Professional Radio
GP Series

300R1 (300 - 350MHz)

Service Information

Issue: June 2002

Computer Software Copyrights

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Chapter 1

MODEL CHART AND TECHNICAL SPECIFICATIONS

1.0 GP340 Model Chart

Professional GP300 Series (300-350MHz)			
Model			**Description**
MDH25EDC9AN3_E			GP340 300R1 300-350 MHz 4W 16 CH
		Item	**Description**
X		PMLD4141_	GP340 Back Cover Kit
X		6864110B13_	GP340 Basic User Guide
X		PMAD4022_	9cm (300-344 MHz) Antenna
X		HNN9008_	Battery, NiMH Standard

x = Indicates one of each is required.

2.0 GP640 / GP680 Model Chart

Professional GP600 Series (300-350MHz)				
Model				**Description**
MDH25EDC9CK3_E				GP640 300R1 300-350 MHz 4W
	MDH25EDH9CK6_E			GP680 300R1 300-350 MHz 4W
			Item	**Description**
X			PMLD4125_	GP640 300R1 Back Cover Kit
	X		PMLD4126_	GP680 300R1 Back Cover Kit
X			6864110B14_	GP640 Basic User Guide
	X		6864110B19_	GP680 Basic User Guide
X	X		PMAD4022_	9cm (300-344 MHz) Antenna
X	X		HNN9008_	Battery, NiMH Standard

x = Indicates one of each is required.

3.0 Technical Specifications

Data is specified for +25°C unless otherwise stated.

General Specifications		
Channel Capacity		
GP340	16	
GP640	16 (Conventional)	
GP680	16 (Conventional)	
Power Supply	Rechargeable battery 7.5v	
Dimensions: H x W x D (mm) Height excluding knobs		
With standard high capacity NiMH battery	137 x 57.5 x 37.5	
With ultra high capacity NiMH battery	137 x 57.5 x 40.0	
With NiCD battery	137 x 57.5 x 40.0	
With Lilon battery	137 x 57.5 x 33.0	
Weight: (gm)		
	GP340/GP640	**GP680**
With Standard high capacity NiMH battery	420	428
With Ultra high capacity NiMH battery	500	508
With NiCD battery	450	458
With Lilon battery	350	358
Average Battery Life @5/5/90 Cycle:	Low Power	High Power
With Standard high capacity NiMH battery	11 hours	8 hours
With Ultra high capacity NiMH battery	14 hours	11 hours
With NiCD battery	12 hours	9 hours
With Lilon battery	11 hours	8 hours
Sealing:	Withstands rain testing per MIL STD 810 C/D /E and IP54	
Shock and Vibration:	Protection provided via impact resistant housing exceeding MIL STD 810-C/D /E and TIA/EIA 603	
Dust and Humidity:	Protection provided via environment resistant housing exceeding MIL STD 810 C/D /E and TIA/EIA 603	

Transmitter	300R1
*Frequencies - Full Bandsplit	300-350 MHz
Channel Spacing	12.5/20/25 kHz
Frequency Stability (-25°C to +55°C, +25° Ref.)	±2.5 ppm @ 12.5kHz ±5ppm @ 25 kHz
Power	1-4W
Modulation Limiting	±2.5 @ 12.5 kHz ±4.0 @ 20 kHz ±5.0 @ 25 kHz
FM Hum & Noise	-40 dB typical
Conducted/Radiated Emission	-36 dBm <1 GHz -30 dBm >1 GHz
Adjacent Channel Power	-60 dB @ 12.5 kHz -70 dB @ 25 kHz
Audio Response (300 - 3000 Hz)	+1 to -3 dB
Audio Distortion	<5% typical

Receiver	300R1
*Frequencies - Full Bandsplit	300-350 MHz
Channel Spacing	12.5/20/25 kHz
Sensitivity (12 dB SINAD) EIA Sensitivity (20 dB SINAD) ETS	0.35 µV typical 0.50 µV typical
Intermodulation ETS	-65 dB
Adjacent Channel Selectivity	-60 dB @ 12.5 kHz -70 dB @ 25 kHz
Spurious Rejection	-70 dB
Rated Audio	0.5W
Audio Distortion @ Rated Audio	<3% typical
Hum & Noise	-45 dB @ 12.5 kHz -50 dB @ 20/25 kHz
Audio Response (300 - 3000 Hz)	+1 to -3 dB
Conducted Spurious Emission	-57 dBm <1 GHz -47 dBm >1 GHz ETS 300 086

*Availability subject to the laws and regulations of individual countries.

Chapter 2

THEORY OF OPERATION

1.0 Introduction

This Chapter provides a detailed theory of operation for the 300-350MHz 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 Transmitter

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

The transmitter contains five basic circuits:

1. power amplifier,
2. antenna switch,
3. harmonic filter,
4. antenna matching network,
5. power control integrated circuit (PCIC).

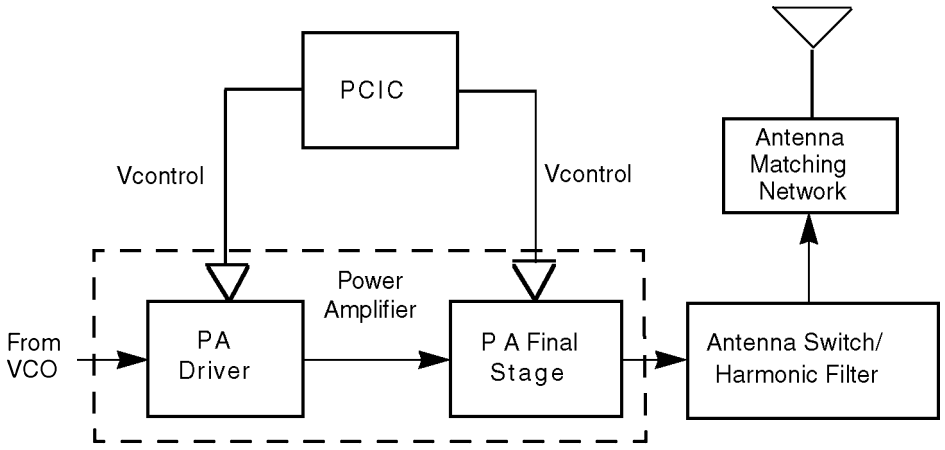


Figure 2-1 Transmitter Block Diagram.

2.1 Power Amplifier

The power amplifier consists of two devices:

1. 9Z67 LDMOS driver IC (U101) and
2. PRF1507 LDMOS PA (Q110).

The 9Z67 LDMOS driver IC contains 2 stages of 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) (pin16). The current drain would typically be 160mA while operating in the frequency range of 300-350MHz.

The PRF1507 LDMOS PA is capable of supplying an output power of 7W with an input signal of 0.3W. The current drain would typically be 1300mA while operating in the frequency range of 300-350MHz. The power output can be varied by changing the biasing 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, R170). 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.

2.3 Harmonic Filter

The harmonic filter consists of C104, L102, C103, L101 and C102. The design of the harmonic filter for VHF 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.

2.4 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.

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 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.

CR105 and its associated components are part of the temperature cut back circuitry. It senses the printed circuit board temperature around the transmitter circuits and output 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 Receiver

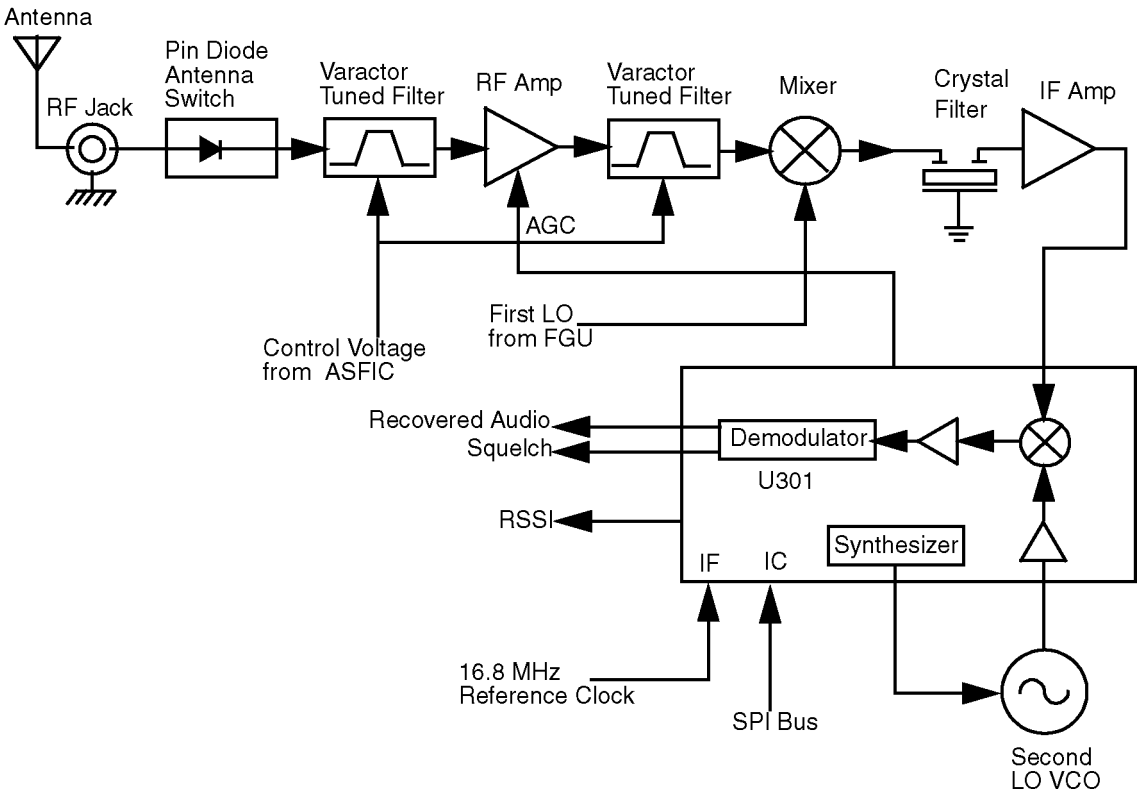


Figure 2-2 Receiver Block Diagram

3.1 Receiver Front-End

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

The RF signal is received by the antenna and applied to a low-pass filter. For 300R1, 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 VHF 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 U404 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 3dB 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 45.1 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.

3.2 Receiver Back-End

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

The output of crystal filter FL301 is matched to the input of IF amplifier transistor Q302 by components R352 and C325. Voltage supply to the IF amplifier is taken from the receive 5 volts (R5). The IF amplifer provides a gain of about 7dB. The amplified IF signal is then coupled into U301(pin 3) via C330, C338 and L330 which provides the 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 the 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 the 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 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 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 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 Circuit

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

The front end automatic gain control circuit is to provide automatic gain reduction 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's output. At high radio frequencies, capacitor C331 provides the 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 provides this current where upon saturation, current will flow via R347, PIN diode, collector and emitter of Q315 and R319 before going to ground. Q315 is an NPN transistor used for switching here. Maximum current flowing through the PIN is mainly limited by the resistor R319.

Radio signal strength indicator, RSSI, a voltage signal, is used to drive Q315 to saturation hence turning it on. RSSI is produced by U301 and is proportional to the gain of the RF amplifier and the input RF signal power to the radio.

Resistor network at the input to the base of Q315 is scaled to turn on Q315, hence activating the AGC, at certain RSSI levels. In order to turn on Q315, the voltage across the transistor's base to ground must be greater or equal to the voltage across R319, plus the base-emitter voltage (Vbe) present at Q315. The resistor network with thermistor RT300 is capable of providing temperature compensation to the AGC circuit, as RSSI generated by U301 is lower at cold temperatures compared to normal operation at room temperature. Resistor R300 and capacitor C397 form an R-C network used to dampen any transient instability while the AGC is turning on.

4.0 Frequency Generation Circuitry

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

The Frequency Generation Circuitry is composed of two main ICs, the Fractional-N synthesizer (U201), and the VCO/Buffer IC (U241). 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.

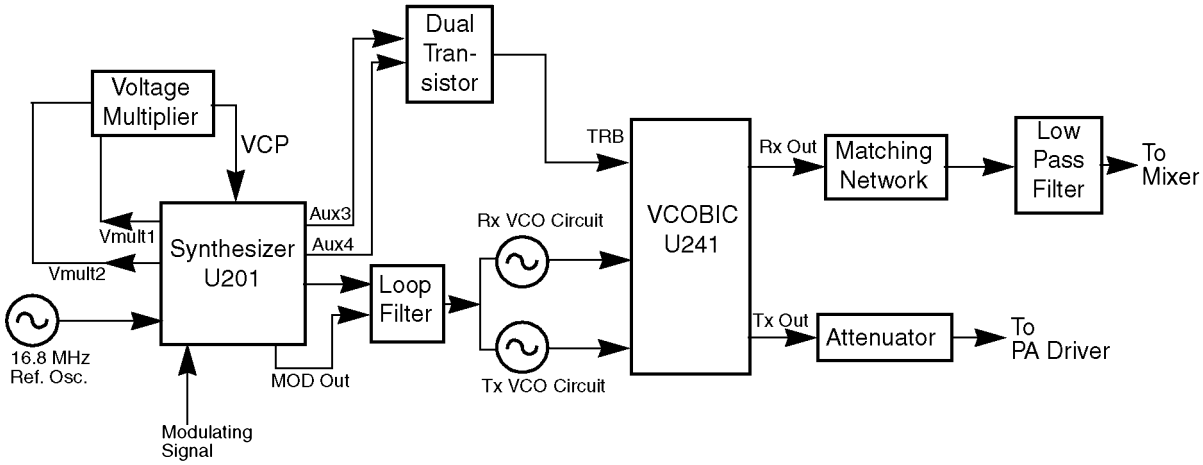


Figure 2-3 Frequency Generation Unit Block Diagram

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 U241.

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 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 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 to be used by ASFIC and LVZIF.

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

In achieving fast locking for the synthesizer, an internal adapt charge pump provides higher current at pin 45 of U201 to put synthesizer within the 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 which is made up of C258, C259, C228, triple diode CR201 and level shifters U210 and U211. Two 3.3V square waves (180 deg 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.

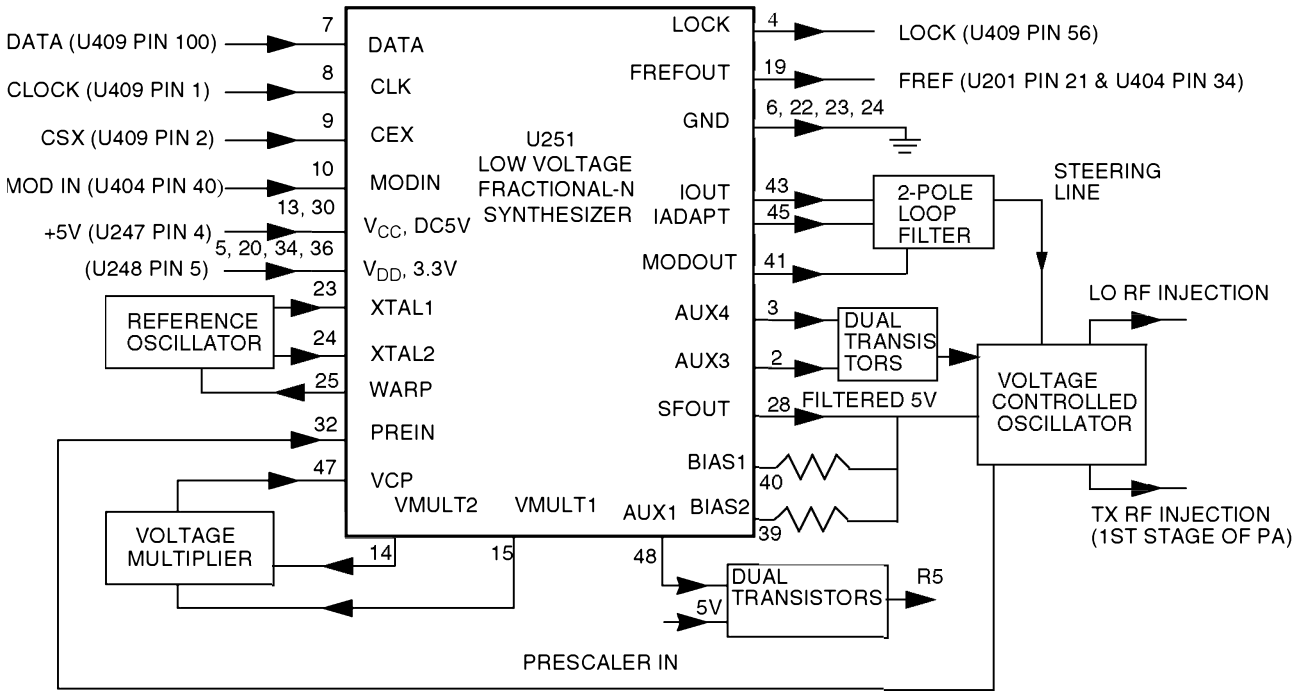


Figure 2-4 Synthesizer Block Diagram

4.2 Voltage Controlled Oscillator (VCO)

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

The VCOBIC (U241) 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 will be 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 VCOBIC(U241) 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.

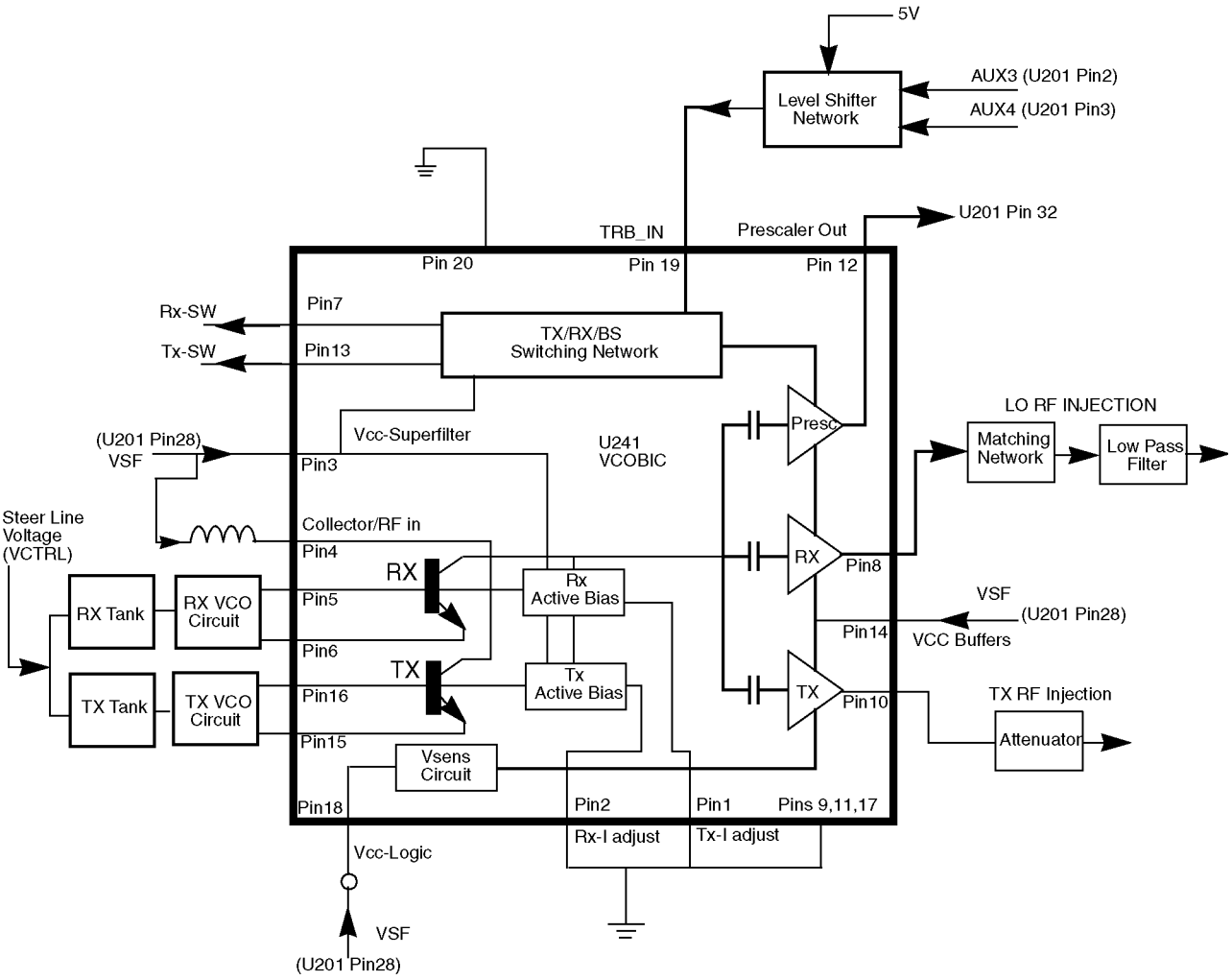


Figure 2-5 VCO Block Diagram

Table 2-1 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 RF signal is the LO RF INJECTION and it is applied to the mixer at T302.

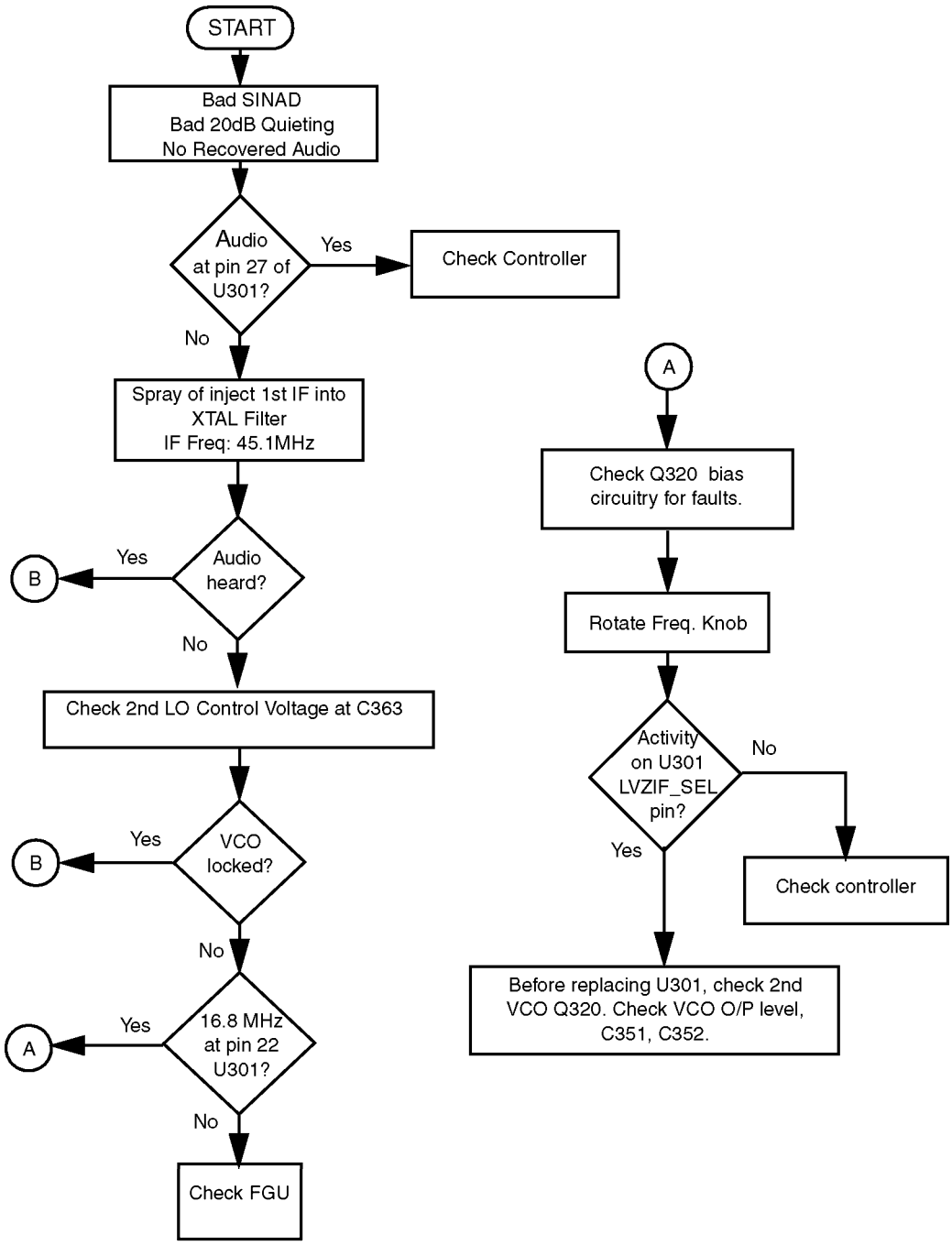
During the transmit condition, when PTT is depressed, five volts is applied to U241 pin 19. This activates the transmit VCO by enabling the transmit oscillator and the transmit buffer of U241. The RF signal at U241 pin 10 is injected into the input of the PA module (U101 pin16). This RF signal is the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

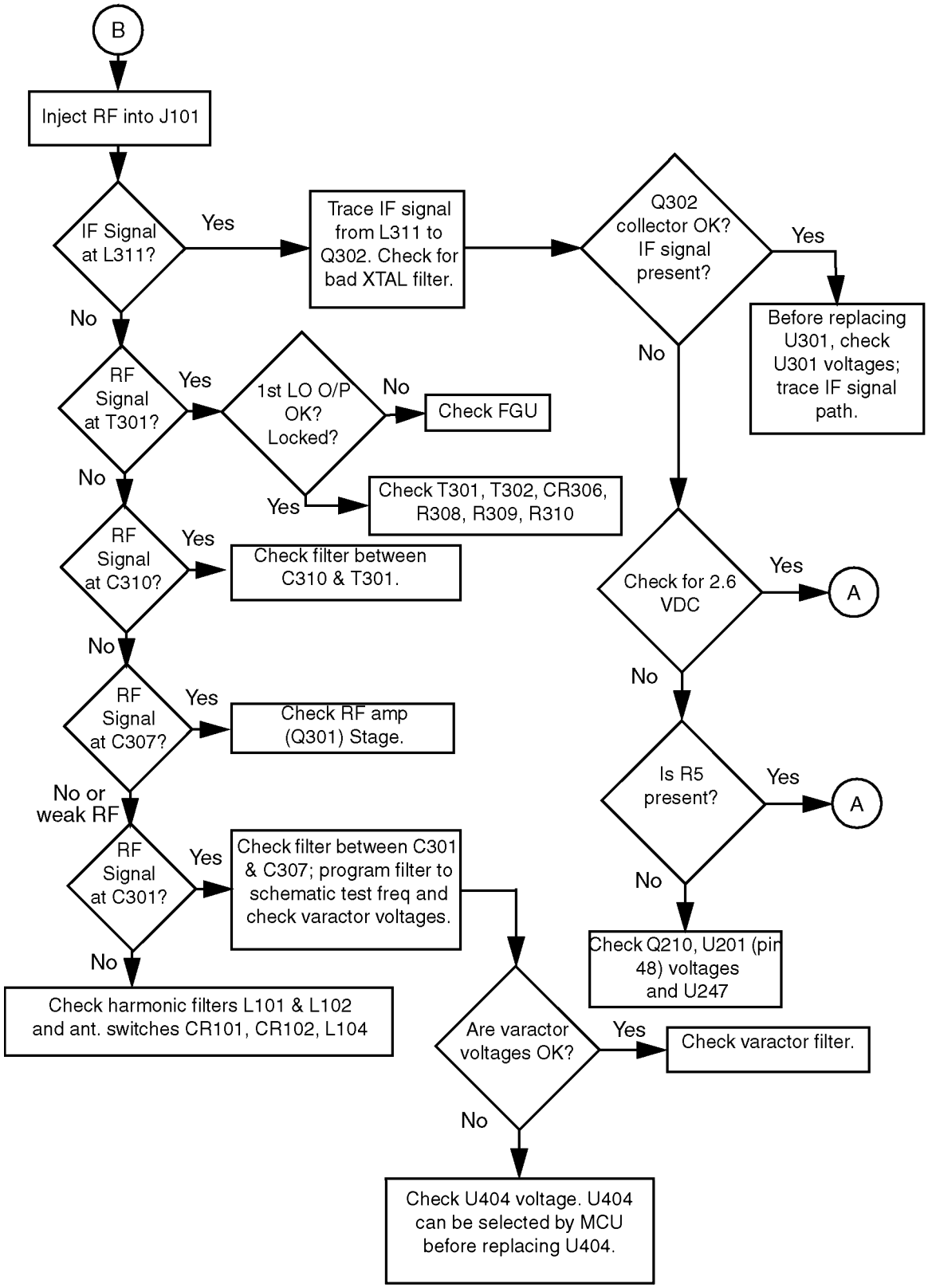
Chapter 3

TROUBLESHOOTING CHARTS

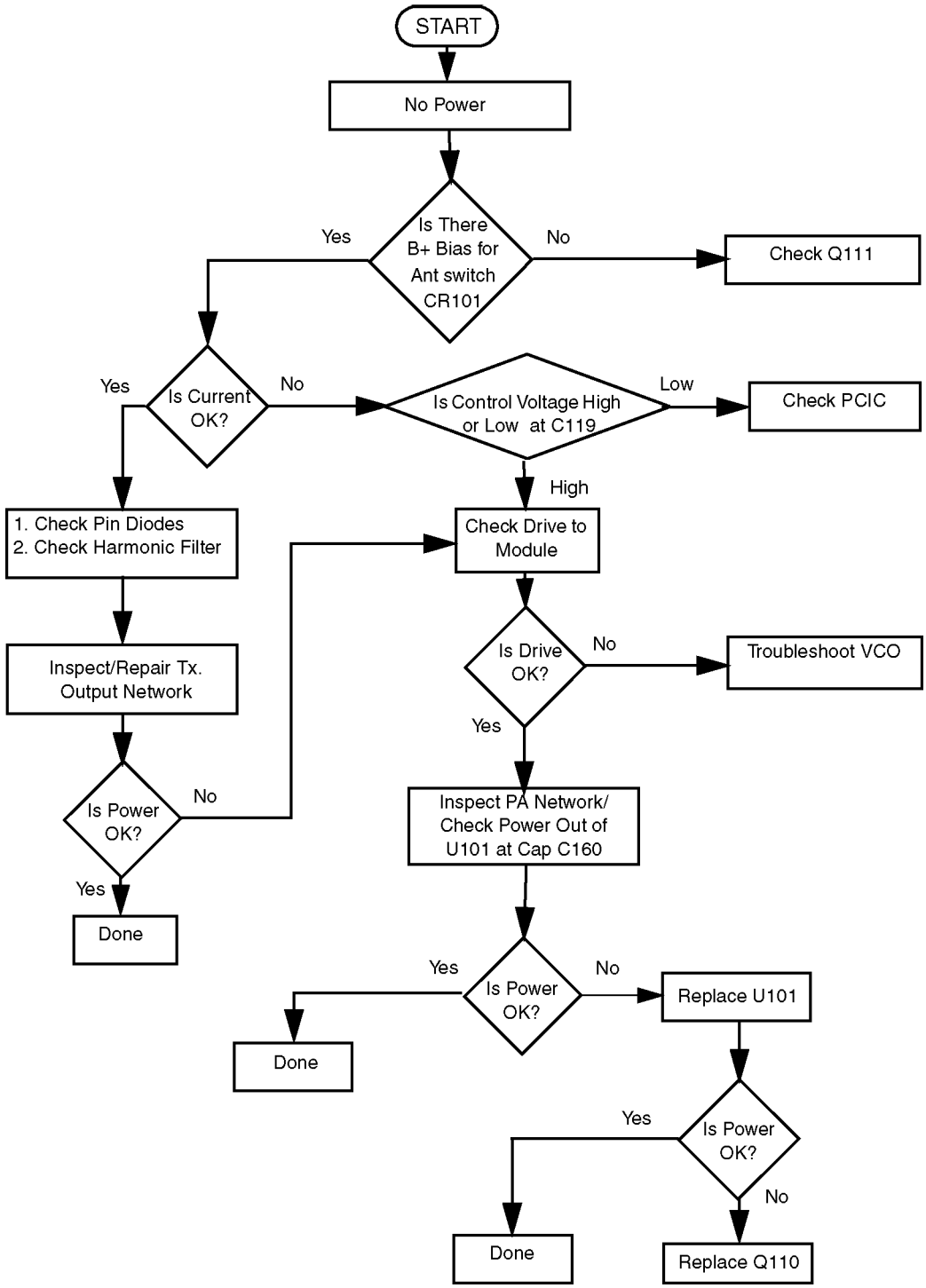
1.0 Troubleshooting Flow Chart for Receiver (Sheet 1 of 2)



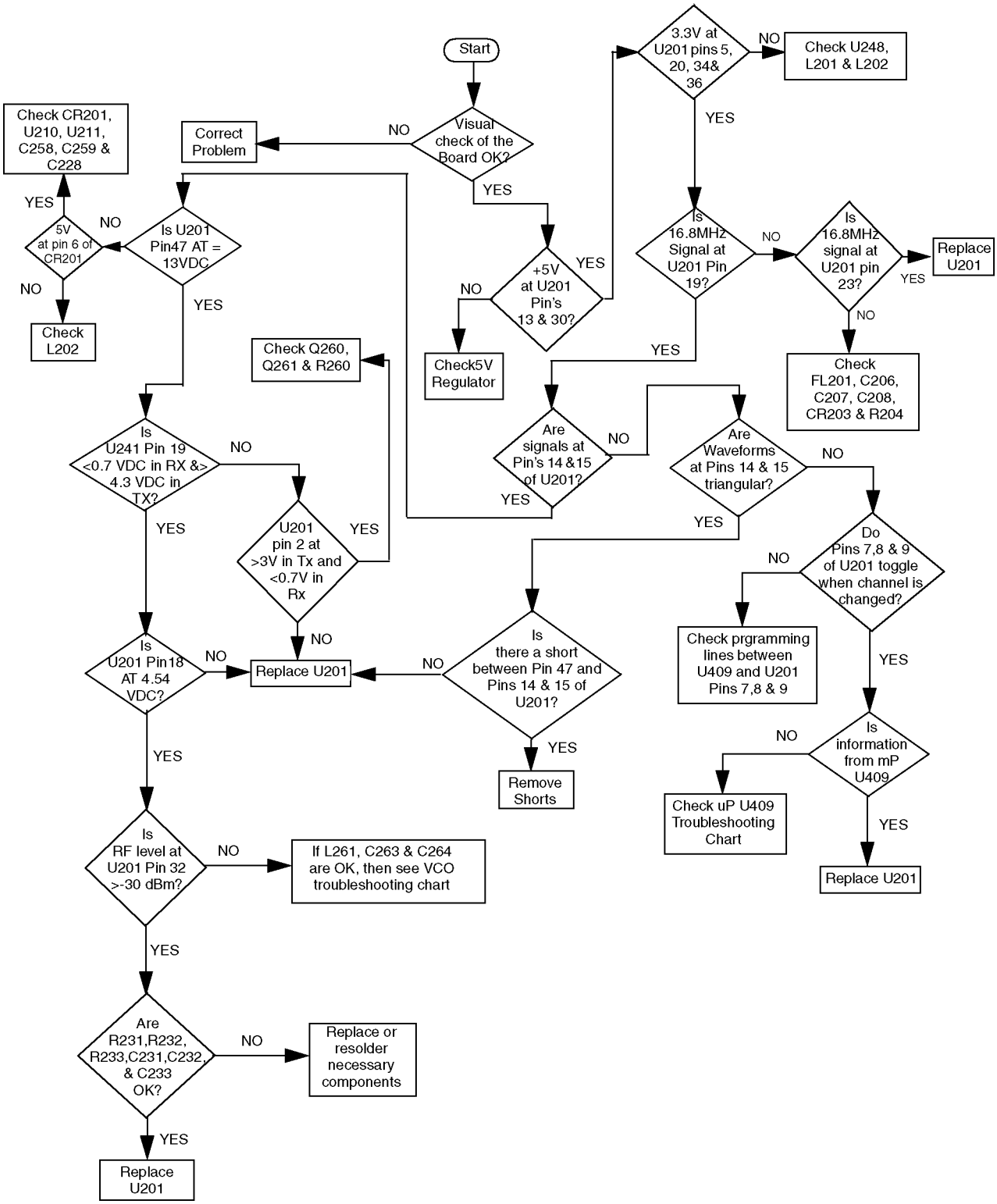
2.0 Troubleshooting Flow Chart for Receiver (Sheet 2 of 2)



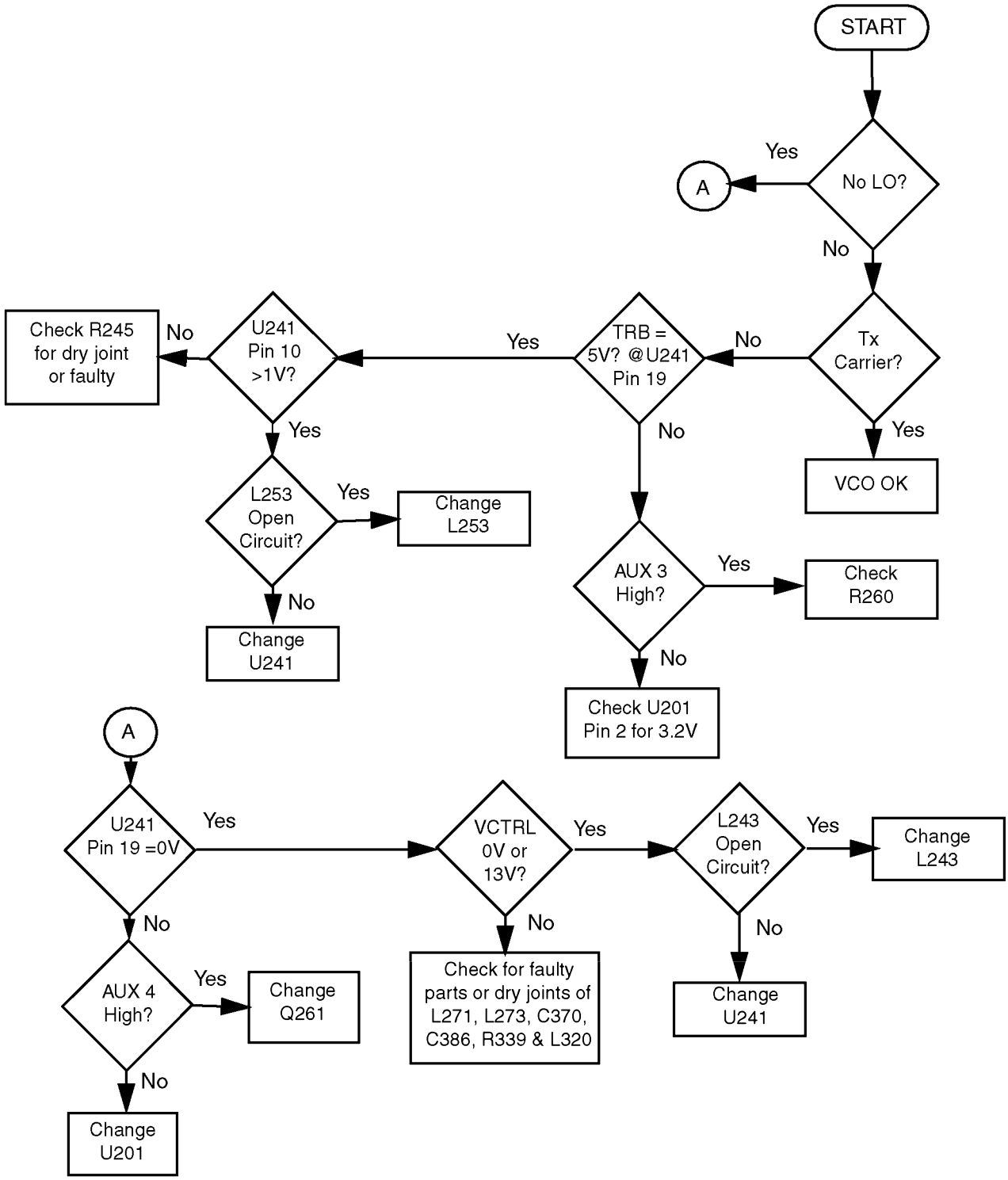
3.0 Troubleshooting Flow Chart for Transmitter



4.0 Troubleshooting Flow Chart for Synthesizer



5.0 Troubleshooting Flow Chart for VCO



Chapter 4

PCB/SCHEMATICS/PARTS LISTS

1.0 Allocation of Schematics and Circuit Boards

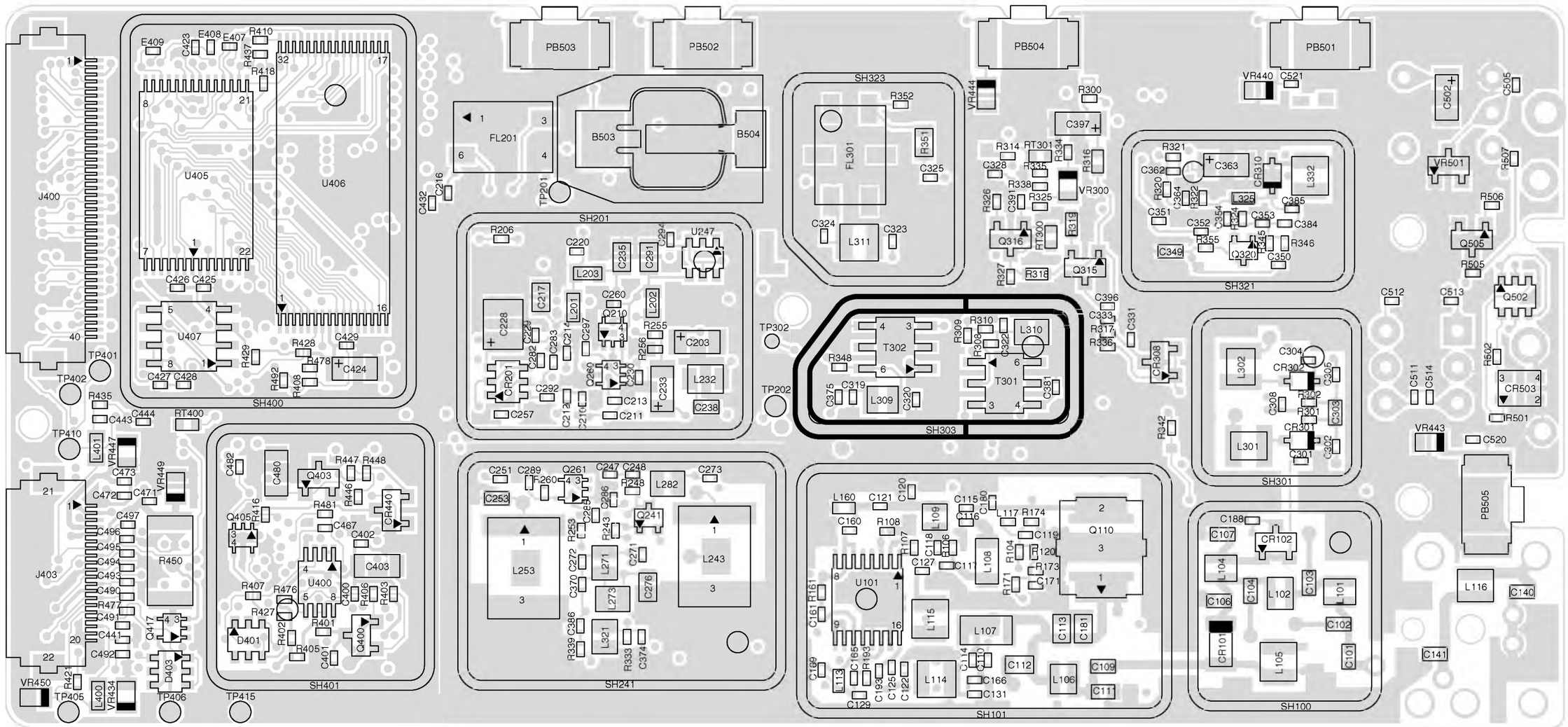
1.1 Controller Circuits

The 300-350MHz circuits are contained on the printed circuit board (PCB) which also contains the Controller circuits. This Chapter shows the schematics for the 300R1 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 300R1 circuit components. The 300R1 schematics and the related PCB and parts list are shown in the tables below.

Table 4-1 Diagrams and Parts Lists

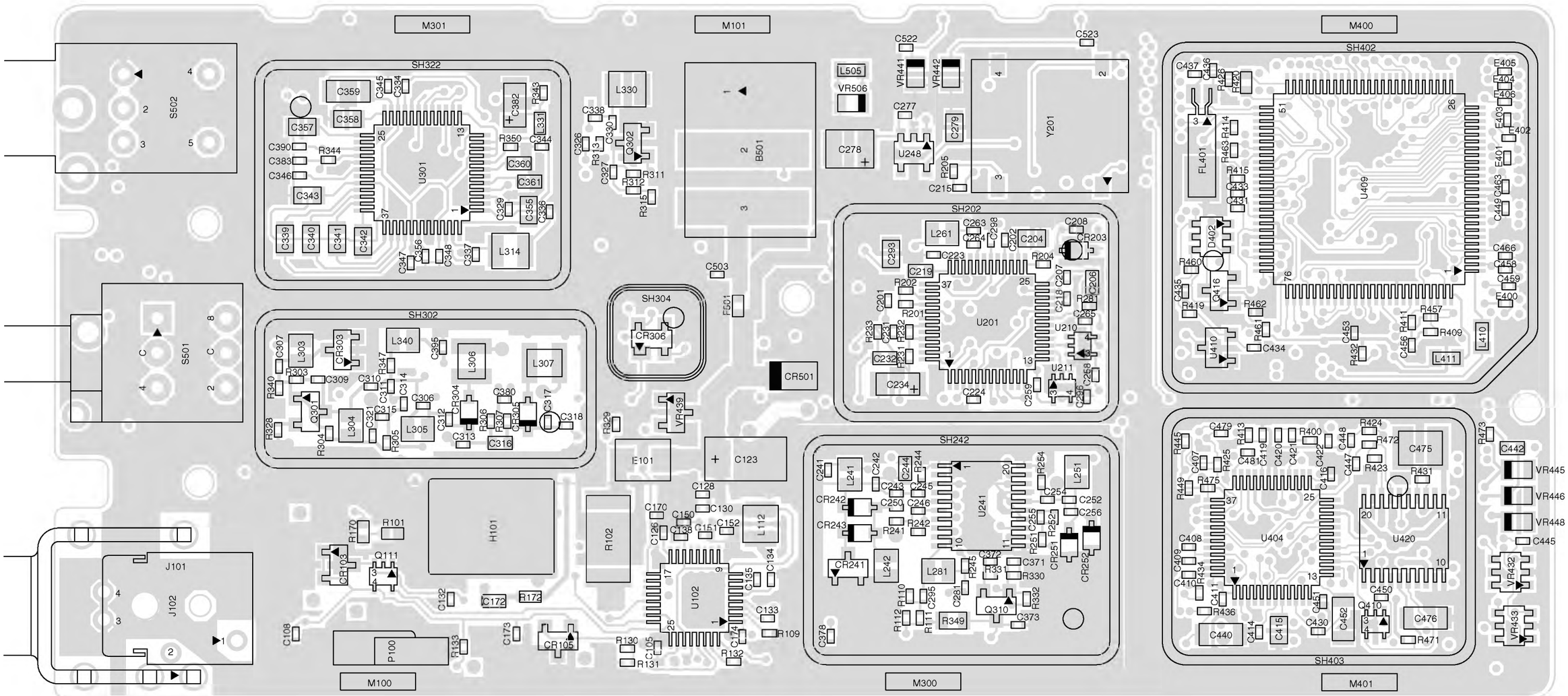
Table 4-2 Diagrams and Parts Lists

2.0 PCB 8485726Z01 - Schematics



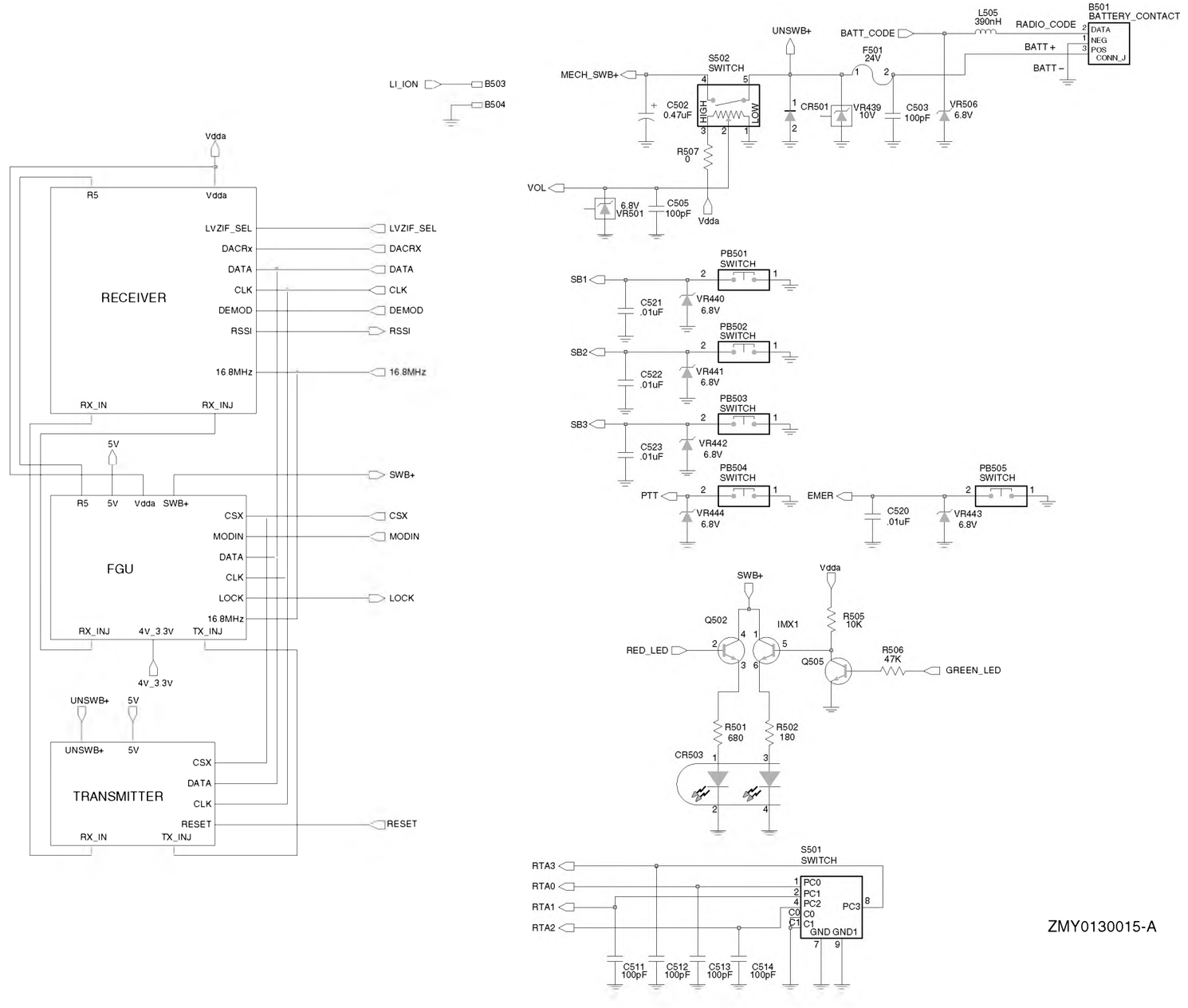
ZMY0130348-O

300R1 (300-350MHz) Main Board



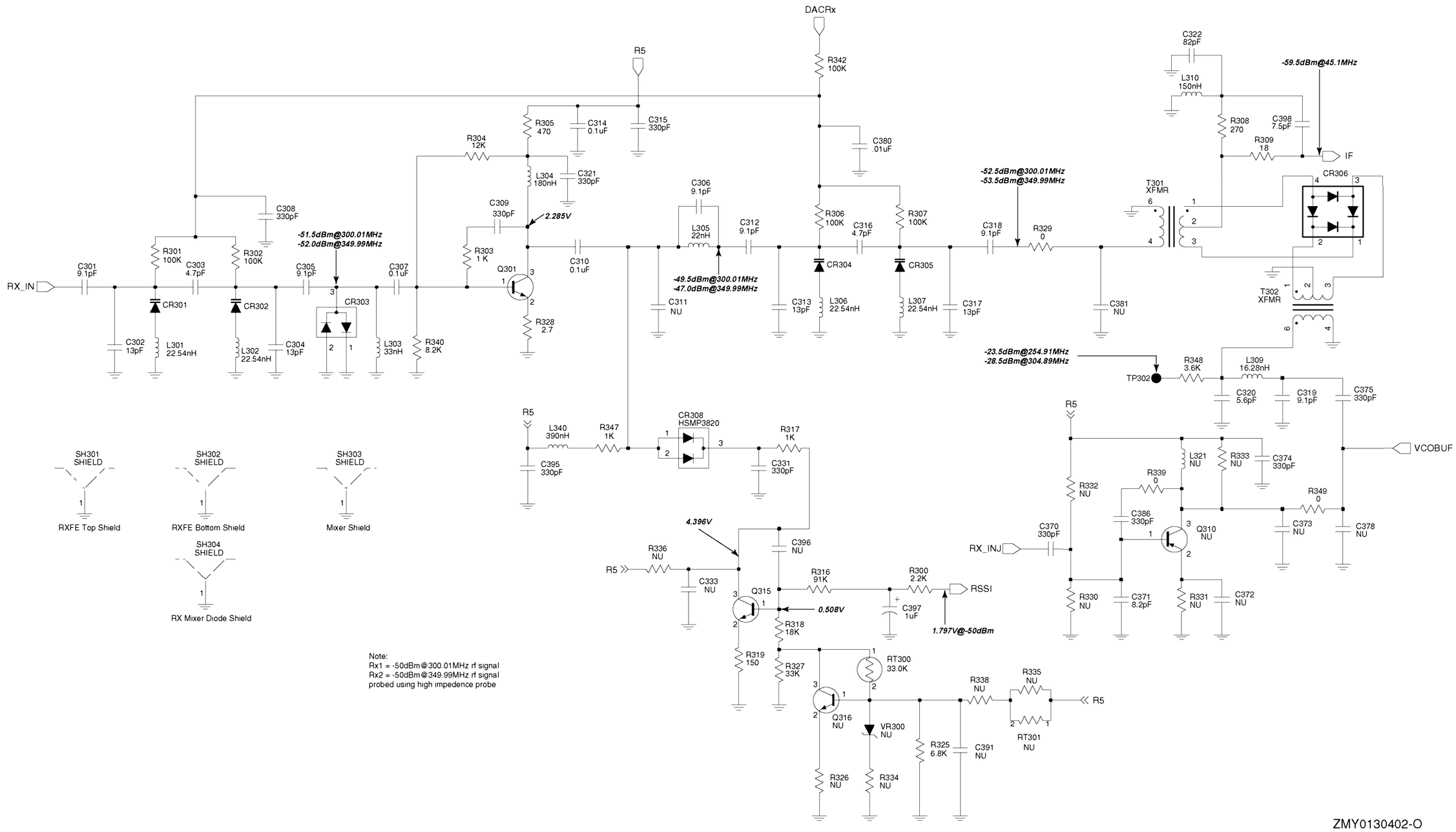
ZMY0130347-O

300R1 (300-350MHz) Main Board Solder Side

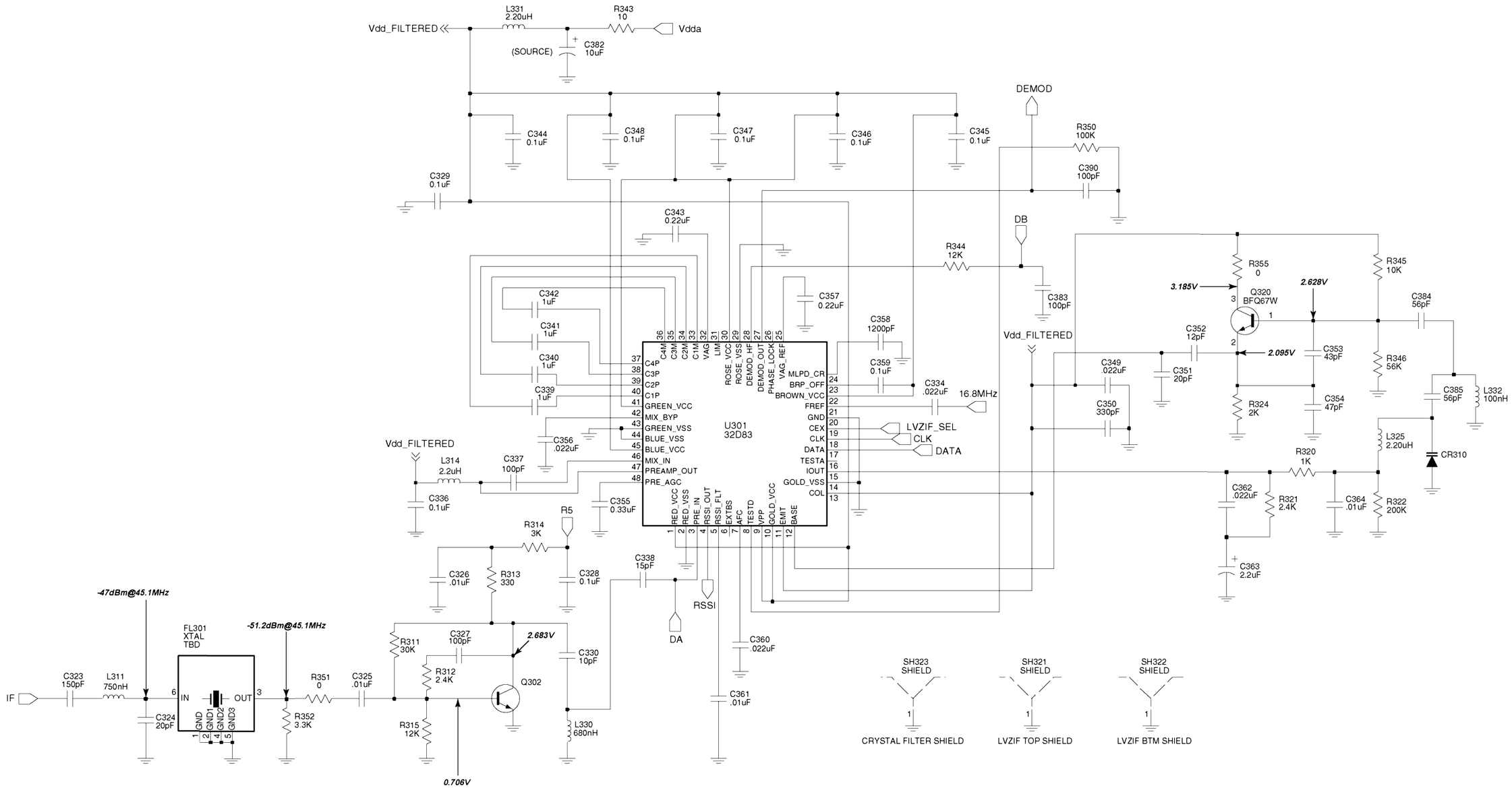


ZMY0130015-A

300R1 (300-350MHz) Controls and Switches

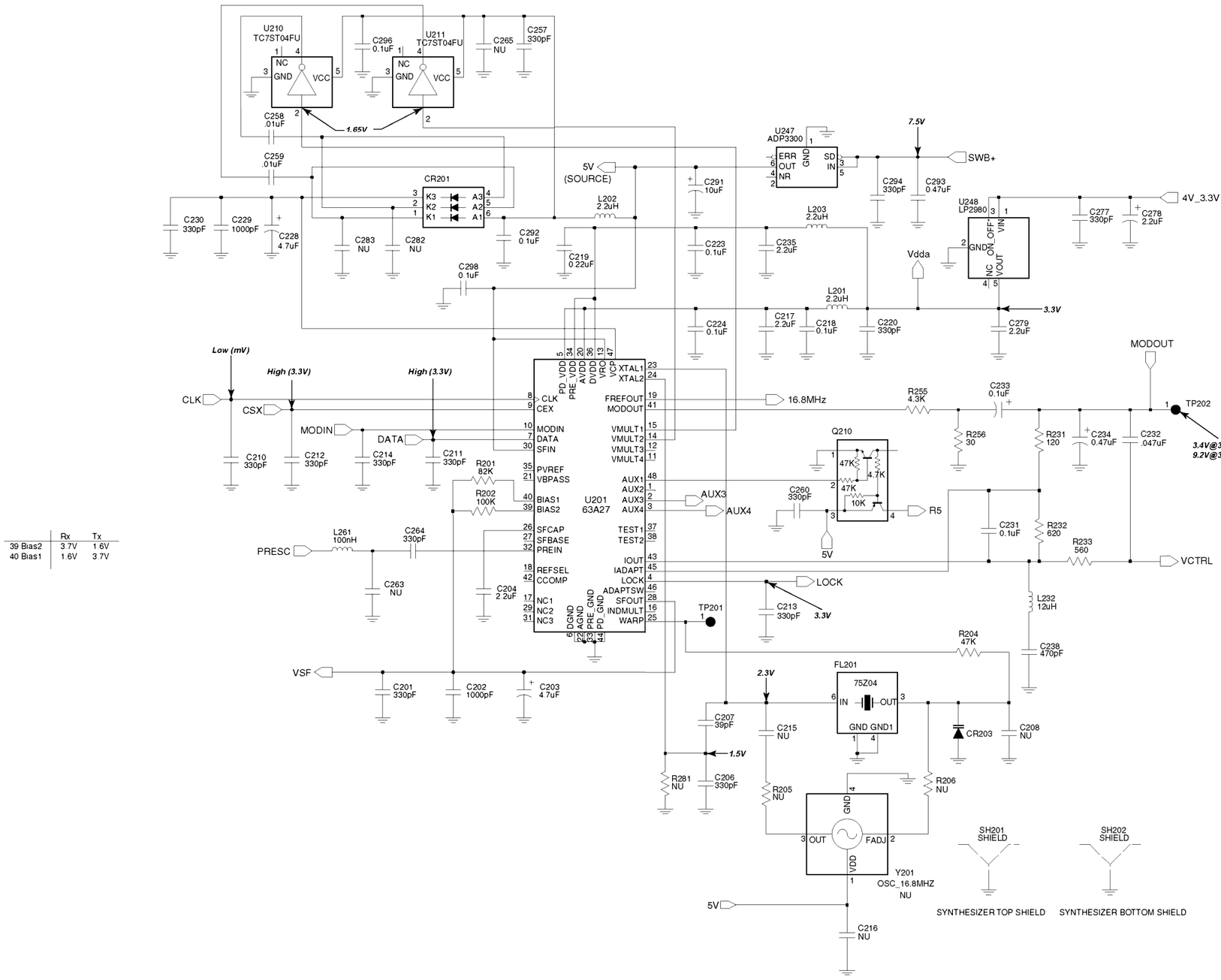


300R1 (300-350MHz) Receiver Front End



ZMY0130349-O

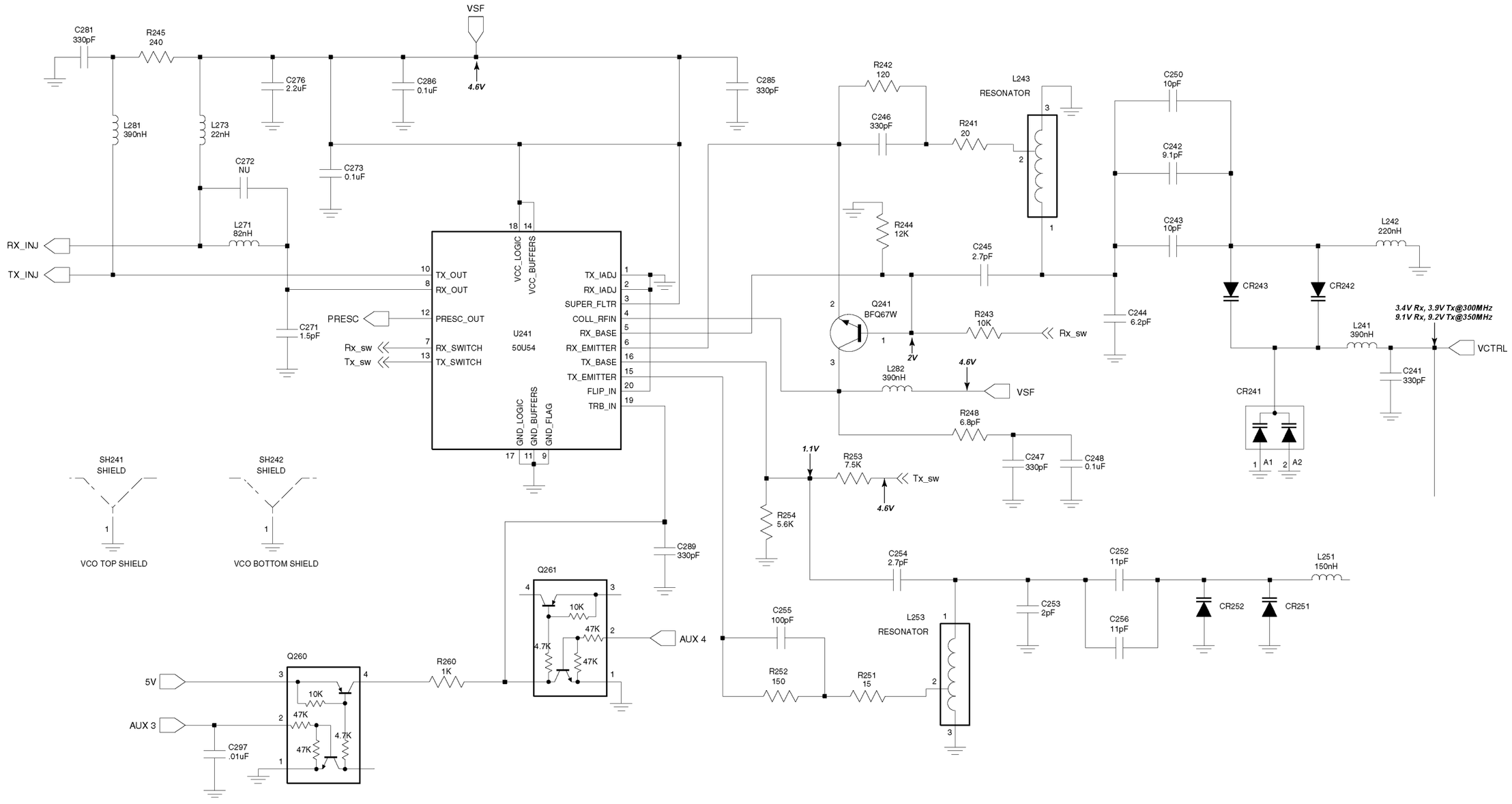
300R1 (300-350MHz) Receiver Back End



	Rx	Tx
39 Bias2	3.7V	1.6V
40 Bias1	1.6V	3.7V

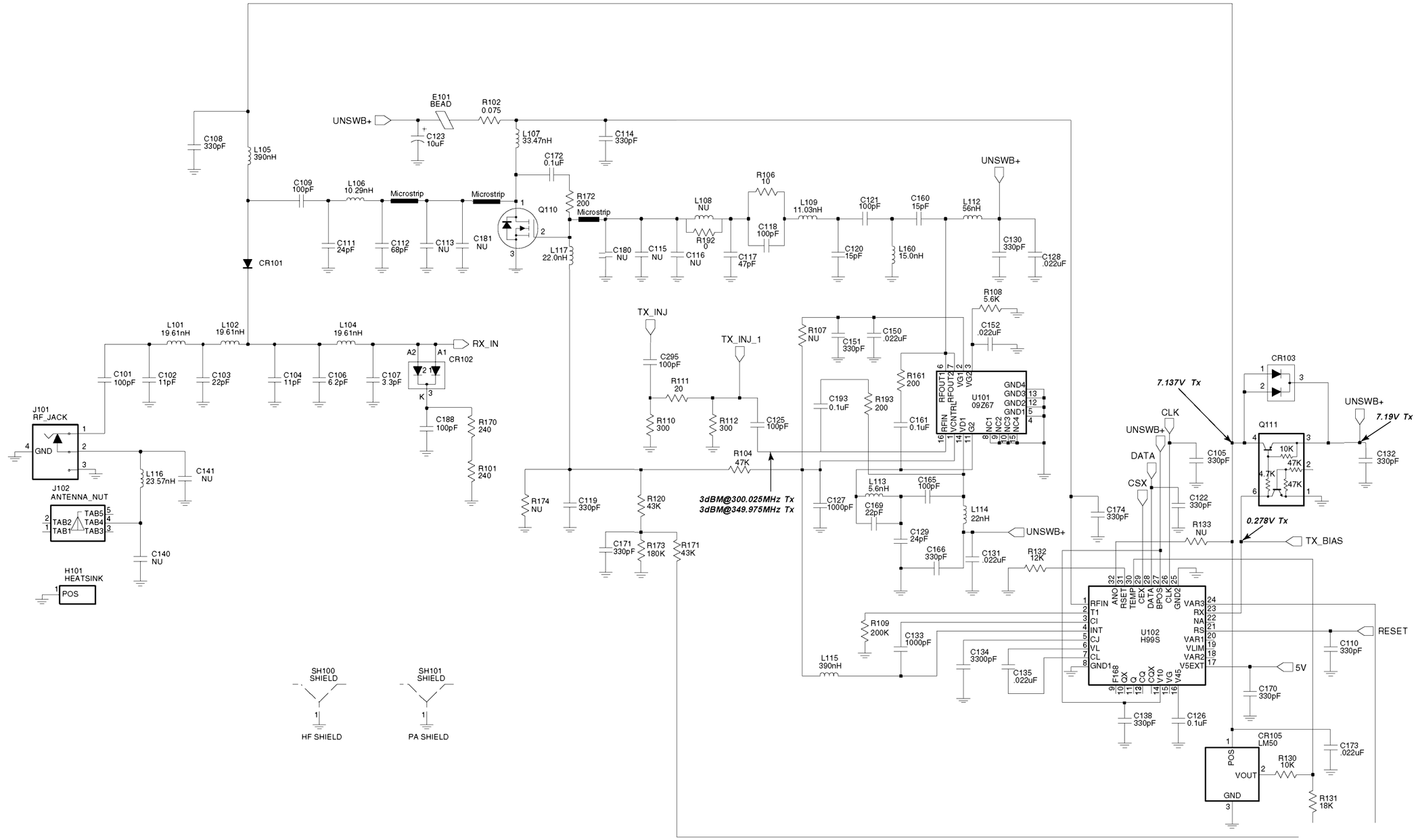
ZMY0130404-O

300R1 (300-350MHz) Synthesizer



ZMY0130403-O

300R1 (300-350MHz) Voltage Controlled Oscillator



ZMY0130401-O

300R1 (300-350MHz) Transmitter

3.0 PCB 8485726Z01 - Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113740F51	CAP CHIP REEL CL1 +/-30 100
C102	2113740F28	CAP CHIP REEL CL1+/-30 11
C103	2113740F35	CAP CHIP REEL CL1 +/-30 22
C104	2113740F28	CAP CHIP REEL CL1+/-30 11
C105	2113743L05	CAP CHIP 330 PF 10% X7R
C106	2113740F22	CAP CHIP REEL CL1 +/-30 6.2
C107	2113740F15	CAP CHIP REEL CL1 +/-30 3.3
C108	2113743L05	CAP CHIP 330 PF 10% X7R
C109	2113740F51	CAP CHIP REEL CL1 +/-30 100
C110	2113743L05	CAP CHIP 330 PF 10% X7R
C111	2103689A47	SL240J HIGH - Q CAP, UCNO
C112	2180605Z35	HIGH Q CHIP CAPACITOR, 68PF
C114	2113743L05	CAP CHIP 330 PF 10% X7R
C117	2113743N42	CAP CHIP 47.0 PF 5% COG
C118	2113743N50	CAP CHIP 100 PF 5% COG
C119	2113743L05	CAP CHIP 330 PF 10% X7R
C120	2113743N30	CAP CHIP 15.0PF 5% COG
C121	2113743N50	CAP CHIP 100 PF 5% COG
C122	2113743L05	CAP CHIP 330 PF 10% X7R
C123	2311049A18	CAP. TANT 10% 10UF
C125	2113743N50	CAP CHIP 100 PF 5% COG
C126	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C127	2113743L17	CAP CHIP 1000 PF 10% X7R
C128	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C129	2113743N35	CAP CHIP 24.0 PF 5% COG
C130	2113743L05	CAP CHIP 330 PF 10% X7R
C131	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C132	2113743L05	CAP CHIP 330 PF 10% X7R
C133	2113743L17	CAP CHIP 1000 PF 10% X7R
C134	2113743L29	CAP CHIP 3300PF 10% X7R
C135	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C138	2113743L05	CAP CHIP 330 PF 10% X7R
C150	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C151	2113743L05	CAP CHIP 330 PF 10% X7R
C152	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C160	2113743N50	CAP CHIP 100 PF 5% COG
C161	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C165	2113743N50	CAP CHIP 100 PF 5% COG
C166	2113743L05	CAP CHIP 330 PF 10% X7R
C169	2113743N34	CAP CHIP 22.0 PF 5% COG
C170	2113743L05	CAP CHIP 330 PF 10% X7R
C171	2113743L05	CAP CHIP 330 PF 10% X7R
C172	2113743E20	CAP CHIP. 10 UF 10%
C173	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C174	2113743L05	CAP CHIP 330 PF 10% X7R
C188	2113743N50	CAP CHIP 100 PF 5% COG
C193	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C201	2113743L05	CAP CHIP 330 PF 10% X7R
C202	2113743L17	CAP CHIP 1000 PF 10% X7R
C203	2311049A56	CAP TAN CHIP A/P 4.7 20 10
C204	2104993J02	CAP MONO. CERAMIC (2.2UF)
C206	2113740F63	CAP CHIP CL1 +/-30 330 5%
C207	2113743N40	CAP CHIP 39.0 PF 5% COG
C210	2113743L05	CAP CHIP 330 PF 10% X7R
C211	2113743L05	CAP CHIP 330 PF 10% X7R
C212	2113743L05	CAP CHIP 330 PF 10% X7R
C213	2113743L05	CAP CHIP 330 PF 10% X7R
C214	2113743L05	CAP CHIP 330 PF 10% X7R
C217	2104993J02	CAP MONO. CERAMIC (2.2UF)
C218	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C219	2113743K16	CAP CHIP .220 UF +80-20% 16V
C220	2113743L05	CAP CHIP 330 PF 10% X7R
C223	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C224	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C228	2311049J11	CAPACITOR TANT 10% 4.7UF
C229	2113743L17	CAP CHIP 1000 PF 10% X7R
C230	2113743L05	CAP CHIP 330 PF 10% X7R
C231	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C232	2113743E12	CAP CHIP .047UF 10% X7R
C233	2311049A01	CAP TANT CHIP A/P .1 10 35
C234	2311049A05	CAP TANT 10% 0.47UF
C235	2104993J02	CAP MONO. CERAMIC (2.2UF)
C238	2113741F17	CAP CHIP CL2 X7R REEL 470
C241	2113743L05	CAP CHIP 330 PF 10% X7R
C242	2113743N25	CAP CHIP 9.1 PF +-.5PF COG
C243	2113743N26	CAP CHIP 10.0 PF 5% COG
C244	2113740F22	CAP CHIP REEL CL1 +/-30 6.2
C245	2113743N12	CAP CHIP 2.7 PF +-.25PF COG
C246	2113743L05	CAP CHIP 330 PF 10% X7R
C247	2113743L05	CAP CHIP 330 PF 10% X7R
C248	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C250	2113743N26	CAP CHIP 10.0 PF 5% COG
C251	2113743L05	CAP CHIP 330 PF 10% X7R
C252	2113743N27	CAP CHIP 11.0 PF 5% COG
C253	2113740F10	CAP CHIP REEL CL1+/-30 2.0
C254	2113743N12	CAP CHIP 2.7 PF +-.25PF COG
C255	2113743L05	CAP CHIP 330 PF 10% X7R
C256	2113743N27	CAP CHIP 11.0 PF 5% COG
C257	2113743L05	CAP CHIP 330 PF 10% X7R
C258	2113743L41	CAP CHIP 10000 PF 10% X7R
C259	2113743L41	CAP CHIP 10000 PF 10% X7R
C260	2113743L05	CAP CHIP 330 PF 10% X7R
C264	2113743L05	CAP CHIP 330 PF 10% X7R
C271	2113743N07	CAP CHIP 1.5PF +-.25PF COG
C273	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C276	2104993J02	CAP MONO. CERAMIC (2.2UF)
C277	2113743L05	CAP CHIP 330 PF 10% X7R
C278	2311049A09	TANT CAP 2.2 UF 10%
C279	2104993J02	CAP MONO. CERAMIC (2.2UF)
C281	2113743L05	CAP CHIP 330 PF 10% X7R
C285	2113743L05	CAP CHIP 330 PF 10% X7R
C286	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C289	2113743L05	CAP CHIP 330 PF 10% X7R
C291	2311049A69	CAP TAN CHIP 10.0 UF 20% 6.3V
C292	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C293	2113743A27	CAP CHIP .470 UF 10% 16V
C294	2113743L05	CAP CHIP 330 PF 10% X7R
C295	2113743N50	CAP CHIP 100 PF 5% COG
C296	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C297	2113743L41	CAP CHIP 10000 PF 10% X7R
C298	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C301	2113743N25	CAP CHIP 9.1 PF +-.5PF COG
C302	2113743N29	CAP CHIP 13.0 PF 5% COG
C303	2113740L10	CAP CER CHIP 4.7 PF +-0.1PF
C304	2113743N29	CAP CHIP 13.0 PF 5% COG
C305	2113743N25	CAP CHIP 9.1 PF +-.5PF COG
C306	2113743N25	CAP CHIP 9.1 PF +-.5PF COG
C307	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C308	2113743L05	CAP CHIP 330 PF 10% X7R
C309	2113743L05	CAP CHIP 330 PF 10% X7R
C310	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C312	2113743N25	CAP CHIP 9.1 PF +-.5PF COG
C313	2113743N29	CAP CHIP 13.0 PF 5% COG
C314	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C315	2113743L05	CAP CHIP 330 PF 10% X7R
C316	2113740L10	CAP CER CHIP 4.7 PF +-0.1PF
C317	2113743N29	CAP CHIP 13.0 PF 5% COG
C318	2113743N25	CAP CHIP 9.1 PF +-.5PF COG
C319	2113743N25	CAP CHIP 9.1 PF +-.5PF COG
C320	2113743N20	CAP CHIP 5.6 PF +-.5PF COG
C321	2113743L05	CAP CHIP 330 PF 10% X7R
C322	2113743N48	CAP CHIP 82.0 PF 5% COG
C323	2113743N54	CAP CHIP 150 PF 5% COG
C324	2113743N33	CAP CHIP 20.0 PF 5% COG
C325	2113743L41	CAP CHIP 10000 PF 10% X7R
C326	2113743L41	CAP CHIP 10000 PF 10% X7R
C327	2113743N50	CAP CHIP 100 PF 5% COG
C328	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C329	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C330	2113743N26	CAP CHIP 10.0 PF 5% COG
C331	2113743L05	CAP CHIP 330 PF 10% X7R
C334	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C336	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C337	2113743N50	CAP CHIP 100 PF 5% COG
C338	2113743N30	CAP CHIP 15.0PF 5% COG
C339	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C340	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C341	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C342	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C343	2113743A23	CAP CHIP .220UF 10% X7R
C344	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C345	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C346	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C347	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C348	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C349	2113743E07	CER CHIP CAP .022UF
C350	2113743L05	CAP CHIP 330 PF 10% X7R
C351	2113743N33	CAP CHIP 20.0 PF 5% COG
C352	2113743N28	CAP CHIP 12.0 PF 5% COG
C353	2113743N41	CAP CHIP 43.0 PF 5% COG
C354	2113743N42	CAP CHIP 47.0 PF 5% COG
C355	2113743A24	CAP CHIP .330 UF 10% 16V
C356	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C357	2113743A23	CAP CHIP .220UF 10% X7R
C358	2113741A23	CHIP CAPACITORS 1200PF +-5%
C359	2109720D14	CAP CER CHIP LOW DIST 0.1UF
C360	2113743E07	CER CHIP CAP .022UF
C361	2113741F49	CHIP CAP, CER 10NF
C362	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C363	2311049A40	GLOBAL CAP TANT 10% 2.2 UF
C364	2113743L41	CAP CHIP 10000 PF 10% X7R
C370	2113743L05	CAP CHIP 330 PF 10% X7R
C371	2113743N24	CAP CHIP 8.2 PF + -.5PF COG
C374	2113743L05	CAP CHIP 330 PF 10% X7R
C375	2113743L05	CAP CHIP 330 PF 10% X7R
C380	2113743L41	CAP CHIP 10000 PF 10% X7R
C382	2311049A59	CAP TANT CHIP A/P 10UF 10% 6V
C383	2113743N50	CAP CHIP 100 PF 5% COG
C384	2113743N44	CAP CHIP 56.0 PF 5% COG
C385	2113743N44	CAP CHIP 56.0 PF 5% COG
C386	2113743L05	CAP CHIP 330 PF 10% X7R
C390	2113743N50	CAP CHIP 100 PF 5% COG
C395	2113743L05	CAP CHIP 330 PF 10% X7R
C397	2311049A07	CAP TANT 10% 1.0UF
C398	2113743N23	CAP CHIP 7.5 PF +-.5PF COG
C400	2113743L41	CAP CHIP 10000 PF 10% X7R
C401	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C402	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C403	2113928D08	CAP CERAMIC CHIP 10.0UF
C407	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C408	2113743N50	CAP CHIP 100 PF 5% COG
C409	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C410	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C411	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C414	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C415	2109720D01	CAP CER CHIP LOW DIS T .01UF
C416	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C420	2113743L41	CAP CHIP 10000 PF 10% X7R
C421	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C422	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C423	2113743N50	CAP CHIP 100 PF 5% COG
C424	2311049A59	CAP TANT CHIP A/P 10UF 10% 6V
C425	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C426	2113743N50	CAP CHIP 100 PF 5% COG
C427	2113743N50	CAP CHIP 100 PF 5% COG
C428	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C429	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C430	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C431	2113743N50	CAP CHIP 100 PF 5% COG
C433	2113743L41	CAP CHIP 10000 PF 10% X7R
C434	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C435	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C436	2113743N34	CAP CHIP 22.0 PF 5% COG
C437	2113743N34	CAP CHIP 22.0 PF 5% COG
C440	2113743G26	CAP CHIP 4.7UF 16V + 80-20%
C441	2113743N50	CAP CHIP 100 PF 5% COG
C442	2113743E20	CAP CHIP. 10 UF 10%
C443	2113928N01	CAP CER CHIP 0.1UF 10% 6.3

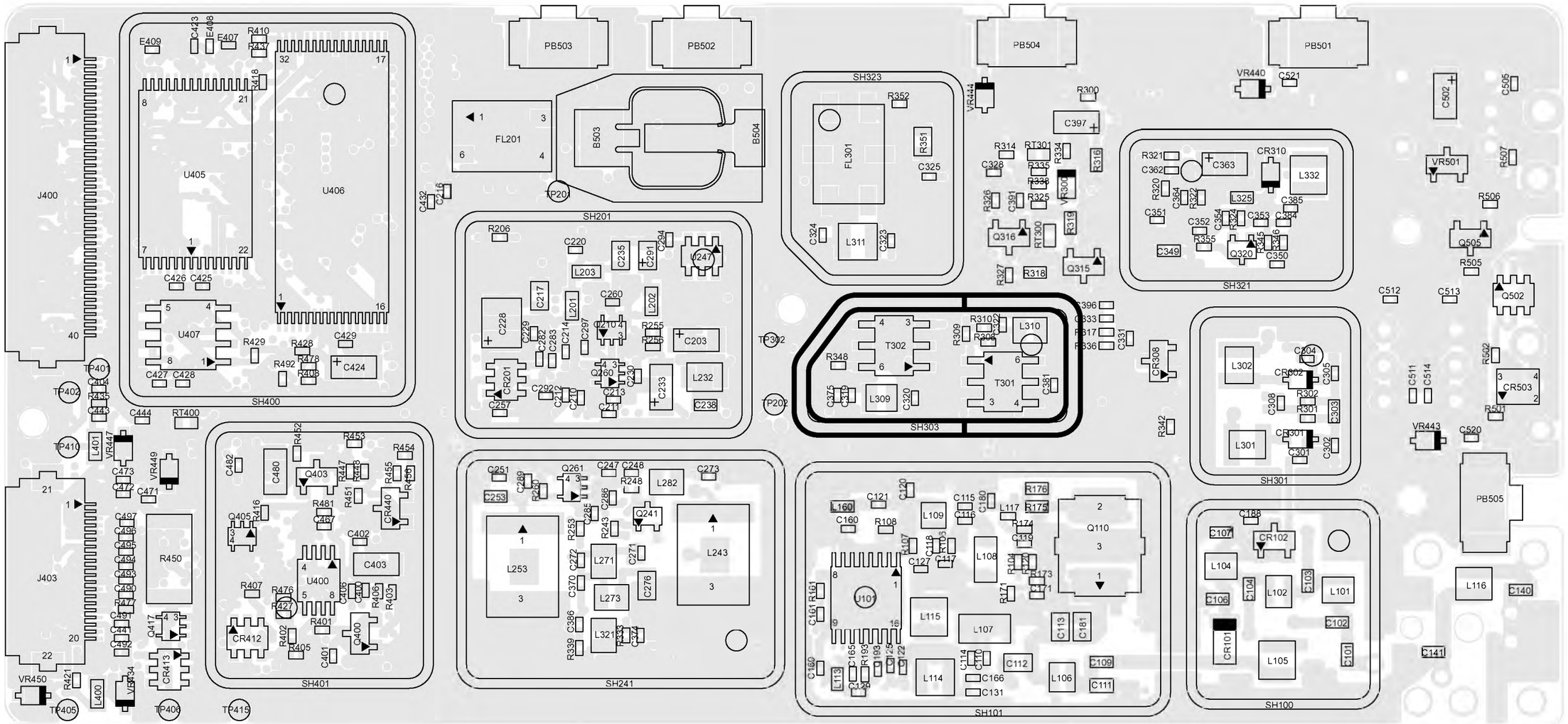
Circuit Ref	Motorola Part No.	Description
C444	2113743N50	CAP CHIP 100 PF 5% COG
C445	2113743N50	CAP CHIP 100 PF 5% COG
C447	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C448	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C449	2113743N50	CAP CHIP 100 PF 5% COG
C451	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C452	2113743B29	CAP CHIP 1.00 UF 10% 16V
C453	2113743N50	CAP CHIP 100 PF 5% COG
C456	2113743N50	CAP CHIP 100 PF 5% COG
C458	2113743N50	CAP CHIP 100 PF 5% COG
C459	2113743N50	CAP CHIP 100 PF 5% COG
C463	2113743N50	CAP CHIP 100 PF 5% COG
C466	2113743N50	CAP CHIP 100 PF 5% COG
C467	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C471	2113743N50	CAP CHIP 100 PF 5% COG
C472	2113743L09	CAP CHIP 470 PF 10% X7R
C473	2113743L09	CAP CHIP 470 PF 10% X7R
C475	2113743H14	CAP CHIP 10.0 UF 16V +80-20%
C476	2113928D08	CAP CERAMIC CHIP 10.0UF
C479	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C480	2113928D08	CAP CERAMIC CHIP 10.0UF
C481	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C482	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C490	2113743N50	CAP CHIP 100 PF 5% COG
C491	2113743N50	CAP CHIP 100 PF 5% COG
C492	2113743N50	CAP CHIP 100 PF 5% COG
C493	2113743N50	CAP CHIP 100 PF 5% COG
C494	2113743N50	CAP CHIP 100 PF 5% COG
C495	2113743N50	CAP CHIP 100 PF 5% COG
C496	2113743N50	CAP CHIP 100 PF 5% COG
C497	2113743N50	CAP CHIP 100 PF 5% COG
C502	2311049A05	CAP TANT 10% 0.47UF
C503	2113743N50	CAP CHIP 100 PF 5% COG
C505	2113743N50	CAP CHIP 100 PF 5% COG
C511	2113743N50	CAP CHIP 100 PF 5% COG
C512	2113743N50	CAP CHIP 100 PF 5% COG
C513	2113743N50	CAP CHIP 100 PF 5% COG
C514	2113743N50	CAP CHIP 100 PF 5% COG
C520	2113743L41	CAP CHIP 10000 PF 10% X7R
C521	2113743L41	CAP CHIP 10000 PF 10% X7R
C522	2113743L41	CAP CHIP 10000 PF 10% X7R
C523	2113743L41	CAP CHIP 10000 PF 10% X7R
CR101	4880973Z02	PIN DIODE
CR102	4802245J41	SURFACE MOUNT PIN DIODES
CR103	4802245J41	SURFACE MOUNT PIN DIODES
CR105	5185963A15	IC TEMP. SENSOR 1M50C
CR201	4802233J09	DIODE TRIPLE SOT25-RH
CR203	4862824C03	DIODE VARACTOR
CR241	4805649Q13	DIODE VCTR ISV 228
CR242	4802245J22	DIODE VARACTOR IT363
CR243	4802245J22	DIODE VARACTOR IT363
CR251	4802245J22	DIODE VARACTOR IT363
CR252	4802245J22	DIODE VARACTOR IT363
CR301	4862824C01	DIODE VARACTOR
CR302	4862824C01	DIODE VARACTOR
CR303	4880154K03	SOT MMBD353 RH DIODE DUAL SCHT
CR304	4862824C01	DIODE VARACTOR
CR305	4862824C01	DIODE VARACTOR
CR306	4802245J42	RING QUAD DIODE SOT-143 PKG
CR308	4802245J41	SURFACE MOUNT PIN DIODES
CR310	4862824C01	DIODE VARACTOR
CR411	4802245J47	DIODE SCHOTTKY BARRIER (RB471E)
CR412	4802245J47	DIODE SCHOTTKY BARRIER (RB471E)
CR413	4802245J47	DIODE SCHOTTKY BARRIER (RB471E)
CR440	4813833C02	DIODE DUAL 70V '5B' COMM CATH
CR501	4880107R01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
D401	4802245J62	DIODE SCHOTTKY, RB731U
D402	4802245J62	DIODE SCHOTTKY, RB731U
D403	4802245J62	DIODE SCHOTTKY, RB731U
E101	2484657R01	INDUCTOR BEAD CHIP
E400	2480640Z01	C/IND BK1005HM471 BEAD
E401	2480640Z01	C/IND BK1005HM471 BEAD
E402	2480640Z01	C/IND BK1005HM471 BEAD
E403	2480640Z01	C/IND BK1005HM471 BEAD
E404	2480640Z01	C/IND BK1005HM471 BEAD
E405	2480640Z01	C/IND BK1005HM471 BEAD
E406	2480640Z01	C/IND BK1005HM471 BEAD
E407	2480640Z01	C/IND BK1005HM471 BEAD
E408	2480640Z01	C/IND BK1005HM471 BEAD
E409	2480640Z01	C/IND BK1005HM471 BEAD
F501	6580542Z01	FUSE CHIP SMT TR/1608FF 3A
FL201	*4805875Z04	WM TCXO APEX-4
FL301	4802245J43	MONO. S/MOUNT XTAL FILTER
FL401	4870368G02	REFLOWABLE CLOCK OSC XTAL
H101	2680499Z01	HEAT SPREADER
J101	0985613Z01	JACK,RF
J102	0280519Z02	NUT, ANTENNA
J400	0905505Y04	CONN ZIF HORIZONTAL
J403	0905505Y02	CONN MALE 20 PIN ZIF
L101	2479990B02	AIR WOUND COIL/GREN 19.61NH
L102	2479990B02	AIR WOUND COIL/GREN 19.61NH
L104	2479990B02	AIR WOUND COIL/GREN 19.61NH
L105	2462587N22	CHIP IND 390 NH 10%
L106	2460591A67	COILD AIR WOUND INDUC 10.29
L107	2479990G01	AIR WOUND COIL/GREN 33.47NH
L108	0611077A01	RES CHIP JUMPER
L109	2460591B04	COIL AIR WOUND INDUC 11.03
L112	2462587N50	CHIP IND 56 NH 5%
L113	2413926H09	IND CHIP 5.6 NH +/- 0.3NH
L114	2462587N45	CHIP IND 22 NH 5%
L115	2462587N22	CHIP IND 390 NH 10%
L116	2460591C56	COIL AIR WOUND INDUC 23.57
L117	2409154M17	IND CER MLTILYR 22.0NH 1005
L160	2413926H14	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	2460593C02	COIL MULT. LAYRD. TAP TEF RESN
L251	2462587V36	CHIP IND 150NH 5% 0805
L253	2460593C02	COIL MULT. LAYRD. TAP TEF RESN
L261	2462587V34	CHIP IND 100NH 5% 0805
L271	2462587V33	CHIP IND 82 NH 5% 0805
L273	2462587V26	CHIP IND 22 NH 5% 0805
L281	2462587V41	IND CHIP 390 NH 10%
L282	2462587V41	IND CHIP 390 NH 10%
L301	2460591D60	COIL AIR WOUND INDUC 22.54
L302	2460591D60	COIL AIR WOUND INDUC 22.54
L303	2462587V28	CHIP IND 33 NH 5% 0805
L304	2462587V37	CHIP IND 180 NH 5% 0805
L305	2462587V23	CHIP IND 12 NH 5% 0805
L306	2460591D60	COIL AIR WOUND INDUC 22.54
L307	2460591D60	COIL AIR WOUND INDUC 22.54
L309	2479990C02	AIR WOUND COIL/GREN 16.28NH
L310	2462587V36	CHIP IND 150NH 5% 0805
L311	2462587N65	CHIP IND 750 NH 5%
L314	2462587N72	CHIP IND 2200 NH 5%
L325	2480646Z20	COIL MULTI-LAYER CHIP(2.20UH)
L330	2462587N64	CHIP IND 680 NH 5%
L331	2480646Z20	COIL MULTI-LAYER CHIP(2.20UH)
L332	2462587N53	CHIP IND 100 NH 5%
L340	2462587V41	IND CHIP 390 NH 10%
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	4080523Z01	SWITCH, TACT
PB502	4080523Z01	SWITCH, TACT
PB503	4080523Z01	SWITCH, TACT
PB504	4080523Z01	SWITCH, TACT
PB505	4080523Z01	SWITCH, TACT
Q110	4802245J55	TRAN. POWER FIELD EFFECT
Q111	4802245J50	TRAN. DUAL NPN/PNP UMC5N
Q210	4802245J50	TRAN. DUAL NPN/PNP UMC5N
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4802245J50	TRAN. DUAL NPN/PNP UMC5N
Q261	4802245J50	TRAN. DUAL NPN/PNP UMC5N
Q301	4802245J44	NPN SILICON BIPOLAR TRAN.
Q302	4802245J44	NPN SILICON BIPOLAR TRAN.
Q315	4880214G02	TSTR MMBT3904
Q320	4805218N63	RF TRANS SOT 323 BFQ67W
Q400	4809579E18	TSTR MOSFET P-CHAN TP010IT
Q403	4880214G02	TSTR MMBT3904
Q405	4802245J54	UMG5N DIGITAL TRANSISTOR
Q410	4802245J54	UMG5N DIGITAL TRANSISTOR
Q416	4809579E18	TSTR MOSFET P-CHAN TP010IT
Q417	4802245J50	TRAN. DUAL NPN/PNP UMC5N
Q502	5180159R01	DUAL TRANS NPNS
Q505	4880214G02	TSTR MMBT3904
R101	0662057A34	CHIP RES 240 OHMS 5%
R102	0680539Z01	PWR. METAL STRIP RESISTORS
R104	0662057N15	RES. CHIP 47K 5% 20X40
R106	0662057M26	RES. CHIP 10 5% 20X40
R108	0662057M92	RES. CHIP 5600 5% 20X40
R109	0662057N30	RES CHIP 200K 5% 20X40
R110	0662057M61	RES. CHIP 300 5% 20X40
R111	0662057M33	RES. CHIP 20 5% 20X40
R112	0662057M61	RES. CHIP 300 5% 20X40
R120	0662057N14	RES. CHIP 43K 5% 20X40
R130	0662057M98	RES CHIP 10K 5% 20X40
R131	0662057N05	RES. CHIP 18K 5% 20X40
R132	0662057N33	RES. CHIP 270K 5% 20X40
R161	0662057M57	RES. CHIP 200 5% 20X40
R170	0662057A34	CHIP RES 240 OHMS 5%
R171	0662057N14	RES. CHIP 43K 5% 20X40
R172	0662057A32	CHIP RES 200 OHMS 5%
R173	0662057N29	RES. CHIP 180K 5% 20X40
R193	0662057M57	RES. CHIP 200 5% 20X40
R201	0662057N21	RES. CHIP 82K 5% 20X40
R202	0662057N23	RES CHIP 100K 5% 20X40
R204	0662057N15	RES. CHIP 47K 5% 20X40
R231	0662057M52	RES. CHIP 120 5% 20X40
R232	0662057M69	RES. CHIP 620 5% 20X40
R233	0662057M68	RES. CHIP 560 5% 20X40
R241	0662057M33	RES. CHIP 20 5% 20X40
R242	0662057M52	RES. CHIP 120 5% 20X40
R243	0662057M98	RES CHIP 10K 5% 20X40
R244	0662057N01	RES. CHIP 12K 5% 20X40
R245	0662057M59	RES. CHIP 240 5% 20X40
R248	0662057M37	RES. CHIP 30 5% 20X40
R251	0662057M30	RES. CHIP 15 5% 20X40
R252	0662057M54	RES. CHIP 150 5% 20X40
R253	0662057N03	RES. CHIP 15K 5% 20X40
R254	0662057M92	RES. CHIP 5600 5% 20X40
R255	0662057M89	RES. CHIP 4300 5% 20X40
R256	0662057M37	RES. CHIP 30 5% 20X40
R260	0662057M74	RES. CHIP 1000 5% 20X40
R300	0662057M82	RES. CHIP 2200 5% 20X40
R301	0662057N23	RES CHIP 100K 5% 20X40
R302	0662057N23	RES CHIP 100K 5% 20X40
R303	0662057M74	RES. CHIP 1000 5% 20X40
R304	0662057N01	RES. CHIP 12K 5% 20X40
R305	0662057M66	RES. CHIP 470 5% 20X40
R306	0662057N23	RES CHIP 100K 5% 20X40
R307	0662057N23	RES CHIP 100K 5% 20X40
R308	0662057M60	RES. CHIP 270 5% 20X40
R309	0662057M32	RES. CHIP 18 5% 20X40
R311	0662057N10	RES. CHIP 30K 5% 20X40
R312	0662057M83	RES. CHIP 2400 5% 20X40
R313	0662057M62	RES. CHIP 330 5% 20X40
R314	0662057M85	RES. CHIP 3000 5% 20X40
R315	0662057N01	RES. CHIP 12K 5% 20X40

Circuit Ref	Motorola Part No.	Description
R316	0662057A96	CHIP RES 91K OHMS 5%
R317	0662057M74	RES. CHIP 1000 5% 20X40
R318	0662057A79	CHIP RES 18K OHMS 5%
R319	0662057A29	CHIP RES 150 OHMS 5%
R320	0662057M74	RES. CHIP 1000 5% 20X40
R321	0662057M83	RES. CHIP 2400 5% 20X40
R322	0662057N30	RES CHIP 200K 5% 20X40
R324	0662057M81	RES. CHIP 2000 5% 20X40
R325	0662057M94	RES. CHIP 6800 5% 20X40
R327	0662057N11	RES. CHIP 33K 5% 20X40
R328	0662057M12	RES. CHIP 2.7 5% 20X40
R329	0662057M01	RES. CHIP 0 5% 20X40
R339	0662057M01	RES. CHIP 0 5% 20X40
R340	0662057M96	RES. CHIP 8200 5% 20X40
R342	0662057N23	RES CHIP 100K 5% 20X40
R343	0662057M26	RES. CHIP 10 5% 20X40
R344	0662057N01	RES. CHIP 12K 5% 20X40
R345	0662057M98	RES CHIP 10K 5% 20X40
R346	0662057N17	RES. CHIP 56K 5% 20X40
R347	0662057M74	RES. CHIP 1000 5% 20X40
R348	0662057M87	RES. CHIP 3600 5% 20X40
R349	0662057C01	CHIP RES 0 OHMS .050 OHMS
R350	0662057N23	RES CHIP 100K 5% 20X40
R351	0662057C01	CHIP RES 0 OHMS .050 OHMS
R352	0662057M86	RES. CHIP 3300 5% 20X40
R355	0662057M01	RES. CHIP 0 5% 20X40
R400	0662057N15	RES. CHIP 47K 5% 20X40
R401	0662057M01	RES. CHIP 0 5% 20X40
R405	0662057M01	RES. CHIP 0 5% 20X40
R406	0662057N20	RES. CHIP 75K 5% 20X40
R407	0662057N19	RES. CHIP 68K 5% 20X40
R409	0662057M98	RES CHIP 10K 5% 20X40
R410	0662057N23	RES CHIP 100K 5% 20X40
R411	0662057M98	RES CHIP 10K 5% 20X40
R413	0662057M01	RES. CHIP 0 5% 20X40
R414	0662057V34	RES CHIP 180K 1% 1/16W
R415	0662057V26	RES CHIP 91K 1% 1/16W
R416	0662057N13	RES. CHIP 39K 5% 20X40
R418	0662057M01	RES. CHIP 0 5% 20X40
R419	0662057M67	RES. CHIP 0 5% 20X40
R420	0662057B46	CHIP RES 10.0 MEG OHMS 5%
R421	0662057M81	RES. CHIP 2000 5% 20X40
R423	0662057N39	RES. CHIP 470K 5% 20X40
R424	0662057N12	RES. CHIP 36K 5% 20X40
R425	0662057N10	RES. CHIP 30K 5% 20X40
R426	0662057N35	RES. CHIP 330K 5% 20X40
R427	0662057M84	RES. CHIP 2700 5% 20X40
R428	0662057M10	RES. CHIP 2.2 5% 20X40
R429	0662057M98	RES CHIP 10K 5% 20X40
R431	0662057N39	RES. CHIP 470K 5% 20X40
R432	0662057N16	RES. CHIP 51K 5% 20X40
R434	0662057M62	RES. CHIP 330 5% 20X40
R435	0662057M81	RES. CHIP 2000 5% 20X40
R436	0662057M01	RES. CHIP 0 5% 20X40
R445	0662057N08	RES. CHIP 24K 5% 20X40
R446	0662057N31	RES, CHIP 220K 5% 20X40
R447	0662057N51	RES, CHIP 1.5 MEG 5% 20X40
R448	0662057N33	RES. CHIP 270K 5% 20X40
R449	0662057N08	RES. CHIP 24K 5% 20X40
R450	0683962T45	RES CHIP 68 5-1
R457	0662057M98	RES CHIP 10K 5% 20X40
R460	0662057M90	RES. CHIP 4700 5% 20X40
R461	0662057M56	RES. CHIP 180 5% 20X40
R462	0662057M98	RES CHIP 10K 5% 20X40
R463	0662057M61	RES. CHIP 300 5% 20X40
R471	0662057M92	RES. CHIP 5600 5% 20X40
R472	0662057N12	RES. CHIP 36K 5% 20X40
R473	0662057M26	RES. CHIP 10 5% 20X40
R475	0662057M01	RES. CHIP 0 5% 20X40
R476	0662057N08	RES. CHIP 24K 5% 20X40
R477	0662057M74	RES. CHIP 1000 5% 20X40
R478	0662057M98	RES CHIP 10K 5% 20X40
R481	0662057N08	RES. CHIP 24K 5% 20X40
R492	0662057M01	RES. CHIP 0 5% 20X40
R501	0662057M70	RES. CHIP 680 5% 20X40
R502	0662057M56	RES. CHIP 180 5% 20X40
R505	0662057M98	RES CHIP 10K 5% 20X40
R506	0662057N15	RES. CHIP 47K 5% 20X40
R507	0662057M01	RES. CHIP 0 5% 20X40
RT300	0680590Z01	THERMISTOR_33K
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z02	SWITCH (FREQUENCY)
S502	1880619Z01	POTENTIOMETER, VOLUME
SH100	2680507Z01	SHIELD, HARMONIC FILTER
SH101	2680510Z01	SHIELD, PA
SH201	2680511Z01	SHIELD, SYNTHESIZER
SH202	2680511Z01	SHIELD, SYNTHESIZER
SH241	2680513Z01	SHIELD, VCO TOP
SH242	2680514Z01	SHIELD, VCO BOTTOM/LVZIF
SH301	2680554Z01	SHIELD,REC. FRONT END TOP
SH302	2680555Z01	SHIELD, REC. F/END BOTTOM
SH303	2680509Z01	SHIELD, MIXER
SH304	2680624Z01	SHIELD, MIXER DIODE
SH321	2680508Z01	SHIELD,LVZIF 2ND LO
SH322	2680514Z01	SHIELD, VCO BOTTOM/LVZIF
SH323	2680553Z01	SHIELD, CRYSTAL FILTER
SH400	2680505Z01	SHIELD,CONTROLLER TOP LEFT
SH401	2680506Z01	SHIELD,CONTROLLER TOP RIGHT
SH402	2680515Z01	SHIELD, CONT. BOTTOM LEFT
SH403	2680516Z01	SHIELD, CONT. BTM RIGHT
T301	2580541Z01	BALUN TRANSFORMER
T302	2580541Z01	BALUN TRANSFORMER
U101	5105109Z67	IC LDMOS DRIVER VHF/UHF
U102	5185765B01	IC POWER CONTROL PASS 2.3
U201	5185963A27	IC TESTED AT25016 48 PIN GFP
U210	5102463J61	INVERTER TC7ST04FU SS0P5-P-A
U211	5102463J61	INVERTER TC7ST04FU SS0P5-P-A
U241	5105750U54	IC PKG DIE VCO BUFFER
U247	5105739X05	IC SOT 5V HI-PREC. REGULATOR
U248	5102463J58	3.3V REGULATOR IN SOT23-5 PKG
U301	5109632D83	IC CUST LVZIF 2.2 H60G 48TQFP
U400	5102463J40	REG., 3.3V, LP2951CMM-3.3
U404	5185963A53	IC ASFIC CMP TQFP 48 PIN PKG
U405	5102463J36	STATIC_RAM_32KX8 I
U406	*5102463J60	IC 512KX8 FLASH ROM (AT49LV040)
U407	*5102463J64	16KX8 SPI SERIAL EEPROM
U409	5102226J56	68HC11FLO_PASS5 100P IN TQFP
U410	5102463J57	REGULATOR 3.3V, ILC7062CM-33
U420	5102463J44	AUDIO AMPLIFIER TDA8547TS
VR432	4805656W08	DIODE ZENER QUAD
VR433	4805656W08	DIODE ZENER QUAD
VR434	4802245J51	ZENER DIODE; BZX284-C6V8
VR439	4880140L17	DIODE SOT ZENER 12V
VR440	4802245J51	ZENER DIODE; BZX284-C6V8
VR441	4802245J51	ZENER DIODE; BZX284-C6V8
VR442	4802245J51	ZENER DIODE; BZX284-C6V8
VR443	4802245J51	ZENER DIODE; BZX284-C6V8
VR444	4802245J51	ZENER DIODE; BZX284-C6V8
VR445	4802245J53	ZENER_DIODE; BZX284-C10
VR446	4802245J53	ZENER_DIODE; BZX284-C10
VR447	4802245J53	ZENER_DIODE; BZX284-C10
VR448	4802245J53	ZENER_DIODE; BZX284-C10
VR449	4802245J53	ZENER_DIODE; BZX284-C10
VR450	4802245J53	ZENER_DIODE; BZX284-C10
VR501	4813830A18	DIODE 6.8V 5% 225MWMMBZ5235B_
VR506	4802245J51	ZENER DIODE; BZX284-C6V8
	8485726Z01	PC BOARD UHF BAND 3

* Motorola Depot Servicing only

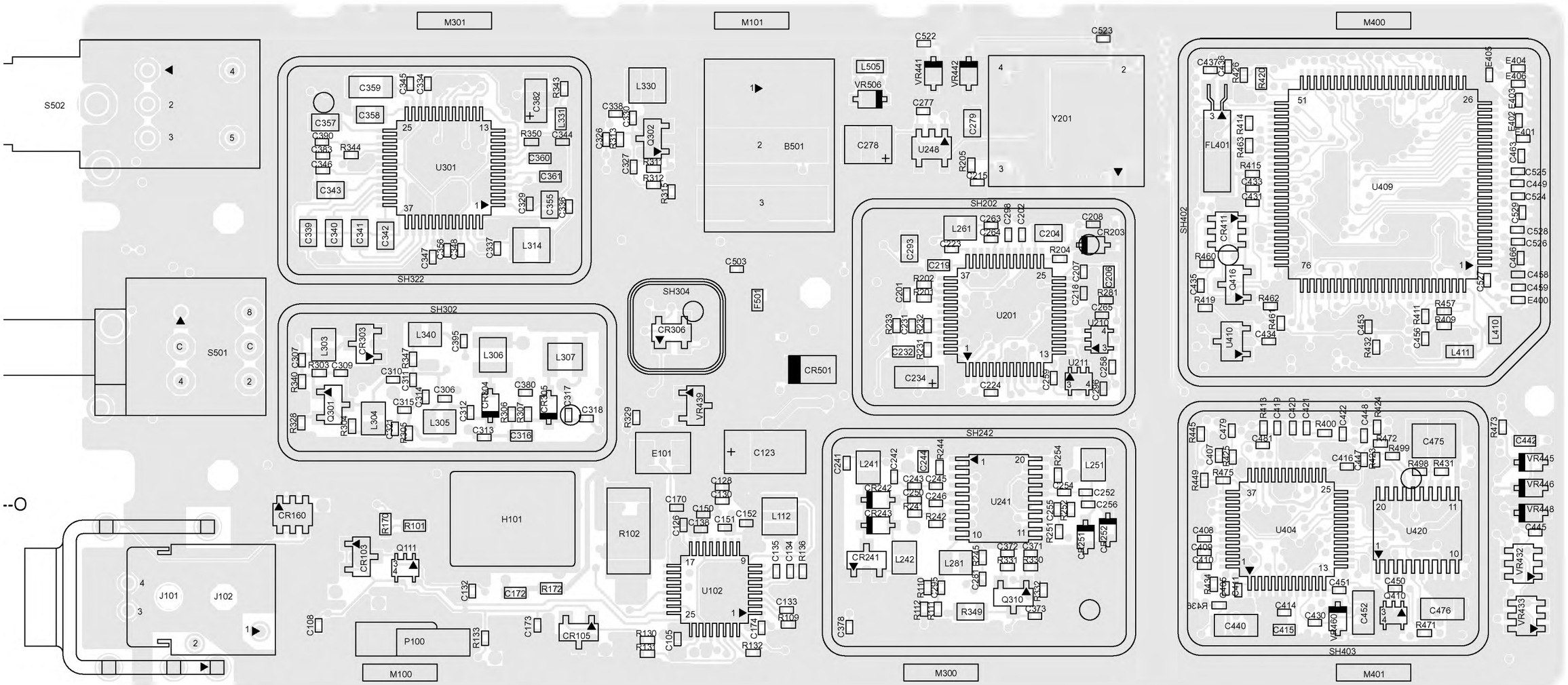
Reference designators with an asterisk indicate components which are not field replaceable because they need to be calibrated with specialized factory equipment after installation. Radios in which these parts have been replaced in the field will be off frequency at temperature extremes.

4.0 PCB 8485726Z04 - Schematics



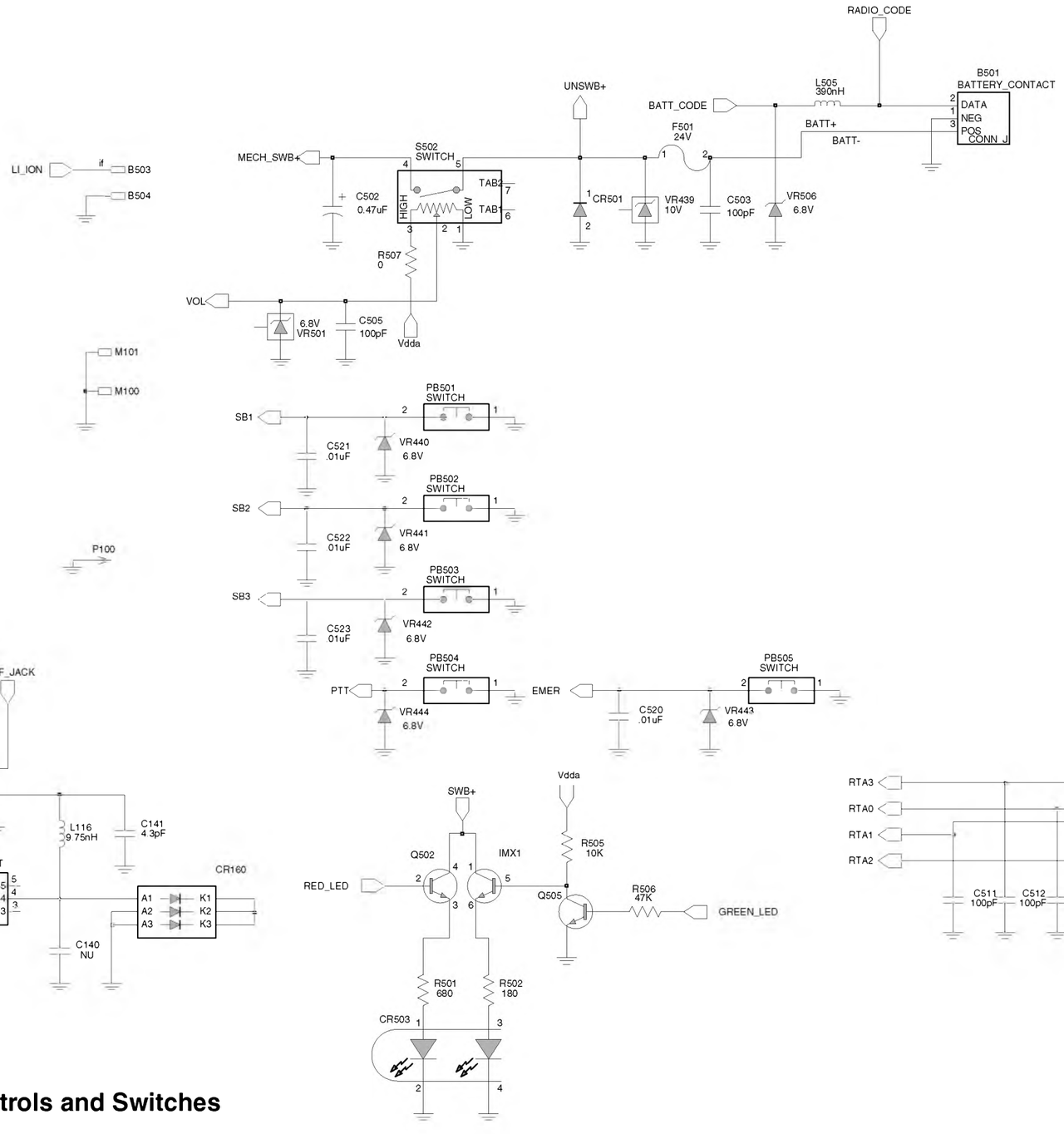
ZMY0130348-A

300R1 (300-350MHz) Main Board Component Side



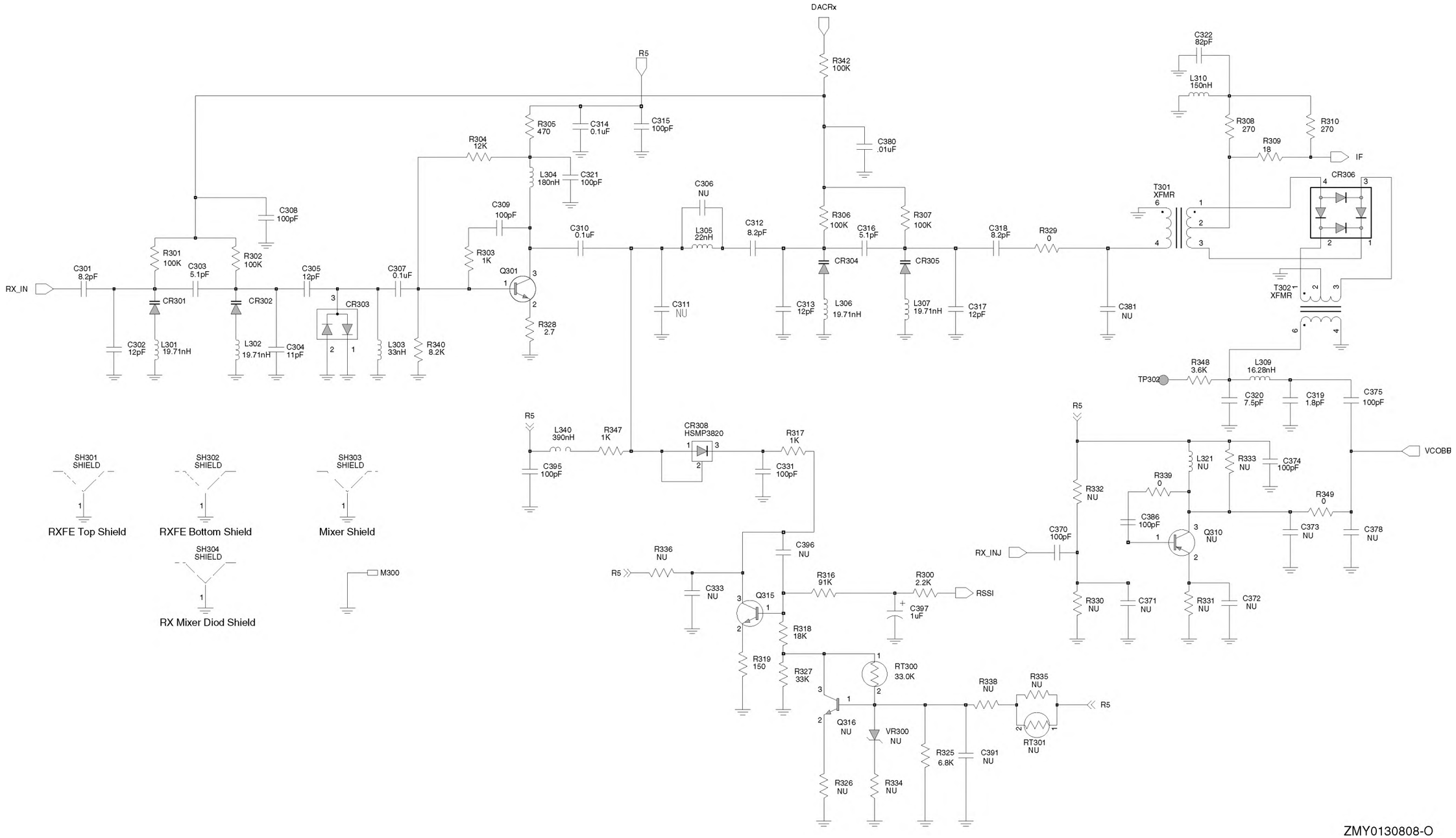
ZMY0130347-A

300R1 (300-350MHz) Main Board Solder Side



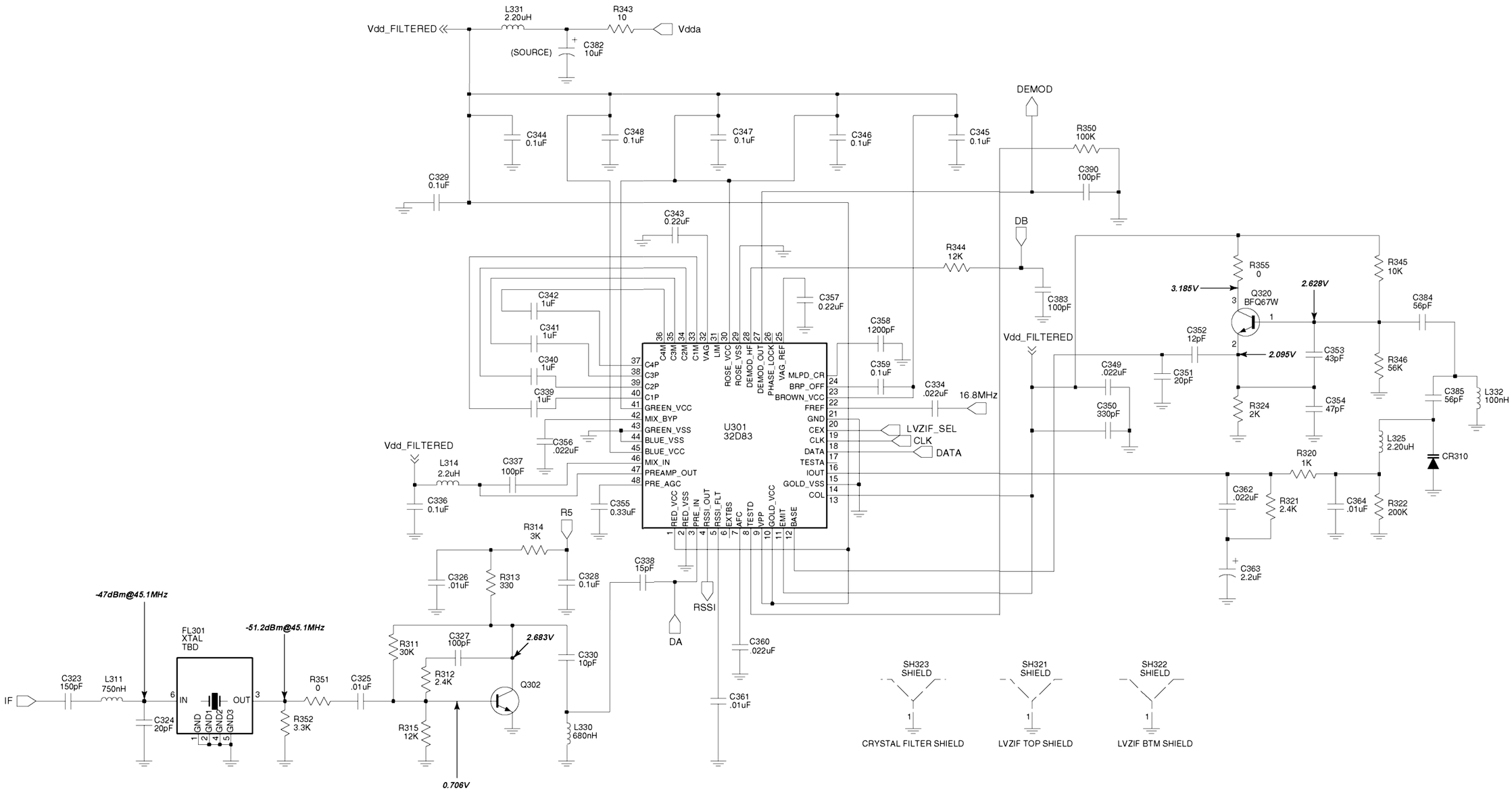
ZMY0130807-O

300R1 (300-350MHz) Controls and Switches



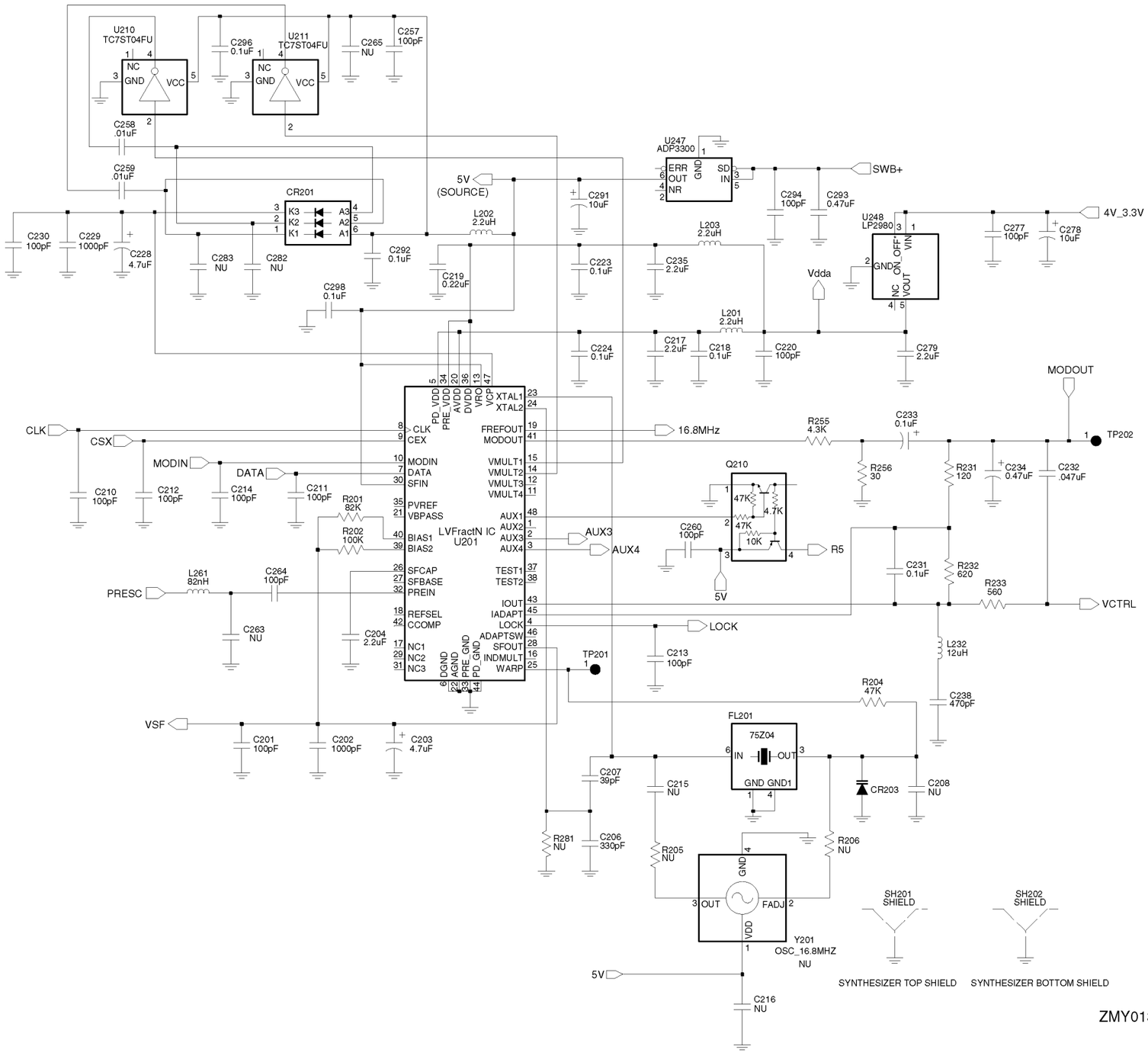
ZMY0130808-O

300R1 (300-350MHz) Receiver Front End



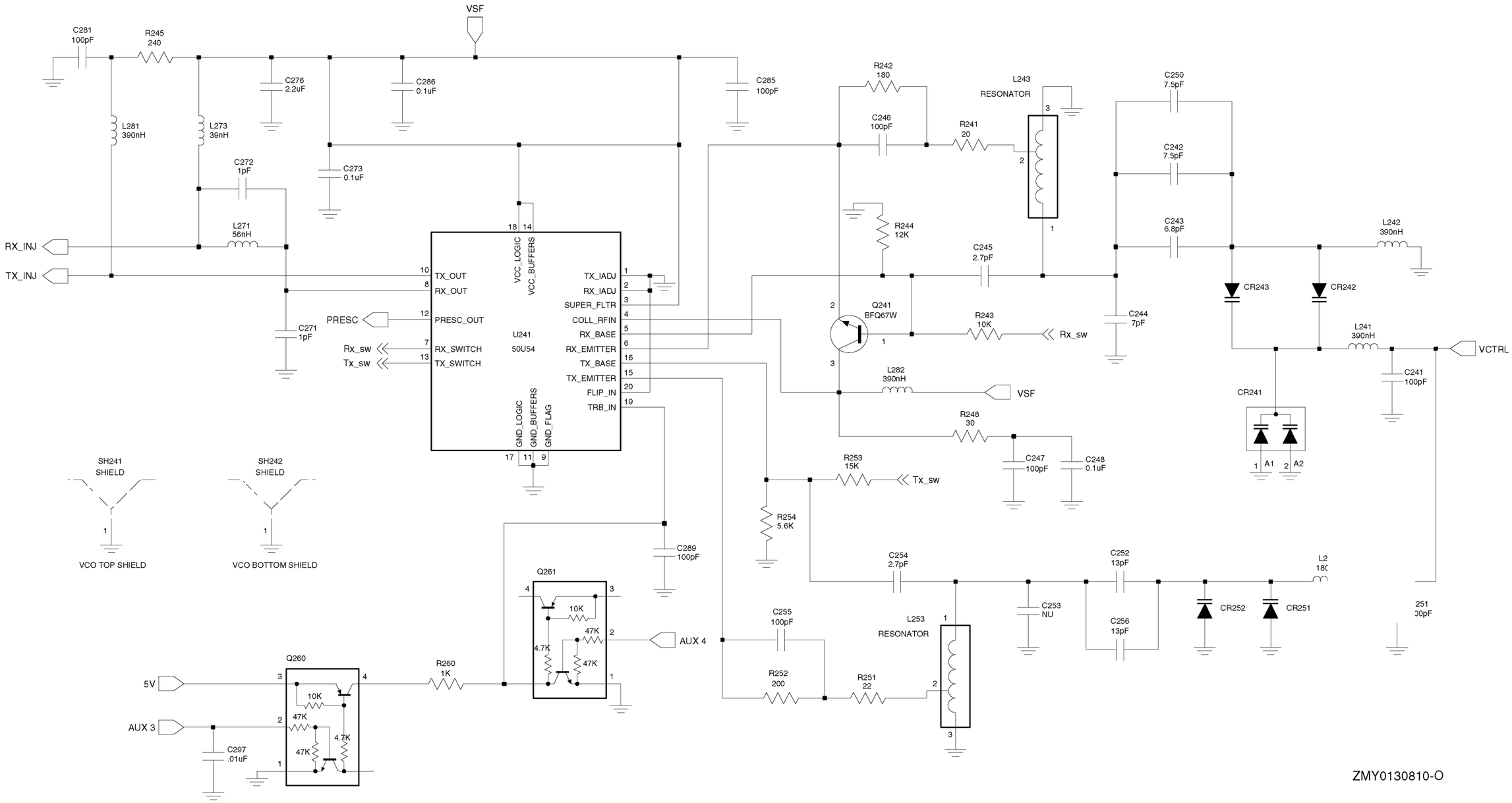
ZMY0130349-O

300R1 (300-350MHz) Receiver Back End



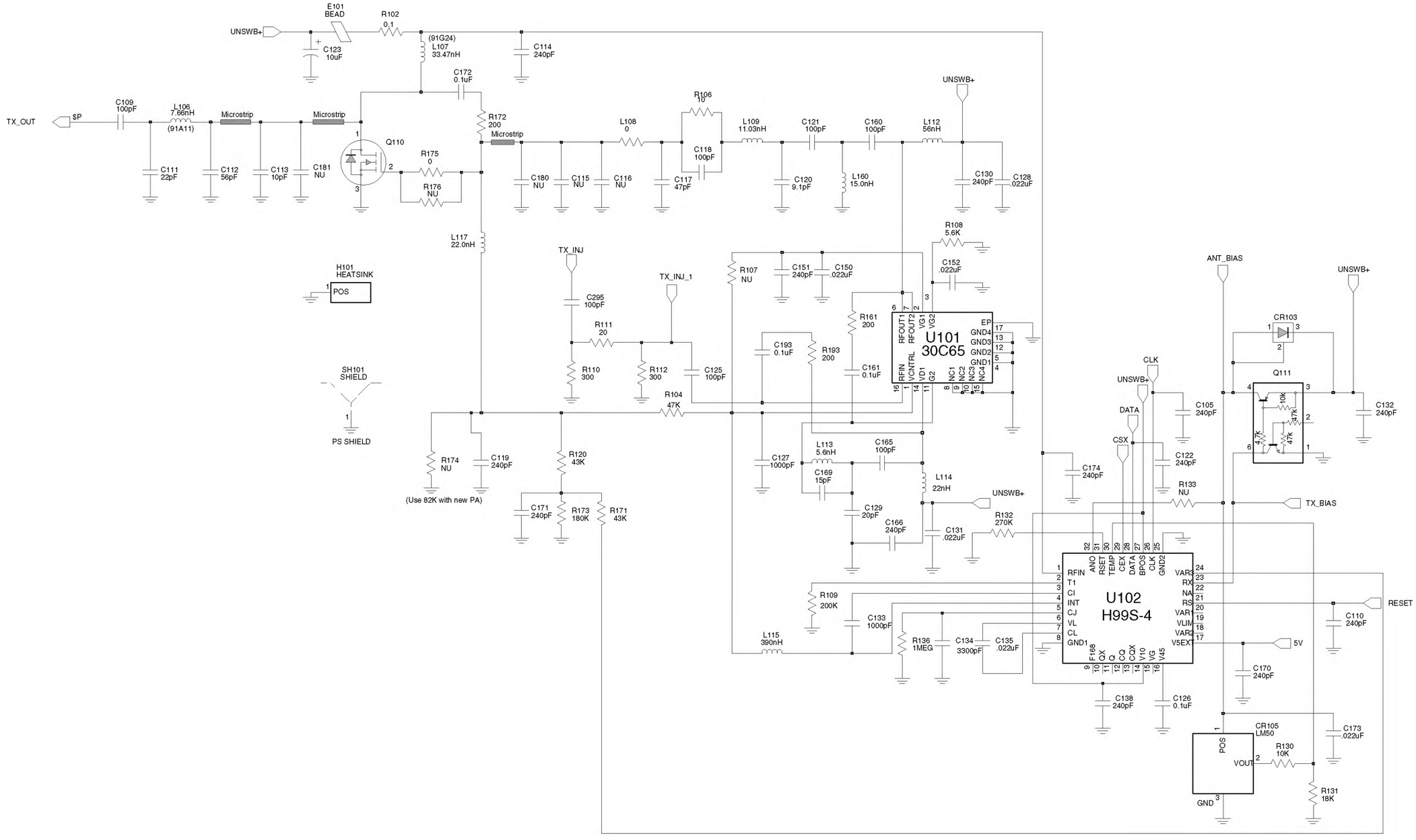
ZMY0130809-O

300R1 (300-350MHz) Synthesizer



ZMY0130810-O

300R1 (300-350MHz) Voltage Controlled Oscillator



ZMY0130811-O

300R1 (300-350MHz) Transmitter

5.0 PCB 8485726Z04 - Parts List

Circuit Ref	Motorola Part No.	Description
B501	0986237A02	CONNECTOR (CONTACT BATTERY)
B503	3980502Z01	CONTACT, BACKUP B+
B504	3980501Z01	CONTACT, BACKUP B-
C101	2113740F51	CAP CHIP REEL CL1 +/-30 100
C102	2113740F27	CAP CHIP REEL CL1+/-30 10
C103	2113740F32	CAP CHIP REEL CL1 +/-30 16
C104	2113740F27	CAP CHIP REEL CL1+/-30 10
C105	2113743L05	CAP CHIP 330 PF 10% X7R
C106	2113740F19	CAP CHIP REEL CL1 +/-30 4.7
C107	2113740F15	CAP CHIP REEL CL1 +/-30 3.3
C108	2113743L05	CAP CHIP 330 PF 10% X7R
C109	2113740F51	CAP CHIP REEL CL1 +/-30 100
C110	2113743L05	CAP CHIP 330 PF 10% X7R
C111	2103689A46	22pF
C112	2180605Z34	HIGH Q CHIP CAPACITOR, 56PF
C114	2113743L05	CAP CHIP 330 PF 10% X7R
C117	2113743N36	CAP CHIP 27.0 PF 5% COG
C118	2113743N50	CAP CHIP 100 PF 5% COG
C119	2113743L05	CAP CHIP 330 PF 10% X7R
C120	2113743N25	CAP CHIP 9.1PF 5% COG
C121	2113743N50	CAP CHIP 100 PF 5% COG
C122	2113743L05	CAP CHIP 330 PF 10% X7R
C123	2311049A18	CAP. TANT 10% 10UF
C125	2113743N50	CAP CHIP 100 PF 5% COG
C126	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C127	2113743L17	CAP CHIP 1000 PF 10% X7R
C128	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C129	2113743N33	CAP CHIP 20.0 PF 5% COG
C130	2113743L05	CAP CHIP 330 PF 10% X7R
C131	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C132	2113743L05	CAP CHIP 330 PF 10% X7R
C133	2113743L17	CAP CHIP 1000 PF 10% X7R
C134	2113743L29	CAP CHIP 3300PF 10% X7R
C135	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C138	2113743L05	CAP CHIP 330 PF 10% X7R
C150	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C151	2113743L05	CAP CHIP 330 PF 10% X7R
C152	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C160	2113743N50	CAP CHIP 100 PF 5% COG
C161	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C165	2113743N50	CAP CHIP 100 PF 5% COG
C166	2113743L05	CAP CHIP 330 PF 10% X7R
C169	2113743N30	CAP CHIP 15.0 PF 5% COG
C170	2113743L05	CAP CHIP 330 PF 10% X7R
C171	2113743L05	CAP CHIP 330 PF 10% X7R
C172	2113743E20	CAP CHIP. 10 UF 10%
C173	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C174	2113743L05	CAP CHIP 330 PF 10% X7R
C188	2113743N50	CAP CHIP 100 PF 5% COG
C193	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C201	2113743N50	CAP CHIP 100 PF 10% X7R
C202	2113743L17	CAP CHIP 1000 PF 10% X7R
C203	2311049A56	CAP TAN CHIP A/P 4.7 20 10
C204	2104993J02	CAP MONO. CERAMIC (2.2UF)
C206	2113740F63	CAP CHIP CL1 +/-30 330 5%
C207	2113743N40	CAP CHIP 39.0 PF 5% COG
C210	2113743N50	CAP CHIP 100 PF 10% X7R
C211	2113743N50	CAP CHIP 100 PF 10% X7R
C212	2113743N50	CAP CHIP 100 PF 10% X7R
C213	2113743N50	CAP CHIP 100 PF 10% X7R
C214	2113743N50	CAP CHIP 100 PF 10% X7R
C217	2104993J02	CAP MONO. CERAMIC (2.2UF)
C218	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C219	2113743K16	CAP CHIP .220 UF +80-20% 16V
C220	2113743N50	CAP CHIP 100 PF 10% X7R
C223	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C224	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C228	2311049J11	CAPACITOR TANT 10% 4.7UF
C229	2113743L17	CAP CHIP 1000 PF 10% X7R
C230	2113743N50	CAP CHIP 100 PF 10% X7R
C231	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C232	2113743E12	CAP CHIP .047UF 10% X7R
C233	2311049A01	CAP TANT CHIP A/P .1 10 35
C234	2311049A05	CAP TANT 10% 0.47UF
C235	2104993J02	CAP MONO. CERAMIC (2.2UF)
C238	2113741F17	CAP CHIP CL2 X7R REEL 470
C241	2113743N50	CAP CHIP 100 PF 10% X7R
C242	2113743N23	CAP CHIP 7.5 PF +-.5PF COG
C243	2113743N22	CAP CHIP 6.8 PF 5% COG
C244	2113740F13	CAP CHIP REEL CL1 +/-30 6.8
C245	2113743N12	CAP CHIP 2.7 PF +-.25PF COG
C246	2113743N50	CAP CHIP 100 PF 10% X7R
C247	2113743N50	CAP CHIP 100 PF 10% X7R
C248	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C250	2113743N23	CAP CHIP 7.5 PF 5% COG
C251	2113743N50	CAP CHIP 100 PF 10% X7R
C252	2113743N29	CAP CHIP 13.0 PF 5% COG
C254	2113743N12	CAP CHIP 2.7 PF +-.25PF COG
C255	2113743N50	CAP CHIP 100 PF 10% X7R
C256	2113743N29	CAP CHIP 13.0 PF 5% COG
C257	2113743N50	CAP CHIP 100 PF 10% X7R
C258	2113743L41	CAP CHIP 10000 PF 10% X7R
C259	2113743L41	CAP CHIP 10000 PF 10% X7R
C260	2113743N50	CAP CHIP 100 PF 10% X7R
C264	2113743N50	CAP CHIP 100 PF 10% X7R
C271	2113743N03	CAP CHIP 1PF +-.25PF COG
C273	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C276	2104993J02	CAP MONO. CERAMIC (2.2UF)
C277	2113743N50	CAP CHIP 100 PF 10% X7R
C278	2311049A57	TANT CAP 10 UF 10%
C279	2104993J02	CAP MONO. CERAMIC (2.2UF)
C281	2113743N50	CAP CHIP 100 PF 10% X7R
C285	2113743N50	CAP CHIP 100 PF 10% X7R
C286	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C289	2113743N50	CAP CHIP 100 PF 10% X7R
C291	2311049A69	CAP TAN CHIP 10.0 UF 20% 6.3V
C292	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C293	2113743A27	CAP CHIP .470 UF 10% 16V
C294	2113743N50	CAP CHIP 100 PF 10% X7R
C295	2113743N50	CAP CHIP 100 PF 5% COG
C296	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C297	2113743L41	CAP CHIP 10000 PF 10% X7R
C298	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C301	2113743N24	CAP CHIP 8.2 PF +-.5PF COG
C302	2113743N28	CAP CHIP 12.0 PF 5% COG
C303	2113740L11	CAP CER CHIP 5.1 PF +-0.1PF
C304	2113743N27	CAP CHIP 11.0 PF 5% COG
C305	2113743N28	CAP CHIP 12 PF +-.5PF COG
C306	2113743N22	CAP CHIP 6.8 PF +-.5PF COG
C307	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C308	2113743N50	CAP CHIP 100 PF 10% X7R
C309	2113743N50	CAP CHIP 100 PF 10% X7R
C310	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C312	2113743N24	CAP CHIP 8.2 PF +-.5PF COG
C313	2113743N27	CAP CHIP 11.0 PF 5% COG
C314	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C315	2113743N50	CAP CHIP 100 PF 10% X7R
C316	2113740L11	CAP CER CHIP 5.1 PF +-0.1PF
C317	2113743N27	CAP CHIP 11.0 PF 5% COG
C318	2113743N24	CAP CHIP 8.2 PF +-.5PF COG
C319	2113743N21	CAP CHIP 6.2 PF +-.5PF COG
C320	2113743N20	CAP CHIP 5.6 PF +-.5PF COG
C321	2113743N50	CAP CHIP 100 PF 10% X7R
C322	2113743N48	CAP CHIP 82.0 PF 5% COG
C323	2113743N54	CAP CHIP 150 PF 5% COG
C324	2113743N33	CAP CHIP 20.0 PF 5% COG
C325	2113743L41	CAP CHIP 10000 PF 10% X7R
C326	2113743L41	CAP CHIP 10000 PF 10% X7R
C327	2113743N50	CAP CHIP 100 PF 5% COG
C328	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C329	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C330	2113743N26	CAP CHIP 10.0 PF 5% COG
C331	2113743N50	CAP CHIP 100 PF 10% X7R
C334	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C336	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C337	2113743N50	CAP CHIP 100 PF 5% COG
C338	2113743N30	CAP CHIP 15.0PF 5% COG
C339	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C340	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C341	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C342	2180478Z20	CAP MONO. CERAMIC (1.0UF)
C343	2113743A23	CAP CHIP .220UF 10% X7R
C344	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C345	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C346	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C347	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C348	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C349	2113743E07	CER CHIP CAP .022UF
C350	2113743L05	CAP CHIP 330 PF 10% X7R
C351	2113743N33	CAP CHIP 20.0 PF 5% COG
C352	2113743N28	CAP CHIP 12.0 PF 5% COG
C353	2113743N41	CAP CHIP 43.0 PF 5% COG
C354	2113743N42	CAP CHIP 47.0 PF 5% COG
C355	2113743A24	CAP CHIP .330 UF 10% 16V
C356	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C357	2113743A23	CAP CHIP .220UF 10% X7R
C358	2113741A23	CHIP CAPACITORS 1200PF +-5%
C359	2109720D14	CAP CER CHIP LOW DIST 0.1UF
C360	2113743E07	CER CHIP CAP .022UF
C361	2113741F49	CHIP CAP, CER 10NF
C362	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C363	2311049A40	GLOBAL CAP TANT 10% 2.2 UF
C364	2113743L41	CAP CHIP 10000 PF 10% X7R
C370	2113743N50	CAP CHIP 100 PF 10% X7R
C374	2113743N50	CAP CHIP 100 PF 10% X7R
C375	2113743N50	CAP CHIP 100 PF 10% X7R
C380	2113743L41	CAP CHIP 10000 PF 10% X7R
C382	2311049A59	CAP TANT CHIP A/P 10UF 10% 6V
C383	2113743N50	CAP CHIP 100 PF 5% COG
C384	2113743N44	CAP CHIP 56.0 PF 5% COG
C385	2113743N44	CAP CHIP 56.0 PF 5% COG
C386	2113743N50	CAP CHIP 100 PF 10% X7R
C390	2113743N50	CAP CHIP 100 PF 5% COG
C395	2113743N50	CAP CHIP 100 PF 10% X7R
C397	2311049A07	CAP TANT 10% 1.0UF
C400	2113743L41	CAP CHIP 10000 PF 10% X7R
C401	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C402	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C403	2113743G24	CAP 2.2UF
C407	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C408	2113743N50	CAP CHIP 100 PF 5% COG
C409	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C410	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C411	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C414	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C415	2185895Z01	CAP CER CHIP LOW DIS T .01UF
C416	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C420	2113743L41	CAP CHIP 10000 PF 10% X7R
C421	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C422	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C423	2113743N50	CAP CHIP 100 PF 5% COG
C424	2311049A59	CAP TANT CHIP A/P 10UF 10% 6V
C425	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C426	2113743N50	CAP CHIP 100 PF 5% COG
C427	2113743N50	CAP CHIP 100 PF 5% COG
C428	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C429	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C430	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C431	2113743N50	CAP CHIP 100 PF 5% COG
C433	2113743L41	CAP CHIP 10000 PF 10% X7R
C434	2113928N01	CAP CHIP 100000 PF +80-20% Y5V (not used in GP640)
C435	2113743M24	CAP CHIP 100000 PF +80-20% Y5V
C436	2113743N34	CAP CHIP 22.0 PF 5% COG (not used in GP640)
C437	2113743N34	CAP CHIP 22.0 PF 5% COG (not used in GP640)
C440	2113743G26	CAP CHIP 4.7UF 16V + 80-20%
C441	2113743N50	CAP CHIP 100 PF 5% COG
C442	2113743E20	CAP CHIP. 10 UF 10%
C443	2113928N01	CAP CER CHIP 0.1UF 10% 6.3

Circuit Ref	Motorola Part No.	Description
C444	2113743N50	CAP CHIP 100 PF 5% COG
C445	2113743N50	CAP CHIP 100 PF 5% COG
C447	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C448	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C449	2113743N50	CAP CHIP 100 PF 5% COG
C451	2113743M08	CAP CHIP 22000PF +80-20% Y5V
C452	2113743B29	CAP CHIP 1.00 UF 10% 16V
C453	2113743N50	CAP CHIP 100 PF 5% COG
C456	2113743N50	CAP CHIP 100 PF 5% COG
C458	2113743N50	CAP CHIP 100 PF 5% COG
C459	2113743N50	CAP CHIP 100 PF 5% COG
C463	2113743N50	CAP CHIP 100 PF 5% COG
C466	2113743N50	CAP CHIP 100 PF 5% COG
C467	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C471	2113743N50	CAP CHIP 100 PF 5% COG
C472	2113743L09	CAP CHIP 470 PF 10% X7R
C473	2113743L09	CAP CHIP 470 PF 10% X7R
C475	2113743H14	CAP CHIP 10.0 UF 16V +80-20%
C476	2113928D08	CAP CERAMIC CHIP 10.0UF
C479	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C480	2113928D08	CAP CERAMIC CHIP 10.0UF
C481	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C482	2113928N01	CAP CER CHIP 0.1UF 10% 6.3
C490	2113743N50	CAP CHIP 100 PF 5% COG
C491	2113743N50	CAP CHIP 100 PF 5% COG
C492	2113743N50	CAP CHIP 100 PF 5% COG
C493	2113743N50	CAP CHIP 100 PF 5% COG
C494	2113743N50	CAP CHIP 100 PF 5% COG
C495	2113743N50	CAP CHIP 100 PF 5% COG
C496	2113743N50	CAP CHIP 100 PF 5% COG
C497	2113743N50	CAP CHIP 100 PF 5% COG
C502	2311049A05	CAP TANT 10% 0.47UF
C503	2113743N50	CAP CHIP 100 PF 5% COG
C505	2113743N50	CAP CHIP 100 PF 5% COG
C511	2113743N50	CAP CHIP 100 PF 5% COG
C512	2113743N50	CAP CHIP 100 PF 5% COG
C513	2113743N50	CAP CHIP 100 PF 5% COG
C514	2113743N50	CAP CHIP 100 PF 5% COG
C520	2113743L41	CAP CHIP 10000 PF 10% X7R
C521	2113743L41	CAP CHIP 10000 PF 10% X7R
C522	2113743L41	CAP CHIP 10000 PF 10% X7R
C523	2113743L41	CAP CHIP 10000 PF 10% X7R
C524	2113743N50	CAP CHIP 100 PF 5% COG
C525	2113743N50	CAP CHIP 100 PF 5% COG
C526	2113743N50	CAP CHIP 100 PF 5% COG
C527	2113743N50	CAP CHIP 100 PF 5% COG
C528	2113743N50	CAP CHIP 100 PF 5% COG
CR101	4880973Z02	PIN DIODE
CR102	4802245J41	SURFACE MOUNT PIN DIODES
CR103	4802245J41	SURFACE MOUNT PIN DIODES
CR105	5185963A15	IC TEMP. SENSOR 1M50C
CR201	4802233J09	DIODE TRIPLE SOT25-RH
CR203	4862824C03	DIODE VARACTOR
CR241	4805649Q13	DIODE VCTR ISV 228
CR242	4802245J22	DIODE VARACTOR IT363
CR243	4802245J22	DIODE VARACTOR IT363
CR251	4862824C01	DIODE VARACTOR IT363
CR252	4862824C01	DIODE VARACTOR IT363
CR301	4862824C01	DIODE VARACTOR
CR302	4862824C01	DIODE VARACTOR
CR303	4880154K03	SOT MMBD353 RH DIODE DUAL SCHT
CR304	4862824C01	DIODE VARACTOR
CR305	4862824C01	DIODE VARACTOR
CR306	4802245J42	RING QUAD DIODE SOT-143 PKG
CR308	4802245J41	SURFACE MOUNT PIN DIODES
CR310	4862824C01	DIODE VARACTOR
CR411	4802245J62	DIODE SCHOTTKY BARRIER
CR412	4802245J62	DIODE SCHOTTKY BARRIER
CR413	4802245J62	DIODE SCHOTTKY BARRIER
CR440	4813833C02	DIODE DUAL 70V '5B' COMM CATH
CR501	4880107R01	RECTIFIER
CR503	4805729G49	DIODE RED/YEL
E101	2484657R01	INDUCTOR BEAD CHIP
E400	2480640Z01	C/IND BK1005HM471 BEAD
E401	2480640Z01	C/IND BK1005HM471 BEAD
E402	2480640Z01	C/IND BK1005HM471 BEAD
E403	2480640Z01	C/IND BK1005HM471 BEAD
E404	2480640Z01	C/IND BK1005HM471 BEAD
E405	2480640Z01	C/IND BK1005HM471 BEAD
E406	2480640Z01	C/IND BK1005HM471 BEAD
E407	2480640Z01	C/IND BK1005HM471 BEAD
E408	2480640Z01	C/IND BK1005HM471 BEAD
E409	2480640Z01	C/IND BK1005HM471 BEAD
F501	6580542Z01	FUSE CHIP SMT TR/1608FF 3A
FL201	*4805875Z04	16.8 MHz WM TCXO APEX-4
FL301	9186153B01	45.1 MHz XTAL FILTER
FL401	4870368G02	REFLOWABLE CLOCK OSC XTAL (not used in GP640)
H101	2680499Z01	HEAT SPREADER
J101	0985613Z01	JACK,RF
J102	0280519Z02	NUT, ANTENNA
J400	0905505Y04	CONN ZIF HORIZONTAL
J403	0905505Y02	CONN MALE 20 PIN ZIF
L101	2479990B02	AIR WOUND COIL/GREN 19.61NH
L102	2479990B02	AIR WOUND COIL/GREN 19.61NH
L104	2479990B02	AIR WOUND COIL/GREN 19.61NH
L105	2462587N22	CHIP IND 390 NH 10%
L106	2479990A02	COILD AIR WOUND INDUC 7.66NH
L107	2479990G01	AIR WOUND COIL/GREN 33.47NH
L108	0611077A01	RES CHIP JUMPER
L109	2479990B01	COIL AIR WOUND INDUC 11.03
L112	2462587N50	CHIP IND 56 NH 5%
L113	2413926H09	IND CHIP 5.6 NH +/- 0.3NH
L114	2462587N45	CHIP IND 22 NH 5%
L115	2462587N22	CHIP IND 390 NH 10%
L116	2460591C56	COIL AIR WOUND INDUC 23.57
L117	2409154M17	IND CER MLTILYR 22.0NH 1005
L160	2413926H14	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	2462587V41	IND CHIP 390 NH 10%
L243	2460593C02	COIL MULT. LAYRD. TAP TEF RESN
L251	2462587V37	CHIP IND 180NH 5% 0805
L253	2460593C02	COIL MULT. LAYRD. TAP TEF RESN
L261	2462587V33	CHIP IND 82 NH 5% 0805
L271	2462587V31	CHIP IND 56 NH 5% 0805
L273	2462587V29	CHIP IND 39 NH 5% 0805
L281	2462587V41	IND CHIP 390 NH 10%
L282	2462587V41	IND CHIP 390 NH 10%
L301	2460591D24	COIL AIR WOUND INDUC 19.71
L302	2460591D24	COIL AIR WOUND INDUC 19.71
L303	2462587V28	CHIP IND 33 NH 5% 0805
L304	2462587V37	CHIP IND 180 NH 5% 0805
L305	2462587V23	CHIP IND 12 NH 5% 0805
L306	2460591D24	COIL AIR WOUND INDUC 19.71
L307	2460591D24	COIL AIR WOUND INDUC 19.71
L309	2479990C02	AIR WOUND COIL/GREN 16.28NH
L310	2462587V36	CHIP IND 150NH 5% 0805
L311	2462587N65	CHIP IND 750 NH 5%
L314	2462587N72	CHIP IND 2200 NH 5%
L325	2480646Z20	COIL MULTI-LAYER CHIP(2.20UH)
L330	2462587N64	CHIP IND 680 NH 5%
L331	2480646Z20	COIL MULTI-LAYER CHIP(2.20UH)
L332	2462587N53	CHIP IND 100 NH 5%
L340	2462587V41	IND CHIP 390 NH 10%
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	4080523Z01	SWITCH, TACT
PB502	4080523Z01	SWITCH, TACT
PB503	4080523Z01	SWITCH, TACT
PB504	4080523Z01	SWITCH, TACT
PB505	4080523Z01	SWITCH, TACT
Q110	4813828A09	RF POWER Amplifier
Q111	4809939C05	TRAN. DUAL NPN/PNP
Q210	4809939C05	TRAN. DUAL NPN/PNP
Q241	4805218N63	RF TRANS SOT 323 BFQ67W
Q260	4809939C05	TRAN. DUAL NPN/PNP
Q261	4809939C05	TRAN. DUAL NPN/PNP
Q301	4802245J44	NPN SILICON BIPOLAR TRAN.
Q302	4802245J44	NPN SILICON BIPOLAR TRAN.
Q315	4880214G02	TSTR MMBT3904
Q320	4805218N63	RF TRANS SOT 323 BFQ67W
Q400	4809579E18	TSTR MOSFET P-CHAN TP010IT
Q403	4813824A17	TSTR PNP
Q405	4802245J54	UMG5N DIGITAL TRANSISTOR
Q410	4802245J54	UMG5N DIGITAL TRANSISTOR
Q416	4809579E18	TSTR MOSFET P-CHAN TP010IT
Q417	4809939C05	TRAN. DUAL NPN/PNP
Q502	5180159R01	DUAL TRANS NPNS
Q505	4880214G02	TSTR MMBT3904
R101	0662057A34	CHIP RES 240 OHMS 5%
R102	0680539Z01	PWR. METAL STRIP RESISTORS
R104	0662057N15	RES. CHIP 47K 5% 20X40
R106	0662057M26	RES. CHIP 10 5% 20X40
R108	0662057M92	RES. CHIP 5600 5% 20X40
R109	0662057N30	RES CHIP 200K 5% 20X40
R110	0662057M61	RES. CHIP 300 5% 20X40
R111	0662057M33	RES. CHIP 20 5% 20X40
R112	0662057M61	RES. CHIP 300 5% 20X40
R120	0662057N14	RES. CHIP 43K 5% 20X40
R130	0662057M98	RES CHIP 10K 5% 20X40
R131	0662057N05	RES. CHIP 18K 5% 20X40
R132	0662057N33	RES. CHIP 270K 5% 20X40
R136	0662057N47	RES. CHIP 1M 5% 20X40
R161	0662057M57	RES. CHIP 200 5% 20X40
R170	0662057A34	CHIP RES 240 OHMS 5%
R171	0662057N14	RES. CHIP 43K 5% 20X40
R172	0662057A32	CHIP RES 200 OHMS 5%
R173	0662057N29	RES. CHIP 180K 5% 20X40
R193	0662057M57	RES. CHIP 200 5% 20X40
R201	0662057N21	RES. CHIP 82K 5% 20X40
R202	0662057N23	RES CHIP 100K 5% 20X40
R204	0662057N15	RES. CHIP 47K 5% 20X40
R231	0662057M52	RES. CHIP 120 5% 20X40
R232	0662057M69	RES. CHIP 620 5% 20X40
R233	0662057M68	RES. CHIP 560 5% 20X40
R241	0662057M33	RES. CHIP 20 5% 20X40
R242	0662057M56	RES. CHIP 180 5% 20X40
R243	0662057M98	RES CHIP 10K 5% 20X40
R244	0662057N01	RES. CHIP 12K 5% 20X40
R245	0662057M59	RES. CHIP 240 5% 20X40
R248	0662057M37	RES. CHIP 30 5% 20X40
R251	0662057M34	RES. CHIP 22 5% 20X40
R252	0662057M57	RES. CHIP 200 5% 20X40
R253	0662057N03	RES. CHIP 15K 5% 20X40
R254	0662057M92	RES. CHIP 5600 5% 20X40
R255	0662057M89	RES. CHIP 4300 5% 20X40
R256	0662057M37	RES. CHIP 30 5% 20X40
R260	0662057M74	RES. CHIP 1000 5% 20X40
R300	0662057M82	RES. CHIP 2200 5% 20X40
R301	0662057N23	RES CHIP 100K 5% 20X40
R302	0662057N23	RES CHIP 100K 5% 20X40
R303	0662057M74	RES. CHIP 1000 5% 20X40
R304	0662057N01	RES. CHIP 12K 5% 20X40
R305	0662057M66	RES. CHIP 470 5% 20X40
R306	0662057N23	RES CHIP 100K 5% 20X40
R307	0662057N23	RES CHIP 100K 5% 20X40
R308	0662057M60	RES. CHIP 270 5% 20X40
R309	0662057M32	RES. CHIP 18 5% 20X40
R310	0662057N23	RES CHIP 100K 5% 20X40
R311	0662057N10	RES. CHIP 30K 5% 20X40
R312	0662057M83	RES. CHIP 2400 5% 20X40
R313	0662057M62	RES. CHIP 330 5% 20X40
R314	0662057M85	RES. CHIP 3000 5% 20X40

Circuit Ref	Motorola Part No.	Description
R315	0662057N01	RES. CHIP 12K 5% 20X40
R316	0662057A96	CHIP RES 91K OHMS 5%
R317	0662057M74	RES. CHIP 1000 5% 20X40
R318	0662057A79	CHIP RES 18K OHMS 5%
R319	0662057A29	CHIP RES 150 OHMS 5%
R320	0662057M74	RES. CHIP 1000 5% 20X40
R321	0662057M83	RES. CHIP 2400 5% 20X40
R322	0662057N30	RES CHIP 200K 5% 20X40
R324	0662057M81	RES. CHIP 2000 5% 20X40
R325	0662057M94	RES. CHIP 6800 5% 20X40
R327	0662057N11	RES. CHIP 33K 5% 20X40
R328	0662057M12	RES. CHIP 2.7 5% 20X40
R329	0662057M01	RES. CHIP 0 5% 20X40
R339	0662057M01	RES. CHIP 0 5% 20X40
R340	0662057M96	RES. CHIP 8200 5% 20X40
R342	0662057N23	RES CHIP 100K 5% 20X40
R343	0662057M26	RES. CHIP 10 5% 20X40
R344	0662057N01	RES. CHIP 12K 5% 20X40
R345	0662057M98	RES CHIP 10K 5% 20X40
R346	0662057N17	RES. CHIP 56K 5% 20X40
R347	0662057M74	RES. CHIP 1000 5% 20X40
R348	0662057M87	RES. CHIP 3600 5% 20X40
R349	0662057C01	CHIP RES 0 OHMS .050 OHMS
R350	0662057N23	RES CHIP 100K 5% 20X40
R351	0662057C01	CHIP RES 0 OHMS .050 OHMS
R352	0662057M86	RES. CHIP 3300 5% 20X40
R355	0662057M01	RES. CHIP 0 5% 20X40
R400	0662057N15	RES. CHIP 47K 5% 20X40
R401	0662057M01	RES. CHIP 0 5% 20X40
R405	0662057M01	RES. CHIP 0 5% 20X40
R406	0662057N20	RES. CHIP 75K 5% 20X40
R407	0662057N19	RES. CHIP 68K 5% 20X40
R409	0662057M98	RES CHIP 10K 5% 20X40
R410	0662057N23	RES CHIP 100K 5% 20X40
R411	0662057M98	RES CHIP 10K 5% 20X40
R413	0662057M01	RES. CHIP 0 5% 20X40
R414	0662057V34	RES CHIP 180K 1% 1/16W
R415	0662057V26	RES CHIP 91K 1% 1/16W
R416	0662057M98	RES. CHIP 10K 5% 20X40
R418	0662057M01	RES. CHIP 0 5% 20X40
R419	0662057M67	RES. CHIP 0 5% 20X40 (not used in GP640)
R420	0662057B46	CHIP RES 10.0 MEG OHMS 5% (not used in GP640)
R421	0662057M81	RES. CHIP 2000 5% 20X40
R423	0662057N39	RES. CHIP 470K 5% 20X40
R424	0662057N12	RES. CHIP 36K 5% 20X40
R425	0662057N10	RES. CHIP 30K 5% 20X40
R426	0662057N35	RES. CHIP 330K 5% 20X40 (not used in GP640)
R427	0662057M84	RES. CHIP 2700 5% 20X40
R428	0662057M10	RES. CHIP 2.2 5% 20X40
R429	0662057M98	RES CHIP 10K 5% 20X40
R431	0662057N39	RES. CHIP 470K 5% 20X40
R432	0662057N16	RES. CHIP 51K 5% 20X40
R434	0662057M62	RES. CHIP 330 5% 20X40
R435	0662057M81	RES. CHIP 2000 5% 20X40
R436	0662057M01	RES. CHIP 0 5% 20X40
R445	0662057N08	RES. CHIP 24K 5% 20X40
R446	0662057N31	RES, CHIP 220K 5% 20X40
R447	0662057N23	RES, CHIP 100K 5% 20X40
R448	0662057N98	RES. CHIP 10K 5% 20X40
R449	0662057N08	RES. CHIP 24K 5% 20X40
R450	0683962T45	RES CHIP 68 5-1
R451	0662057N03	RES, CHIP 15K 5% 20X40
R452	0662057N23	RES, CHIP 100K 5% 20X40
R456	0662057M01	RES. CHIP 0 5% 20X40
R457	0662057M98	RES CHIP 10K 5% 20X40
R460	0662057M90	RES. CHIP 4700 5% 20X40
R461	0662057M56	RES. CHIP 180 5% 20X40 (not used in GP640)
R462	0662057M98	RES CHIP 10K 5% 20X40 (not used in GP640)
R463	0662057M61	RES. CHIP 300 5% 20X40
R471	0662057N06	RES. CHIP 20K 5% 20X40
R472	0662057N12	RES. CHIP 36K 5% 20X40
R473	0662057M26	RES. CHIP 10 5% 20X40
R475	0662057M01	RES. CHIP 0 5% 20X40
R476	0662057N35	RES. CHIP 330K 5% 20X40
R477	0662057M74	RES. CHIP 1000 5% 20X40
R478	0662057M98	RES CHIP 10K 5% 20X40
R481	0662057N08	RES. CHIP 24K 5% 20X40
R492	0662057M01	RES. CHIP 0 5% 20X40
R501	0662057M70	RES. CHIP 680 5% 20X40
R502	0662057M56	RES. CHIP 180 5% 20X40
R505	0662057M98	RES CHIP 10K 5% 20X40
R506	0662057N15	RES. CHIP 47K 5% 20X40
R507	0662057M01	RES. CHIP 0 5% 20X40
RT300	0680590Z01	THERMISTOR_33K
RT400	0680590Z01	THERMISTOR_33K
S501	4080710Z01	SWITCH (FREQUENCY)
S502	1880619Z02	POTENTIOMETER, VOLUME
SH100	2680507Z01	SHIELD, HARMONIC FILTER
SH101	2680510Z01	SHIELD, PA
SH201	2680511Z01	SHIELD, SYNTHESIZER
SH202	2680511Z01	SHIELD, SYNTHESIZER
SH241	2680513Z01	SHIELD, VCO TOP
SH242	2680514Z01	SHIELD, VCO BOTTOM/LVZIF
SH301	2680554Z01	SHIELD,REC. FRONT END TOP
SH302	2680555Z01	SHIELD, REC. F/END BOTTOM
SH303	2680509Z01	SHIELD, MIXER
SH304	2680624Z01	SHIELD, MIXER DIODE
SH321	2680508Z01	SHIELD,LVZIF 2ND LO
SH322	2680514Z01	SHIELD, VCO BOTTOM/LVZIF
SH323	2680553Z01	SHIELD, CRYSTAL FILTER
SH400	2680505Z01	SHIELD,CONTROLLER TOP LEFT
SH401	2680506Z01	SHIELD,CONTROLLER TOP RIGHT
SH402	2680515Z01	SHIELD, CONT. BOTTOM LEFT
SH403	2680516Z01	SHIELD, CONT. BTM RIGHT
T301	2580541Z02	BALUN TRANSFORMER
T302	2580541Z02	BALUN TRANSFORMER
U101	5185130C65	IC LDMOS DRIVER
U102	5185765B26	IC POWER CONTROL PASS 2.3
U201	5185963A27	IC TESTED AT25016 48 PIN GFP
U210	5102463J61	INVERTER TC7ST04FU SS0P5-P-A
U211	5102463J61	INVERTER TC7ST04FU SS0P5-P-A
U241	5105750U54	IC PKG DIE VCO BUFFER
U247	5105739X05	IC SOT 5V HI-PREC. REGULATOR
U248	5102463J58	3.3V REGULATOR IN SOT23-5 PKG
U301	5109632D83	IC CUST LVZIF 2.2 H60G 48TQFP
U400	5102463J40	REG., 3.3V, LP2951CMM-3.3
U404	5185963A53	IC ASFIC CMP TQFP 48 PIN PKG
U406	*5102463J60	IC 512KX8 FLASH ROM (AT49LV040)
U407	*5102463J64	16KX8 SPI SERIAL EEPROM
U409	5102226J56	68HC11FLO_PASS5 100P IN TQFP
U410	5102463J57	REGULATOR 3.3V, ILC7062CM-33
U420	5102463J44	AUDIO AMPLIFIER TDA8547TS
VR432	4805656W08	DIODE ZENER QUAD
VR433	4805656W08	DIODE ZENER QUAD
VR434	4802245J73	ZENER DIODE; BZX284-C6V8
VR439	4880140L17	DIODE SOT ZENER 12V
VR440	4802245J73	ZENER DIODE; BZX284-C6V8
VR441	4802245J73	ZENER DIODE; BZX284-C6V8
VR442	4802245J73	ZENER DIODE; BZX284-C6V8
VR443	4802245J73	ZENER DIODE; BZX284-C6V8
VR444	4802245J73	ZENER DIODE; BZX284-C6V8
VR445	4802245J74	ZENER_DIODE; BZX284-C10
VR446	4802245J74	ZENER_DIODE; BZX284-C10
VR447	4802245J74	ZENER_DIODE; BZX284-C10
VR448	4802245J74	ZENER_DIODE; BZX284-C10
VR449	4802245J74	ZENER_DIODE; BZX284-C10
VR450	4802245J75	ZENER_DIODE; BZX284-C10
VR501	4813830A18	DIODE 6.8V 5% 225MWMMBZ5235B_
VR506	4802245J73	ZENER DIODE; BZX284-C6V8
	8485726Z04	PC BOARD UHF BAND 3

* Motorola Depot Servicing only

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.