Z01
SH351	2680697Z01	Mechanical Shield 97Z01
SH352	2680553Z01	Mechanical Shield 53Z01
SH353	2680514Z01	Mechanical Shield 14Z01
SH400	2680505Z01	Mechanical Shield 05Z01
SH401	2680506Z01	Mechanical Shield 06Z01
SH402	2680515Z01	Mechanical Shield 15Z01
SH403	2680516Z01	Mechanical Shield 16Z01
U101	5102463J66	Analog IC Amp RF2103P
U102	5185765B28	Custom IC H99S-4
U103	5185963A15	Analog IC LM50CIM3X
U201	5185963A27	Custom IC ASIC 63A27
U205	4802245J58	Oscillator DRR030KER900TCT
U206	4802245J57	Oscillator DRR030KE1R225TC
U247	5105739X05	Analog IC ADP3300
U248	5102463J58	Analog IC Voltage Regulator LP2980AIM5
U250	5105750U54	Custom IC Buffer/Driver 50U54
U301	5185963A43	Analog IC MA4EX900L-1226
U302	5185623B01	Digital IC Gate TC7SU04FTE85L
U350	5185623B01	Digital IC Gate TC7SU04FTE85L
U351	5109632D83	Custom IC 32D83
U352	4885622B01	Transistor BF904
U400	5102463J40	Analog IC Voltage Regulator LP2951ACMM-3.3
U404	5185963A53	Custom IC 63A53
U405	5102463J36	Digital IC Memory
U406	5102463J60	Digital IC Memory AT49LV040-90T1
U407	5102463J64	Digital IC Memory X25128-2.7
U409	5102226J56	Digital IC Microprocessor MC68HC11FL0PU1
U410	5102463J57	Analog IC Voltage Regulator ILC7062
U420	5102463J44	Analog IC Amp TDA8547TS
VR432 to VR433	4805656W08	Diode MMQA5V6T1
VR434	4802245J73	Diode Zener UDZSTE17
VR445 to VR449	4802245J74	Diode Zener UDZSTE17
VR450	4802245J75	Diode Zener UDZSTE17
VR460	4802245J73	Zener Diode - 6.8V
VR501	4813830A18	Diode Zener MMBZ5235BLT1

Circuit Ref	Motorola Part No.	Description
VR502	4880140L17	Diode Zener MMBZ5242B
VR503 to VR508	4802245J73	Diode Zener UDZSTE17
Y200	4802245J68	Oscillator Crystal TTS12V(PMUF1063 & PMUF1064 only)
	8480641Z09	PC Board, 800MHz

800MHz Radio Parts List (Rev J)

Circuit Ref	Motorola Part No.	Description
B501	0986237A01	Connector Multi_Pin 37A01
B503	3980502Z01	Mechanical
B504	3980501Z01	Mechanical
C101	2113740F45	Capacitor Chip 56pF
C104	2113740F15	Capacitor Chip 3.3pF
C105	2113740F06	Capacitor Chip 1.3pF
C106	2113740F23	Capacitor Chip 6.8pF
C107	2113740F03	Capacitor Chip 1pF
C108	2113743N46	Capacitor Chip 68pF
C109	2113740F20	Capacitor Chip 5.1pF
C110	2113740F12	Capacitor Chip 2.4pF
C111	2113743N32	Capacitor Chip 18pF
C112	2113743N46	Capacitor Chip 68pF
C113	2113740F45	Capacitor Chip 56pF
C114	2103689A19	Capacitor Chip 6.0pF
C115	2103689A05	Capacitor Chip 12.0pF
C116 to C117	2113743N46	Capacitor Chip 68pF
C118	2103689A08	Capacitor Chip 18.0pF
C119	2113743N46	Capacitor Chip 68pF
C121	2113743N60	Capacitor Chip 5pF
C124 to C125	2113743N46	Capacitor Chip 68pF
C126	2113743L13	Capacitor Chip 680pF
C127	2113743N12	Capacitor Chip 2.7pF
C128	2113743N44	Capacitor Chip 56pF
C129	2113743M08	Capacitor Chip .022µF
C130	2113743L13	Capacitor Chip 680pF
C131	2113743N46	Capacitor Chip 68pF
C132	2113743L41	Capacitor Chip .01µF
C133 to C135	2113743N44	Capacitor Chip 56pF
C136	2113743M24	Capacitor Chip 0.1µF
C138	2113743N44	Capacitor Chip 56pF
C139	2113743M08	Capacitor Chip .022µF
C140	2113743N32	Capacitor Chip 18pF
C141	2113743N18	Capacitor Chip 4.7pF
C142	2113743M08	Capacitor Chip .022µF
C143	2113743L29	Capacitor Chip 3300pF
C144	2311049A08	Capacitor Tantalum 1µF
C146	2113743N46	Capacitor Chip 68pF
C147 to C148	2113743N32	Capacitor Chip 18pF
C149	2113743N44	Capacitor Chip 56pF
C150	2113743N32	Capacitor Chip 18pF
C151	2113743N46	Capacitor Chip 68pF
C152	2113743N32	Capacitor Chip 18pF
C153	2113743N46	Capacitor Chip 68pF
C154 to C155	2113743N44	Capacitor Chip 56pF
C157	2113743N46	Capacitor Chip 68pF
C158 to C159	2113743N44	Capacitor Chip 56pF
C160	2113743N46	Capacitor Chip 68pF
C161	2113743N32	Capacitor Chip 18pF
C162	2113743N48	Capacitor Chip 82pF
C163	2113743N46	Capacitor Chip 68pF
C164	2113743N32	Capacitor Chip 18pF
C200	2113743F18	Capacitor Chip 2.2µF
C201	2113743N46	Capacitor Chip 68pF
C202	2113743F18	Capacitor Chip 2.2µF
C203	2311049A57	Capacitor Tantalum 10µF
C204	2113743M24	Capacitor Chip 0.1µF
C205	2113743L41	Capacitor Chip .01µF
C206	2113743M24	Capacitor Chip 0.1µF
C207	2113743F18	Capacitor Chip 2.2µF
C208	2113743M24	Capacitor Chip 0.1µF
C209	2311049A57	Capacitor Tantalum 10µF
C210	2113743N46	Capacitor Chip 68pF
C211	2311049A09	Capacitor Tantalum 2.2µF
C212 to C213	2113743M24	Capacitor Chip 0.1µF
C214	2113743F18	Capacitor Chip 2.2µF
C215	2113743M24	Capacitor Chip 0.1µF
C216	2113743N46	Capacitor Chip 68pF
C217	2113743F18	Capacitor Chip 2.2µF
C218	2311049A01	Capacitor Tantalum 0.1µF
C219	2113743N46	Capacitor Chip 68pF
C220	2311049A05	Capacitor Tantalum 0.47µF
C221 to C224	2113743N46	Capacitor Chip 68pF
C225 to C226	2113743E12	Capacitor Chip .047µF
C227	2113743N46	Capacitor Chip 68pF
C228	2113743N02	Capacitor Chip 0.75pF
C229	2113743F18	Capacitor Chip 2.2µF
C230	2113743N46	Capacitor Chip 68pF
C231	2113741F17	Capacitor Chip 470pF
C232	2113743N46	Capacitor Chip 68pF
C233	2113743L17	Capacitor Chip 1000pF
C234	2311049A59	Capacitor Tantalum 10µF
C235	2113743N40	Capacitor Chip 39pF (PMUF1046 & PMUF1047 only)
C236	2113743N08	Capacitor Chip 1.6pF (PMUF1046 & PMUF1047 only)
C237	2113740F63	Capacitor Chip 330pF (PMUF1046 & PMUF1047 only)
C238	2113743M24	Capacitor Chip 0.1µF(PMUF1063 & PMUF1064 only)
C239	2113743L41	Capacitor Chip .01µF (PMUF1063 & PMUF1064 only)
C240	2113743L41	Capacitor Chip .01µF
C241	2113743N46	Capacitor Chip 68pF (PMUF1063 & PMUF1064 only)
C243	2113743N34	Capacitor Chip 22pF
C244 to C247	2113743L41	Capacitor Chip .01µF
C253	2113743N48	Capacitor Chip 82pF
C254	2113743N46	Capacitor Chip 68pF
C256	2113743N03	Capacitor Chip 1pF
C257	2113743N46	Capacitor Chip 68pF
C258	2113743M24	Capacitor Chip 0.1µF
C259	2113743F18	Capacitor Chip 2.2µF
C260	2113743N46	Capacitor Chip 68pF
C262	2113743M24	Capacitor Chip 0.1µF
C263	2113743N46	Capacitor Chip 68pF
C264	2113743M24	Capacitor Chip 0.1µF
C265	2113743N69	Capacitor Chip 1.8pF
C266 to C267	2113743N09	Capacitor Chip 2pF
C268	2113743N03	Capacitor Chip 1pF
C269	2113743M12	Capacitor Chip .033µF
C270	2113743M24	Capacitor Chip 0.1µF
C271	2113743N20	Capacitor Chip 5.6pF
C273	2113743N14	Capacitor Chip 3.3pF
C274	2113743N46	Capacitor Chip 68pF
C275	2113743N05	Capacitor Chip 1.2pF
C276	2113743N13	Capacitor Chip 3pF
C277	2113743N20	Capacitor Chip 5.6pF
C278	2113743N16	Capacitor Chip 3.9pF
C280	2113743M24	Capacitor Chip 0.1µF
C281 to C282	2113743N46	Capacitor Chip 68pF
C284	2113743N44	Capacitor Chip 56pF
C285	2113743M24	Capacitor Chip 0.1µF
C286	2113743N46	Capacitor Chip 68pF
C287	2113743N50	Capacitor Chip 100pF
C289	2113743M12	Capacitor Chip .033µF
C290	2113743N44	Capacitor Chip 56pF
C300	2113743N65	Capacitor Chip 8pF
C301	2113743N46	Capacitor Chip 68pF
C303	2113743N26	Capacitor Chip 10pF
C304	2113743M24	Capacitor Chip 0.1µF
C305	2113743N44	Capacitor Chip 56pF
C306 to C307	2113743N46	Capacitor Chip 68pF
C308	2113743N05	Capacitor Chip 1.2pF
C310	2113743N30	Capacitor Chip 15pF
C311	2113743N48	Capacitor Chip 82pF
C312	2113743N37	Capacitor Chip 30pF
C313 C314	2113743N48	Capacitor Chip 82pF
C315	2113743N65	Capacitor Chip 8pF
C316 to C317	2113743N44	Capacitor Chip 56pF
C350	2311049A59	Capacitor Tantalum 10µF
C352	2113743M08	Capacitor Chip .022µF
C353	2113743A23	Capacitor Chip 0.22µF
C354	2113743M08	Capacitor Chip .022µF
C355	2113743E20	Capacitor Chip 0.1µF
C356	2113743N50	Capacitor Chip 100pF
C357	2113743F16	Capacitor Chip 1µF
C358	2113743M24	Capacitor Chip 0.1µF
C359 to C360	2113743A23	Capacitor Chip 0.22µF
C361 to C362	2113743R33	Capacitor Chip 4700pF
C363 to C364	2113743F16	Capacitor Chip 1µF
C365	2113743N65	Capacitor Chip 8pF
C366	2113743F16	Capacitor Chip 1µF
C367	2113743M08	Capacitor Chip .022µF
C369	2113743R33	Capacitor Chip 4700pF
C370	2113743M24	Capacitor Chip 0.1µF
C371	2113743R33	Capacitor Chip 4700pF
C372	2113743A23	Capacitor Chip 0.22µF
C373	2311049A59	Capacitor Tantalum 10µF
C374	2113743E07	Capacitor Chip .022µF
C376	2113743N09	Capacitor Chip 2pF
C377	2113743N34	Capacitor Chip 22pF
C378	2113743N11	Capacitor Chip 2.4pF
C379	2113740A82	Capacitor Chip 1500pF
C380	2109720D14	Capacitor Chip 0.1µF
C381	2113743E20	Capacitor Chip 0.1µF
C382	2311049A59	Capacitor Tantalum 10µF
C383	2113743M08	Capacitor Chip .022µF
C385	2113743N25	Capacitor Chip 9.1pF
C386	2113743N29	Capacitor Chip 13pF
C387	2113743N30	Capacitor Chip 15pF
C388 to C390	2113743N29	Capacitor Chip 13pF
C391	2113741F49	Capacitor Chip .01µF
C392	2113743F16	Capacitor Chip 1µF
C393	2113743E20	Capacitor Chip 0.1µF
C400	2113743L41	Capacitor Chip .01µF
C401 to C402	2113743M24	Capacitor Chip 0.1µF
C403	2113928D08	Capacitor Chip 10µF
C404	2113743N46	Capacitor Chip 68pF
C405	2113743N46	Capacitor Chip 68pF
C407	2113928N01	Capacitor Chip 0.1µF
C408	2113743N46	Capacitor Chip 68pF
C409	2113743M24	Capacitor Chip 0.1µF
C410	2113928N01	Capacitor Chip 0.1µF
C411	2113743M24	Capacitor Chip 0.1µF
C412	2311049A59	Capacitor Tantalum 10µF

Circuit Ref	Motorola Part No.	Description
C414	2113743M24	Capacitor Chip 0.1µF
C415	2109720D01	Capacitor Chip .01µF
C416	2113928N01	Capacitor Chip 0.1µF
C420	2113743L41	Capacitor Chip .01µF
C421	2113928N01	Capacitor Chip 0.1µF
C422	2113743M24	Capacitor Chip 0.1µF
C423	2113743N46	Capacitor Chip 68pF
C424	2311049A59	Capacitor Tantalum 10µF
C425	2113743M24	Capacitor Chip 0.1µF
C426 to C427	2113743N46	Capacitor Chip 68pF
C428 to C429	2113743M24	Capacitor Chip 0.1µF
C430	2113928N01	Capacitor Chip 0.1µF
C431	2113743N46	Capacitor Chip 68pF
C433	2113743L41	Capacitor Chip .01µF
C434 to C435	2113743M24	Capacitor Chip 0.1µF
C436 to C437	2113743N34	Capacitor Chip 22pF
C438	2113743F18	Capacitor Chip 2.2µF
C439	Not Placed	
C440	2113743F18	Capacitor Chip 2.2µF
C441	2113743N46	Capacitor Chip 68pF
C442	2113743E20	Capacitor Chip 0.1µF
C443	2113928N01	Capacitor Chip 0.1µF
C444 to C445	2113743N46	Capacitor Chip 68pF
C447	2113743M08	Capacitor Chip .022µF
C448	2113928N01	Capacitor Chip 0.1µF
C449	2113743N46	Capacitor Chip 68pF
C451	2113743M08	Capacitor Chip .022µF
C452	2113743B29	Capacitor Chip 1µF
C453	2113743N46	Capacitor Chip 68pF
C456	2113743N46	Capacitor Chip 68pF
C458 to C459	2113743N46	Capacitor Chip 68pF
C463	2113743N46	Capacitor Chip 68pF
C466	2113743N46	Capacitor Chip 68pF
C467	2113928N01	Capacitor Chip 0.1µF
C471 to C473	2113743N46	Capacitor Chip 68pF
C475	2113743H14	Capacitor Chip 10µF
C476	2113928D08	Capacitor Chip 10µF
C479	2113928N01	Capacitor Chip 0.1µF
C480	2113928D08	Capacitor Chip 10µF
C481 to C482	2113928N01	Capacitor Chip 0.1µF
C490 to C497	2113743N46	Capacitor Chip 68pF
C502	2311049A05	Capacitor Tantalum 0.47µF
C503	2113743N46	Capacitor Chip 68pF
C505	2113743N46	Capacitor Chip 68pF
C511 to C514	2113743N46	Capacitor Chip 68pF
C520 to C523	2113743L41	Capacitor Chip .01µF
C524	2113743N32	Capacitor Chip 18pF
C525 to C529	2113743N48	Capacitor Chip 82pF
C530	2113743N50	Capacitor Chip 100pF

Circuit Ref	Motorola Part No.	Description
C531	2113743N48	Capacitor Chip 82pF
C532	2113743N50	Capacitor Chip 100pF
C533	2113743N50	Capacitor Chip 100pF
C534	2113743N50	Capacitor Chip 100pF
C535	2113743N50	Capacitor Chip 100pF
C536	2113743N50	Capacitor Chip 100pF
C537	2311049A96	Capacitor Tantalum 33µF
CR101 to CR102	4880973Z02	Diode PIN MA4PH261
CR203	4862824C03	Diode Varactor 1SV232(PMUF1046 & PMUF1047 only)
CR251 to CR253	4862824C01	Diode Varactor 1SV229
CR300	4880154K03	Diode Schottky MMBD353LT1
CR301	4802245J41	Diode Switching HSMP3820
CR350	4862824C01	Diode Varactor 1SV229
CR411 to CR413	4802245J62	Diode Array RB731U
CR440	4813833C02	Diode Dual Common Cathode MMBD6100LT1
CR501	4880107R01	Diode Rectifier BYD17D
CR503	4805729G49	Opto-Device LED BRPY1204W
D100	Not Placed	
D101 to D102	4813978C06	Diode Dual 75W A2X MMBD2836LT1
D103	Not Placed	
D201 to D202	4802233J09	Diode Array IMN10
E101	2484657R01	Ferrite Bead
E102	2405688Z01	2744044446
E400 to E409	2480640Z01	BK1005HM471
F501	6580542Z01	Protector 1608FF
FL201	4805875Z04	Crystal 16.8MHz(PMUF1046 & PMUF1047 only)
FL300 to FL301	9180657Z01	Filter
FL350	4885631B01	Filter 31B01
FL401	4870368G02	Oscillator Crystal 68G02
J101	2880658Z06	Connector (SMA)
J400	0905505Y04	Connector Multi_pin FH12-40S-0.5SH
J403	0905505Y02	Connector Multi_pin CL586-0523-9
L101 to L102	2460591A29	Inductor Airwound 6.61nH

Circuit Ref	Motorola Part No.	Description
L103	2460591A49	Inductor Airwound 8.01nH
L104	2462587V38	Inductor 220nH
L106	2479990B02	Inductor Airwound 19.61nH
L107	2413926G05	Inductor 6.8nH
L108	2413926G09	Inductor 15nH
L109	2462587V38	Inductor 220nH
L110	2413926G04	Inductor 5.6nH
L111	2413926G06	Inductor 8.2nH
L112	2479990A01	Inductor Airwound 4.22nH
L113	2462587V27	Inductor 27nH
L200	2462587Q20	Inductor 2.2µH
L202	2462587Q20	Inductor 2.2µH
L203	2462587V21	Inductor 6.8nH
L204	2462587P25	Inductor 12µH
L250	2462587V21	Inductor 6.8nH
L252	2462587V38	Inductor 220nH
L253	2462587V41	Inductor 390nH
L254	2462587V28	Inductor 33nH
L256 to L260	2462587V38	Inductor 220nH
L261	2462587V26	Inductor 22nH
L262	2462587V38	Inductor 220nH
L263	2462587V25	Inductor 18nH
L264	2462587V24	Inductor 15nH
L265	2462587V30	Inductor 47nH
L301	2462587V20	Inductor 3.3nH
L302	2462587V38	Inductor 220nH
L303	2462587V41	Inductor 390nH
L304	2413926G08	Inductor 12nH
L306	2462587V32	Inductor 68nH
L307	2462587V26	Inductor 22nH
L308	2462587V30	Inductor 47nH
L309	2462587V38	Inductor 220nH
L310	2462587V22	Inductor 8.2nH
L350	2462587Q20	Inductor 2.2µH
L351 to L352	2462587T22	Inductor 390nH
L353	2462587V35	Inductor 120nH
L354	2462587T23	Inductor 470nH
L355	2462587V38	Inductor 220nH
L356	2462587T40	Inductor 33nH
L357	2462587Q20	Inductor 2.2µH
L400 to L401	2462587Q42	Inductor 390nH
L410 to L411	2462587Q42	Inductor 390nH
L505	2462587Q42	Inductor 390nH
PB501 to PB505	4080523Z01	Mechanical KSS223G
Q101	5115079H01	Transistor 79H01
Q200	4802245J50	Transistor Bipolar
Q210	4802245J50	Transistor Bipolar

Circuit Ref	Motorola Part No.	Description
Q251	4805218N63	Transistor Bipolar BFQ67W
Q252	4802245J50	Transistor Bipolar
Q302	4802245J56	Transistor Bipolar QSBT0048
Q304	4802245J44	Transistor Bipolar HP415
Q350	4805218N63	Transistor Bipolar BFQ67W
Q400	4809579E18	Transistor FET TP0101T
Q403	4813824A17	PNP Transistor
Q405	4802245J54	Transistor Bipolar UMG5N
Q410	4802245J54	Transistor Bipolar UMG5N
Q416	4809579E18	Transistor FET TP0101T
Q417	4802245J50	Transistor Bipolar
Q502	5180159R01	Transistor Bipolar IMX1
Q505	4880214G02	Transistor Bipolar MMBT3904L
R101 to R102	0662057A34	Resistor Chip 240
R103	0662057A18	Resistor Chip 51
R104	0680539Z01	Resistor Chip 0.1
R105	0662057M81	Resistor Chip 2K
R106	0662057M01	Resistor Chip 0
R107	0662057N13	Resistor Chip 39K
R108	0662057N08	Resistor Chip 24K
R109	0662057N20	Resistor Chip 75K
R110	0662057M47	Resistor Chip 75
R111	0680195M01	Resistor Chip 10
R112	0662057M01	Resistor Chip 0
R113	0662057N30	Resistor Chip 200K
R114	0662057M67	Resistor Chip 510
R115	0662057N39	Resistor Chip 470K
R116	0662057M85	Resistor Chip 3K
R117	0662057M98	Resistor Chip 10K
R200	0662057M50	Resistor Chip 100
R202	0662057M88	Resistor Chip 3.9K
R203	0662057M38	Resistor Chip 33
R204	0662057M52	Resistor Chip 120
R206	0662057N10	Resistor Chip 30K
R208	0662057N17	Resistor Chip 56K
R209	0662057M77	Resistor Chip 1.3K
R210	0662057M62	Resistor Chip 330
R211	0662057N15	Resistor Chip 47K (PMUF1046 & PMUF1047 only)

Circuit Ref	Motorola Part No.	Description
R213	0662057M50	Resistor Chip 100 (PMUF1063 & PMUF1064 only)
R214	0662057N15	Resistor Chip 47K (PMUF1063 & PMUF1064 only)
R216 to R217	0662057M01	Resistor Chip 0
R218	0662057N11	Resistor Chip 33K
R219 to R220	0662057M54	Resistor Chip 150
R222	0662057M01	Resistor Chip 0
R250	0662057M60	Resistor Chip 270
R251	0662057M50	Resistor Chip 100
R253	0662057M26	Resistor Chip 10
R254	0662057N15	Resistor Chip 47K
R255	0662057M62	Resistor Chip 330
R256	0662057M01	Resistor Chip 0
R257	0662057M74	Resistor Chip 1K
R261 to R262	0662057M38	Resistor Chip 33
R263 to R264	0662057M60	Resistor Chip 270
R265 to R266	0662057N10	Resistor Chip 30K
R267	0662057N01	Resistor Chip 12K
R268	0662057N07	Resistor Chip 22K
R270 to R273	0662057M38	Resistor Chip 33
R274	0662057M52	Resistor Chip 120
R275	0662057M26	Resistor Chip 10
R306	0662057M92	Resistor Chip 5.6K
R307	0662057N17	Resistor Chip 56K
R309	0662057M70	Resistor Chip 680
R310	0662057N01	Resistor Chip 12K
R312	0662057M62	Resistor Chip 330
R315	0662057M74	Resistor Chip 1K
R317	0662057M96	Resistor Chip 8.2K
R318	0662057M72	Resistor Chip 820
R320	0662057M52	Resistor Chip 120
R321	0662057M43	Resistor Chip 51
R322	0662057M52	Resistor Chip 120
R323	0662057M87	Resistor Chip 3.6K
R324	0662057M68	Resistor Chip 560
R325	0662057N10	Resistor Chip 30K
R326	0662057M42	Resistor Chip 47
R327	0662057M40	Resistor Chip 39
R328	0662057N03	Resistor Chip 15K
R350	0662057M33	Resistor Chip 20
R351	0662057M52	Resistor Chip 120
R352 to R353	0662057N01	Resistor Chip 12K
R355	0662057M98	Resistor Chip 10K
R356	0662057M78	Resistor Chip 1.5K
R358	0662057N15	Resistor Chip 47K
R359	0662057M78	Resistor Chip 1.5K
R360	0662057N15	Resistor Chip 47K
R361	0662057M57	Resistor Chip 200
R362	0662057M98	Resistor Chip 10K
R363	0662057N15	Resistor Chip 47K
R364	0662057M81	Resistor Chip 2K
R365	0662057M87	Resistor Chip 3.6K
R366	0662057M78	Resistor Chip 1.5K
R400	0662057N15	Resistor Chip 47K
R401	0662057M01	Resistor Chip 0
R405	0662057M01	Resistor Chip 0
R406	0662057N20	Resistor Chip 75K
R407	0662057N19	Resistor Chip 68K
R409	0662057M98	Resistor Chip 10K
R410	0662057N23	Resistor Chip 100K
R411	0662057M98	Resistor Chip 10K
R413	0662057M01	Resistor Chip 0
R414	0662057V34	Resistor Chip 180K
R415	0662057V26	Resistor Chip 91K
R416	0662057M98	Resistor Chip 10K
R418	0662057M01	Resistor Chip 0
R419	0662057M67	Resistor Chip 510
R420	0662057B46	Resistor Chip 10MEG
R421	0662057M81	Resistor Chip 2K
R423	0662057N39	Resistor Chip 470K
R424	0662057N12	Resistor Chip 36K
R425	0662057N10	Resistor Chip 30K
R426	0662057N35	Resistor Chip 330K
R427	0662057M84	Resistor Chip 2.7K
R428	0662057M10	Resistor Chip 2.2
R429	0662057M98	Resistor Chip 10K
R431	0662057N39	Resistor Chip 470K
R432	0662057N16	Resistor Chip 51K
R434	0662057M62	Resistor Chip 330
R435	0662057M81	Resistor Chip 2K
R436	0662057M01	Resistor Chip 0
R437	0662057M01	Resistor Chip 0
R438 to R439	0662057M01	Resistor Chip 0
R445	0662057N08	Resistor Chip 24K
R446	0662057N22	Resistor Chip 91K
R447	0662057N23	Resistor Chip 100K
R448	0662057M98	Resistor Chip 10K
R449	0662057N08	Resistor Chip 24K
R450	0683962T45	Resistor Chip 68
R451	0662057N03	Resistor Chip 15K
R452	0662057N23	Resistor Chip 100K
R453	Not Placed	
R454	Not Placed	
R455	Not Placed	
R456	0662057M01	Resistor Chip 0
R457	0662057M98	Resistor Chip 10K
R460	0662057M90	Resistor Chip 4.7K
R461	0662057M56	Resistor Chip 180
R462	0662057M98	Resistor Chip 10K
R463	0662057M61	Resistor Chip 300
R471	0662057M92	Resistor Chip 5.6K
R472	0662057N12	Resistor Chip 36K
R473	0662057M26	Resistor Chip 10
R475	0662057M01	Resistor Chip 0
R476	0662057N08	Resistor Chip 24K
R477	0662057M74	Resistor Chip 1K
R478	0662057M98	Resistor Chip 10K
R481	0662057N08	Resistor Chip 24K
R492	0662057M01	Resistor Chip 0
R501	0662057M70	Resistor Chip 680
R502	0662057M56	Resistor Chip 180
R505	0662057M98	Resistor Chip 10K
R506	0662057N15	Resistor Chip 47K
R507	0662057M01	Resistor Chip 0
RT400	0680590Z01	Resistor Thermal 33.0K
S501	4080710Z01	Mechanical Rotary Switch(PMUF1046 & PMUF1063 only)
S501	4080710Z02	Mechanical Rotary Switch(PMUF1047 & PMUF1064 only)
S502	1880619Z01	Mechanical
SH100	2680507Z01	Mechanical Shield 07Z01
SH101	2686081B04	Mechanical Shield 81B04
SH102	2680554Z01	Mechanical Shield 54Z01
SH201	2680511Z01	Mechanical Shield 11Z01
SH202	2680511Z01	Mechanical Shield 11Z01
SH250	2680514Z01	Mechanical Shield 14Z01
SH251	2680513Z01	Mechanical Shield 13Z01
SH301	2680554Z01	Mechanical Shield 54Z01
SH303	2680508Z01	Mechanical Shield 08Z01
SH350	2680508Z01	Mechanical Shield 08Z01
SH351	2680697Z01	Mechanical Shield 97Z01
SH352	2680553Z01	Mechanical Shield 53Z01
SH353	2680514Z01	Mechanical Shield 14Z01
SH400	2680505Z01	Mechanical Shield 05Z01
SH401	2680506Z01	Mechanical Shield 06Z01
SH402	2680515Z01	Mechanical Shield 15Z01
SH403	2680516Z01	Mechanical Shield 16Z01
U101	5102463J66	Analog IC Amp RF2103P
U102	5185765B28	Custom IC H99S-4
U103	5185963A15	Analog IC LM50CIM3X
U201	5185963A27	Custom IC ASIC 63A27
U205	4802245J58	Oscillator DRR030KER900TCT
U206	4802245J57	Oscillator DRR030KE1R225TC
U247	5105739X05	Analog IC ADP3300
U248	5102463J58	Analog IC Voltage Regulator LP2980AIM5
U250	5105750U54	Custom IC Buffer/Driver 50U54
U301	5185963A43	Analog IC MA4EX900L-1226
U302	5185623B01	Digital IC Gate TC7SU04FTE85L
U350	5185623B01	Digital IC Gate TC7SU04FTE85L
U351	5109632D83	Custom IC 32D83
U352	4885622B01	Transistor BF904
U400	5102463J40	Analog IC Voltage Regulator LP2951ACMM-3.3
U404	5185963A53	Custom IC 63A53
U405	5102463J36	Digital IC Memory
U406	5102463J60	Digital IC Memory AT49LV040-90T1
U407	5102463J64	Digital IC Memory X25128-2.7
U409	5102226J56	Digital IC Microprocessor MC68HC11FL0PU1
U410	5102463J57	Analog IC Voltage Regulator ILC7062
U420	5102463J44	Analog IC Amp TDA8547TS
VR432 to VR433	4805656W08	Diode MMQA5V6T1
VR434	4802245J73	Diode Zener UDZSTE17
VR445 to VR449	4802245J74	Diode Zener UDZSTE17
VR450	4802245J75	Diode Zener UDZSTE17
VR460	4802245J73	Zener Diode - 6.8V

Circuit Ref	Motorola Part No.	Description
VR501	4813830A18	Diode Zener MMBZ5235BLT1
VR502	4880140L17	Diode Zener MMBZ5242B
VR503 to VR508	4802245J73	Diode Zener UDZSTE17
Y200	4802245J68	Oscillator Crystal TTS12V(PMUF1063 & PMUF1064 only)
	8480641Z10	PC Board, 800MHz

* Motorola Depot Servicing only