Professional wireless communication system solution supplier

TR850

Service Manual

V141230

Kirisun Communications Co.,Ltd.

Contents

1. Overview

1.1. Scope of Manual

This manual is intended for use by trained engineers and professional technicians for the maintenance and repair of TR850 Repeater. Data changes in this manual may occur with the improvement of technology. To get the latest technology information, please contact us or your local distributors.

Before repairing the unit, please read this manual.

1.2. Safey Precautions

Electromagnetic Radiation

Radios generate and radiate electromagnetic energy, the security design of Kirisun radios' electromagnetic radiation on human meets national and international standards.

Electromagnetic Interference

Installation should be in accordance with local radio regulations.

Explosive and Harmful Gases

Do not install the repeater in areas with explosive and harmful gases, such as the lower deck of the hull, fuel or chemical storage facilities, area where the air contains chemicals or particles, dust or metal dust.

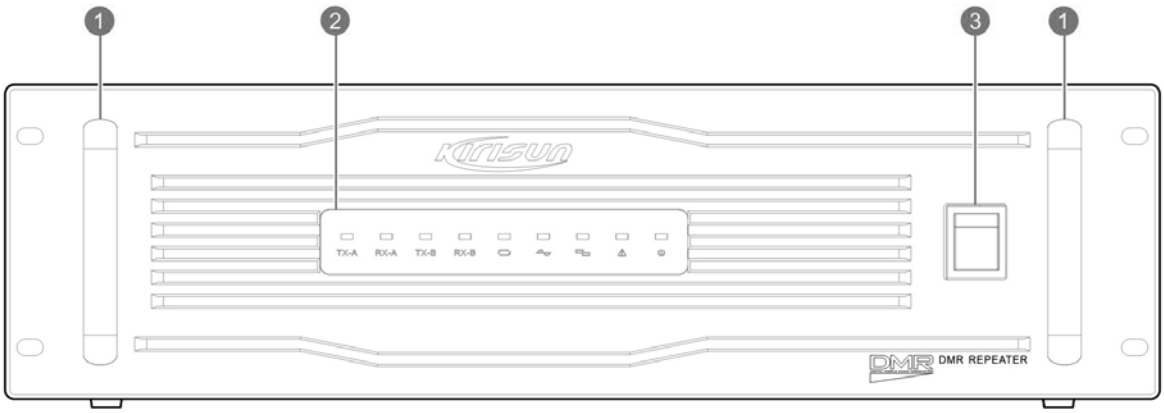
Do not install the repeater when close to the blasting area, electric blasting detonators.

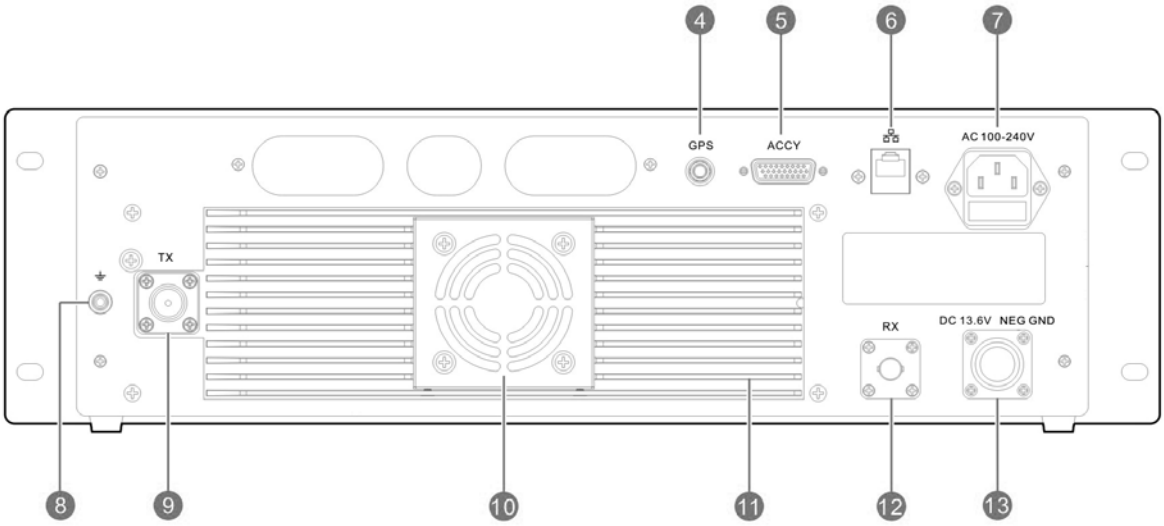
Replacement Parts

When replacing any replacement part, please be aware of the model. Do not arbitrarily replace the component that does not match with the radio.

2. Product Controls and LED Indicator Introduction

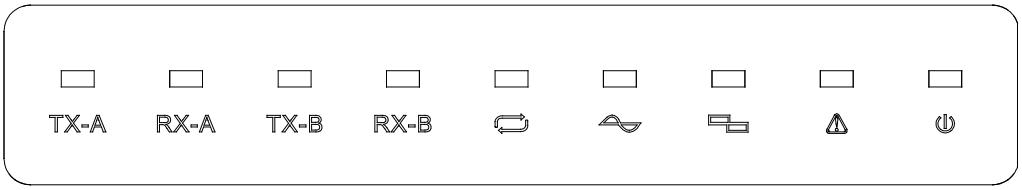
2.1. Product Controls





No.	Part Name	No.	Part Name
1	Handle	2	Front Panel LED Indicator
3	Power Switch	4	GPS Atenna Connector
5	ACCY Connector	6	Internet Connector
7	AC Connector (with fuse)	8	Grouding Scew
9	Transmit Antenna Connector (N)	10	Fan
11	Heat Sink	12	Receive Antenna Connector (BNC)
13	DC Connector	-	-

2.2. LED Indicator



LED	Description
TX-A	Indicates slot 1 is transmitting.
RX-A	Indicates slot 1 is receiving.
TX-B	Indicates slot 2 is transmitting.
RX-B	Indicates slot 2 is receiving.
	Repeater mode. When illuminated, the repeater is active. When the repeater is inactive, the LED is off.
	Analog mode. For analog or mixed signals the LED flashes when active. The LED is off when inactive.
	Digital mode. For digital or mixed signals the LED flashes when active. The LED is off when inactive.
	Alarm mode. Illuminates when there is a problem with the repeater.
	Illuminates when the repeater is switched on.

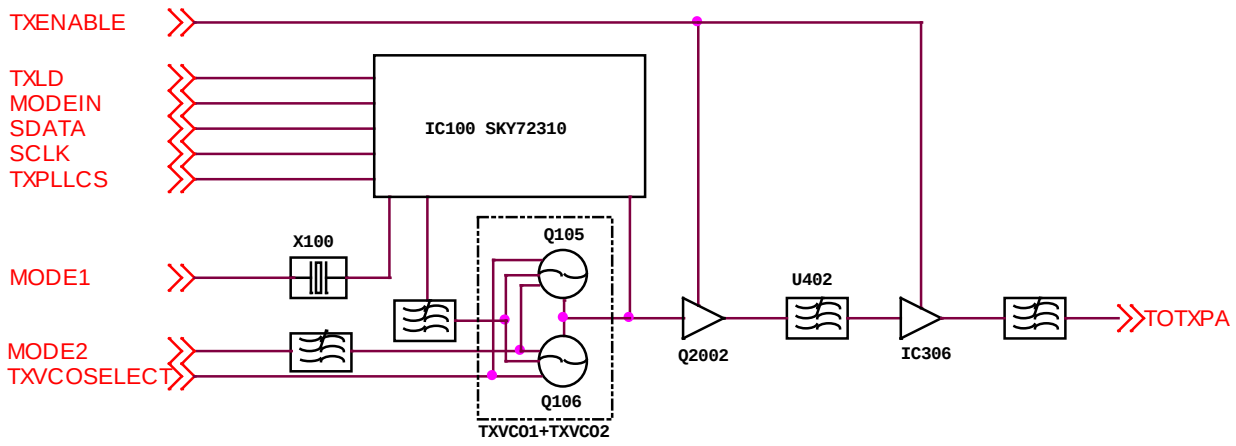
3. Circuit Description

3.1. RF Circuit

The RF part is composed of transmitter module, power amplifier module and receiver module.

3.1.1. Tx Circuit

Figure 3-1 Transmitter Circuit



Transmitter circuit includes three parts:

- Two Point Modulation Circuit

The RF center frequency calibration from the baseband and the low frequency part of 4FSK signal will be processed with addition algorithm, then sent to the DAC to get MODE1 signal. The MODE1 directly enters the reference clock X100, which is used for center frequency control and low frequency modulation. The MODE2 signal, which passes the two-level low pass filter which is composed of IC301s for DAC sampling interference filter, will be sent into VCO for high frequency part modulation.

- Transmitter Frequency Generation Unit Circuit

The transmitter PLL includes two VCOs,one PLL(IC100) IC SKY72310 and reference clock X100. The transmitting frequencies of the two VCOs controlled by the TXVCOSELECT signal are 400~435MHz and 435~470MHz respectively.(VHF is 136~155MHz and 155~174MHz)

a. Working Principle of Voltage Controlled Oscillator

The Tx Module employs two VCOs which cover the band of 400~435MHz and 435~470MHz (VHF is 136~155MHz and 155~174MHz). The switch of VCO is controlled by the TXVCOSELECT signal. VCO employs three point capacitance oscillation circuit. The VCO that covers the band of 400~435MHz (VHF is 136~155MHz) is composed of D106~D109、L119、Q106 and some other components, while the VCO covers the band of 435~470MHz (VHF is 155~174MHz) is composed of D101~D104、L107、Q105 and some other components.

b. Working Principle of Frequency Generation Unit

The 12.8 MHz reference clock (X100) output signal which is controlled by MODE1 signal will enter the reference input port of PLL IC (IC100 SKY72310), then according to the configuration of register, it will be divided to get 3.2MHz reference frequency, and the frequency will be compared in phase difference with the signal generated by the frequency division which is resulted from the VCO's enter into the input port of PLL chip. The PLL (IC100 SKY72310) PD pin will output the positive or negative pulse current which is in output pulse width, is directly proportional to the aforementioned signal phase difference. When the pulse

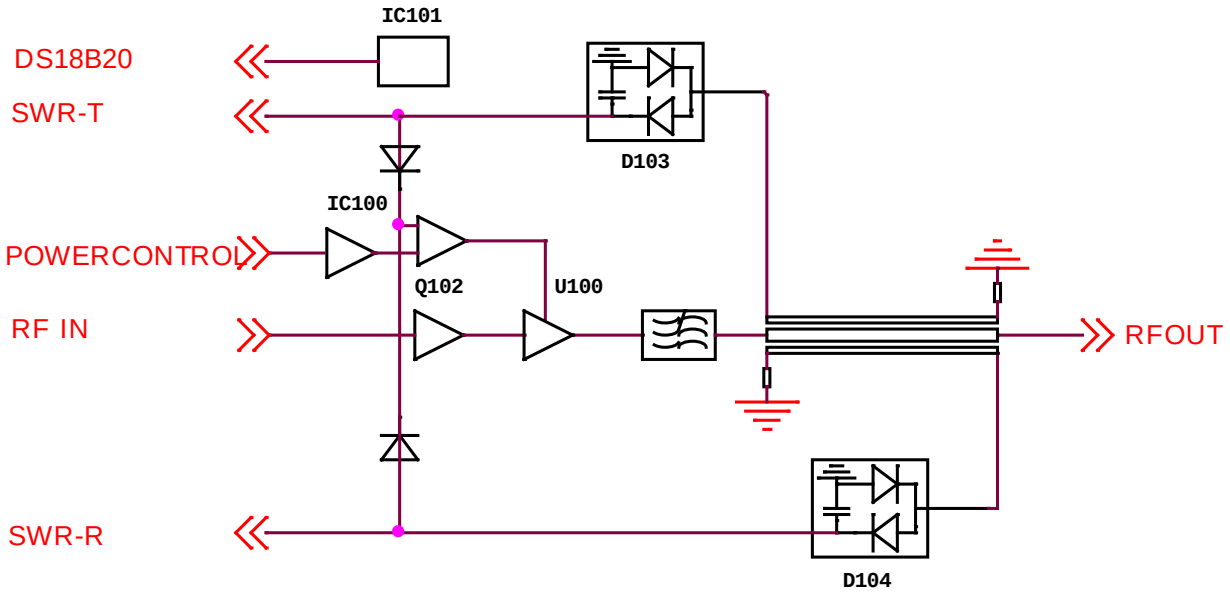
current passes the loop filter, it will be converted to CV voltage via RC integral. The the CV voltage will be sent to the VCO varactor to adjust and control the output frequency from the VCO until the CV voltage becomes constant. The loop is locked in the meantime.

- Buffer Amplifier Circuit

VCO outputs the modulated carrier signal to enter Q2002 for buffer amplication and then passes the LPF U402 to eliminate the harmonic wave. After that, the signal will go into IC306 for pre-amplification, then passes the LPF to filter the harmonic wave again, and the signal is output to the SMA connector which is connected to the transmitting power amplification.

3.1.2. RF Power Amplifier Module Circuit

Figure 3-2 RF power amplification module



The power amplifier module will amplify the modulated carrier signal from the transmitter module to a certain power level, then send to the transmitter port.

The power amplifier module includes the three parts:

- Power Amplification Part

The modulated carrier from the transmitter module will enter Q102 for pre-amplification, then the signal will attenuate to a certain level to make the amplitude of the signal which will be input with U100 operates between 17~20dBm. Under the control of POWERCONTROL signal, the RF signal output from U100 will pass the LPF to suppress the harmonic wave and collect power stationary wave sample from the directional coupler before being sent to the antenna port.

- APC and Stationary Wave Protection Circuit

The directional coupler detects the forward and reverse directions RF signal and passes the Q103,Q104 to convert the signal to the DC voltage which is corresponding to the forwardand reverse direction power. After the voltage division, the forward direction DC voltage with the reverse direction voltage pass the selection switch which is composed of D201,D202 and enter IC100(NJM2904) for buffer amplification before being sent to the reverse phase input port of the operational amplifier of IC100(NJM2904). The

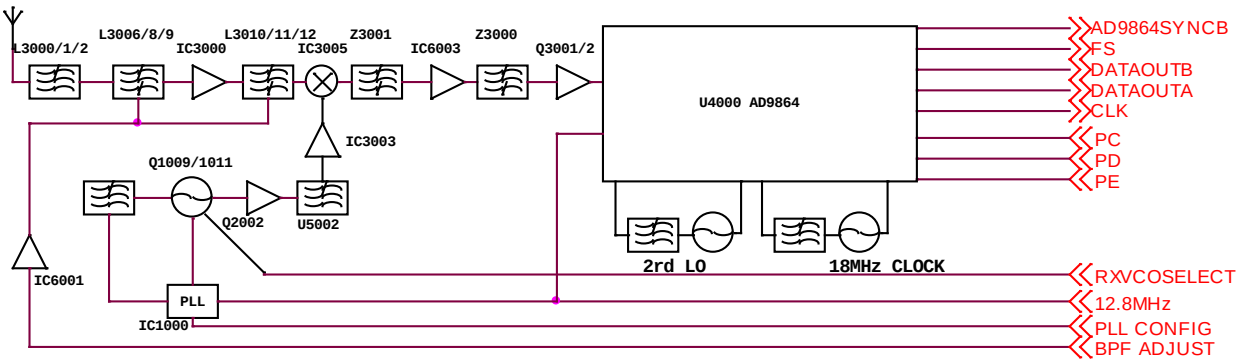
POWERCONTROL control signal form the baseband will be sent to the identical phase input port of IC100(NJM2904)'s operational amplifier. After the operational amplification and external circuit's function calculation, the signal is output as a conrol signal which controls the U100 gain control port to ensure that the actual output power remains stable when the impedance matches and to decrease the output power for power amplifier protection when the impedance mismatches.

- Temperature Detection Circuit

The continuous temperature rise can lead to a decrease of transmitting power. The temperature detection employs IC101(DS18B20) to collect the digital temperature sample.When the temperature exceeds the threshold value, the fan will be switched on for heat dissipation.

3.1.3. Rx Module Circuit

Figure 3-3 Receiver Module



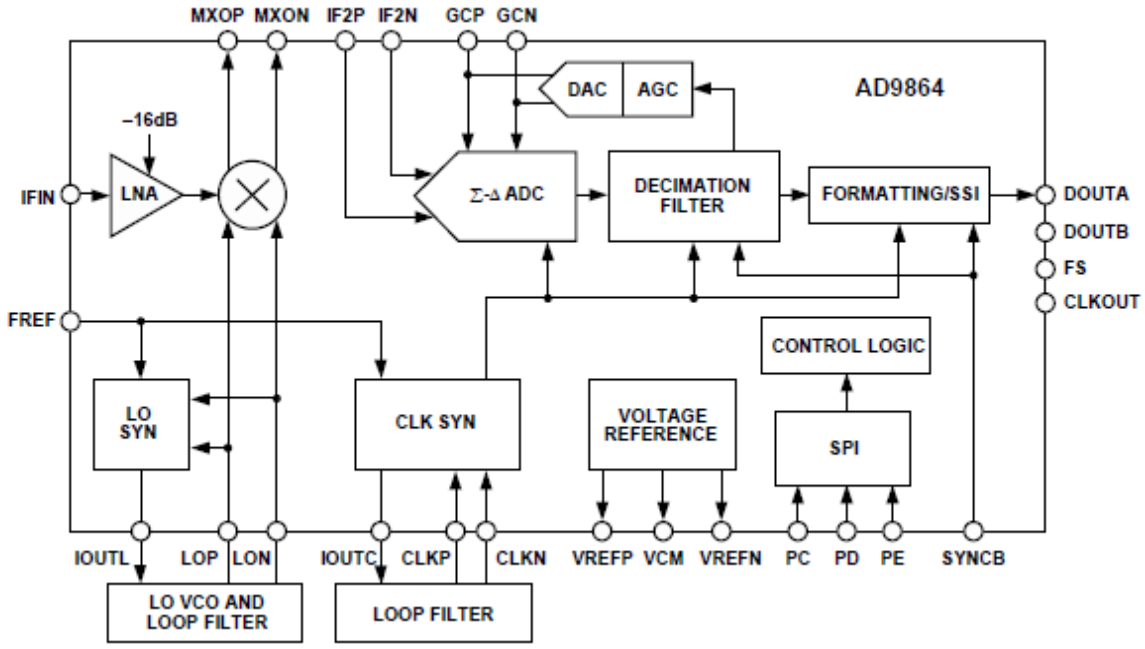
- Receiver Circuit

The receiver circuit includes RF Band pass filter, Low-noise amplifier, mixer, IF filter, IF amplifier and IF processor.

The signal from the receiving port first passes the low pass filter to suppress the high frequency interference, and passes the electrical tuning BPF to suppress the image interference and the out-band interference.The in-band signal is sent to the low noise amplifier (IC3000) and the amplified signal passes the electrical tuning BPF controlled by BPFADJUST to filter the out-band interference, so the effective high frequency will be sent to the mixer(IC3005). Meanwhile, the first local oscillation passes the LPF and gets mixed with the effective signal in IC3005 to generate the first IF signal (51.65MHz). The first IF signal passes the crystal filter (Z3001) to suppress the out-band signal. The signal is then sent to IF amplifier (IC6003) for amplification before being sent to the crystal filter to strenghthen the suppression of the the adjacent channel. After being sent to the limiting amplifier composed of Q3001 and Q3002, the signal enters AD9864 (U4000) for the second frequency mixing ,IF amplification and AD sampling. The digital IQ signal will be finally output to the baseband for further processing.

● IF Processor Circuit

Figure 3-4 IF Processor



The 51.65MHz IF signal output from the IF amplifier enters the AD9864 via its pin 47, and it finishes the second frequency mixing in the AD9864 to convert the fisrt IF to the second IF. The second IF signal is converted to the digital signal through the ADC sampling and output from the SSI port, and the digital signal is sent to FPGA for demodulation.

The reference frequency of AD9864 is 12.8MHz. The second local oscillation VCO is composed of external oscillation tube, varactor, and related components. The VCO provides the 49.4MHz local oscillation signal. The clock frequency of AD9864 is18MHz and it is generated by external LC resonance circuit.

● Rx Module Frequency Generation Unit Circuit

The Rx Module Frequency Generation Unit Circuit is composed of two VCOs and one PLL. Two VCOs cover the band of 400~435MHz and 435~470MHz respectively (VHF is 136~155MHz and 155~174MHz).

a. Working Principle of PLL

The 12.8MHz clock frequency provided by the baseband will enter the frequency divider for division, and then the 3.2MHz phase detecting frequency will be generated. The signal generated by VCO enters the PLL chip for frequency division, and goes into the PD to get compared in phase difference with the signal generated by frequency division of reference clock, thus the continuous pulse current is generated. The continuous pulse current passes the loop filter and will be converted to CV voltage via RC integral. The CV voltage will be sent to the varactor, and it controls and adjusts the VCO output frequency until the CV becomes constant. In the mean time, the PLL is locked, and the stable output frequency from VCO passes the two buffer amplifier to enter the frequency mixer.

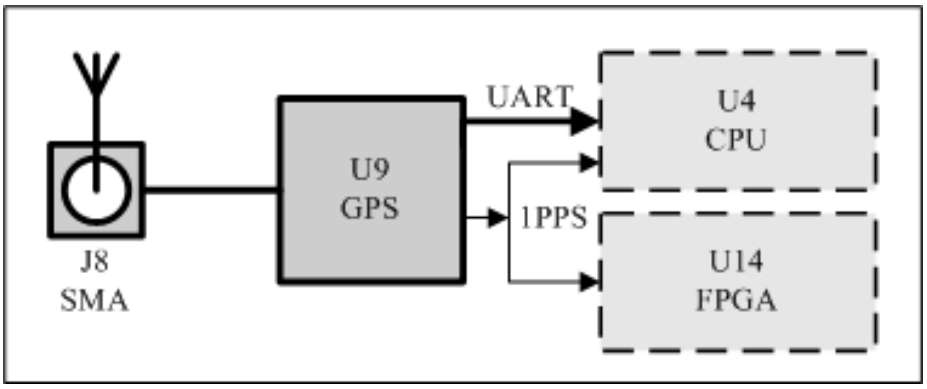
b. Working Principle of VCO

The Rx module employs two VCOs which cover the band of 348.35~383.35MHz and 383.35~418.35MHz

(VHF is 84.35~103.35MHz and 103.35~122.35MHz) respectively, and the switch of VCO is controlled by the RXVCOSELECT signal. VCO employs three point capacitance oscillation circuit. The VCO that covers the band of 348.35~383.35MHz (VHF is 84.35~103.35MHz) is composed of D1006~D1009、L1017、Q1011 and some other components, while while the VCO covers the band of 383.35~418.35MHz (VHF is 103.35~122.35MHz) is composed of D1002~D1005、L1016、Q1009 and some other components.

3.2. GPS Ciruit

Figure 3-5 GPS Schematic Diagram

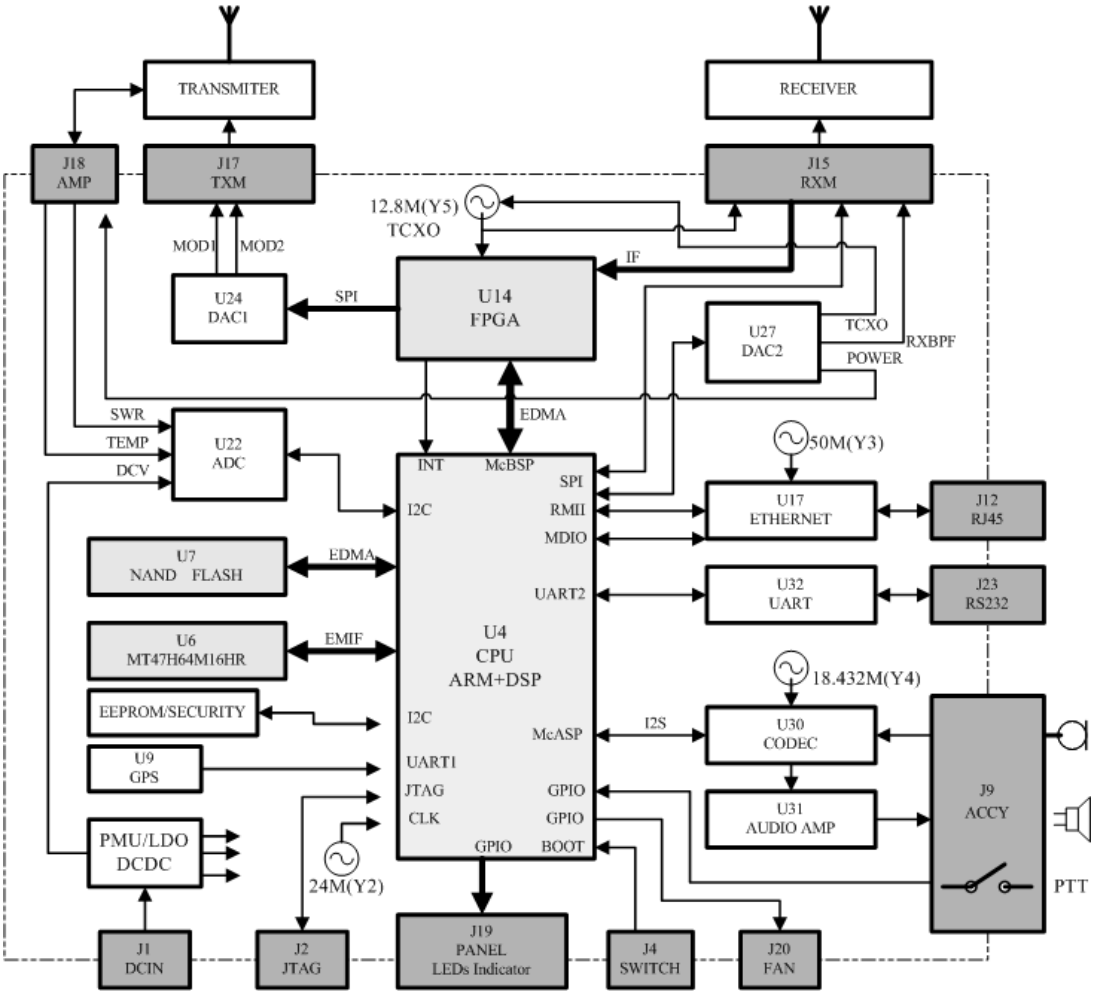


As Figure 3-5 shows, the repeater baseband board includes the GPS module (U9) and the GPS antenna interface J8(SMA). The corresponding equipment box is also assembled with a GPS antenna interface which supports the outdoor active antenna. The GPS module integrates a baseband processor, LNA and SAW. The antenna receives the 1575.42MHz GPS signal, after the inner amplification and filter process, it will be sent to the baseband section for further calculating, to get the geographical location and time information of the equipment. The output data information will be sent to processor (U4). Meanwhile, the GPS module hardware will provide the one-pulse-per-second signal (1PPS) for OMAP and FPGA respectively.

3.3. Baseband Section

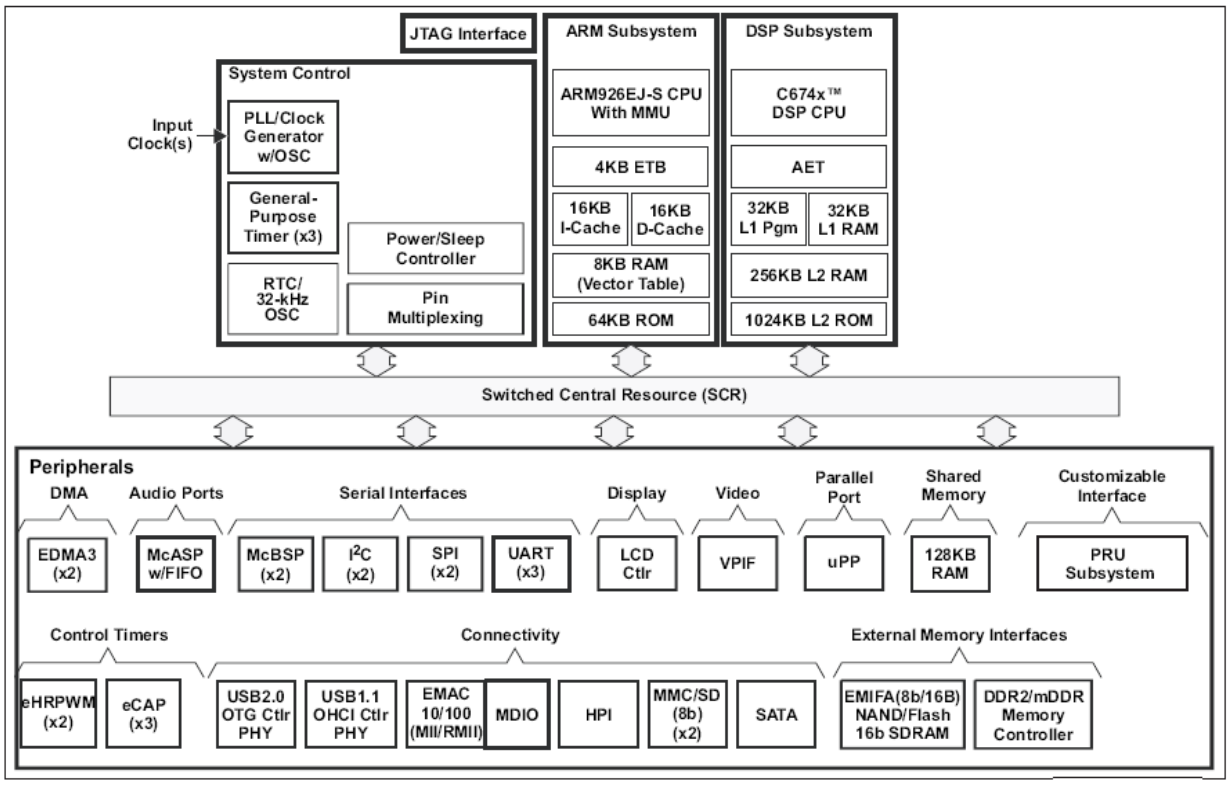
3.3.1. Circuit Description

Figure 3-6 Baseband Circuit



As Figure 3-6 shows, inside the dotted line box is the baseband section circuits, which includes the four major modules of dual core processor(U4), DDR2(U6), NAND FLASH(U7) and FPGA (U14). They are used to run the Linux operation system with various drivers and protocols to achieve call forwarding.

Figure 3-7 Processor Internal Circuit



The internal circuit of the processor is as Figure 3-7 shows, which is composed of various serial interfaces such as 300MHz ARM926EJ MPU、300MHz C674x DSP、DMA controller、SDRAM EMIF interface、EMAC Ethernet IC RMII interface、 McASP digital audio interface and McBSP, SPI, I2C, UART.

● U6 is DDR2 SDRAM with the capacity of 1Gb(64Mx16), and it is used to store the running program codes and various dynamic data.

● U7 is NAND FLASH with the capacity of 2GB, and it is used to store the drivers of all the devices, operation system and application program code which includes the program code of FPGA.

● The digital IF signal sent from the FPGA processing receiving unit communicate with the processor U4 via EMA BUS, and it communicate with DAC via the analog SPI interface to process the transmitting and receiving data, which includes the data framing, filter, interpolation, extracting and etc. to achieve the calculation and synchronization of frame number. The PLL module inside the FPGA IC will process the external 12.8MHz, +/-1.5ppm reference clock to generate a 61.44MHz master clock via 24/5 frequency doubling and frequency division.

The external circuit includes the parts of ADC, DAC, CODEC, AUDIO AMP, ETHERNET, RS232 and etc.

● The Analog-Digital Convertor ADC (U22) collects data such as stationary wave signal detection and power supply voltage detection which are controlled by RF power.

● Digital-Analog Convertor DAC (U24) is used for transmitter two point modulation output, and the other DAC(U27) is used to achieve the band pass adjusting and the RF power amplification control of the RF receiver, the tuning control of the receiver local oscillation reference clock.

● CODEC(U30) achieves the digital-analog converting. It is connected to the OMAP processor via I2S digital audio interface to achieve the local monitoring, output and input of interposed speech or audio

Tx/Rx index testing.

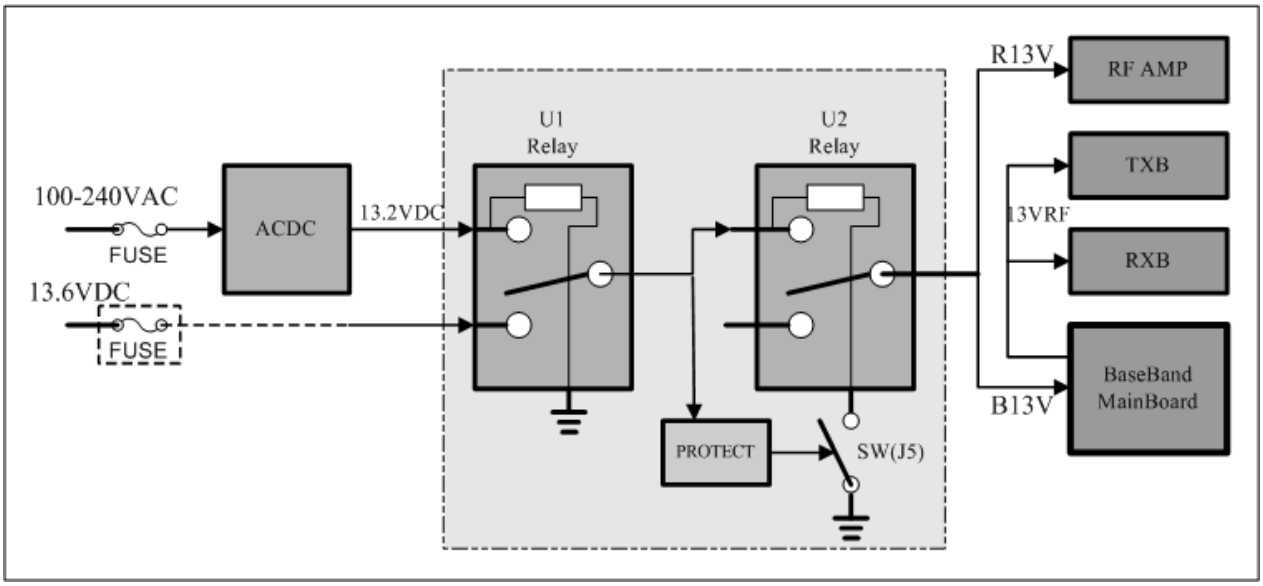
● The output power of audio power amplifier (U31) is 1W, which is used for local monitoring or tested speech output.

● Network interface (U17) is the TRx components of 10/100M single Ethernet physical layer, and it is used to the tuning of various parameter setting and communication control.

● UART- Universal Asynchronous Receiver/Transmitter(U32)achieves the RS232 electrical level switch, when it communicates with the PC, it can initiate the programming burning, programming tuning information printing, and etc.

3.3.2. Power Section

Figure 3-8 Whole Unit Power



As Figure 3-8 shows, the whole unit power supply employs adaptive ac/dc power supply with AC priority and DC/AC auto switch. The output DC voltage which is switched and protected by the electric relay will be divided into two paths. One path is for the RF power amplification, and the other is for banseband mainboard. The switch in the front panel turns the power on/off via the electric relay U2. The protection circuit will cut off all the DC output when the DC exceeds 18V.

The AC/DC switching part employs an independent module power supply(320W), and it supports the AC input range between 100V-240V, nominal output DC voltage is 12V, and the factory set is 13.2V.

The rated AC input voltage is between 100-240V, the socket is built in the dual protective tube. Specification of the protective tube is 2.5A, 5x20mm ceramic tube, slow type.

The rated DC input voltage is 13.6V with the rated current being 15A. The protective tube is included in the DC accessories.

Power Switch and AC/DC Switch

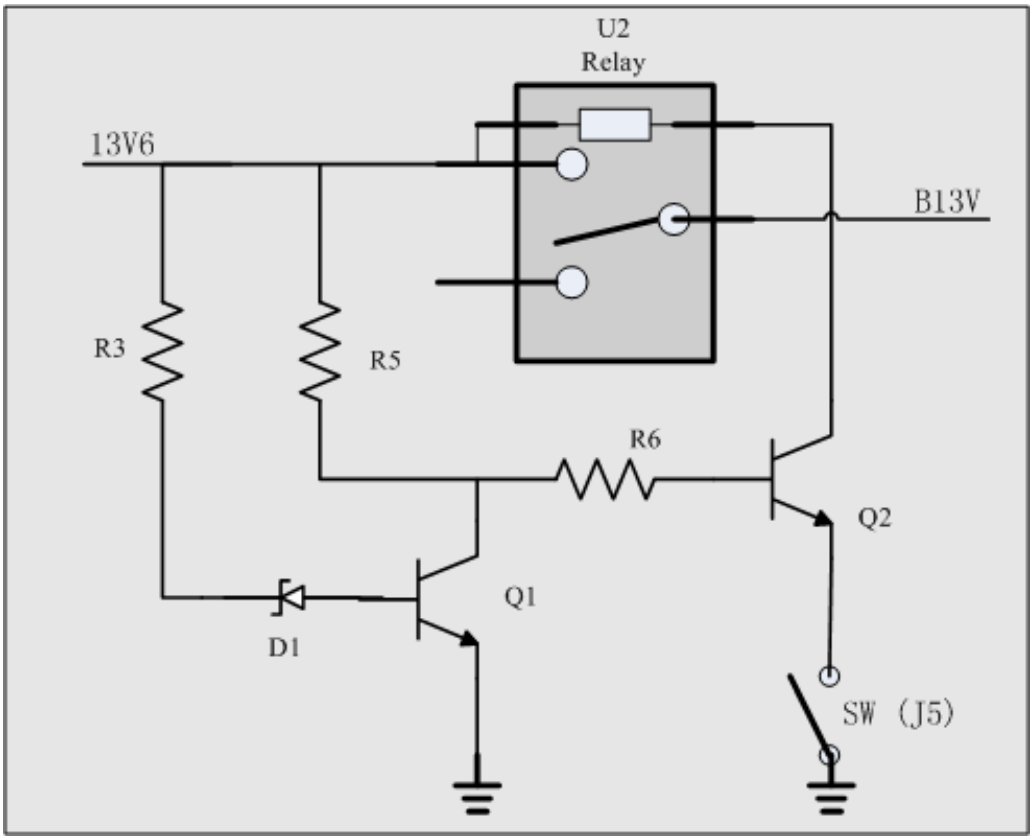
As the Figure 3-8 shows, the electric relay is switched on for the AC power supply and it will cut off the DC point. The 13.2VDC output from the ACDC module is connected to U2 through the U1 contact. If the panel switch (J5) is on, the electric relay (U2) will be switched on, so is the repeater.

When AC power supply is off, the electric relay (U1) is released. The DC is connected to U2 via the electric relay (U1) contact. If the panel switch (J5) is on, the electric relay U2 will be switched on, so is the repeater.

The panel switch (J5) is off, and U2 is released, which cut off the baseband DC power supply B13V including the RF power supply R13V.

Over-voltage Protection

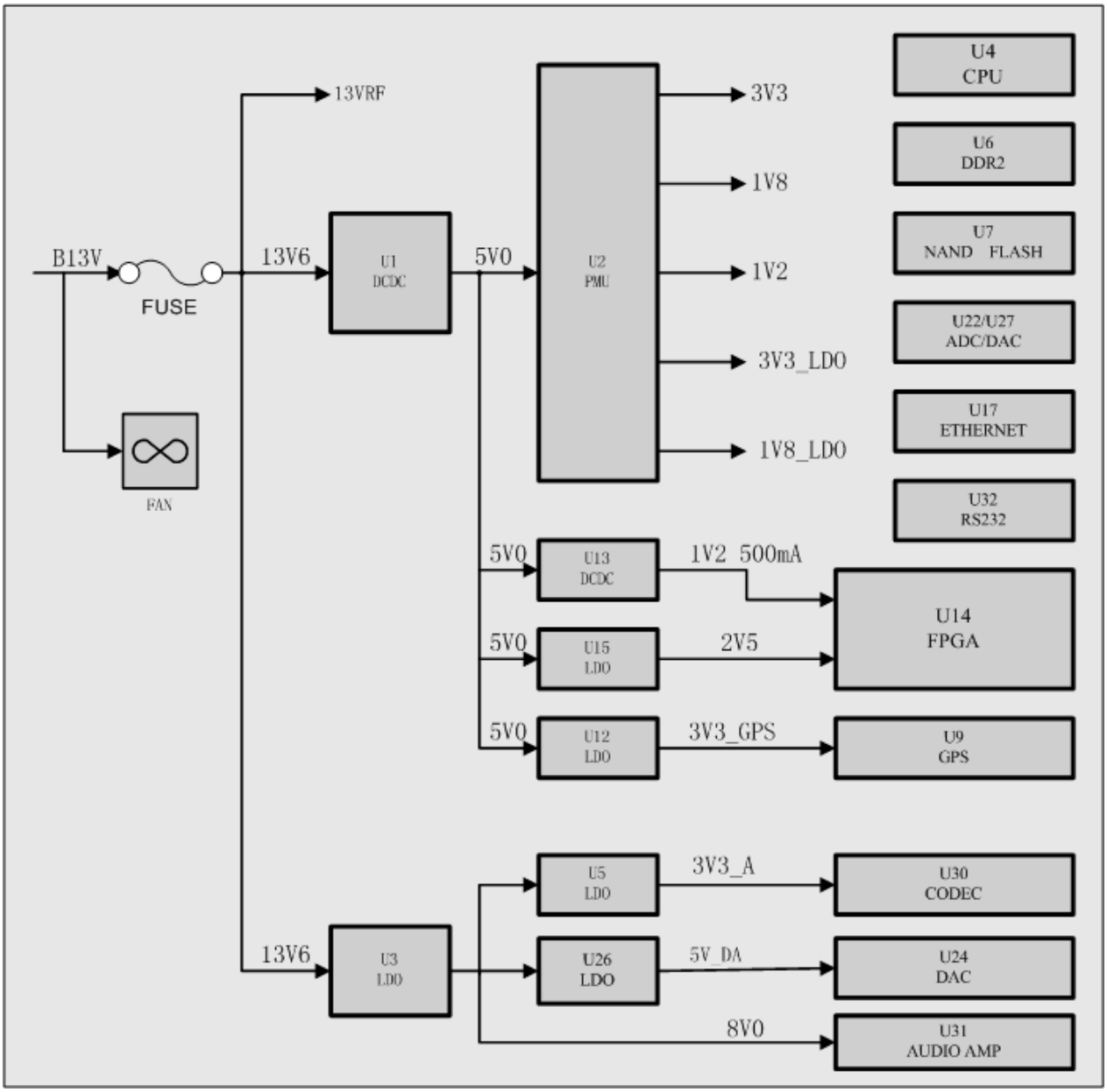
Figure 3-9 Over-voltage Circuit Protection



As the Figure 3-9 shows, the breakdown voltage of the voltage stabilizing diode is 18V+/-0.5V. If the input DC volatage is over 18V+/-0.5V, the Q1 breaks over with Q2 being cut off, and the electric relay U2 will be released to cut off the DC power supply B13V, including the RF power supply R13V.

Baseband Board Power Supply

Figure 3-10 Baseband Board Power Supply Distribution Diagram



As Figure 3-10 shows, the baseband and RF employs isolated power supply. B13V will be divided into three paths. One path provides power for baseband circuit, the second one is provided for Tx and Rx module after being isolated by magnetic bead, and the last one is provided for heat dissipation fan after being isolated by the ferrite Inductor.

The digital and analog part of the baseband circuit own separate power supply.

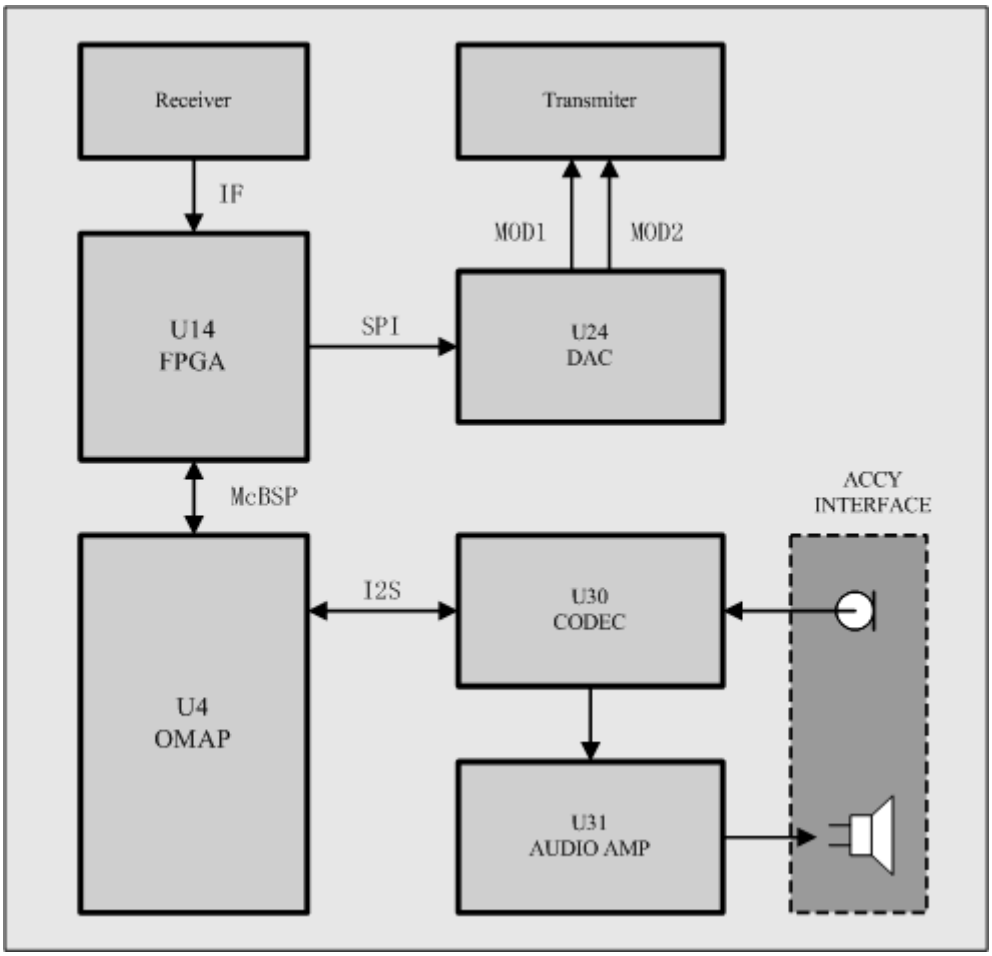
- The power supply of the digital circuit is composed of two-level switch circuit. The first level decreases the B13V to 5V via DC/DC (U1) ; the second level switches 5V to 3.3V, 1.8V, 1.2V and etc.. which are isolated by various magnetic beads before being supplied to the circuit modules.

- The analog circuit power supply will be directly supplied to analog audio power amplification circuit after being switched to 8V via LDO. One power path outputs 5V_DA via the low voltage LDO (U26) and provide it for the analog power of DAC(U24, U27), and the other oupts 3.3V_A via the low voltage LDO

(U5) and provide it for the analog power of CODEC (U30).

3.3.3. Audio Processing

Figure 3-11 Audio Processing Schematic Diagra



As the Figure 3-11 shows, the audio processing module mainly achieves encoding and decoding with ADC and DAC of the audio signal, including air audio forwarding and local audio TRx.

- Air Audio Forwarding

The digital IF signal from the RF receiver will be first sent to the FPGA(U14) for time slot processing and achieving the framing, filtering and extracting of the data to realize the calculation and synchronization of the frame number; the signal will be send to the DSP of CPU (U4)via the McBSP interface for 4FSK decoding, digital audio signal decoding and etc.. Meanwhile, the internal DSP will send the digital audio signal which achieves the decoding and encoding to the FPGA(U14) for time slot processing and finishing the framing, filtering and interpolation and other synchronization calculation of the data, and the digital audio signal will then be sent to the DAC (U24) via the SPI interface for the audio digital/analog switch, generating the analog speech two point modulation signal before being sent to the transmitter for the audio forwarding.

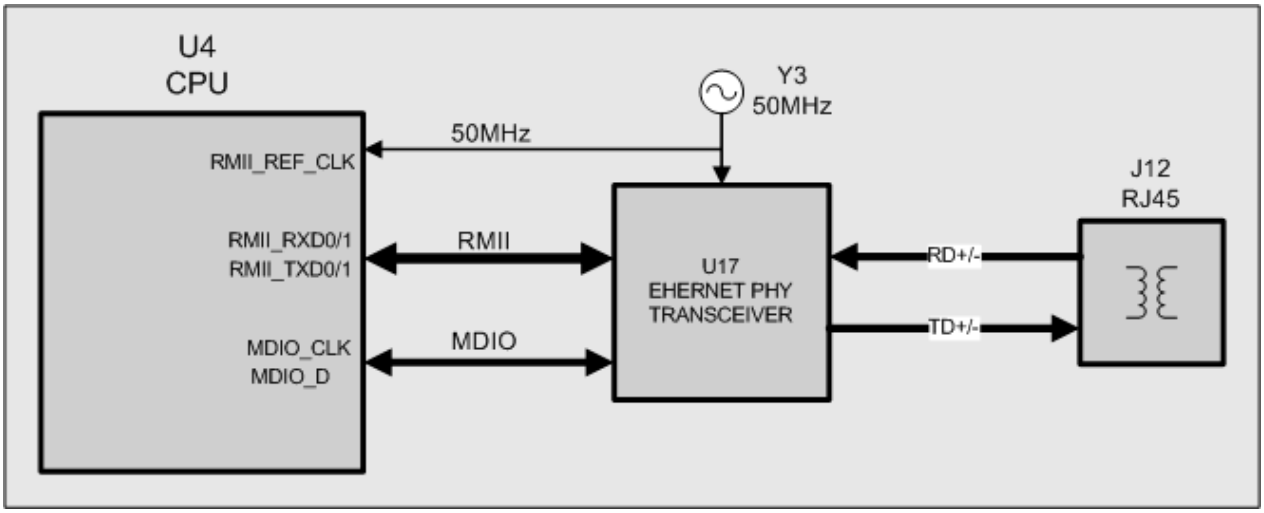
- Local Audio TRx

The internal DSP in the main processor(U4) connects to the CODEC(U30) via the I2S digital audio interface. The CODEC(U30) will convert the analog audio input from the external to digital audio, then

send into the internal DSP. In the meantime, converts the received digital audio from the internal DSP to analog audio, then send the audio to audio power amplifier(U31), before finally send to the ACCY external interface, which is to drive the 1W, 16Ω speaker.

3.3.4. Ethernet Interface

Figure 3-12 Ethernet Interface



As Figure 3-12 shows, A RMII simplified interface is used between the CUP(U4) and network interface chip(U17) . RMII interface independent clock uses external clock mode and share 50MHz clock with U17.

CPU (U4) achieves the hardware information of internet interface U17 through the independent configuration interface MDIO. CPU also initiate it and assign MAC and IP address.

The data transmitting and receiving between network interface chip(U17) and interface connector(J12) are achieved through connecting the transformer inside the connector jack RJ45 and LED through 2 pairs of differential line.

The network interface can realize parameter adjustment and parameter configure, user programming and firmware upgrade.

3.3.5. Boot Mode

A boot mode selection switch (J4) is provided on the baseband. The four position 1 to 4 of DIP encode switcher are correspondingly connected with boot 1 to boot 4 of OMAP (U4), so the boot operation mode will be changed after being powered on.

The level of position “ON” of encode switcher corresponding to boot which is connected to GND is “0”.Conversely, the level of position “OFF” is “1”.

As showing in Figure 3-13, the level of boot1 to boot4 of switcher is 0101, and it enters to firmware download mode after power on. It can upgrade the guide program and the low driver program by booting from serial port(UART2).

Figure 3-13 Firmware Download Mode

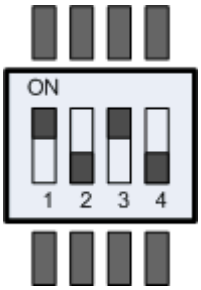
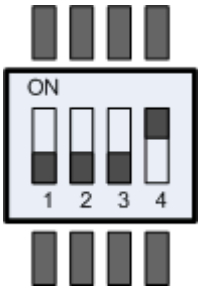


Figure 3-14 User Mode



As showing in Figure 3-14, the level of boot 1 to boot4 is 1110, and it enters to normal running user mode after power on. It starts from NAND FLASH. In this mode, it can upgrade operation system kernel, device driver program, files system and application program by network interface.

Please configure the boot mode as user mode as shown in Figure 3-15 in normal use.

3.3.6. Hardware Version Encode

Figure 3-15 Hardware Version Encode

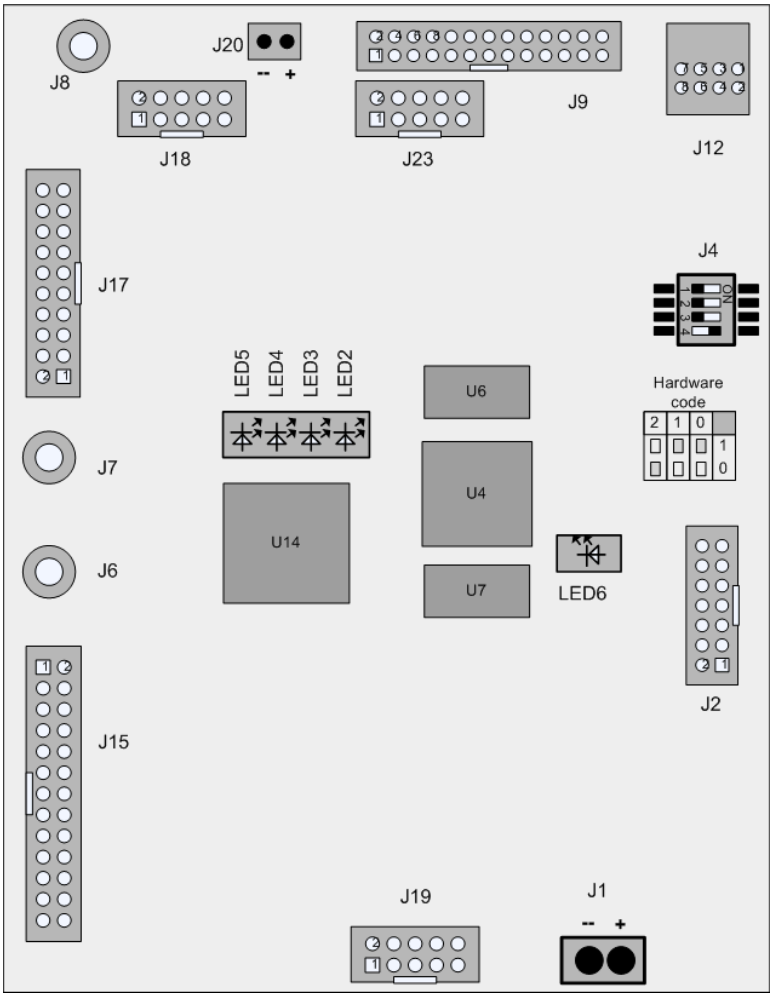
According to the position of chip resistor in Figure 3-15 the encoder is “001” and the corresponding version is Ver3.0.

2	**1**	**0**		**D2**	**D1**	**D0**	**Version**
NULL	NULL	0R	**1**	0	0	1	Ver1.0
0R	0R	NULL	**0**				
NULL	0R	NULL	**1**	0	1	0	Ver2.0
0R	NULL	0R	**0**				
NULL	0R	0R	**1**	0	1	1	Ver3.0
0R	NULL	NULL	**0**				
0R	NULL	NULL	**1**	1	0	0	Ver4.0
NULL	0R	0R	**0**				
0R	NULL	0R	**1**	1	0	1	Ver5.0
NULL	NULL	NULL	**0**				

0R	0R	0R	**1**	1	1	0	Ver6.0
NULL	NULL	NULL	**0**				
0R	0R	0R	**1**	1	1	1	Ver7.0
NULL	NULL	NULL	**0**				

3.3.7. Baseband Board Interface and Indicator

Figure 3-16 Baseband Board Interface and Indicator



See Figure 3-16, The interfaces and indicators of banseband are as follows:

● J1 is the 13.2V(+/-20%) DC input interface of the whole banseband mainboard, and the polarity should be noted. The input circuit includes isolating magnetic inductor (L12) and chip insurance resistor (F1).

● J2 is the JTAG adjustment interface of main processor, and it is used for program simulation adjustment.

● J4 is the switch for boot mode. See “3.3.5Boot Mode” for details.

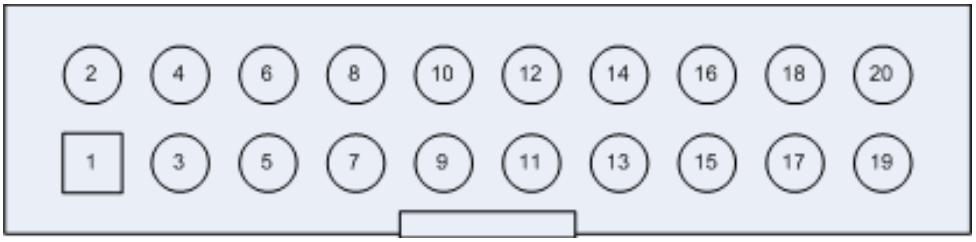
● J6、J7 are 12.8MHz clock and SMA offered by main board to other parts. The two signals are the same

and either one of them can be selected.

- J8 is the interface and SMA of GPS interface, and it supports active antenna with 3.3V feed output.
- J9 is the ACCY external interface provided by baseband, and it is used for function expansion or test. It includes the input and output of local speech, external PTT, and programmable expansion IO. It provides 12V/1A DC output.
- J15 is the interface of Rx board, including digital IF, SPI interface signal, 12C interface signal for storing data of test and adjustment, etc.
- J17 is the interface of Tx board, including two point modulation signal, SPI interface of Tx circuit PLL, Tx control signal, etc.
- J18 is the control interface of RF power amplifier, including SWR , TEMP_DET, POWER_CONTROL, TX_ENABLE, etc.
- J19 is the interface of LED status display board.
- J20 is the 12VDC fan interface.The fan will be switched on when the radio transmits or the temperature goes beyond the set range.
- J23 is the serial port UART2.
- LED2、LED3、LED4、LED5 indicates program operation status.
- LED6 indicates CPU power.

3.3.8. Tx Unit Interface Definition (J17)

Figure 3-17 Tx Unit Interface Definition

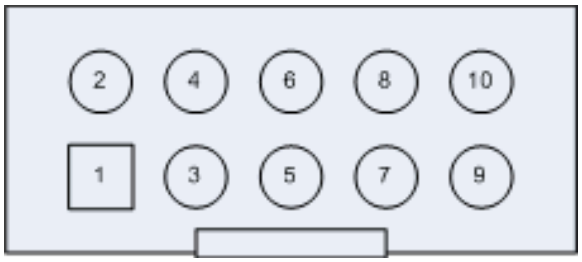


Terminal NO.	Terminal Name	I/O	Function
1	GND	-	Ground
2	MOD1	O	TX Modulate signal output1
3	GND	-	Ground
4	MOD2	O	TX Modulate signal output2
5	GND	-	Ground

6	NC	-	-
7	GND	-	Ground
8	NC	-	-
9	TX_LD	O	PLL locked indicate,active high
10	TX_VCO_SEL	O	Select VCO band
11	SPI_CLK	O	SPI clk
12	GND	-	Ground
13	VCCTX	O	Open TX Power,active high
14	GND	-	Ground
15	SPI_MOSI	I/O	SPI data
16	GND	-	Ground
17	PLL_CS	O	PLL chip selected,,active low
18	TX_ENABLE	O	Enable TX PLL,,active high
19	VCC	O	13.2V output
20	VCC	O	13.2V output

3.3.9. RF Power Amplifier Module Interface (J18)

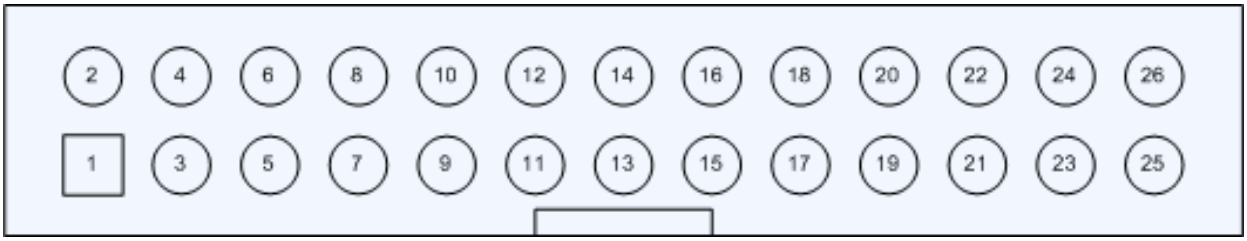
Figure 3-18 RF Power Amplifier Module Interface



Terminal NO.	Terminal Name	I/O	Function
1	POWER_CTRL	O	POWER control output
2	GND	-	Ground
3	POWER_SWITCH	O	POWER switch,active high
4	NC	-	-
5	TX_ENABLE	O	Power module enbale,active high
6	NC	-	-
7	SWR_R	I	Power SWR_R detector
8	TEMP_DET	I	Power tempreture detector
9	SWR_T	I	Power SWR_T detector
10	NC	-	-

3.3.10. Rx Unit Interface Definition (J15)

Figure 3-19 Rx Unit Interface

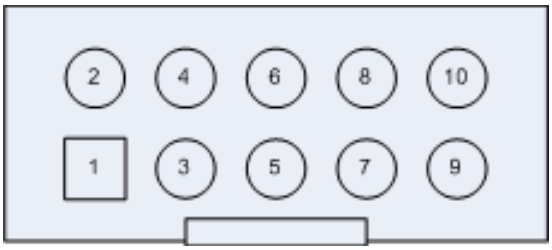


Terminal NO.	Terminal Name	I/O	Function
1	SYNCB	O	Resets AD9864 SSI and DecimatorCounters; Active Low
2	SPI_MISO	I	Data for AD9864 SPI
3	AD9864_DATAOUT	I	Data for AD9864 SSI
4	AD9864_CLK	I	Clock for AD9864 SSI

5	AD9864_FS	I	Frame synchronous for AD9864 SSI
6	SPI_CLK	O	Clock for AD9864 SPI
7	SPI_MOSI	O	Data for AD9864 SPI
8	AD9864_SPI_CS	O	Enable for AD9864 SPI
9	RX_VCO_CTRL	O	VCO tunner
10	RX_PLL_CS	O	PLL chip selected,active low
11	I2C_SDA	I/O	EEPROM data
12	I2C_SCL	O	EEPROM clock
13	RX_LD	O	PLL locked indicate,active high
14	GND	-	Ground
15	RX_BPF_CTRL	O	Output for RX BPF filter tunner
16	NC	-	-
17	VCCR8X	O	Open RX Power,active high
18	GND	-	Ground
19	RX_VCO_SEL	O	select VCO band
20	NC	-	-
21	I2C_A0	O	EEPROM address
22	NC	-	-
23	GND	-	Ground
24	NC	-	-
25	VCC	O	13.2V output
26	VCC	O	13.2V output

3.3.11. Front Panel Interface Definition (J19)

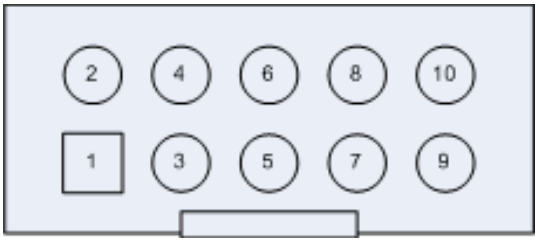
Figure 3-20 Front PanelInterface Definition



Terminal NO.	Terminal Name	I/O	Function
1	3V3	-	3.3V
2	GND	-	Ground
3	LED0	O	TX_A slot indicate,active high
4	LED4	O	REPEATER mode indicate,active high
5	LED1	O	RX_A slot indicate,active high
6	LED5	O	ANALOG mode indicate,active high
7	LED2	O	TX_B slot indicate,active high
8	LED6	O	DIGITAL mode indicate,active high
9	LED3	O	RX_B slot indicate,active high
10	LED7	O	ALARM indicate,active high

3.3.12. Serial Port Definition (J23)

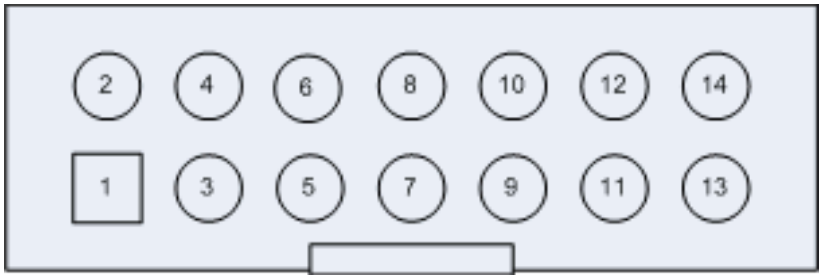
Figure 3-21 Serial Port Definition



Terminal NO.	Terminal Name	I/O	Function
1	NC	-	-
2	NC	-	-
3	TXOUT	O	RS232 TX output
4	NC	-	-
5	RXIN	I	RS232 RX input
6	NC	-	-
7	NC	-	-
8	NC	-	-
9	GND	-	Ground
10	NC	-	-

3.3.13. JTAG Simulator Interface Definition (J2)

Figure 3-22 JTAG Simulator Interface Definition

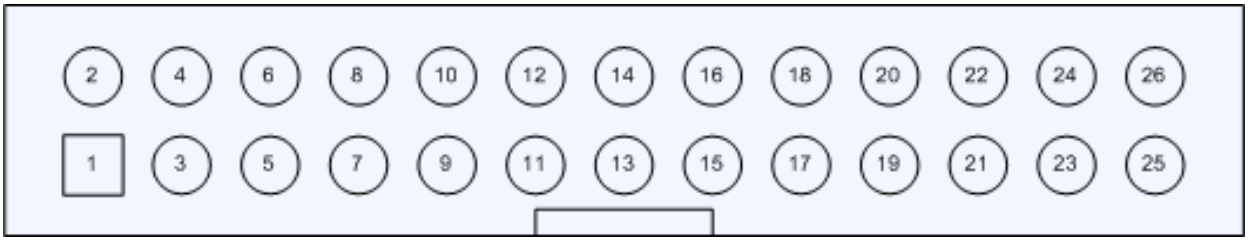


Terminal NO.	Terminal Name	I/O	Function
1	TMS	-	TMS
2	TRST	-	TRST
3	-	-	-
4	-	-	-

5	-	-	-
6	NULL	-	NULL
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-

3.3.14. External Interface Definition (J9)

Figure 3-23 Externa Interface Definition



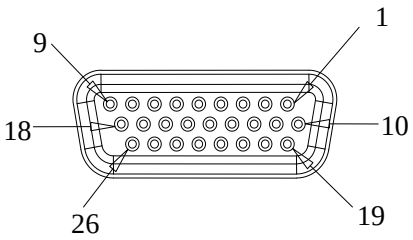
Terminal NO.	Terminal Name	I/O	Function
1	USB_D+	I/O	Reserved
2	USB_D-	I/O	Reserved
3	V_BUS	O	Reserved
4	USB_GND	-	Ground
5	ACC_ID2	I	Reserved

6	ACC_ID1	I	Reserved
7	EXT_SWB+	O	Power 13.2VDC switched output
8	POWER_GND	-	Ground
9	EXT_SPK-	O	Annalog output speaker-
10	EXT_SPK+	O	Analog output speaker+
11	TX_AUDIO	I	Analog audio input
12	AUDIO_GND	-	Ground
13	AUX_AUDIO_OUT1	O	Reserved
14	RX_AUDIO	I	Reserved
15	AUX_AUDIO_OUT2	O	Reserved
16	GND	-	Ground
17	PRGM_IO_1	I	PTT input,high active
18	GND	-	Ground
19	PRGM_IO_2	I/O	Reserved
20	PRGM_IO_6	I/O	Reserved
21	PRGM_IO_3	I/O	Reserved
22	PRGM_IO_7	O	Output high level(2.8V)
23	PRGM_IO_4	I/O	Reserved
24	PRGM_IO_8	I/O	Reserved
25	PRGM_IO_5	I/O	Reserved
26	PRGM_IO_9	I/O	Reserved

3.3.15. Case External Interface Definition

Extended interface (J9) of baseband is connected to accessory board by a flat gray cable, then connected to the ACCY connector at the rear of repeater after conversion through accessory board. The ACCY connector is as following Figure 3-24.

Figure 3-24 ACCY Interface



Terminal NO.	Terminal Name	I/O	Function
1	Ext_SWB+	+13V Output	+13.8V output(Imax<1A)
2	GND	Ground	Ground
3	USB_D+	Reserved	
4	USB_D-	Reserved	
5	USB_VBUS	Reserved	
6	USB_GND	USB Ground	
7	Program_IN_1 (PTT)	External PTT Signal input, High level active .when connected with Pin20, enter transmission mode	Digital Input: (2.5V<VIH<3.3V,0V<VIL<0.4V)
8	Ext_Spk-	External Speaker output	8 Ω /16Ω, 0.8W Max
9	Ext_Spk+	External Speaker output	8 Ω /16Ω, 0.8W Max
10	ACC_MAP_ID_2	Accessory ID input Line 2 Control signal, when connected with Pin20, mode of analog RX performance testing	Digital Input: (2.5V<VIH<5V,0V<VIL<0.4V)

11	ACC_MAP_ID_1	Accessory ID input Line 1 Control signal, when connected with Pin20, the IP address will be set to the default address: 192.168.1.100.	Digital Input: (2.5V<VIH<5V,0V<VIL<0.4V)
12	Squelch (Program_IO_6)	Digital Input. High level will enable opening squelch when connected with Pin20.	Digital Input (2.5V<VIH<5V,0V<VIL<0.4V)
13	RXD	Output. Receive signal from repeater to PC	RS232 Level: -3V ~ -15V +3V ~ +15V
14	TXD	Input. Transmit signal from PC to repeater	RS232 Level: -3V ~ -15V +3V ~ +15V
15	GND	Ground	-
16	Rx_Audio	NULL	-
17	Audio_Ground	Ground	-
18	Tx_Audio	External Audio signal input	Analog input:0V<VIL<0.5V
19	GND	Ground	-
20	Program_IO_7	Output high level, used with Pin7 (PTT function), Pin10 (analog Rx function) and Pin11 (IP address reset function) and pin23(open squelch)	Digital Output 2.5V<VOH<3.3V
21	Program_IO_4 (Emergency)	NULL	-
22	Program_IO_8	NULL	-

23	Program_IN_5	Digital Input High level active Opening squelch when connected with Pin20	Digital Input: (2.5V<VIH<5V,0V<VIL<0.4V)
24	Program_Out_9 (Ext_Alarm)	Reserved	-
25	Aux_Audio_Out1	NULL	-
26	Aux_Audio_Out2	NULL	-

4. Function and Parameter Setting

4.1. Conventional Functions

Conventional DMR functions:

- Supports DMR dual slot mode
- Supports DMR private call, group calla and all call transfer
- Supports short Message, status message transfer
- Supports end to end voice and data encryption
- Supports GPS
- Supports interruption and monitor function
- Supports stun, activation, kill signaling transfer
- Supports IP connection
- Supports Standard AIS Interface
- Support Analog and Digital Mode
- Supports Pseudo Trunking

4.2. Parameter Setting

Repeater is set with default parameters when leaving the factory. Parameters such as operation frequency, channel paramenters, scan and encryption may be changed according to different requirement by users.Therefore, Kirisun specially designed programmable software CPSp, which is interface-friendly, easy to operate and display-friendly, to realize the setting for repeater function parameters.

4.2.1. Parameters setting

Parameter settings steps are as follows

Step 1. Install the right version of the CPSp user programming software.

Step 2. Using RJ45 ethernet cable to connect the repeater with Ethernet port of computer through HUB/switchboard.

Step 3. Make sure the repeater is powered on.

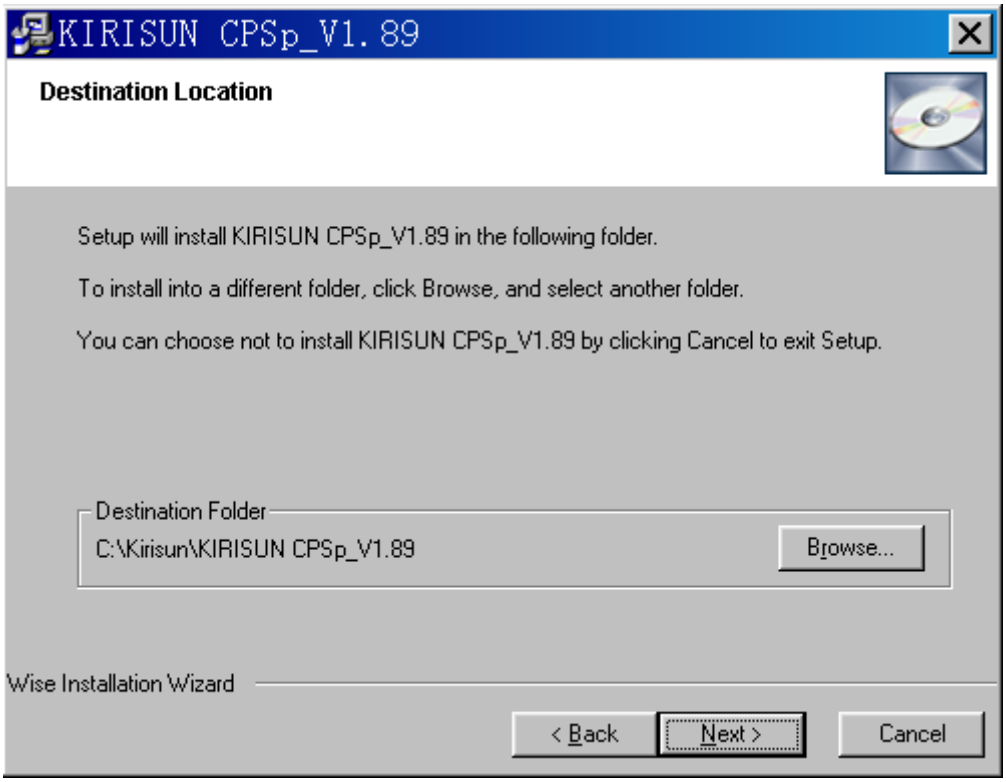
Step 4. Operate CPSp user programming software for the settings of related parameters.

The user can read parameter configuration through CPSp user programming software.

4.2.2. Install CPSp user programming software

Installation steps of CPSp user programming software:

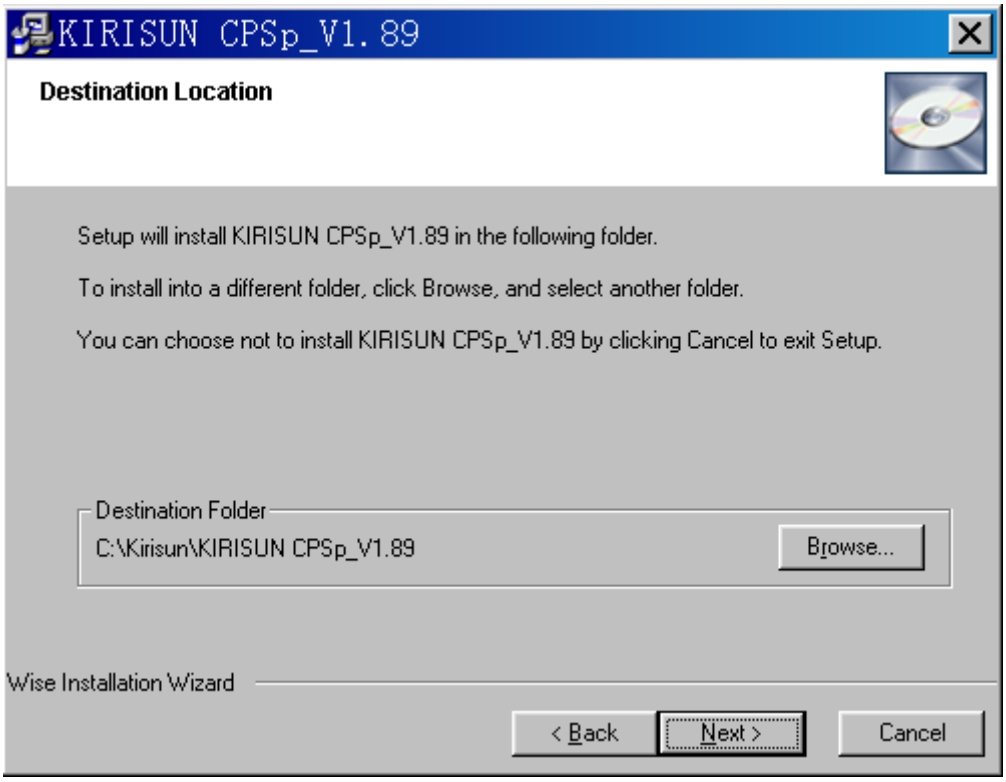
Step 1. Double click the installation file of CPSp user programming software, and the interface below will pop up.



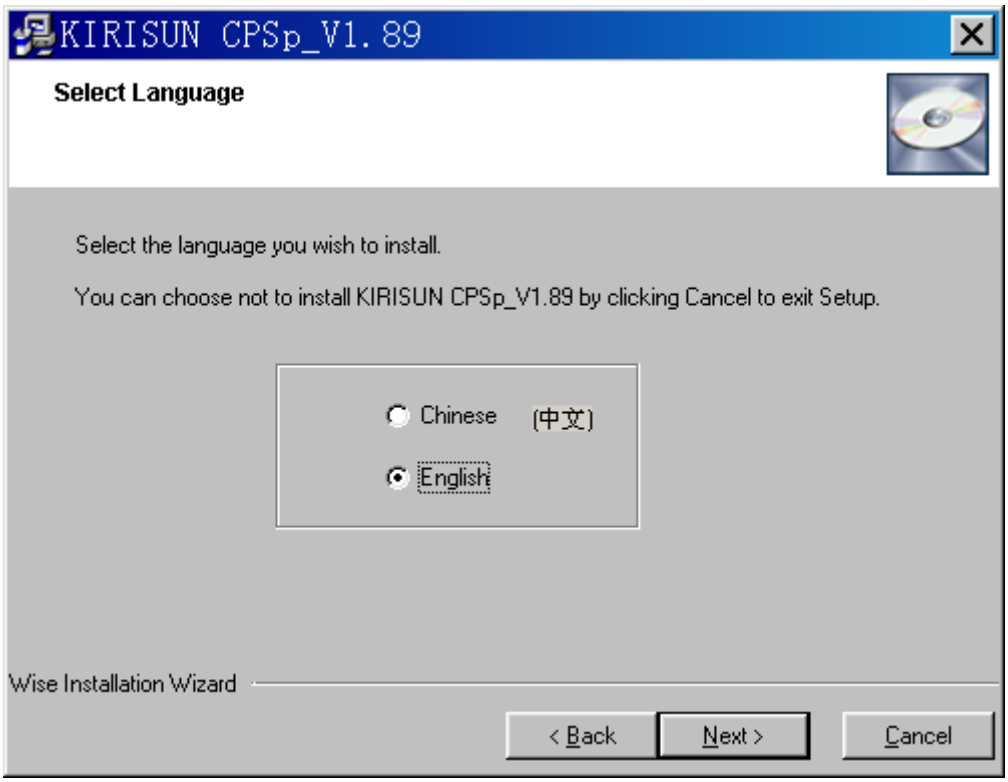
Step 2. Click “Next” and enter the next interface.

Step 3. (Option) Click browse and select the installation route.

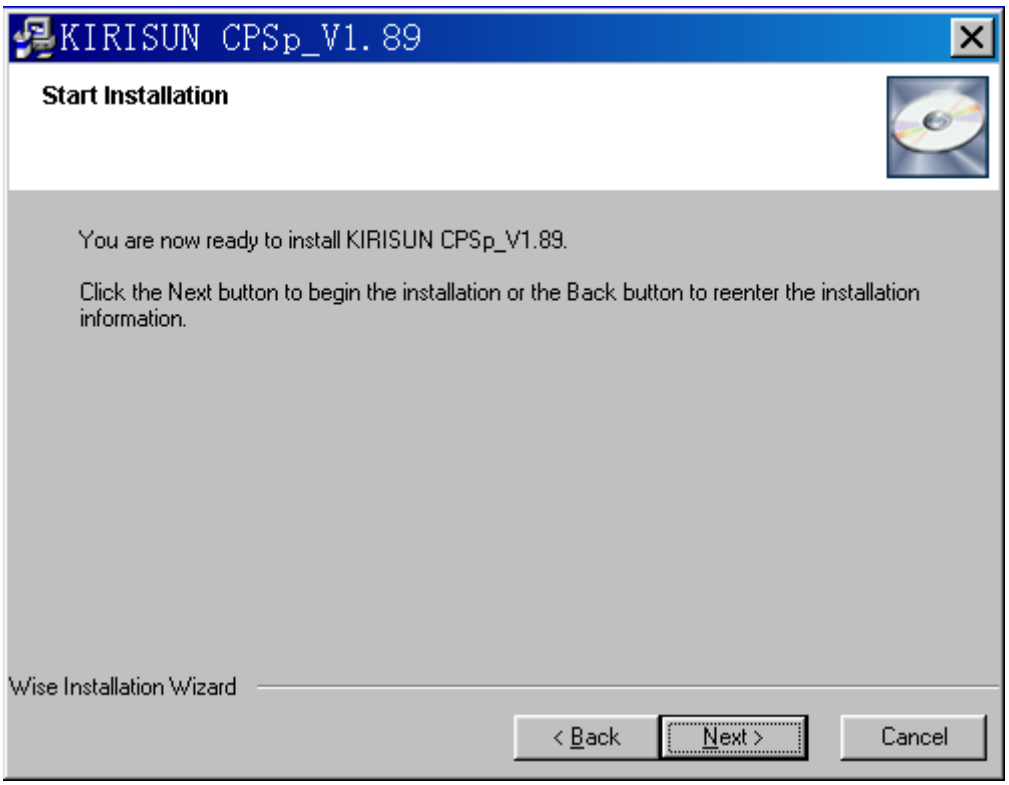
This step can be skipped if using the default route.



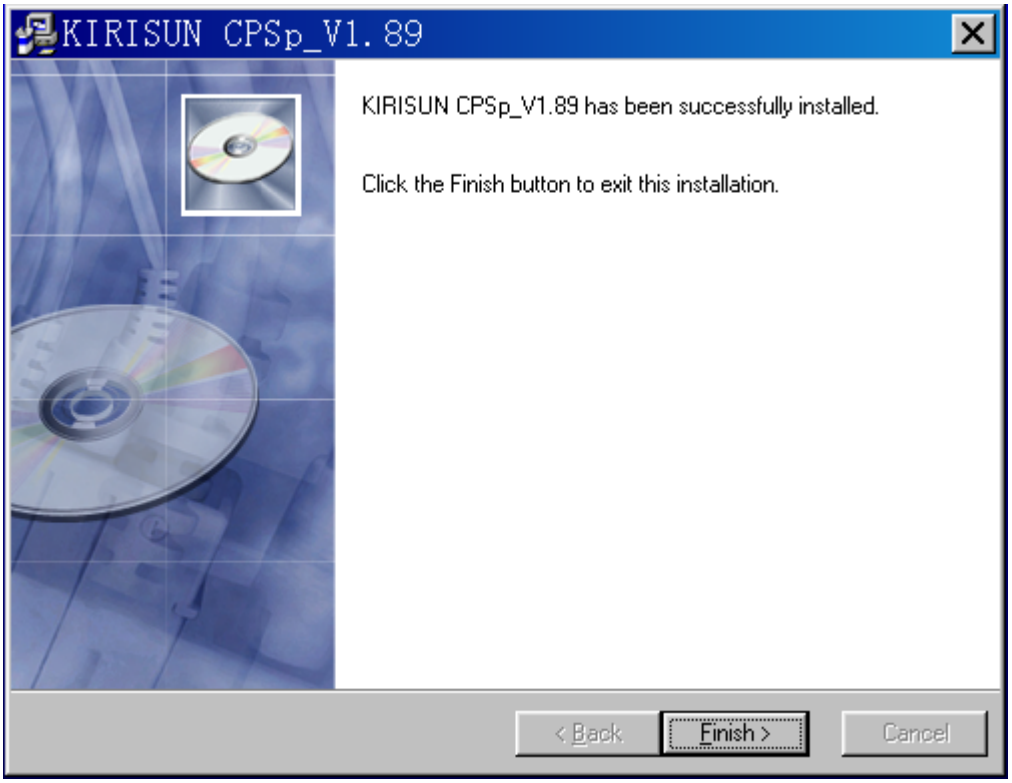
Step 4. Select the language you wish to install.



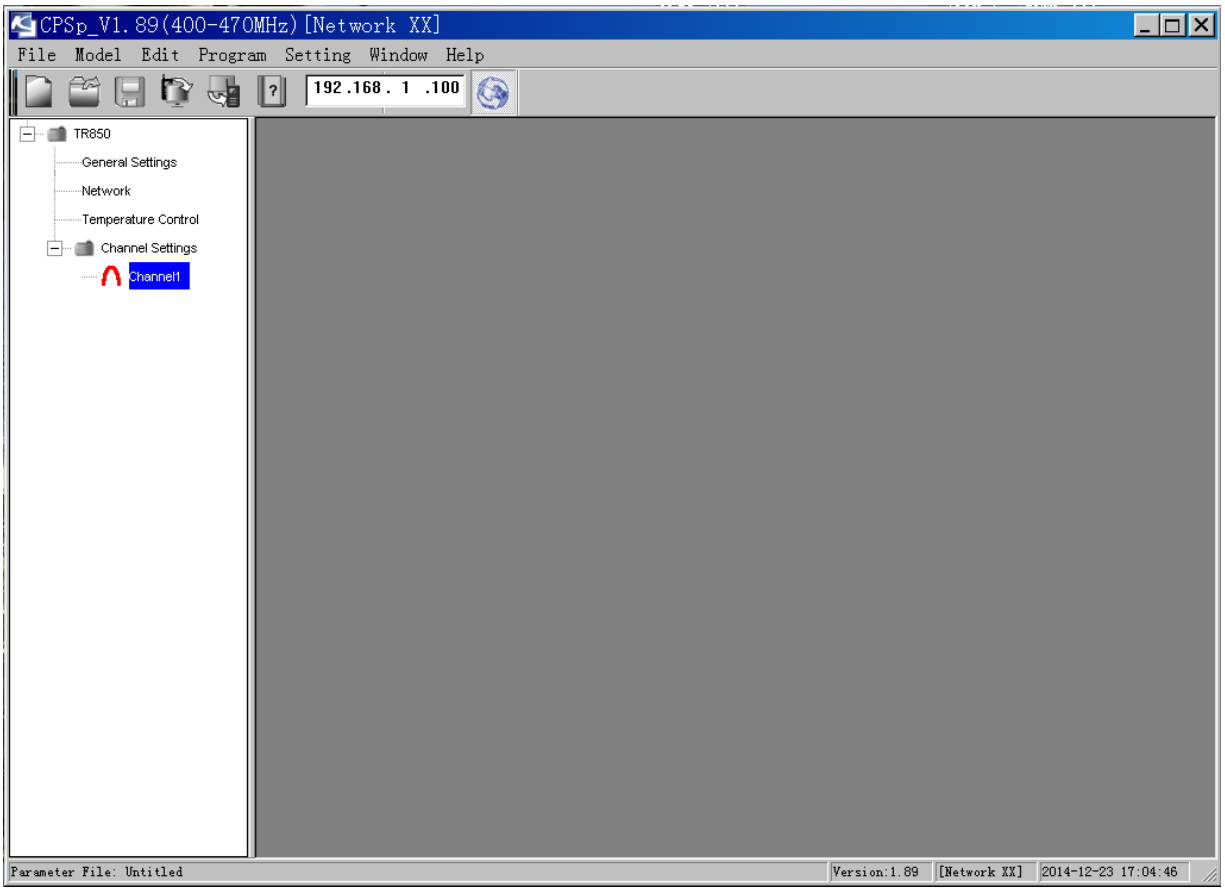
Step 5. Click “Next” and install the software.



Step 6. Click “Finish” to finish the installation.



Step 7. Please double click the CPSp user programming software to operate after acquiring authorization. See the figure below.



Please refer to the help file in the CPSp user programming software for more details.

Note:

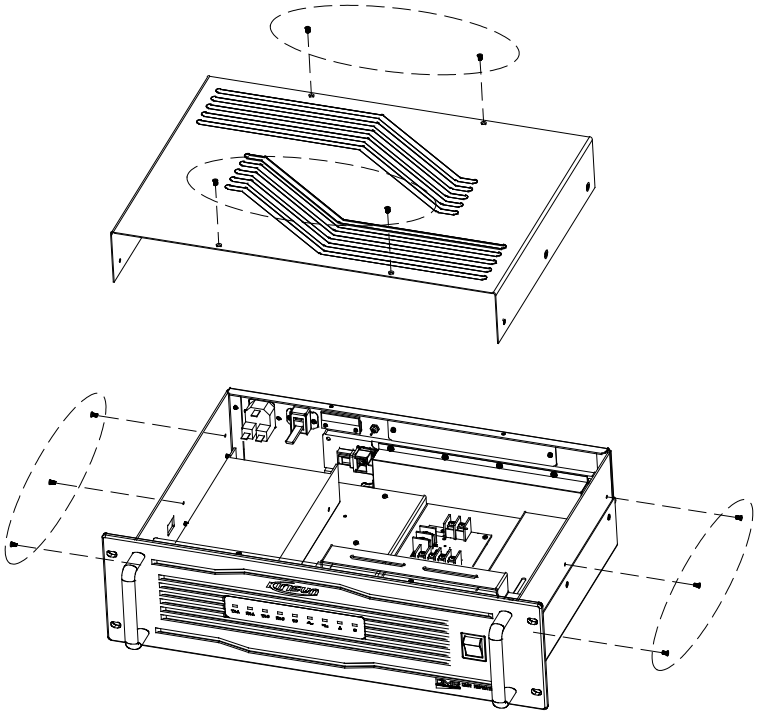
1. Errors of parameter configuration may cause malfunctions, but normally you can rewrite the correct parameter configuration.

2. Before parameter configuration modification, we strongly recommend a backup for the current parameters to make sure that the parameters can be restored after an error occurs.

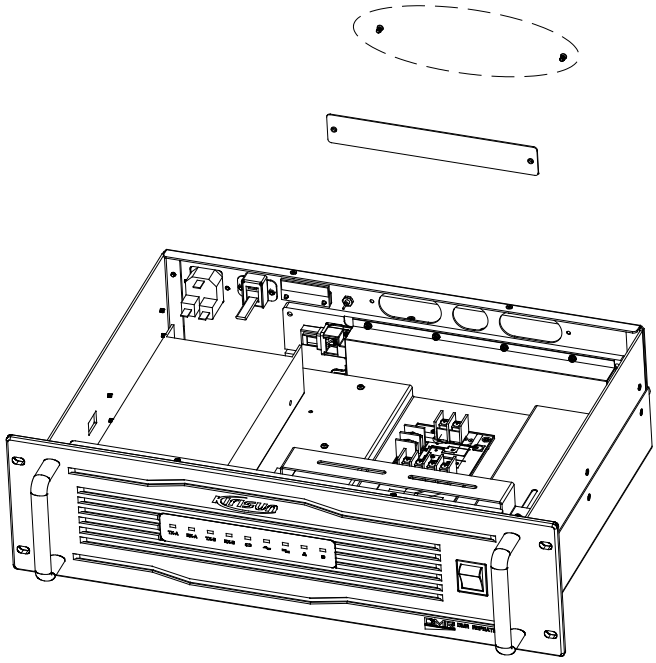
5. Assembly and Disassembly Instruction

5.1. Duplexer Assembly

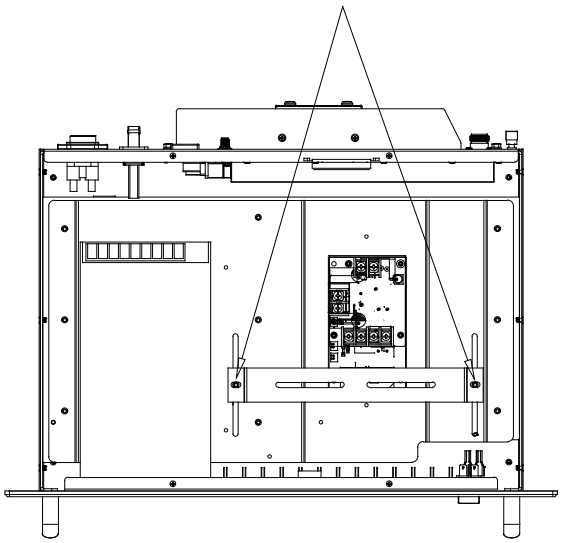
Step 1. Loosen the four screws on the top and the three screws on both sides of the top shell, and remove the shell upwards.



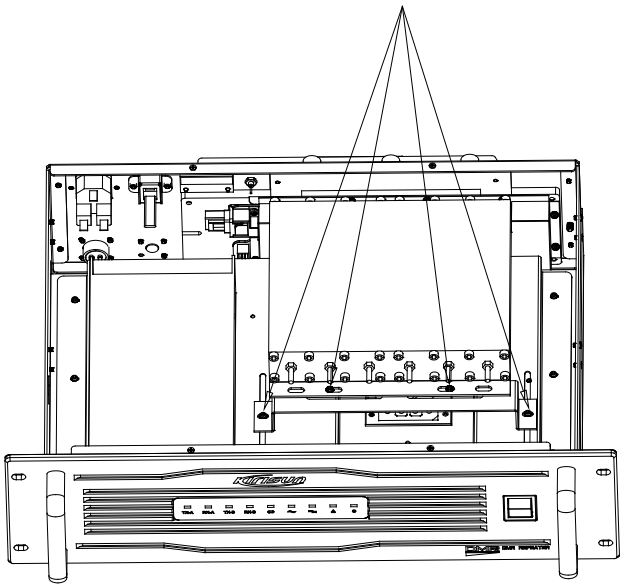
Step 2. Loosen the two screws on the duplex baffle, and remove the duplex baffle.



Step 3. Loosen the two screws which fix the duplex bracket till the bracket can be slided in the track groove.



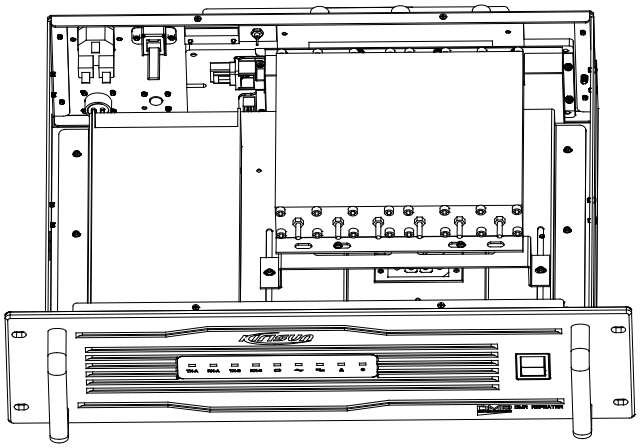
Step 4. Use screws to fix the rear part of the duplex on the bracket, and push the duplex into the box till the duplex can be properly fit into the three corresponding holes in the box before fixing the screws on the duplex bracket.



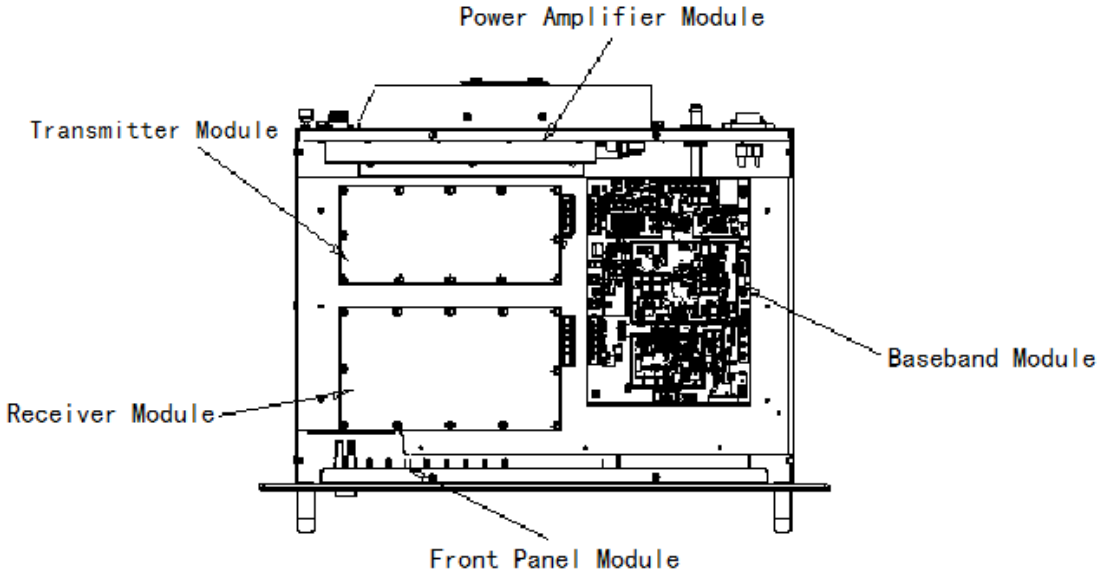
5.2. Disassembly Instruction

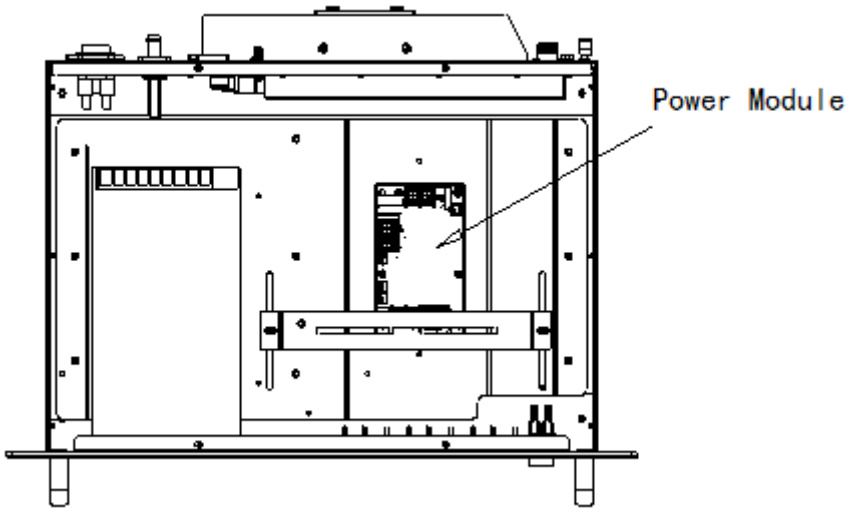
The repeater is divided into the two parts below:

● Area allowed for users to assemble and disassemble: Internal area of the top shell. Users can assemble duplex.

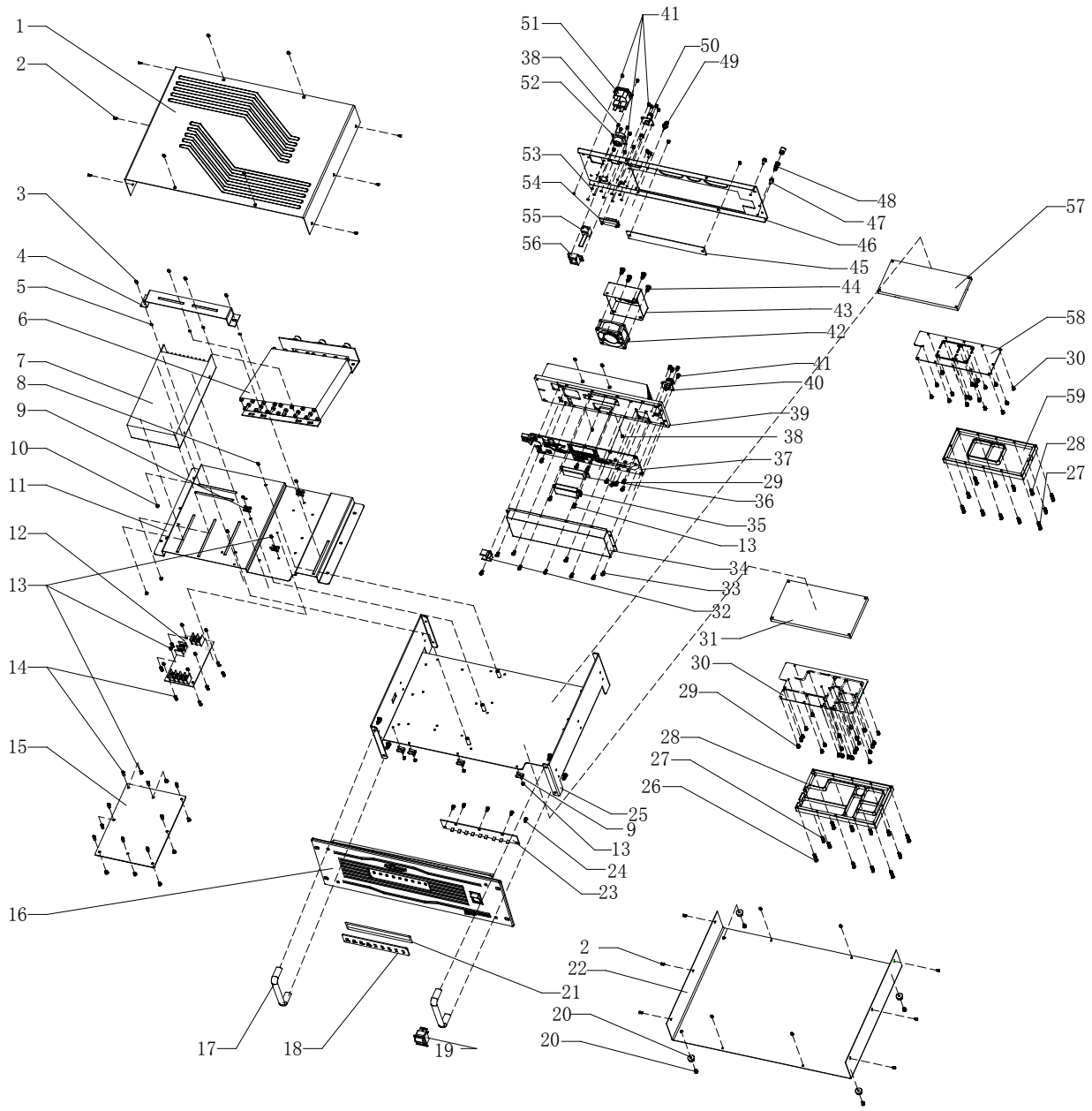


- Area allowed for dealers with maintenance permit to assemble and disassemble: Internal area of the top shell and internal area of the lower shell.





5.3. Exploded View



No.	Part No.	Description	Quantity
1	7WOZ-4100-01A	Top panel, 1mm color zinc-plated board, dusting, with decorative stripes.	1
2	7SMF-030050M-SZCT-N1	M3*5 cross sunk machine screws. Material: stainless steel, Φ3mm*5mm cross sunk machine thread, metric coarse thread, black nickel-plated	24
3	7SAF-040080M-SZHT-N	M4*8 cross thick head combination machine screw Material: hardened iron,with flat spacer and spring	6

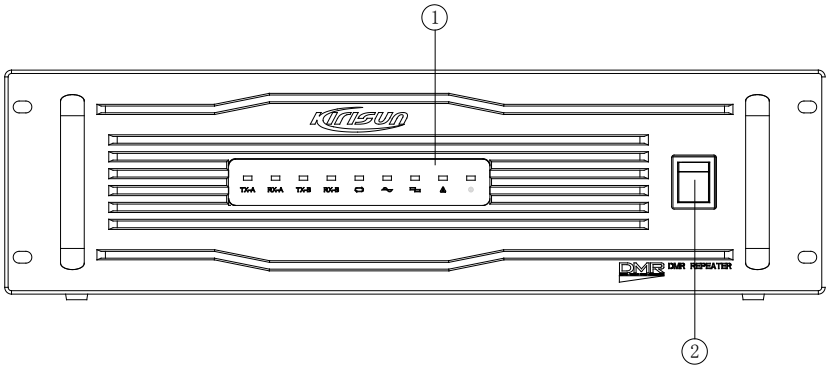
		spacer, pb-free.	
4	7MBF-4027-02A-X0	DR550 50W duplex bracket, zinc-plated board, 1.5mm thick, color zinc-plated, pb-free.	1
5	7NHF-040008030-N1	M4*3 hexagonal nut material: iron, internal diameter M4mm, maximum external diameter 8mm, 3mm thick, hexagonal nickel-plated nut.	6
6	Duplex, self-purchase		10
7	0ADY-4071-D	STR-U power module, SP-320-12, 12V, 320W, ROHS, with fan.	1
8	7SAF-030050M-SZYB-Z1	M3*5 cross round flat head combination machine screw. Material: hardeded iron, Φ3mm*5mm with flat spacer and spring spacer, pb-free	10
9	3CB1-151007-B	Cable tie holder NYLON 66, 15X10X7, pb-free	10
10	7SAF-040060M-SZHT-N	M4*6 cross thick head combination machine screw.	4
11	7WOZ-4071-03A	Intermediate board 2, 1mm thick color zinc-plated board.	1
12	6SS2-4071-HWA	STR-U repeater power board jacking	1
13	7SAF-030080M-SZYB-Z1	M3*8 cross round flat head combination machine screw. Material: hardeded iron, Φ3mm*8mm, with flat spacer and spring spacer, pb-free.	28
14	7NHC-055070306-LJ	M3*7+6 Hexagonal Copper Cylinder	19
15	6SS2-4071-HBA	STR-U/V Repeater Base Band Board Jacking	1
16	7MHF-4100-01A-W	TR850 DMR front panel, 5mm thick aluminum material, oxidized black, laser carving, with copper cylinder	1
17	7MHP-4071-01-W0	Handle, aluminum, oxidized black	2
18	7MBP-4100-01A-W	TR850 lens 2mmthick, PMMA, transparent, screen printing	1

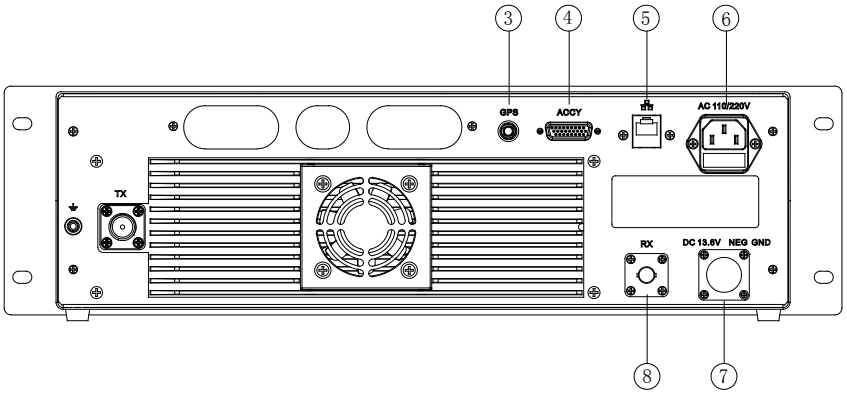
19	3SB3-YB-S1-Q	AC power switch.	1
20	7GCR-4071-01A-W0	Repeater foot pad (4 pieces) silica gel, with screws (4 pieces)	1
21	7GCJ-S4071-J	STR-U lens double side tape, NITTO 57120B double side tape, pb-free	1
22	7WOZ-4100-02A	Down panel, 1mm thick color zinc-plated board, dusting.	1
23	6SS2-4071-HFB	STR-U/V repeater front panel jacking	1
24	7SMF-030050M-SZYB-N	M3*5 cross round flat head machine screw Material: hardened iron, Φ3mm*5mm cross round flat head nickel-plated machine thread, metric coarse thread	5
25	7WOZ-4071-02A	Intermediate boardm 1, 2mm thick color zinc-plated board, rivet screw column	1
26	7SMF-030250M-SZCT-N1	M3*25 cross sunk machine screw metric coarse thread, white nickel-plated	8
27	7SMF-030180M-SZCT-N1	M3*18 cross sunk machine screw metric coarse thread, white nickel-plated	16
28	7MHL-4071-03A-W	STR-U receive module aluminium shield down case Aluminum	1
29	7SMF-030060M-SZYB-N	M3*6 cross round flat head machine screw Material: hardeded iron, Φ3mm*6mm metric coarse thread	61
30	6SS2-4067-HRB	DR650-02receiving board jacking	1
31	7MHL-4071-02A-W	STR-U receive module aluminium shield down case Aluminum	1
32	3CB1-004071-A	STR-U Power Amplifier Board fixed socket processed with aluminum alloy	1

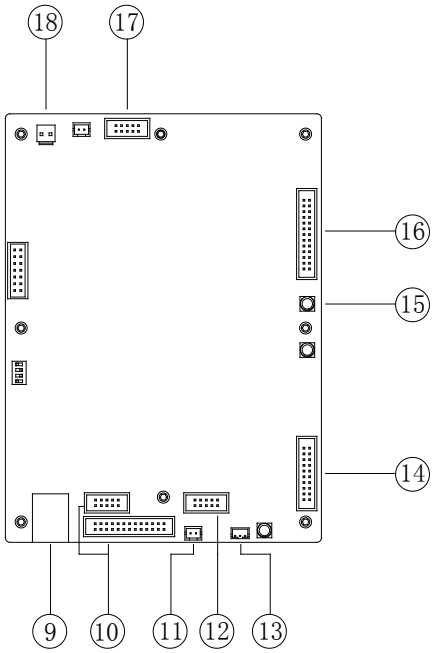
33	7SAF-030050M-SZYB-Z1	M3*5 cross round flat head machine screw Material: hardeded iron, with flat spacer and spring spacer, pb-free.	10
34	7MBC-4071-01A-W	STR-U power amplifier module big shield cover , stainless steel, 0.5mm thick	1
35	7MMC-1943-01A-N	PT8200 power module shield cover; pb-free	1
36	1MR3-RA55H4047M	UHF RF amplifier IC 8200-02, DR550H STU	1
37	6SS2-4071-HPC	STR-U power amplifier jacking (130722)	1
38	7SMF-030060M-SZCT-N1	M3*6 cross sunk machine screw Material: hardened iron, Φ3mm*6mm cross sunk machine thread, metric coarse thread, black nickel-plated.	8
39	7MHL-4071-01A-W	STR-U radiator; processed with aluminum alloy	1
40	3CR7-N-KKF1	RF connector	1
41	7SMF-030100M-SZCT-N1	M3*10 cross sunk machine screw Material: hardened iron, Φ3mm*10mm cross sunk machine thread, metric coarse thread, black nickel-plated.	12
42	4MF7-DFB602512HM	Fan DFB602512HM, Specification: 12V/0.3A, 60X60X25mm	1
43	7MHF-4027-02A-Z	DR550 Fan-fixing bracket, zinc-plated board, 0.8mm thick , black dusting on surface	1
44	7STF-050120A-SZHT-N	M5*12 cross thick head self-tapping screws. Hardened iron	4
45	7WOZ-4100-04A	Duplex baffle 1mm, thick color zinc-plated board, dusting	1
46	7WOZ-4100-03A	Rear panel (part no. cancelled) 1.5mm thick color zinc-plated board, dusting	1
47	7SAF-040100M-SZLJ	M4*10 Cross external hexagonal combination	4

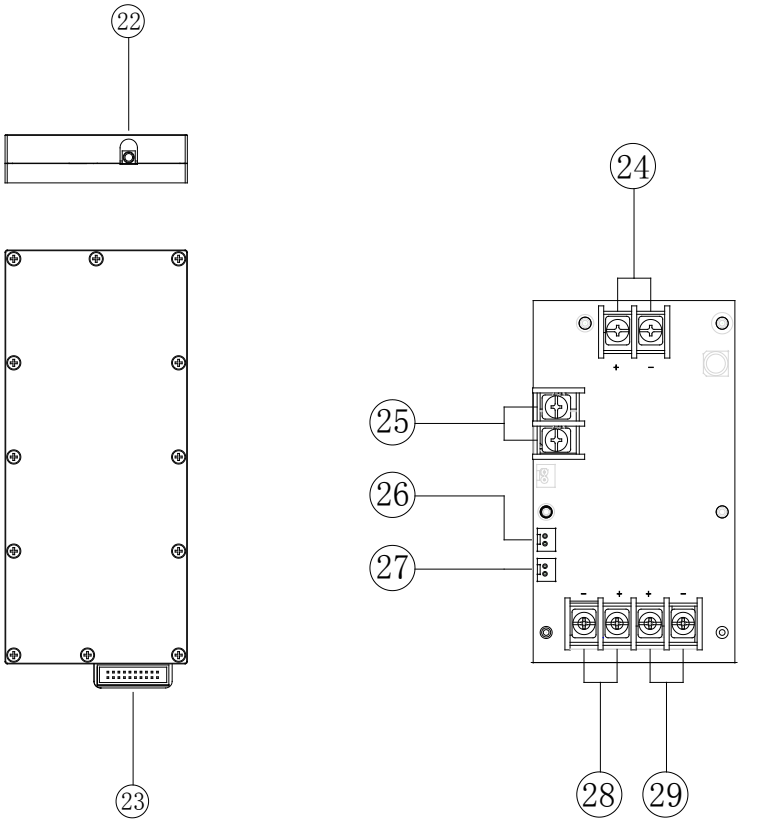
	-Z1	machine screw. Material: hardened iron	
48	7MHS-4027-06A-W	M4*8 grounding screw; stainless steel, M4.0*8	1
49	3CR7-SMA-160	RF coaxial line-1 SMA-C-KY1.5-1 to SMA-C-JW1.5, type: RG141A/U, line length 160mm	1
50	3CR7-BNC-440	BNCcoaxial line SMA-C-J1.5 to BNC(rectangular flange plate 24*24),RG141A/U, line length: 440mm	1
51	3CP3-YB-B2-Q1	Power socket, 2.5A T 20mm HRC 250V type	1
52	3WPC-WS20K2Z	Two core aviation socket, WS20K2Z	1
53	7NHF-030062025-Z1	M3*2.5 hexagonal nut. Material: iron, internal diameter M3mm, maximum external diameter 6.2mm, 2.5mm thick, hexagonal and zinc-plated, metric coarse thread.	10
54	6SS2-4071-HL1A	STR-U repeater accessory board plug-in material	1
55	3WPC-812028-A	STR-U Network port connecting wire 8pin, wire length 120mm, 28AWG, with network port and crystal head.	1
56	7WOZ-4100-05A	Network port baffle, 1mm thick color zinc-plated board	1
57	7MHL-4071-04A-W	STR-U Tx module aluminum alloy shield bottom cover	1
58	6SS2-4067-HTB	DR650-02 Tx module jacking DR650-02 Tx module jacking, pb-free	1
59	7MHL-4071-05A-WA	STR-U Tx module aluminum alloy shield up cover	1

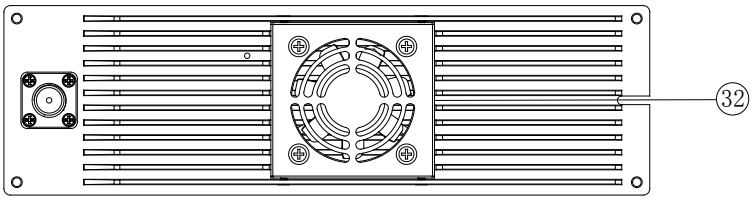
5.4. Connection

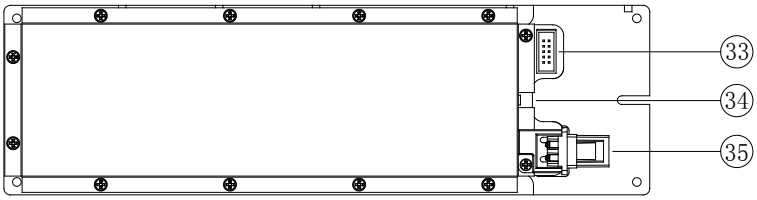












Part no.	Description	Connect mode
3WPD-S4071-A	Power connecting line-1 3 Pin, 135mm long, wire size16AWG. one end with cold-press sockets terminal, one end round terminal.	6—31
3WPD-S4071-B	Power connecting line-2, 2Pin,red length 950mm long, black wire 415mm, wire size 12AWG, both ends with two round terminals.	28—30

3WPD-S4071-C	Power connecting line -3 2Pin, 665mm long, wire size 12AWG	7—29
3WPD-S4071-D	Power connecting line -4 2Pin, 315mm long, wire size 12AWG. One end with two round terminals, and the other a base.	24—35
3WPD-S4071-E	Power connecting line-5 2pin, 575mm long, wire size 18AWG, 3.96 interval, with socket and round terminal.	18—25
3WPD-S4071-F	Power connecting line-6 2pin, wire length 550mm, wire size 20AWG, interval 2.54, with socket and cold-press sockets terminal	2—26
3CR7-SMA-160	RF coaxial wire-1 SMA-C-KY1.5-1 to SMA-C-JW1.5, wire type: RG141A/U, wire length 160mm	3—13
3CR7-SMA-110A	RF coaxial wire -2 SMA-C-J1.5 to SMA-C-JW1.5,wire type: RG141A/U, wire length 110mm	15—21
3CR7-BNC-440	BNC coaxial wire, SMA-C-J1.5 to BNC(rectangular flange plate 24*24), RG141A/U, wire length: 440mm	8—20
3WPC-812028-A	STR-U internet port connecting wire 8pin, wire length 120mm, 28AWG, with internet port and crystal head,	5—9
3WPT-P26050PH25420P	With dual-plugged flat cable AWG26#, 2.54 interval, wire length 50mm, 20P socket, dual-headed socket	14—23
3WPT-P26050PH25426P	With dual-plugged flat cable AWG26#, 2.54 interval, double flat cable, wire length 50mm, 26Psocket, dual-headed socket	16—19
3WPD-S4071-G	Power connecting line-7 2pin, wire length 350mm, wire size 20AWG, 2.54 interval, with socket and cold-press sockets terminal	2—27
3CR7-SMA-350	RF coaxial wire -3 SMA-C-JW1.5 to SMA-C-JW1.5, wire type:RG141A/U, wier length 350mm	22—34
3WPT-P26155PH25426P	With three-plugged flat cable, AWG26#, 2.54 interval, three flat cable, 155mm long	4—10

3WPT-P26350PH25410P	With dual-plugged flat cable, AWG26#, 2.54 interval, double flat cable, wire length 350mm, 10P socket.	1—12
3WPT-P26080PH25410P	With dual-plugged flat cable, AWG26#, 2.54 interval, double flat cable, wire length 80mm, 10P socket, double-headed socket.	17—33
3WPD-160140-1PIN	Connected to ground wire 1Pin, blue wire, 140mm length,wire size,:16AWG.; two ends with round terminal	31(ground terminal)—machine case
Fan wire	Come with fan	11—32

6. Adjustment

During maintenance, the repeater may needs some testing and modulation for technical index after changing the components.

6.1. Preparation

Please prepare the tools and equipment before testing the DMR repeater:

- Integrated tester
- PC and CPSp software
- AEROFLEX 3920
- Spectrum analyzer FSU
- Antenna interface converter
- Universal interface

6.2. Method of Modulation and Test

6.2.1. Local Oscillator Adjustment

Subject	Test Point	Test Procedure	Standard
12.8M Clock	base band board J6	1. Enter test mode “12.8M Clock”. 2. Set HP8921 to TX mode; connect the reference frequency port to HP8921 RF high power input port. 3. Enter computer modulation mode.	≤±1Hz

		4. Adjust to 12.8MHz±1Hz.	
Rx localoscillator power	Rx board test point TP3005	1. Enter test mode “Receiver BPF”. 2. Set HP8921 to TX mode. 3. Connect the TP3005 test poit on the RX board to HP8921RF high power input port. 4. Check the frequency: (Rx frequency -51.65MHz)±100Hz; output power ＞10dBm.	Frequnency tolerance≤±200Hz Output power＞10dBm
Tx central frequency &power	Tx module J200	1. Enter test mode “Low Freq.Mod Deviation”. 2. Set HP8921 to TX mode. 3. Connect Tx module RF output to HP8921 RF high power input port. 4. 4. Adjust to :±100Hz, Check: output power＞15dBm.	Frequency tolerance≤±200Hz Output power＞15dBm
Tx lock voltage testing	Tx board TP100	1. Turn on the repeater. 2. Set HP8921 to TX mode. 3. Connect TX port to HP8921 RF high power input port. 4. Enter computer modulation mode. 5. Click Tx low power test points to test lock voltage	0.5V≤CV voltage ≤4.5V
Rx lock voltage test	Rx board TP100	1. Turn on the repeater. 2. Set HP8921 to TXmode. 3. Connect TX port to HP8921 RF high power input port 4. Enter computer modulation mode. 5. Click Rx sensitivity test points to test lock voltage	0.5V≤CV voltage ≤4.5V

6.2.2. Tx Adjustment

Subject	Modulation Procedure	Standard
Tx high power	1. Enter pc tuning mode. 2. Enter modulation mode”High Power”. 3. Adjust PC software value; observe power value on the integrated tester. 4. Adjust to test power: 40±2W. 5. Modulate the frequency one by one.	40±5W
Tx low power	1. Enter computer modulation mode. 2. Enter modulation mode “Low Power”. 3. Adjust PC software value; observe power value on the	20W±1.5db

	integrated tester. 4. Adjust to test power: 20W. 5. Modulate the frequency one by one.	
Low frequency modulation frequency deviation	1. Enter computer modulation mode. 2. Click frequency F1 to F6. 3. When AF Freq is 0.1kHz, observe FM Deviation on the integrated tester, and modulate PC software value. 4. Adjust FM Deviation to 5.0±0.05kHz. 5. Click “ok” to save.	4.95kHz-5.05kHz
High frequency modulation frequency deviation	1. Enter computer modulation mode. 2. Click Frequency F1 to F6. 3. When AF Freq is 6.0 kHz, observe FM Deviation on the integrated tester, and modulate PC software value. 4. modulate FM Deviationto5.0±0.05kHz. 5. Click “ok” to save.	4.95kHz-5.05kHz
4FSK EER test	1. Enter computer modulation mode. 2. Modulate PC software value to make repeater transmit O.153. 3. Check 4FSK EER≤5%. 4. Modulate frequenciesone by one. 5. Observe FSK EER value on the integrated tester. 6. Check 4FSK EER≤5%.	FSK EER≤5%
Maximum audio frequency deviation test.	1. Connect the audio input wire to repeater. 2. Output audio signal 1KHz RMS 120mV to repeater and make it transmit. 3. The audio frequency deviation should be: N: 2000±100Hz, W:4000±100Hz. 4. Test frequencies one by one.	N: 2000±200Hz W: 4000±400Hz
QT/DQT frequency deviation and wave form test.	1. Observe frequency deviation of QT. 2. Observe frequency deviation and wave form of DQT.	N: 350±150Hz W: 750±250Hz
Modulationdistortion	Observe distortion form value.	＜3%
Tx SNR	Observe SNR form value	W: ＞45dB N: ＞40dB

Analog&digital ACP	Observe ACP display value.	W: ＜-70dB N: ＜-60dB
Spurious emission	Observe spectrum analyzer display value.	＜1GHz: ＜ -36dBm ＞1GHz: ＜ -30dBm

6.2.3. Rx Adjustment

Modulation Subject	**Modulation Procedure**	**Standard**
Rx Sensitivity	1. Enter computer modulation mode. 2. Enter modulation mode ”Receiver BPF”, and click the six frequencies one by one. 3. Make SINA＞12dB. 4. Set the four Rx frequencies as -25.825MHz(*1、*2、*3、*4), and signal strength as -40dBm; the SINA should be＜7dB.	-
Narrow band squelch level 9 on	1. Enter computer modulation mode 2. Set the channel to the current modulation frequency. 3. Enter modulation mode “SQL9 Open (N)”, and click “start”, and change to the next frequency after the value is stable. 4. Modualte the frequency of narrow band and wide band in turn.	-
Narrow band squelch level 9 off	1. Enter computer modulation mode. 2. Set the channel to the current modulation mode. 3. Enter the modulation mode ”SQL9 Close(N)”, and click “start”, and change to the next frequency after the value is stable. 4. Modulate the frequency of narrow band and wide band in turn.	-

Narrow band squelch level 1 on	1. Enter computer modulation. 2. Set the channel to the current modulation mode. 3. Enter the modulation mode “SQL1 Open(N)”, and click “start”, and change to the next frequency after the value is stable. 4. Modulate the frequency of narrow band and wide band in turn.	-
Narrow band squelch level 1 off	1. Enter computer modulation. 2. Set the channel to the current modulation mode. 3. Enter the modulation mode “SQL1 Close(N)”, and click “start”, and change to the next frequency after the value is stable. 4. Modulate the frequency of narrow band and wide band in turn.	-
Wide band squelch level 9 on	1. Enter computer modulation mode. 2. Set the channel to the current modulation mode. 3. Enter the modulation mode “SQL9 Open(W)” , and click “start”, and change to the next frequency after the value is stable. 4. Modulate the frequency of narrow band and wide band in turn.	-
Wide band squelch level 9 off	1. Enter computer modulation mdoe. 2. Set the channel to the current modulation mode, 3. Enter modulation mode “SQL9 Close(W)”, and click “start”, and change to the next frequency after the value is stable. 4.Modulate the frequency of narrow band and wide band in turn.	-
Wide band squelch level 1 on	1. Enter the computer modulation mode. 2. Set the channel to the current modulation mode. 3. Enter the modulation mode “SQL1 Close(N)”, and click “start”, and change to the next frequency after the value is stable. 4. Modulate the frequency of narrow band and wide band in turn.	-
Wide band squelch level 1 off	1. Enter the the computer modulation mode. 2. Set the channel to the current modulation mode, 3. Enter the modulation mode “SQL1 Close(N)”, and click “start”, and change to the next frequency after the value is stable. 4. Modulate the frequency of narrow band and wide band in turn.	-

Rx distortion	Observe the distortion value,	＜3%
Rx SNR	Observe SNR value	W: ＞45dB N: ＞40dB
CTCSS/CDCSS	-	Can transmit
BER Test	1. Set the output range of 3920 as -118dBm. 2. Enter BER test mode. 3. Click “Start”, and observe BER.	EER≤5%

7. Main Technical Functions and Specifications

General Specification	
Frequency Range	UHF: 400-470MHz　VHF:136-174MHz
Channel Capacity	16
Channel Spacing	12.5kHz/20kHz/25kHz
Weight	11.5kg
Dimension(H*B*D)	138mm*62mm*38mm
Environment Index	
Operating Temperature	-30℃~+60℃
Storage Temperature	-40℃~+85℃
Rx Parameter	
Frequency Stability	±1.5ppm
Analog Rx Sensitivity	-118dBm(12dB)/-121dBm(12dB)
Digital Rx Sensitivity	-120dBm(5%)
Intermodulation	ETSI: 70dB　　TIA603: 75dB

Adjacent Channel Selectivity	ETSI/TIA603: 60dB@12.5kHz, 70dB@20/25kHz
Spurious Response Rejection	ETSI/TIA603: 70dB
Conducted Spurious Emission	-57dBm
Impedance	ETSI: 84dB TIA603: 80dB
Rated Audio Distortion	<3%
Hum and noise	-40dB@12.5kHz/-43dB@20kHz/-45dB@25kHz
Audio Response	+1dB ~ -3dB
Tx Parameter	
Frequency Stability	±1.5ppm
Tx Power	Low: 25W, high: 40W
Hum and noise	-40dB@12.5kHz/-43dB@20kHz/-45dB@25kHz
Conducted Radiated Emission	-36dBm@<1GHz, -30dBm@>1GHz
Adjacent Channel Power	60dB@12.5kHz, 70dB@20/25kHz
FM Modulation	11K0F3E@12.5kHz, 14K0F3E@20kHz, 16K0F3E@25kHz
4FSK Modulation	12.5kHz(Only data): 7K60FXD 12.5kHz(data+speech): 7K60FXE
Modulation Limiting	±2.5kHz@12.5kHz, ±4kHz@20kHz, ±5kHz@25kHz
Audio Response	+1dB~-3dB
Audio Distortion	3%
Vocoder	AMBE++

Digital Protocol	ETSI TS 102 361-1, -2, -3
GPS Index	
TTFF(cold start)Time to First Fix	<1 miniute
TTFF(hot start)Time to First Fix	<10 seconds
Horizontal Accuracy	<10 meters

8. Maintenance and Test Equipment

Equipment	**Major Specification**
RF Signal Generator	Frequency Range: 10MHz~3GHz Modualtion: frequency modulation and external modulation. Output: －127dBm/0.1uV - >－47dBm/1mV
Power meter	Input Impedance: 50Ω Operating Frequency: 100MHz~1000MHz Measurement Range: about 10W
Deviation Meter	Frequency Range: 100MHz~1000MHz
DVM	Measurement Range: DC 10mV~20V Input Impedance: minimum circuit load high input impedance
Oscilloscope	30 ~100MHz
High Sensitivity Frequency Counter	Frequency Range: 100 ~1000MHz Frequency Stabilization : 0.2ppm or lower
Ammeter	5A
Audio voltmeter	Measurement Range: 50Hz~10KHz Voltage Range: 1mV~10V

Audio Generator	Measurement Range: 50Hz~5KHz or higher Output: 0~1V
Spectrum Tester	Capacity: 3% or lower at 1KHz Input Level: 50mV~10Vms
Spectrum Analyzer	Measurement Rnage: 100~3GHz or higher
5Ω dummy load	100W
Voltage Stabilization Power Supply	Output Voltage: 5V~30V; Current: 20A
Integrated Tester	HP8921, IFR3920

9. Troubleshooting

No.	Problems	Causes and Solution
1	Short coverage	1. Check the duplexer isolation, and whether the insertion loss meets the requirement. 2. Check if there is any feeder connecting damage or abnormality. 3. Check if the antenna frequency range matches with the repeater, and check if the antenna is broken. 4. Check if there is high power radio antenna beside the repeater
2	Unable to repeat	1. Check if the settings such as terminal frequency, CTCSS, CDCSS, color code, repeater slot are correct. 2. Check if there is interference on the uplink frequency. 3. Beyond the communication scope.
3	Unable to receive	1. Bad antenna contact. Please fix the antenna tightly. 2. Inconsistent frequency between Tx and Rx. Please select the same frequency. 3. Beyond the communication scope.
4	Rx green light is on without being able to repeat	Check if the settings such as terminal frequency, CTCSS, CDCSS, color code, repeater slot are correct.

5	GPS cannot locate.	1. Check if the GPS settings are right. If not, Please reset it. 2. The antenna may be put in a close place, please put it in a open place and relocate.
6	LED lights fail to lightup on the the front panel.	1. Check 13.6VDC input or 100-220VAC input and the connector status on the power board. 2. Check the protective tube inside the socket if it is AC input. 3. Check the baseband board input voltage 13.6V and 3V3_OMAP indicator light (LED6). 4. Check the status of front board interface and the flat cable.
7	Fails to be powered on.	1. Check the power indicator on the front panel. 2. Check 13.6VDC input or 100-220VAC. 3. Check the baseband board input voltage 13.6V and 3V3_OMAP indicator (LED6). 4. Check the DIP switch (J4) code location on the side of baseband board, and it should be in the start mode normally (1, 2, 3, off). 5. Check the baseband board OMAP 24M clock(Y2). 6. Connect the serial port (J23), and check the programming printing information. Chec k if the program is loaded successfully based on the print information and if the chip is initialized correctly.
8	The lights on the baseband fail to light up.	Check if the DC input port voltage is 13.2V, check whether DCDC (U1) input is 13.2V if the voltage is right, if not, please change the fuse F1. Or check if U1 output is 5V, if not, check U1 periphery or change U1. Or check PMU (U2) or change U2.
9	The alarm red light is on or blinking on the front panel after powering on.	1. Check the flat cable between Tx module and Rx module. 2. Check Tx module interface (J17) and Rx module interface(J15). 3. Check if the baseband board 12.8MHz clock output interface (J6 or J7) is normal.
10	FPGA operating LED is abnormal.	1. Check the status of the four lights (LED2, LED3, LED4, LED5) beside the baseband board FPGA (U14), and check the operating status of OMAP and FPGA. Normally, 20 seconds after powering on, LED3 lights up, and LED2 and LED4 blinks simultaneously, indicating the program is loaded successfully from NAND; after another 40 seconds, LED3 and LED4 Lights up, and LED2and LED5 blinks simultaneously, indicating CPU and FPGA are started. If the program keeps failing on loading or starting, please connect to the JTAG port (J2) to connect to the OMAP simulator inspection program or reburn the program. If the burning

		programming cannot be completed, changing NAND FLASH (U7) for a second modulation and changing the parameter settings is suggested. 2. Check the DC power supply of the processor unit below: 3V3_OMAP 1V2_OMAP 1V8_DDR 3. Check the DC power supply of the FPGA unit below. VCCINT(1.2V) VCCD_PLL(1.2V) VCCA(2.5V) VCCIO(3.3V) 4. Check the baseband board 12.8M clock (Y5) and 24M clock(Y2).
11	Network connection Fails	1. Check the cable connecting status. 2. Check the internet card chip power. 3. Check the 50M clock of the internet card chip.
12	No voice repeated	Please check Pin2 of transmit unit connector (J17). If there is no modulation signal, please check reference voltage VREF (2.048V) of DAC output from U29. If the VREF voltage is abnormal, please change U29. If VREF is normal, please check DAC (U24).
13	No voice outside the mode.	1. Check the connecting status of ACCY connecting cable and connector (U9). 2. Check the 18.432MHz clock of CODEC and power of 3VE_A, 3V3_OMAP. Please input 1KHz and 50mV testing audio signal on the TXAF test point of baseband board, and check the transmitting deviation from Comprehensive test instrument. If the deviation is abnormal, please change CODEC chip (U30).
14	Abnormal Programming	1. Check the connecting status of network connector (J12) and network cable. 2. Check the network card running status of PC. 3. Check 50M clock(J23) of network connector on baseband. 4. Check prompt content on the programming running print information and make the corresponding judgment.

Appendix1 400-470MHz UHF Band Spare Part List

Table1 Parts List (Rx Module Section)

Part No.	Accessory Name	Description	Quantity	Location
6PM7-4067-HRB	DR650-02 Rx board	DR650-02-RX-130304.PCB, 4 layers, 1.6MM thickness, 194X90mm, FR-4, no frequency distinction	1	
3FW1-42932-302320	R fuse	429003/433003/466003, 3216, 3A/32V	1	CB5000
5FT1-LTWC450G	E ceramic filter	LTWC450G	1	CF3000
5FT1-LTWC450H	E ceramic filter 7200 7200EX 5200 6500, 6800, 7800, helmet	LTWC450H	1	CF3001
2CT1-TS32-160-100M	R tantalum capacitor	3216, 10μF±20%, 16V, TS series (level A)	28	C1000, C1005, C1014, C1019, C1020, C1025, C1030, C1031, C1057, C1058, C4024, C4029, C4040, C4045, C4047, C4052, C6002, C6008, C6011, C3029, C3030, C3046, C3067, C3094, C3097, C3109, C3112, C3113
2CC1-16-C0G500-101J	R flake multi-layer capacitor	1608, 100P±5%, 50V, C0G	60	C1001, C1004, C1010, C1015, C1018, C1021, C1024, C1026, C1029, C1034, C1035, C1037, C1039, C1042, C1044, C1046, C1049, C1051, C1053, C1056, C1059, C1063, C1064, C1104, C1105, C1112, C1119, C2008, C2010, C2012, C2017, C3003, C3004, C3027, C3031, C3040, C3042, C3047, C3082,

				C3091, C3095, C3110, C4021, C4022, C4025, C4028, C4034, C4035, C4036, C4037, C4038, C4039, C4041, C4044, C4048, C4051, C4056, C4059, C4060, C4061
2CC1-16-X7R50 0-103K	R flake multi-layer capacitor	1608, 10nF±10%, 50V, X7R	57	C1002, C1003, C1016, C1017, C1022, C1023, C1027, C1028, C1036, C1038, C1040, C1041, C1043, C1045, C1047, C1048, C1050, C1052, C1080, C1082, C3028, C3032, C3043, C3048, C3053, C3078, C3096, C3098, C3111, C4000, C4001, C4002, C4003, C4005, C4008, C4012, C4014, C4017, C4026, C4027, C4032, C4033, C4042, C4043, C4049, C4050, C4054, C4057, C5000, C5001, C5002, C5004, C5006, C5007, C5008, C6004, C6013
2CC1-16-C0G50 0-471J	R flake multi-layer capacitor	1608, 470P±5%, 50V, C0G	11	C3070, C1006, C1007, C1008, C1012, C1032, C1033, C1067, C1089, C1090, R3037
2CT1-TS32-6R3- 150M	R tantalum capacitor	3216, 15μF±20%, 6.3V, TS series (level A))	3	C1009, C1011, C1013
2CC1-16-C0G50 0-6R0C	R flake multi-layer capacitor	1608, 6P±0.25P , 50V, C0G	7	C1054, C1055, C2030, C2032, C3023, C3024, C3025
2CC1-16-C0G50 0-5R0B	flake multi-layer capacitor	1608, 5P±0.1P, 50V, C0G	11	C4062, C1060, C1061, C1062, C1076, C1111, C3010, C3011, C3013, C3014, C3015
2CC1-16-Y5V16 0-104Z	flake multi-layer capacitor	1608, 100nF+80%/-20%, 16V, Y5V	25	C1065, C1078, C1081, C1083, C1106, C1113, C2009, C2011, C2013, C2014, C2038, C3041, C3045, C3049, C3055, C3071, C3079, C3081, C3086, C3087, C3089,

				C3090, C3092, C3101, C3103
2CT1-TS32-350-R10M	R tantalum capacitor	3216, 0.1μF±20%, 35V, TS series (level A)	3	C1069, C3100, C1071
2CT1-TS32-350-R33M	R tantalum capacitor	3216, 0.33μF±20%, 35V, TS series (level A)	1	C1070
2CC1-16-X7R500-102K	R flake multi-layer capacitor	1608, 1000P±10%, 50V, X7R	21	C1072, C1092, C1093, C1097, C3033, C3034, C3035, C3036, C3037, C3038, C3044, C3073, C3075, C3093, C3099, C3102, C6001, C6003, C6010, C6012, C3076
2CT1-TS32-100-2R2M	R tantalum capacitor	3216, 2.2μF±20%, 10V, TS series (level A)	1	C1075
2CC1-16-C0G500-4R0B	flake multi-layer capacitor	1608, 4P±0.1P, 50V, C0G	4	C3000, C3005, C3006, C3019
2CC1-16-C0G500-8R0C	R flake multi-layer capacitor	1608, 8P±0.25P, 50V, C0G	4	C1079, C1108, C1068, C4007
2CC1-16-C0G500-470J	R flake multi-layer capacitor	1608, 47P±5%, 50V, C0G	49	C1084, C1099, C2024, C3007, C3008, C3009, C3039, C4011, C6021, C6022, C6023, C6024, C6025, C6027, C6028, C6029, C6030, C6031, C6032, C6033, C6034, C6035, C6037, C6038, C6039, C6040, C6042, C6043, C6044, C6045, C6046, C6047, C6048, C6049, C6050, C6051, C6052, C6053, C6054, C6055, C6056, C6058, C4013, C6059, C6060, C6061, C6062, C6064, C6065
2CC1-16-C0G500-100D	R flake multi-layer capacitor	1608, 10P±0.5P, 50V, C0G	3	C1085, C1086, C1100
2CC1-16-X7R500-271K	R flake multi-layer capacitor	1608, 270P±10%, 50V, X7R	2	C1087, C1088
2CC1-16-C0G500-680J	R flake multi-layer	1608, 68P±5%, 50V, C0G	3	C1091, C3056, C4053

	capacitor			
2CC1-16-C0G500-180J	R flake multi-layer capacitor	1608, 18P±5%, 50V, C0G	2	C1094, C3104
2CC1-16-C0G500-300J	R flake multi-layer capacitor	1608, 30P±5%, 50V, C0G	2	C1095, C1096
2CC1-16-C0G500-1R0B	flake multi-layer capacitor	1608, 1P±0.1P, 50V, C0G	10	C1101, C1103, C1116, C1117, C6020, C6026, C6036, C6041, C6057, C6063
2CC1-16-C0G500-390J	R flake multi-layer capacitor	1608, 39P±5%, 50V, C0G	2	C1102, C1118
2CC1-16-C0G500-820J	R flake multi-layer capacitor	1608, 82P±5%, 50V, C0G	2	C2020, C2026
2CC1-16-C0G500-121J	R flake multi-layer capacitor	1608, 120P±5%, 50V, C0G	2	C2021, C2023
2CC1-16-C0G500-620J	flake multi-layer capacitor	1608, 62P±5%, 50V, C0G	2	C2022, C2025
2CC1-16-C0G500-120J	R flake multi-layer capacitor	1608, 12P±5%, 50V, C0G	4	C2031, C3106, C1114, C1115
2CC1-16-C0G500-3R5C	R flake multi-layer capacitor	1608, 3.5P/3.6±0.25P, 50V, C0G	2	C3020, C1110
2CC1-16-C0G500-1R5B	flake multi-layer capacitor	1608, 1.5P±0.1P, 50V, C0G	1	C1109
2CC1-16-C0G500-2R0B	flake multi-layer capacitor	1608, 2P±0.1P, 50V, C0G	4	C2019, C3001, C3026, C3060
2RS1-16-000O	R flake multi-layer capacitor	1608, 0Ω	17	R1017, R1018, R1029, R2010, L2012, C3012, L3015, R3027, R3028, R3031, R3038, R3042, R4003, R6012, R6013, R6040, R6041
2CC1-16-C0G500-220J	R flake multi-layer capacitor	1608, 22P±5%, 50V, C0G	1	C3050
2CC1-16-C0G500-221J	R flake multi-layer	1608, 220P±5%, 50V, C0G	4	C3052, C3057, C3084, C3088

	capacitor			
2CC1-16-X7R500-331K	flake multi-layer capacitor	1608, 330P±10%, 50V, X7R	5	C3054, C3068, C3108, C3114, C3115
2CC1-16-C0G500-150J	R flake multi-layer capacitor	1608, 15P±5%, 50V, C0G	3	C3064, C3107, C3072
2CC1-16-X7R500-182K	R flake multi-layer capacitor	1608, 1800P±10%, 50V, X7R	1	C3077
2CC1-16-C0G500-160J	R flake multi-layer capacitor	1608, 16P±5%, 50V, C0G	1	C3080
2RE1-16-3301	Precision resistor	1608, 3.3K±1%	2	R3029, C3083
2CC1-16-X7R500-152K	flake multi-layer capacitor	1608, 1500P±10%, 50V, X7R	1	C3085
2CC1-16-Y5V500-104Z	flake multi-layer capacitor	1608, 0.1μF+80%/-20%, 50V, Y5V, replaced no: 2CC1-16-Y5V250-104Z	9	C4004, C4015, C4018, C4023, C4030, C4031, C4046, C4055, C4058
2CC1-16-C0G500-560J	R flake multi-layer capacitor	1608, 56P±5%, 50V, C0G	3	C4006, C4016, C3059
2CC1-16-C0G500-270J	R flake multi-layer capacitor	1608, 27P±5%, 50V, C0G	1	C4019
2CC1-16-C0G500-181J	flake multi-layer capacitor	1608, 180P±5%, 50V, C0G	1	C4020
2CE1-VS250-101M0607D	Aluminum electrolytic capacitor	SMD-6.3x7.7mm, 100uF/25V	1	C5003
2CT1-TS32-100-220M	Tantalum capacitor	3216, 22μF±20%, 10V, TSn series (level A)	2	C5005, C6007
2CC1-16-Y5V250-105Z	flake multi-layer capacitor	1608, 1μF+80%/-20%, 25V, Y5V	3	R6004, C6014, C6015
1DS1-DA2S10100L	R switch diode	DA2S10100L	2	D1000, D1001
1DV1-HVC376B	R varactor (production halt)	HVC376B(B9)	26	D3001, D3002, D3003, D3004, D3005, D3006, D3007, D3008, D3009, D3010, D3011, D3012, D3013, D3014, D3015, D3016, D3017, D3018,

				D3019, D3020, D3021, D3022, D3023, D3024, D4000, D4001
1DS1-HSC277	R switch diode(production halt)	HSC277, 1608	4	D3025, D3026, D3027, D3028
1DS1-RB706F-40	R switch diode	Schottky diode RB706F-40, SOT-323	1	D3029
1DR1-MM3Z15VT1G	Electrostatic-preventive zener diode	MM3Z2V4T1],15V, W=1.2mm, L=2.5mm, H=1.0mm, leadfree	1	D5000
5FE1-BLM11A601S	R EMI suppression filter	1608, BLM11A601S/BLM18AG601S(0138-05)	44	L1000, L1001, L1003, L1004, L1008, L1009, L1010, L1012, L1014, L1018, L2001, L2002, L3019, FB4000, L6000, L6001, R6014, R6015, R6016, R6017, R6019, R6020, R6022, R6023, R6024, R6026, R6027, R6028, R6029, R6030, R6032, R6035, R6036, R6037, R6038, R6039, R6044, R6045, R6046, R6047, R6048, R6049, R6050, R6051
5XT3-JTBM450C24	R ceramic harmonic oscillator	Frequency detector, JTBM450C24, leadfree	1	FD3000
1IS1-SKY72310	PLL chip	SKY72310,24 pin QFN 4mmX4mm,leadfree(QFN-N24_B4x4-P0_5),leadfree	1	IC1000
1IS1-SPF5122Z	IC	SPF5122Z/2mm*2mm, 8PIN, 50MHz-4GHz	2	IC3000, IC3003
1IS1-GT3136	E patch IC	GT3136, SSOP16	1	IC3004
1IS1-SYM25DHW	Patch frequency mixer	SYM-25DHW+, 80to2500MHz, TTT167,Mini-Circuits, RoHS	1	IC3005
1IS1-TC75S51F	Patch single operational amplifier IC	TC75S51F, SSOP5-P-0.95	2	IC6001, IC6002
1IS1-PGA103	Broad band low noise amplifier	PGA-103+, 0.05to4GHz, SOT-89, PACKAGE, Mini-Circuits,RoHS	1	IC6003
1IM1-AT24C08C	E R analog	EEPROPM,	1	IC6005

N-SH	commercial handheld radio and patch memorizer IC	AT24C08CN-SH(8-SOIC)		
2LW1-16UC-R33G	Patch winding conductor	1608, 330nH±2%(C1608BR33G), pb-free	10	L1005,L1006,L1011,L1015,L1023,L1024,L1026,L1027,L1028,L1030
2LL1-16-R82K	Laminated conductor	1608, 0.82uH±10%(MLF1608DR82K TA00)	2	L1007,L1029
2LL1-16-1R0K	R Laminated conductor	1608, 1μH±10%(MLF1608A1R0K)	2	L1025,L3013
2LW1-20UC-102J	Patch winding conductor	2012, 1μH±5%, ceramic core (C2012C-1R0J)	3	L2004, L3007, L3024
2LW1-16UC-120G	Patch winding conductor	1608, 12nH±2%, ceramic core (C1608CB-12NG)	1	L2006
2LW1-20UC-180J	R patch winding conductor	2012, 18nH±5%, ceramic core (C2012C-18NJ)	2	L2009, L2010
2RS1-20-000O	R flake resistor	2012, 0Ω	4	L2011, L2013, L3003, L3004
2LH1-R401R5-R03-05	R patch air core inductor	Wire diameter φ0.40, internal diameter φ1.5, 3 circles, pin height 0.5ml	2	L3000, L3002
2LH1-R401R5-R04-05	R patch air core inductor	Wire diameter φ0.40, internal diameterφ1.5, 4 circles, pin height 0.5mm	7	L3001, L3006, L3008, L3009, L3010, L3011, L3012
2LW1-25UC-103J	R patch winding inductor	2520, 10μH±5%, ceramic core (FLM2520-100J)	4	L3005, L4002, L4003, L1022
2LW1-16UC-271G	patch winding inductor	1608, 270nH±2%, ceramic core (C1608CB-R27G-RF)	2	L3016, L3021
2RS1-16-271J	R flake resistor	1608, 270Ω±5%	1	L3018
2LL1-16-R56K	R laminated inductor	1608, 560nH±10%(MLF1608DR56K)	2	L3022, L3023
2LW1-20UC-331J	patch winding inductor	2012, 330nH±5%, ceramic core (high frequency)	3	L4001, L1019, L1020
2LL1-16-3R3K	R laminated inductor	1608, 3.3μH±10%(MLF1608A3R3K TA00)	1	L4004

2LW1-25UC-332K	patch winding inductor	2520, 3.3μH±10%, ceramic core (NL252018T-3R3K/NLV25T-3R3K)	1	L4005
5FE1-BLM21P300S	R patch EMIsuppression filter	2012, BLM21P300S/BLM21PG300S(0149-05)	1	L5000
1IS1-XC6209F302PR	Patch voltage stabilization IC	XC6209F302PR, SOT-89-5, 3.0V stable voltage	2	Q1000, Q4002
1TT1-2SC4617-R	R patch triode	2SC4617-R(BR), EMT3	2	Q1001, Q1005
1IS1-XC6209F502PR	Patch voltage stabilization IC	XC6209F502PR, SOT-89-5, 5.0V stable voltage	6	Q1002, Q1004, Q3000, Q3003, Q3005, Q4003
1IS1-XC6209F332PR	Patch voltage stabilization IC	XC6209F332PR, SOT-89-5, 3.3V stable voltage	3	Q1003, Q1006, Q4004
1TT1-2SC5006	patch triode	2SC5006	1	Q1007
1TF1-2SJ243	R patch FET	2SJ243-SMD	2	Q1008, Q1010
1TT1-2SC3356-R24	R patch triode	2SC3356-R24, SOT23, NPN	7	Q1009, Q1011, Q2002, Q3001, Q3002, Q3004, Q4000
1TT1-DTC114YE	patch triode	Digital triode DTC114YE-SMD	2	Q4001, Q5000
2RS1-16-472J	R flake resistor	1608, 4.7K±5%	8	R3033, R1006, R3021, R1000, R1001, R3019, R3044, R3047
2RS1-16-392J	R flake resistor	1608, 3.9K±5%	3	R1002, R1015, R3043
2RS1-16-682J	R flake resistor	1608, 6.8K±5%	2	R1003, R1043
2RS1-16-680J	R flake resistor	1608, 68Ω±5%	2	R1004, R1044
2RE1-16-1200	Patch precision resistor	1608, 120Ω±1%	5	C4009, C4010, R1021, R1005, R1025
2RS1-16-103J	R flake resistor	1608, 10K±5%	19	R6007, R6009, R1007, R1011, R1030, R1031, R1032, R1033, R1034, R1035, R1036, R1037, R1039, R1040, R1041, R3017, R4002, R4007, R4008

2RE1-16-1000	Patch precision resistor	1608, 100Ω±1%	11	R3002, R3003, R1020, R1008, R1009, R1010, R1013, R1014, R1016, R1022, R1024
2RE1-16-47R0	Patch precision resistor	1608, 47Ω±1%	1	R1019
2RS1-16-102J	R flake resistor	1608, 1K±5%	7	R1023, R1028, R1042, R3018, R3036, R4004, R4009
2RS1-16-124J	R flake resistor	1608, 120K±5%	1	R1026
2RS1-16-822J	R flake resistor	1608, 8.2K±5%	2	R2007, R5003
2RS1-16-270J	R flake resistor	1608, 27Ω±5%	1	R2009
2RS1-16-221J	R flake resistor	1608, 220Ω±5%	2	R2011, R2012
2RS1-16-510J	R flake resistor	1608, 51Ω±5%	1	R2018
2RS1-16-104J	R flake resistor	1608, 100K±5%	13	R3005, R3006, R3007, R3008, R3009, R3010, R3011, R3012, R3013, R3014, R3015, R3016, R4006
2RS1-16-821J	R flake resistor	1608, 820Ω±5%	1	R3022
2RS1-16-473J	R flake resistor	1608, 47K±5%	8	R3023, R3025, R5000, R5001, R6042, R6043, R6052, R6053
2RS1-16-182J	R flake resistor	1608, 1.8K±5%	2	R3024, R3026
2RS1-16-363J	R flake resistor	1608, 36K±5%	2	R3030, R3032
2RS1-16-223J	R flake resistor	1608, 22K±5%	4	R3039, R3040, R3045, R3046

2RS1-16-184J	R flake resistor	1608, 180K±5%	1	R3041
2RS1-16-364J	flake resistor	1608, 360K±5%	1	R3049
2RS1-16-562J	R flake resistor	1608, 5.6K±5%	2	R3050, R6000
2RS1-16-153J	R flake resistor	1608, 15K±5%	2	R3051, R6005
2RS1-16-560J	R flake resistor	1608, 56Ω±5%	2	R3052, L4000
2RS1-16-511J	flake resistor	1608, 510Ω±5%	1	R4000
2RS1-16-203J	R flake resistor	1608, 20K±5%	1	R4001
2RS1-16-513J	R flake resistor	1608, 51K±5%	1	R6001
2RS1-16-273J	R flake resistor	1608, 27K±5%	2	R6008, R6010
2RS1-16-362J	R flake resistor	1608, 3.6K±5%	1	R6011
1TC1-UMC4	R patch compound tube	UMC4, NPN/PNP compound tube	2	U1000, U3000
1IS1-AD9864	IF digital system	AD9864, LFCSP-N48_B7X6_75_P0_5, pb-free	1	U4000
1IS1-LM2941S	Patch specialized IC	LM2941S/TO-236, 5PIN, pb-free	1	U5000
5FQ1-LFCN-400	Low pass filter	LFCN-400, 8.5W, DC to 400MHz, FV1206, Mini-Circuits	1	U5002
5OT1-12R8-CEC3-0503	R patch temperature compensated crystal oscillator	NT5032SA/NT5032SC, 12.8MHz±2.5PPm, 5.0*3.2*1.6mm	1	X1000
5FC1-DSF51R6M-0705	R patch crystal filter, PT568/78/72/	DSF753SBF, 51.65MHz±4KHz/3dB, 7.0*5.0*1.3,	2	Z3000, Z3001

	62/65/68/DR5 5/DM58/3208/ V68/E66	DP77/CD37/RD47/AP57		
2LW1-20UC-120 J	patch winding inductor	2012, 12nH±5%, ceramic core (C2012C-12NJ)	1	L1016
1DV1-1SV305	R patch varactor	1SV305	8	D1002, D1003, D1004, D1005, D1006, D1007, D1008, D1009
2LW1-16UC-180 J	R patch winding inductor	1608, 18nH±5%, ceramic core (C1608CB-18NJ)	1	L1013
2LL1-16-R22K	R laminated inductor	1608, 0.22μH±10%(MLF1608D R22K TA00)	1	L3017
2CC1-16-C0G50 0-151J	R flake multi-layer capacitor	1608, 150P±5%, 50V, C0G	1	C3058
2RS1-16-561J	R flake resistors	1608, 560Ω±5%	1	R4005
2CC1-16-C0G50 0-2R5B	R R flake multi-layer resistor	1608, 2.5P/2.4P±0.1P, 50V, C0G	1	C1073
2LW1-20UC-180 G	patch winding inductor	ceramic core LQW2UAS18NG00 0805 18nH±2%	1	L1017
2CC1-16-C0G50 0-3R0B	flake multi-layer capacitor	1608, 3P±0.1P, 50V, C0G	2	C3002, C2018
2RS1-16-820J	flake resistor	1608, 82Ω±5%	1	R3000
3CR7-SMA-50K WE-2	RF coaxial connector	SMA-50KWE-2, 5PIN, 90 degrees,23mm long. pitch: 2.54mm	2	J3000, J3002
3CB3-A2548WV-2X13P	Board-board connector	2*13 socket, 180 degrees, spacing 2.54mm, 40.64X9X9.1mm, manufacturer: JOINT TECH	1	J6000

Table2 Parts List (Tx Module Section)

Part No.	Acccessory Names	Description	Quantity	Location
3FW1-42932-30 2320	R patch fuse	429003/433003/466003, 3216, 3A/32V	1	CB400

1DR1-MM3Z12VT1G	Electrostatic-proof zener diode	MM3Z12VT1G, 3V, SOD323, pb-free	1	D400
1DS1-HSC277	R patch switch diode (production halt)	HSC277, 1608	1	D100
1DV1-1SV278	R patch varactor	1SV278(T1)	2	D105, D110
1DV1-1SV305	R patch varactor	1SV305	8	D101, D102, D103, D104, D106, D107, D108, D109
1IS1-LM2941S	Patch specialized IC	LM2941S/TO-236, 5PIN, Low dropout voltage regulator, pb-free	1	U400
1IS1-SKY72310	PLL chip	SKY72310, 24 pin QFN 4mmX4mm pb-free(QFN-N24_B4x4-P0_5), pb-free	1	IC100
1IS1-SPF5122Z	Patch specialized IC	SPF5122Z/2mm*2mm, 8PIN, 50MHz-4GHz low noise amplifier, pb-free	1	IC304
1IS1-TC75S51F	Patch single operational amplification IC	TC75S51F, SSOP5-P-0.95	2	IC300, IC301
1IS1-XC6209F302PR	Patch voltage stabilization IC	XC6209F302PR, SOT-89-5, stable 3.0V voltage	1	IC101
1IS1-XC6209F332PR	Patch voltage stabilization IC	XC6209F332PR, SOT-89-5, stable 3.3V voltage	1	IC103
1IS1-XC6209F502PR	Patch voltage stabilization IC	XC6209F502PR, SOT-89-5, stable 5.0V voltage	4	IC102, IC104, IC105, IC302
1TC1-UMC4	R patch compound tube	UMC4, NPN/PNP compound tube	1	U100
1TF1-2SJ243	R patch FET	2SJ243-SMD	1	Q104
1TT1-2SC3356-R24	R patch triode	2SC3356-R24, SOT23, NPN	3	Q105, Q106, Q202
1TT1-2SC4617-R	R patch triode	2SC4617-R(BR), EMT3	1	Q101
1TT1-DTC114YE	patch triode	Digital triode DTC114YE-SMD	2	Q204, Q400
1TT1-FMMT717	R patch triode	FMMT717A, PNP,	1	Q203

TA		SOT23		
2CC1-16-C0G500-100D	R flake multi-layer capacitor	1608, 10P±0.5P, 50V, C0G	2	C188, C189
2CC1-16-C0G500-101J	R flake multi-layer capacitor	1608, 100P±5%, 50V, C0G	64	C161, C166, C167, C182, C184, C186, C199, C208, C212, C214, C216, C224, C228, C234, C239, C242, C246, C255, C289, C291, C295, C297, C300, C301, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C315, C316, C317, C320, C321, C322, C323, C340, C341, C344, C345, C102, C106, C111, C113, C117, C119, C123, C124, C138, C140, C142, C144, C146, C150, C151, C153, C157, C160,
2CC1-16-C0G500-102J	flake multi-layer capacitor	1608, 1000P±5%, 50V, C0G	8	C175, C240, C325, C329, C332, C334, C342, R333
2CC1-16-C0G500-120J	R flake multi-layer capacitor	1608, 12P±5%, 50V, C0G	3	C131, C132, C230
2CC1-16-C0G500-121J	R flake multi-layer capacitor	1608, 120P±5%, 50V, C0G	1	C244
2CC1-16-C0G500-180J	R flake multi-layer capacitor	1608, 18P±5%, 50V, C0G	1	C171
2CC1-16-C0G500-1R0B	flake multi-layer capacitor	1608, 1P±0.1P, 50V, C0G	10	C129, C133, C135, C169, C177, C179, C313, C314, C318, C319
2CC1-16-C0G500-430J	R flake multi-layer capacitor	1608, 43P±5%, 50V, C0G	1	C221
2CC1-16-C0G50	R flake	1608, 47P±5%, 50V,	2	C220, C256

0-470J	multi-layer capacitor	C0G		
2CC1-16-C0G500-471J	R flake multi-layer capacitor	1608, 470P±5%, 50V, C0G	4	C105, C107, C108, C127
2CC1-16-C0G500-4R0C	R flake multi-layer capacitor	1608, 4P±0.25P, 50V, C0G	3	C128, C168, C170
2CC1-16-C0G500-5R0B	flake multi-layer capacitor	1608, 5P±0.1P, 50V, C0G	4	C130, C163, C164, C165
2CC1-16-C0G500-620J	flake multi-layer capacitor	1608, 62P±5%, 50V, C0G	4	C225, C232, C233, C257
2CC1-16-C0G500-6R0C	R flake multi-layer capacitor	1608, 6P±0.25P , 50V, C0G	5	C155, C156, C183, C231, C235
2CC1-16-C0G500-820J	R flake multi-layer capacitor	1608, 82P±5%, 50V, C0G	4	C136, C181, C222, C226
2CC1-16-C0G500-8R0C	R flake multi-layer capacitor	1608, 8P±0.25P, 50V, C0G	1	C176
2CC1-16-C0G500-9R0C	R flake multi-layer capacitor	1608, 9P±0.25P, 50V, C0G	1	C137
2CC1-16-X7R500-103K	R flake multi-layer capacitor	1608, 10nF±10%, 50V, X7R	29	C101, C103, C116, C118, C122, C125, C139, C141, C143, C145, C147, C152, C154, C245, C253, C290, C292, C296, C298, C326, C335, C343, C400, C401, C402, C404, C406, C407, C408
2CC1-16-X7R500-332K	flake multi-layer capacitor	1608, 3300P±10%, 50V, X7R	1	C336
2CC1-16-X7R500-333K	R flake multi-layer capacitor	1608, 33nF±10%, 50V, X7R	1	C327
2CC1-16-Y5V160-104Z	flake multi-layer capacitor	1608, 100nF+80%/-20%, 16V, Y5V	19	C110, C112, C114, C158, C159, C162, C185, C187, C195, C196, C209, C213,

				C215, C217, C227, C229, C238, C241, C243
2CC1-16-Y5V500-474Z	flake multi-layer capacitor	1608, 470nF+80%/-20%, 50V, Y5V	1	R344
2CE1-VS250-101M0607D	Patch aluminum electrolytic capacitor	SMD-6.3x7.7mm, 100uF/25V	1	C403
2CT1-TS32-100-2R2M	R patch tantalum capacitor	3216, 2.2μF±20%, 10V, TS series (level A)	1	C178
2CT1-TS32-160-100M	R patch tantalum capacitor	3216, 10μF±20%, 16V, TS series (level A)	22	C100, C104, C115, C120, C121, C126, C192, C252, C254, C282, C283, C284, C285, C286, C287, C288, C293, C294, C299, C328, C333, C405
2CT1-TS32-350-R10M	R patch tantalum capacitor	3216, 0.1μF±20%, 35V, TS series (level A)	1	C172
2CT1-TS32-350-R33M	R patch tantalum capacitor	3216, 0.33μF±20%, 35V, TS series (level A)	1	C173
2CT1-TS32-6R3-150M	R patch tantalum capacitor	3216, 15μF±20%, 6.3V, TS series (level A)	1	C109
2LL1-16-R82K	Laminated inductor	1608, 0.82uH±10%(MLF1608DR82K TA00)	2	L105, L117
2LW1-16UC-120G	Patch winding inductor	1608, 12nH±2%, ceramic core (C1608CB-12NG)	1	L205
2LW1-16UC-180G	Patch winding inductor	1608, 18nH±2%, ceramic core (C1608CB-18NG)	2	L113, C237
2LW1-16UC-R33G	Patch winding inductor	1608, 330nH±2%(C1608BR33G), pb-free	6	L103, L104, L111, L115, L116, L120
2LW1-20UC-102J	Patch winding inductor	2012, 1μH±5%, ceramic core (C2012C-1R0J)	1	L214
2LW1-20UC-120GM	Patch winding inductor	ceramic core LQW2UAS12NG00 ;,	1	L119

		12nH±2%		
2LW1-20UC-180J	R Patch winding inductor	2012, 18nH±5%, ceramic core (C2012C-18NJ)	2	L209, L210
2LW1-20UC-331J	Patch winding inductor	2012, 330nH±5%, ceramic core (high frequency)	2	L106, L118
2LW1-20UC-8R2J	Patch winding inductor	2012, 8.2nH±5%, ceramic core (C2012C-8N2J)	1	L107
2LW1-25UC-103J	R Patch winding inductor	2520, 10μH±5%, ceramic core (FLM2520-100J)	1	L122
2RE1-16-1000	Patch precision resistor	1608, 100Ω±1%	9	R105, R106, R113, R115, R117, R119, R120, R121, R128
2RE1-16-1001	Patch precision resistor	1608, 1K±1%	2	R134, R135
2RE1-16-1200	Patch precision resistor	1608, 120Ω±1%	2	R108, R129
2RE1-16-1801	Patch precision resistor	1608, 1.8K±1%	1	C339
2RE1-16-47R0	Patch precision resistor	1608, 47Ω±1%	1	R124
2RE1-16-8201	R Patch precision resistor	1608, 8.2K±1%	2	R342, R403
2RS1-16-000O	R Flake resistor	1608, 0Ω	23	R122, R123, R125, R130, R131, R137, R138, C191, R210, L211, R313, R314, R315, R316, R319, R320, R325, R326, R334, R335, R346, R348, R350
2RS1-16-103J	R Flake resistor	1608, 10K±5%	9	R114, R132, R133, R140, R141, R142, R143, R144, R145
2RS1-16-104J	R Flake resistor	1608, 100K±5%	6	R100, R103, R107, R111, R118, R127
2RS1-16-123J	R Flake resistor	1608, 12K±5%	2	R337, R343

2RS1-16-124J	R Flake resistor	1608, 120K±5%	2	R339, R341
2RS1-16-220J	R Flake resistor	1608, 22Ω±5%	1	R218
2RS1-16-221J	R Flake resistor	1608, 220Ω±5%	2	R211, R212
2RS1-16-270J	R Flake resistor	1608, 27Ω±5%	1	R209
2RS1-16-302J	Flake resistor	1608, 3K±5%	2	R104, R116
2RS1-16-472J	R Flake resistor	1608, 4.7K±5%	2	R101, R109
2RS1-16-473J	R Flake resistor	1608, 47K±5%	5	R110, R220, R345, R400, R401
2RS1-16-511J	Flake resistor	1608, 510Ω±5%	1	R219
2RS1-16-563J	R Flake resistor	1608, 56K±5%	1	R207
2RS1-16-682J	R Flake resistor	1608, 6.8K±5%	2	R102, R112
2RS1-20-000O	R Flake resistor	2012, 0Ω	2	L212, L213
5FE1-BLM11A601S	R patch EMI suppression filter	1608, BLM11A601S/BLM18AG601S(0138-05)	28	L100, L101, L102, L108, L109, L110, L112, L114, L121, L123, L202, L207, L300, R301, L301, R302, R303, R304, R305, R306, R307, R308, R309, R310, R311, R312, R329, R351
5FE1-BLM21P300S	R patch EMI suppression filter	2012, BLM21P300S/BLM21PG300S(0149-05)	1	L400
5FQ1-LFCN-400	Low pass filter	LFCN-400, 8.5W, DC to 400MHz, FV120, Mini-Circuits	1	U402
5OT1-12R8-CEC3-0503	R patch temperature compensated crystal oscillator	NT5032SA/NT5032SC, 12.8MHz±2.5PPm, 5.0*3.2*1.6mm	1	X100
6PM7-4067-HTB	DR650-02Tx board	DR650-DVC0-TXBORAD-20130319.PCB, 1.6MM thick, FR-4, 70X194M, 4 layers	1	
2RE1-16-2200	Patch precision resistor	1608, 220Ω±1%	1	R126

3CB3-A2548WV-2X10P	Board-to-board connector	2*10 socket, spacing 2.54mm, 33.02X9X9.1mm, black, manufacturer:JOINT TECH	1	J300
3CR7-SMA-50KWE-2	RF coaxial connector	SMA-50KWE-2, 5PIN plug-in unit, 90 degrees, 23mm long.pitch:2.54mm	1	J200

Table3 Parts List (Power Amplification Section)

Part No.	Acccessory Names	Description	Quantity	Location
3CB1-DC002	STR-U the power amplifier board power supply socket	DC-002, combination key, plastic pedistal+two copper patches, pb-free	1	J302
2RV3-22ZR-10D	R plug-in unit piezoresistor	22ZR-10D	1	R306
3CR7-SMA-50KWE-2	Rf coaxial connector	SMA-50KWE-2, 5PIN plug-in unit, 90 degrees, 23mm long.pitch:2.54mm	1	J100
3CB3-A2548WV-2X05P	Board-to-board connector	A2548WV-2X05P, 180 degrees, 2.54mm spacing, 20.32mmX9mmX9.1mm,	1	J300
1IS3-DS18B20	IC	temperature sensor, 3.0V-5.5Vpower supply, -55℃--125℃, TO-92	1	IC101
3FW1-42932-302320	R patch fuse	429003/433003/466003, 3216, 3A/32V	1	CB300
2CE1-VS250-101M0607D	Patch aluminum electrolytic capacitor	SMD-6.3x7.7mm, 100uF/25V	3	C100, C105, C203
2CC1-16-C0G500-101J	R flake multi-layer capacitor	1608, 100P±5%, 50V, C0G	37	C101, C103, C106, C108, C110, C112, C113, C114, C116, C121, C122, C123, C124, C137, C139, C150, C161, C164,

				C167, C300, C301, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C313, C314, C315, C316, C317
2CC1-16-Y5V160-104Z	flake multi-layer capacitor	1608, 100nF+80%/-20%, 16V, Y5V	10	C102, C104, C107, C109, C115, C129, C138, C140, C142, C143
2CT1-TS32-6R3-100M	Patch tantalum capacitor	3216, 10μF±20%, 6.3V, TS series (level A)	3	C111, C136, C166
2CC1-16-C0G500-160J	R flake multi-layer capacitor	1608, 16P±5%, 50V, C0G	1	C117
2CC1-32-C0G102-2R0J	R flake multi-layer capacitor	3216, 2P±0.25P, 1000V, C0G	3	C118, C132, C135
2CC1-32-C0G101-102J	flake multi-layer capacitor	3216, 1000P±5%, 100V, C0G, GRM3195C2A102JA01D	3	C125, C126, C160
2CC1-16-C0G500-2R0B	flake multi-layer capacitor	1608, 2P±0.1P, 50V, C0G	2	C127, C130
2CC1-32-C0G102-4R0J	R flake multi-layer capacitor	3216, 4P±0.25P, 1000V, C0G	1	C133
2CC1-32-C0G102-5R0J	R flake multi-layer capacitor	3216, 5P±5%, 1000V, C0G	1	C134
2CC1-16-C0G500-471J	R flake multi-layer capacitor	1608, 470P±5%, 50V, C0G	8	C141, C145, C147, C152, C154, C155, C156, C157
2CC1-16-C0G500-5R0C	R flake multi-layer capacitor	1608, 5P±0.25P, 50V, C0G	2	C144, C146
2CC1-16-C0G500-102J	flake multi-layer capacitor	1608, 1000P±5%, 50V, C0G	1	C148
2CC1-16-C0G500-221J	R flake multi-layer capacitor	1608, 220P±5%, 50V, C0G	1	C149
2CC1-16-X7R50	R flake	1608, 10nF±10%, 50V,	10	C153, C162, C165,

0-103K	multi-layer capacitor	X7R		C200, C201, C202, C204, C206, C207, C208
2CT1-TS32-100-220M	Patch tantalum capacitor	3216, 22μF±20%, 10V, TS series (level A)	1	C205
1DR1-MM3Z15VT1G	Patch electrostatic-proof zener diode	MM3Z2V4T1 series, 15V, W=1.2mm, L=2.5mm, H=1.0mm, pb-free	3	D100, D101, D200
1DZ1-HZU5ALL	R patch voltage stabilization diode (production halts)	HZU5ALL, 2012, 5V	1	D102
1DS1-RB706F-40	R patch switch diode	Schottky tube RB706F-40, SOT-323	2	D103, D104
1DS1-HVC131	R patch switch diode (production halts)	HVC131(P1), 1608	1	D202
1IL1-NJM2904V	R patch linear IC	Dual calculation amplification NJM2904V, TSSOP-8	1	IC100
1IM1-AT24C08CN-SH	E R analog commercial portable and mobile patch memerizor IC	EEPROPM, AT24C08CN-SH(8-SOIC)	1	IC6005
5FE1-BLM41P600SPT	R patch EMI suppression filter	EMI, FILTER, SMT, BLM41P600SPT, 1206, pb-free	3	L100, L101, L102
5FE1-BLM11A601S	R patch EMI suppression filter	1608, BLM11A601S/BLM18AG601S(0138-05)	11	L103, L110, R300, R301, R302, R303, R304, R305, R308, R309, R310
2LW1-20UC-330GA	R patch winding inductor	2012, 33nH±2%(C2012C-33NG)	1	L104
2LL1-16-8N2D	Laminated inductor	1608, 8.2nH±0.5nH(MLG1608B8N2DT)	2	L105, L106
2LH1-R903R0-L02-03	R patch air core inductor	wire diameter φ0.9, internal diameterφ3.0, 1.5 circles, back-roll, ,	3	L107, L108, L109

		pb-free		
2RS1-16-471J	R flake resistor	1608, 470Ω±5%	1	L111
2LH1-R903R0-L11-05	R patch air core inductor	wire diameterφ0.9, internal diameterφ3.0, 11 circles, pin height 0.5mm, back-roll	1	L112
2LL1-16-47NJ	R Laminated inductor	1608, 47nH±5%(MLG1608B47NJ)	2	L114, L115
5FE1-BLM21P300S	R patch EMI suppression filte	2012, BLM21P300S/BLM21PG300S(0149-05)	1	L200
1TT1-FMMT717TA	R patch triode	FMMT717A, PNP, SOT23	2	Q100, Q103
1TT1-DTC114YE	patch triode	Digital triode DTC114YE-SMD	3	Q101, Q104, Q200
1TT1-2SC3357	R patch triode	2SC3357(RE), SOT89(NEC)	1	Q102
2RS1-16-473J	R Flake resistor	1608, 47K±5%	9	R100, R118, R133, R200, R201, R6042, R6043, R6052, R6053
2RS1-16-561J	R Flake resistor	1608, 560Ω±5%	2	R101, R119
2RE1-16-8201	R patch precision resistor	1608, 8.2K±1%	2	R102, R203
2RS1-16-820J	Flake resistor	1608, 82Ω±5%	2	R105, R115
2RE1-16-1501	R patch precision resistor	1608, 1.5K±1%	1	R106
2RS1-16-270J	R Flake resistor	1608, 27Ω±5%	2	R108, R109
2RS1-16-221J	R Flake resistor	1608, 220Ω±5%	4	R110, R111, R112, R114
2RS1-16-000O	R Flake resistor	1608, 0Ω	8	R130, R141, R113, R128, R143, R146, R147, R311
2RS1-16-222J	R Flake resistor	1608, 2.2K±5%	1	R120
2RS1-16-103J	R Flake resistor	1608, 10K±5%	7	R121, R122, R123, R124, R125, R129, R307
2RS1-16-202J	R Flake resistor	1608, 2K±5%	1	R126
2RS1-16-104J	R Flake	1608, 100K±5%	1	R127

	resistor			
2RS1-16-821J	R Flake resistor	1608, 820Ω±5%	1	R131
2RS1-16-510J	R Flake resistor	1608, 51Ω±5%	1	R134
2RS1-16-512J	Flake resistor	1608, 5.1K±5%	3	R137, R138, R135
2RE1-16-1000	patch precision resistor	1608, 100Ω±1%	1	R142
1IS1-XC6701D332PR	3.3VLDO	28V high input voltage, fast speed and low consumption LDO with fast speed and low consumption, 3.3V output, SOT-89	1	U102
1IS1-LM2941S	Patch specialized IC	LM2941S/TO-236, 5PIN, low dropout voltage regulator, pb-free	1	U200
6PM7-4071-HPA	SEPURA power amplification board PCB	power amplification board PCB, four layers, FR4, 58.24X70, RFAMPLIFIER-20130719.PCB, pb-free	1	
2CC1-32-C0G501-1R0C	Flake multi-layer capacitor	3216, 1P±0.25%, 500V, C0G, GRM31M5C2H1R0CY21B	1	C119
1DR1-XBS053V15R-1G	Patch schottky diode	XBS053V15R-1G, SOD-523, VR=20V, VF=0.40V, manufatured by TOREX, pb-free	1	D201
2CC1-32-C0G500-102J	Flake multi-layer capacitor	3216, 1000P±5%, 50V, C0G	1	L113

Table4 Parts List (Baseband Mainboard)

Part No.	Acccessory Names	Quantity	Location
3CB3-VH3096-2P	DC power socket	1	J1
3CB3-S6160BK1	Board-to-board connector	2	J2
3CR7-SMA-50KE	RF coaxial connectorw	3	J6, J7, J8
3CB3-A2548WV-2X05P	Board-to-board connector	4	J5, J18, J19, J23
3CB3-A2548WV-2X13P	Board-to-board connector	2	J9, J15

3CT3-KRJ003NL-8P	Crystal head RJ45 socket	1	J12
3CB3-A2548WV-2X10P	Board-to-board connector	1	J17
3CL3-PH-20002	Bar connector	1	J20
3CL3-PH-25402A	Bar connector	1	J27
2RV3-22ZR-10D	piezoresistor	1	R2
2CE3-GM350-102M1320	Aluminum electrolytic capacitor	2	C331, C522
3CL3-PH-20003	Bar connector	1	J21
2LI3-0911-331K	I-shaped inductor	3	L12, L16, L17
7MBC-4073-04A-W	Large shield	4	P1, P2, P4, P5
7MBC-4073-05A-W	Small shield	1	P3
6BLS-4814-03327U	Patch button battery	1	BT2
2CC1-16-X7R500-103K	Flake multi-layer capacitor	1	C1
2CC1-32-Y5V500-106Z	Flake multi-layer capacitor	23	C2, C6, C21, C24, C29, C30, C31, C109, C175, C182, C183, C226, C263, C277, C285, C286, , C251, C275, C288, , C506, C507, C512, C513
2CC1-16-Y5V500-104Z	Flake multi-layer capacitor	52	C3, C7, C8, C9, C12, C17, C19, C22, C27, C90, C91, , C95, C96, C97, C103, C105, C106, C110, C115, C116, C136, C244, C318, C429, C459, C262, C146, C147, , C170, C171, C172, C174, C177, C178, C180, C181, C194, C195, C205, C206, C225, C264, C265, C279, C282, C290, C291, C294, C297, C299, C302, C304,
2CC1-16-C0G500-101J	Flake multi-layer capacitor	32	C245, C517, C518, C519, C520, C521, C531, C532, C519, C520, C381, C385, C283, C284, C295, C300, C4, C35, C36, C37, C48, C60, C75, C148, C246, C309, C327, C345, C371, C374, C508, C514
2CE1-VS250-101M0607D	Patch aluminum electrolytic capacitor	7	C5, C13, C289, C316, C405, C406, C411
2CC1-32-Y5V100-226Z	Flake multi-layer capacitor	19	C523, C524, C525, C526, C527, C528, C529, C530, C10, C11, C16, C18, C26, C107, C111, C113, C142, C145, C428

2CC1-16-X7R500-102K	Flake multi-layer capacitor	3	C14, C20, C388
2CC1-16-C0G500-470J	Flake multi-layer capacitor	1	C15
2CC1-16-Y5V250-105Z	Flake multi-layer capacitor	50	C292, C293, C25, C66, C67, C68, C81, C82, C83, C100, C108, C114, C117, C122, C123, C124, C143, C144, C154, C155, C156, C187, C188, C189, C190, C191, C200, C201, C202, C203, C204, C266, C267, C268, C269, C271, C273, , C276, C278, C281, C287, C112, C137, C234, C235, C324, C332, C298, C511, C460
2CC1-16-X7R100-225K	Flake multi-layer capacitor	1	C28
2CC1-20-Y5V160-106Z	Flake multi-layer capacitor	18	C533, C534, C32, C33, C34, C101, C118, C119, C120, C121, C138, C139, C176, C179, , C242, C319, C325, C369
2CC1-16-C0G500-100D	Flake multi-layer capacitor	8	C38, C39, C49, C61, C76, C92, C93, C149
2CC1-16-X5R6R3-475K	Flake multi-layer capacitor	23	C384, C380, C50, C51, C52, C53, C62, C63, C64, C65, C77, C78, C79, C80, C150, C151, C152, C153, C198, C199, C218, C228, C236
2CC1-16-C0G500-270J	Flake multi-layer capacitor	1	C102
2CC1-16-C0G500-4R5C	Flake multi-layer capacitor	1	C104
2CC1-32-C0G102-102J	Flake multi-layer capacitor	1	C173
2CC1-16-C0G500-221J	Flake multi-layer capacitor	3	C184, C185, C186
2CC1-16-C0G500-330J	Flake multi-layer capacitor	29	C306, C382, C386, C207, C208, C209, C210, C213, C214, C215, C220, C221, C222, C223, C224, C247, C248, C249, C252, C255, C258, C259, C317, C326, C372, C375, C377, C509, C515
2CC1-16-X7R500-471K	Flake multi-layer capacitor	15	C387, C383, C280, C370, C373, C376, C378, C379, C407, C408, C409, C410, C427, C510, C516
2CC1-10-X7R160-104K	Flake multi-layer capacitor	126	C40, C41, C42, C43, C44, C45, , C54, C55, C56, C57,

			C58, C59, C69, C70, C71, C72, C73, C74, C84, C85, C86, C87, C88, C89, C94, C98, C99, C125, C126, C127, C128, C129, C130, C131, C132, C133, C134, C135, C140, C141, C157, C158, C159, C160, C161, C162, C163, C164, C165, C166, C167, C168, C169, C270, C461, C462, C463, C464, C465, C466, C467, C468, C469, C470, C471, C472, C473, C474, C475, C476, C477, C478, C479, C480, C481, C482, C483, C484, C485, C486, C487, C488, C489, C490, C491, C492, C493, C494, C495, C496, C497, C498, C499, C500, C430, C431, C432, C433, C434, C435, C436, C437, C438, C439, C440, C441, C442, C443, C444, C447, C504, C505, C448, C449, C450, C451, C452, C453, C454, C455, C456, C457, C458, C501, C502, C503
2CC1-10-C0G500-271J	Flake multi-layer capacitor	35	C46, C47, C227, C229, C230, C231, C232, C233, , C238, C239, C240, C315, C321, , C333, C334, C335, C336, C337, C338, C339, C340, C341, C342, C343, C344, , C346, C347, C348, C349, C350, C351, C352, C353, C354, C357
2CC1-10-C0G500-471J	Flake multi-layer capacitor	31	C389, C390, C391, C392, C393, C394, C395, C396, C397, C398, C399, C400, C401, C402, C403, C404, C412, C413, C414, C415, C416, C417, C418, C419, C420, C421, C422, C423, C424, C425, C426
1DG1-DSM3MA1	Patch normal diode	1	D2

1DR1-SMCJ20A	Patch diode	1	D1
1DR1-SS36	Patch commutation diode	1	D3
1DS1-DA2S10100L	Patch switch diode	4	D8, D11, D12, D13
1DS1-HVC131	Patch switch diode	2	D9, D15
1DP1-BV03C	TVS diode	1	D10
1DS1-DAN222	Patch switch diode	1	D14
1DR1-MMBZ20VALT1G	TVS diode	6	D16, D17, D18, D19, D20, D5
1TT1-2SA1641-S	Patch triode	1	Q42
1DS1-DA204U	Patch switch diode	2	D7, D21
5FE1-BLM15AG221SN1D	EMI suppression filter	50	FB1, FB2, FB3, FB4, FB5, FB17, FB18, , FB25, FB26, FB27, FB28, FB29, FB30, FB31, FB35, FB36, FB37, FB38, FB39, FB40, FB41, FB42, FB43, FB44, FB45, FB46, FB47, FB48, FB49, FB50, FB51, FB52, FB53, FB54, FB55, FB56, FB57, FB58, FB59, FB60, FB62, FB63, FB64, R77, R84, R85, R86, R87, R88, R89
5FE1-BLM41P600SPT	EMI suppression filter	7	L8, L10, L11, FB20, FB22, L14, L15
5FE1-BLM18PG181SN1	EMI suppression filter	16	FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB19, FB21, FB24, FB61, FB33, FB34
2RS1-16-000O	Flake resistor	18	C241, C320, R208, R231, R332, R213, R217, FB16, R22, R24, R209, R210, R214, R224, R225, R94, R107, R109
3FW1-42932-302320	Patch fuse	1	F1
4PE1-16-F5	Patch LED	4	LED2, LED3, LED4, LED5
4PE1-16-F2	Patch LED	1	LED6
2LG1-NR8040T842-4R7S	Patch power inductor	1	L1
2LG1-SWPA4020-2R2S	Patch power inductor	4	L2, L3, L4, L6
2LW1-16UC-221J	Patch winding inductor	1	L5
2LW1-20UC-180J	Patch winding inductor	2	L7, L33
2LW1-20UC-220J	Patch winding inductor	2	L13, L32
2LW1-16UC-181J	Patch winding inductor	2	L22, L26
2LW1-16UC-221G	Patch winding inductor	1	L24
2LW1-16UC-271G	Patch winding inductor	1	L25
2LI1-1608-R47G	I-shaped inductor	2	L21, L23
2LW1-25UC-681JA	Patch winding inductor	1	L20

1TT1-DTC114YE	Patch triode	18	Q1, Q2, Q5, Q8, Q10, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24
1TT1-MMBT3904	Patch triode	2	Q3, Q9
2RE1-16-49R9	Patch precision resistor	4	R160, R166, R167, R168
2RE1-16-1001	Patch precision resistor	2	R32, R33
2RE1-16-2001	Patch precision resistor	1	R4
2RS1-16-332J	Flake resistor	4	R179, R293, R294, R363
2RE1-16-4871	Patch precision resistor	1	R172
2RE1-16-8201	Patch precision resistor	1	R18
2RE1-16-1002	Patch precision resistor	3	R1, R120, R121
2RE1-16-4302	Patch precision resistor	2	R13, R366
2RE1-16-18R0	Patch precision resistor	3	R28, R29, R95
2RS1-16-303J	Flake resistor	1	R5
2RS1-16-100J	Flake resistor	2	R6, R302
2RS1-16-103J	Flake resistor	56	R7, R8, R9, R10, R14, R15, R16, R17, R19, R20, R21, R23, R25, R26, R53, R54, R56, R57, R163, R174, R175, R176, R177, R182, R183, R186, R187, R188, R189, R190, R192, R193, R195, R196, R197, R198, R232, R259, R118, , R199, R200, R201, , R206, R211, R228, R230, R295, R296, R298, R299, R301, R303, R327, R353, R355, R367
2RS1-16-510J	Flake resistor	1	R27
2RS1-16-472J	Flake resistor	10	C260, C261, R133, R134, R138, R140, R161, R169, R202, R203
2RS1-16-330J	Flake resistor	55	R123, R215, R218, R223, R237, R238, R239, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251, R252, R254, R279, R280, R281, R282, R283, R285, R286, R288, R289, R146, R147, R148, R149, R164, R165, R171, R207, R229, R291, R305, R306, R307, R308, R309, R310, R311, R312, R313, R314, R315, R348,

			R350, R362, C296
2RS1-16-101J	Flake resistor	11	R142, R143, R59, R105, R106, R180, C272, R92, R93, C274, FB32
2RS1-16-681J	Flake resistor	1	R233
2RS1-16-473J	Flake resistor	2	R119, R300
2RS1-16-102J	Flake resistor	14	R91, R97, R98, R99, , R137, R156, R157, R158, R159, R219, R253, R304, R329, R333
2RS1-16-222J	Flake resistor	5	R122, R170, R290, R292, R364
2RS1-16-755J	Flake resistor	1	R173
2RS1-16-104J	Flake resistor	1	R205
2RS1-16-471J	Flake resistor	2	R220, R222
2RS1-10-000O	Flake resistor	4	R260, R51, R96, R41
2RS1-10-330J	Flake resistor	26	R64, R73, R74, R75, R76, R78, R79, R101, R102, R108, R36, R37, R39, R40, R42, R43, R126, R127, R135, R136, , R150, R151, R152, R153, R154, R155
2RS1-10-101J	Flake resistor	3	R103, R104, R111
2RS1-10-472J	Flake resistor	9	R60, R61, R62, R63, R34, R38, R80, R81, R145
2RS1-10-103J	Flake resistor	21	R45, R46, R47, R48, R49, R50, R65, R66, R67, R72, R114, R116, R124, R125, R128, R129, R130, R131, R132, R204, R115
1IS1-TPS54331DDA	Patch switch power IC	1	U1
1IS1-TPS65023	Power management chip	1	U2
1IS1-LM2941S	Patch specialized IC	1	U3
1IP1-OMAPL138BZWT3	Dual-core CPU	1	U4
1IM1-MT47H64M16	Patch memerizor IC	1	U6
1IM1-K9GAG08U0M-I	Patch memerizor IC	1	U7
1IS1-TPS2051BDGN	LDO power voltage regulator IC	1	U8
1IS1-RT9193-33PB	Patch voltage regulator IC	1	U12
1IS1-RT8008GB	Patch voltage transformer IC	1	U13
1IS1-EP4CE30F23I7N	Patch specialized IC	1	U14
1IS1-RT9193-25PB	Patch voltage regulator IC	1	U15
1IS1-DP83848I	Patch specialized IC	1	U17
1DR1-TPD4S012DRY	TVS diode	1	U19

1IS1-ADS1015	AD transformer IC	1	U22
1IS1-TLV5614	DA transformer chip	2	U24, U27
1IS1-LM4040B20IDBZT	Patch voltage regulator IC	1	U29
1IS1-TLV320AIC14	CODEC chip	1	U30
1IS1-TDA8541T	Audio power amplifier IC	1	U31
1IS1-MAX3232ESE	Patch dual-channelRS-232 wire driver/receiver IC	1	U32
1IL1-AD8031ARTZ	Patch linear IC	1	U38
1IM1-AT24C08CN-SH	memorizer IC	1	U23
1IS1-XC6209F302PR	Patch voltage stabilization IC	1	U20
1IS1-XC6209F332PR	Patch voltage stabilization IC	1	U5
1IS1-XC6209F502PR	Patch voltage stabilization IC	1	U26
5XT1-MC146-32R76K	Patch ceramic harmonic oscillator	1	Y1
5OC1-24R0-MML-3225	crystal oscillator	1	Y2
5OC1-50R0-MML-3225	crystal oscillator	1	Y3
5XC1-18R4-CEC5032SCH	Patch crystal oscillator	1	Y4
1TF1-ST2301	Patch FET	2	Q7, Q11
5OD1-12R8-AL3-3225	Pressure temperature compensated crystal oscillator	1	Y5
1MR3-MAX-6Q	GPS module	1	U9
2RE1-16-1801	Patch precision resistor	1	R365
2CC1-32-Y5V160-106Z	Flake multi-layer capacitor	2	C243, C237
2CC1-16-C0G500-7R0C	Flake multi-layer capacitor	2	C310, C328
2CC1-16-C0G500-9R0C	Flake multi-layer capacitor	2	C311, C445
2CC1-16-C0G500-150J	Flake multi-layer capacitor	2	C312, C329
2CC1-16-C0G500-240J	Flake multi-layer capacitor	2	C314, C446
2CC1-16-C0G500-390J	Flake multi-layer capacitor	2	C313, C330
2CC1-16-C0G500-820J	Flake multi-layer capacitor	3	C301, C303, C307
2CC1-16-C0G500-121J	Flake multi-layer capacitor	1	C308
2CC1-16-C0G500-151J	Flake multi-layer capacitor	1	C305
2RS1-16-301J	Flake resistor	1	R144
3SE1-SDIP-04	Patch DIP	1	J4
6PM7-4071-HBC	Repeater baseband board PCB	1	

Table5 Parts List (Front Panel)

Part No.	Acccessory Names	Quantity	Location
3CB3-A2548WV-2X05P	Plug-in Board-to-board connector	1	J1
4PE3-0705-F4	Plug-in unit LED	8	LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED9
4PE3-0705-F2	Plug-in unit LED	1	LED8
2CC1-16-Y5V500-104Z	Flake multi-layer capacitor	1	C1
5FE1-BLM18PG181SN1	Patch EMI suppression filter	1	FB1
1TT1-DTC114YE	Patch triode	8	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8
2RS1-16-330J	Flake resistor	8	R1, R2, R3, R4, R5, R6, R7, R8
2RS1-16-102J	Flake resistor	1	R16
2RS1-16-101J	Flake resistor	8	R9, R10, R11, R12, R13, R14, R15, R17
6PD7-4071-HFB	Repeater PCB	1	

Table6 Parts List (Power Board)

Part No.	Part Name	Quantity	location
2CE3-GM350-102M1320	Plug-in unit aluminum electrolytic capacitor	2	C1, C2
3SJ3-G8P-1C4P-12VDC	Plug-in unit power electric relay	2	U1, U2
3WPC-KF65-4P	Plug-in unit connector terminal	1	J1
3WPC-KF65-2P	Plug-in unit connector terminal	2	J2, J3
3CL3-PH-25402A	Bar connector	2	J4, J5
5FE1-BLM18PG181SN1	Patch EMI suppression filter	1	R1
2RS1-16-471J	Flake resistor	1	R3
1DZ1-LM3Z18VT1G	Patch voltage stabilization diode	1	D1
1DS1-DA2S10100L	Patch switch diode	1	D2
1TT1-MMBT3904	Patch triode	2	Q1, Q2
2RS1-16-103J	Flake resistor	1	R5
2RS1-16-102J	Flake resistor	1	R6
2CC1-16-X7R500-103K	Flake multilayer capacitor	1	C3

6PD7-4071-HWB	STR-U repeater power board PCB	1	

Table7 Parts List (Accessory Board)

Part No.	Acccessory Names	Quantity	Location
3WPC-VGA-26PB	26 pins VGA	1	J9
3CB3-A2548WV-2X13P	Board-to-board connector	1	J10
6PD7-4071-HL1A	STR-U repeater accessory board	1	

Figure 1 Rx Module Top Board PCB View

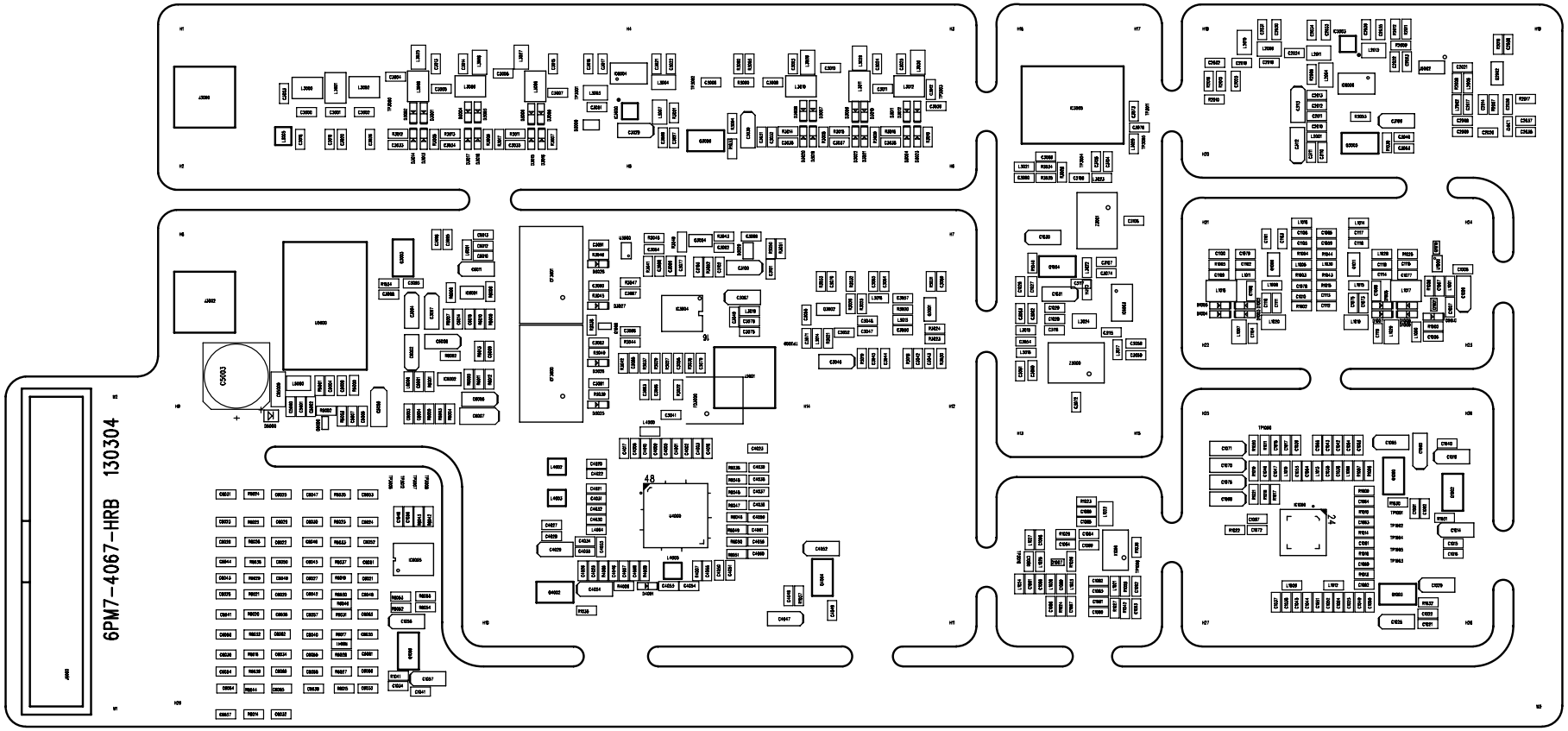


Figure 2 Rx Module Bottom Board PCB View

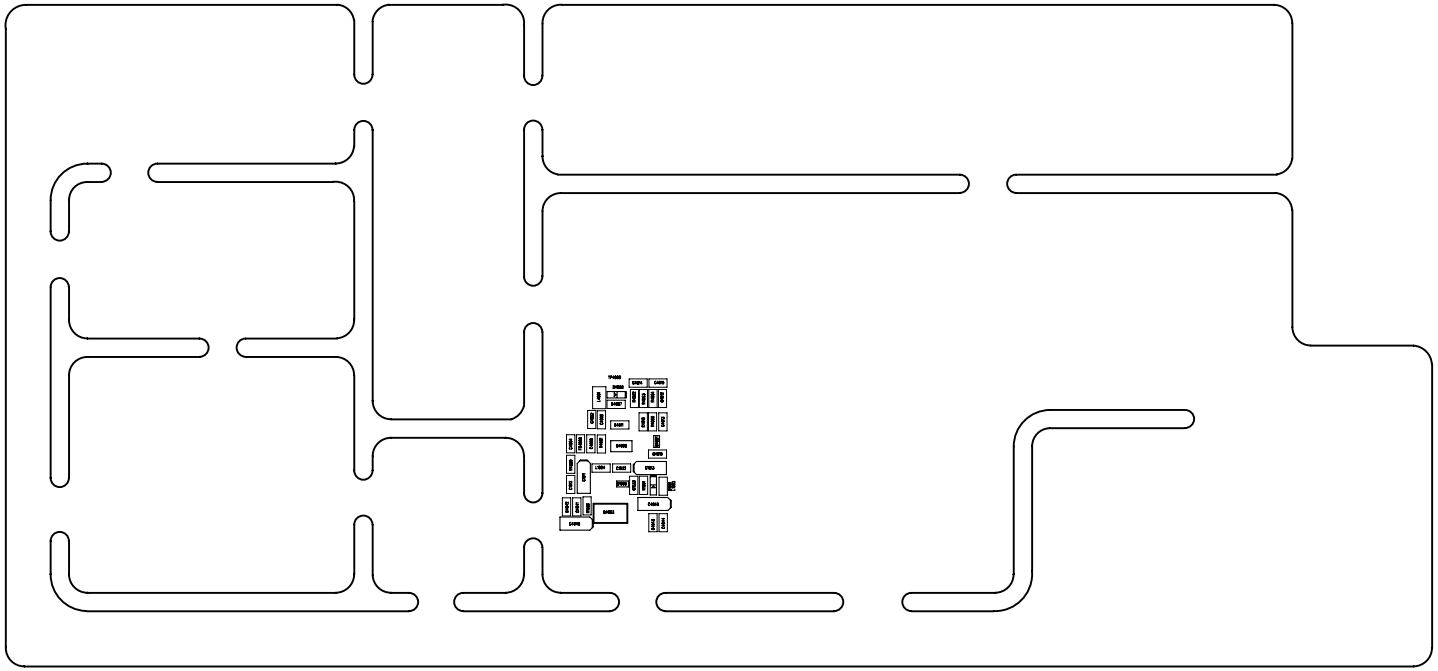


Figure 3 Tx Module Top Board PCB View

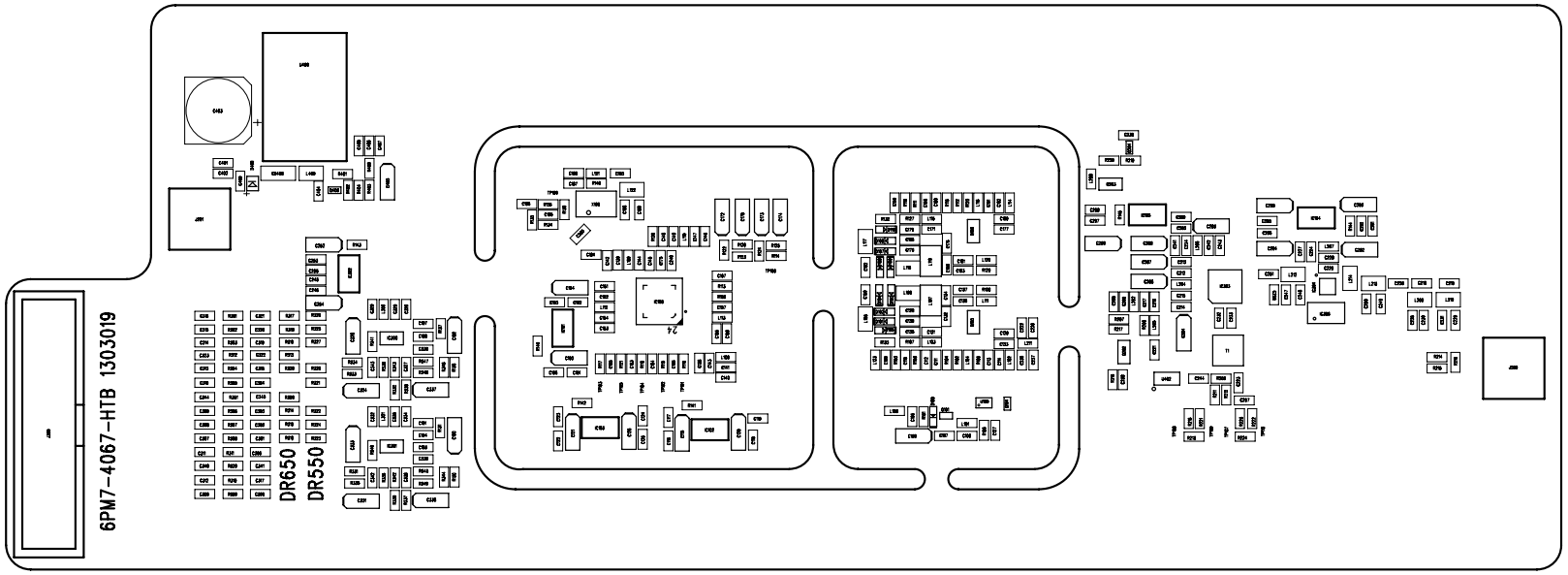


Figure 4 Power Amplifier Module Top Board PCB View

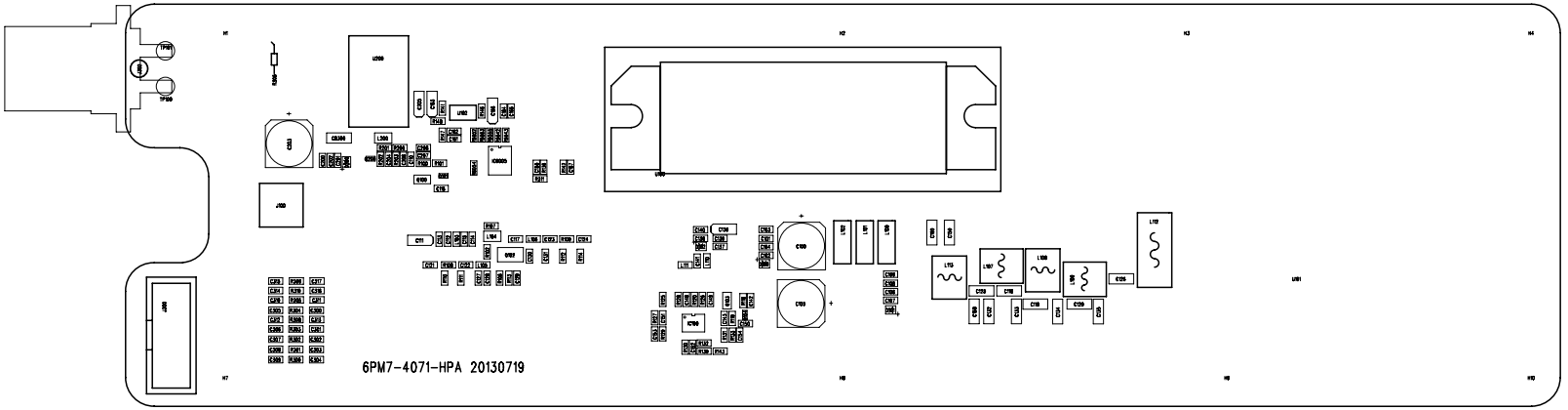


Figure 5 Power Amplifier Module Bottom Board PCB View

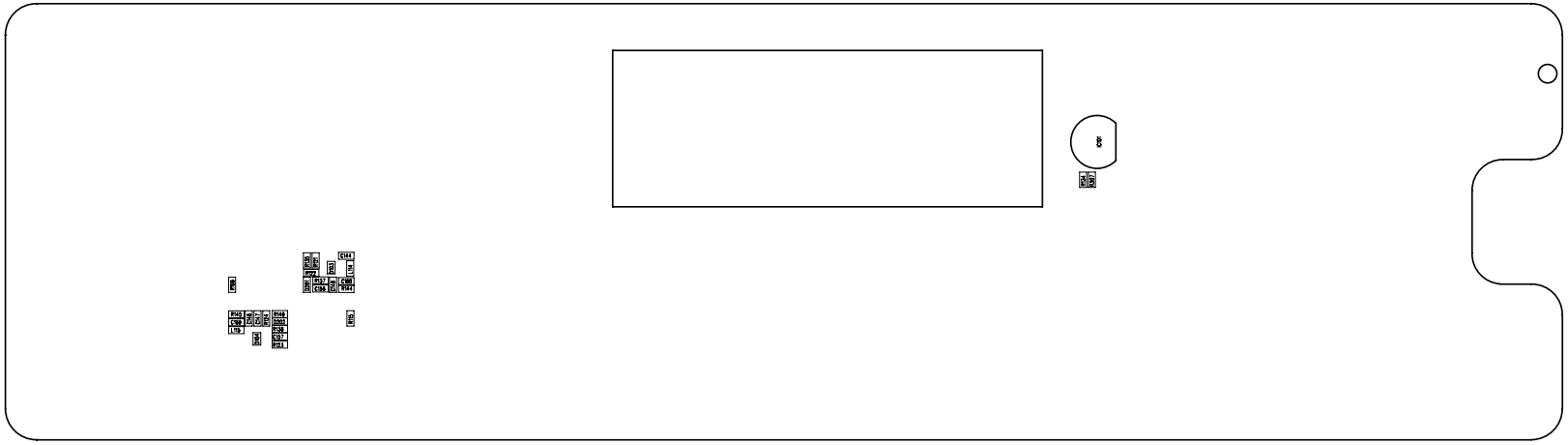


Figure 6 Baseband Mainboard Top Board PCB View

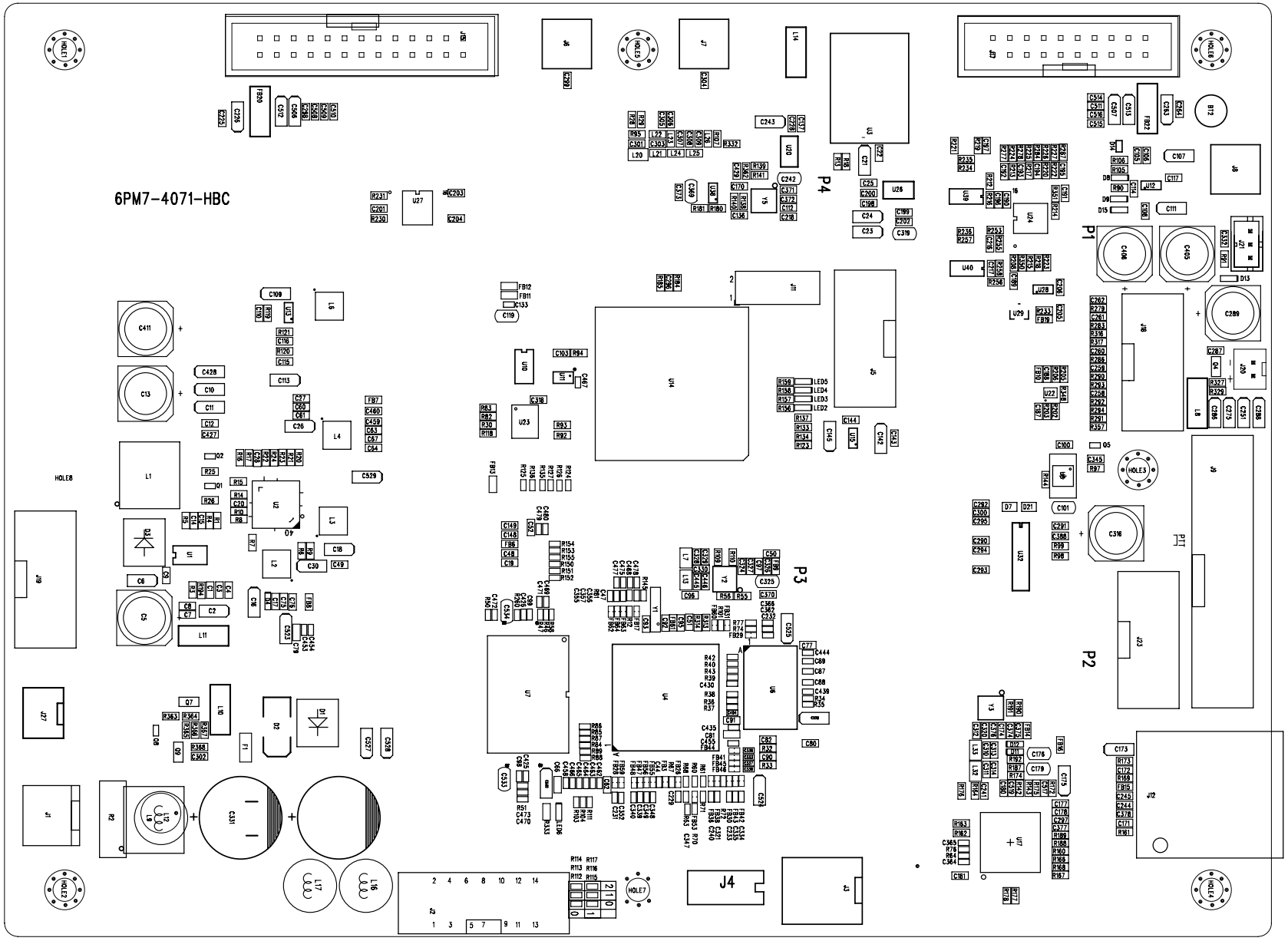


Figure 7 Baseband Mainboard Bottom Board PCB View

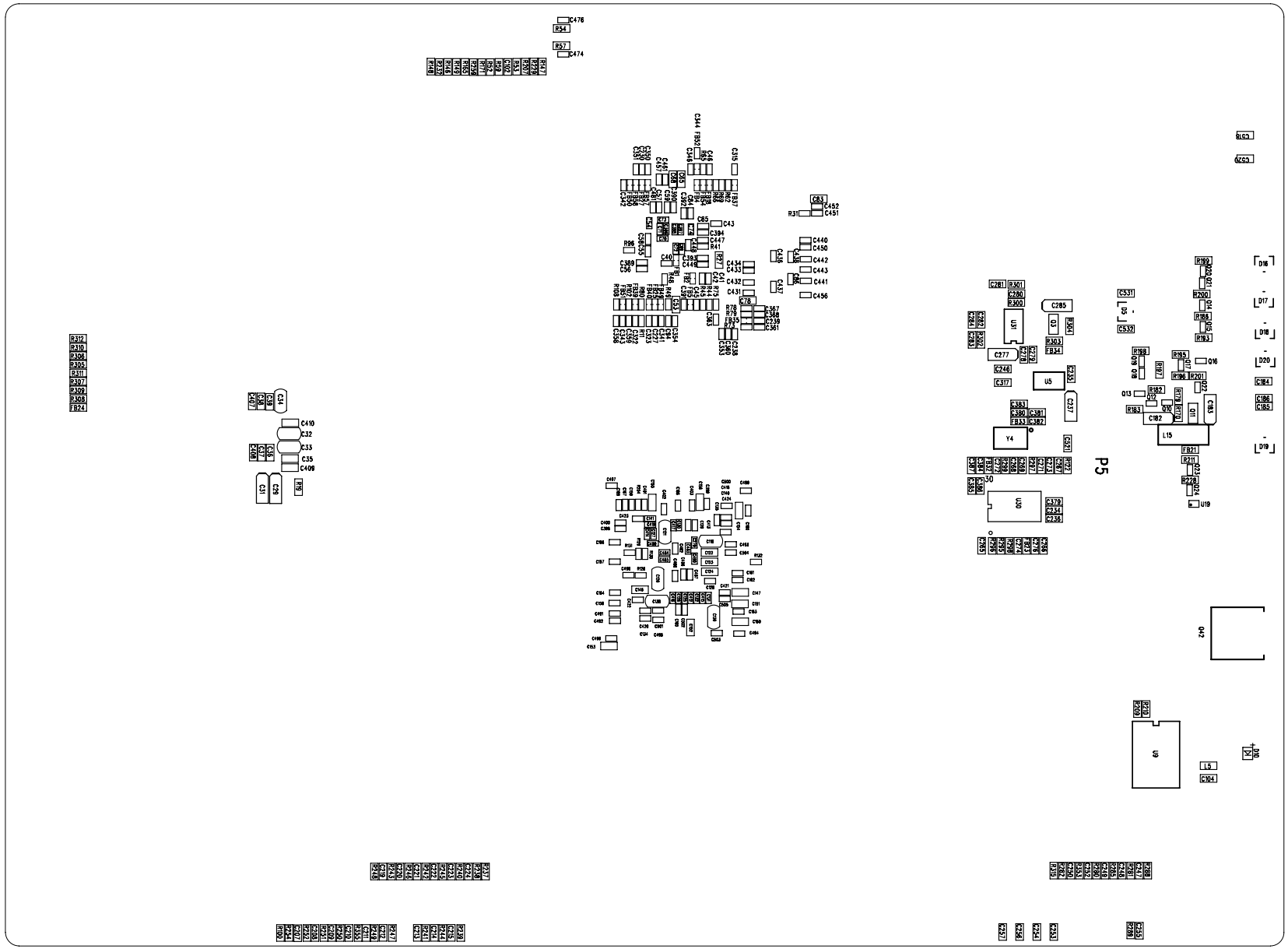


Figure 8 Front Panel Top Board PCB View

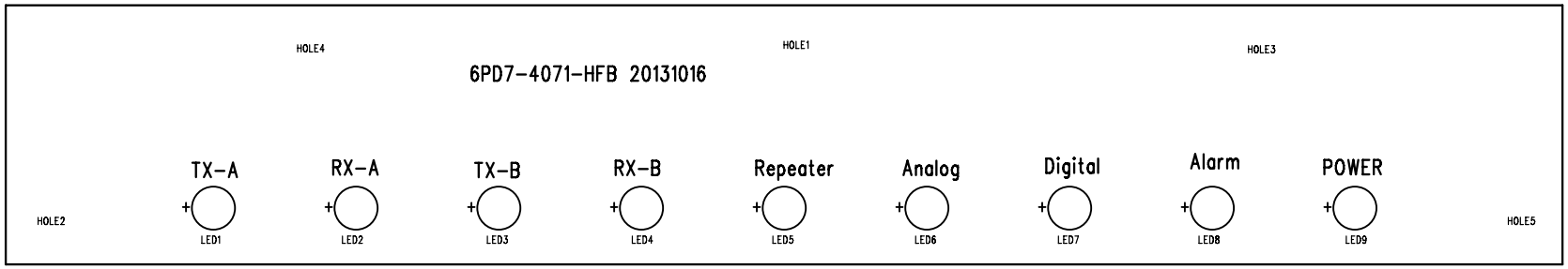


Figure 9 Front Panel Bottom Board PCB View

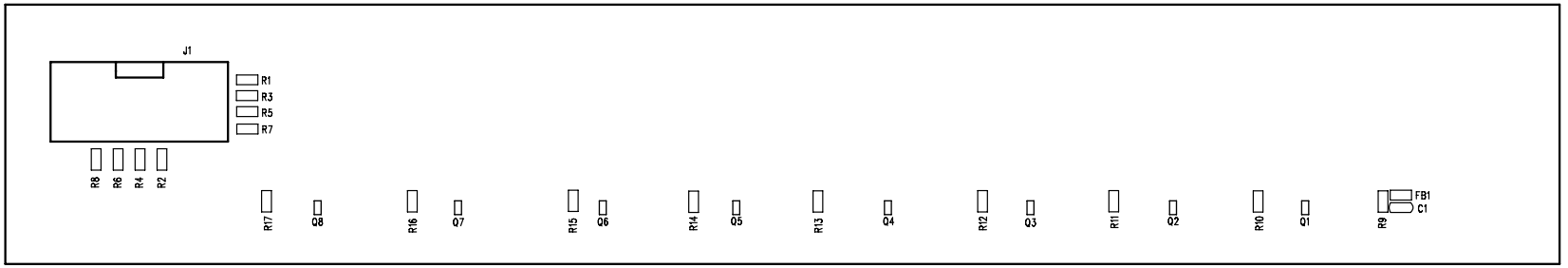


Figure 10 Power Board Top Board PCB View

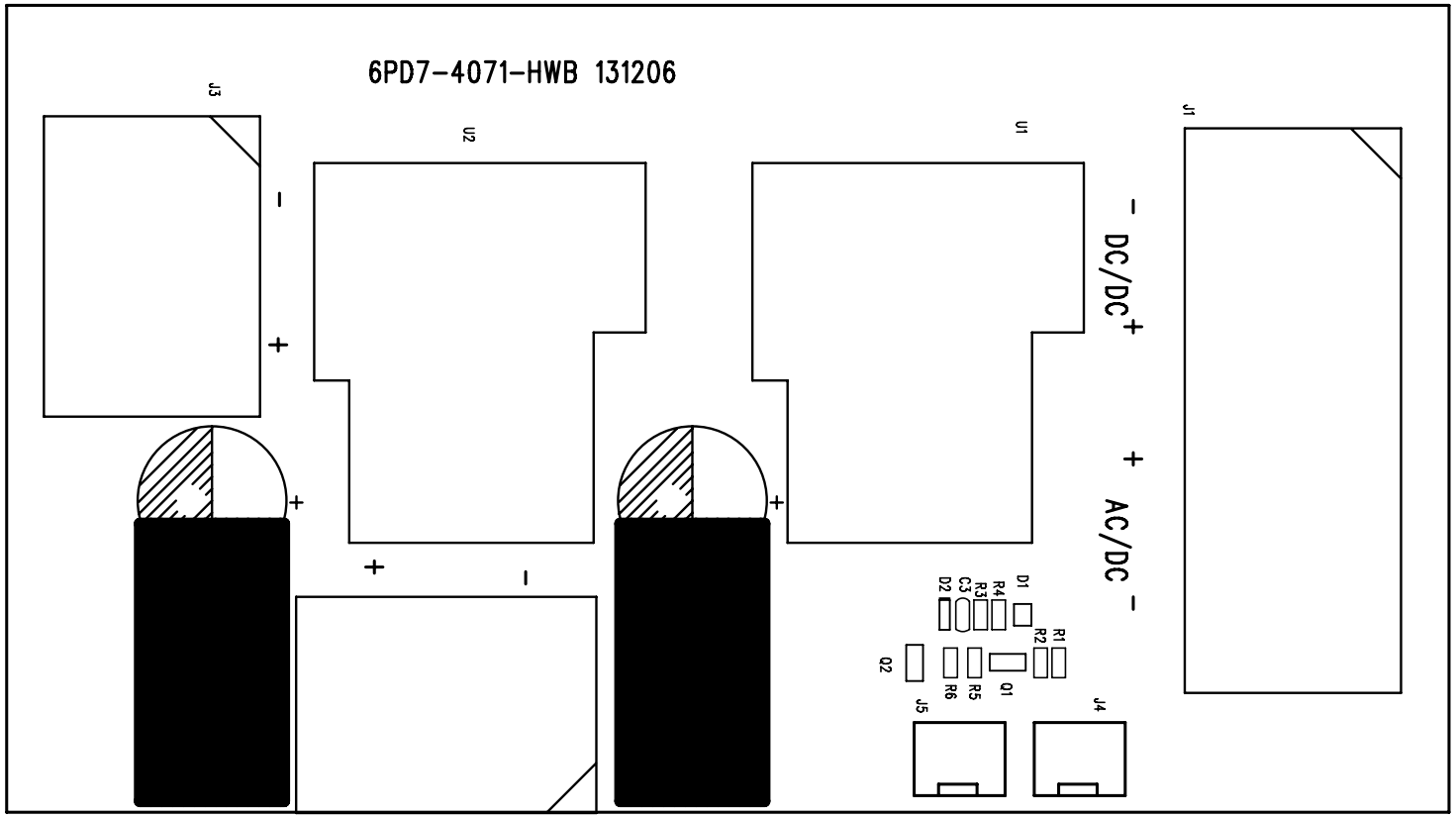


Figure 11 Accessory Board Top Board PCB View

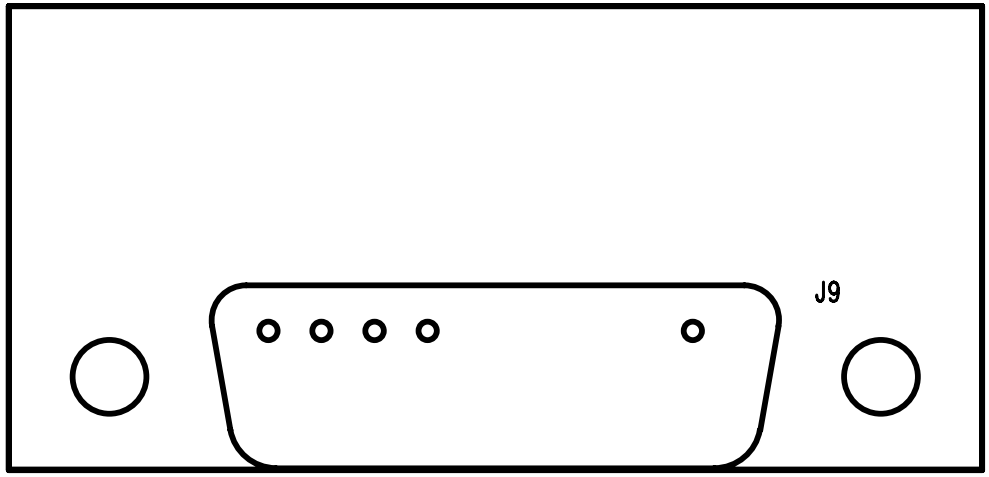


Figure 12 Accessory Board Bottom Board PCB View

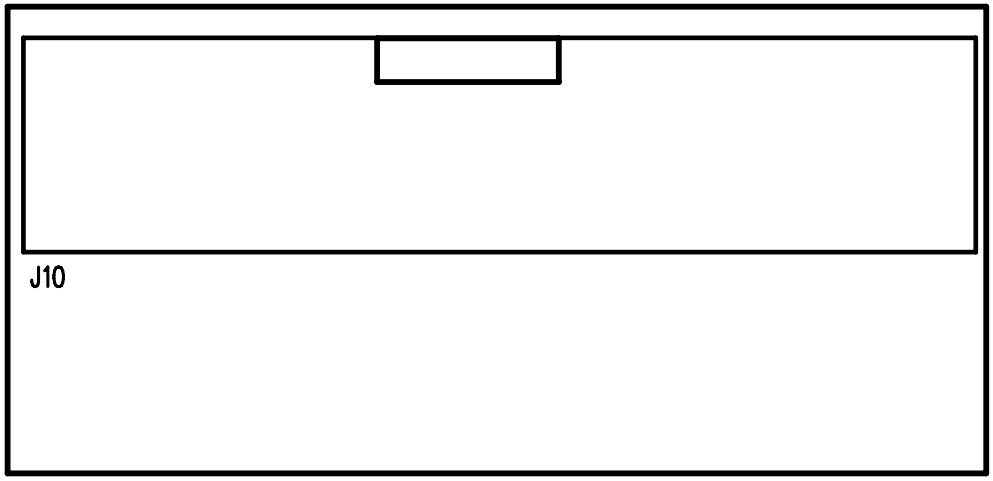
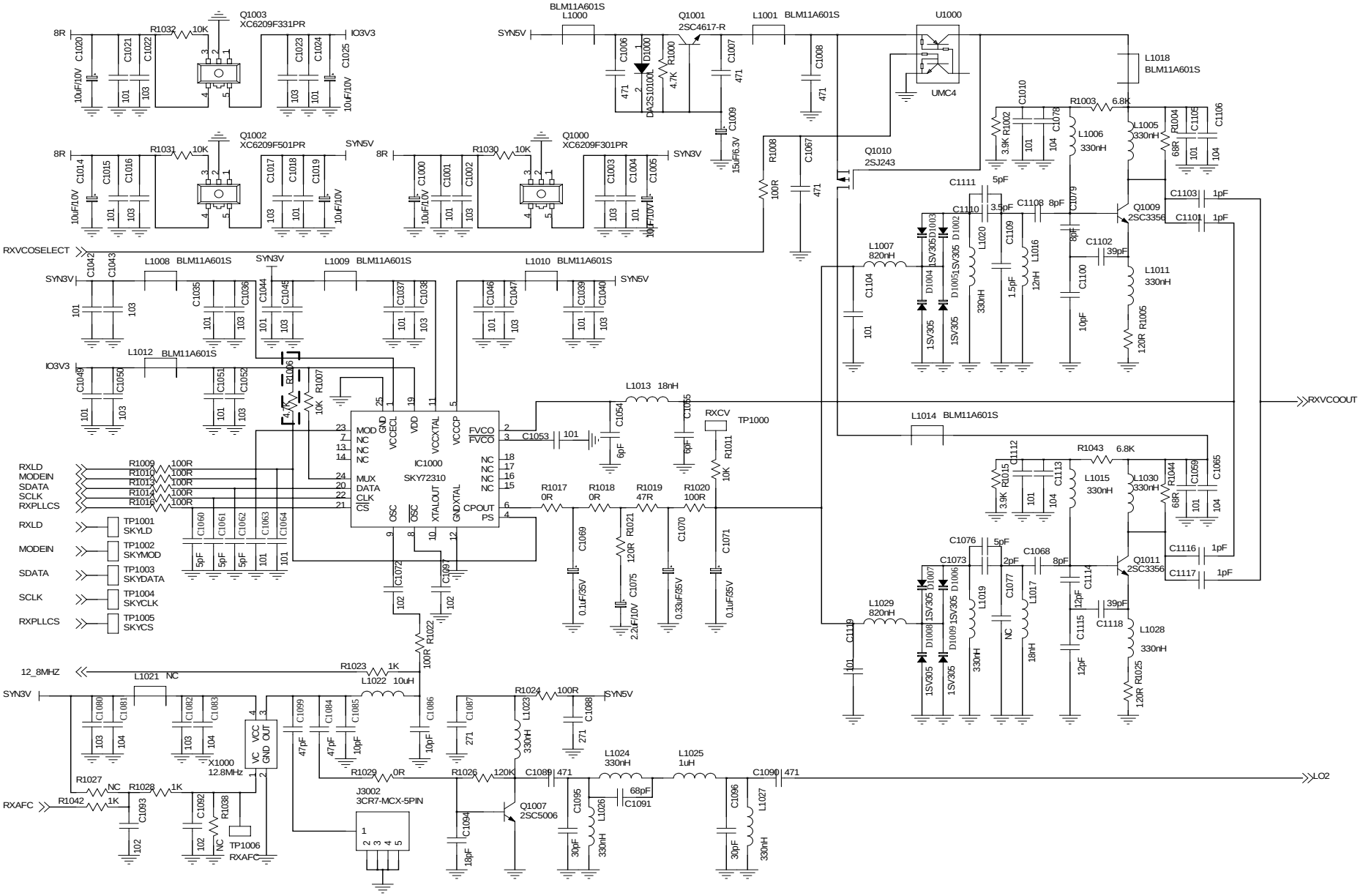
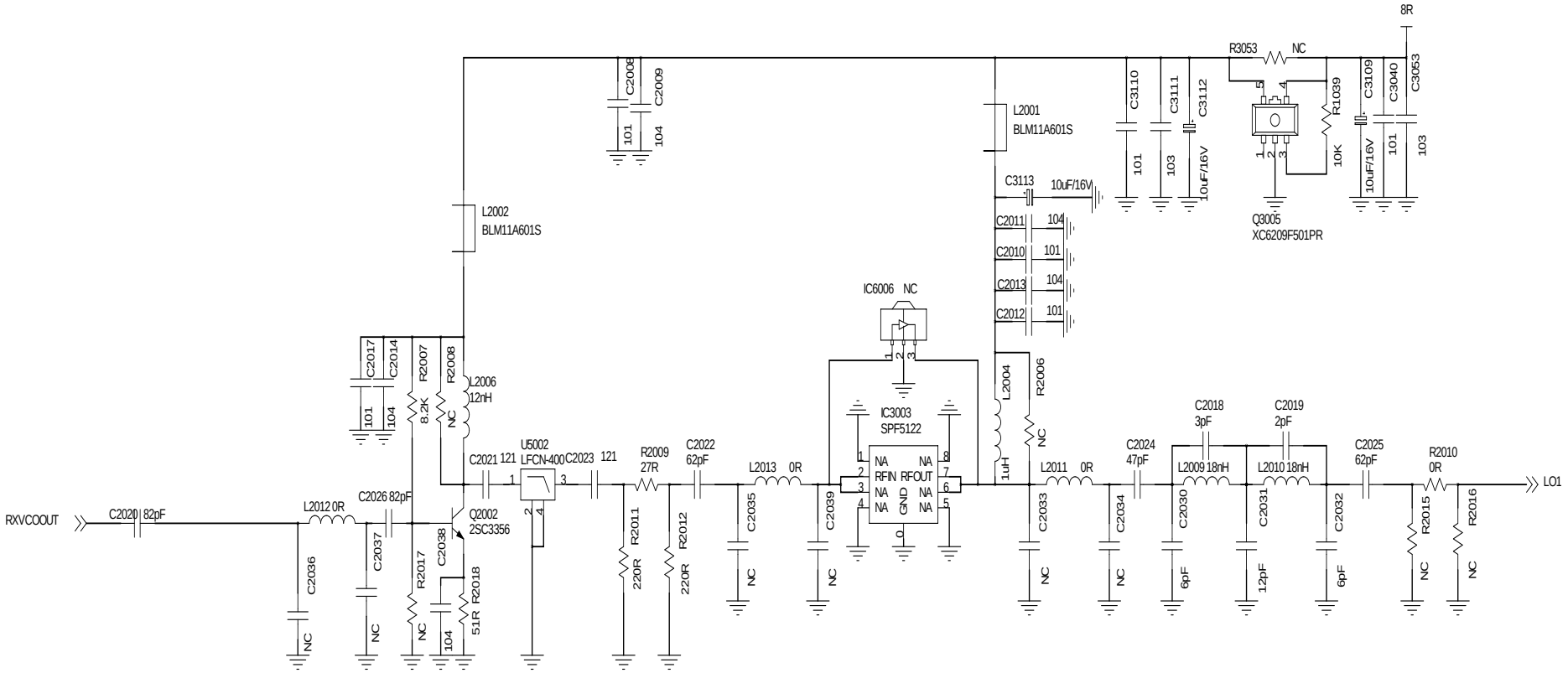
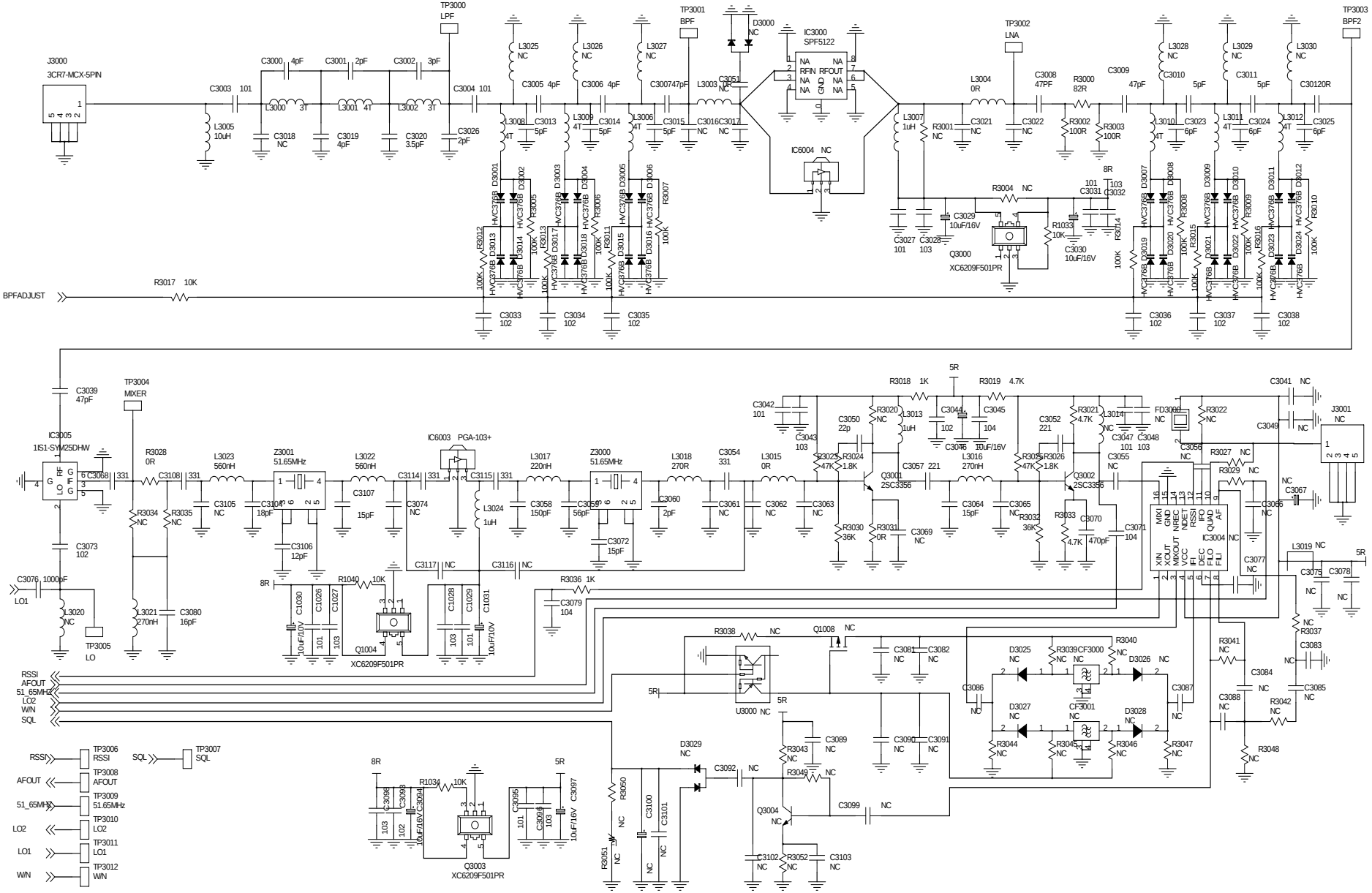
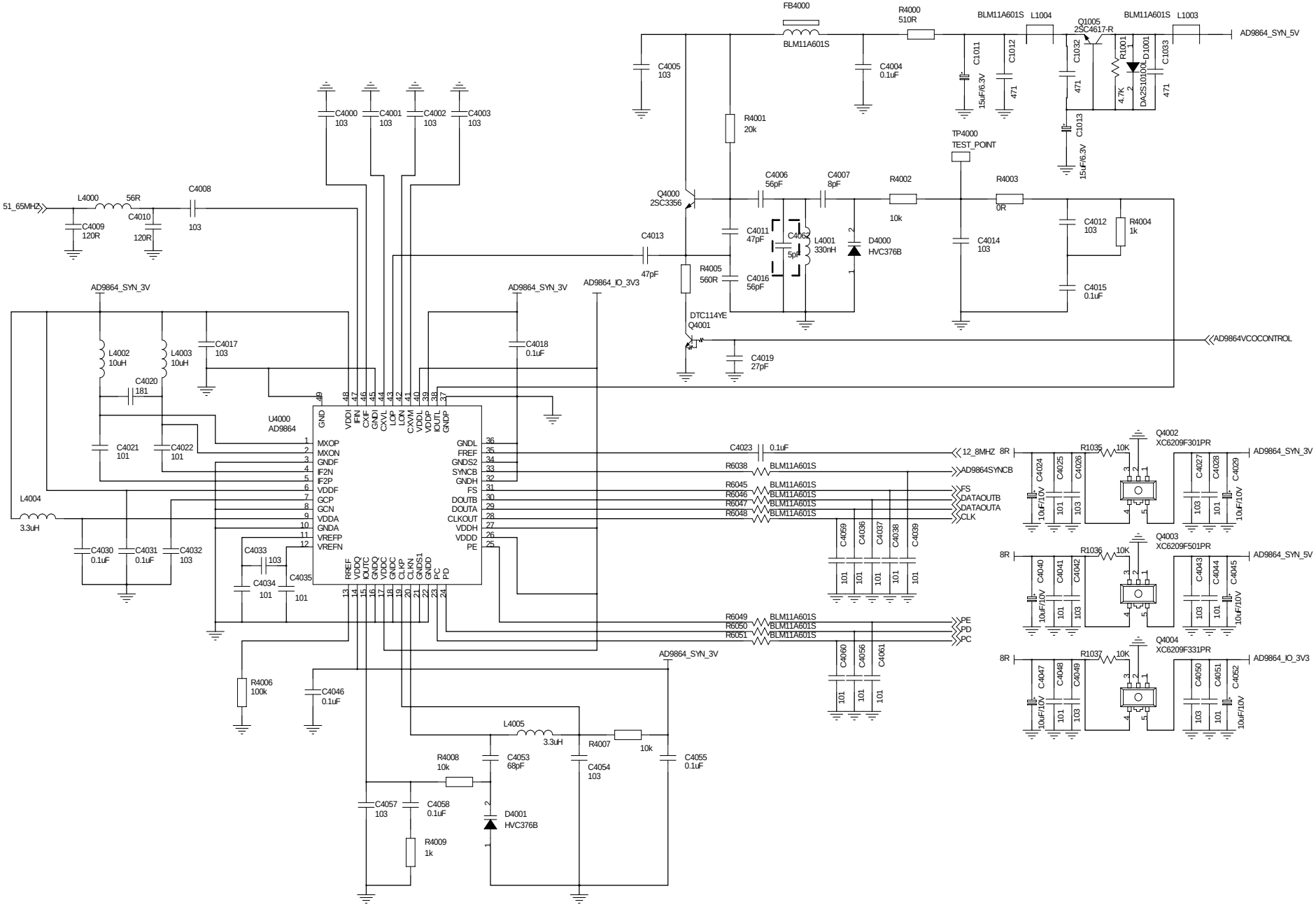


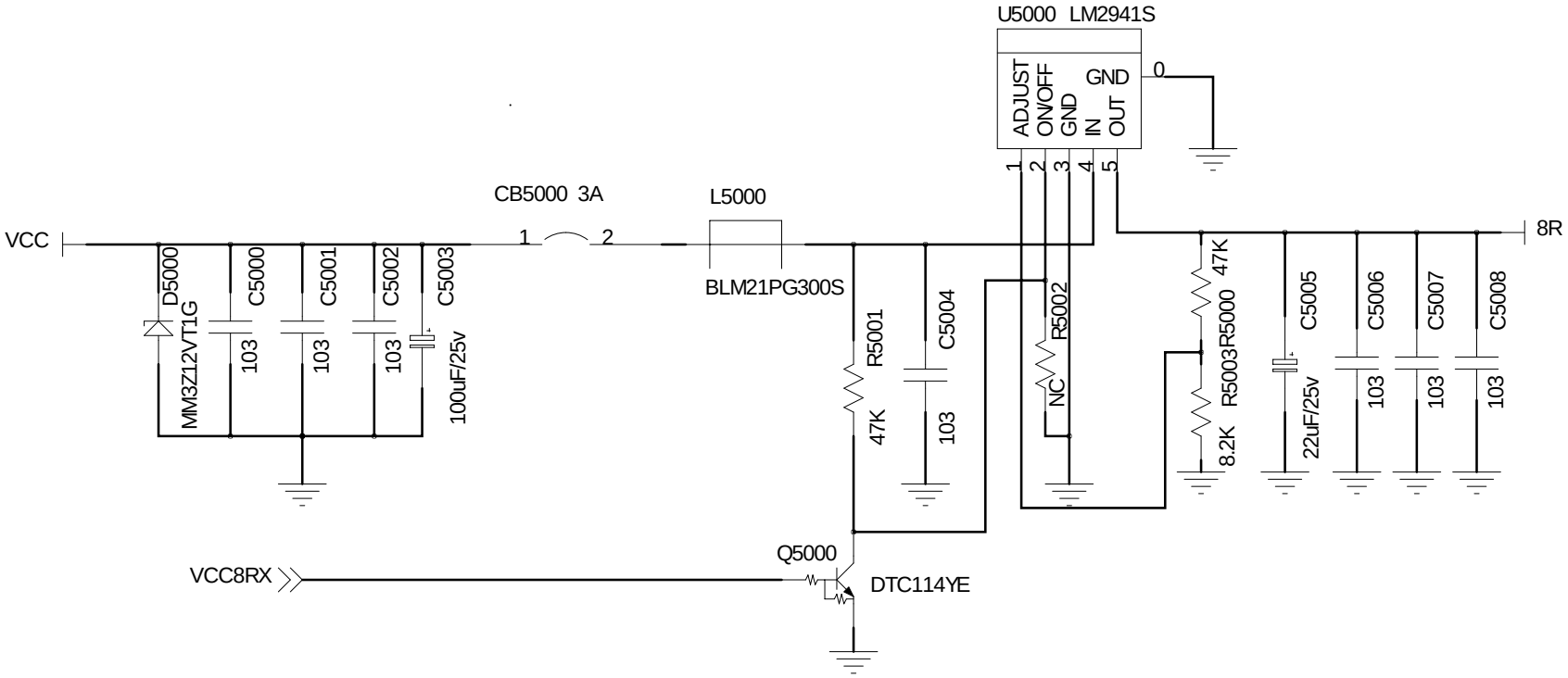
Figure 13 Rx Module Schematic Diagram

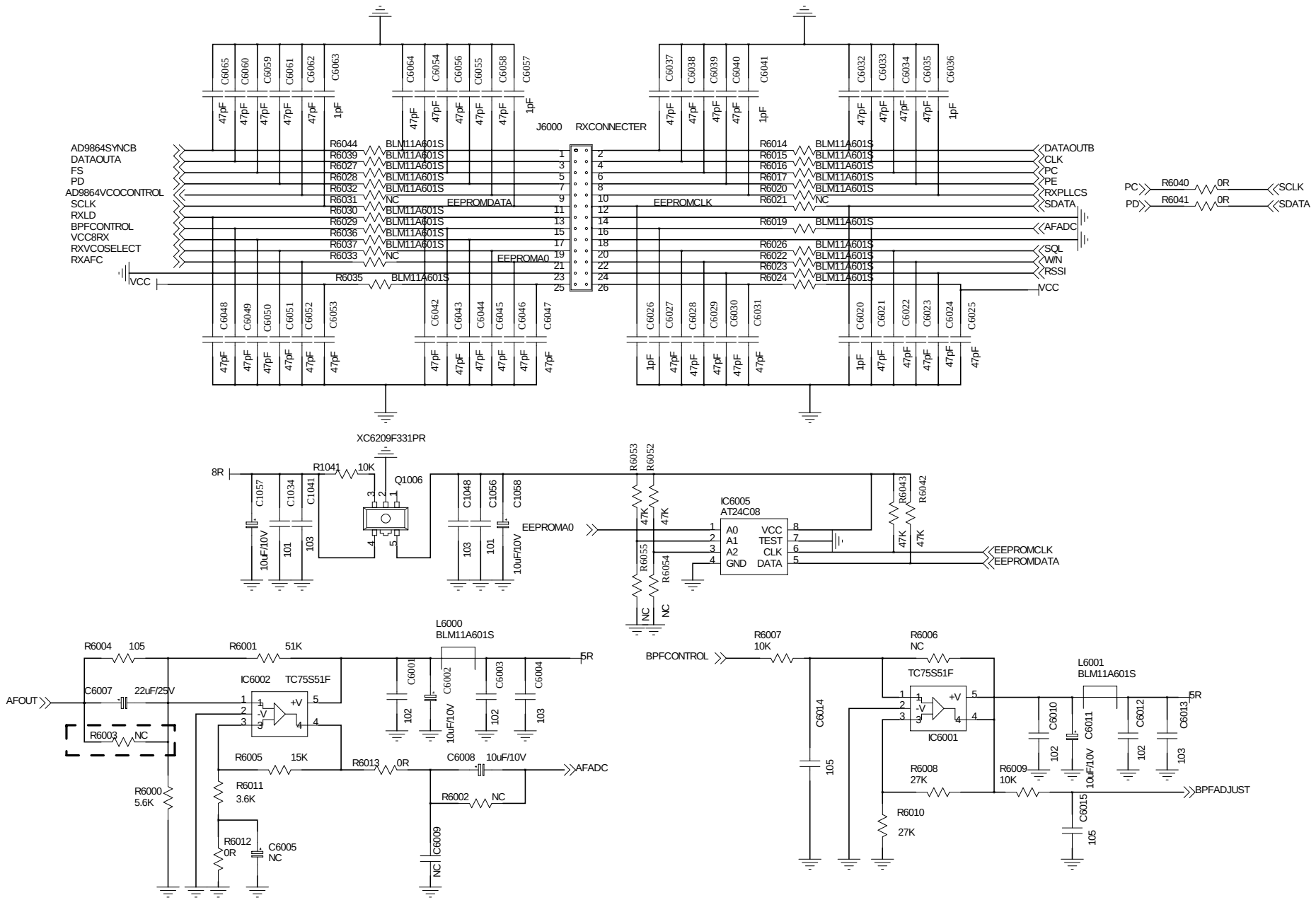



RXVCOOUT
C2020 82pF
L2012 0R
C2026 82pF
C2036 NC
C2037 NC
R2017 NC
C2038 104
R2018 51R
Q2002 2SC3356
L2002 BLM11A601S
C2017 101
C2014 104
R2007 8.2K
R2008 NC
L2006 12nH
C2021 121
U5002 LFCN-400
C2023 121
R2009 27R
R2011 220R
R2012 220R
C2022 62pF
L2013 0R
C2035 NC
C2039 NC
C2008 101
C2009 104
IC6006 NC
IC3003 SPF5122
NA RFIN NA GND RFOUT NA NA NA
L2001 BLM11A601S
C3113 10uF/16V
C2011 104
C2010 101
C2013 104
C2012 101
L2004 1uH
R2006 NC
C2033 NC
L2011 0R
C2034 NC
C2024 47pF
C3110 101
C3111 103
C3112 10uF/16V
R3053 NC
Q3005 XC6209F501PR
R1039 10K
C3109 10uF/16V
C3040 101
C3053 103
8R
C2018 3pF
C2019 2pF
L2009 18nH
L2010 18nH
C2030 6pF
C2031 12pF
C2032 6pF
C2025 62pF
R2010 0R
R2015 NC
R2016 NC
LO1


J3000
3CR7-MCX-5PIN
TP3000
LPF
TP3001
BPF
TP3002
LNA
TP3003
BPF2
IC3000
SPF5122
IC6004 NC
Q3000
XC6209F501PR
BPFADJUST
R3017 10K
TP3004
MIXER
IC3005
1SS1-SYM25DHW
IC6003 PGA-103+
Z3001
51.65MHz
Z3000
51.65MHz
Q3001
2SC3356
Q3002
2SC3356
Q1004
XC6209F501PR
Q3003
XC6209F501PR
U3000 NC
IC3004 NC
FD3000
CF3000
CF3001
TP3005
LO
TP3006
RSSI
TP3007
SQL
TP3008
AFOUT
TP3009
51_65MHz
TP3010
LO2
TP3011
LO1
TP3012
WIN
RSSI
AFOUT
51_65MHz
LO2
WIN
SQL


FB4000
BLM11A601S
R4000
510R
BLM11A601S L1004
BLM11A601S L1003
Q1005
2SC4617-R
AD9864_SYN_5V
C4005
103
C4004
0.1uF
C1011
15uF/6.3V
C1012
471
C1032
471
R1001
4.7K
D1001
DA2S10100L
C1033
471
C1013
15uF/6.3V
R4001
20k
TP4000
TEST_POINT
C4000
103
C4001
103
C4002
103
C4003
103
Q4000
2SC3356
C4006
56pF
C4007
8pF
R4002
10k
R4003
0R
51_65MHZ
L4000
56R
C4008
103
C4009
120R
C4010
120R
C4011
47pF
C4062
5pF
L4001
330nH
D4000
HVC376B
C4012
103
R4004
1k
C4013
47pF
R4005
560R
C4016
56pF
C4014
103
C4015
0.1uF
DTC114YE
Q4001
C4019
27pF
AD9864VCOCONTROL
AD9864_SYN_3V
AD9864_IO_3V3
C4018
0.1uF
L4002
10uH
L4003
10uH
C4017
103
C4020
181
U4000
AD9864
GND
VDDI
IFN
CXIF
GND
CXVL
LOP
LON
CXVM
VDDL
VDDP
DOUTI
GNDP
MXOP
MXON
GNDF
IF2N
IF2P
VDDF
GCP
GCN
VDDA
GNDA
VREFP
VREFN
GNDL
FREF
GNDS2
SYNCB
GNDH
FS
DOUTB
DOUTA
CLKOUT
VDDH
VDDD
PE
RREF
VDDC
IOUTC
GNDC
VDDC
GNDC
CLKP
CLKN
GNDS1
GNDD
PC
PD
C4021
101
C4022
101
L4004
3.3uH
C4030
0.1uF
C4031
0.1uF
C4032
103
C4033
103
C4034
101
C4035
101
C4023
0.1uF
12_8MHZ
R6038
BLM11A601S
AD9864SYNCB
R6045
R6046
R6047
R6048
BLM11A601S
FS
DATAOUTB
DATAOUTA
CLK
C4059
C4036
C4037
C4038
C4039
101
R6049
R6050
R6051
BLM11A601S
PE
PD
PC
C4060
C4056
C4061
R4006
100k
C4046
0.1uF
L4005
3.3uH
R4007
10k
R4008
10k
C4053
68pF
C4054
103
C4055
0.1uF
C4057
103
C4058
0.1uF
D4001
HVC376B
R4009
1k
Q4002
XC6209F301PR
R1035
10K
8R
C4024
C4025
C4026
C4027
C4028
C4029
10uF/10V
101
103
Q4003
XC6209F501PR
R1036
C4040
C4041
C4042
C4043
C4044
C4045
Q4004
XC6209F331PR
R1037
C4047
C4048
C4049
C4050
C4051
C4052


U5000 LM2941S
ADJUST
ON/OFF
GND
IN
OUT
GND
0
1
2
3
4
5
CB5000 3A
L5000
VCC
1
2
BLM21PG300S
8R
D5000
MM3Z12VT1G
C5000
103
C5001
103
C5002
103
C5003
100uF/25v
R5001
47K
C5004
103
R5002
NC
47K
R5003
8.2K
R5000
47K
C5005
22uF/25v
C5006
103
C5007
103
C5008
103
Q5000
DTC114YE
VCC8RX


J6000 RXCONNECTER
AD9864SYNCB
DATAOUTA
FS
PD
AD9864VCOCONTROL
SCLK
RXLD
BPFCONTROL
VCC8RX
RXVCOSELECT
RXAFC
VCC
DATAOUTB
CLK
PC
PE
RXPLLCS
SDATA
AFADC
SQL
W/N
RSSI
VCC
EEPROMDATA
EEPROMCLK
EEPROMA0
BLM11A601S
PC R6040 0R SCLK
PD R6041 0R SDATA
XC6209F331PR
Q1006
R1041 10K
8R
IC6005
AT24C08
A0 A1 A2 GND VCC TEST CLK DATA
EEPROMCLK
EEPROMDATA
L6000
BLM11A601S
5R
R6004 105
R6001 51K
AFOUT
C6007 22uF/25V
IC6002 TC75S51F
R6003 NC
R6005 15K
R6013 0R
C6008 10uF/10V
AFADC
R6000 5.6K
R6011 3.6K
R6012 0R
C6005 NC
R6002 NC
C6009 NC
BPFCONTROL
R6007 10K
R6006 NC
TC75S51F
IC6001
L6001
BLM11A601S
R6008 27K
R6009 10K
R6010 27K
BPFADJUST
C6014 105
C6015 105

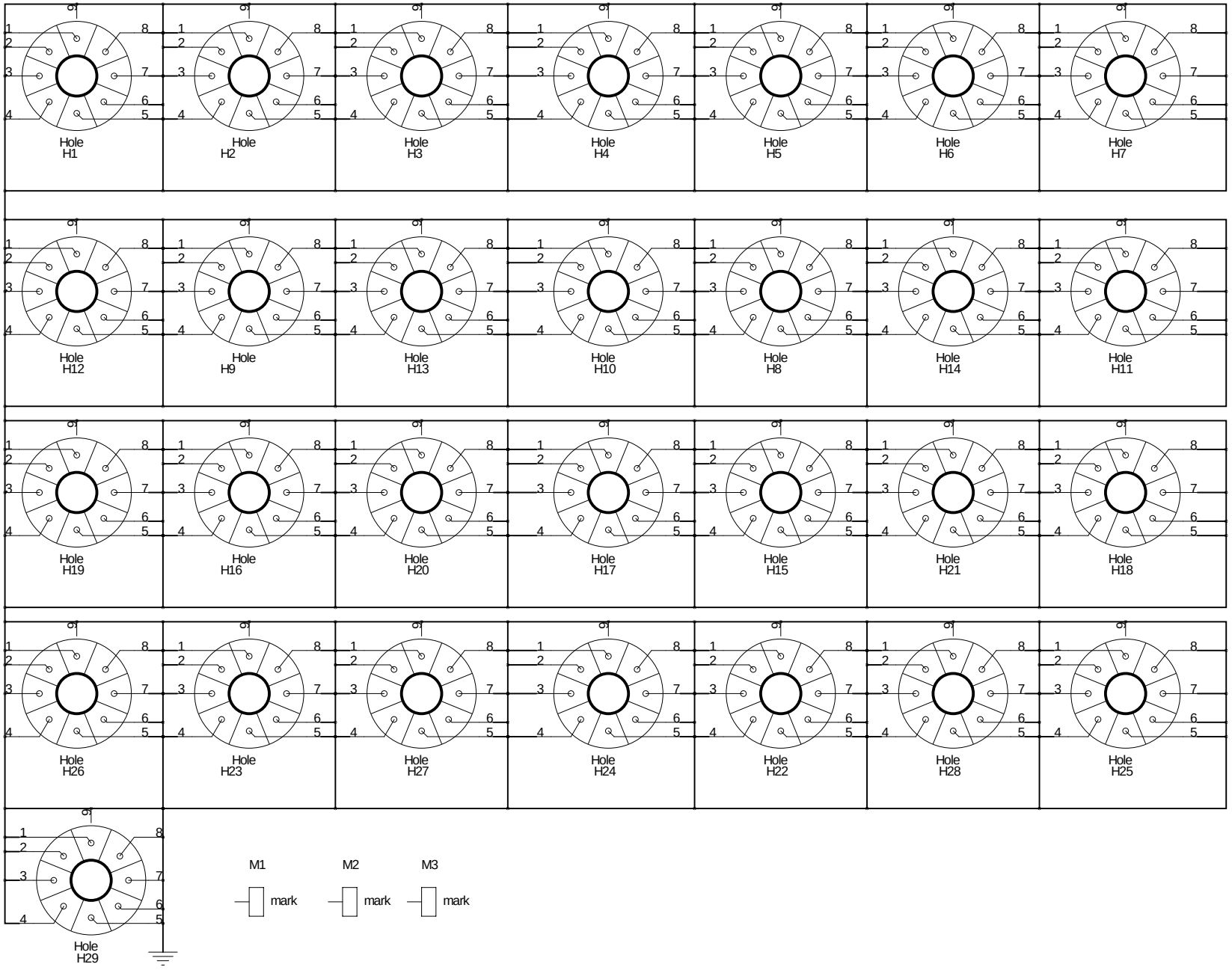
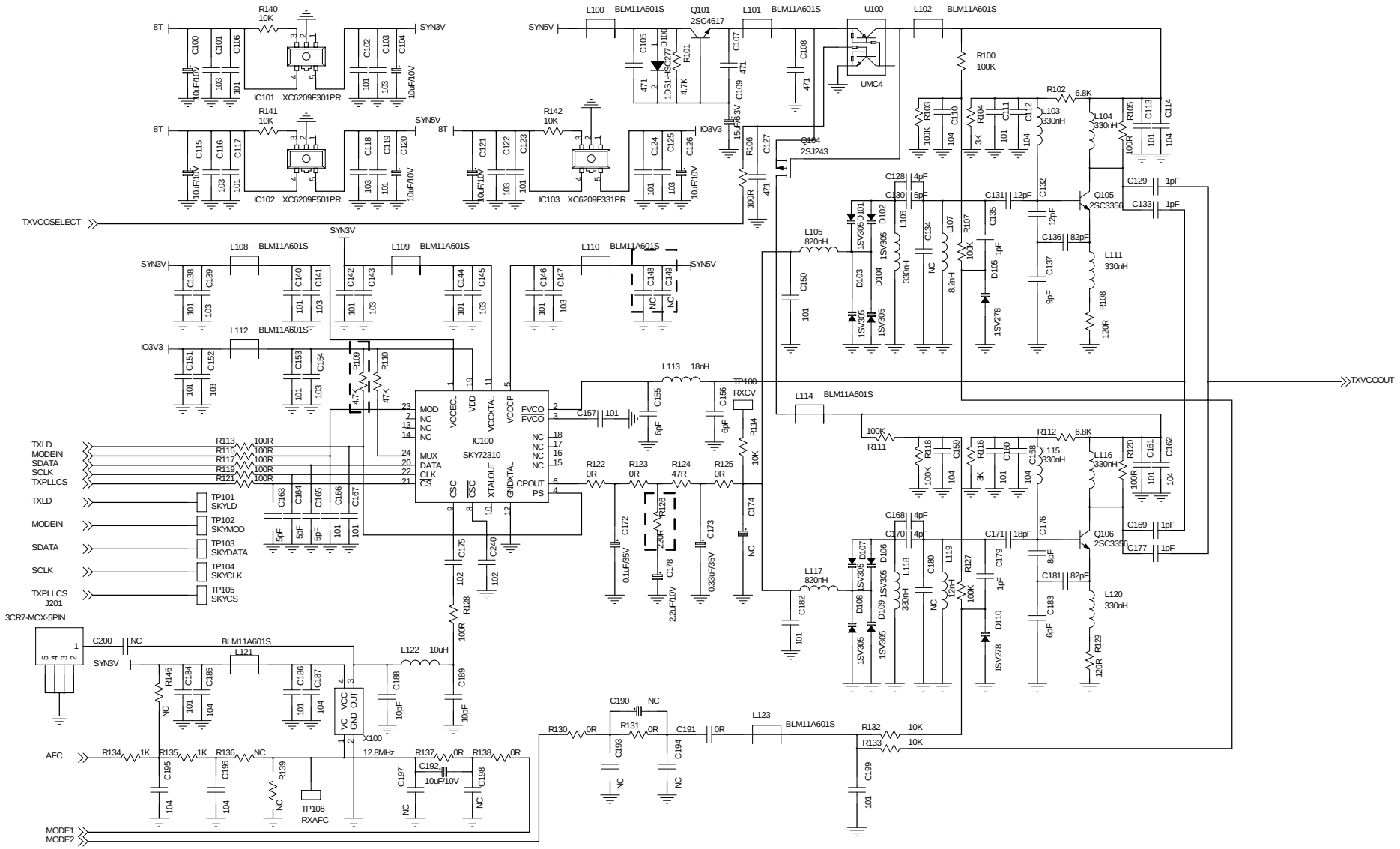
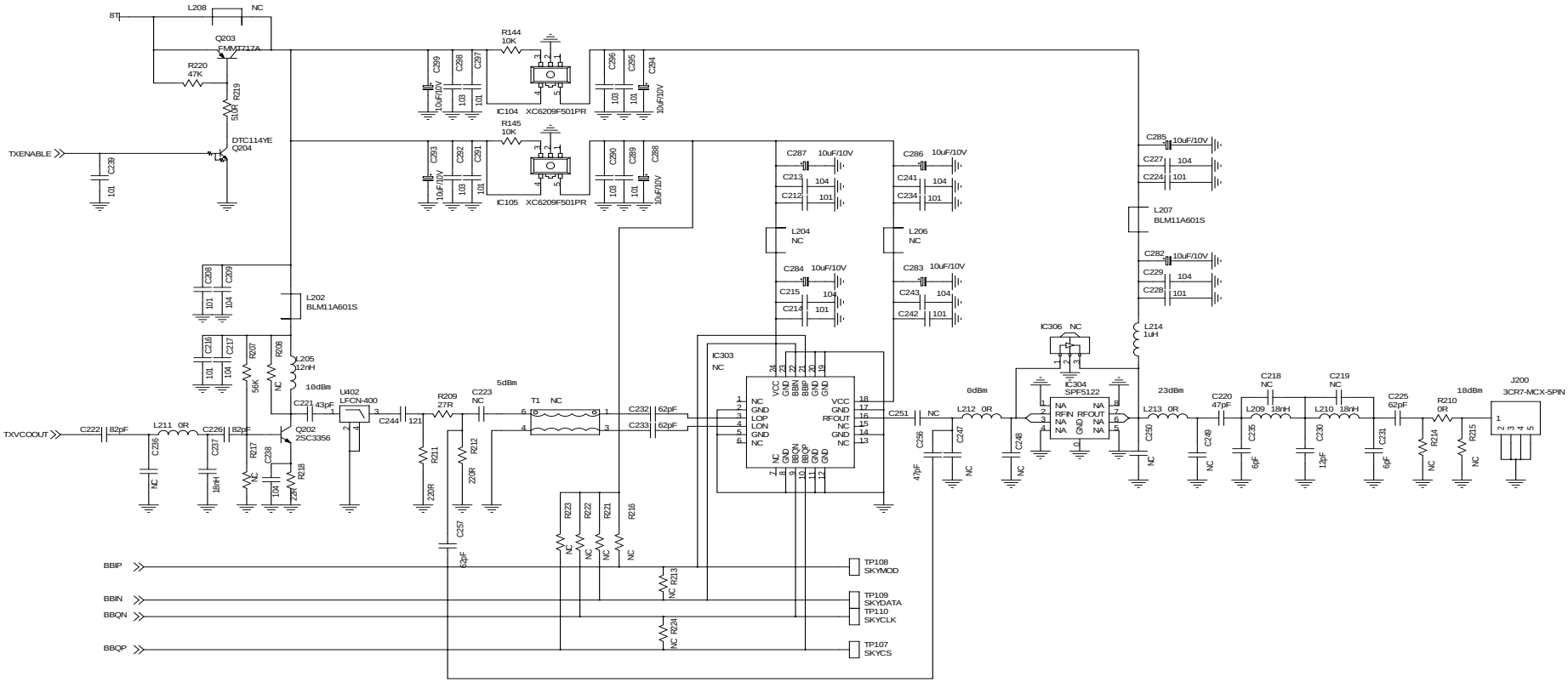
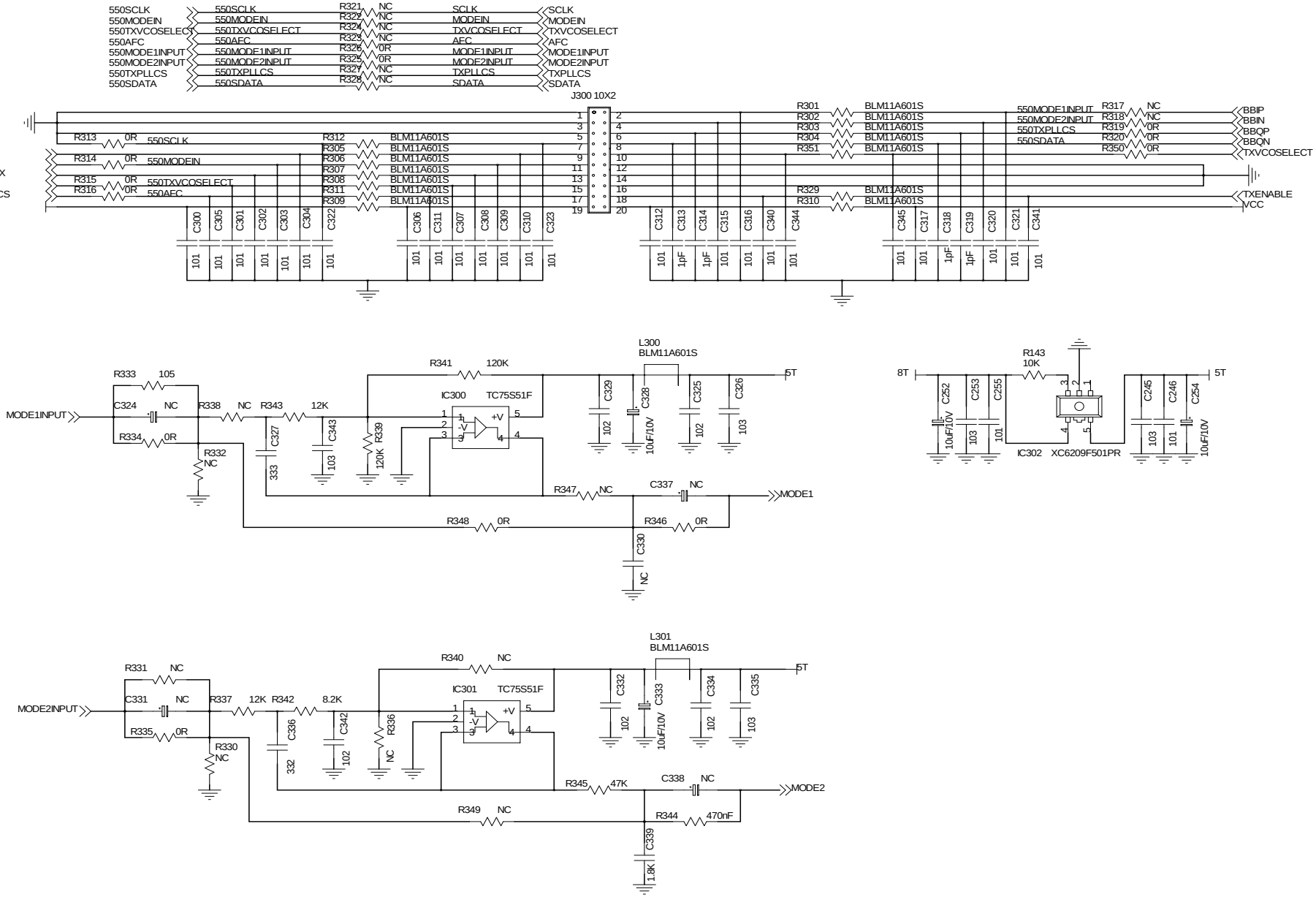
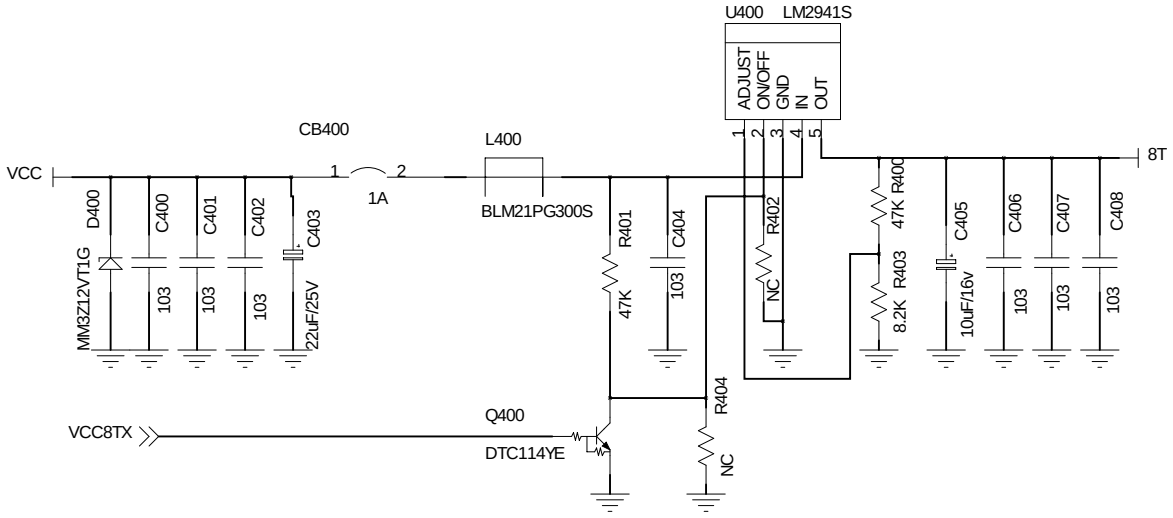

Hole H1
Hole H2
Hole H3
Hole H4
Hole H5
Hole H6
Hole H7
Hole H12
Hole H9
Hole H13
Hole H10
Hole H8
Hole H14
Hole H11
Hole H19
Hole H16
Hole H20
Hole H17
Hole H15
Hole H21
Hole H18
Hole H26
Hole H23
Hole H27
Hole H24
Hole H22
Hole H28
Hole H25
Hole H29
M1
M2
M3
mark
mark
mark

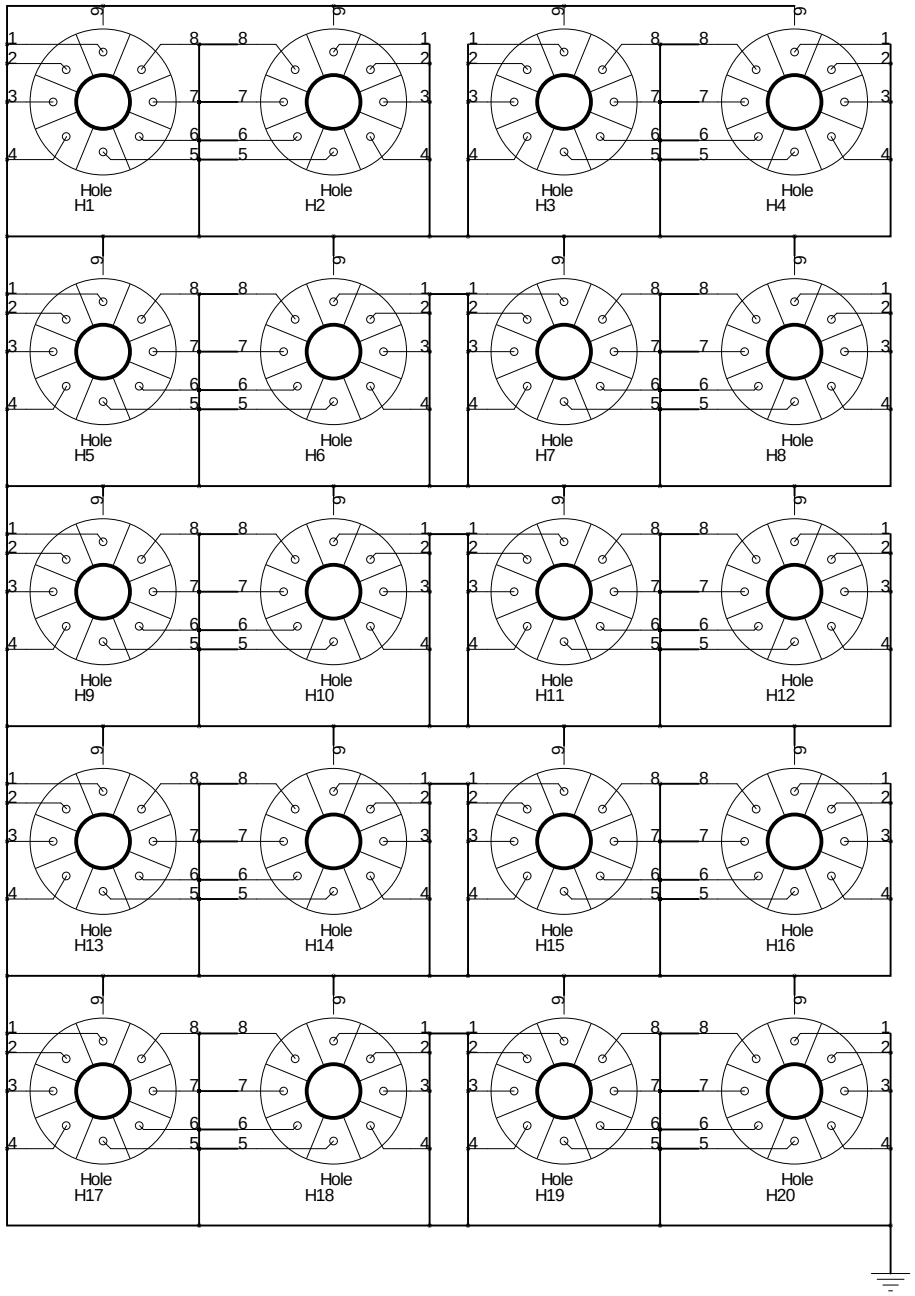
Figure 14 Tx Module Schematic Diagram




8T
L208 NC
Q203 FMMT717A
R220 47K
R219 510K
TXENABLE
DTC114YE Q204
C239 101
R144 10K
R145 10K
IC104 XC6209F501PR
IC105 XC6209F501PR
C289 C298 C297 C296 C295 C294
C293 C292 C291 C290 C289 C288
10uF/10V 103 101
C287 C213 C212 C286 C241 C234 10uF/10V 104 101
C284 C215 C214 C283 C243 C242 10uF/10V 104 101
L204 NC
L206 NC
C285 C227 C224 10uF/10V 104 101
L207 BLM11A601S
C282 C229 C228 10uF/10V 104 101
L214 1uH
C208 C209 101 104
L202 BLM11A601S
C216 C217 101 104
R207 56K
R208 NC
L205 12nH
16dBm
U402 LFCN-400
C221 43pF
C244 121
R209 27R
C223 NC
5dBm
T1 NC
C232 62pF
C233 62pF
IC303 NC
VCC GND LOP LON GND NC GND BBIN BBIP GND GND NC GND BBQN BBQP GND GND
0dBm
C251 NC
L212 0R
IC306 NC
IC304 SPF5122
NA RFIN NA NA RFOUT NA GND NA NA
23dBm
L213 0R
C220 47pF
C218 NC
L209 18nH
C219 NC
L210 18nH
C225 62pF
R210 0R
18dBm
J200 3CR7-MCX-5PIN
TXVCCOUT
C222 82pF
L211 0R
C226 82pF
Q202 2SC3356
C236 NC
C237 18nH
R217 NC
C238 104
R218 22R
R211 220R
R212 220R
C257 62pF
R223 R222 R221 R216 NC
R213 NC
R224 NC
C256 47pF
C247 C248 C249 C250 NC
C235 C230 6pF
C231 6pF
C232 13pF
R214 R215 NC
BBIP
BBIN
BBQN
BBQP
TP108 SKYMOD
TP109 SKYDATA
TP110 SKYCLK
TP107 SKYCS

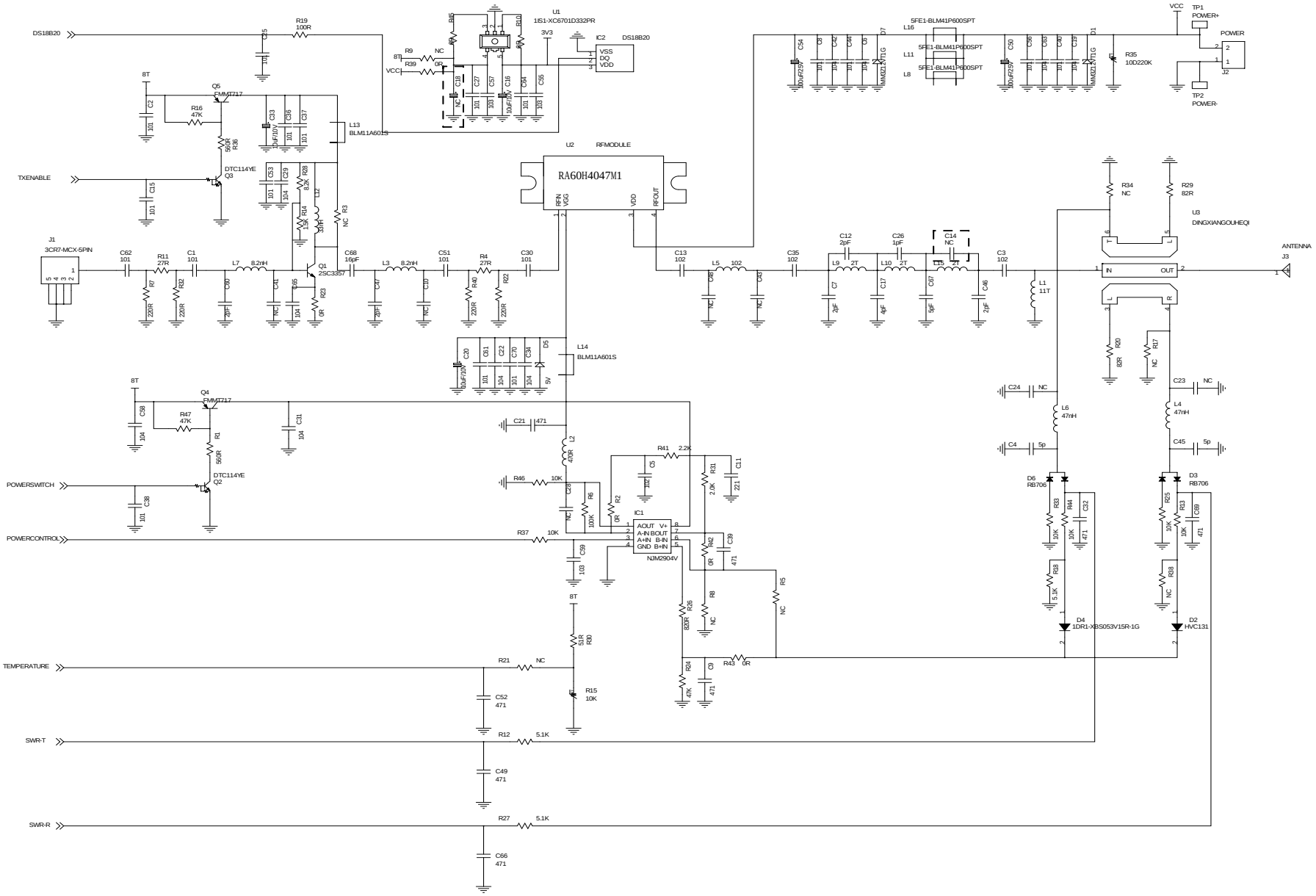

550SCLK
550MODEIN
550TXVCOSELECT
550AFC
550MODE1INPUT
550MODE2INPUT
550TXPLLCS
550SDATA
SCLK
MODEIN
TXVCOSELECT
AFC
MODE1INPUT
MODE2INPUT
TXPLLCS
SDATA
J300 10X2
TXLD
SCLK
VCC8TX
SDATA
TXPLLCS
VCC
BLM11A601S
BBIP
BBIN
BBQP
BBQN
TXVCOSELECT
TXENABLE
VCC
L300
IC300 TC75S51F
MODE1INPUT
MODE1
L301
IC301 TC75S51F
MODE2INPUT
MODE2
R143 10K
IC302 XC6209F501PR
8T
5T

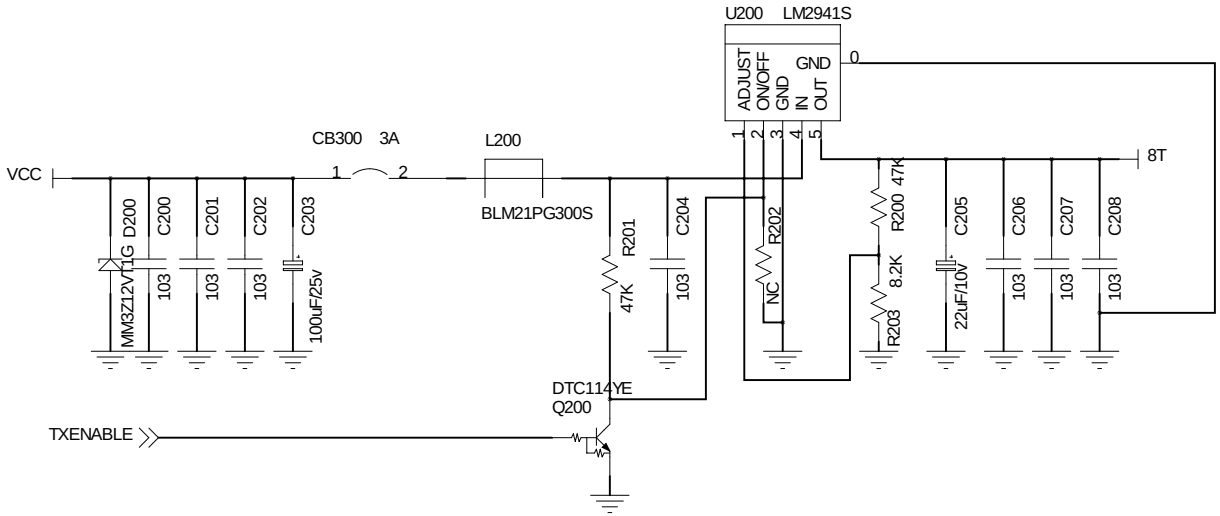

U400 LM2941S
ADJUST
ON/OFF
GND
IN
OUT
1
2
3
4
5
CB400
L400
VCC
1
2
1A
BLM21PG300S
8T
D400
MM3Z12VT1G
C400
103
C401
103
C402
103
C403
22uF/25V
R401
47K
C404
103
R402
NC
R400
47K
R403
8.2K
C405
10uF/16v
C406
103
C407
103
C408
103
R404
NC
Q400
DTC114YE
VCC8TX

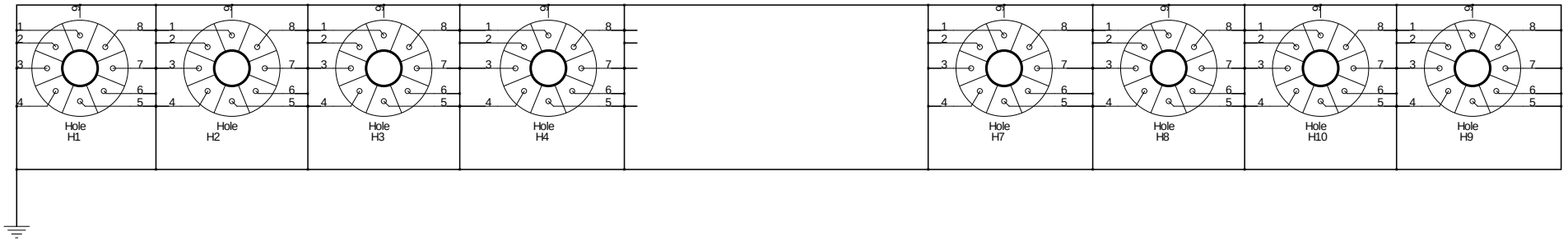

Hole
H1
Hole
H2
Hole
H3
Hole
H4
Hole
H5
Hole
H6
Hole
H7
Hole
H8
Hole
H9
Hole
H10
Hole
H11
Hole
H12
Hole
H13
Hole
H14
Hole
H15
Hole
H16
Hole
H17
Hole
H18
Hole
H19
Hole
H20

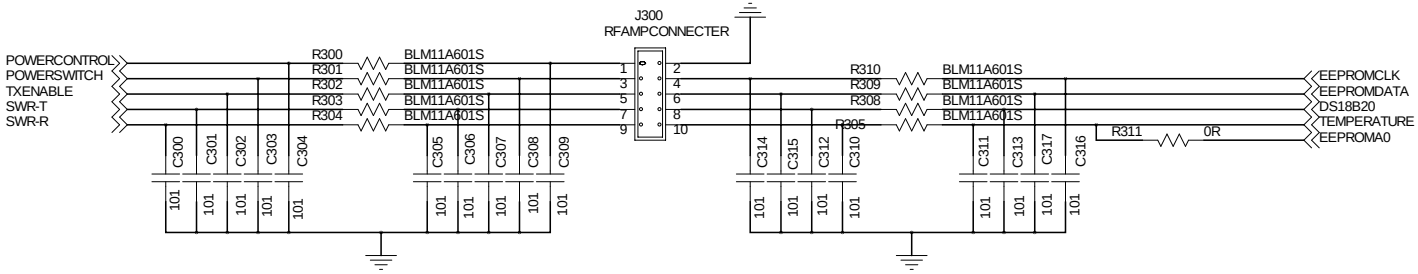

H21
MARK
H22
MARK
H23
MARK

Figure 15 Power Amplifier Module Schematic Diagram




U200 LM2941S
ADJUST
ON/OFF
GND
IN
OUT
GND
0
1
2
3
4
5
8T
VCC
CB300 3A
1
2
L200
BLM21PG300S
D200
MM3Z12VT1G
C200
103
C201
103
C202
103
C203
100uF/25v
R201
47K
C204
103
R202
NC
R200 47K
R203
8.2K
C205
22uF/10V
C206
103
C207
103
C208
103
DTC114YE
Q200
TXENABLE


Hole
H1
Hole
H2
Hole
H3
Hole
H4
Hole
H7
Hole
H8
Hole
H10
Hole
H9


J300
RFAMPCONNECTER
POWERCONTROL
POWERSWITCH
TXENABLE
SWR-T
SWR-R
R300
R301
R302
R303
R304
BLM11A601S
R310
R309
R308
R305
EEPROMCLK
EEPROMDATA
DS18B20
TEMPERATURE
EEPROMA0
R311
0R
C300
C301
C302
C303
C304
C305
C306
C307
C308
C309
C314
C315
C312
C310
C311
C313
C317
C316
101

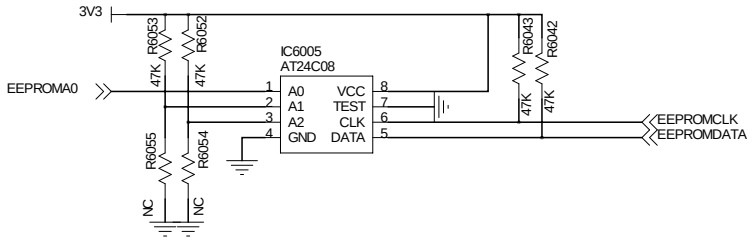
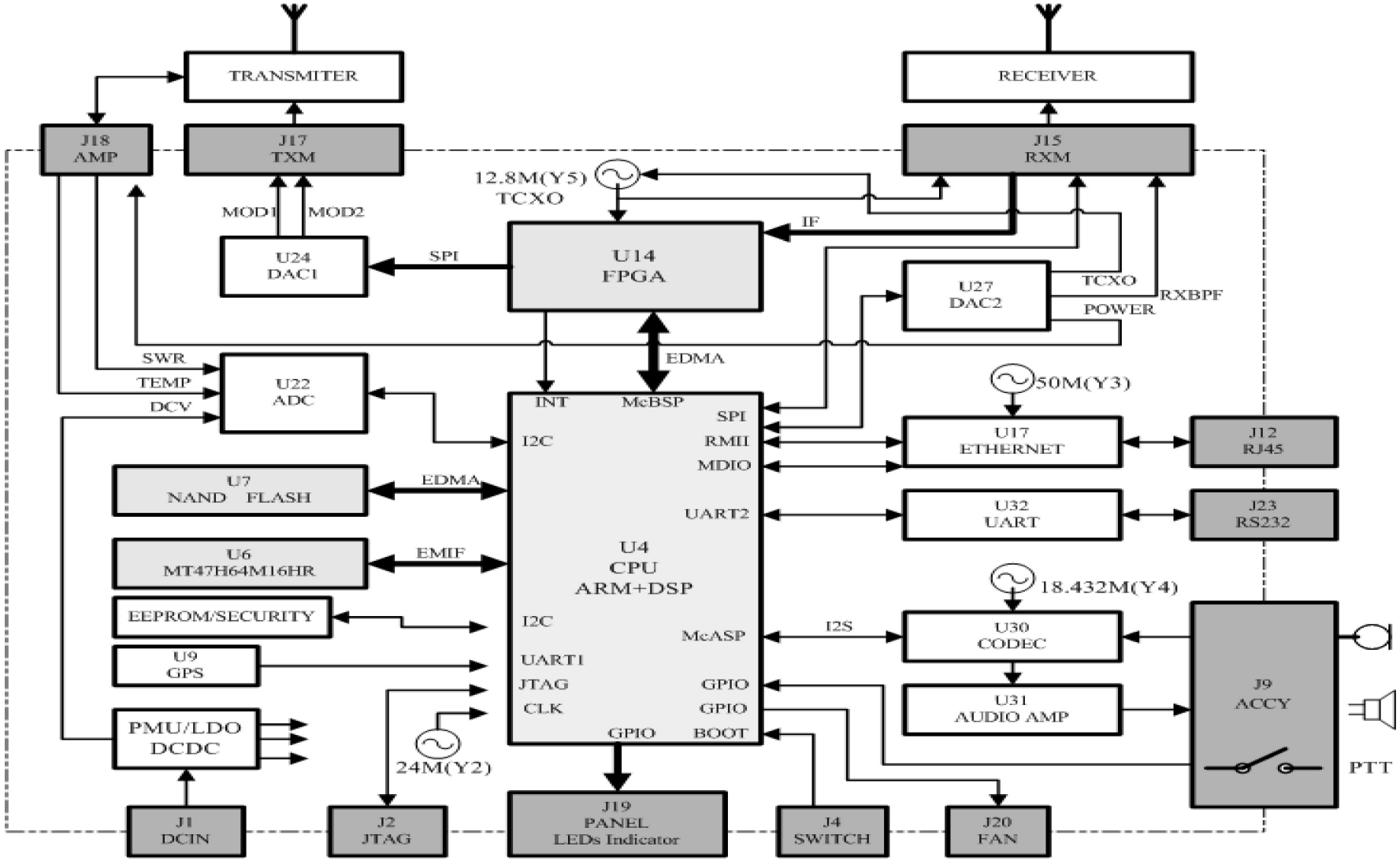
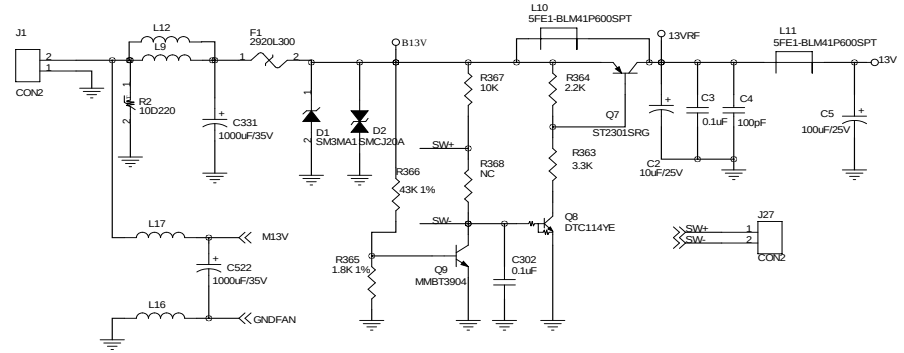
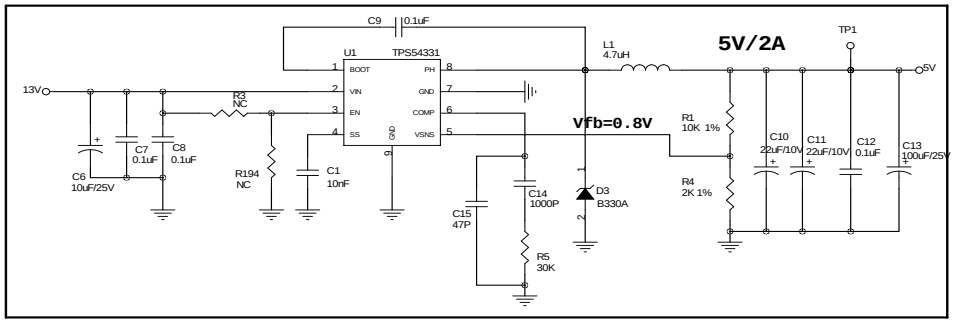
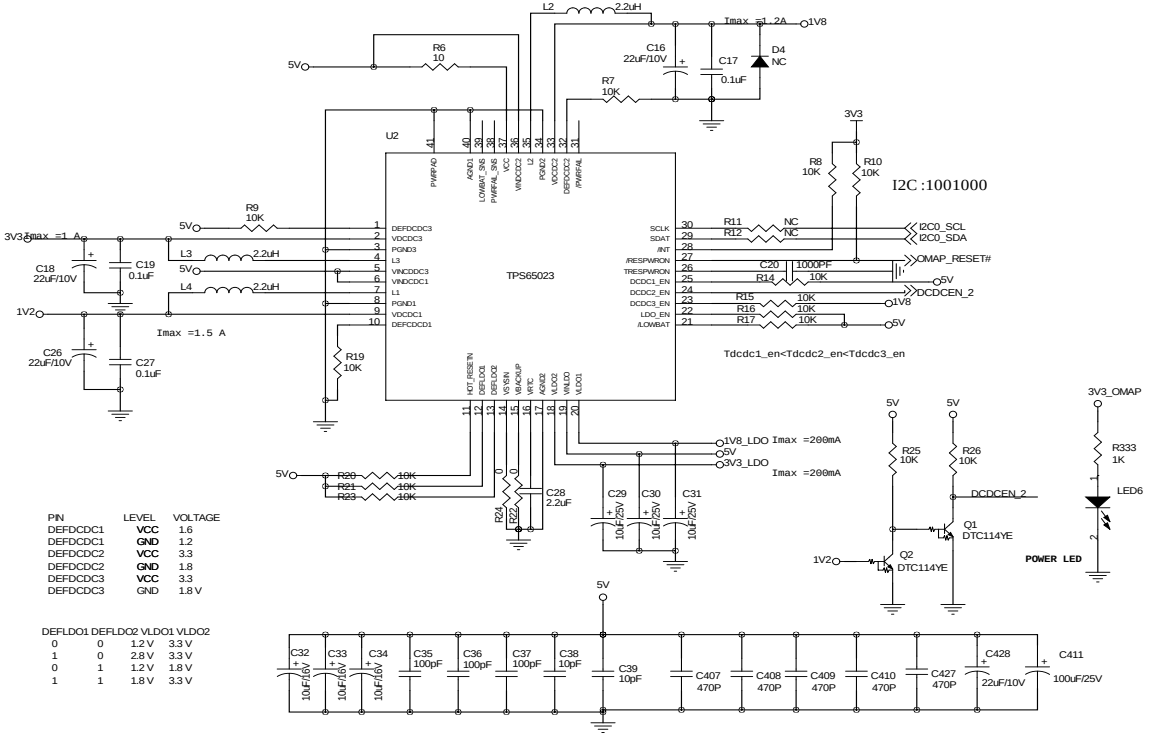

3V3
R6053
R6052
47K
IC6005
AT24C08
EEPROMA0
A0
A1
A2
GND
VCC
TEST
CLK
DATA
R6043
R6042
EEPROMCLK
EEPROMDATA
R6055
R6054
NC

Figure 16 Baseband Mainbaord Schematic Diagram

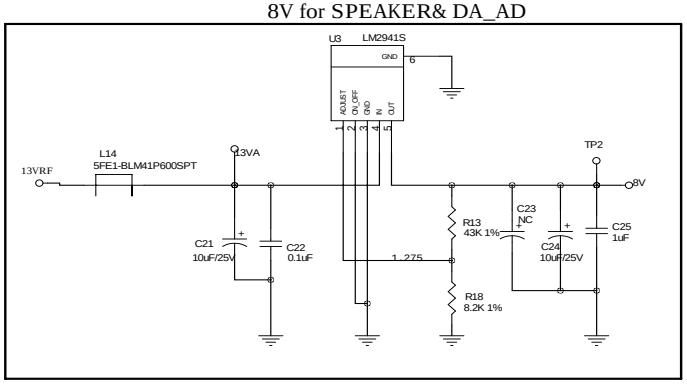






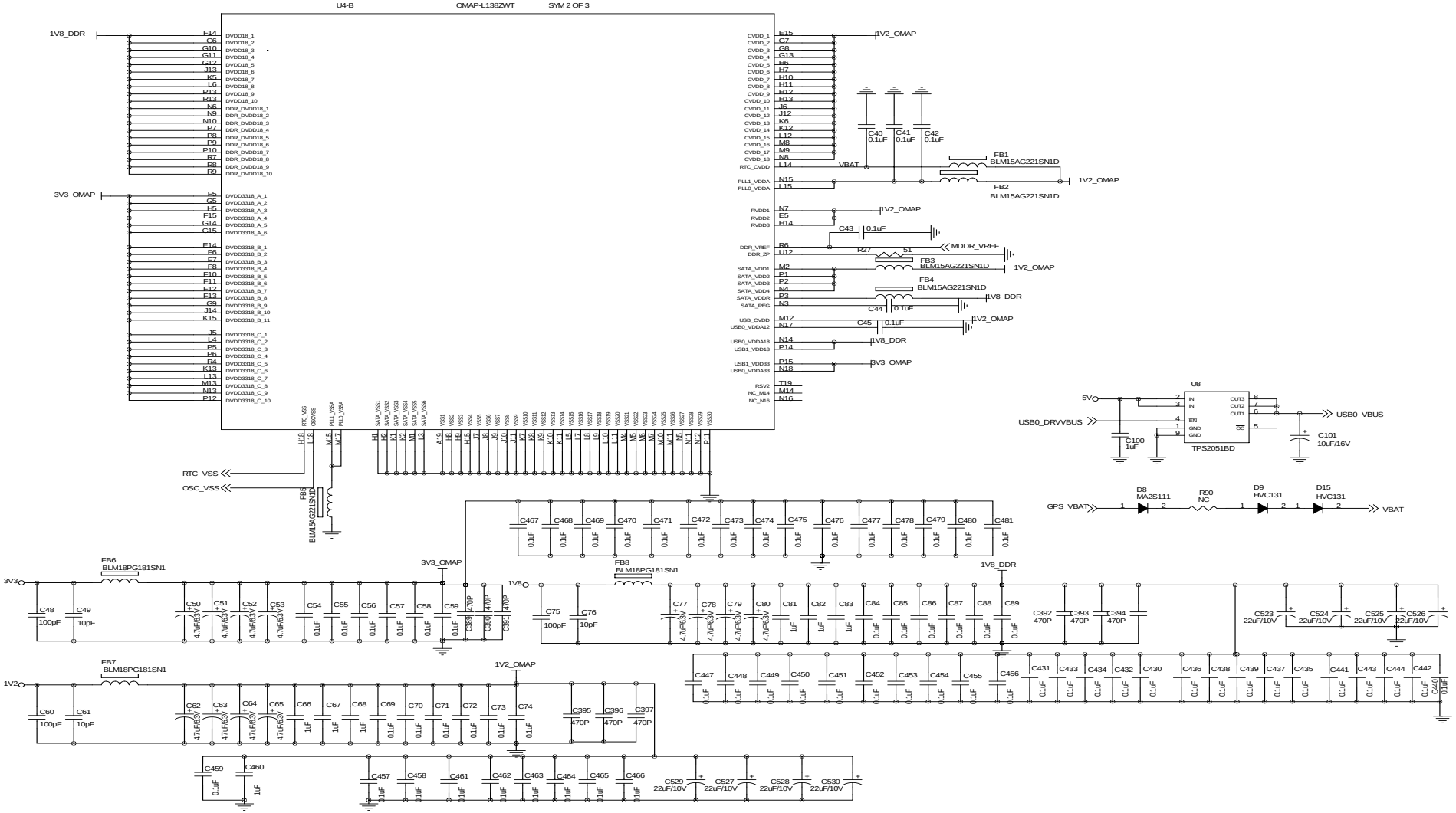


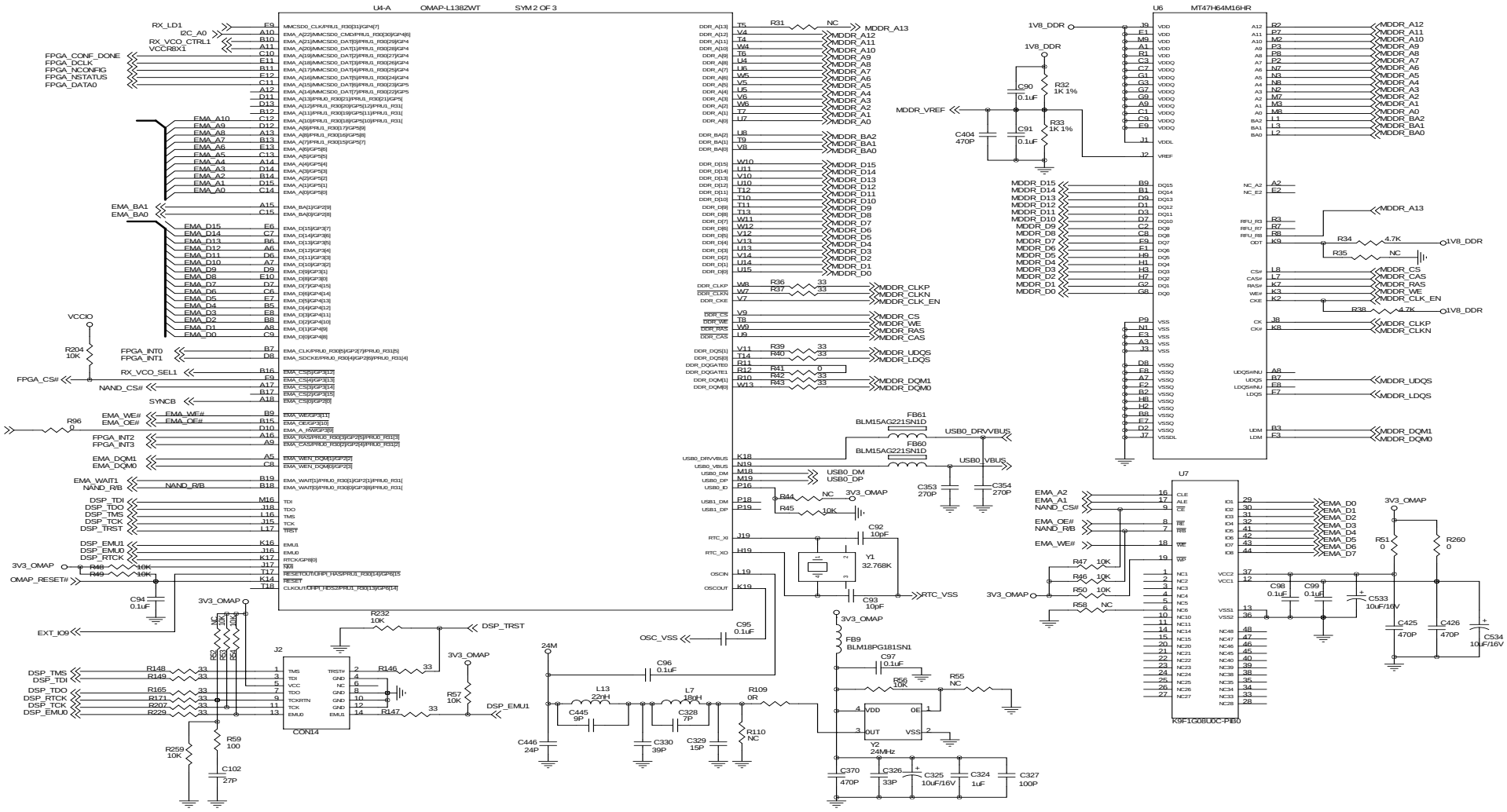
8V for SPEAKER& DA_AD

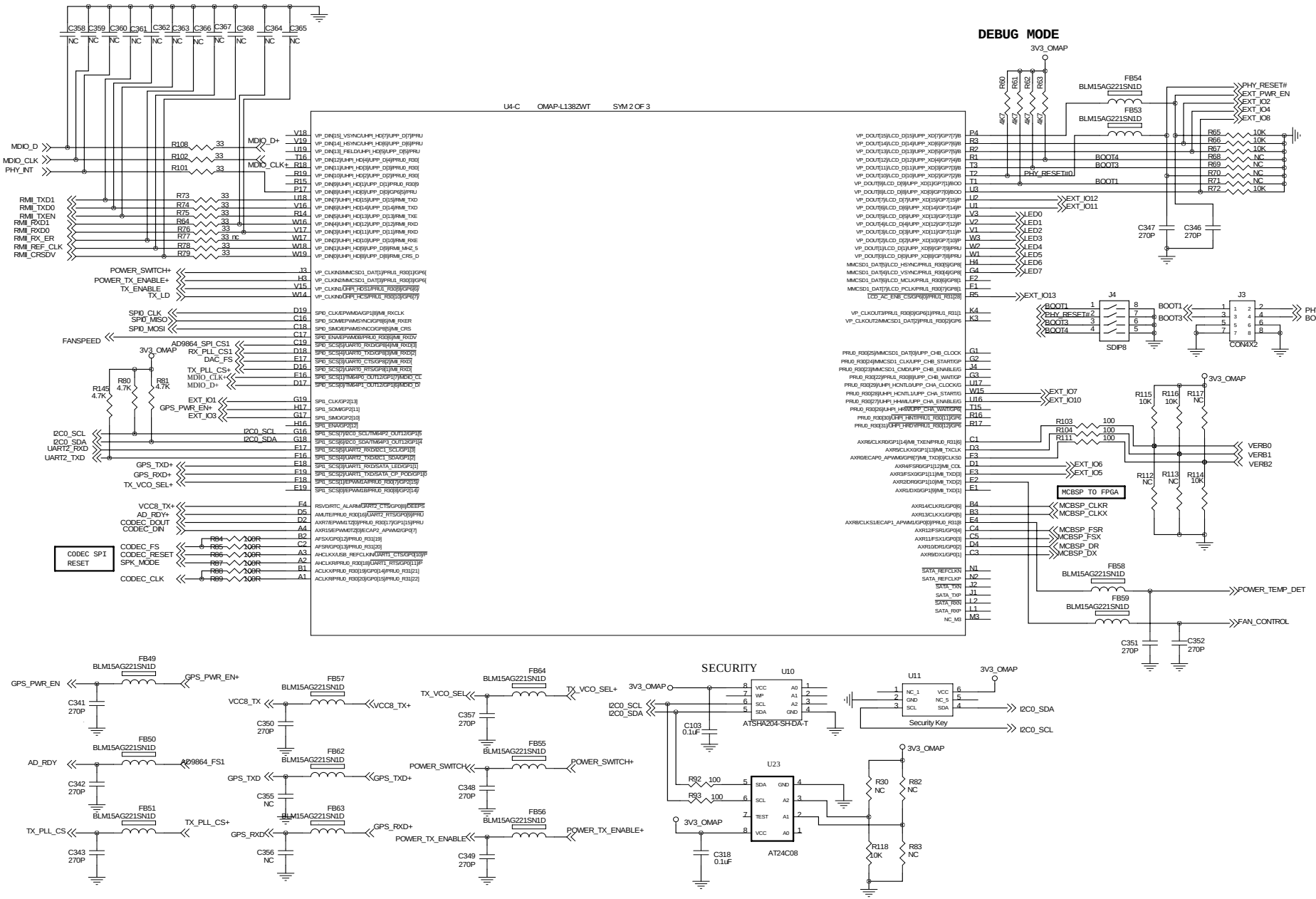


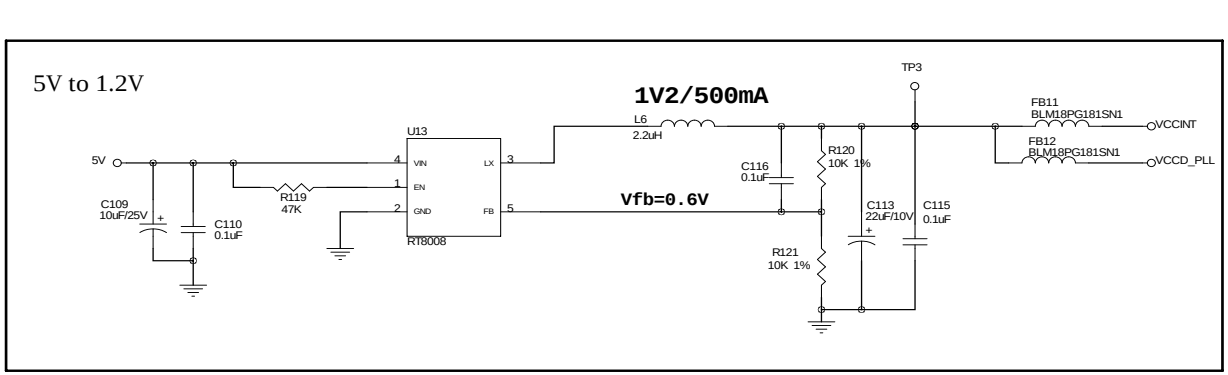
All capacitor not specified is 50V,value tolerence is 20%

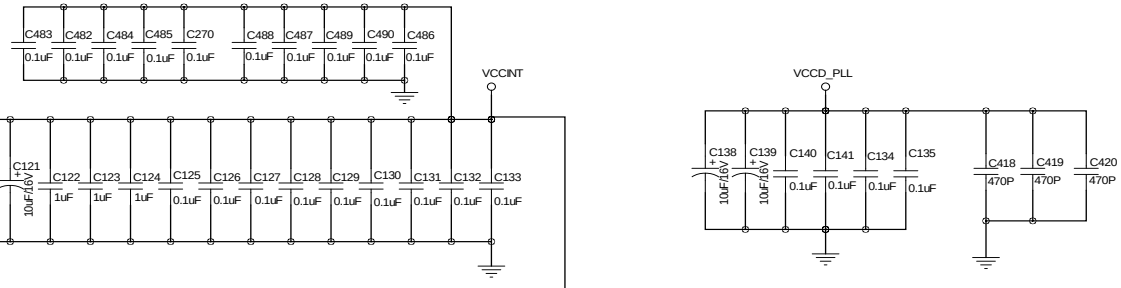
All resistor not specified value tolerence is 5%


U4-B
OMAP-L138ZWT
SYM 2 OF 3
1V8_DDR
3V3_OMAP
1V2_OMAP
VBAT
MDDR_VREF
RTC_VSS
OSC_VSS
FB1 BLM15AG221SN1D
FB2 BLM15AG221SN1D
FB3 BLM15AG221SN1D
FB4 BLM15AG221SN1D
FB5 BLM15AG221SN1D
FB6 BLM18PG181SN1
FB7 BLM18PG181SN1
FB8 BLM18PG181SN1
U8
TPS2051BD
5V
USB0_DRVVBUS
USB0_VBUS
C100 1uF
C101 10uF/16V
D8 MA2S111
D9 HVC131
D15 HVC131
R90 NC
GPS_VBAT
VBAT

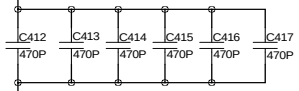

U4-A
OMAP-L138ZWT
SYM 2 OF 3
U6
MT47H64M16HR
U7
K9F1G08U0C-PIB0
J2
CON14
Y1
32.768K
Y2
24MHz
3V3_OMAP
1V8_DDR
VCCIO
RTC_VSS
OSC_VSS
USB0_DRVVBUS
USB0_VBUS
EXT_IO9
DSP_TRST
DSP_EMU1
MDDR_VREF
MDDR_CLKP
MDDR_CLKN
MDDR_CLK_EN
MDDR_CS
MDDR_WE
MDDR_RAS
MDDR_CAS
MDDR_UDQS
MDDR_LDQS
MDDR_DQM1
MDDR_DQM0
EMA_D0
EMA_D1
EMA_D2
EMA_D3
EMA_D4
EMA_D5
EMA_D6
EMA_D7
EMA_A2
EMA_A1
NAND_CS#
EMA_OE#
NAND_R/B
EMA_WE#

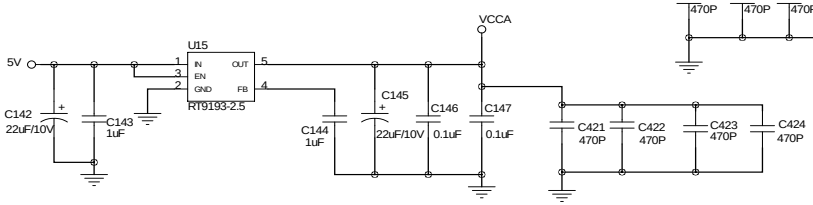

DEBUG MODE
U4-C OMAP-L138ZWT SYM 2 OF 3
3V3_OMAP
MDIO_D
MDIO_CLK
PHY_INT
MDIO_D+
MDIO_CLK+
RMII_TXD1
RMII_TXD0
RMII_TXEN
RMII_RXD1
RMII_RXD0
RMII_RX_ER
RMII_REF_CLK
RMII_CRSDV
POWER_SWITCH+
POWER_TX_ENABLE+
TX_ENABLE
TX_LD
SPI0_CLK
SPI0_MISO
SPI0_MOSI
FANSPEED
AD9864_SPI_CS1
RX_PLL_CS1
DAC_FS
TX_PLL_CS+
MDIO_CLK+
MDIO_D+
EXT_IO1
GPS_PWR_EN+
EXT_IO3
I2C0_SCL
I2C0_SDA
UART2_RXD
UART2_TXD
GPS_TXD+
GPS_RXD+
TX_VCO_SEL+
VCC8_TX+
AD_RDY+
CODEC_DOUT
CODEC_DIN
CODEC_FS
CODEC_RESET
SPK_MODE
CODEC_CLK
CODEC SPI RESET
PHY_RESET#
EXT_PWR_EN
EXT_IO2
EXT_IO4
EXT_IO8
BOOT4
BOOT3
BOOT1
PHY_RESET#0
EXT_IO12
EXT_IO11
LED0
LED1
LED2
LED3
LED4
LED5
LED6
LED7
EXT_IO13
EXT_IO7
EXT_IO10
EXT_IO6
EXT_IO5
MCBSP TO FPGA
MCBSP_CLKR
MCBSP_CLKX
MCBSP_FSR
MCBSP_FSX
MCBSP_DR
MCBSP_DX
VERB0
VERB1
VERB2
POWER_TEMP_DET
FAN_CONTROL
SECURITY
U10
ATSHA204-SH-DA-T
U11
Security Key
U23
AT24C08
I2C0_SDA
I2C0_SCL
GPS_PWR_EN
AD_RDY
TX_PLL_CS
GPS_TXD
GPS_RXD
TX_VCO_SEL
POWER_SWITCH
POWER_TX_ENABLE
AD9864_FS1
TX_PLL_CS+
VCC8_TX
GPS_PWR_EN+
GPS_TXD+
GPS_RXD+
TX_VCO_SEL+
POWER_SWITCH+
POWER_TX_ENABLE+
VCC8_TX+
AD_RDY+
CODEC_FS
CODEC_RESET
SPK_MODE
CODEC_CLK

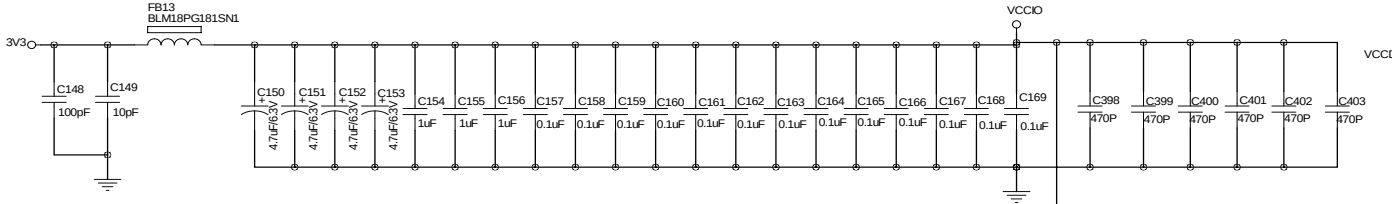

5V to 1.2V
1V2/500mA
Vfb=0.6V
TP3
U13
RT8008
VIN
LX
EN
GND
FB
L6
2.2uH
FB11
BLM18PG181SN1
FB12
BLM18PG181SN1
VCCINT
VCCD_PLL
R119
47K
R120
10K 1%
R121
10K 1%
C109
10uF/25V
C110
0.1uF
C113
22uF/10V
C115
0.1uF
C116
0.1uF

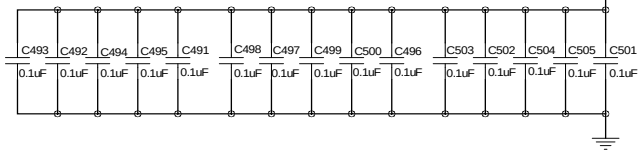

C483 C482 C484 C485 C270 C488 C487 C489 C490 C486
0.1uF
VCCINT
C118 C119 C120 C121
10uF/16V
C122 C123 C124 C125 C126 C127 C128 C129 C130 C131 C132 C133
1uF
0.1uF

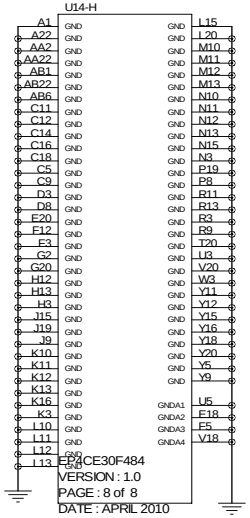
VCCD_PLL
C138 C139
10uF/16V
C140 C141 C134 C135
0.1uF
C418 C419 C420
470P


C412 C413 C414 C415 C416 C417
470P


VCCA
U15
RT9193-2.5
IN
OUT
EN
GND
FB
5V
C142
22uF/10V
C143
1uF
C144
1uF
C145
22uF/10V
C146
0.1uF
C147
0.1uF
C421 C422 C423 C424
470P


FB13
BLM18PG181SN1
3V3
VCCIO
C148
100pF
C149
10pF
C150 C151 C152 C153
4.7uF/6.3V
C154 C155 C156 C157 C158 C159 C160 C161 C162 C163 C164 C165 C166 C167 C168 C169
1uF
0.1uF
C398 C399 C400 C401 C402 C403
470P


C493 C492 C494 C495 C491 C498 C497 C499 C500 C496 C503 C502 C504 C505 C501
0.1uF


U14-H
EP4CE30F484
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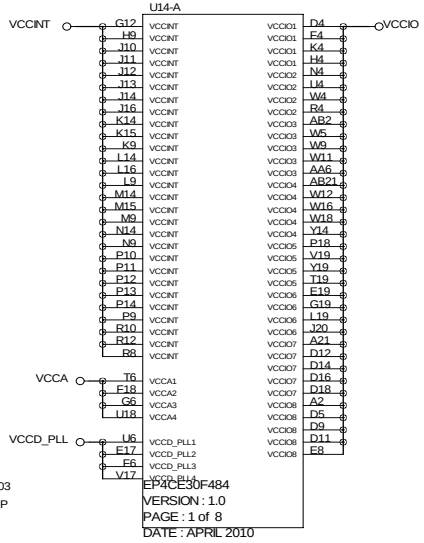
U14-A
VCCINT
VCCIO
VCCA
VCCD_PLL
EP4CE30F484
VERSION : 1.0
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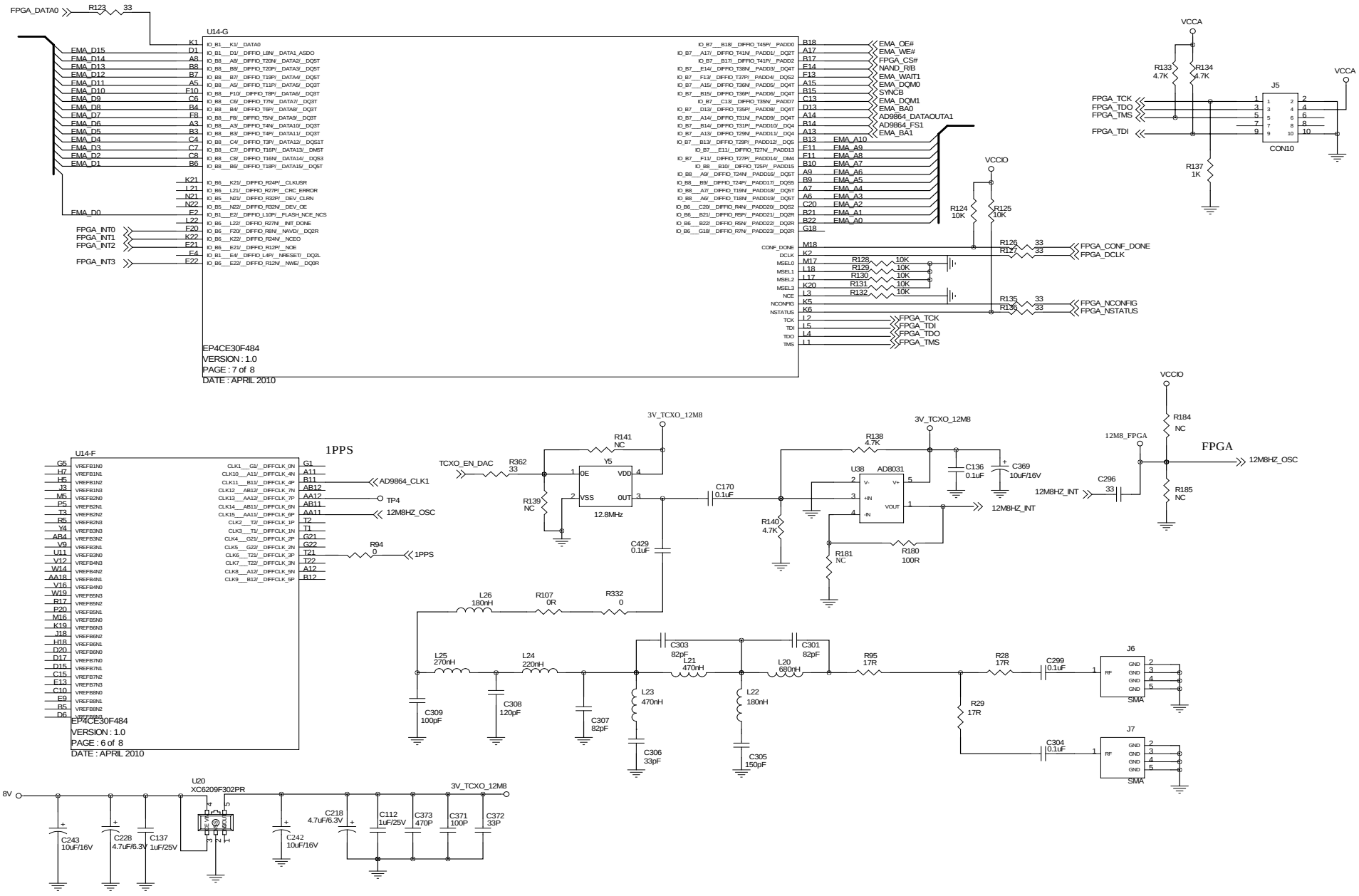
FPGA_DATA0
R123 33
U14-G
EMA_D15
EMA_D14
EMA_D13
EMA_D12
EMA_D11
EMA_D10
EMA_D9
EMA_D8
EMA_D7
EMA_D6
EMA_D5
EMA_D4
EMA_D3
EMA_D2
EMA_D1
EMA_D0
FPGA_INT0
FPGA_INT1
FPGA_INT2
FPGA_INT3
EP4CE30F484
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EMA_OE#
EMA_WE#
FPGA_CS#
NAND_R/B
EMA_WAIT1
EMA_DQM0
SYNCB
EMA_DQM1
EMA_BA0
AD9864_DATAOUTA1
AD9864_FS1
EMA_BA1
EMA_A10
EMA_A9
EMA_A8
EMA_A7
EMA_A6
EMA_A5
EMA_A4
EMA_A3
EMA_A2
EMA_A1
EMA_A0
VCCIO
R124 10K
R125 10K
R126 33
R127 33
FPGA_CONF_DONE
FPGA_DCLK
R128 10K
R129 10K
R130 10K
R131 10K
R132 10K
R135 33
R136 33
FPGA_NCONFIG
FPGA_NSTATUS
FPGA_TCK
FPGA_TDI
FPGA_TDO
FPGA_TMS
VCCA
R133 4.7K
R134 4.7K
R137 1K
J5
CON10
U14-F
1PPS
AD9864_CLK1
TP4
12M8HZ_OSC
R94 0
1PPS
EP4CE30F484
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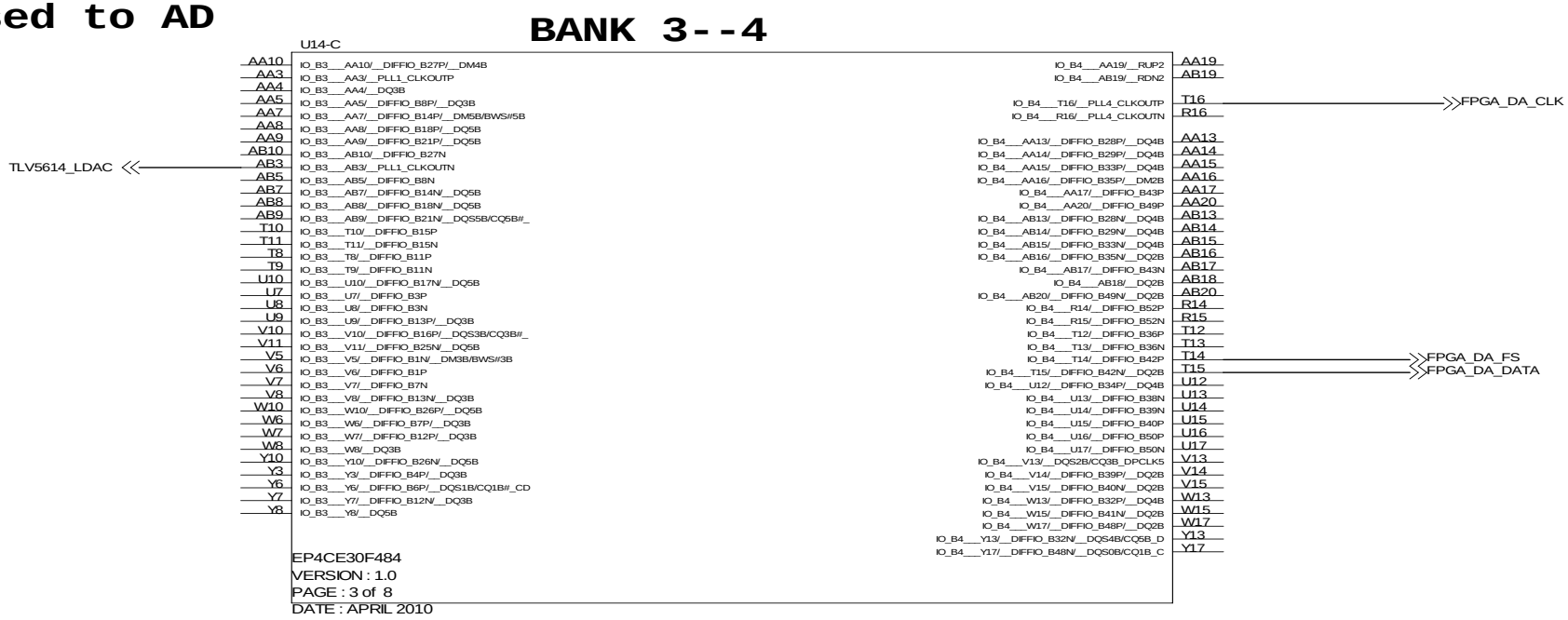
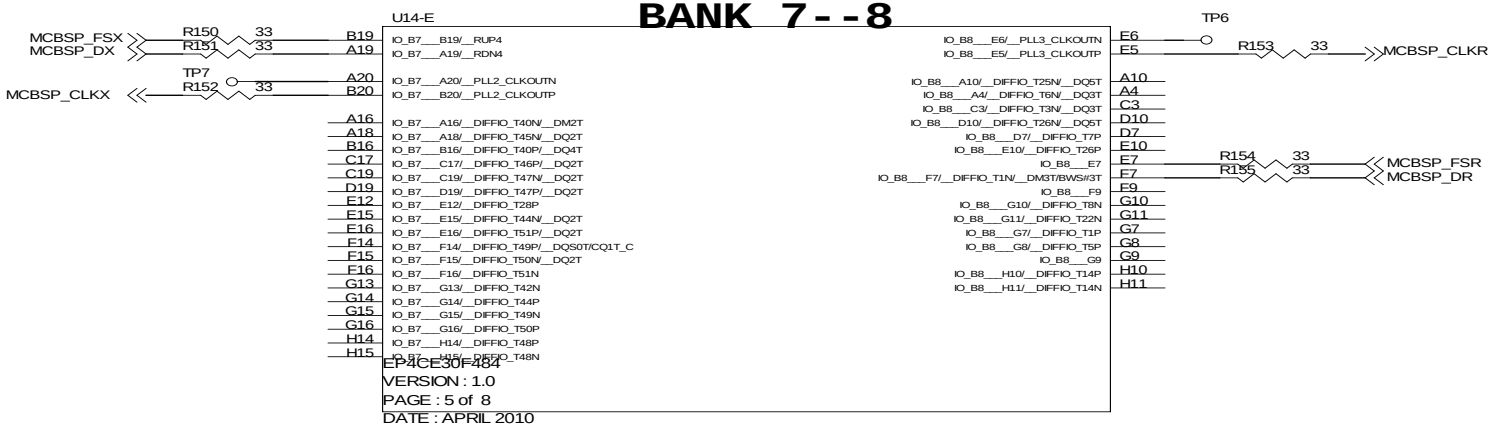
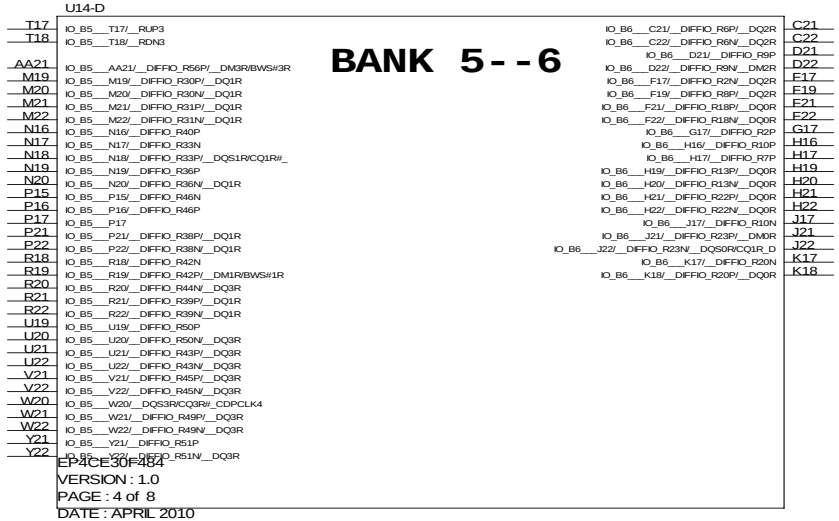
3V_TCXO_12M8
TCXO_EN_DAC
R362 33
R141 NC
Y5
12.8MHz
R139 NC
C170 0.1uF
C429 0.1uF
R140 4.7K
R138 4.7K
U38 AD8031
C136 0.1uF
C369 10uF/16V
12M8HZ_INT
C296 33
12M8_FPGA
R184 NC
R185 NC
FPGA
12M8HZ_OSC
R181 NC
R180 100R
L26 180nH
R107 0R
R332 0
L25 270nH
L24 220nH
L21 470nH
L20 680nH
C303 82pF
C301 82pF
R95 17R
R28 17R
R29 17R
C309 100pF
C308 120pF
C307 82pF
L23 470nH
L22 180nH
C306 33pF
C305 150pF
C299 0.1uF
C304 0.1uF
J6
J7
SMA
U20
XC6209F302PR
8V
C243 10uF/16V
C228 4.7uF/6.3V
C137 1uF/25V
C242 10uF/16V
C218 4.7uF/6.3V
C112 1uF/25V
C373 470P
C371 100P
C372 33P

PLL1 used to AD






U14-D
BANK 5--6
T17 IO_B5__T17/__RUP3
T18 IO_B5__T18/__RDN3
AA21 IO_B5__AA21/__DIFFIO_R56P/__DM3R/BWS#3R
M19 IO_B5__M19/__DIFFIO_R30P/__DQ1R
M20 IO_B5__M20/__DIFFIO_R30N/__DQ1R
M21 IO_B5__M21/__DIFFIO_R31P/__DQ1R
M22 IO_B5__M22/__DIFFIO_R31N/__DQ1R
N16 IO_B5__N16/__DIFFIO_R40P
N17 IO_B5__N17/__DIFFIO_R33N
N18 IO_B5__N18/__DIFFIO_R33P/__DQS1R/CQ1R#_
N19 IO_B5__N19/__DIFFIO_R36P
N20 IO_B5__N20/__DIFFIO_R36N/__DQ1R
P15 IO_B5__P15/__DIFFIO_R46N
P16 IO_B5__P16/__DIFFIO_R46P
P17 IO_B5__P17
P21 IO_B5__P21/__DIFFIO_R38P/__DQ1R
P22 IO_B5__P22/__DIFFIO_R38N/__DQ1R
R18 IO_B5__R18/__DIFFIO_R42N
R19 IO_B5__R19/__DIFFIO_R42P/__DM1R/BWS#1R
R20 IO_B5__R20/__DIFFIO_R44N/__DQ3R
R21 IO_B5__R21/__DIFFIO_R39P/__DQ1R
R22 IO_B5__R22/__DIFFIO_R39N/__DQ1R
U19 IO_B5__U19/__DIFFIO_R50P
U20 IO_B5__U20/__DIFFIO_R50N/__DQ3R
U21 IO_B5__U21/__DIFFIO_R43P/__DQ3R
U22 IO_B5__U22/__DIFFIO_R43N/__DQ3R
V21 IO_B5__V21/__DIFFIO_R45P/__DQ3R
V22 IO_B5__V22/__DIFFIO_R45N/__DQ3R
W20 IO_B5__W20/__DQS3R/CQ3R#_CDPCLK4
W21 IO_B5__W21/__DIFFIO_R49P/__DQ3R
W22 IO_B5__W22/__DIFFIO_R49N/__DQ3R
Y21 IO_B5__Y21/__DIFFIO_R51P
Y22 IO_B5__Y22/__DIFFIO_R51N/__DQ3R
IO_B6__C21/__DIFFIO_R6P/__DQ2R C21
IO_B6__C22/__DIFFIO_R6N/__DQ2R C22
IO_B6__D21/__DIFFIO_R9P D21
IO_B6__D22/__DIFFIO_R9N/__DM2R D22
IO_B6__F17/__DIFFIO_R2N/__DQ2R F17
IO_B6__F19/__DIFFIO_R8P/__DQ2R F19
IO_B6__F21/__DIFFIO_R18P/__DQ0R F21
IO_B6__F22/__DIFFIO_R18N/__DQ0R F22
IO_B6__G17/__DIFFIO_R2P G17
IO_B6__H16/__DIFFIO_R10P H16
IO_B6__H17/__DIFFIO_R7P H17
IO_B6__H19/__DIFFIO_R13P/__DQ0R H19
IO_B6__H20/__DIFFIO_R13N/__DQ0R H20
IO_B6__H21/__DIFFIO_R22P/__DQ0R H21
IO_B6__H22/__DIFFIO_R22N/__DQ0R H22
IO_B6__J17/__DIFFIO_R10N J17
IO_B6__J21/__DIFFIO_R23P/__DM0R J21
IO_B6__J22/__DIFFIO_R23N/__DQS0R/CQ1R_D J22
IO_B6__K17/__DIFFIO_R20N K17
IO_B6__K18/__DIFFIO_R20P/__DQ0R K18
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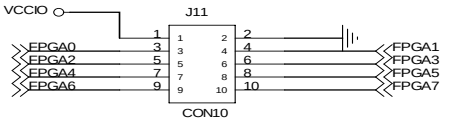
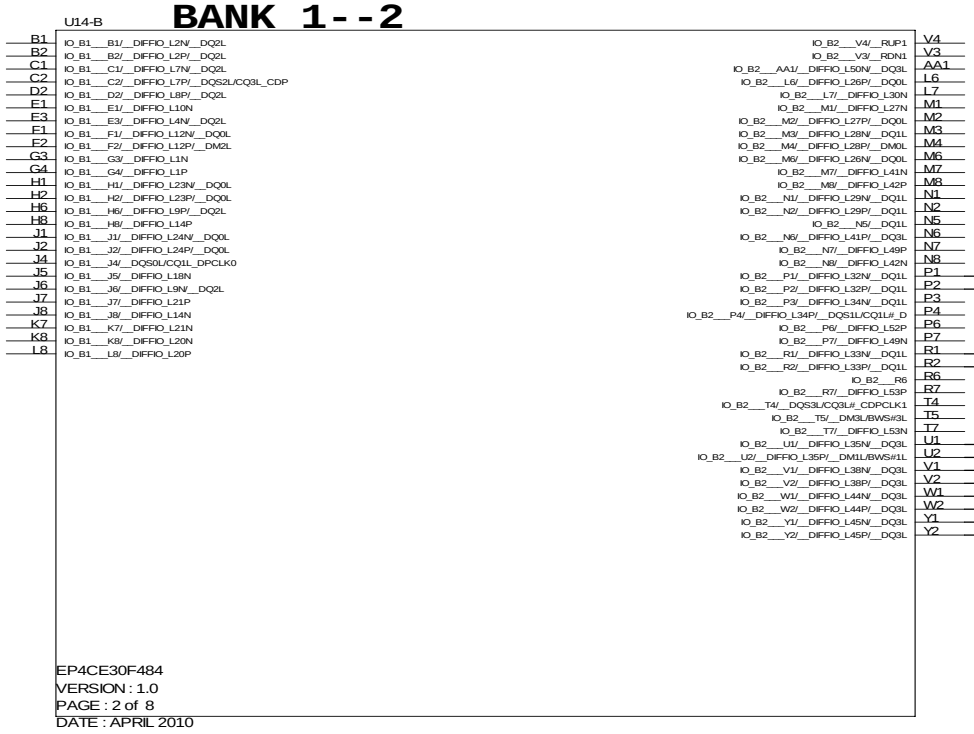

VCCIO
J11
EPGA0
EPGA2
EPGA4
EPGA6
FPGA1
FPGA3
FPGA5
FPGA7
CON10


BANK 1--2
U14-B
B1 IO_B1__B1/__DIFFIO_L2N/__DQ2L
B2 IO_B1__B2/__DIFFIO_L2P/__DQ2L
C1 IO_B1__C1/__DIFFIO_L7N/__DQ2L
C2 IO_B1__C2/__DIFFIO_L7P/__DQS2L/CQ3L_CDP
D2 IO_B1__D2/__DIFFIO_L8P/__DQ2L
E1 IO_B1__E1/__DIFFIO_L10N
E3 IO_B1__E3/__DIFFIO_L4N/__DQ2L
F1 IO_B1__F1/__DIFFIO_L12N/__DQ0L
F2 IO_B1__F2/__DIFFIO_L12P/__DM2L
G3 IO_B1__G3/__DIFFIO_L1N
G4 IO_B1__G4/__DIFFIO_L1P
H1 IO_B1__H1/__DIFFIO_L23N/__DQ0L
H2 IO_B1__H2/__DIFFIO_L23P/__DQ0L
H6 IO_B1__H6/__DIFFIO_L9P/__DQ2L
H8 IO_B1__H8/__DIFFIO_L14P
J1 IO_B1__J1/__DIFFIO_L24N/__DQ0L
J2 IO_B1__J2/__DIFFIO_L24P/__DQ0L
J4 IO_B1__J4/__DQS0L/CQ1L_DPCLK0
J5 IO_B1__J5/__DIFFIO_L18N
J6 IO_B1__J6/__DIFFIO_L9N/__DQ2L
J7 IO_B1__J7/__DIFFIO_L21P
J8 IO_B1__J8/__DIFFIO_L14N
K7 IO_B1__K7/__DIFFIO_L21N
K8 IO_B1__K8/__DIFFIO_L20N
L8 IO_B1__L8/__DIFFIO_L20P
IO_B2__V4/__RUP1 V4
IO_B2__V3/__RDN1 V3
IO_B2__AA1/__DIFFIO_L50N/__DQ3L AA1
IO_B2__L6/__DIFFIO_L26P/__DQ0L L6
IO_B2__L7/__DIFFIO_L30N L7
IO_B2__M1/__DIFFIO_L27N M1
IO_B2__M2/__DIFFIO_L27P/__DQ0L M2
IO_B2__M3/__DIFFIO_L28N/__DQ1L M3
IO_B2__M4/__DIFFIO_L28P/__DM0L M4
IO_B2__M6/__DIFFIO_L26N/__DQ0L M6
IO_B2__M7/__DIFFIO_L41N M7
IO_B2__M8/__DIFFIO_L42P M8
IO_B2__N1/__DIFFIO_L29N/__DQ1L N1
IO_B2__N2/__DIFFIO_L29P/__DQ1L N2
IO_B2__N5/__DQ1L N5
IO_B2__N6/__DIFFIO_L41P/__DQ3L N6
IO_B2__N7/__DIFFIO_L49P N7
IO_B2__N8/__DIFFIO_L42N N8
IO_B2__P1/__DIFFIO_L32N/__DQ1L P1
IO_B2__P2/__DIFFIO_L32P/__DQ1L P2
IO_B2__P3/__DIFFIO_L34N/__DQ1L P3
IO_B2__P4/__DIFFIO_L34P/__DQS1L/CQ1L#_D P4
IO_B2__P6/__DIFFIO_L52P P6
IO_B2__P7/__DIFFIO_L49N P7
IO_B2__R1/__DIFFIO_L33N/__DQ1L R1
IO_B2__R2/__DIFFIO_L33P/__DQ1L R2
IO_B2__R6 R6
IO_B2__R7/__DIFFIO_L53P R7
IO_B2__T4/__DQS3L/CQ3L#_CDPCLK1 T4
IO_B2__T5/__DM3L/BWS#3L T5
IO_B2__T7/__DIFFIO_L53N T7
IO_B2__U1/__DIFFIO_L35N/__DQ3L U1
IO_B2__U2/__DIFFIO_L35P/__DM1L/BWS#1L U2
IO_B2__V1/__DIFFIO_L38N/__DQ3L V1
IO_B2__V2/__DIFFIO_L38P/__DQ3L V2
IO_B2__W1/__DIFFIO_L44N/__DQ3L W1
IO_B2__W2/__DIFFIO_L44P/__DQ3L W2
IO_B2__Y1/__DIFFIO_L45N/__DQ3L Y1
IO_B2__Y2/__DIFFIO_L45P/__DQ3L Y2
FPGA7
FPGA6
FPGA5
FPGA4
FPGA3
FPGA2
FPGA1
FPGA0
R156 1K
R157 1K
R158 1K
R159 1K
LED2
LED3
LED4
LED5
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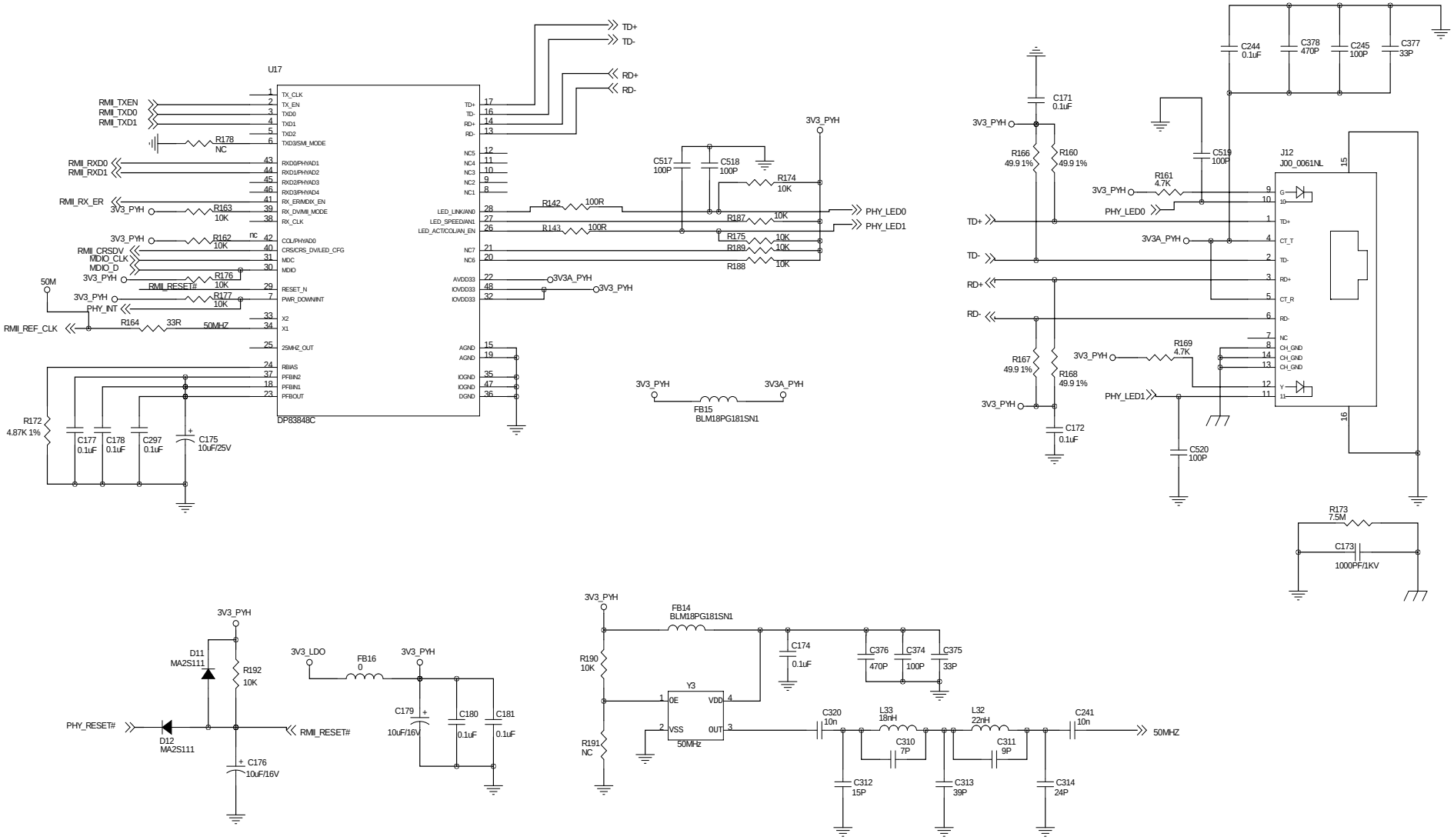
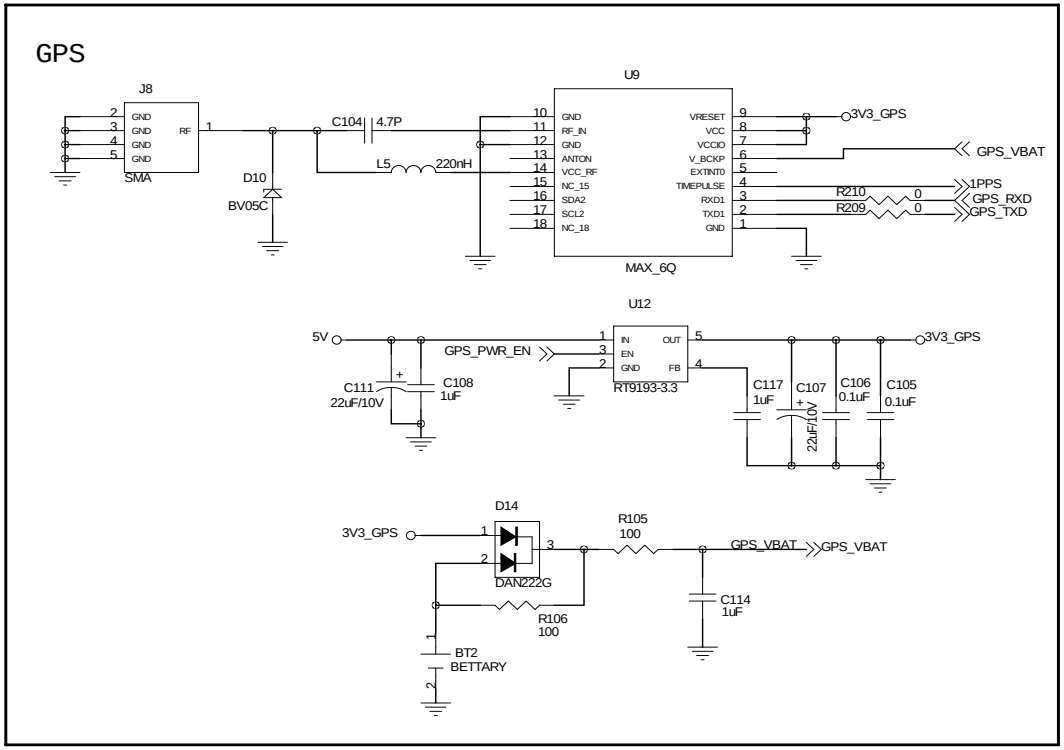
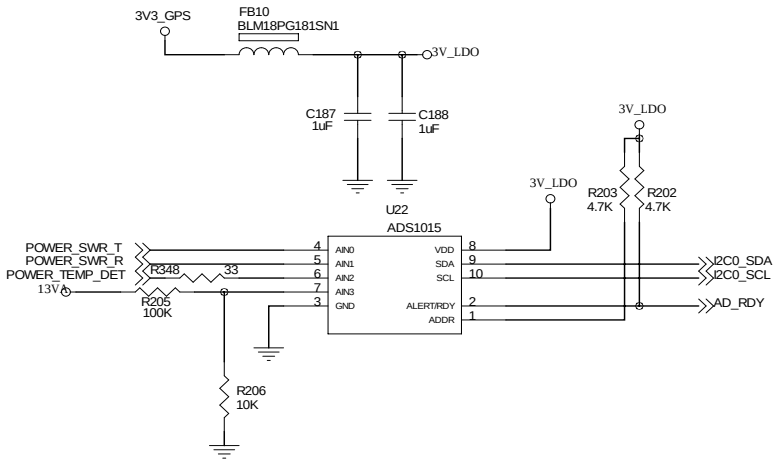
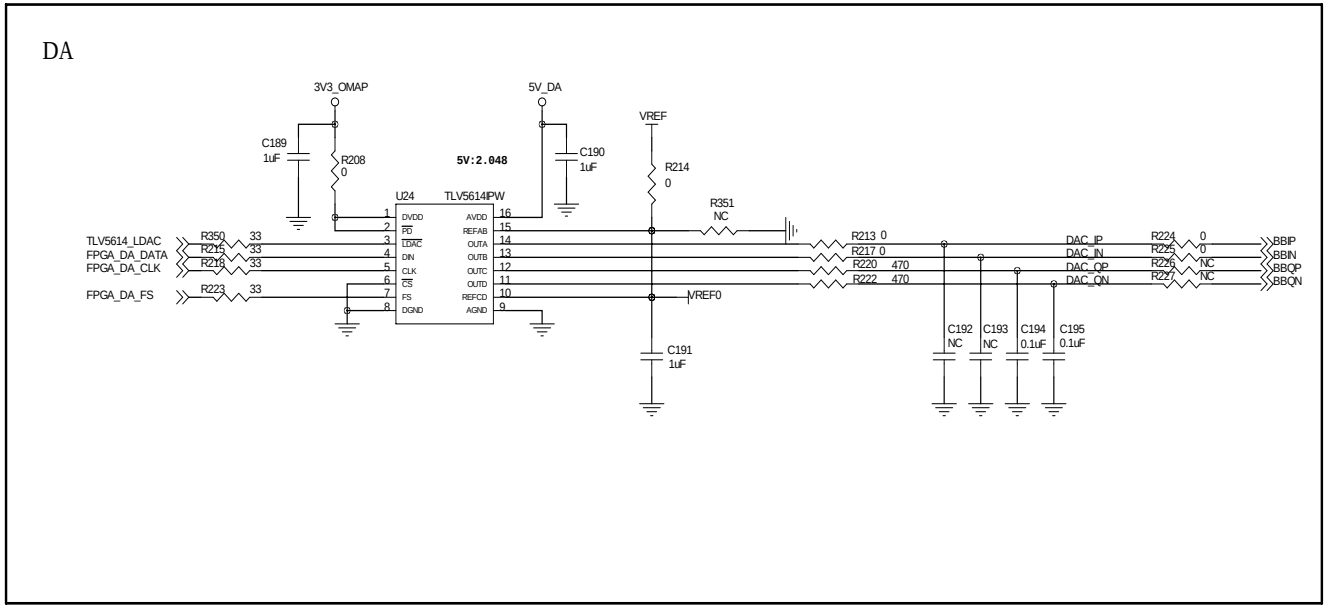
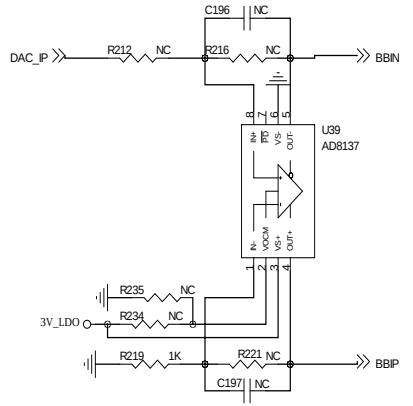
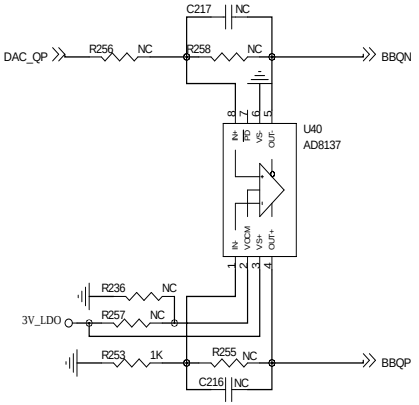

U17
DP83848C
TX_CLK
TX_EN
TXD0
TXD1
TXD2
TXD3/SMI_MODE
RXD0/PHYAD1
RXD1/PHYAD2
RXD2/PHYAD3
RXD3/PHYAD4
RX_ERMDIX_EN
RX_DV/MII_MODE
RX_CLK
COL/PHYAD0
CRS/CRS_DV/LED_CFG
MDC
MDIO
RESET_N
PWR_DOWN/INT
X2
X1
25MHZ_OUT
RBIAS
TD+
TD-
RD+
RD-
LED_LINK/AN0
LED_SPEED/AN1
LED_ACT/COL/AN_EN
AVDD33
ICVDD33
AGND
IOGND
DGND
RMII_TXEN
RMII_TXD0
RMII_TXD1
RMII_RXD0
RMII_RXD1
RMII_RX_ER
RMII_CRSDV
MDIO_CLK
MDIO_D
RMII_RESET#
PHY_INT
RMII_REF_CLK
50M
3V3_PYH
3V3A_PYH
R178 NC
R163 10K
R162 10K
R176 10K
R177 10K
R164 33R
R142 100R
R143 100R
R174 10K
R187 10K
R175 10K
R189 10K
R188 10K
C517 100P
C518 100P
PHY_LED0
PHY_LED1
R172 4.87K 1%
C177 0.1uF
C178 0.1uF
C297 0.1uF
C175 10uF/25V
FB15 BLM18PG181SN1
C244 0.1uF
C378 470P
C245 100P
C377 33P
C171 0.1uF
R166 49.9 1%
R160 49.9 1%
C519 100P
R161 4.7K
J12 J00_0061NL
R167 49.9 1%
R168 49.9 1%
R169 4.7K
C172 0.1uF
C520 100P
R173 7.5M
C173 1000PF/1KV
D11 MA2S111
D12 MA2S111
R192 10K
PHY_RESET#
RMII_RESET#
3V3_LDO
FB16 0
C179 10uF/16V
C180 0.1uF
C181 0.1uF
C176 10uF/16V
FB14 BLM18PG181SN1
R190 10K
R191 NC
Y3 50MHz
C174 0.1uF
C376 470P
C374 100P
C375 33P
C320 10n
L33 18nH
L32 22nH
C241 10n
C310 7P
C311 9P
C312 15P
C313 39P
C314 24P
50MHZ


GPS
J8
SMA
C104 4.7P
L5 220nH
D10
BV05C
U9
MAX_6Q
3V3_GPS
GPS_VBAT
1PPS
GPS_RXD
GPS_TXD
R210 0
R209 0
U12
RT9193-3.3
5V
GPS_PWR_EN
C111 22uF/10V
C108 1uF
C117 1uF
C107 22uF/10V
C106 0.1uF
C105 0.1uF
D14
DAN222G
R105 100
R106 100
C114 1uF
BT2
BETTARY


3V3_GPS
FB10
BLM18PG181SN1
3V_LDO
C187 1uF
C188 1uF
U22
ADS1015
R203 4.7K
R202 4.7K
POWER_SWR_T
POWER_SWR_R
POWER_TEMP_DET
13V_A
R348 33
R205 100K
R206 10K
I2C0_SDA
I2C0_SCL
AD_RDY


DA
3V3_OMAP
5V_DA
VREF
C189
1uF
R208
0
5V:2.048
C190
1uF
R214
0
U24
TLV5614IPW
R351
NC
TLV5614_LDAC
FPGA_DA_DATA
FPGA_DA_CLK
FPGA_DA_FS
R350 33
R215 33
R216 33
R223 33
DVDD
PD
LDAC
DIN
CLK
CS
FS
DGND
AVDD
REFAB
OUTA
OUTB
OUTC
OUTD
REFCD
AGND
R213 0
R217 0
R220 470
R222 470
VREF0
DAC_IP
DAC_IN
DAC_QP
DAC_QN
R224 0
R225 0
R226 NC
R227 NC
BBIP
BBIN
BBQP
BBQN
C191
1uF
C192
NC
C193
NC
C194
0.1uF
C195
0.1uF


C196
NC
DAC_IP
R212
NC
R216
NC
BBIN
U39
AD8137
IN+
PD
VS-
OUT-
IN-
VOCM
VS+
OUT+
R235
NC
3V_LDO
R234
NC
R219
1K
R221
NC
BBIP
C197
NC


C217
NC
DAC_QP
R256
NC
R258
NC
BBQN
U40
AD8137
R236
NC
3V_LDO
R257
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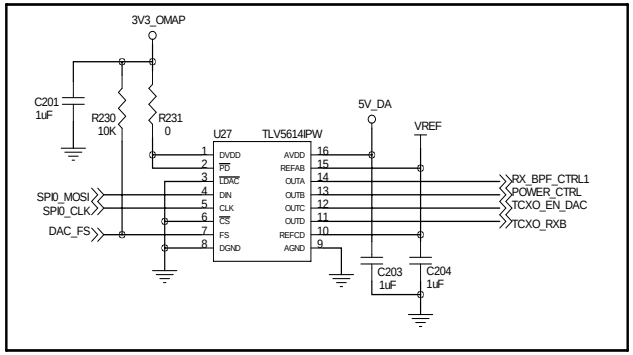
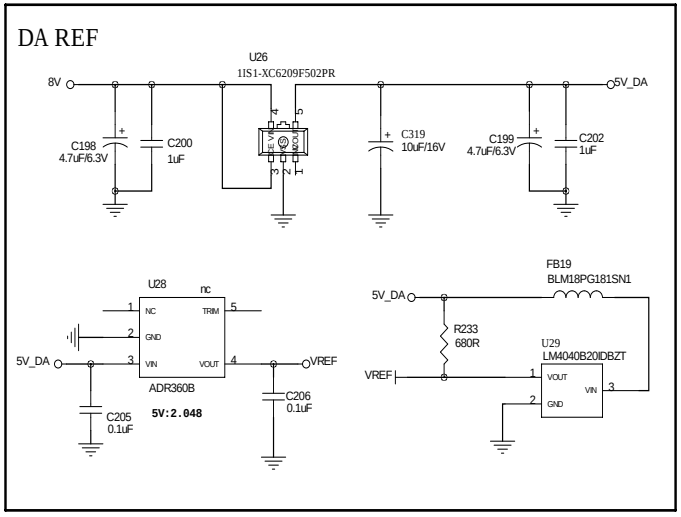
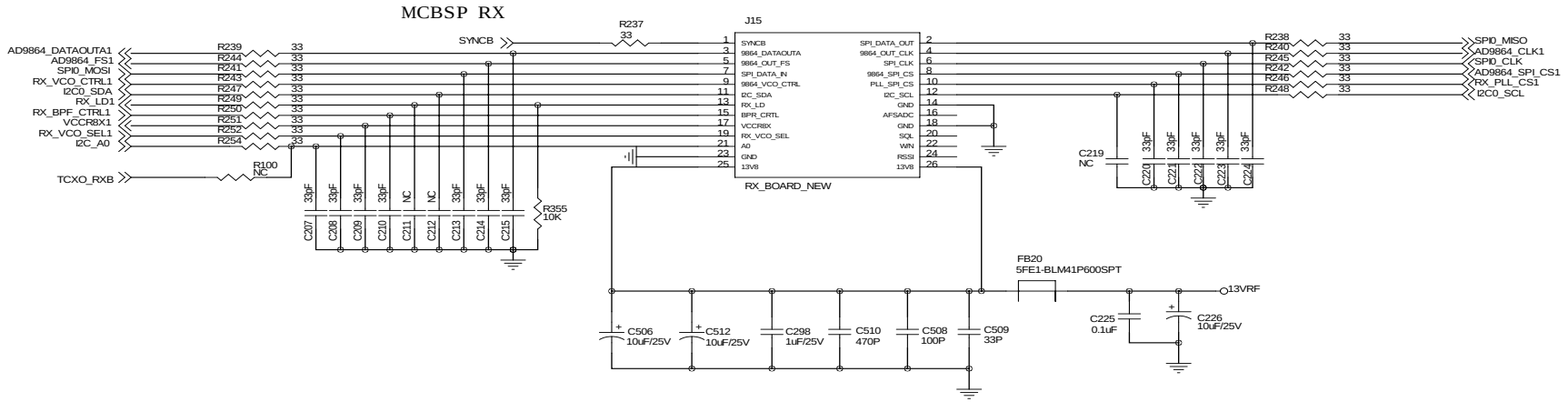
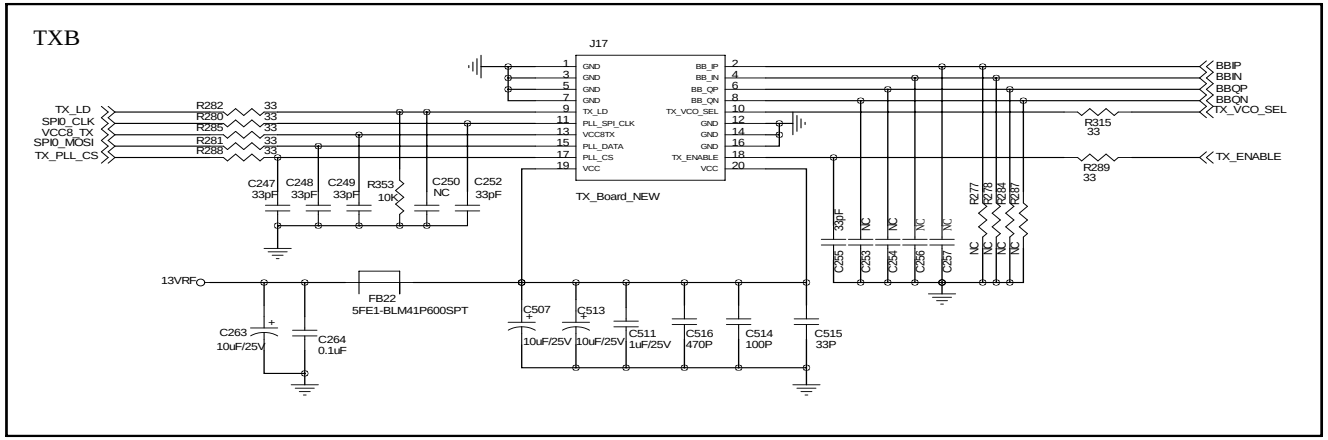
R255
NC
BBQP
C216
NC


3V3_OMAP
C201
1uF
R230
10K
R231
0
5V_DA
VREF
U27
TLV5614IPW
SPI0_MOSI
SPI0_CLK
DAC_FS
RX_BPF_CTRL1
POWER_CTRL
TCXO_EN_DAC
TCXO_RXB
C203
1uF
C204
1uF


DA REF
U26
1IS1-XC6209F502PR
8V
5V_DA
C198
4.7uF/6.3V
C200
1uF
C319
10uF/16V
C199
4.7uF/6.3V
C202
1uF
U28
nc
ADR360B
5V_DA
VREF
C205
0.1uF
5V:2.048
C206
0.1uF
FB19
BLM18PG181SN1
R233
680R
U29
LM4040B20IDBZT
VOUT
VIN
GND


MCBSP RX
AD9864_DATAOUTA1
AD9864_FS1
SPI0_MOSI
RX_VCO_CTRL1
I2C0_SDA
RX_LD1
RX_BPF_CTRL1
VCCR8X1
RX_VCO_SEL1
I2C_A0
TCXO_RXB
SYNCB
R237
J15
RX_BOARD_NEW
SPI0_MISO
AD9864_CLK1
SPI0_CLK
AD9864_SPI_CS1
RX_PLL_CS1
I2C0_SCL
FB20
5FE1-BLM41P600SPT
13VRF
C506
C512
C298
C510
C508
C509
C225
C226


TXB
J17
TX_Board_NEW
TX_LD
SPI0_CLK
VCC8_TX
SPI0_MOSI
TX_PLL_CS
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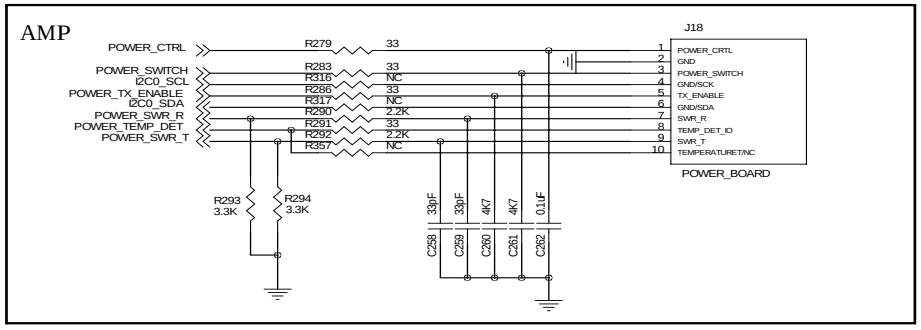
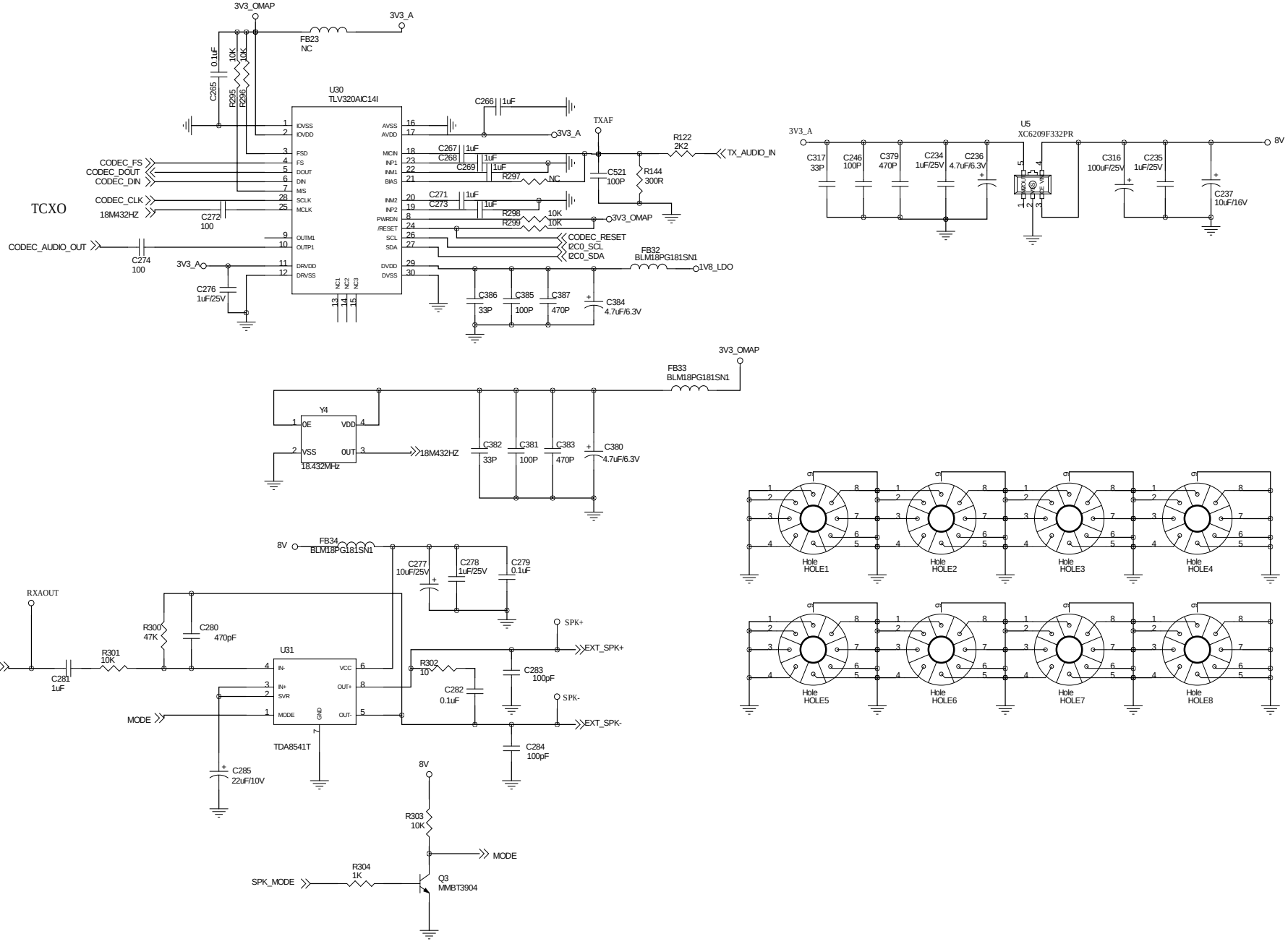
BBIN
BBQP
BBQN
TX_VCO_SEL
TX_ENABLE
13VRF
FB22
5FE1-BLM41P600SPT


AMP
J18
POWER_BOARD
POWER_CTRL
POWER_SWITCH
I2C0_SCL
POWER_TX_ENABLE
I2C0_SDA
POWER_SWR_R
POWER_TEMP_DET
POWER_SWR_T


3V3_OMAP
3V3_A
FB23
NC
U30
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CODEC_DOUT
CODEC_DIN
CODEC_CLK
18M432HZ
TCXO
CODEC_AUDIO_OUT
TXAF
TX_AUDIO_IN
CODEC_RESET
I2C0_SCL
I2C0_SDA
1V8_LDO
U5
XC6209F332PR
8V
Y4
18.432MHz
FB33
BLM18PG181SN1
FB34
RXAOUT
U31
TDA8541T
SPK+
SPK-
EXT_SPK+
EXT_SPK-
MODE
SPK_MODE
Q3
MMBT3904
Hole
HOLE1
HOLE2
HOLE3
HOLE4
HOLE5
HOLE6
HOLE7
HOLE8

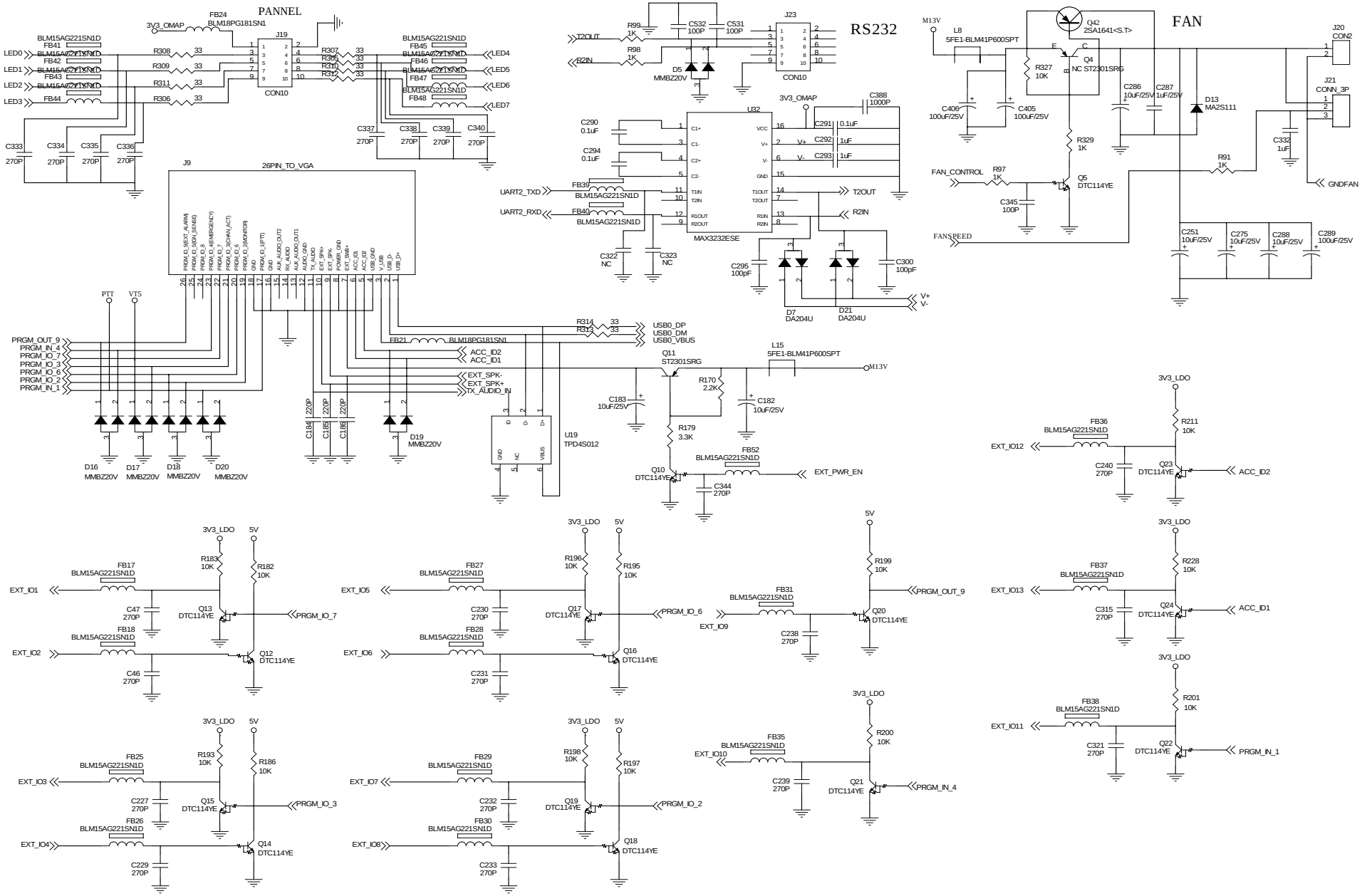

PANNEL
RS232
FAN
26PIN_TO_VGA
MAX3232ESE
TPD4S012
ST2301SRG
DTC114YE
MMBZ20V
3V3_LDO
5V
M13V
USB0_DP
USB0_DM
USB0_VBUS
EXT_PWR_EN
ACC_ID2
ACC_ID1
EXT_SPK-
EXT_SPK+
TX_AUDIO_IN
T2OUT
R2IN
UART2_TXD
UART2_RXD
FAN_CONTROL
FANSPEED
GNDFAN
PRGM_IO_7
PRGM_IO_6
PRGM_IO_3
PRGM_IO_2
PRGM_OUT_9
PRGM_IN_4
PRGM_IN_1

Figure 17 Front Panel Schematic Diagram

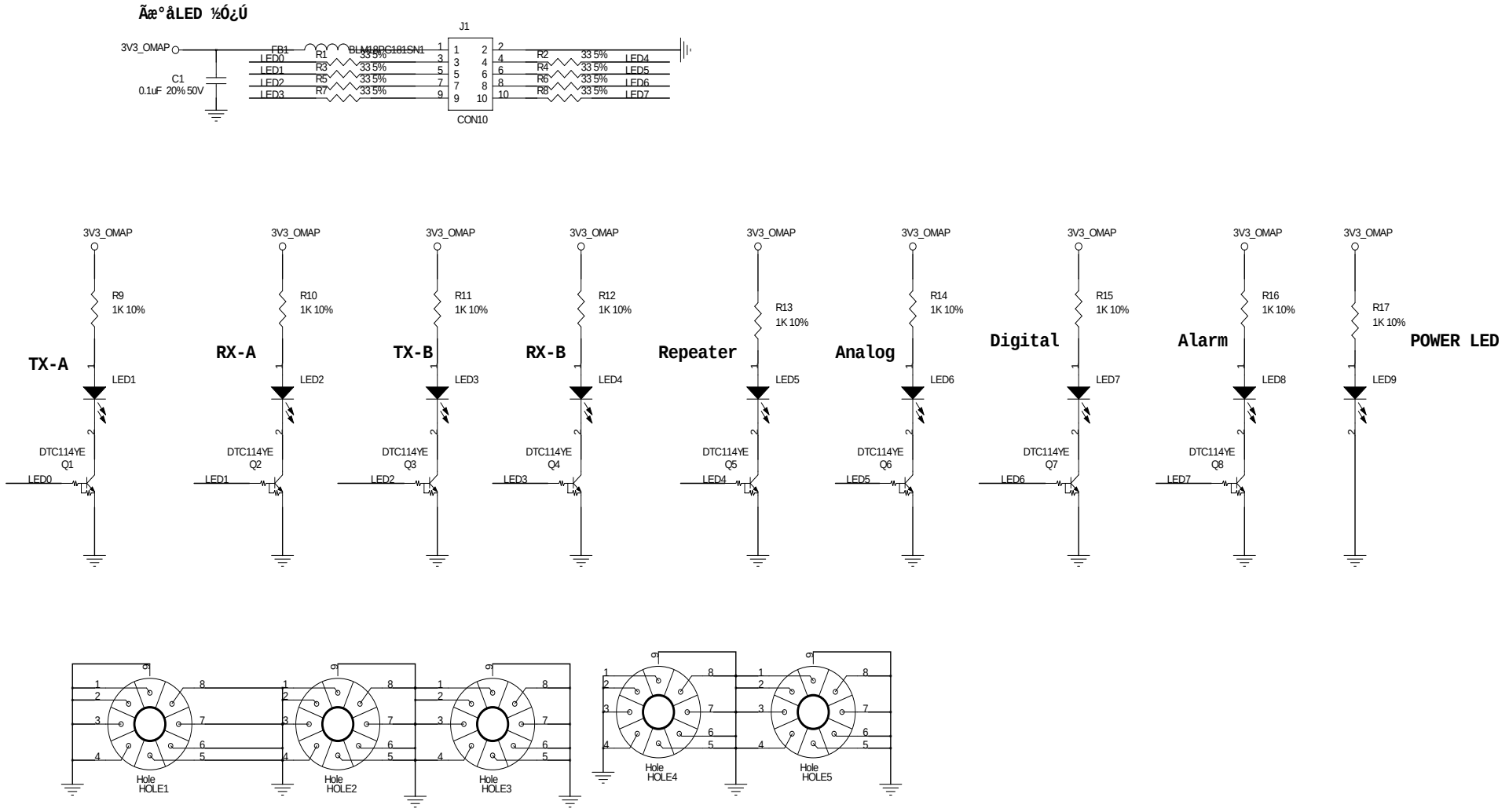


Figure 18 Power Board Schematic Diagram

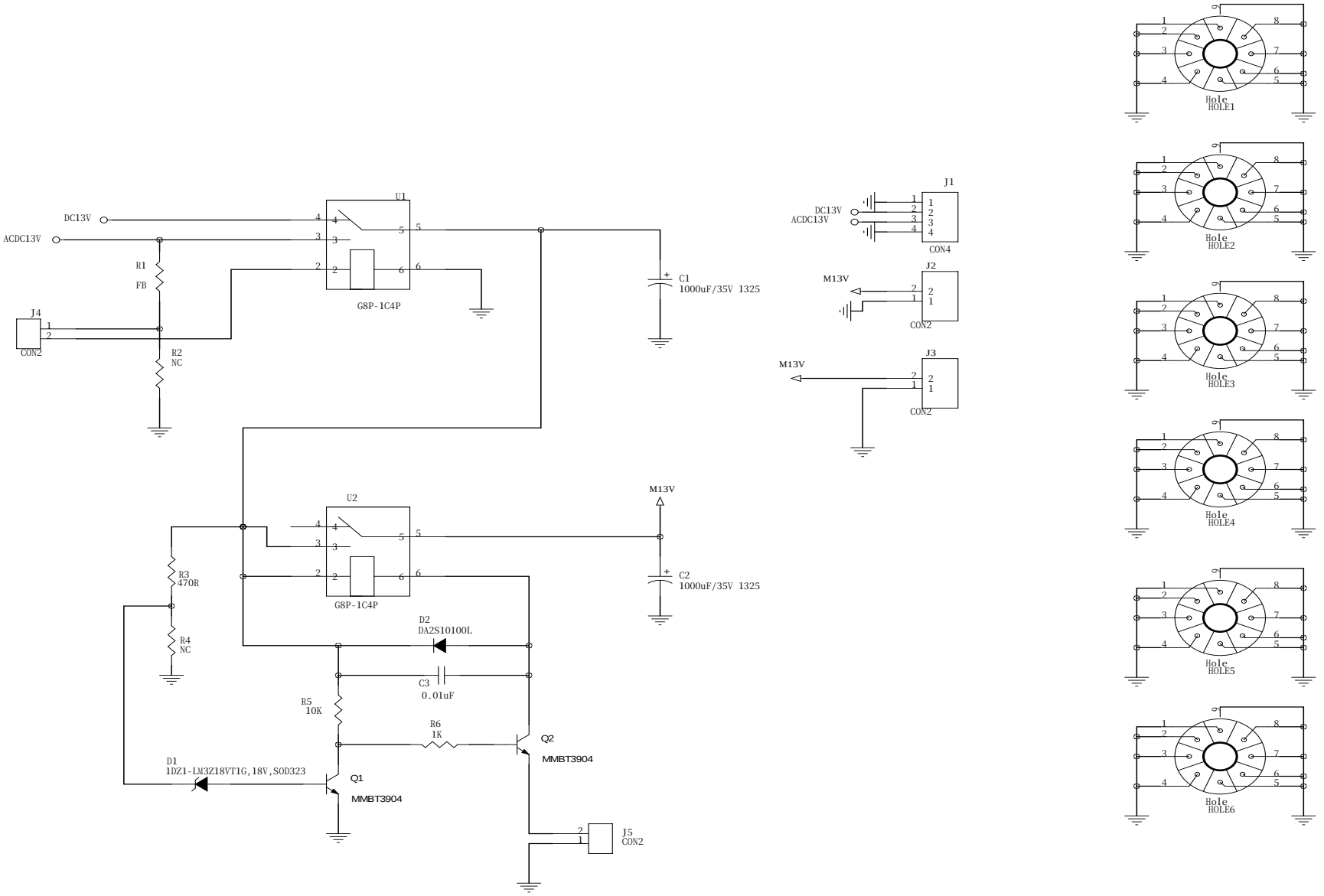
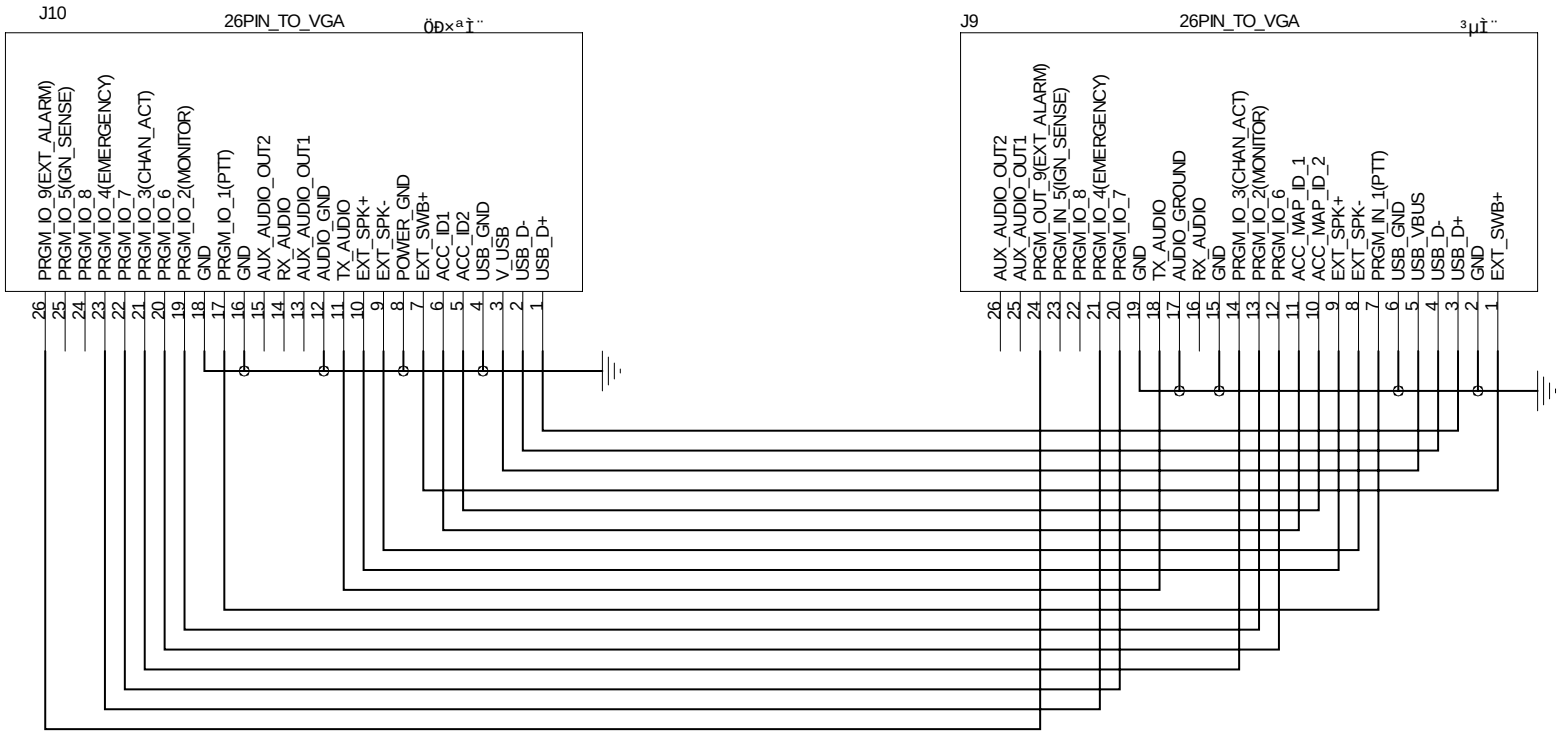


Figure 19 Accessory Schematic Diagram



Appendix2 136-174 MHz VHF Band Spare Part List

Table 1 Part List(RX Module Section)

Part No.	Part Name	Specification	Quantity	Position
1DR1-MM3Z15VT1G	SMD anti-static zener diode	MM3Z2V4T1 series, 15V, W=1.2mm, L=2.5mm, H=1.0mm, pb-free	1	D5000
1DS1-DA2S10100L	R SMD switch diode	DA2S10100L	2	D1000, D1001
1DS1-HSC277	R SMD switch diode (off production)	HSC277, 1608	4	D3025, D3026, D3027, D3028
1DS1-RB706F-40	R SMD switch diode	Schottky diode RB706F-40, SOT-323	2	D3029, D3000
1DV1-1SV305	R SMD varactor diode	1SV305	8	D1002, D1003, D1004, D1005, D1006, D1007, D1008, D1009
1DV1-HVC376B	R SMD varactor diode (off production)	HVC376B(B9)	26	D3001, D3002, D3003, D3004, D3005, D3006, D3007, D3008, D3009, D3010, D3011, D3012, D3013, D3014, D3015, D3016, D3017, D3018, D3019, D3020, D3021, D3022, D3023, D3024, D4000, D4001
1IS1-GT3136	E SMD specialized IC	GT3136, SSOP16	1	IC3004
1IS1-LM2941S	SMD specialized IC	LM2941S/TO-236, 5PIN, low dropout voltage regulator, pb-free	1	U5000
1IS1-PGA103	Broad band low noise amplifier	PGA-103+, 0.05to4GHz, SOT-89, PACKAGE, Mini-Circuits brand, RoHS	3	IC6003, IC6004, IC6006
1IS1-SKY72310	PLL chip	SKY72310, 24 pin QFN 4mmX4mm pb-free(QFN-N24_B4x4-P0_5), pb-free	1	IC1000
1IS1-TC75S51F	SMD single	TC75S51F,	2	IC6001, IC6002

	operational amplifier IC	SSOP5-P-0.95		
1IS1-XC6209F302PR	SMD voltage regulator IC	XC6209F302PR, SOT-89-5, 3.0V	2	Q1000, Q4002
1IS1-XC6209F332PR	SMD voltage regulator IC	XC6209F332PR, SOT-89-5, 3.3V	3	Q4004, Q1003, Q1006
1IS1-XC6209F502PR	SMD voltage regulator IC	XC6209F502PR, SOT-89-5, 5.0V	6	Q4003, Q1002, Q1004, Q3000, Q3003, Q3005
1TC1-UMC4	R SMD multiunit tube	UMC4, NPN/PNP multiunit tube	2	U1000, U3000
1TF1-2SJ243	R SMD FET(off production)	2SJ243-SMD	2	Q1008, Q1010
1TT1-2SC3356-R24	R SMD triode (off production)	2SC3356-R24, SOT23, NPN	7	Q1009, Q1011, Q2002, Q3001, Q3002, Q3004, Q4000
1TT1-2SC4617-R	R SMD triode	2SC4617-R(BR), EMT3	2	Q1001, Q1005
1TT1-2SC5006	SMD triode(off production)	2SC5006	1	Q1007
1TT1-DTC114YE	SMD triode	Digital triode DTC114YE-SMD	2	Q4001, Q5000
2CC1-16-C0G500-100D	R flake multi-layer capacitor	1608, 10P±0.5P, 50V, C0G	6	C1085, C1086, C3013, C3015, C3023, C3025
2CC1-16-C0G500-9R0C	R flake multi-layer capacitor	1608, 9P±0.25P, 50V, C0G	2	C1108, C1068
2CC1-16-C0G500-270J	R flake multi-layer capacitor	1608, 27P±5%, 50V, C0G	2	C1079, C4019
2CC1-16-C0G500-430J	R flake multi-layer capacitor	1608, 43P±5%, 50V, C0G	2	C1102, C1118
2CC1-16-C0G500-4R0B	flake multi-layer capacitor	1608, 4P±0.1P, 50V, C0G	3	C1109, C3001, C2019
2CC1-16-C0G500-101J	R flake multi-layer capacitor	1608, 100P±5%, 50V, C0G	58	C1001, C1004, C1010, C1015, C1018, C1021, C1024, C1026, C1029, C1035, C1037, C1039, C1042, C1044, C1046, C1049, C1051, C1053, C1059, C1063, C1064, C1104, C1105, C1112,

				C1119, C2008, C2010, C2012, C2017, C3027, C3031, C3040, C3042, C3047, C3082, C3091, C3095, C3110, C1034, C1056
2CC1-16-C0G500-120J	R flake multi-layer capacitor	1608, 12P±5%, 50V, C0G	3	C3106, C2030, C2032
2CC1-16-C0G500-121J	R flake multi-layer capacitor	1608, 120P±5%, 50V, C0G	2	C2021, C2023
2CC1-16-C0G500-150J	R flake multi-layer capacitor	1608, 15P±5%, 50V, C0G	7	C3064, C3072, C3107, C3005, C3006, C3010, C3011
2CC1-16-C0G500-180J	R flake multi-layer capacitor	1608, 18P±5%, 50V, C0G	2	C1094, C3104
2CC1-16-C0G500-1R0B	flake multi-layer capacitor	1608, 1P±0.1P, 50V, C0G	8	C1103, C1117, C6020, C6026, C6036, C6041, C6057, C6063
2CC1-16-C0G500-200J	R flake multi-layer capacitor	1608, 20P±5%, 50V, C0G	2	C1114, C1115
2CC1-16-C0G500-220J	R flake multi-layer capacitor	1608, 22P±5%, 50V, C0G	4	C3050, C3021, C3022, C2031
2CC1-16-C0G500-221J	R flake multi-layer capacitor	1608, 220P±5%, 50V, C0G	4	C3052, C3057, C3084, C3088
2CC1-16-C0G500-240J	R flake multi-layer capacitor	1608, 24P±5%, 50V, C0G	3	C1100, C1054, C1055
2CC1-16-C0G500-300J	R flake multi-layer capacitor	1608, 30P±5%, 50V, C0G	2	C1095, C1096
2CC1-16-C0G500-330J	flake multi-layer capacitor	1608, 33P±5%, 50V, C0G	2	C3019, C3020
2CC1-16-C0G500-470J	R flake multi-layer capacitor	1608, 47P±5%, 50V, C0G	45	C1084, C1099, C2024, C6021, C6022, C6023, C6024, C6025, C6027, C6028, C6029, C6030, C6031, C6032, C6033, C6034, C6035, C6037, C6038, C6039, C6040,

				C6042, C6043, C6044, C6045, C6046, C6047, C6048, C6049, C6050, C6051, C6052, C6053, C6054, C6055, C6056, C6058, C6059
2CC1-16-C0G500-471J	R flake multi-layer capacitor	1608, 470P±5%, 50V, C0G	16	C3070, C1006, C1007, C1008, C1067, C1089, C1090, R3037, C3003, C3004, C3007, C3009, C3012, C1012, C1032, C1033
2CC1-16-C0G500-560J	R flake multi-layer capacitor	1608, 56P±5%, 50V, C0G	3	C3059, C4016, C4006
2CC1-16-C0G500-5R0B	flake multi-layer capacitor	1608, 5P±0.1P, 50V, C0G	7	C1060, C1061, C1062, C1077, C1110, C1111, C3000
2CC1-16-C0G500-620J	flake multi-layer capacitor	1608, 62P±5%, 50V, C0G	2	C2022, C2025
2CC1-16-C0G500-680J	R flake multi-layer capacitor	1608, 68P±5%, 50V, C0G	3	C1091, C3056, C4053
2CC1-16-C0G500-6R0C	R flake multi-layer capacitor	1608, 6P±0.25P , 50V, C0G	3	C1076, C1073, C2018
2CC1-16-C0G500-820J	R flake multi-layer capacitor	1608, 82P±5%, 50V, C0G	2	C2020, C2026
2CC1-16-X7R500-102K	R flake multi-layer capacitor	1608, 1000P±10%, 50V, X7R	22	C3051, C1072, C1092, C1093, C1097, C3033, C3034, C3035, C3036, C3037, C3038, C3044, C3073, C3075, C3093, C3099, C3102, C6001, C6003, C6010, C6012, C3076
2CC1-16-X7R500-103K	R flake multi-layer capacitor	1608, 10nF±10%, 50V, X7R	57	C1002, C1003, C1016, C1017, C1022, C1023, C1027, C1028, C1036, C1038, C1040, C1043, C1045, C1047, C1050, C1052, C1080, C1082, C3028, C3032, C3043, C3048, C3053, C3078,

				C3096, C3098, C3111, C5000, C5001, C5002, C5004, C5006, C5007, C5008, C6004, C6013, C1041, C1048, C4008, C4000, C4001
2CC1-16-X7R50 0-152K	flake multi-layer capacitor	1608, 1500P±10%, 50V, X7R	1	C3085
2CC1-16-X7R50 0-182K	R flake multi-layer capacitor	1608, 1800P±10%, 50V, X7R	1	C3077
2CC1-16-X7R50 0-271K	R flake multi-layer capacitor	1608, 270P±10%, 50V, X7R	2	C1087, C1088
2CC1-16-X7R50 0-331K	flake multi-layer capacitor	1608, 330P±10%, 50V, X7R	5	C3114, C3054, C3068, C3108, C3115
2CC1-16-Y5V16 0-104Z	flake multi-layer capacitor	1608, 100nF+80%/-20%, 16V, Y5V	24	C1065, C1078, C1081, C1083, C1106, C1113, C2009, C2011, C2013, C2014, C2038, C3041, C3045, C3049, C3071, C3079, C3081, C3086, C3087, C3089, C3090, C3092, C3101, C3103
2CC1-16-Y5V25 0-105Z	flake multi-layer capacitor	1608, 1μF+80%/-20%, 25V, Y5V	3	R6004, C6014, C6015
2CE1-VS250-10 1M0607D	SMD aluminum electrolytic capacitor	SMD-6.3x7.7mm, 100uF/25V	1	C5003
2CT1-TS32-100- 220M	SMD tantalum capacitor	3216, 22μF±20%, 10V, TS series(A level)	1	C5005
2CT1-TS32-100- 2R2M	R SMD tantalum capacitor	3216, 2.2μF±20%, 10V, TS series(A level)	1	C1075
2CT1-TS32-160- 100M	R SMD tantalum capacitor	3216, 10μF±20%, 16V, TS series(A level)	29	C4029, C4024, C4040, C4045, C4047, C4052, C6007, C1000, C1005, C1014, C1019, C1020, C1025, C1030, C1031, C6002, C6008, C6011, C3029, C3030, C3046, C3067, C3094, C3097,

				C3109, C3112, C3113, C1057, C1058
2CT1-TS32-350-R10M	R SMD tantalum capacitor	3216, 0.1μF±20%, 35V, TS series(A level)	2	C1069, C3100
2CT1-TS32-350-R33M	R SMD tantalum capacitor	3216, 0.33μF±20%, 35V, TS series(A level)	1	C1070
2CT1-TS32-6R3-150M	R SMD tantalum capacitor	3216, 15μF±20%, 6.3V, TS series(A level)	3	C1009, C1011, C1013
2LL1-16-1R0K	R laminated inductor	1608, 1μH±10%(MLF1608A1R0K)	2	L1025, L3013
2LL1-16-3R3K	R laminated inductor	1608, 3.3μH±10%(MLF1608A3R3K TA00)	3	L4004, L1007, L1029
2LW1-16UC-181J	SMD wire winding inductor	1608, 180nH±5%, ceramic core(C1608CB-R18J)	1	L2006
2LW1-16UC-330J	R SMD wire winding inductor	1608, 33nH±5%, ceramic core (C1608CB-33NJ)	1	L1013
2LW1-20UC-470J	R SMD wire winding inductor	2012, 47nH±5%, ceramic core (C2012C-47NJ)	4	L3004, L3000, L3001, L3002
2LW1-16UC-271G	SMD wire winding inductor	1608, 270nH±2%, ceramic core (C1608CB-R27G-RF)	2	L3016, L3021
2LW1-16UC-R33G	SMD wire winding inductor	1608, 330nH±2%(C1608BR33G), pb-free	10	L1005, L1006, L1011, L1015, L1023, L1024, L1026, L1027, L1028, L1030
2LW1-20UC-102J	SMD wire winding inductor	2012, 1μH±5%, ceramic core (C2012C-1R0J)	3	L2004, L3007, L3024
2LW1-20UC-330J	R SMD wire winding inductor	2012, 33nH±5%, ceramic core (C2012C-33NJ)	2	L2009, L2010
2LW1-20UC-330GC	SMD wire winding inductor	2012, 33nH±2%, 500mA, LQW2BAS33NG00, SMD wire winding inductor, muRata brand	1	L1016
2LW1-20UC-390GB	SMD wire winding inductor	2012, 39nH±2%, 500mA, LQW2BAS39NG00, SMD wire winding	1	L1017

		inductor, muRata brand		
2LW1-20UC-331J	SMD wire winding inductor	2012, 330nH±5%, ceramic core (high frequency)	3	L1019, L1020, L4001
2LW1-25UC-103J	R SMD wire winding inductor	2520, 10μH±5%, ceramic core (FLM2520-100J)	4	L1022, L3005, L4002, L4003
2RE1-16-1000	SMD precision resistor	1608, 100Ω±1%	8	R1008, R1009, R1010, R1013, R1014, R1016, R1022, R1024
2RE1-16-1200	SMD precision resistor	1608, 120Ω±1%	7	R1005, R1021, R1025, C4009, C4010, R3002, R3003
2RE1-16-3301	SMD precision resistor	1608, 3.3K±1%	2	R3029, C3083
2RE1-16-47R0	SMD precision resistor	1608, 47Ω±1%	2	R1019, R3000
2RS1-16-000O	R flake resistor	1608, 0Ω	19	R1017, R1018, R1029, R2010, L2012, C3039, L3015, R3018, R3027, R3028, R3031, R3038, R3042, R6012, R6013, R1020, R6040, R6041, R4003
2RS1-16-102J	R flake resistor	1608, 1K±5%	6	R1023, R1028, R1042, R3036, R4004, R4009
2RS1-16-103J	R flake resistor	1608, 10K±5%	19	R1035, R1036, R1037, R1007, R1011, R1030, R1031, R1032, R1033, R1034, R1039, R1040, R3017, R6007, R6009, R1041, R4002, R4007, R4008
2RS1-16-104J	R flake resistor	1608, 100K±5%	13	R3005, R3006, R3007, R3008, R3009, R3010, R3011, R3012, R3013, R3014, R3015, R3016, R4006
2RS1-16-124J	R flake resistor	1608, 120K±5%	1	R1026
2RS1-16-153J	R flake resistor	1608, 15K±5%	1	R6005
2RS1-16-182J	R flake resistor	1608, 1.8K±5%	2	R3024, R3026

2RS1-16-184J	R flake resistor	1608, 180K±5%	1	R3041
2RS1-16-220J	R flake resistor	1608, 22Ω±5%	1	R2018
2RS1-16-221J	R flake resistor	1608, 220Ω±5%	2	R2011, R2012
2RS1-16-223J	R flake resistor	1608, 22K±5%	4	R3039, R3040, R3045, R3046
2RS1-16-270J	R flake resistor	1608, 27Ω±5%	1	R2009
2RS1-16-273J	R flake resistor	1608, 27K±5%	2	R6008, R6010
2RS1-16-362J	R flake resistor	1608, 3.6K±5%	1	R6011
2RS1-16-363J	R flake resistor	1608, 36K±5%	2	R3030, R3032
2RS1-16-364J	flake resistor	1608, 360K±5%	1	R3049
2RS1-16-392J	R flake resistor	1608, 3.9K±5%	3	R1002, R1015, R3043
2RS1-16-472J	R flake resistor	1608, 4.7K±5%	8	R1006, R3033, R1000, R1001, R3019, R3021, R3044, R3047
2RS1-16-473J	R flake resistor	1608, 47K±5%	8	R3023, R3025, R5000, R5001, R6042, R6043, R6052, R6053
2RS1-16-513J	R flake resistor	1608, 51K±5%	1	R6001
2RS1-16-560J	R flake resistor	1608, 56Ω±5%	2	R3052, L4000
2RS1-16-562J	R flake resistor	1608, 5.6K±5%	2	R3050, R6000
2RS1-16-680J	R flake resistor	1608, 68Ω±5%	2	R1004, R1044
2RS1-16-511J	flake resistor	1608, 510Ω±5%	1	R4000
2RS1-16-682J	R flake resistor	1608, 6.8K±5%	2	R1003, R1043
2RS1-16-821J	R flake resistor	1608, 820Ω±5%	1	R3022
2RS1-16-822J	R flake resistor	1608, 8.2K±5%	2	R2007, R5003
2RS1-32-000O	R flake resistor	3216, 0Ω±5%	1	U5002
2RS1-20-000O	R flake resistor	2012, 0Ω	9	L2011, L2013, L3003, L3006, L3008, L3009, L3010, L3011, L3012

3FW1-42932-302320	R SMD fuse	429003/433003/466003, 3216, 3A/32V	1	CB5000
5FC1-DSF51R6M-0705	R SMD crystal filter, PT568/78/72/62/65/68/DR55/DM58/3208/V68/E66	DSF753SBF, 51.65MHz±4KHz/3dB, 7.0*5.0*1.3, DP77/CD37/RD47/AP57	2	Z3000, Z3001
5FE1-BLM11A601S	R SMD EMI suppression filter	1608, BLM11A601S/BLM18AG601S(0138-05)	45	L1000, L1001, L1003, L1004, L1008, L1009, L1010, L1012, L1014, L1018, L1021, L2001, L2002, L3019, L6000, L6001, R6014, R6015, R6016, R6017, R6019, R6020, R6022, R6023, R6024, R6026, R6027, R6028, R6029, R6030, R6032, R6035, R6036, R6037, R6039, R6044, FB4000
5FE1-BLM21P300S	R SMD EMI suppression filter	2012, BLM21P300S/BLM21PG300S(0149-05)	1	L5000
2RT1-NTH5G16P39B153K	SMD thermal resistor	NTH5G16P39B153K, 15K, 0603	1	R3051
6PM7-4067-HRB	DR650-02 RX board	DR650-02-RX-130304.PCB, 4 layers, thickness 1.6MM, 194X90mm, FR-4, for all frequency range	1	
2LL1-16-R56JT	Laminated inductor	1608, 560nH±5%, (MLG1608SR56JT-561J)	1	L3023
1IS1-SYM25DHW	SMD frequency mixer	SYM-25DHW+, 80to2500MHz, TTT167package, Mini-Circuits brand, RoHS	1	IC3005
2CC1-16-C0G500-160J	R flake multi-layer capacitor	1608, 16P±5%, 50V, C0G	2	C3080, C4007
2CC1-16-C0G500-2R0B	flake multi-layer capacitor	1608, 2P±0.1P, 50V, C0G	3	C4062, C3060, C3002
2LL1-16-R56K	R laminated inductor	1608, 560nH±10%(MLF1608D	1	L3022

		R56K)		
2CC1-16-C0G500-151J	R flake multi-layer capacitor	1608, 150P±5%, 50V, C0G	1	C3058
2LL1-16-R22K	R laminated inductor	1608, 0.22μH±10%(MLF1608DR22K TA00)	1	L3017
2RS1-16-271J	R flake resistor	1608, 270Ω±5%	1	L3018
2CC1-16-C0G500-3R0B	flake multi-layer capacitor	1608, 3P±0.1P, 50V, C0G	2	C1101, C1116
1IS1-AD9864	IF digital system	AD9864, LFCSP-N48_B7X6_75_P0_5, pb-free	1	U4000
1IM1-AT24C08CN-SH	E R SMD memorizor IC for analog commercial portable and radio	EEPROPM, AT24C08CN-SH(8-SOIC)	1	IC6005
2CC1-16-Y5V500-104Z	flake multi-layer capacitor	1608, 0.1μF+80%/-20%, 50V, Y5V, replacement part:2CC1-16-Y5V250-104Z	7	C4004, C4018, C4023, C4030, C4031, C4046, C4055
2RS1-16-561J	R flake resistor	1608, 560Ω±5%	1	R4005
2RS1-16-203J	R flake resistor	1608, 20K±5%	1	R4001
2CC1-16-C0G500-181J	flake multi-layer capacitor	1608, 180P±5%, 50V, C0G	1	C4020
2LW1-25UC-332K	SMD wire winding inductor	2520, 3.3μH±10%, ceramic core (NL252018T-3R3K/NLV25T-3R3K)	1	L4005
2CC1-16-C0G500-130J	R flake multi-layer capacitor	1608, 13P±5%, 50V, C0G	1	C3018
2CC1-16-C0G500-110J	R flake multi-layer capacitor	1608, 11P±5%, 50V, C0G	1	C3026
2LH1-0908-140G	SMD air core inductor	0908SQ-14NJLC, 14nH±2%, 0908SQ package, COILCRAFT	6	L3025, L3026, L3027, L3028, L3029, L3030
2CC1-16-C0G50	flake	1608, 680P±5%, 50V,	1	C3008

0-681J	multi-layer capacitor	C0G		
2CC1-16-X7R160-104K	flake multi-layer capacitor	1608, 100nF±10%, 16V, X7R	2	C4015, C4058
0SS2-4095-HRA	STR-V RX board plug-in unit	STR-V RX board plug-in unit, pb-free	1	D1000
3CB3-A2548WV-2X13P	Plug-in board-to-board connector	2*13 socket(male), 180 degrees, interval2.54mm, 40.64X9X9.1mm	1	J6000
3CR7-SMA-50KWE-2	RF coaxial connector	SMA-50KWE-2, 5PIN plug-in unit, 90 degrees, length 23mm.pitch:2.54mm	2	J3000, J3002
6SS2-4095-HTA	STR-V TX board suite (131031)	Sepura VHF repeater, STR-V TX board suite, pb-free	1	
6SS1-4095-HTA	STR-V TX board SMD material(131031)	Sepura VHF repeater, STR-V TX board SMD material, pb-free	1	D105, D110
3FW1-42932-302320	R SMD fuse	429003/433003/466003, 3216, 3A/32V	1	CB400
1DR1-MM3Z12VT1G	Anti-static zener diode	MM3Z12VT1G, 3V, SOD323, pb-free	1	D400
1DS1-HSC277	R SMD switch diode(off production)	HSC277, 1608	1	D100
1DV1-1SV278	R SMD varactor diode	1SV278(T1)	2	D105, D110
1DV1-1SV305	R SMD varactor diode	1SV305	8	D101, D102, D103, D104, D106, D107, D108, D109
1IS1-LM2941S	SMD specialized IC	LM2941S/TO-236, 5PIN, low dropout voltage regulator,pb-free	1	U400
1IS1-SKY72310	PLL chip	SKY72310, 24 pin QFN 4mmX4mm pb-free(QFN-N24_B4x4-P0_5), pb-free	1	IC100
1IS1-PGA103	Broad band low niose amplifier	PGA-103+, 0.05to4GHz, SOT-89, PACKAGE, Mini-Circuits brand, RoHS	1	IC306

1IS1-TC75S51F	SMD single operational amplifier IC	TC75S51F, SSOP5-P-0.95	2	IC300, IC301
1IS1-XC6209F302PR	SMD voltage regulator IC	XC6209F302PR, SOT-89-5, 3.0V	1	IC101
1IS1-XC6209F332PR	SMD voltage regulator IC	XC6209F332PR, SOT-89-5, 3.3V	1	IC103
1IS1-XC6209F502PR	SMD voltage regulator IC	XC6209F502PR, SOT-89-5, 5.0V	4	IC102, IC104, IC105, IC302
1TC1-UMC4	R SMD multiunit tube	UMC4, NPN/PNP multiunit tube	1	U100
1TF1-2SJ243	R SMD FET(off production)	2SJ243-SMD	1	Q104
1TT1-2SC3356-R24	R SMD triode (off production)	2SC3356-R24, SOT23, NPN	3	Q105, Q106, Q202
1TT1-2SC4617-R	R SMD triode	2SC4617-R(BR), EMT3	1	Q101
1TT1-DTC114YE	SMD triode	Digitak triode DTC114YE-SMD	2	Q204, Q400
1TT1-FMMT717TA	R SMD triode	FMMT717A, PNP, SOT23	1	Q203
2CC1-16-C0G500-100D	R flake multi-layer capacitor	1608, 10P±0.5P, 50V, C0G	3	C188, C189, C171
2CC1-16-C0G500-101J	R flake multi-layer capacitor	1608, 100P±5%, 50V, C0G	65	C161, C166, C167, C182, C184, C186, C199, C208, C212, C214, C216, C224, C228, C234, C239, C242, C246, C255, C289, C291, C295, C297, C300, C301, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C315, C316, C317, C320, C321, C322, C323, C340, C341, C344, C345
2CC1-16-C0G500-102J	Flake multi-layer capacitor	1608, 1000P±5%, 50V, C0G	8	C175, C240, C325, C329, C332, C334, C342, R333
2CC1-16-C0G50	R flake	1608, 22P±5%, 50V,	1	C230

0-220J	multi-layer capacitor	C0G		
2CC1-16-C0G500-3R0B	flake multi-layer capacitor	1608, 3P±0.1P, 50V, C0G	2	C133, C169
2CC1-16-C0G500-121J	R flake multi-layer capacitor	1608, 120P±5%, 50V, C0G	1	C244
2CC1-16-C0G500-180J	R flake multi-layer capacitor	1608, 18P±5%, 50V, C0G	1	C130
2CC1-16-C0G500-1R0B	flake multi-layer capacitor	1608, 1P±0.1P, 50V, C0G	8	C129, C135, C177, C179, C313, C314, C318, C319
2CC1-16-C0G500-430J	R flake multi-layer capacitor	1608, 43P±5%, 50V, C0G	2	C221, C136
2CC1-16-C0G500-470J	R flake multi-layer capacitor	1608, 47P±5%, 50V, C0G	2	C220, C256
2CC1-16-C0G500-471J	R flake multi-layer capacitor	1608, 470P±5%, 50V, C0G	4	C105, C107, C108, C127
2CC1-16-C0G500-110J	R flake multi-layer capacitor	1608, 11P±5%, 50V, C0G	1	C180
2CC1-16-C0G500-680J	R flake multi-layer capacitor	1608, 68P±5%, 50V, C0G	1	C181
2CC1-16-C0G500-5R0B	flake multi-layer capacitor	1608, 5P±0.1P, 50V, C0G	3	C163, C164, C165
2CC1-16-C0G500-620J	flake multi-layer capacitor	1608, 62P±5%, 50V, C0G	4	C225, C232, C233, C257
2CC1-16-C0G500-6R0C	R flake multi-layer capacitor	1608, 6P±0.25P , 50V, C0G	2	C231, C235
2CC1-16-C0G500-150J	R flake multi-layer capacitor	1608, 15P±5%, 50V, C0G	4	C155, C156, C131, C170
2CC1-16-C0G500-820J	R flake multi-layer capacitor	1608, 82P±5%, 50V, C0G	2	C222, C226
2CC1-16-X7R500-103K	R flake multi-layer	1608, 10nF±10%, 50V, X7R	30	C101, C103, C116, C118, C122, C125,

	capacitor			C139, C141, C143, C145, C147, C149, C152, C154, C245, C253, C290, C292, C296, C298, C326, C335, C343, C400, C401, C402, C404, C406, C407, C408
2CC1-16-X7R50 0-332K	flake multi-layer capacitor	1608, 3300P±10%, 50V, X7R	1	C336
2CC1-16-X7R50 0-333K	R flake multi-layer capacitor	1608, 33nF±10%, 50V, X7R	1	C327
2CC1-16-Y5V16 0-104Z	flake multi-layer capacitor	1608, 100nF+80%/-20%, 16V, Y5V	19	C110, C112, C114, C158, C159, C162, C185, C187, C195, C196, C209, C213, C215, C217, C227, C229, C238, C241, C243
2CE1-VS250-10 1M0607D	SMD aluminum electrolytic capacitor	SMD-6.3x7.7mm, 100uF/25V	1	C403
2CT1-TS32-160- 4R7M	R SMD tantalum capacitor	3216, 4.7μF±20%, 16V, TS series (A level)	1	C178
2CT1-TS32-160- 100M	R SMD tantalum capacitor	3216, 10μF±20%, 16V, TS series (A level)	21	C100, C104, C115, C120, C121, C126, C252, C254, C282, C283, C284, C285, C286, C287, C288, C293, C294, C299, C328, C333, C405
2CT1-TS32-350- R10M	R SMD tantalum capacitor	3216, 0.1μF±20%, 35V, TS series (A level)	3	C172, C173, C174
2CC1-16-C0G50 0-240J	R flake multi-layer capacitor	1608, 24P±5%, 50V, C0G	3	C176, C183, C132
2CT1-TS32-6R3- 150M	R SMD tantalum capacitor	3216, 15μF±20%, 6.3V, TS series (A level)	1	C109
2LL1-16-3R3K	R laminated inductor	1608, 3.3μH±10%(MLF1608A3	2	L105, L117

		R3K TA00)		
2LW1-16UC-181J	SMD wire winding inductor	1608, 180nH±5%, ceramic core (C1608CB-R18J)	1	L205
2LW1-16UC-560G	SMD wire winding inductor	1608, 56nH±2%, ceramic core (C1608CB-56NG)	1	L113
2LW1-16UC-R33G	SMD wire winding inductor	1608, 330nH±2%(C1608BR33G), pb-free	6	L103, L104, L111, L115, L116, L120
2LW1-20UC-102J	SMD wire winding inductor	2012, 1μH±5%, ceramic core (C2012C-1R0J)	2	L214, L106
2LW1-20UC-470GB	SMD wire winding inductor	2012, 47nH±2%, 500mA, LQW2BAS47NG00, SMD wire winding inductor, muRata brand	1	L119
2LW1-20UC-560JA	R SMD wire winding inductor	2012, 56nH±5%, ceramic core (C2012C-56NJ)	2	L209, L210
2LW1-20UC-221J	R SMD wire winding inductor	2012, 220nH±5%, ceramic core (LQN21AR22J/LQW2BHNR22J03L)	1	L118
2LW1-20UC-330GC	SMD wire winding inductor	2012, 33nH±2%, 500mA, LQW2BAS33NG00, SMD wire winding inductor, muRata brand	1	L107
2LW1-25UC-103J	R SMD wire winding inductor	2520, 10μH±5%, ceramic core (FLM2520-100J)	1	L122
2RE1-16-1000	SMD precision resistor	1608, 100Ω±1%	11	R129, R124, R105, R106, R113, R115, R117, R119, R120, R121, R128
2RE1-16-1001	SMD precision resistor	1608, 1K±1%	2	R134, R135
2RE1-16-1200	SMD precision resistor	1608, 120Ω±1%	1	R108
2RE1-16-8201	R SMD precision resistor	1608, 8.2K±1%	2	R342, R403
2RS1-16-000O	R flake resistor	1608, 0Ω	21	C191, R131, R137, R335, R122, R123,

				R130, R210, L211, R325, R326, R334, R346, R348, R319, R320, R350, R313, R314, R315, R316
2RS1-16-103J	R flake resistor	1608, 10K±5%	9	R114, R132, R133, R140, R141, R142, R143, R144, R145
2RS1-16-104J	R flake resistor	1608, 100K±5%	6	R100, R103, R107, R111, R118, R127
2RS1-16-123J	R flake resistor	1608, 12K±5%	2	R343, R337
2RS1-16-124J	R flake resistor	1608, 120K±5%	2	R339, R341
2RS1-16-220J	R flake resistor	1608, 22Ω±5%	1	R218
2RS1-16-221J	R flake resistor	1608, 220Ω±5%	2	R211, R212
2RS1-16-270J	R flake resistor	1608, 27Ω±5%	2	R209, R125
2RS1-16-302J	flake resistor	1608, 3K±5%	2	R104, R116
2RS1-16-472J	R flake resistor	1608, 4.7K±5%	2	R101, R109
2RS1-16-473J	R flake resistor	1608, 47K±5%	5	R345, R110, R220, R400, R401
2RS1-16-511J	flake resistor	1608, 510Ω±5%	1	R219
2RS1-16-563J	R flake resistor	1608, 56K±5%	1	R207
2RS1-16-682J	R flake resistor	1608, 6.8K±5%	2	R102, R112
2RS1-20-000O	R flake resistor	2012, 0Ω	2	L212, L213
5FE1-BLM11A601S	R SMD EMI suppression filter	1608, BLM11A601S/BLM18AG601S(0138-05)	28	L100, L101, L102, L108, L109, L110, L112, L114, L121, L123, L202, L207, L300, R301, L301, R302, R303, R304, R305, R306, R307, R308, R309, R310, R311, R312, R329, R351
5FE1-BLM21P300S	R SMD EMI suppression filter	2012, BLM21P300S/BLM21PG300S(0149-05)	1	L400
5OT1-12R8-ACL4-3225	SMD temperature compensated	KDS, 12.8MHz±1.5ppm, Vc=1.5±1V, range: ±35ppm, -40℃～85,	1	X100

	crystal oscillator	3225		
6PD7-1861-HLC	Crystal adaptor board	Thickness 0.6mm, FR4 material	1	
6PM7-4067-HTB	DR650-02 TX board	DR650-DVC0-TXBORAD-20130319.PCB, thickness 1.6MM, FR-4, 70X194M, 4 layers	1	
2CC1-16-Y5V160-474Z	R flake multi-layer capacitor	1608, 470nF+80%/-20%, 16V, Y5V	1	R344
2RS1-16-183J	R flake resistor	1608, 18K±5%	1	C339
2CC1-16-C0G500-270J	R flake multi-layer capacitor	1608, 27P±5%, 50V, C0G	1	C137
2RS1-32-000O	R flake resistor	3216, 0Ω±5%	1	U402
2RS1-16-222J	R flake resistor	1608, 2.2K±5%	1	R138
2CC1-16-X7R500-202K	flake multi-layer capacitor	1608, 2000P±10%, 50V, X7R	1	C198
2RS1-16-820J	flake resistor	1608, 82Ω±5%	1	R126
2CC1-16-C0G500-300J	R flake multi-layer capacitor	1608, 30P±5%, 50V, C0G	2	C128, C168
2CC1-16-C0G500-9R0C	R flake multi-layer capacitor	1608, 9P±0.25P, 50V, C0G	1	C134
0SS2-4095-HTA	STR-V TX board plug-in unit	STR-VTX board plug-in unit,pb-free	1	IC102, IC104, IC105, IC302
3CB3-A2548WV-2X10P	Plug-in unit board-to-board connector	2*10 socket(male), interval 2.54mm, 33.02X9X9.1mm, black,	1	J300
3CR7-SMA-50KWE-2	RF coaxial connector	SMA-50KWE-2, 5PIN plug-in unit, 90 degrees, length 23mm.pitch:2.54mm,	1	J200

Table 2 Part List(TX Module Section)

Part No.	Part Name	Specification	Quantity	Location
3FW1-42932-302320	R SMD fuse	429003/433003/466003, 3216,3A/32V	1	CB400
1DR1-MM3Z12VT1G	Anti-static zener diode	MM3Z12VT1G, 3V, SOD323, pb-free	1	D400
1DS1-HSC277	R SMD switchdiode(off production)	HSC277,1608	1	D100
1DV1-1SV278	R SMD varactor diode	1SV278(T1)	2	D105,D110
1DV1-1SV305	R SMD varactor diode	1SV305	8	D101,D102,D103,D104, D106,D107,D108,D109
1IS1-LM2941S	SMD specialized IC	LM2941S/TO-236, 5PIN, low dropout voltage regulator, pb-free	1	U400
1IS1-SKY72310	PLL chip	SKY72310,24 pin QFN 4mmX4mm pb-free(QFN-N24_B4x4-P0_5), pb-free	1	IC100
1IS1-PGA103	Broad band low noise amplifier	PGA-103+,0.05to4GHz, SOT-89,PACKAGE,Mini-Circuits brand,RoHS	1	IC306
1IS1-TC75S51F	SMD single operational amplifier IC	TC75S51F,SSOP5-P-0.95	2	IC300,IC301
1IS1-XC6209F302PR	SMD voltage regulator IC	XC6209F302PR, SOT-89-5, 3.0V	1	IC101
1IS1-XC6209F332PR	SMD voltage regulator IC	XC6209F332PR, SOT-89-5, 3.3V	1	IC103
1IS1-XC6209F502PR	SMD voltage regulator IC	XC6209F502PR, SOT-89-5, 5.0V	4	IC102,IC104,IC105,IC302
1TC1-UMC4	R SMD multiunit tube	UMC4,NPN/PNP multiunit tube	1	U100
1TF1-2SJ243	R SMD FET(off production)	2SJ243-SMD	1	Q104
1TT1-2SC3356-R24	R SMD triode (off production)	2SC3356-R24,SOT23,NPN	3	Q105,Q106,Q202
1TT1-2SC4617-R	R SMD triode	2SC4617-R(BR),EMT3	1	Q101
1TT1-DTC114YE	SMD triode	Digital triode	2	Q204,Q400

		DTC114YE-SMD		
1TT1-FMMT717TA	R SMD triode	FMMT717A,PNP,SOT23	1	Q203
2CC1-16-C0G500-100D	R flake multi-layer capacitor	1608,10P±0.5P,50V,C0G	3	C188,C189,C171
2CC1-16-C0G500-101J	R flake multi-layer capacitor	1608,100P±5%,50V,C0G	65	C161,C166,C167,C182,C184,C186,C199,C208,C212,C214,C216,C224,C228,C234,C239,C242,C246,C255,C289,C291,C295,C297,C300,C301,C302,C303,C304,C305,C306,C307,C308,C309,C310,C311,C312,C315,C316,C317,C320,C321,C322,C323,C340,C341,C344,C345
2CC1-16-C0G500-102J	flake multi-layer capacitor	1608,1000P±5%,50V,C0G	8	C175,C240,C325,C329,C332,C334,C342,R333
2CC1-16-C0G500-220J	R flake multi-layer capacitor	1608,22P±5%,50V,C0G	1	C230
2CC1-16-C0G500-3R0B	Flake multi-layer capacitor	1608,3P±0.1P,50V,C0G	2	C133,C169
2CC1-16-C0G500-121J	R flake multi-layer capacitor	1608,120P±5%,50V,C0G	1	C244
2CC1-16-C0G500-180J	R flake multi-layer capacitor	1608,18P±5%,50V,C0G	1	C130
2CC1-16-C0G500-1R0B	flake multi-layer capacitor	1608,1P±0.1P,50V,C0G	8	C129,C135,C177,C179,C313,C314,C318,C319
2CC1-16-C0G500-430J	R flake multi-layer capacitor	1608,43P±5%,50V,C0G	2	C221,C136
2CC1-16-C0G500-470J	R flake multi-layer capacitor	1608,47P±5%,50V,C0G	2	C220,C256
2CC1-16-C0G500-471J	R flake multi-layer capacitor	1608,470P±5%,50V,C0G	4	C105,C107,C108,C127
2CC1-16-C0G50	R flake	1608,11P±5%,50V,C0G	1	C180

0-110J	multi-layer capacitor			
2CC1-16-C0G500-680J	R flake multi-layer capacitor	1608,68P±5%,50V,C0G	1	C181
2CC1-16-C0G500-5R0B	flake multi-layer capacitor	1608,5P±0.1P,50V,C0G	3	C163,C164,C165
2CC1-16-C0G500-620J	flake multi-layer capacitor	1608,62P±5%,50V,C0G	4	C225,C232,C233,C257
2CC1-16-C0G500-6R0C	R flake multi-layer capacitor	1608,6P±0.25P ,50V,C0G	2	C231,C235
2CC1-16-C0G500-150J	R flake multi-layer capacitor	1608,15P±5%,50V,C0G	4	C155,C156,C131,C170
2CC1-16-C0G500-820J	R flake multi-layer capacitor	1608,82P±5%,50V,C0G	2	C222,C226
2CC1-16-X7R500-103K	R flake multi-layer capacitor	1608,10nF±10%,50V,X7R	30	C101,C103,C116,C118,C122,C125,C139,C141,C143,C145,C147,C149,C152,C154,C245,C253,C290,C292,C296,C298,C326,C335,C343,C400,C401,C402,C404,C406,C407,C408
2CC1-16-X7R500-332K	flake multi-layer capacitor	1608,3300P±10%,50V,X7R	1	C336
2CC1-16-X7R500-333K	R flake multi-layer capacitor	1608,33nF±10%,50V,X7R	1	C327
2CC1-16-Y5V160-104Z	flake multi-layer capacitor	1608,100nF+80%/-20%,16V,Y5V	19	C110,C112,C114,C158,C159,C162,C185,C187,C195,C196,C209,C213,C215,C217,C227,C229,C238,C241,C243
2CE1-VS250-101M0607D	SMD aluminum electrolytic capacitor	SMD-6.3x7.7mm,100uF/25V	1	C403
2CT1-TS32-160-4R7M	R SMD tantalum capacitor	3216,4.7μF±20%,16V,TS series (A level)	1	C178

2CT1-TS32-160-100M	R SMD tantalum capacitor	3216,10μF±20%,16V,TS series (A level)	21	C100,C104,C115,C120,C121,C126,C252,C254,C282,C283,C284,C285,C286,C287,C288,C293,C294,C299,C328,C333,C405
2CT1-TS32-350-R10M	R SMD tantalum capacitor	3216,0.1μF±20%,35V,TS series (A level)	3	C172,C173,C174
2CC1-16-C0G500-240J	R flake multi-layer capacitor	1608,24P±5%,50V,C0G	3	C176,C183,C132
2CT1-TS32-6R3-150M	R SMD tantalum capacitor	3216,15μF±20%,6.3V,TS series (A level)	1	C109
2LL1-16-3R3K	R laminated inductor	1608,3.3μH±10%(MLF1608A3R3K TA00)	2	L105,L117
2LW1-16UC-181J	SMD wire winding inductor	1608,180nH±5%, ceramic core (C1608CB-R18J)	1	L205
2LW1-16UC-560G	SMD wire winding inductor	1608,56nH±2%, ceramic core (C1608CB-56NG)	1	L113
2LW1-16UC-R33G	SMD wire winding inductor	1608,330nH±2%(C1608BR33G), pb-free	6	L103,L104,L111,L115,L116,L120
2LW1-20UC-102J	SMD wire winding inductor	2012,1μH±5%, ceramic core (C2012C-1R0J)	2	L214,L106
2LW1-20UC-470GB	SMD wire winding inductor	2012, 47nH±2%, 500mA,LQW2BAS47NG00 ,muRata brand	1	L119
2LW1-20UC-560JA	R SMD wire winding inductor	2012,56nH±5%, ceramic core (C2012C-56NJ)	2	L209,L210
2LW1-20UC-221J	R SMD wire winding inductor	2012,220nH±5%, ceramic core (LQN21AR22J/LQW2BHNR22J03L)	1	L118
2LW1-20UC-330GC	SMD wire winding inductor	2012, 33nH±2%, 500mA,LQW2BAS33NG00, SMD wire winding inductor,muRata brand	1	L107
2LW1-25UC-103J	R SMD wire winding inductor	2520,10μH±5%, ceramic core (FLM2520-100J)	1	L122

2RE1-16-1000	SMD precision resistor	1608,100Ω±1%	11	R129,R124,R105,R106, R113,R115,R117,R119, R120,R121,R128
2RE1-16-1001	SMD precision resistor	1608,1K±1%	2	R134,R135
2RE1-16-1200	SMD precision resistor	1608,120Ω±1%	1	R108
2RE1-16-8201	R SMD precision resistor	1608,8.2K±1%	2	R342,R403
2RS1-16-000O	R flake resistor	1608,0Ω	21	C191,R131,R137,R335, R122,R123,R130,R210, L211,R325,R326,R334, R346,R348,R319,R320, R350,R313,R314,R315, R316
2RS1-16-103J	R flake resistor	1608,10K±5%	9	R114,R132,R133,R140, R141,R142,R143,R144, R145
2RS1-16-104J	R flake resistor	1608,100K±5%	6	R100,R103,R107,R111, R118,R127
2RS1-16-123J	R flake resistor	1608,12K±5%	2	R343,R337
2RS1-16-124J	R flake resistor	1608,120K±5%	2	R339,R341
2RS1-16-220J	R flake resistor	1608,22Ω±5%	1	R218
2RS1-16-221J	R flake resistor	1608,220Ω±5%	2	R211,R212
2RS1-16-270J	R flake resistor	1608,27Ω±5%	2	R209,R125
2RS1-16-302J	flake resistor	1608,3K±5%	2	R104,R116
2RS1-16-472J	R flake resistor	1608,4.7K±5%	2	R101,R109
2RS1-16-473J	R flake resistor	1608,47K±5%	5	R345,R110,R220,R400, R401
2RS1-16-511J	flake resistor	1608,510Ω±5%	1	R219
2RS1-16-563J	R flake resistor	1608,56K±5%	1	R207
2RS1-16-682J	R flake resistor	1608,6.8K±5%	2	R102,R112
2RS1-20-000O	R flake resistor	2012,0Ω	2	L212,L213
5FE1-BLM11A60	R SMD EMI	1608,BLM11A601S/BLM	28	L100,L101,L102,L108,L1

1S	suppression filter	18AG601S(0138-05)		09,L110,L112,L114,L121,L123,L202,L207,L300,R301,L301,R302,R303,R304,R305,R306,R307,R308,R309,R310,R311,R312,R329,R351
5FE1-BLM21P300S	R SMD EMI suppression filter	2012,BLM21P300S/BLM21PG300S(0149-05)	1	L400
5OT1-12R8-ACL4-3225	SMD temperature compensated crystal oscillator	KDS,12.8MHz±1.5ppm, Vc=1.5±1V range:±35ppm,-40℃～85,3225	1	X100
6PD7-1861-HLC	Crystal adaptor board	Thickness 0.6mm,FR4 material	1	
6PM7-4067-HTB	DR650-02 TX board	DR650-DVC0-TXBORAD-20130319.PCB, thickness1.6MM,FR-4,70X194M,4layers	1	
2CC1-16-Y5V160-474Z	R flake multi-layer capacitor	1608,470nF+80%/-20%, 16V,Y5V	1	R344
2RS1-16-183J	R flake resistor	1608,18K±5%	1	C339
2CC1-16-C0G500-270J	R flake multi-layer capacitor	1608,27P±5%,50V,C0G	1	C137
2RS1-32-000O	R flake resistor	3216,0Ω±5%	1	U402
2RS1-16-222J	R flake resistor	1608,2.2K±5%	1	R138
2CC1-16-X7R500-202K	flake multi-layer capacitor	1608,2000P±10%,50V,X7R	1	C198
2RS1-16-820J	flake resistor	1608,82Ω±5%	1	R126
2CC1-16-C0G500-300J	R flake multi-layer capacitor	1608,30P±5%,50V,C0G	2	C128,C168
2CC1-16-C0G500-9R0C	R flake multi-layer capacitor	1608,9P±0.25P,50V,C0G	1	C134
0SS2-4095-HTA	STR-V TX board plug-in unit	STR-V, pb-free	1	IC102,IC104,IC105,IC302
3CB3-A2548WV-	Plug-in	2*10 socket(male),	1	J300

2X10P	board-to-board connector	interval 2.54mm,33.02X9X9.1mm,black		
3CR7-SMA-50KWE-2	RF coaxial connector	SMA-50KWE-2, 5PIN plug-in unit, 90 degrees h:2.54mm	1	J200

Table 3Part List(Power Amplification Module Section)

Part No.	Part Name	Specification	Quantity	Location
3FW1-42932-302320	R SMD fuse	429003/433003/466003, 3216,3A/32V	1	CB300
2CE1-VS250-101M0607D	SMD aluminum electrolytic capacitor	SMD-6.3x7.7mm, 100uF/25V	3	C100,C105,C203
2CC1-16-C0G500-101J	R flake multi-layer capacitor	1608,100P±5%,50V,C0G	37	C101,C103,C106,C108,C110,C112,C113,C114,C116,C121,C122,C123,C124,C137,C139,C150,C161,C164,C167,C300,C301,C302,C303,C304,C305,C306,C307,C308,C309,C310,C311,C312,C313,C314,C315,C316,C317
2CC1-16-Y5V160-104Z	flake multi-layer capacitor	1608,100nF+80%/-20%,16V,Y5V	10	C102,C104,C107,C109,C115,C129,C138,C140,C142,C143
2CT1-TS32-160-100M	R SMD tantalum capacitor	3216,10μF±20%,16V,TS series (A level)	4	C111,C136,C163,C166
2CC1-16-C0G500-160J	R flake multi-layer capacitor	1608,16P±5%,50V,C0G	1	C117
2CC1-32-C0G102-5R0J	R flake multi-layer capacitor	3216,5P±5%,1000V,C0G	1	C118
2CC1-32-C0G102-6R0J	R flake multi-layer capacitor	3216,6P±0.25P,1000V,C0G	1	C119
2CC1-32-C0G102-4R0J	R flake multi-layer	3216,4P±0.25P,1000V,C0G	1	C120

	capacitor			
2CC1-32-C0G500-120J	flake multi-layer capacitor	3216,12P±5%,50V,C0G	2	C132,C135
2CC1-32-C0G500-270J	flake multi-layer capacitor	3216,27P±5%,50V,C0G	2	C133,C134
2CC1-16-C0G500-330J	flake multi-layer capacitor	1608,33P±5%,50V,C0G	4	C144,C146,C168,C169
2CC1-32-C0G101-102J	flake multi-layer capacitor	3216,1000P±5%,100V,C0G,GRM3195C2A102JA01D	3	C125,C126,C160
2CC1-16-C0G500-220J	R flake multi-layer capacitor	1608,22P±5%,50V,C0G	4	C127,C128,C130,C131
2CC1-16-C0G500-471J	R flake multi-layer capacitor	1608,470P±5%,50V,C0G	8	C141,C145,C147,C152,C154,C155,C156,C157
2CC1-16-C0G500-102J	flake multi-layer capacitor	1608,1000P±5%,50V,C0G	1	C148
2CC1-16-C0G500-221J	R flake multi-layer capacitor	1608,220P±5%,50V,C0G	1	C149
2CC1-16-X7R500-103K	R flake multi-layer capacitor	1608,10nF±10%,50V,X7R	10	C153,C162,C165,C200,C201,C202,C204,C206,C207,C208
2CT1-TS32-100-220M	SMD tantalum capacitor	3216,22μF±20%,10V,TS series (A level)	1	C205
1DR1-MM3Z15VT1G	SMD anti-static zener diode	MM3Z2V4T1 TS series, 15V,W=1.2mm,L=2.5mm,H=1.0mm, pb-free	3	D100,D101,D200
1DZ1-HZU5ALL	R SMD voltage regulator diode (off production)	HZU5ALL,2012,5V	1	D102
1DS1-RB706F-40	R SMD switch diode	Schottky diode RB706F-40,SOT-323	2	D103,D104
1DR1-XBS053V15R-1G	SMD schottky diode	XBS053V15R-1G, SOD-523 package, VR=20V,VF=0.40V, pb-free	2	D201,D202
1IL1-NJM2904V	R SMD linear IC	Double operational amplification	1	IC100

		NJM2904V,TSSOP-8		
5FE1-BLM41P600SPT	R SMD EMI suppression filter	EMI,FILTER, SMT,BLM41P600SPT,1206, pb-free	3	L100,L101,L102
5FE1-BLM11A601S	R SMD EMI suppression filter	1608,BLM11A601S/BLM18AG601S(0138-05)	11	L103,L110,R300,R301,R302,R303,R304,R305,R308,R309,R310
2LW1-20UC-68NG	SMD wire winding inductor	2012,68nH±2% wire winding inductor,SAGAMI,C2012C-68NG	1	L104
2LH1-R903R0-L05-05	R SMD air core inductor	Wire diameter φ0.9, internal diameter φ3.0,5 circles, pin height 0.5mm, backward winding	3	L107,L108,L109
2RS1-16-471J	R flake resistor	1608,470Ω±5%	1	L111
2LH1-R903R0-L11-05	R SMD air core inducto	Wire diameterφ0.9, internal diameterφ3.0,11 circles, pin height 0.5mm, backward winding	1	L112
2CC1-32-C0G500-102J	Flake multi-layer capacitor	3216,1000P±5%,50V,C0G	1	L113
2LL1-16-47NJ	R laminated inductor	1608,47nH±5%(MLG1608B47NJ)	4	L105,L106,L114,L115
5FE1-BLM21P300S	R SMD EMI suppression filter	2012,BLM21P300S/BLM21PG300S(0149-05)	1	L200
1TT1-FMMT717TA	R SMD triode	FMMT717A,PNP,SOT23	2	Q100,Q103
1TT1-DTC114YE	SMD triode	Digital triode DTC114YE-SMD	3	Q101,Q104,Q200
1TT1-2SC3357	R SMD triode (off production)	2SC3357(RE),SOT89(NEC)	1	Q102
2RS1-16-473J	R flake resistor	1608,47K±5%	9	R100,R118,R133,R200,R201,R6042,R6043,R6052,R6053
2RS1-16-561J	R flake resistor	1608,560Ω±5%	2	R101,R119
2RE1-16-8201	R SMD precision resistor	1608,8.2K±1%	2	R102,R203

2RS1-16-680J	R flake resistor	1608,68Ω±5%	2	R105,R115
2RE1-16-1501	R SMD precision resistor	1608,1.5K±1%	1	R106
2RS1-16-270J	R flake resistor	1608,27Ω±5%	2	R108,R109
2RS1-16-221J	R flake resistor	1608,220Ω±5%	4	R110,R111,R112,R114
2RS1-16-000O	R flake resistor	1608,0Ω	8	R130, R113,R128,R141,R143, R146,R147,R311
2RS1-16-222J	R flake resistor	1608,2.2K±5%	1	R120
2RS1-16-103J	R flake resistor	1608,10K±5%	6	R121,R123,R125,R129, R140,R307
2RS1-16-102J	R flake resistor	1608,1K±5%	1	R124
2RS1-16-202J	R flake resistor	1608,2K±5%	1	R126
2RS1-16-104J	R flake resistor	1608,100K±5%	1	R127
2RS1-16-821J	R flake resistor	1608,820Ω±5%	1	R131
2RS1-16-510J	R flake resistor	1608,51Ω±5%	1	R134
2RS1-16-512J	flake resistor	1608,5.1K±5%	2	R137,R138
2RE1-16-1000	SMD precision resistor	1608,100Ω±1%	1	R142
1IS1-XC6701D332PR	3.3VLDO	28V high voltage input, high-speed and low consumption LDO, 3.3V output, package: SOT-89	1	U102
1IS1-LM2941S	SMD specialized IC	LM2941S/TO-236, 5PIN, low dropout voltage regulator, pb-free	1	U200
6PM7-4071-HPA	SEPURA power amplification board PCB	power amplification board PCB, four layers, FR4,58.24X70, RFAMPLIFIER-20130719.PCB, pb-free	1	
2RS1-16-331J	R flake resistor	1608,330Ω±5%	2	R135, R122
1IM1-AT24C08CN-SH	E R SMD memorizer IC	EEPROPM,AT24C08CN-SH(8-SOIC)	1	IC6005

	for analog commercial portable and mobile			
0SS2-4071-HPC	STR-U power amplification board plug-in unit (130722)	STR-U power amplification board plug-in unit, pb-free	1	
3CB1-DC002	STR-U power amplification board power supply socket	DC-002, combination key, plastic pedestal+ two copper tablets, pb-free	1	J302
3CP3-LCP200	DM850 power supply socket	LCP with plastic pedestal with ,2Pin, nickel-plated brass pin, pb-free	1	
7MBC-4073-01A-N	STM-U power connecting terminal	nickel-plated brass, pb-free	2	
2RV3-22ZR-10D	R plug-in unit piezoresistor	22ZR-10D	1	R306
3CR7-SMA-50KWE-2	RF coaxial connector	SMA-50KWE-2, 5PIN plug-in unit, 90 degrees, length 23mm.pitch:2.54mm	1	J100
3CB3-A2548WV-2X05P	Plug-in unit board-to-board connector	A2548WV-2X05P, male, 180 degrees, interval 2.54mm,20.32mmX9mmX9.1mm,	1	J300
1IS3-DS18B20	Integrated IC	Plug-in unit temperature sensor ,3.0V-5.5V power supply, -55℃--125℃,TO-92	1	IC101

Table 4 Part List(Baseband Board)

Part No.	Part Name	Quantity	Location
3CB3-VH3096-2P	DC supply socket	1	J1
3CB3-S6160BK1	Plug-in unit board-to-board connector	2	J2
3CR7-SMA-50KE	RF coaxial connector	3	J6, J7, J8
3CB3-A2548WV-2X05P	Plug-in unit board-to-board	4	J5, J18, J19, J23

	connector		
3CB3-A2548WV-2X13P	Plug-in unit board-to-board connector	2	J9, J15
3CT3-KRJ003NL-8P	Crystal head RJ45 socket	1	J12
3CB3-A2548WV-2X10P	Plug-in unit board-to-board connector	1	J17
3CL3-PH-20002	FPC connector	1	J20
3CL3-PH-25402A	FPC connector	1	J27
2RV3-22ZR-10D	Plug-in unit piezoresistor	1	R2
2CE3-GM350-102M1320	Plug-in unit aluminum electrolytic capacitor	2	C331, C522
3CL3-PH-20003	FPC connector	1	J21
2LI3-0911-331K	Plug-in unit I-shaped inductor	3	L12, L16, L17
7MBC-4073-04A-W	Major shielding cover	4	P1, P2, P4, P5
7MBC-4073-05A-W	Minor shielding cover	1	P3
6BLS-4814-03327U	SMD button battery	1	BT2
2CC1-16-X7R500-103K	Flake multi-layer capacitor	1	C1
2CC1-32-Y5V500-106Z	flake multi-layer capacitor	23	C2, C6, C21, C24, C29, C30, C31, C109, C175, C182, C183, C226, C263, C277, C285, C286, , C251, C275, C288, , C506, C507, C512, C513
2CC1-16-Y5V500-104Z	flake multi-layer capacitor	52	C3, C7, C8, C9, C12, C17, C19, C22, C27, C90, C91, , C95, C96, C97, C103, C105, C106, C110, C115, C116, C136, C244, C318, C429, C459, C262, C146, C147, , C170, C171, C172, C174, C177, C178, C180, C181, C194, C195, C205, C206, C225, C264, C265, C279, C282, C290, C291, C294, C297, C299, C302, C304,
2CC1-16-C0G500-101J	flake multi-layer capacitor	32	C245, C517, C518, C519, C520, C521, C531, C532, C519, C520, C381, C385, C283, C284, C295, C300, C4, C35, C36, C37, C48, C60, C75, C148, C246, C309, C327, C345, C371, C374, C508, C514

2CE1-VS250-101M0607D	SMD aluminum electrolytic capacitor	7	C5, C13, C289, C316, C405, C406, C411
2CC1-32-Y5V100-226Z	flake multi-layer capacitor	19	C523, C524, C525, C526, C527, C528, C529, C530, C10, C11, C16, C18, C26, C107, C111, C113, C142, C145, C428
2CC1-16-X7R500-102K	flake multi-layer capacitor	3	C14, C20, C388
2CC1-16-C0G500-470J	flake multi-layer capacitor	1	C15
2CC1-16-Y5V250-105Z	flake multi-layer capacitor	50	C292, C293, C25, C66, C67, C68, C81, C82, C83, C100, C108, C114, C117, C122, C123, C124, C143, C144, C154, C155, C156, C187, C188, C189, C190, C191, C200, C201, C202, C203, C204, C266, C267, C268, C269, C271, C273, , C276, C278, C281, C287, C112, C137, C234, C235, C324, C332, C298, C511, C460
2CC1-16-X7R100-225K	flake multi-layer capacitor	1	C28
2CC1-20-Y5V160-106Z	flake multi-layer capacitor	18	C533, C534, C32, C33, C34, C101, C118, C119, C120, C121, C138, C139, C176, C179, , C242, C319, C325, C369
2CC1-16-C0G500-100D	flake multi-layer capacitor	8	C38, C39, C49, C61, C76, C92, C93, C149
2CC1-16-X5R6R3-475K	flake multi-layer capacitor	23	C384, C380, C50, C51, C52, C53, C62, C63, C64, C65, C77, C78, C79, C80, C150, C151, C152, C153, C198, C199, C218, C228, C236
2CC1-16-C0G500-270J	flake multi-layer capacitor	1	C102
2CC1-16-C0G500-4R5C	flake multi-layer capacitor	1	C104
2CC1-32-C0G102-102J	flake multi-layer capacitor	1	C173
2CC1-16-C0G500-221J	flake multi-layer capacitor	3	C184, C185, C186
2CC1-16-C0G500-330J	flake multi-layer capacitor	29	C306, C382, C386, C207, C208, C209, C210, C213, C214, C215, C220, C221, C222, C223, C224, C247, C248, C249, C252, C255, C258, C259, C317, C326, C372,

			C375, C377, C509, C515
2CC1-16-X7R500-471K	flake multi-layer capacitor	15	C387, C383, C280, C370, C373, C376, C378, C379, C407, C408, C409, C410, C427, C510, C516
2CC1-10-X7R160-104K	flake multi-layer capacitor	126	C40, C41, C42, C43, C44, C45, , C54, C55, C56, C57, C58, C59, C69, C70, C71, C72, C73, C74, C84, C85, C86, C87, C88, C89, C94, C98, C99, C125, C126, C127, C128, C129, C130, C131, C132, C133, C134, C135, C140, C141, C157, C158, C159, C160, C161, C162, C163, C164, C165, C166, C167, C168, C169, C270, C461, C462, C463, C464, C465, C466, C467, C468, C469, C470, C471, C472, C473, C474, C475, C476, C477, C478, C479, C480, C481, C482, C483, C484, C485, C486, C487, C488, C489, C490, C491, C492, C493, C494, C495, C496, C497, C498, C499, C500, C430, C431, C432, C433, C434, C435, C436, C437, C438, C439, C440, C441, C442, C443, C444, C447, C504, C505, C448, C449, C450, C451, C452, C453, C454, C455, C456, C457, C458, C501, C502, C503
2CC1-10-C0G500-271J	flake multi-layer capacitor	35	C46, C47, C227, C229, C230, C231, C232, C233, , C238, C239, C240, C315, C321, , C333, C334, C335, C336, C337, C338, C339, C340, C341, C342, C343, C344, , C346, C347, C348, C349, C350, C351, C352, C353, C354, C357
2CC1-10-C0G500-471J	flake multi-layer capacitor	31	C389, C390, C391, C392, C393, C394, C395, C396, C397, C398, C399, C400, C401, C402, C403, C404, C412, C413, C414, C415, C416, C417, C418, C419, C420, C421, C422, C423, C424, C425, C426
1DG1-DSM3MA1	SMD conventional diode	1	D2
1DR1-SMCJ20A	SMD diode	1	D1

1DR1-SS36	SMD commutation diode	1	D3
1DS1-DA2S10100L	SMD switch diode	4	D8, D11, D12, D13
1DS1-HVC131	SMD switch diode	2	D9, D15
1DP1-BV03C	TVS diode	1	D10
1DS1-DAN222	SMD switch diode	1	D14
1DR1-MMBZ20VALT1G	TVS diode	6	D16, D17, D18, D19, D20, D5
1TT1-2SA1641-S	SMD triode	1	Q42
1DS1-DA204U	SMD switch diode	2	D7, D21
5FE1-BLM15AG221SN1D	EMI suppression filter	50	FB1, FB2, FB3, FB4, FB5, FB17, FB18, , FB25, FB26, FB27, FB28, FB29, FB30, FB31, FB35, FB36, FB37, FB38, FB39, FB40, FB41, FB42, FB43, FB44, FB45, FB46, FB47, FB48, FB49, FB50, FB51, FB52, FB53, FB54, FB55, FB56, FB57, FB58, FB59, FB60, FB62, FB63, FB64, R77, R84, R85, R86, R87, R88, R89
5FE1-BLM41P600SPT	EMI suppression filter	7	L8, L10, L11, FB20, FB22, L14, L15
5FE1-BLM18PG181SN1	EMI suppression filter	16	FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB19, FB21, FB24, FB61, FB33, FB34
2RS1-16-000O	Flake resistor	18	C241, C320, R208, R231, R332, R213, R217, FB16, R22, R24, R209, R210, R214, R224, R225, R94, R107, R109
3FW1-42932-302320	SMD fuse	1	F1
4PE1-16-F5	SMD LED	4	LED2, LED3, LED4, LED5
4PE1-16-F2	SMD LED	1	LED6
2LG1-NR8040T842-4R7S	SMD power inductor	1	L1
2LG1-SWPA4020-2R2S	SMD power inductor	4	L2, L3, L4, L6
2LW1-16UC-221J	SMD wire winding inductor	1	L5
2LW1-20UC-180J	SMD wire winding inductor	2	L7, L33
2LW1-20UC-220J	SMD wire winding inductor	2	L13, L32
2LW1-16UC-181J	SMD wire winding inductor	2	L22, L26
2LW1-16UC-221G	SMD wire winding inductor	1	L24
2LW1-16UC-271G	SMD wire winding	1	L25

	inductor		
2LI1-1608-R47G	I-shaped inductor	2	L21, L23
2LW1-25UC-681JA	SMD wire winding inductor	1	L20
1TT1-DTC114YE	SMD triode	18	Q1, Q2, Q5, Q8, Q10, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24
1TT1-MMBT3904	SMD triode	2	Q3, Q9
2RE1-16-49R9	SMD precision resistor	4	R160, R166, R167, R168
2RE1-16-1001	SMD precision resistor	2	R32, R33
2RE1-16-2001	SMD precision resistor	1	R4
2RS1-16-332J	Flake resistor	4	R179, R293, R294, R363
2RE1-16-4871	SMD precision resistor	1	R172
2RE1-16-8201	SMD precision resistor	1	R18
2RE1-16-1002	SMD precision resistor	3	R1, R120, R121
2RE1-16-4302	SMD precision resistor	2	R13, R366
2RE1-16-18R0	SMD precision resistor	3	R28, R29, R95
2RS1-16-303J	Flake resistor	1	R5
2RS1-16-100J	Flake resistor	2	R6, R302
2RS1-16-103J	Flake resistor	56	R7, R8, R9, R10, R14, R15, R16, R17, R19, R20, R21, R23, R25, R26, R53, R54, R56, R57, R163, R174, R175, R176, R177, R182, R183, R186, R187, R188, R189, R190, R192, R193, R195, R196, R197, R198, R232, R259, R118, , R199, R200, R201, , R206, R211, R228, R230, R295, R296, R298, R299, R301, R303, R327, R353, R355, R367
2RS1-16-510J	Flake resistor	1	R27
2RS1-16-472J	Flake resistor	10	C260, C261, R133, R134, R138, R140, R161, R169, R202, R203
2RS1-16-330J	Flake resistor	55	R123, R215, R218, R223, R237, R238, R239, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251, R252, R254, R279, R280, R281, R282, R283, R285, R286, R288, R289, R146, R147, R148, R149, R164, R165, R171, R207, R229, R291, R305, R306, R307, R308, R309, R310, R311, R312, R313, R314, R315, R348, R350, R362, C296
2RS1-16-101J	Flake resistor	11	R142, R143, R59, R105, R106,

			R180, C272, R92, R93, C274, FB32
2RS1-16-681J	Flake resistor	1	R233
2RS1-16-473J	Flake resistor	2	R119, R300
2RS1-16-102J	Flake resistor	14	R91, R97, R98, R99, , R137, R156, R157, R158, R159, R219, R253, R304, R329, R333
2RS1-16-222J	Flake resistor	5	R122, R170, R290, R292, R364
2RS1-16-755J	Flake resistor	1	R173
2RS1-16-104J	Flake resistor	1	R205
2RS1-16-471J	Flake resistor	2	R220, R222
2RS1-10-000O	Flake resistor	4	R260, R51, R96, R41
2RS1-10-330J	Flake resistor	26	R64, R73, R74, R75, R76, R78, R79, R101, R102, R108, R36, R37, R39, R40, R42, R43, R126, R127, R135, R136, , R150, R151, R152, R153, R154, R155
2RS1-10-101J	Flake resistor	3	R103, R104, R111
2RS1-10-472J	Flake resistor	9	R60, R61, R62, R63, R34, R38, R80, R81, R145
2RS1-10-103J	Flake resistor	21	R45, R46, R47, R48, R49, R50, R65, R66, R67, R72, R114, R116, R124, R125, R128, R129, R130, R131, R132, R204, R115
1IS1-TPS54331DDA	SMD switch power IC	1	U1
1IS1-TPS65023	Power management chip	1	U2
1IS1-LM2941S	SMD specialized IC	1	U3
1IP1-OMAPL138BZWT3	Dual-core CPU	1	U4
1IM1-MT47H64M16	SMD memorizer IC	1	U6
1IM1-K9GAG08U0M-I	SMD memorizer IC	1	U7
1IS1-TPS2051BDGN	LDO power voltage regulator IC	1	U8
1IS1-RT9193-33PB	SMD voltage regulator IC	1	U12
1IS1-RT8008GB	SMD voltage reduction IC	1	U13
1IS1-EP4CE30F23I7N	SMD specialized IC	1	U14
1IS1-RT9193-25PB	SMD voltage regulator IC	1	U15
1IS1-DP83848I	SMD specialized IC	1	U17
1DR1-TPD4S012DRY	TVS diode	1	U19
1IS1-ADS1015	AD convertor IC	1	U22
1IS1-TLV5614	DA convertor chip	2	U24, U27
1IS1-LM4040B20IDBZT	SMD voltage	1	U29

	regulator IC		
1IS1-TLV320AIC14	CODEC chip	1	U30
1IS1-TDA8541T	Audio power amplifier IC	1	U31
1IS1-MAX3232ESE	SMD dual channel RS-232 wire driver/receiver IC	1	U32
1IL1-AD8031ARTZ	SMD linear IC	1	U38
1IM1-AT24C08CN-SH	Memorizer IC	1	U23
1IS1-XC6209F302PR	SMD voltage regulator IC	1	U20
1IS1-XC6209F332PR	SMD voltage regulator IC	1	U5
1IS1-XC6209F502PR	SMD voltage regulator IC	1	U26
5XT1-MC146-32R76K	SMD ceramic harmonic oscillator	1	Y1
5OC1-24R0-MML-3225	Crystal Oscillator	1	Y2
5OC1-50R0-MML-3225	Crystal Oscillator	1	Y3
5XC1-18R4-CEC5032SCH	SMD crystal Oscillator	1	Y4
1TF1-ST2301	SMD FET	2	Q7, Q11
5OD1-12R8-AL3-3225	Voltage-controlled temperature-compensated crystal oscillator	1	Y5
1MR3-MAX-6Q	GPS module	1	U9
2RE1-16-1801	SMD precision resistor	1	R365
2CC1-32-Y5V160-106Z	flake multi-layer capacitor	2	C243, C237
2CC1-16-C0G500-7R0C	flake multi-layer capacitor	2	C310, C328
2CC1-16-C0G500-9R0C	flake multi-layer capacitor	2	C311, C445
2CC1-16-C0G500-150J	flake multi-layer capacitor	2	C312, C329
2CC1-16-C0G500-240J	flake multi-layer capacitor	2	C314, C446
2CC1-16-C0G500-390J	flake multi-layer capacitor	2	C313, C330
2CC1-16-C0G500-820J	flake multi-layer capacitor	3	C301, C303, C307
2CC1-16-C0G500-121J	flake multi-layer capacitor	1	C308
2CC1-16-C0G500-151J	flake multi-layer	1	C305

	capacitor		
2RS1-16-301J	Flake resistor	1	R144
3SE1-SDIP-04	SMD DIPdial switch	1	J4
6PM7-4071-HBC	Sepura repeater baseband board PCB	1	

Table 5 Part List(Front Cover)

Part No.	Part Name	Quantity	Location
3CB3-A2548WV-2X05P	Plug-in unit board-to-board connector	1	J1
4PE3-0705-F4	Plug-in unit LED	8	LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED9
4PE3-0705-F2	Plug-in unit LED	1	LED8
2CC1-16-Y5V500-104Z	Flake multi-layer capacitor	1	C1
5FE1-BLM18PG181SN1	SMD EMI suppression filter	1	FB1
1TT1-DTC114YE	SMD triode	8	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8
2RS1-16-330J	Flake resistor	8	R1, R2, R3, R4, R5, R6, R7, R8
2RS1-16-102J	Flake resistor	1	R16
2RS1-16-101J	Flake resistor	8	R9, R10, R11, R12, R13, R14, R15, R17
6PD7-4071-HFB	Sepura repeater frontcover PCB	1	

Table 6 Part List(Power Board)

Part No.	Part Name	Quantity	Location
2CE3-GM350-102M1320	Plug-in unit aluminum electrolytic capacitor	2	C1, C2
3SJ3-G8P-1C4P-12VDC	Plug-in unit power relay	2	U1, U2
3WPC-KF65-4P	Plug-in unit connecting terminal	1	J1
3WPC-KF65-2P	Plug-in unit connecting terminal	2	J2, J3
3CL3-PH-25402A	FPC connector	2	J4, J5
5FE1-BLM18PG181SN1	SMD EMI suppression filter	1	R1
2RS1-16-471J	Flake resistor	1	R3

1DZ1-LM3Z18VT1G	SMD voltage regulator diode	1	D1
1DS1-DA2S10100L	SMD switch diode	1	D2
1TT1-MMBT3904	SMD triode	2	Q1, Q2
2RS1-16-103J	Flake resistor	1	R5
2RS1-16-102J	Flake resistor	1	R6
2CC1-16-X7R500-103K	flake multi-layer capacitor	1	C3
6PD7-4071-HWB	STR-U repeater power board PCB	1	

Table 7 Part List(Accessory Board)

Part No.	Part Name	Quantity	Location
3WPC-VGA-26PB	26 pins VGA female socket	1	J9
3CB3-A2548WV-2X13P	Plug-in unit board-to-board connector	1	J10
6PD7-4071-HL1A	STR-U repeater accessory board PCB	1	

Figure 1 Rx module Top Board Position Mark Diagram

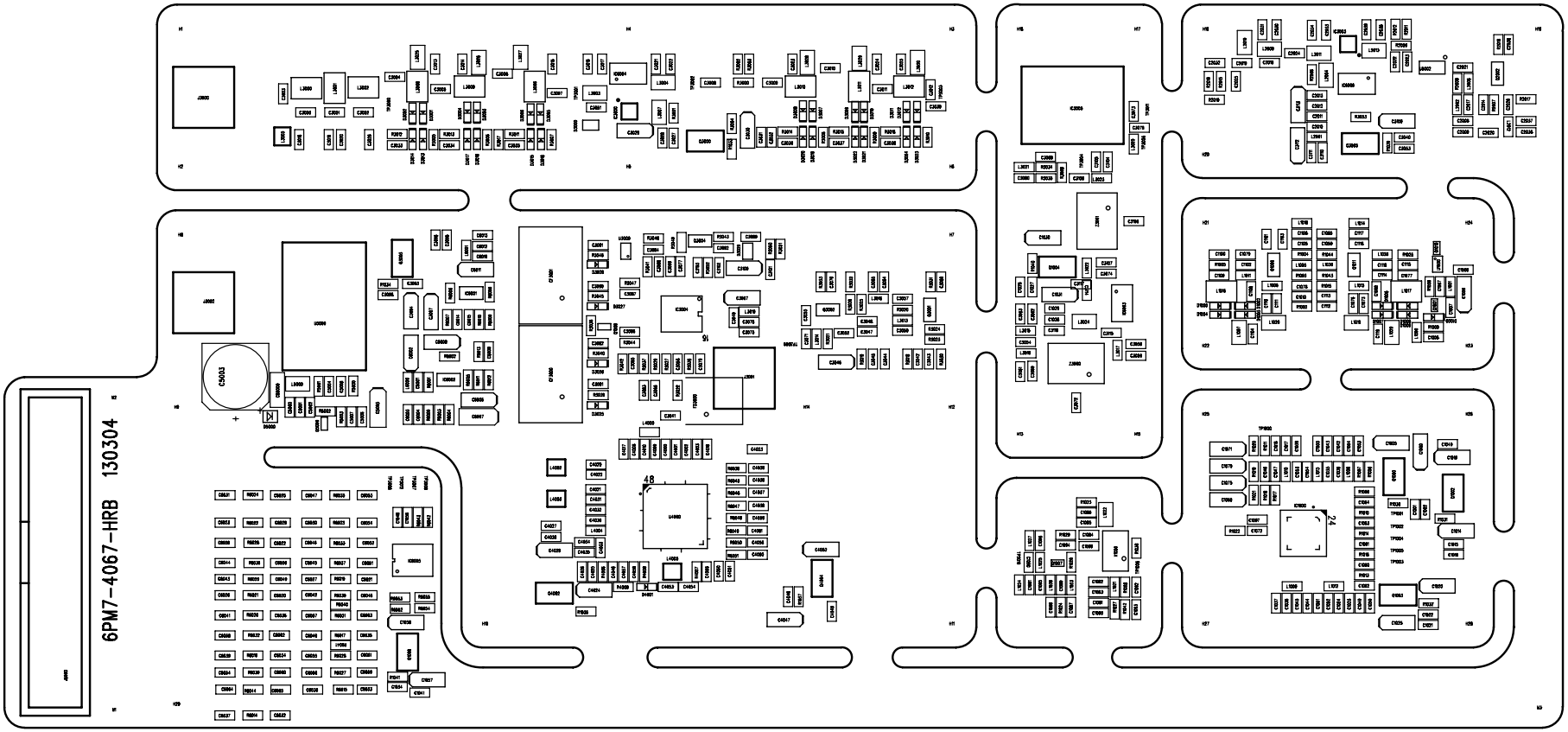


Figure 2 Rx Module Buttom Board Position Mark Diagram

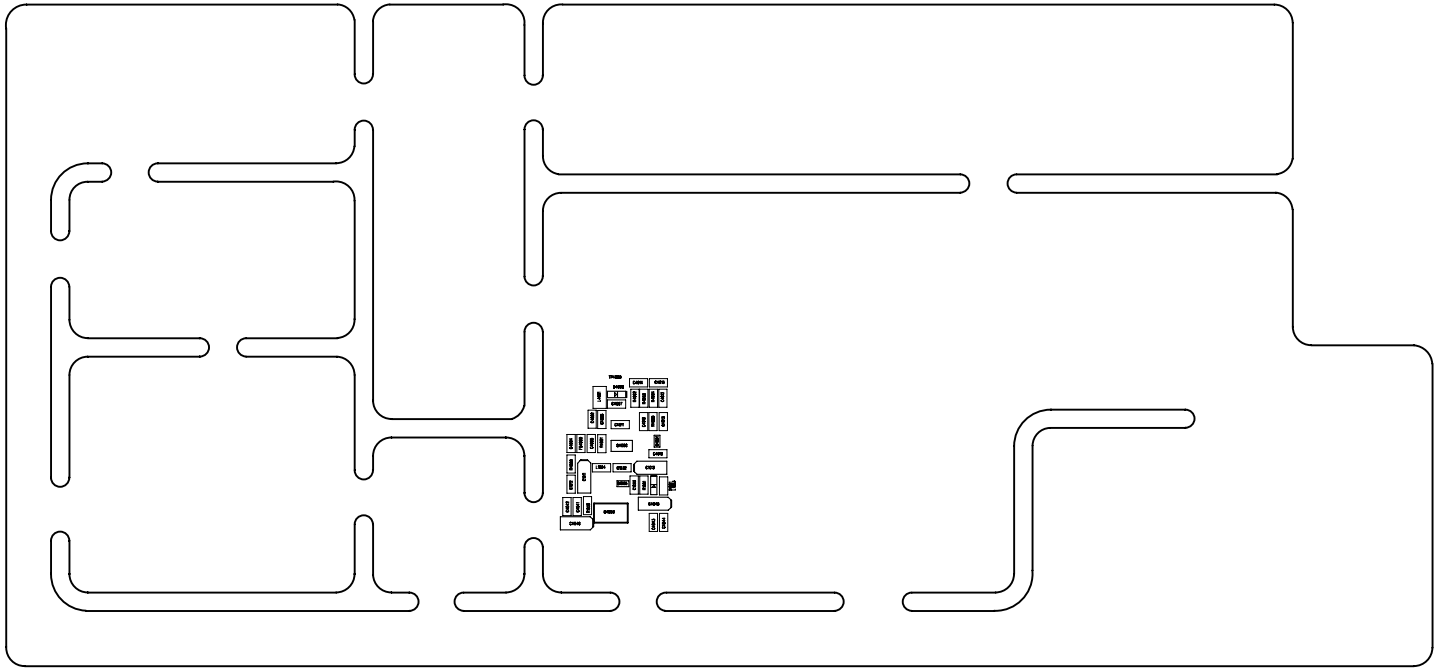


Figure 3 Tx Module Top Board Position Mark Diagram

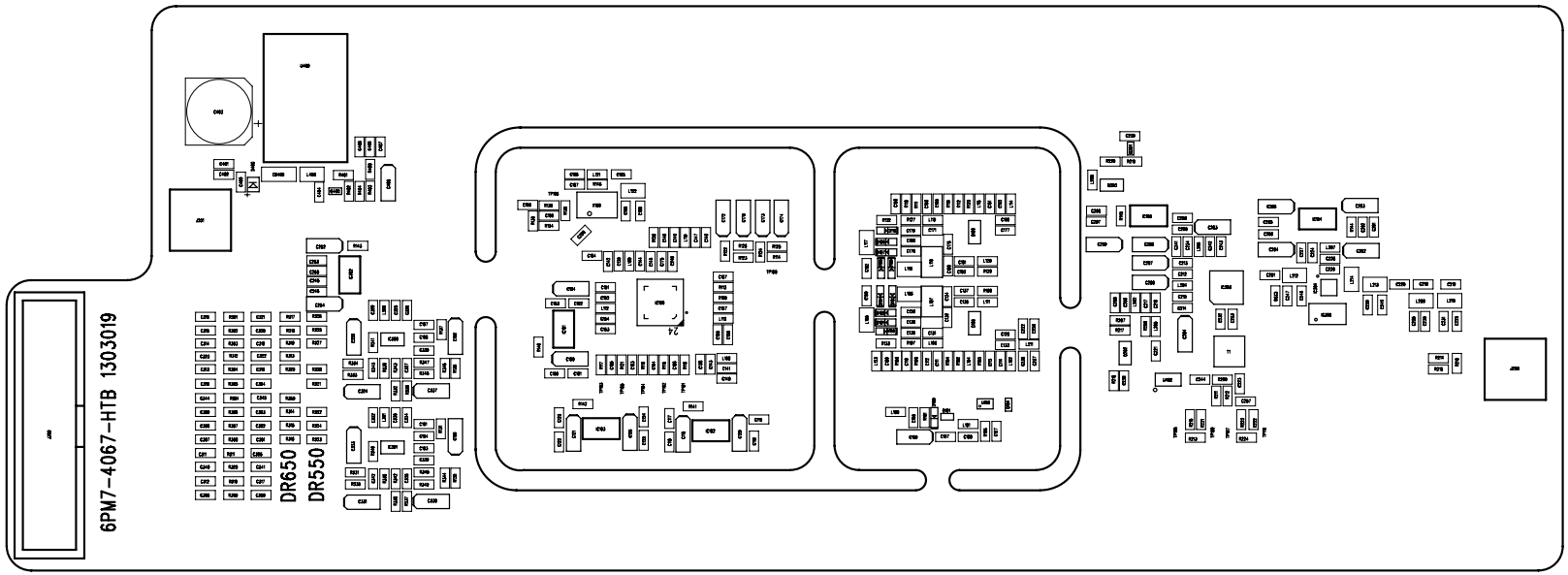


Figure 4 Power Amplifier Module Top Board Position Mark Diagram

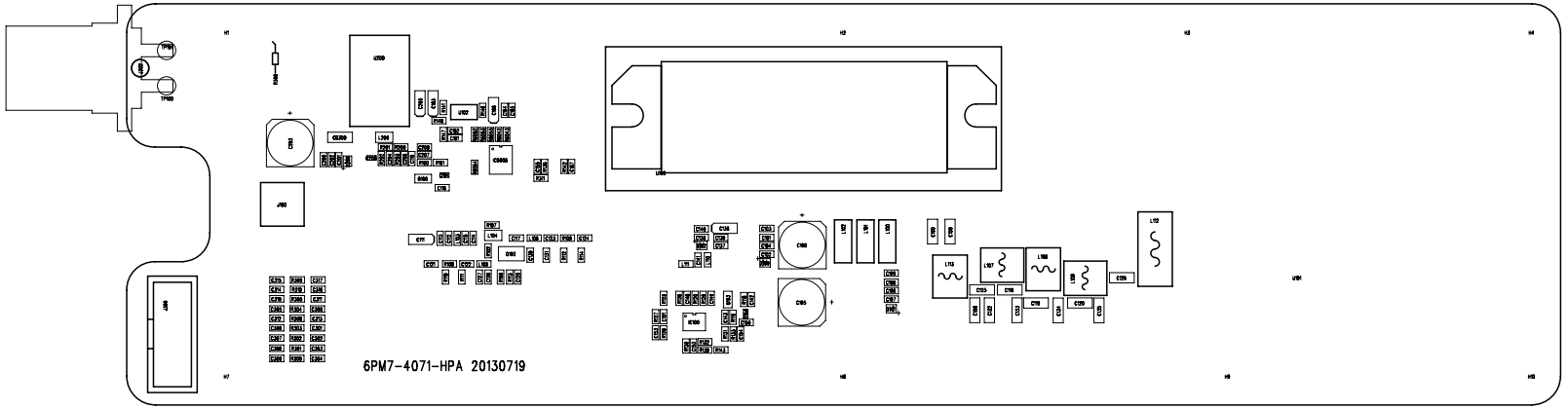


Figure 5 Power Amplifier Module Buttom Position Mark Diagram

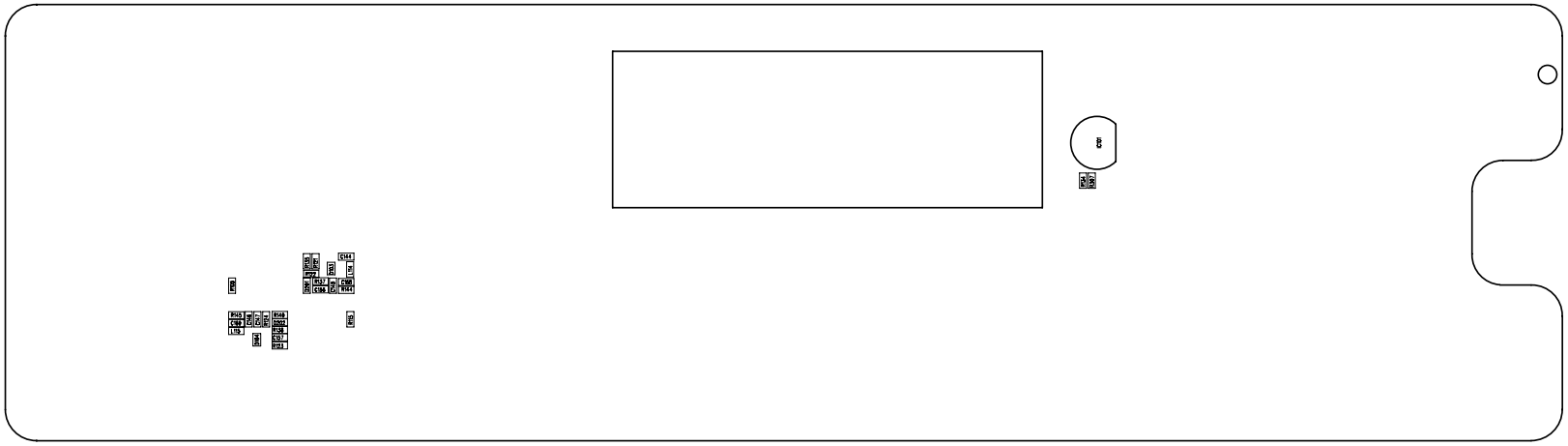


Figure 6 Baseband Mainboard Top Board Position Mark Diagram

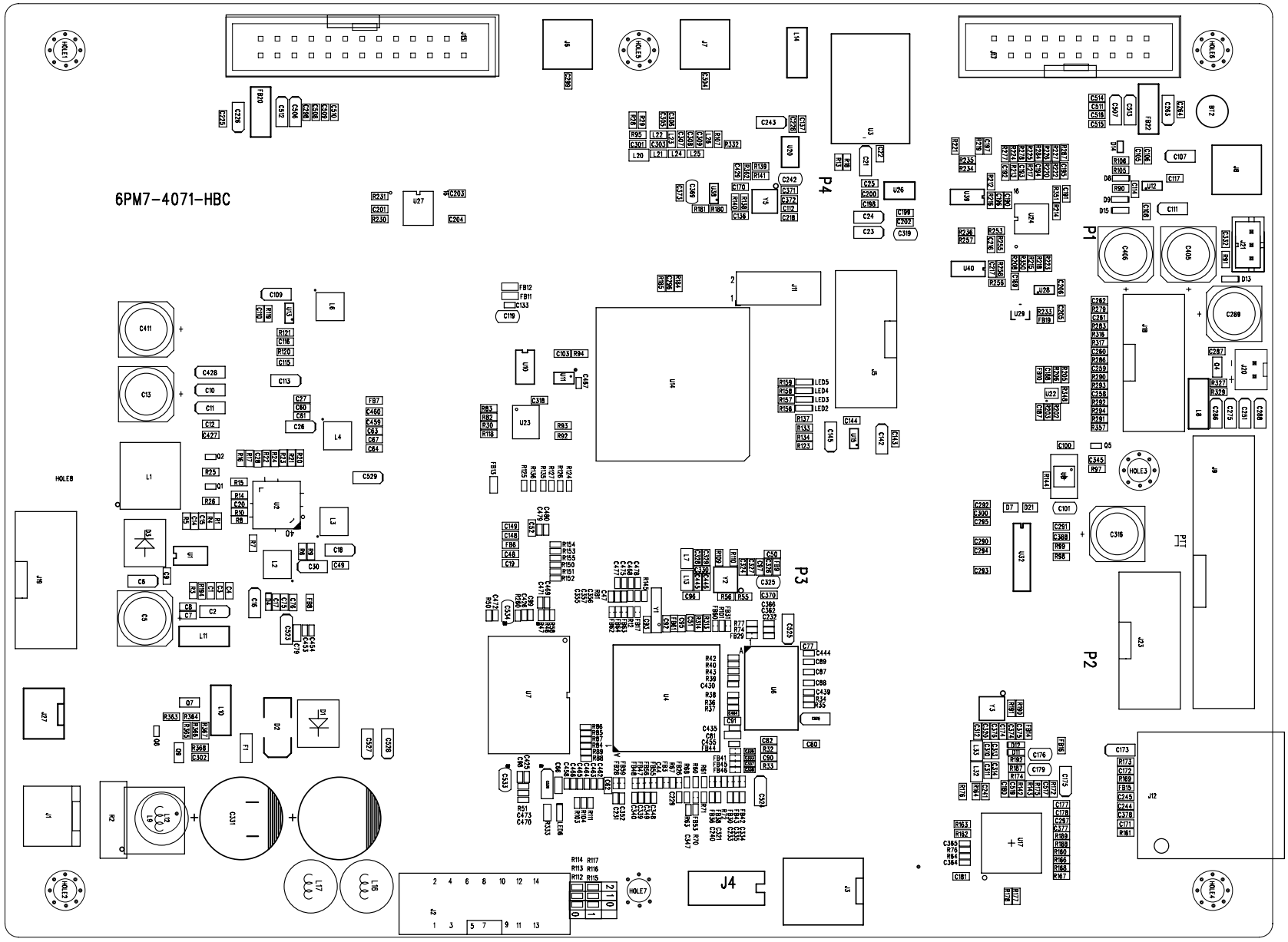


Figure 7 Baseband Mainboard Buttom Board Position Mark Diagram

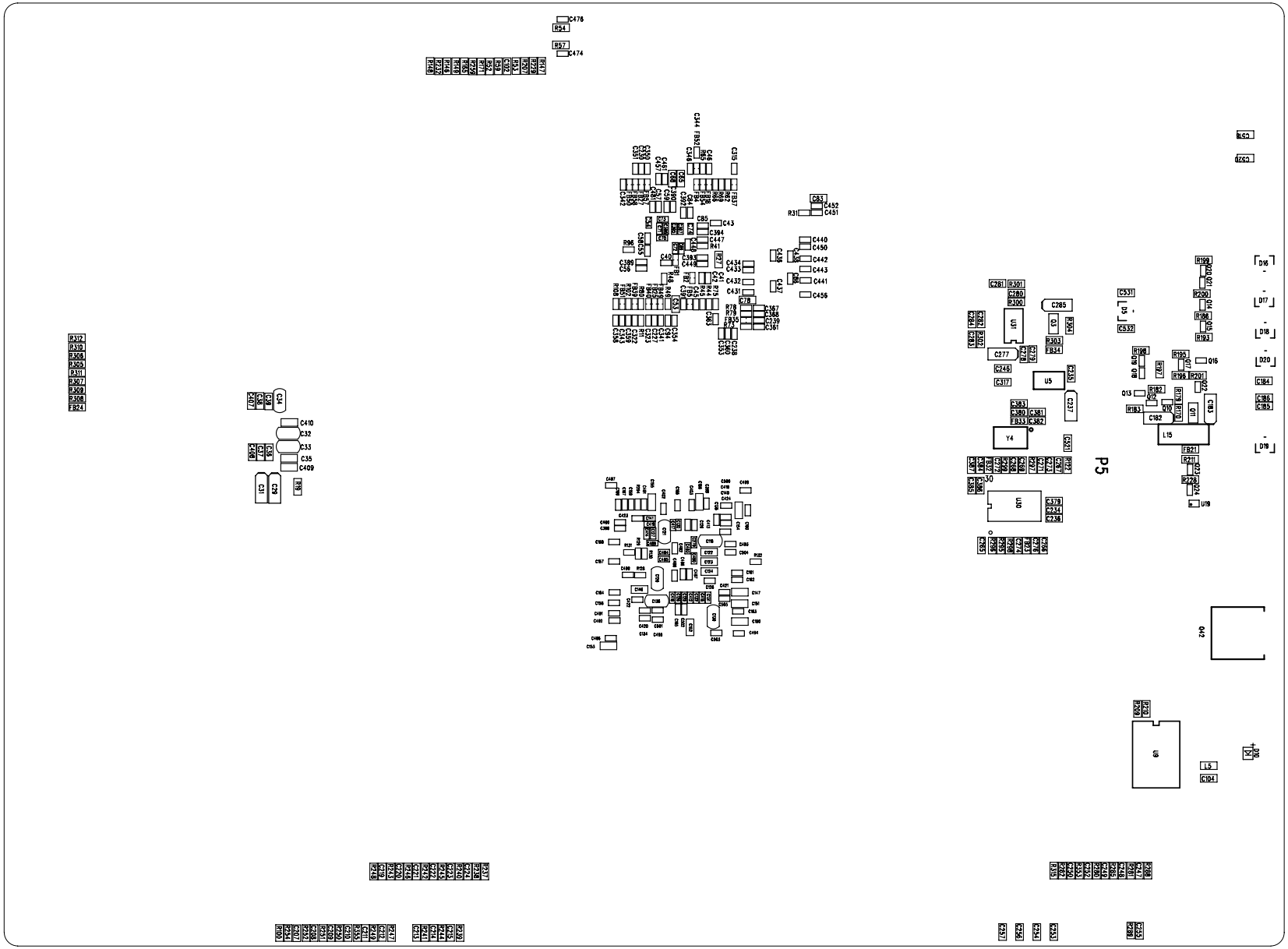


Figure 8 Front Pannel Top Board Position Mark Diagram

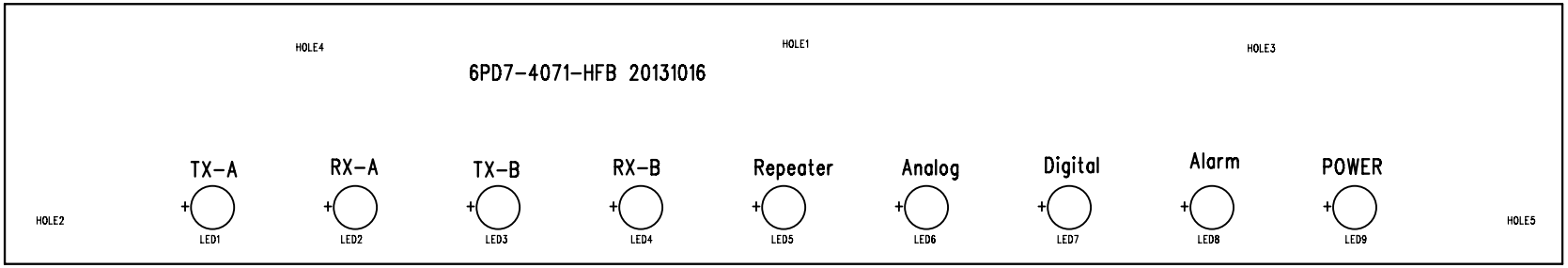


Figure 9 Front Pannel Buttom Board Position Mark Diagram

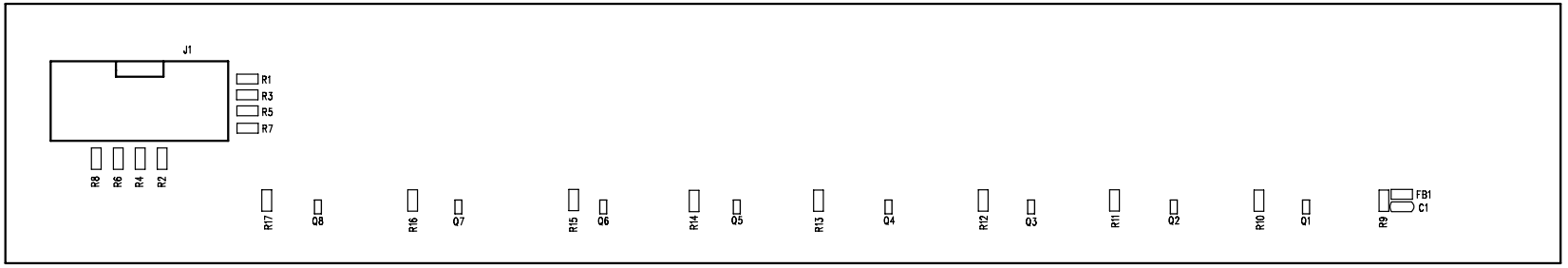


Figure 10 Power Board Top Board Position Mark Diagram

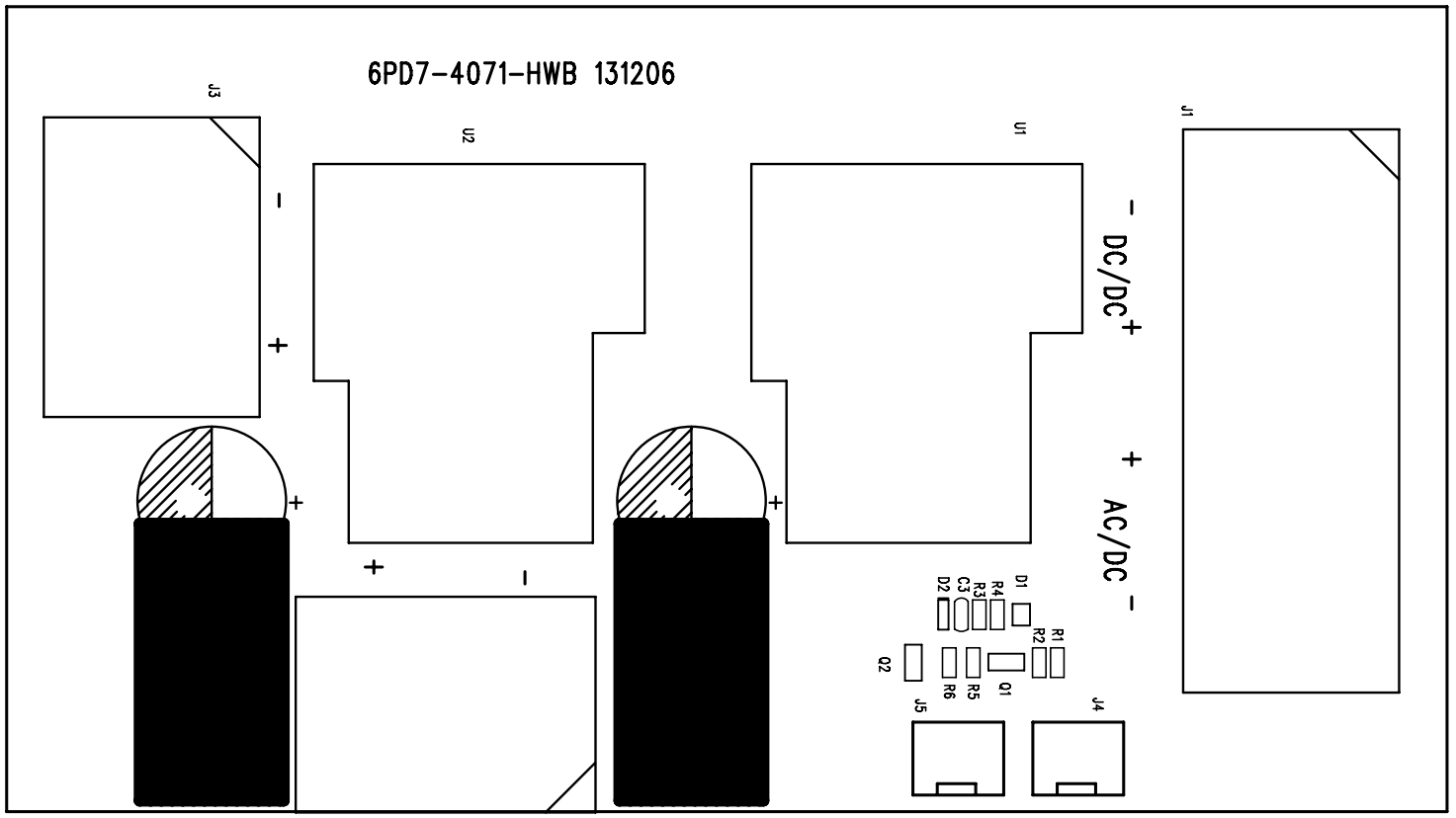


Figure 11 Accessory Board Top Board Position Mark Diagram

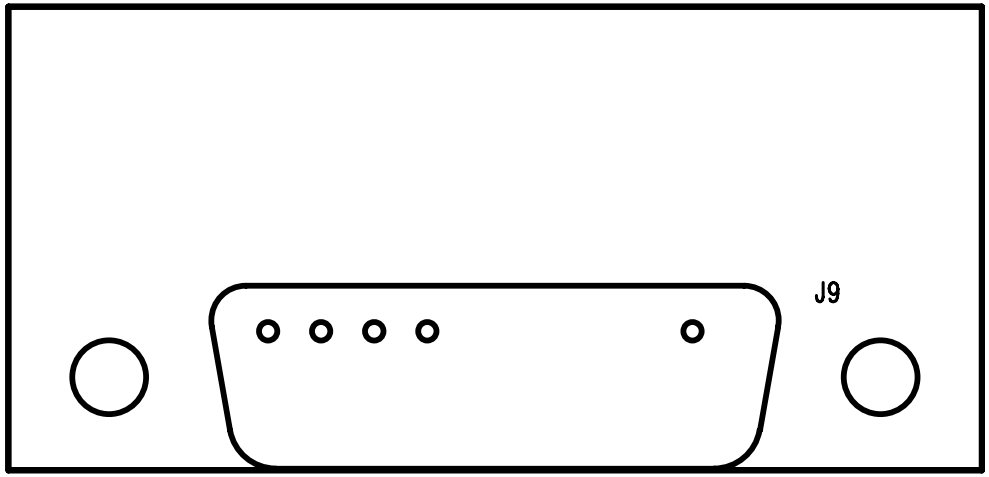


Figure 12 Accessory Buttom Board Position Mark Diagram

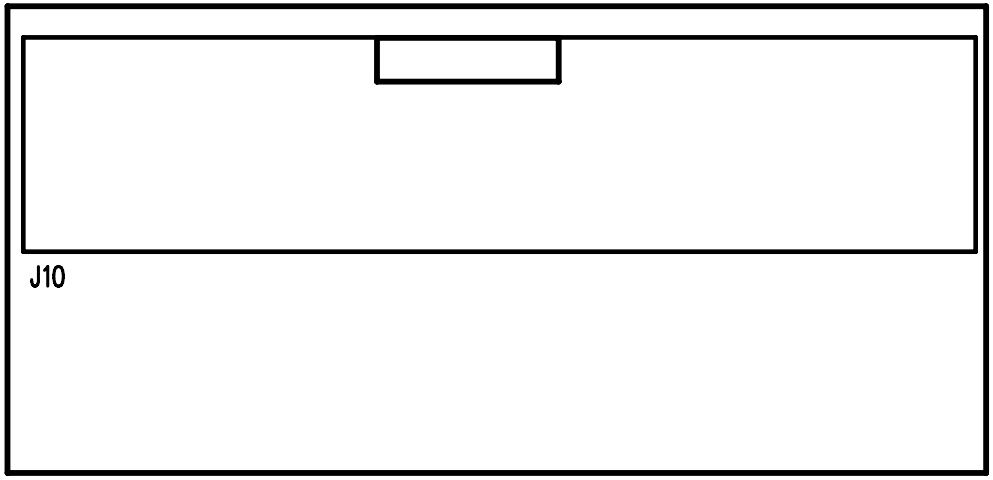
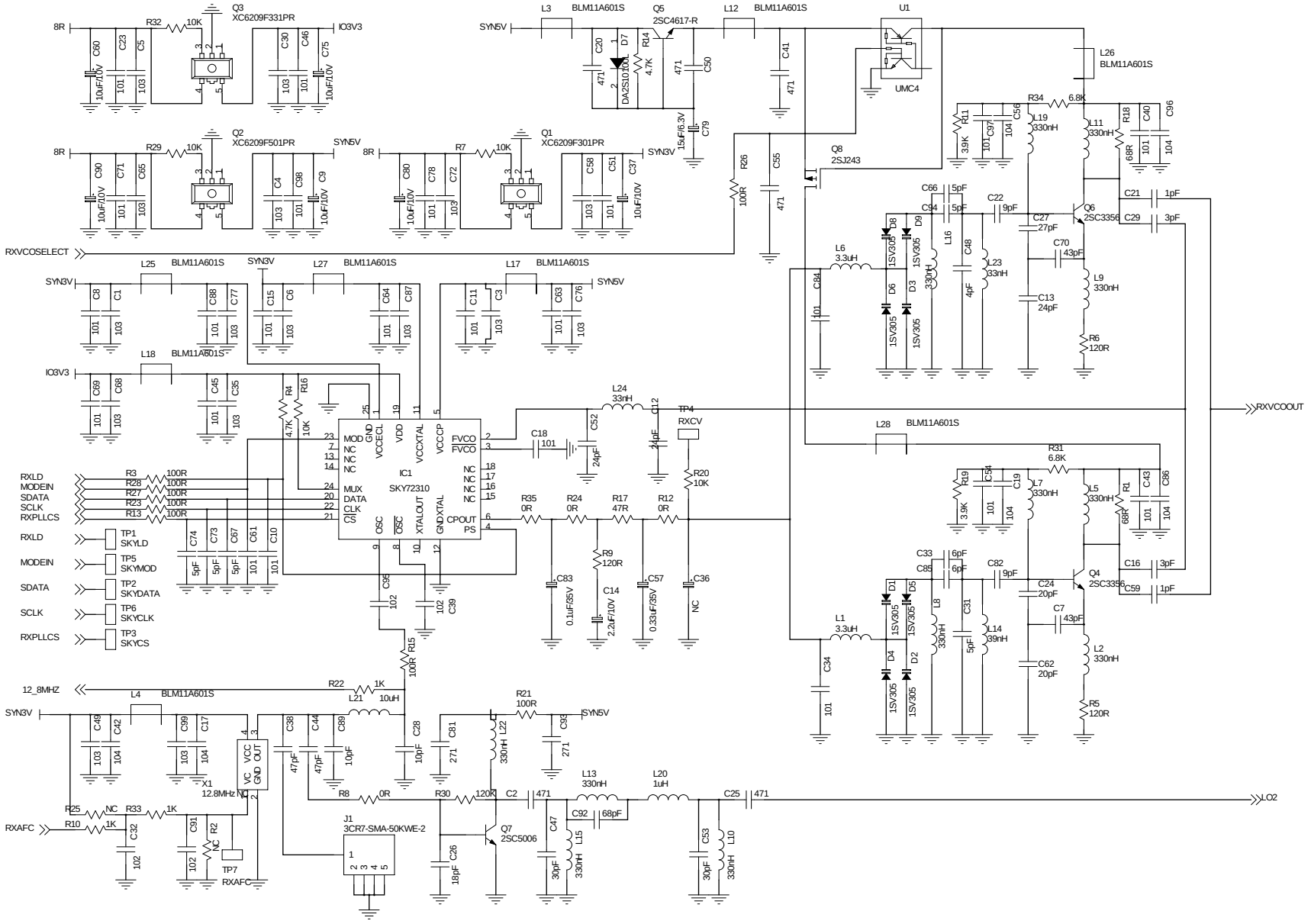
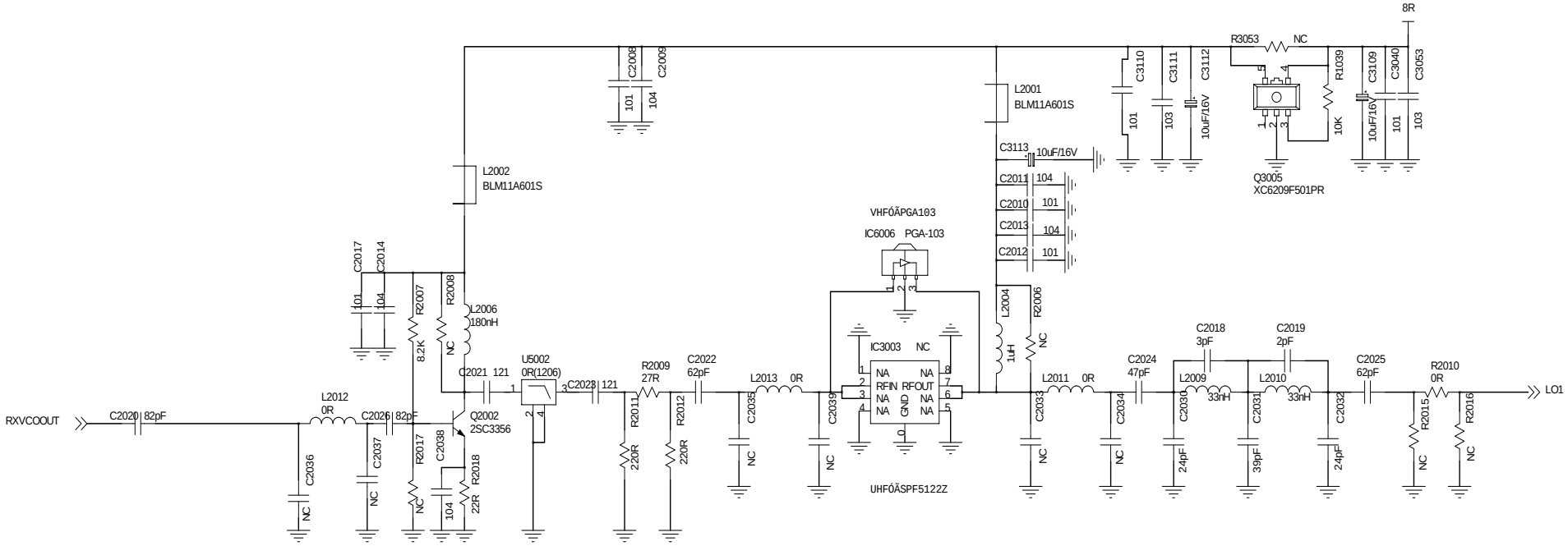
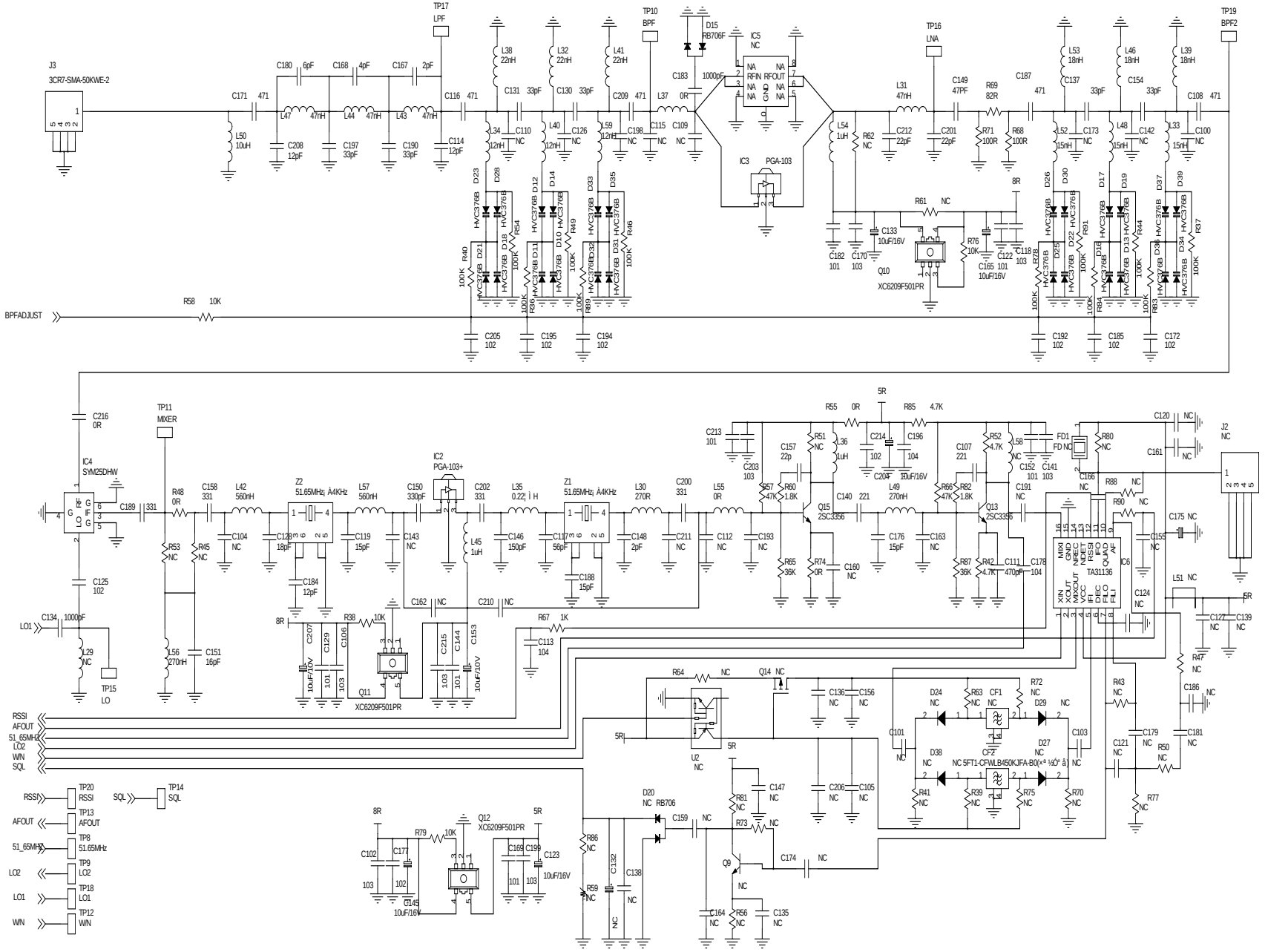
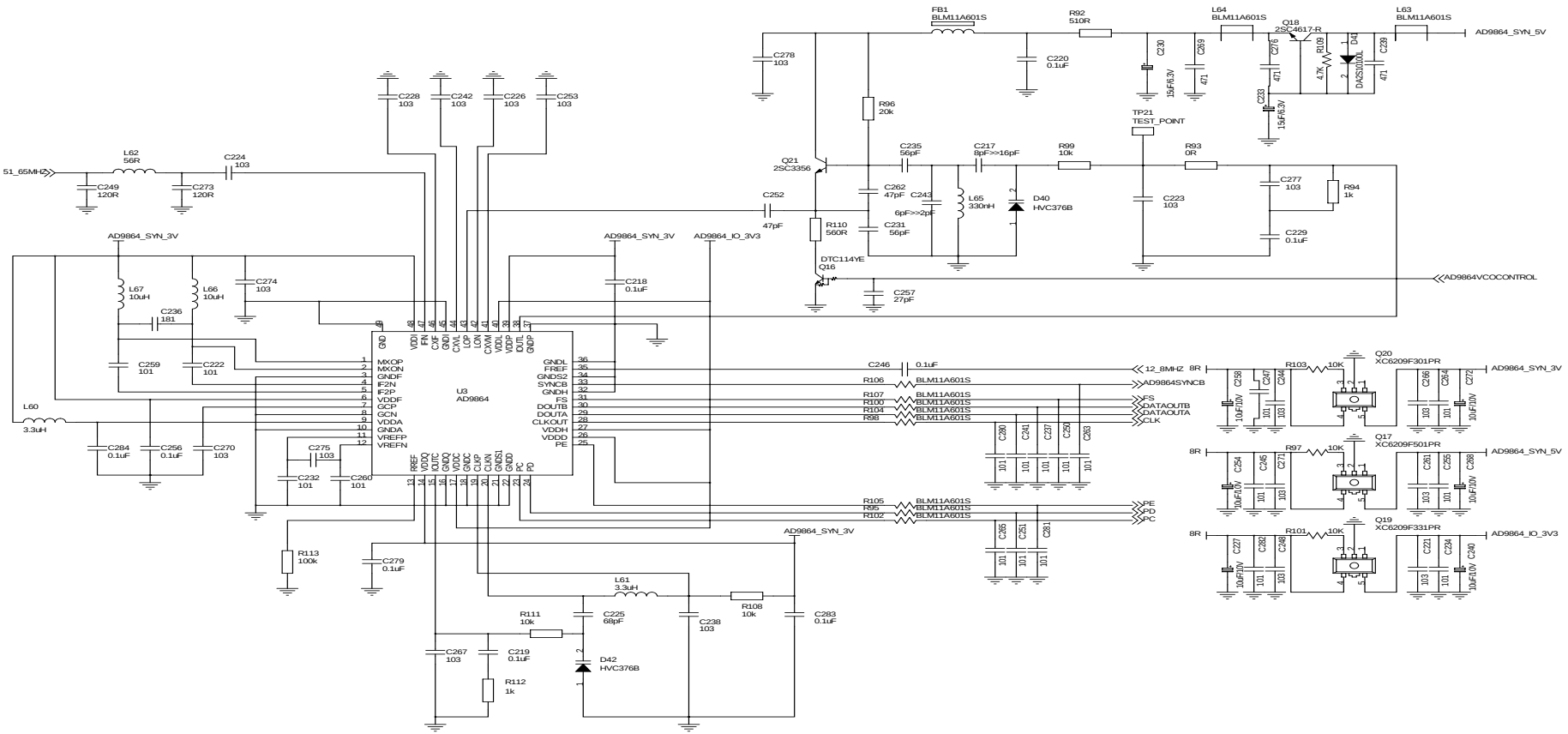


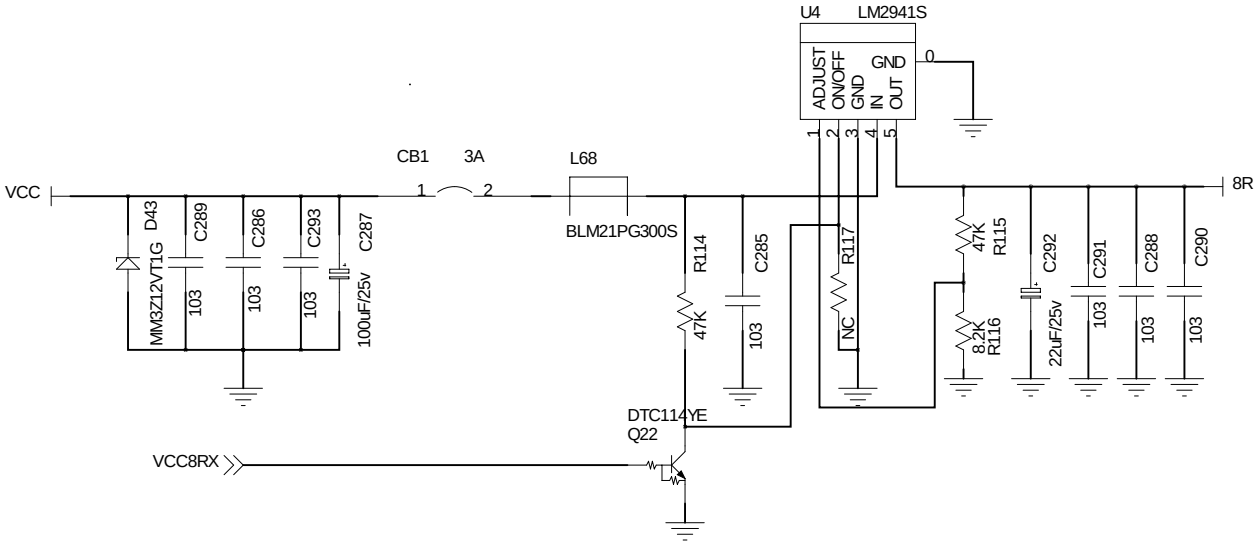
Figure 13 Rx module schematic Diagram

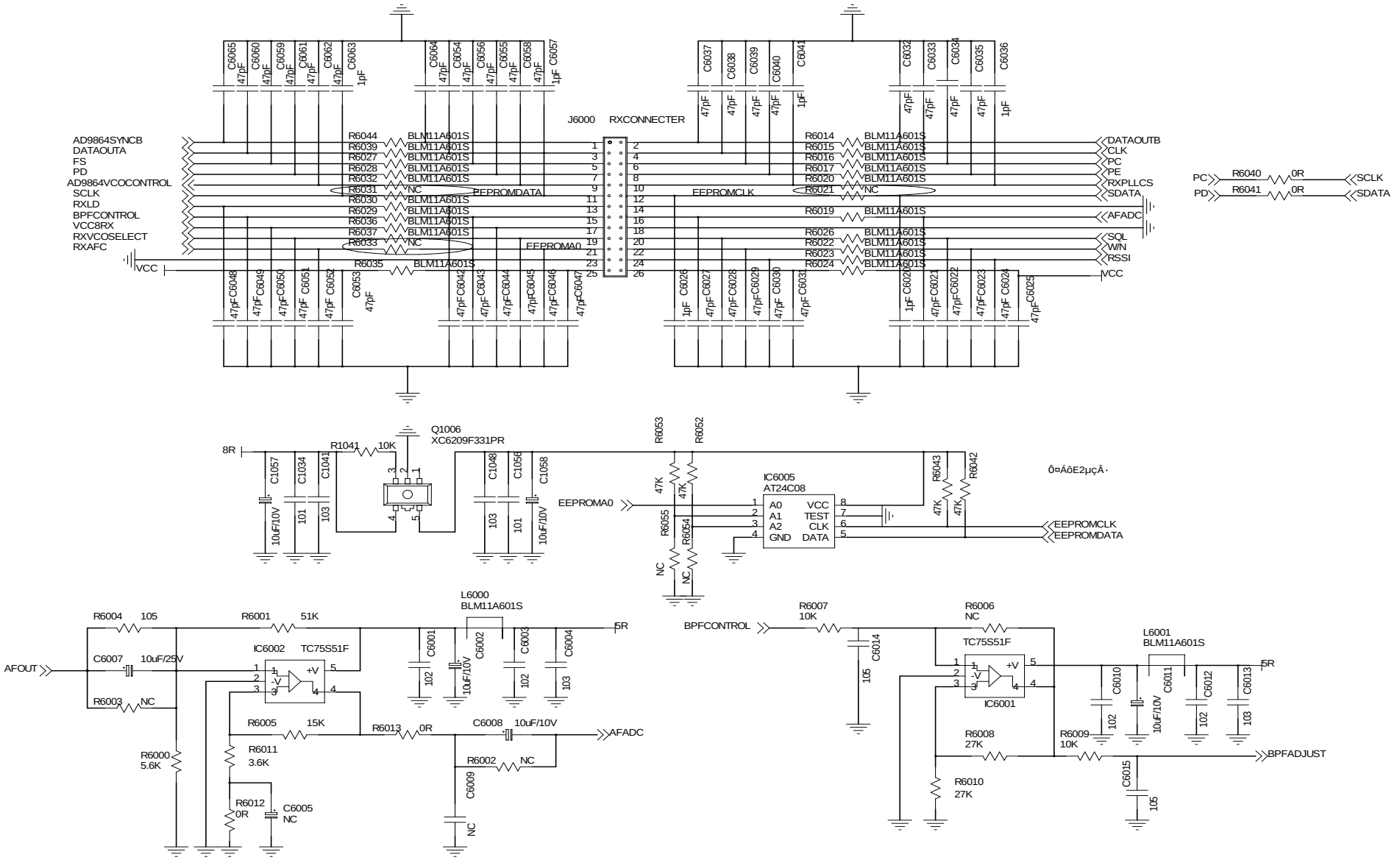



RXVCOOUT
C2020 82pF
L2012 0R
C2026 82pF
C2036 NC
C2037 NC
R2017 NC
C2038 104
R2018 22R
Q2002 2SC3356
L2002 BLM11A601S
C2017 101
C2014 104
R2007 8.2K
R2008 NC
L2006 180nH
C2021 121
U5002 0R(1206)
C2023 121
R2009 27R
R2011 220R
C2022 62pF
R2012 220R
L2013 0R
C2035 NC
C2039 NC
C2008 101
C2009 104
VHFÓÄPGA103
IC6006 PGA-103
IC3003 NC
NA NA
RFIN RFOUT
NA NA
NA GND NA
UHFÓÄSPF5122Z
L2001 BLM11A601S
C3113 10uF/16V
C2011 104
C2010 101
C2013 104
C2012 101
L2004 1uH
R2006 NC
L2011 0R
C2033 NC
C2034 NC
C2024 47pF
C3110 101
C3111 103
C3112 10uF/16V
R3053 NC
Q3005 XC6209F501PR
R1039 10K
C3109 10uF/16V
C3040 101
C3053 103
8R
C2018 3pF
C2019 2pF
C2025 62pF
R2010 0R
L2009 33nH
L2010 33nH
C2030 24pF
C2031 39pF
C2032 24pF
R2015 NC
R2016 NC
LO1


J3
3CR7-SMA-50KWE-2
TP17
LPF
TP10
BPF
TP16
LNA
TP19
BPF2
IC5
NC
IC3
PGA-103
Q10
XC6209F501PR
BPFADJUST
R58 10K
IC4
SYM25DHW
TP11
MIXER
IC2
PGA-103+
Z2
51.65MHz
Z1
51.65MHz
Q15
2SC3356
Q13
2SC3356
IC6
TA31136
Q11
XC6209F501PR
Q14 NC
U2
NC
Q12
XC6209F501PR
Q9
NC
D20
NC RB706
TP15
LO
TP20
RSSI
TP14
SQL
TP13
AFOUT
TP8
51.65MHz
TP9
LO2
TP18
LO1
TP12
WIN
RSSI
AFOUT
51.65MHz
LO2
WIN
SQL


FB1
BLM11A601S
R92
510R
L64
BLM11A601S
Q18
2SC4617-R
L63
BLM11A601S
AD9864_SYN_5V
C278
103
C220
0.1uF
C230
15uF6.3V
C269
471
C276
471
R109
4.7K
D41
DA5S10100L
C239
471
C233
15uF10V
R96
20k
TP21
TEST_POINT
C228
103
C242
103
C226
103
C253
103
L62
56R
C224
103
51_65MHZ
C249
120R
C273
120R
Q21
2SC3356
C235
56pF
C217
8pF>>16pF
R99
10k
R93
0R
C277
103
R94
1k
C262
47pF
C243
6pF>>2pF
L65
330nH
D40
HVC376B
C223
103
C252
47pF
R110
560R
C231
56pF
C229
0.1uF
DTC114YE
Q16
C257
27pF
AD9864VCOCONTROL
AD9864_SYN_3V
AD9864_IO_3V3
L67
10uH
L66
10uH
C274
103
C236
181
C219
0.1uF
U3
AD9864
MXOP
MXON
GNDF
IF2N
IF2P
VDDF
GCP
GCN
VDDA
GNDA
VREFP
VREFN
GNDL
FREF
GNDS2
SYNCB
GNDH
FS
DOUTB
DOUTA
CLKOUT
VDDH
VDDD
PE
C259
101
C222
101
L60
3.3uH
C284
0.1uF
C256
0.1uF
C270
103
C275
103
C232
101
C260
101
C246
0.1uF
12_8MHZ
R106
BLM11A601S
AD9864SYNCB
R107
R100
R104
R98
FS
DATAOUTB
DATAOUTA
CLK
C280
C241
C237
C250
C263
R105
R95
R102
C265
C251
C281
R113
100k
C279
0.1uF
L61
3.3uH
R108
10k
C283
0.1uF
R111
10k
C225
68pF
C238
103
C267
103
C219
0.1uF
D42
HVC376B
R112
1k
8R
R103
10K
Q20
XC6209F301PR
AD9864_SYN_3V
C258
10uF10V
C247
101
C244
103
C266
103
C264
101
C272
10uF10V
R97
10K
Q17
XC6209F501PR
AD9864_SYN_5V
C254
10uF10V
C245
101
C271
103
C261
103
C255
101
C268
10uF10V
R101
10K
Q19
XC6209F331PR
AD9864_IO_3V3
C227
10uF10V
C282
101
C248
103
C221
103
C234
101
C240
10uF10V


U4
LM2941S
ADJUST
ON/OFF
GND
IN
OUT
GND
0
1
2
3
4
5
CB1
3A
1
2
L68
BLM21PG300S
VCC
8R
D43
MM3Z12VT1G
C289
103
C286
103
C293
103
C287
100uF/25v
R114
47K
C285
103
R117
NC
47K
R115
8.2K
R116
C292
22uF/25v
C291
103
C288
103
C290
103
DTC114YE
Q22
VCC8RX


J6000 RXCONNECTER
AD9864SYNCB
DATAOUTA
FS
PD
AD9864VCOCONTROL
SCLK
RXLD
BPFCONTROL
VCC8RX
RXVCOSELECT
RXAFC
VCC
DATAOUTB
CLK
PC
PE
RXPLLCS
SDATA
AFADC
SQL
WIN
RSSI
VCC
EEPROMDATA
EEPROMA0
EEPROMCLK
Q1006
XC6209F331PR
IC6005
AT24C08
IC6002 TC75S51F
IC6001 TC75S51F
L6000
BLM11A601S
L6001
BLM11A601S
AFOUT
BPFCONTROL
BPFADJUST
ÔøÁôE2µçÂ·

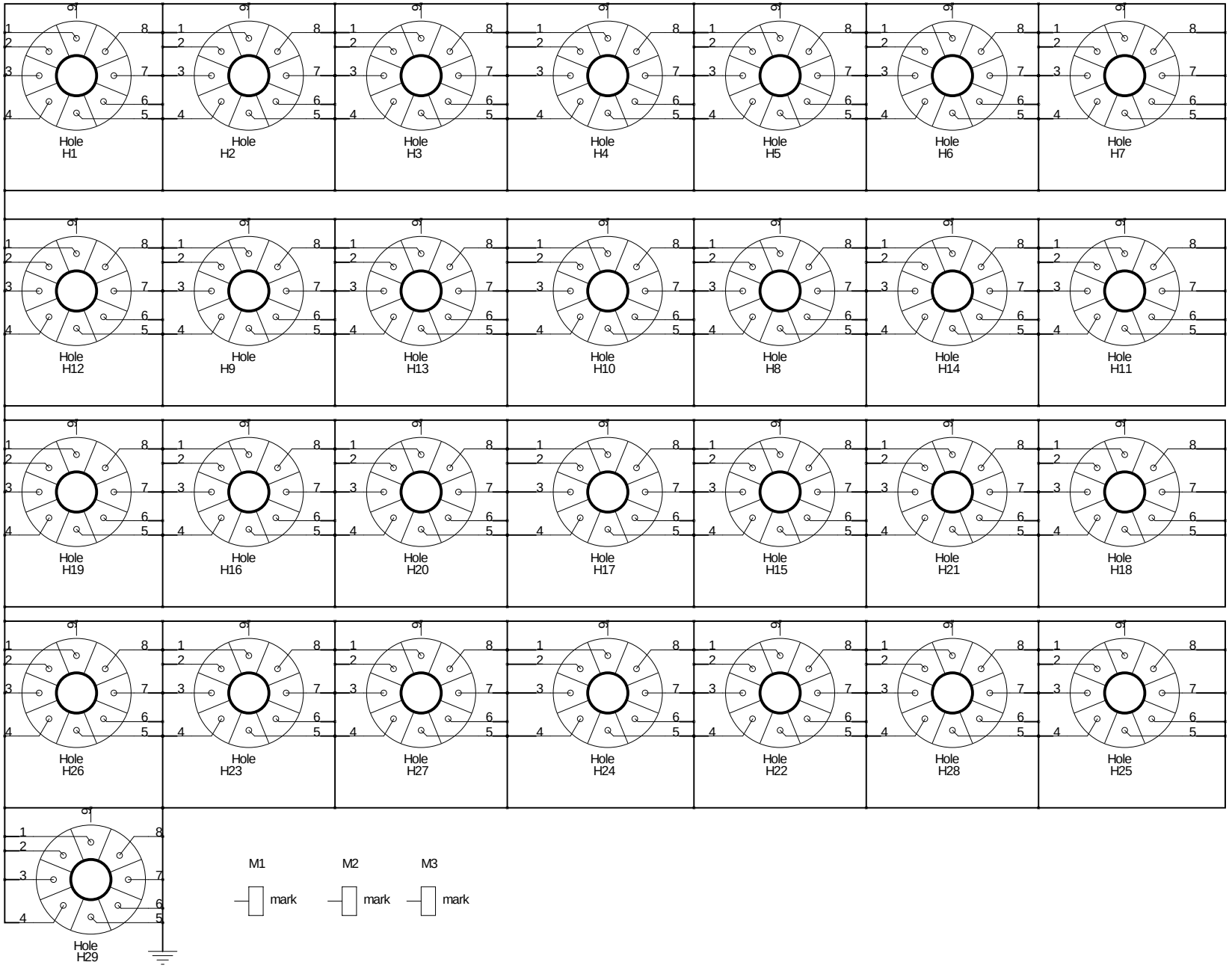
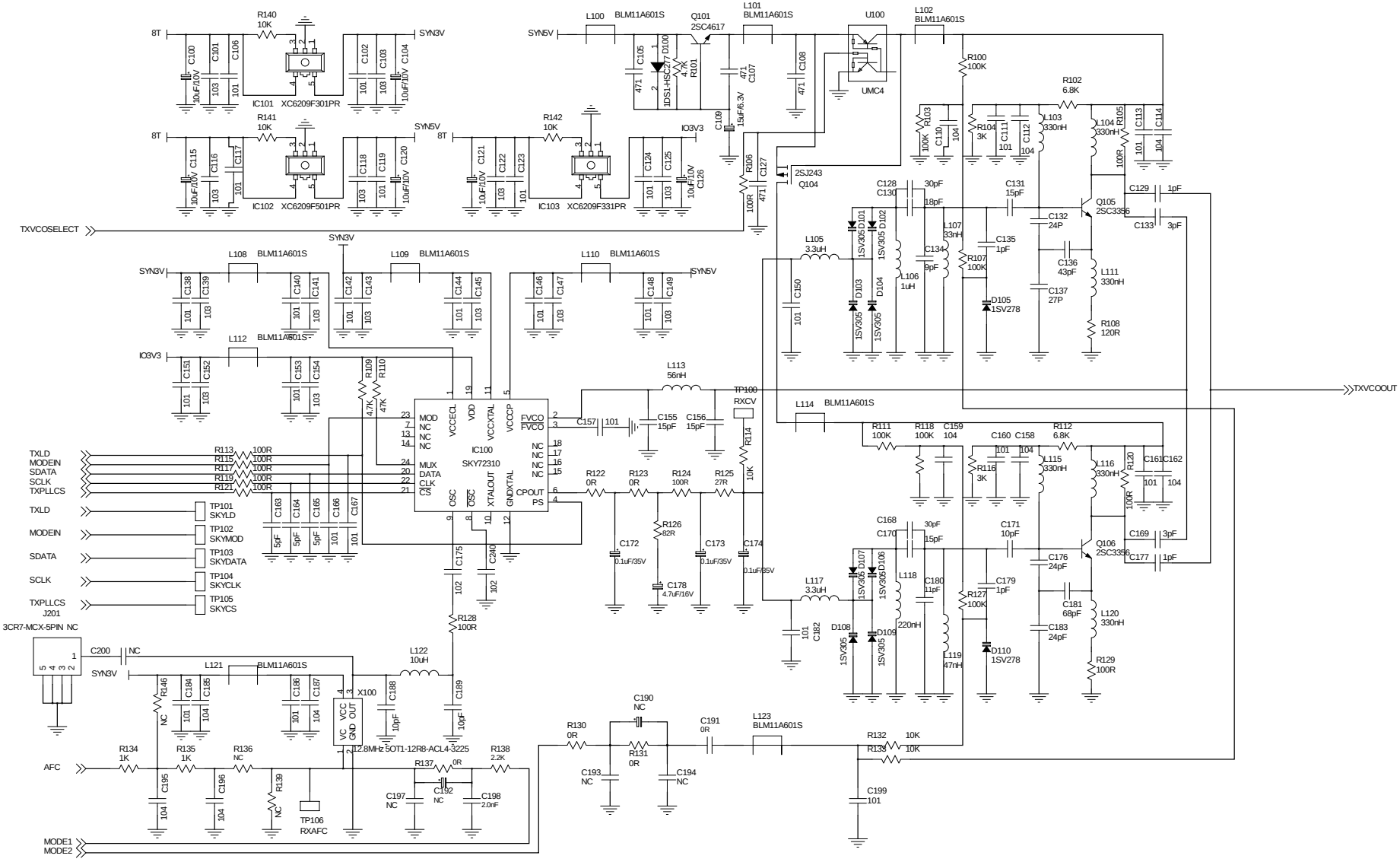
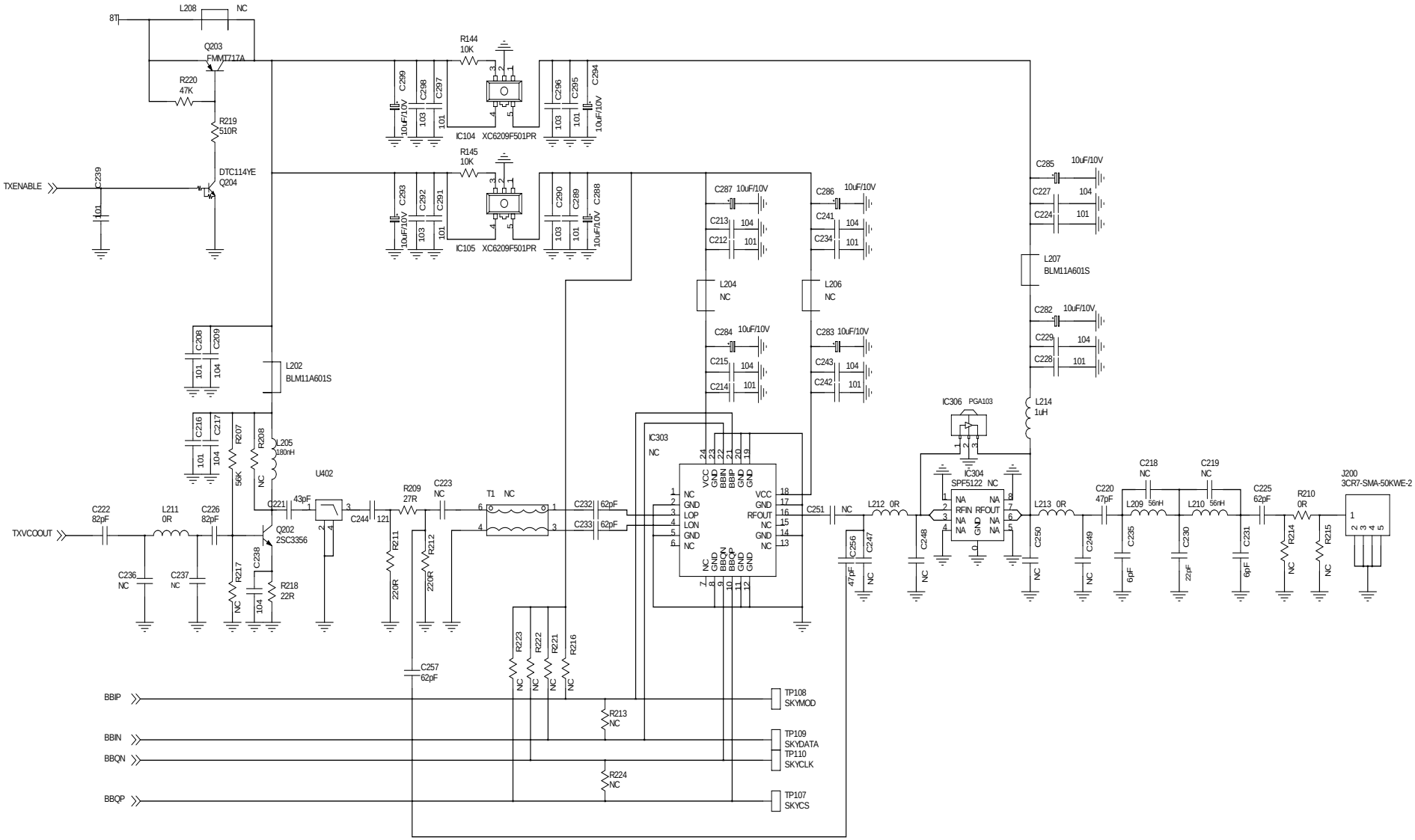
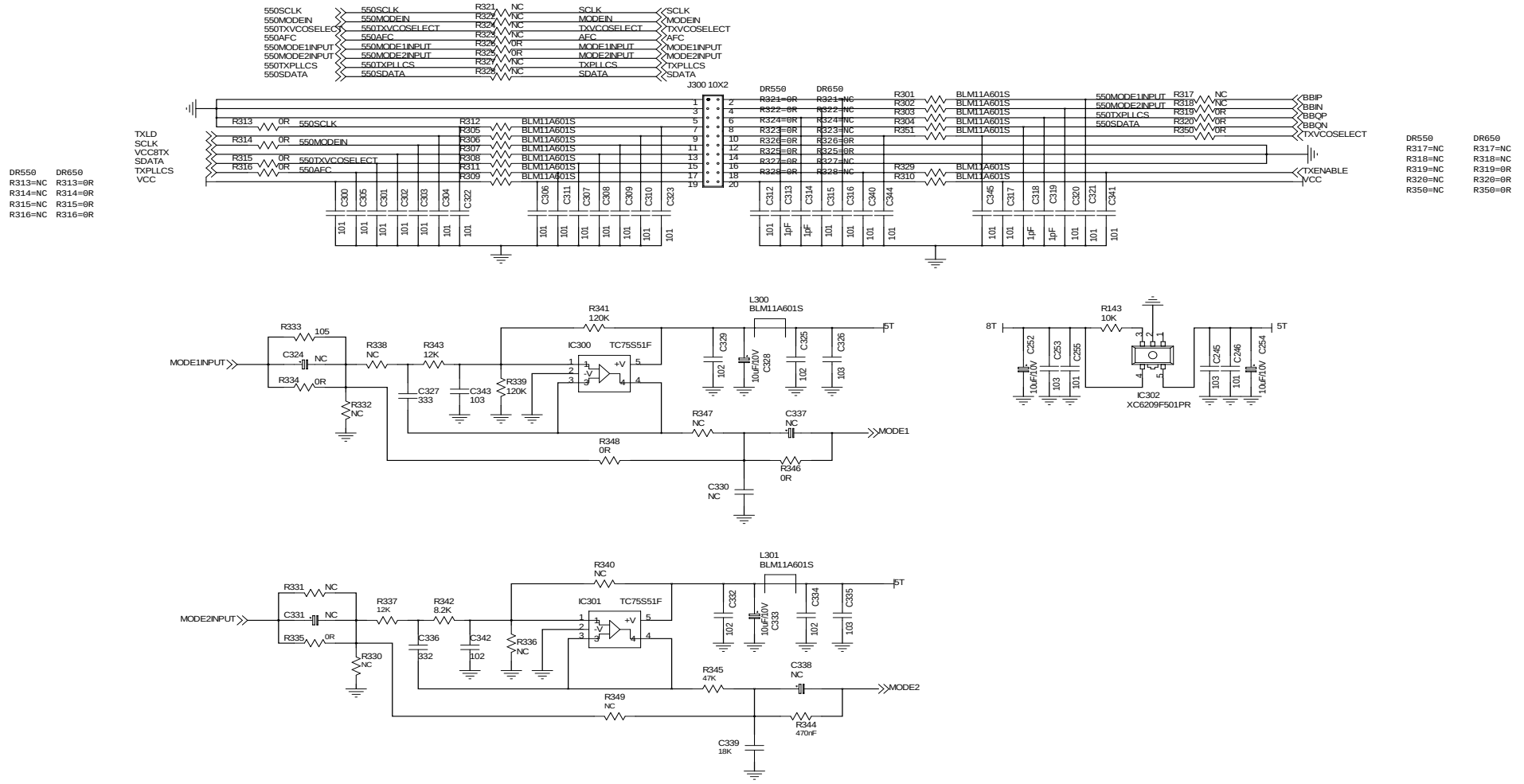
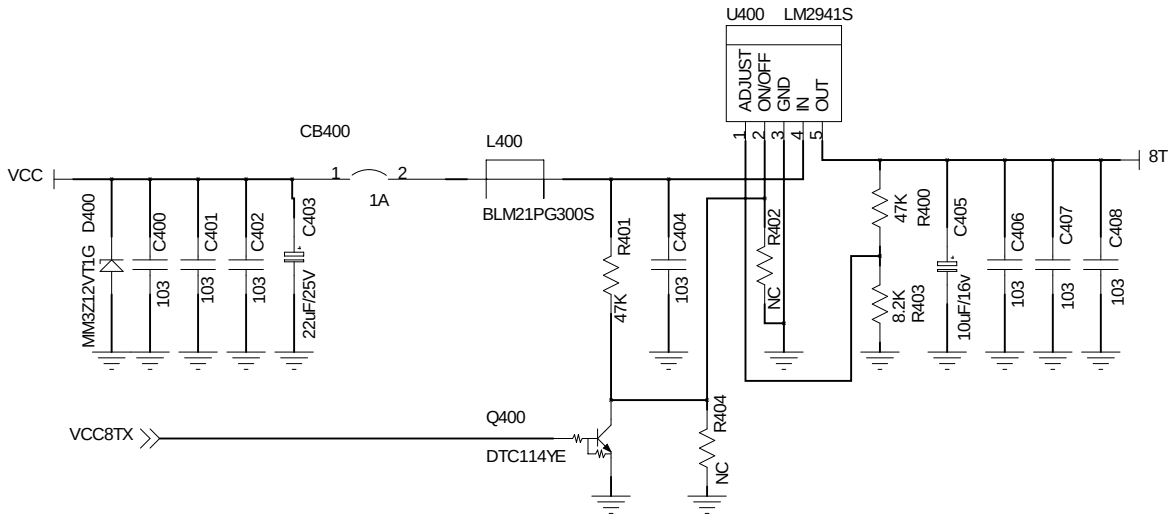

Hole H1
Hole H2
Hole H3
Hole H4
Hole H5
Hole H6
Hole H7
Hole H12
Hole H9
Hole H13
Hole H10
Hole H8
Hole H14
Hole H11
Hole H19
Hole H16
Hole H20
Hole H17
Hole H15
Hole H21
Hole H18
Hole H26
Hole H23
Hole H27
Hole H24
Hole H22
Hole H28
Hole H25
Hole H29
M1
M2
M3
mark
mark
mark

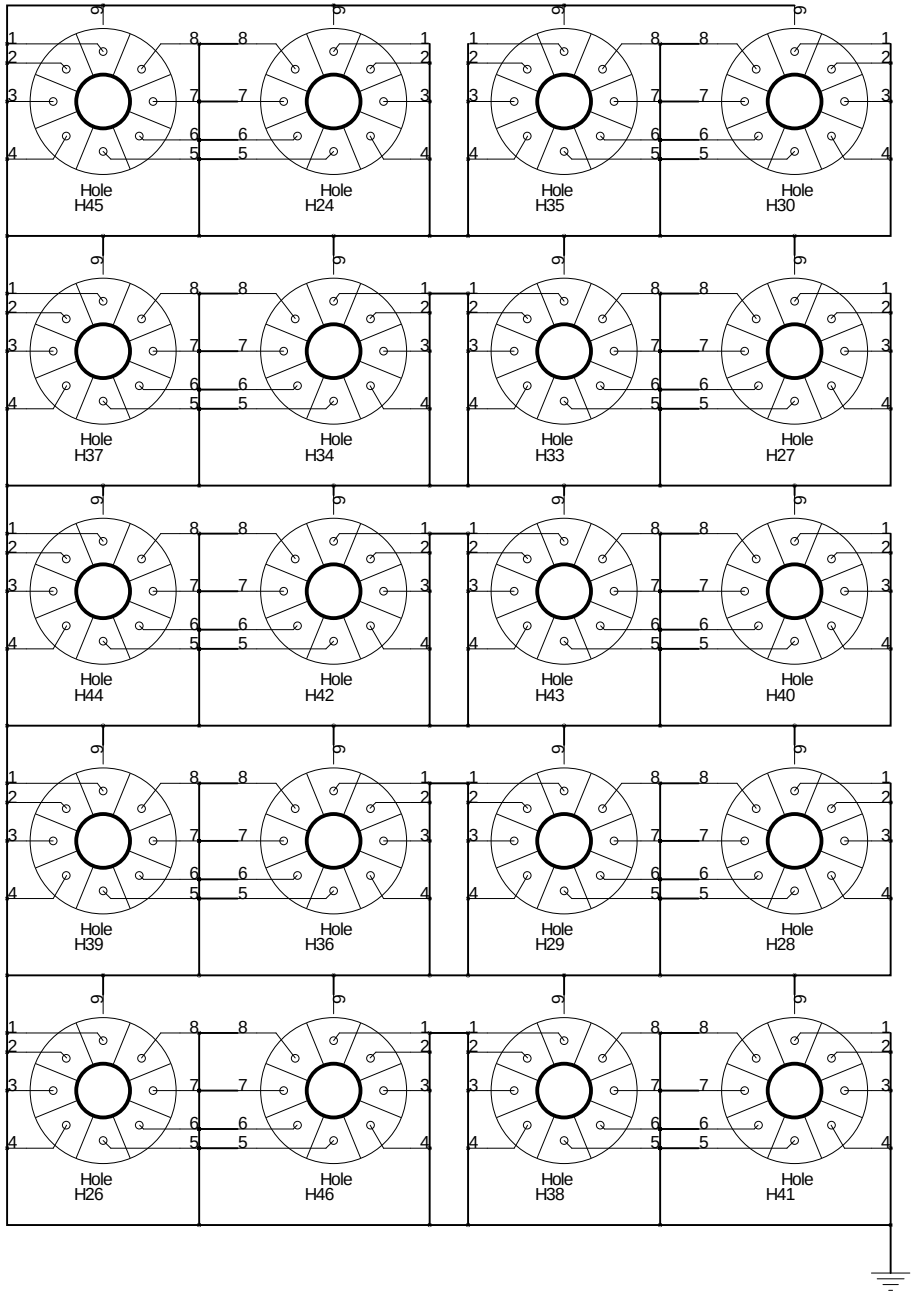
Figure 14 Tx Module Schematic Diagram




8T
L208 NC
Q203 FMMT717A
R220 47K
R219 510R
TXENABLE
C239 101
DTC114YE Q204
R144 10K
IC104 XC6209F501PR
R145 10K
IC105 XC6209F501PR
C299 C298 C297 C296 C295 C294
C293 C292 C291 C290 C289 C288
C287 C286 C285 C284 C283 C282
L204 NC
L206 NC
L207 BLM11A601S
L214 1uH
L202 BLM11A601S
L205 180nH
R207 56K
R208 NC
C216 C217 C208 C209
U402
IC303 NC
IC306 PGA103
IC304 SPF5122 NC
C218 NC
C219 NC
C220 47pF
C225 62pF
R210 0R
J200 3CR7-SMA-50KWE-2
L209 56nH
L210 56nH
L211 0R
L212 0R
L213 0R
C222 82pF
C226 82pF
C221 43pF
C244 121
R209 27R
C223 NC
T1 NC
C232 62pF
C233 62pF
C251 NC
TXVCOOUT
Q202 2SC3356
R211 220R
R212 220R
C236 NC
C237 NC
R217 NC
C238 104
R218 22R
C257 62pF
R223 R222 R221 R216
R213 NC
R224 NC
BBIP
BBIN
BBQN
BBQP
TP108 SKYMOD
TP109 SKYDATA
TP110 SKYCLK
TP107 SKYCS


550SCLK
550MODEIN
550TXVCOSELECT
550AFC
550MODE1INPUT
550MODE2INPUT
550TXPLLCS
550SDATA
SCLK
MODEIN
TXVCOSELECT
AFC
MODE1INPUT
MODE2INPUT
TXPLLCS
SDATA
J300 10X2
TXLD
SCLK
VCC8TX
SDATA
TXPLLCS
VCC
BBIP
BBIN
BBQP
BBQN
TXVCOSELECT
TXENABLE
VCC
DR550 DR650
R313=NC R313=0R
R314=NC R314=0R
R315=NC R315=0R
R316=NC R316=0R
DR550 DR650
R317=NC R317=NC
R318=NC R318=NC
R319=NC R319=0R
R320=NC R320=0R
R350=NC R350=0R
MODE1INPUT
MODE2INPUT
IC300 TC75S51F
IC301 TC75S51F
IC302
XC6209F501PR
MODE1
MODE2
5T
8T


U400 LM2941S
ADJUST
ON/OFF
GND
IN
OUT
1
2
3
4
5
CB400
L400
VCC
1
2
1A
BLM21PG300S
8T
D400
MM3Z12VT1G
C400
103
C401
103
C402
103
C403
22uF/25V
R401
47K
C404
103
R402
NC
47K
R400
8.2K
R403
C405
10uF/16v
C406
103
C407
103
C408
103
Q400
DTC114YE
VCC8TX
R404
NC



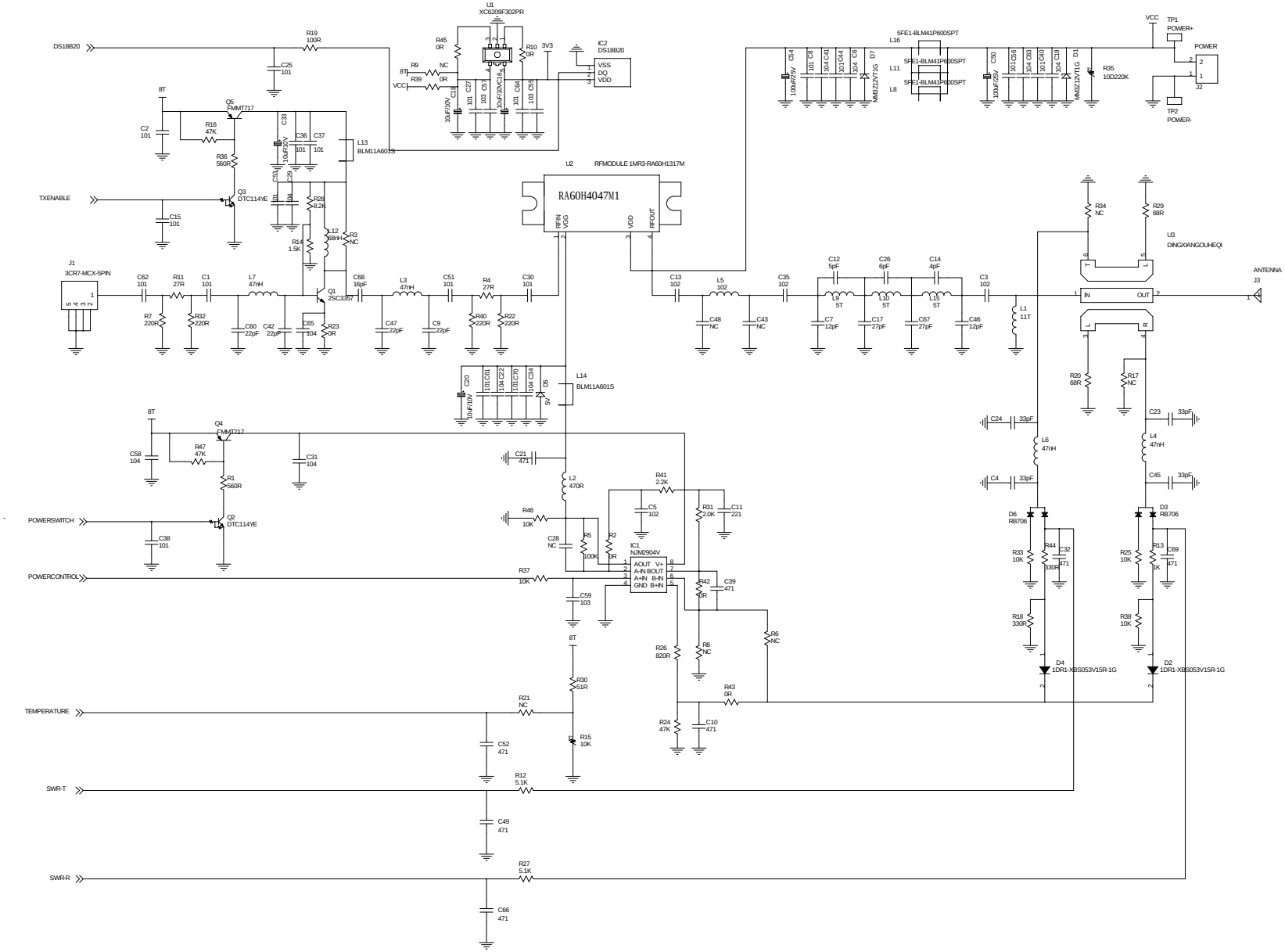
H25

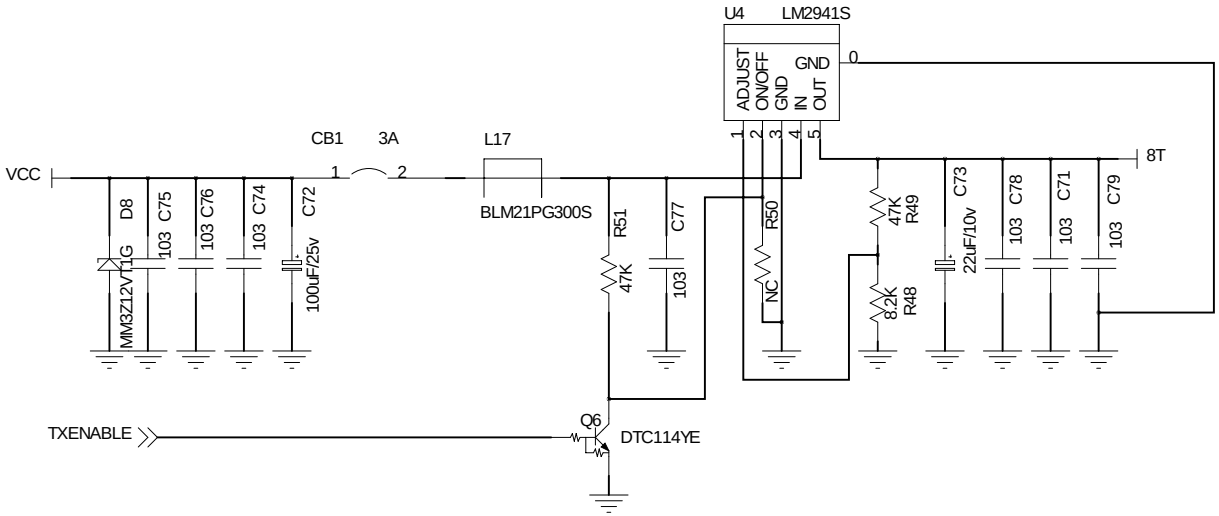
MARK H32

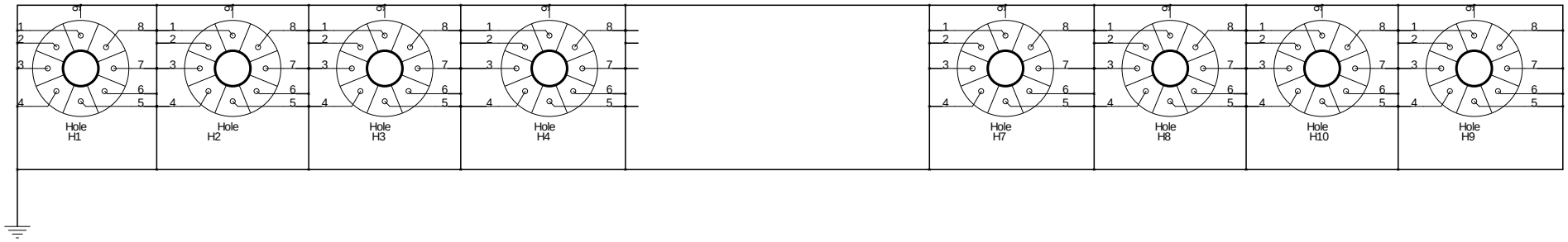
MARK H31

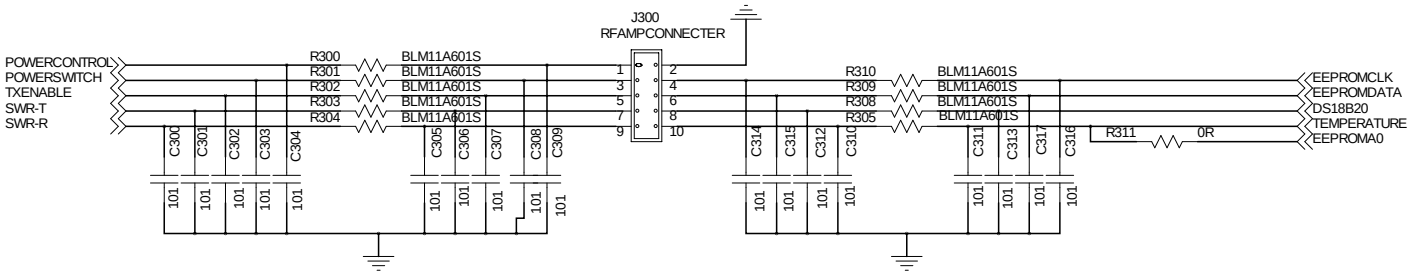
MARK

Figure 15 Power Amplifier Module Schematic Diagram




U4
LM2941S
ADJUST
ON/OFF
GND
IN
OUT
GND
0
1
2
3
4
5
8T
VCC
CB1
3A
1
2
L17
BLM21PG300S
D8
MM3Z12VT1G
C75
103
C76
103
C74
103
C72
100uF/25v
R51
47K
C77
103
R50
NC
47K
R49
8.2K
R48
C73
22uF/10v
C78
103
C71
103
C79
103
TXENABLE
Q6
DTC114YE


Hole
H1
Hole
H2
Hole
H3
Hole
H4
Hole
H7
Hole
H8
Hole
H10
Hole
H9


J300
RFAMPCONNECTER
POWERCONTROL
POWERSWITCH
TXENABLE
SWR-T
SWR-R
R300
R301
R302
R303
R304
BLM11A601S
R310
R309
R308
R305
R311
0R
EEPROMCLK
EEPROMDATA
DS18B20
TEMPERATURE
EEPROMA0
C300
C301
C302
C303
C304
C305
C306
C307
C308
C309
C314
C315
C312
C310
C311
C313
C317
C316
101

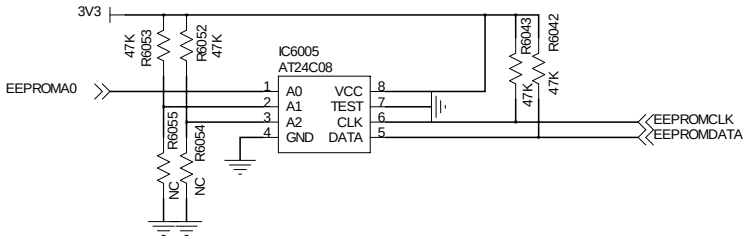
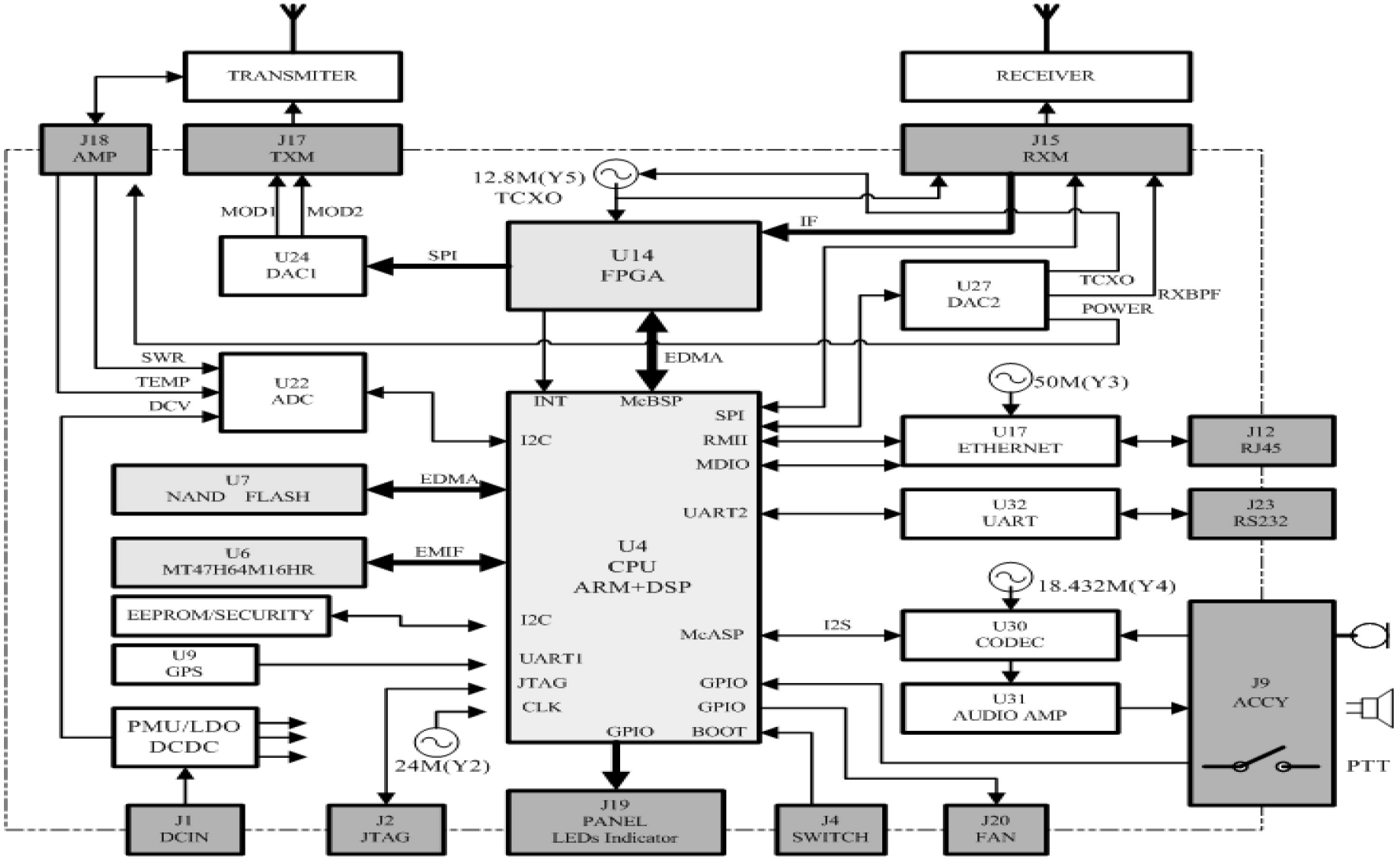
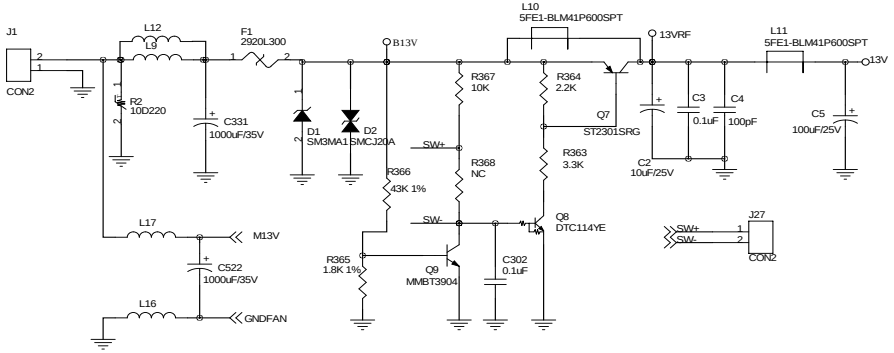
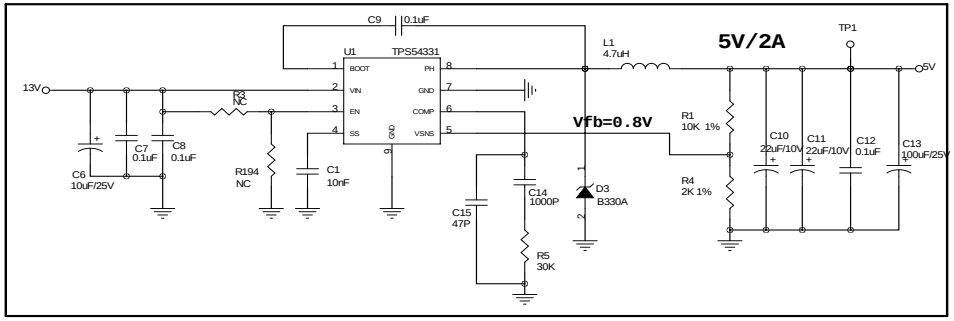
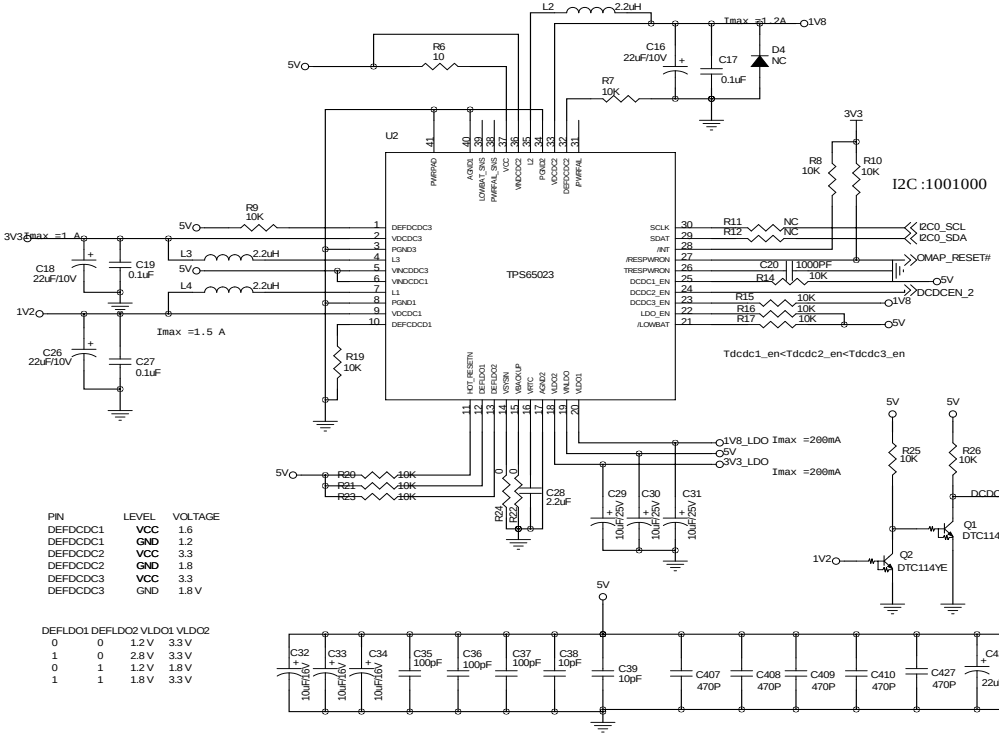

3V3
47K
R6053
R6052
47K
IC6005
AT24C08
EEPROMA0
A0
A1
A2
GND
VCC
TEST
CLK
DATA
R6043
R6042
47K
47K
R6055
R6054
NC
NC
EEPROMCLK
EEPROMDATA

Figure 16 Baseband Mainboard Schematic Diagram



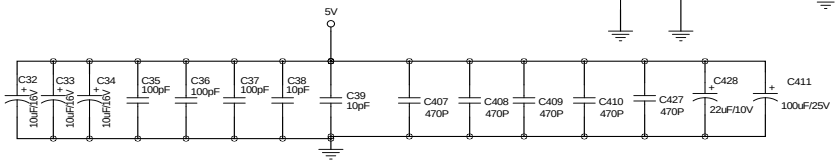




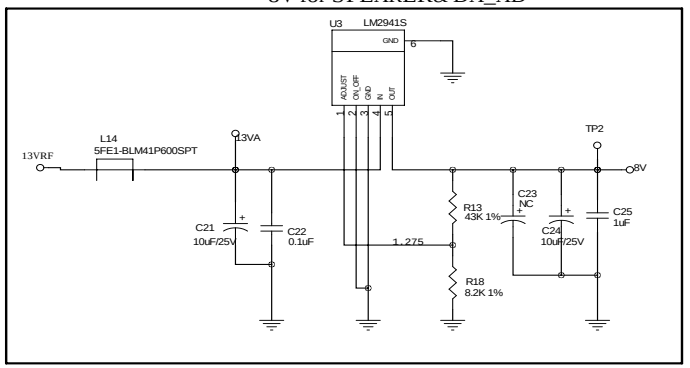


PIN	LEVEL	VOLTAGE
DEFDCDC1	**VCC**	1.6
DEFDCDC1	**GND**	1.2
DEFDCDC2	**VCC**	3.3
DEFDCDC2	**GND**	1.8
DEFDCDC3	**VCC**	3.3
DEFDCDC3	GND	1.8 V

DEFLDO1	DEFLDO2	VLDO1	VLDO2
0	0	1.2 V	3.3 V
1	0	2.8 V	3.3 V
0	1	1.2 V	1.8 V
1	1	1.8 V	3.3 V

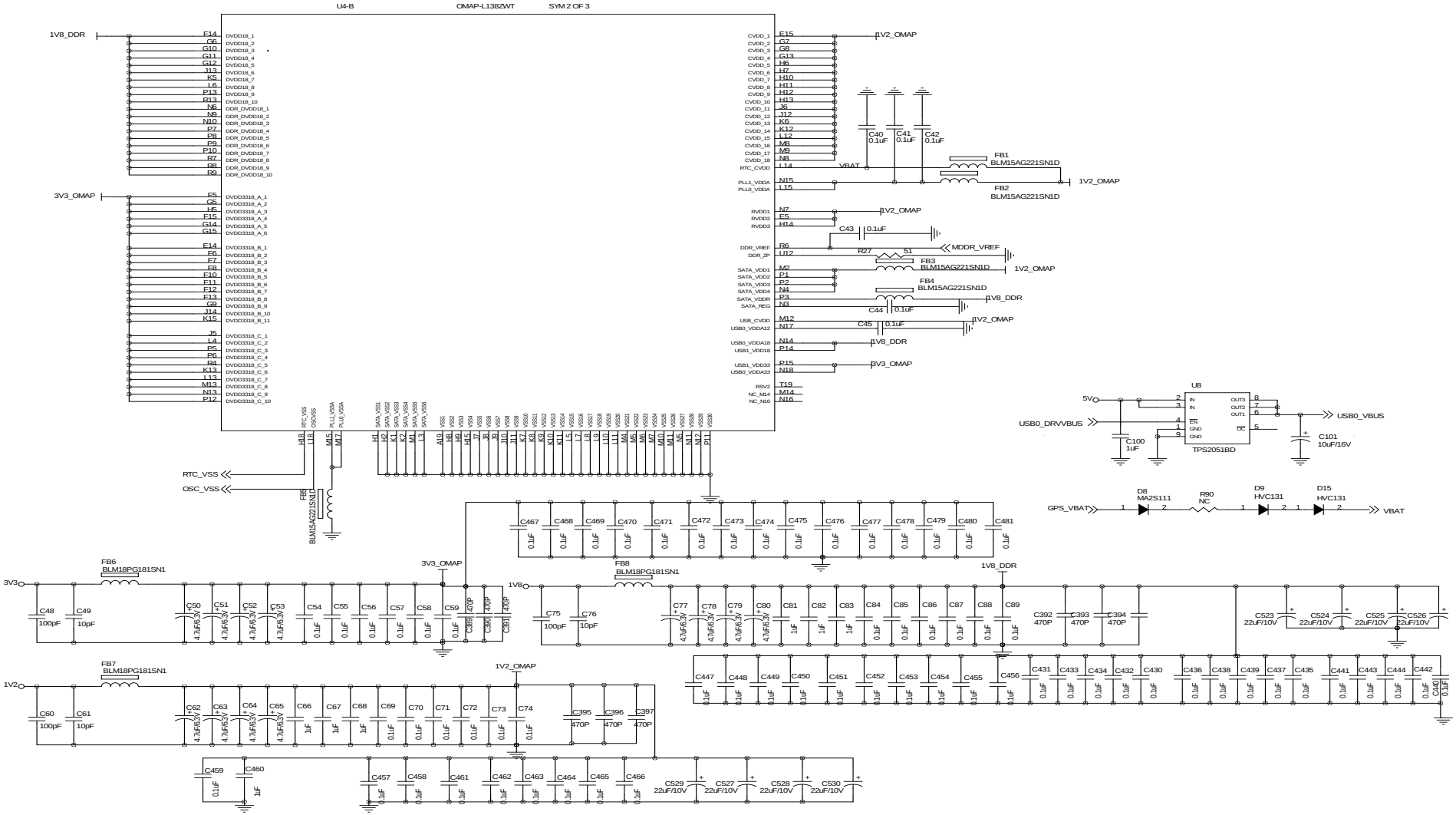


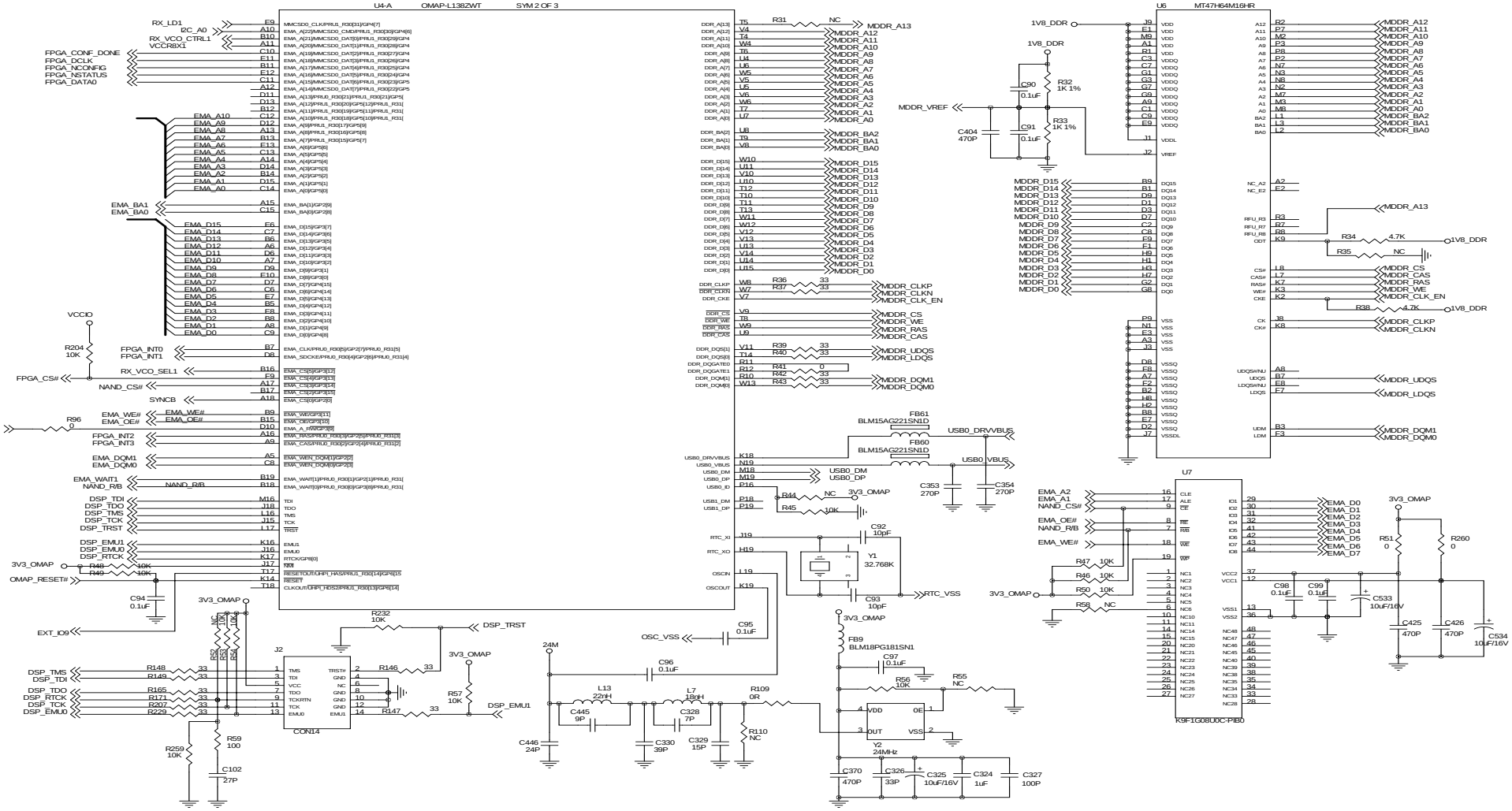
8V for SPEAKER& DA_AD

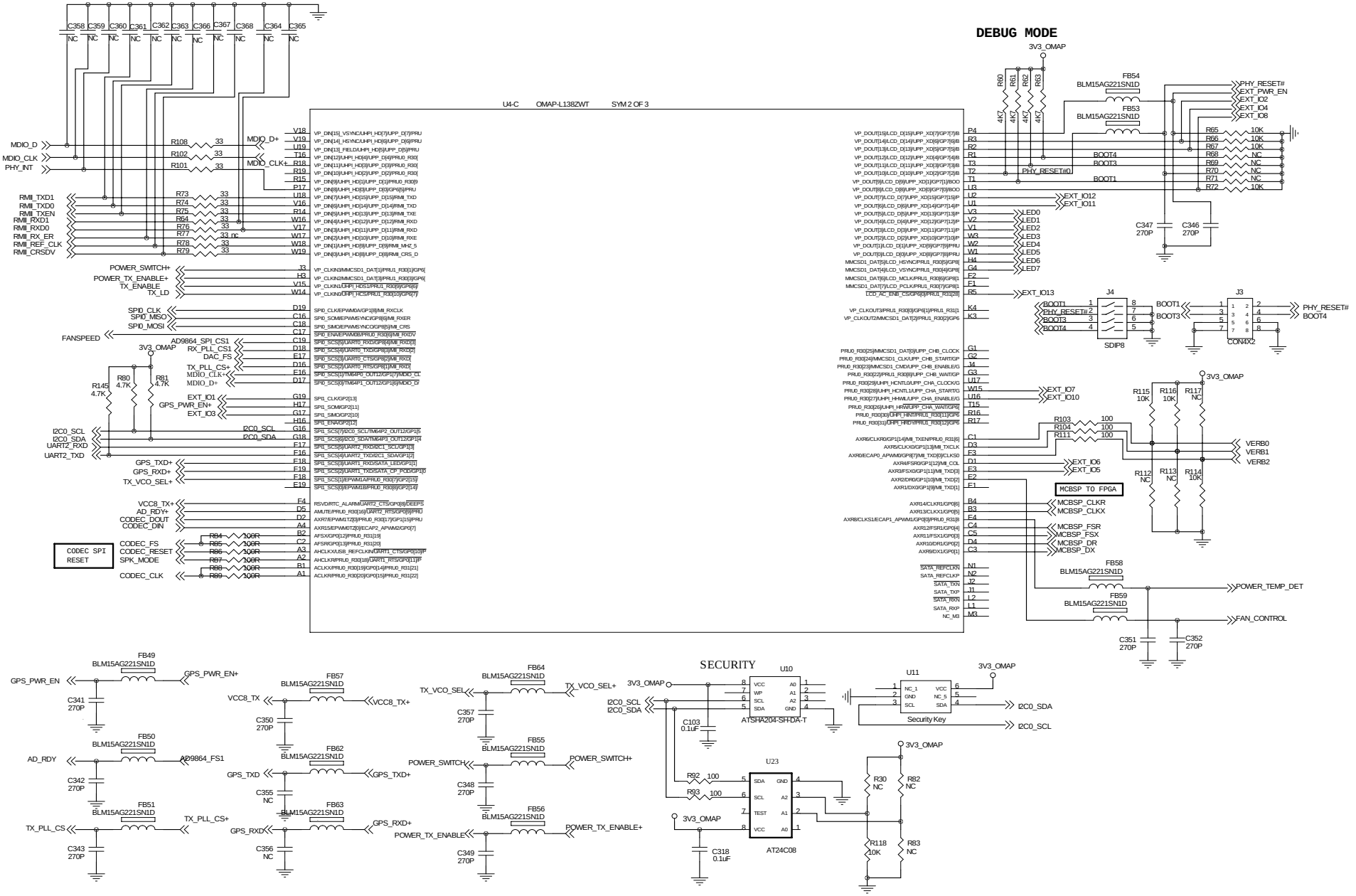


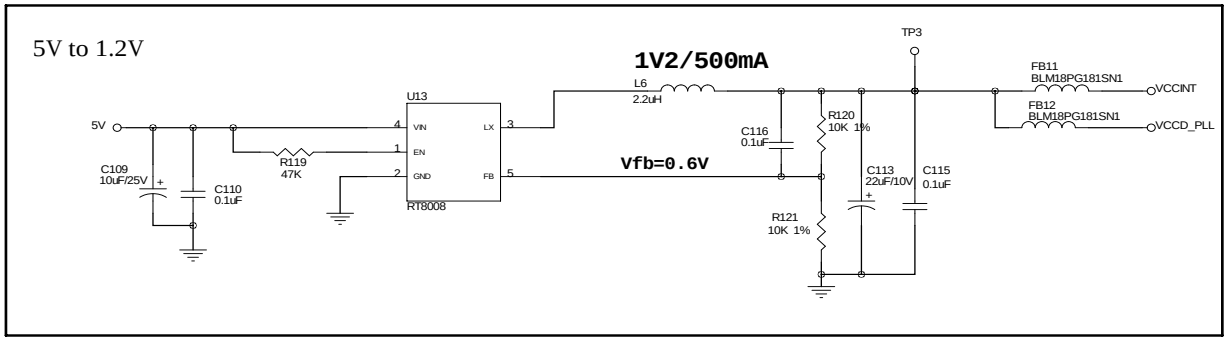
All capacitor not specified is 50V,value tolerence is 20%

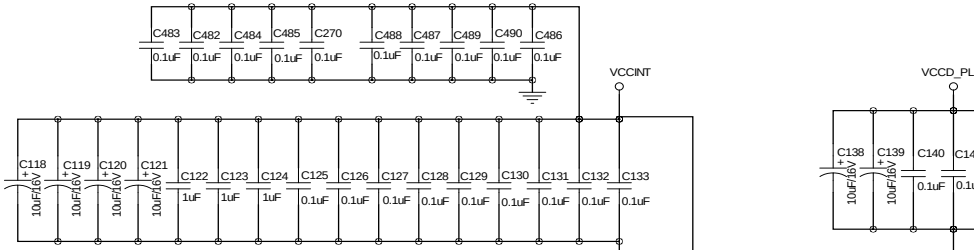
All resistor not specified value tolerence is 5%

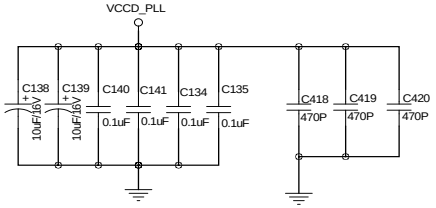

U4-B
OMAP-L1382WT
SYM 2 OF 3
1V8_DDR
3V3_OMAP
1V2_OMAP
VBAT
MDDR_VREF
RTC_VSS
OSC_VSS
FB1 BLM15AG221SN1D
FB2 BLM15AG221SN1D
FB3 BLM15AG221SN1D
FB4 BLM15AG221SN1D
FB5 BLM15AG221SN1D
FB6 BLM18PG181SN1
FB7 BLM18PG181SN1
FB8 BLM18PG181SN1
U8
TPS2051BD
5V
USB0_DRVVBUS
USB0_VBUS
GPS_VBAT
D8 MA2S111
D9 HVC131
D15 HVC131
R90 NC
C100 1uF
C101 10uF/16V

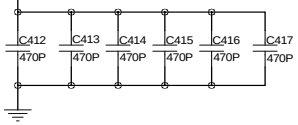

U4-A
OMAP-L138ZWT
SYM 2 OF 3
U6
MT47H64M16HR
U7
K9F1G08U0C-PIB0
CON14
RX_LD1
I2C_A0
RX_VCO_CTRL1
VCCRBX1
FPGA_CONF_DONE
FPGA_DCLK
FPGA_NCONFIG
FPGA_NSTATUS
FPGA_DATA0
EMA_A10
EMA_A9
EMA_A8
EMA_A7
EMA_A6
EMA_A5
EMA_A4
EMA_A3
EMA_A2
EMA_A1
EMA_A0
EMA_BA1
EMA_BA0
EMA_D15
EMA_D14
EMA_D13
EMA_D12
EMA_D11
EMA_D10
EMA_D9
EMA_D8
EMA_D7
EMA_D6
EMA_D5
EMA_D4
EMA_D3
EMA_D2
EMA_D1
EMA_D0
VCCIO
R204 10K
FPGA_INT0
FPGA_INT1
FPGA_CS#
RX_VCO_SEL1
NAND_CS#
SYNCB
R96 0
EMA_WE#
EMA_OE#
FPGA_INT2
FPGA_INT3
EMA_DQM1
EMA_DQM0
EMA_WAIT1
NAND_R/B
DSP_TDI
DSP_TDO
DSP_TMS
DSP_TCK
DSP_TRST
DSP_EMU1
DSP_EMU0
DSP_RTCK
3V3_OMAP
R48 10K
R49 10K
OMAP_RESET#
C94 0.1uF
EXT_IO9
R50 10K
R51 10K
R52 10K
R53 10K
R54 10K
J2
R148 33
R149 33
R165 33
R171 33
R207 33
R229 33
R259 10K
R59 100
C102 27P
R232 10K
DSP_TRST
R146 33
R147 33
R57 10K
DSP_EMU1
C95 0.1uF
OSC_VSS
24M
C96 0.1uF
L13 22nH
L7 18nH
C445 9P
C328 7P
C330 39P
C329 15P
C446 24P
R109 0R
R110 NC
MDDR_A13
MDDR_A12
MDDR_A11
MDDR_A10
MDDR_A9
MDDR_A8
MDDR_A7
MDDR_A6
MDDR_A5
MDDR_A4
MDDR_A3
MDDR_A2
MDDR_A1
MDDR_A0
MDDR_BA2
MDDR_BA1
MDDR_BA0
MDDR_D15
MDDR_D14
MDDR_D13
MDDR_D12
MDDR_D11
MDDR_D10
MDDR_D9
MDDR_D8
MDDR_D7
MDDR_D6
MDDR_D5
MDDR_D4
MDDR_D3
MDDR_D2
MDDR_D1
MDDR_D0
MDDR_CLKP
MDDR_CLKN
MDDR_CLK_EN
MDDR_CS
MDDR_WE
MDDR_RAS
MDDR_CAS
MDDR_UDQS
MDDR_LDQS
MDDR_DQM1
MDDR_DQM0
R36 33
R37 33
R39 33
R40 33
R41 0
R42 33
R43 33
FB61
BLM15AG221SN1D
FB60
BLM15AG221SN1D
USB0_DRVVBUS
USB0_VBUS
USB0_DM
USB0_DP
R44 NC
3V3_OMAP
R45 10K
C353 270P
C354 270P
RTC_XI
RTC_XO
C92 10pF
Y1 32.768K
C93 10pF
RTC_VSS
FB9
BLM18PG181SN1
C97 0.1uF
R56 10K
R55 NC
Y2 24MHz
C370 470P
C326 33P
C325 10uF/16V
C324 1uF
C327 100P
1V8_DDR
R32 1K 1%
R33 1K 1%
C90 0.1uF
C91 0.1uF
C404 470P
MDDR_VREF
R34 4.7K
R35 NC
R38 4.7K
C98 0.1uF
C99 0.1uF
C533 10uF/16V
C425 470P
C426 470P
C534 10uF/16V
R58 NC
R46 10K
R47 10K

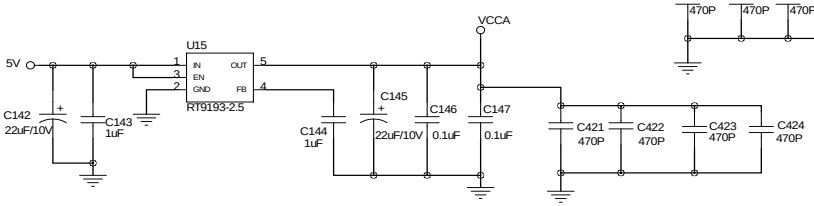

DEBUG MODE
U4-C OMAP-L138ZWT SYM 2 OF 3
3V3_OMAP
SECURITY
U10
ATSHA204-SH-DA-T
U11
Security Key
U23
AT24C08
MCBSP TO FPGA
SDIP8
CON4X2
CODEC SPI RESET
MDIO_D
MDIO_CLK
PHY_INT
MDIO_D+
MDIO_CLK+
RMII_TXD1
RMII_TXD0
RMII_TXEN
RMII_RXD1
RMII_RXD0
RMII_RX_ER
RMII_REF_CLK
RMII_CRSDV
POWER_SWITCH+
POWER_TX_ENABLE+
TX_ENABLE
TX_LD
SPI0_CLK
SPI0_MISO
SPI0_MOSI
FANSPEED
AD9864_SPI_CS1
RX_PLL_CS1
DAC_FS
TX_PLL_CS+
GPS_PWR_EN+
EXT_IO1
EXT_IO3
I2C0_SCL
I2C0_SDA
UART2_RXD
UART2_TXD
GPS_TXD+
GPS_RXD+
TX_VCO_SEL+
VCC8_TX+
AD_RDY+
CODEC_DOUT
CODEC_DIN
CODEC_FS
CODEC_RESET
SPK_MODE
CODEC_CLK
PHY_RESET#
EXT_PWR_EN
EXT_IO2
EXT_IO4
EXT_IO8
BOOT4
BOOT3
BOOT1
EXT_IO12
EXT_IO11
LED0
LED1
LED2
LED3
LED4
LED5
LED6
LED7
EXT_IO13
EXT_IO7
EXT_IO10
EXT_IO6
EXT_IO5
MCBSP_CLKR
MCBSP_CLKX
MCBSP_FSR
MCBSP_FSX
MCBSP_DR
MCBSP_DX
VERB0
VERB1
VERB2
POWER_TEMP_DET
FAN_CONTROL
GPS_PWR_EN
VCC8_TX
TX_VCO_SEL
AD_RDY
GPS_TXD
POWER_SWITCH
TX_PLL_CS
GPS_RXD
POWER_TX_ENABLE
AD9864_FS1
I2C0_SCL
I2C0_SDA
Security Key
3V3_OMAP

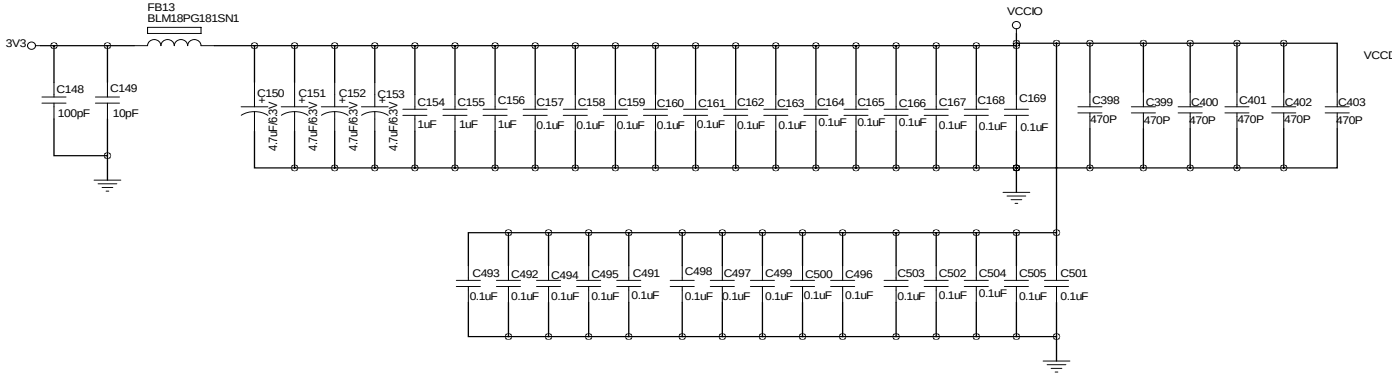

5V to 1.2V
1V2/500mA
TP3
U13
5V
VIN
EN
GND
LX
FB
RT8008
L6
2.2uH
FB11
BLM18PG181SN1
FB12
BLM18PG181SN1
VCCINT
VCCD_PLL
C116
0.1uF
R120
10K 1%
R121
10K 1%
Vfb=0.6V
C113
22uF/10V
C115
0.1uF
C109
10uF/25V
C110
0.1uF
R119
47K


C483 C482 C484 C485 C270 C488 C487 C489 C490 C486
0.1uF
VCCINT
C118 C119 C120 C121 C122 C123 C124 C125 C126 C127 C128 C129 C130 C131 C132 C133
10uF/16V
1uF
0.1uF

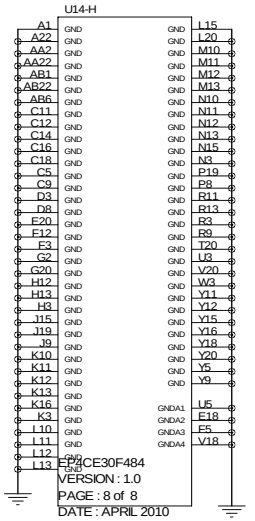

VCCD_PLL
C138 C139 C140 C141 C134 C135
10uF/16V
0.1uF
C418 C419 C420
470P


C412 C413 C414 C415 C416 C417
470P


VCCA
U15
5V
IN
EN
GND
OUT
FB
RT9193-2.5
C142
22uF/10V
C143
1uF
C144
1uF
C145
22uF/10V
C146
0.1uF
C147
0.1uF
C421 C422 C423 C424
470P


FB13
BLM18PG181SN1
3V3
VCCIO
C148
100pF
C149
10pF
C150 C151 C152 C153
4.7uF/6.3V
C154 C155 C156 C157 C158 C159 C160 C161 C162 C163 C164 C165 C166 C167 C168 C169
1uF
0.1uF
C398 C399 C400 C401 C402 C403
470P

C493 C492 C494 C495 C491 C498 C497 C499 C500 C496 C503 C502 C504 C505 C501
0.1uF


U14-H
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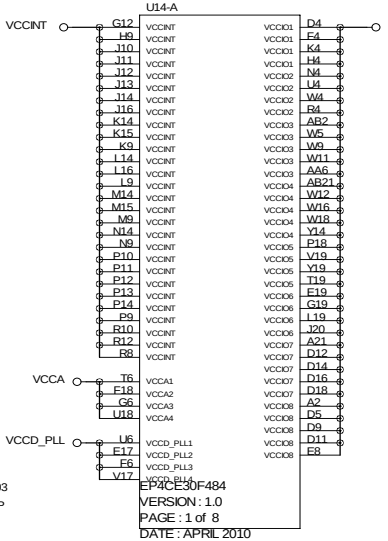
U14-A
VCCINT
VCCA
VCCD_PLL
EP4CE30F484
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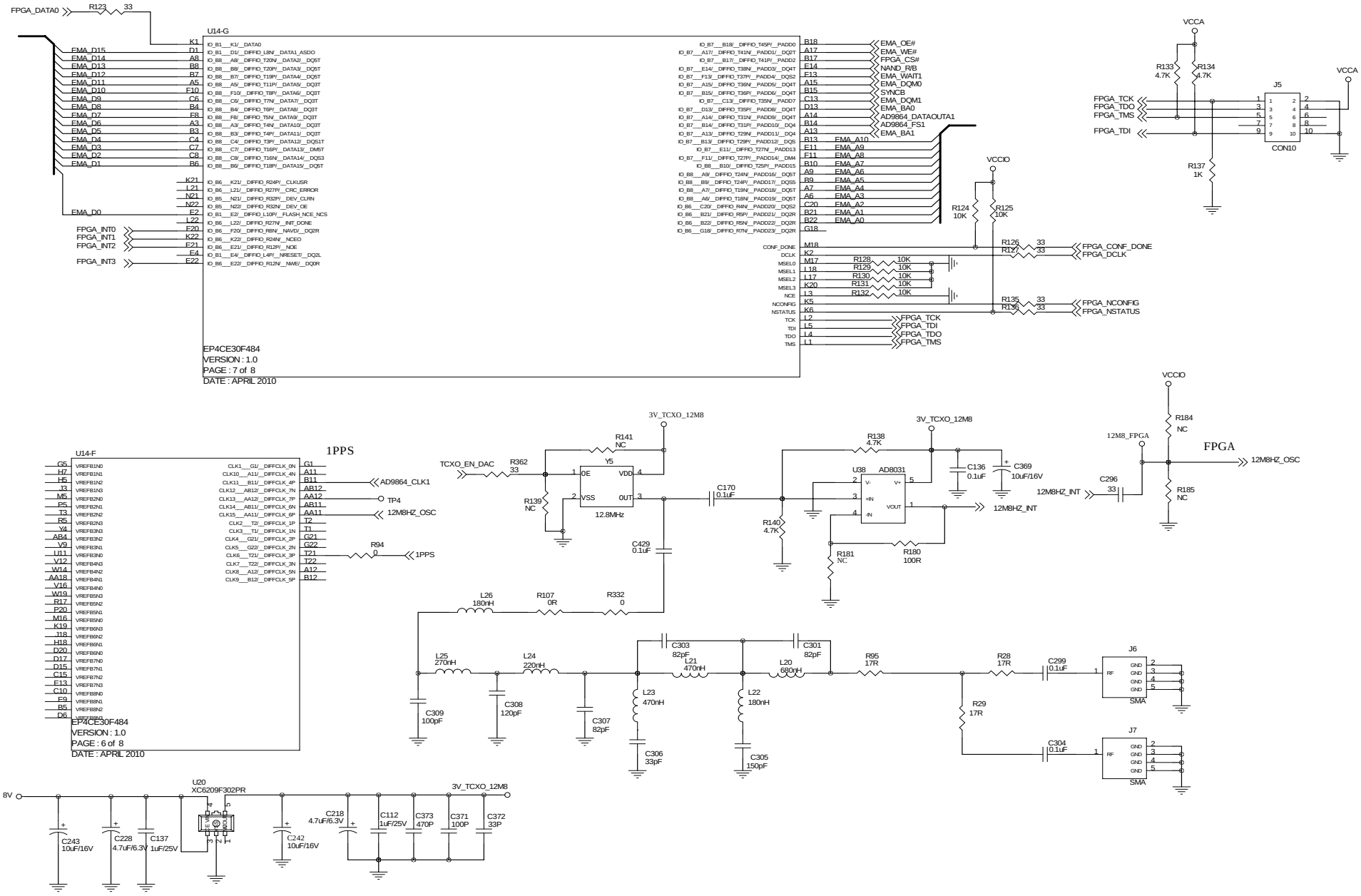
FPGA_DATA0
R123 33
U14-G
EMA_D15
EMA_D14
EMA_D13
EMA_D12
EMA_D11
EMA_D10
EMA_D9
EMA_D8
EMA_D7
EMA_D6
EMA_D5
EMA_D4
EMA_D3
EMA_D2
EMA_D1
EMA_D0
FPGA_INT0
FPGA_INT1
FPGA_INT2
FPGA_INT3
EMA_OE#
EMA_WE#
FPGA_CS#
NAND_R/B
EMA_WAIT1
EMA_DQM0
SYNCB
EMA_DQM1
EMA_BA0
AD9864_DATAOUTA1
AD9864_FS1
EMA_BA1
EMA_A10
EMA_A9
EMA_A8
EMA_A7
EMA_A6
EMA_A5
EMA_A4
EMA_A3
EMA_A2
EMA_A1
EMA_A0
CONF_DONE
DCLK
MSEL0
MSEL1
MSEL2
MSEL3
NCE
NCONFIG
NSTATUS
TCK
TDI
TDO
TMS
FPGA_TCK
FPGA_TDI
FPGA_TDO
FPGA_TMS
FPGA_CONF_DONE
FPGA_DCLK
FPGA_NCONFIG
FPGA_NSTATUS
VCCIO
VCCA
R124 10K
R125 10K
R126 33
R127 33
R128 10K
R129 10K
R130 10K
R131 10K
R132 10K
R135 33
R136 33
R133 4.7K
R134 4.7K
R137 1K
J5
CON10
EP4CE30F484
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U14-F
1PPS
AD9864_CLK1
TP4
12M8HZ_OSC
R94 0
1PPS
EP4CE30F484
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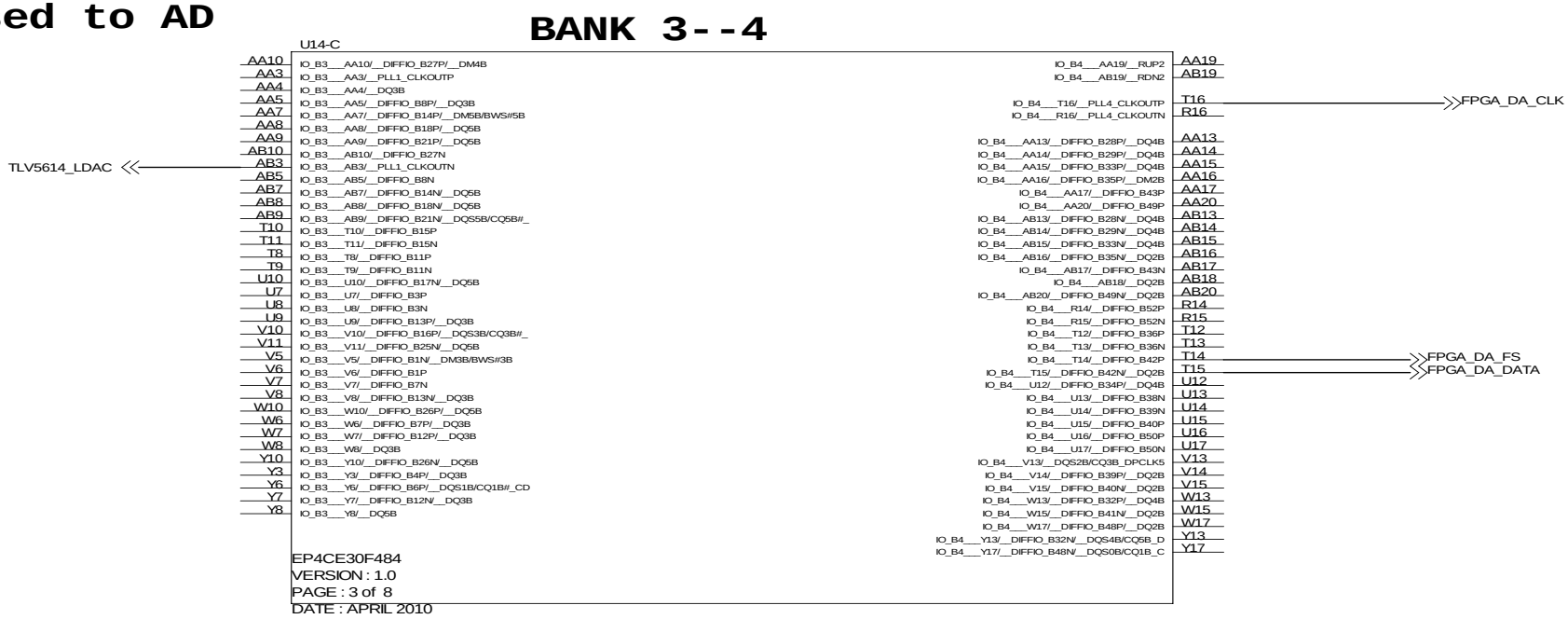
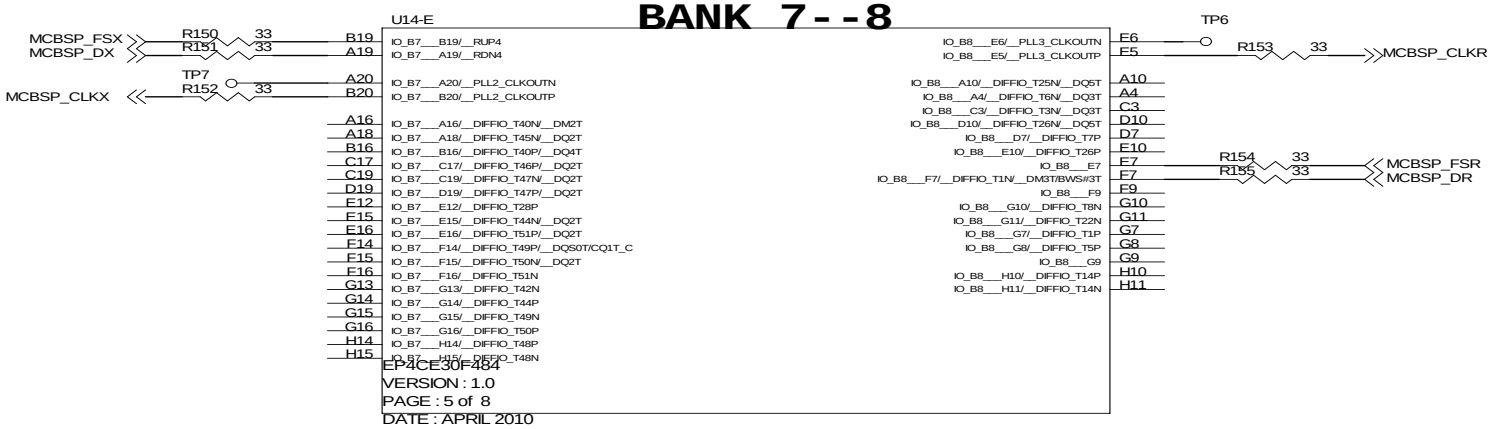
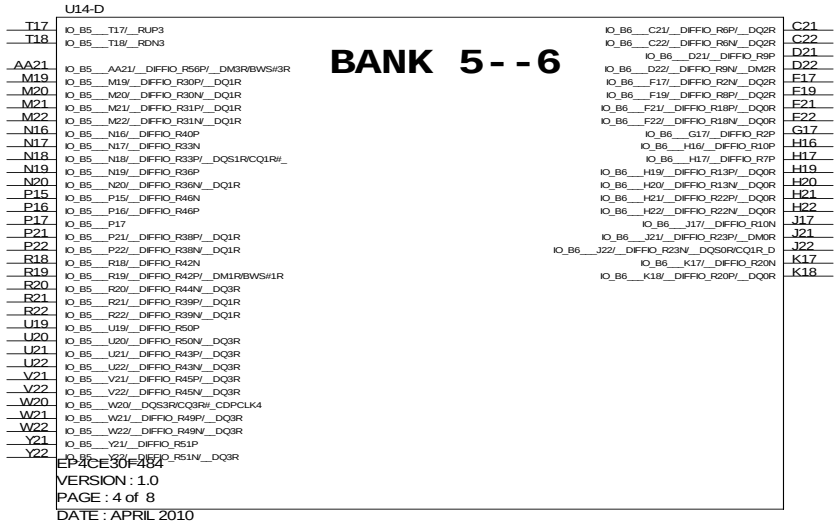
3V_TCXO_12M8
TCXO_EN_DAC
R362 33
R141 NC
R139 NC
Y5
12.8MHz
C170 0.1uF
C429 0.1uF
R138 4.7K
R140 4.7K
R181 NC
R180 100R
U38 AD8031
C136 0.1uF
C369 10uF/16V
12M8HZ_INT
12M8_FPGA
C296 33
R184 NC
R185 NC
FPGA
12M8HZ_OSC
L26 180nH
R107 0R
R332 0
L25 270nH
L24 220nH
L21 470nH
L20 680nH
L23 470nH
L22 180nH
C303 82pF
C301 82pF
C309 100pF
C308 120pF
C307 82pF
C306 33pF
C305 150pF
R95 17R
R28 17R
R29 17R
C299 0.1uF
C304 0.1uF
J6
J7
SMA
8V
U20
XC6209F302PR
C243 10uF/16V
C228 4.7uF/6.3V
C137 1uF/25V
C242 10uF/16V
C218 4.7uF/6.3V
C112 1uF/25V
C373 470P
C371 100P
C372 33P

PLL1 used to AD






U14-D
BANK 5--6
T17 IO_B5___T17/__RUP3
T18 IO_B5___T18/__RDN3
AA21 IO_B5___AA21/__DIFFIO_R56P/__DM3R/BWS#3R
M19 IO_B5___M19/__DIFFIO_R30P/__DQ1R
M20 IO_B5___M20/__DIFFIO_R30N/__DQ1R
M21 IO_B5___M21/__DIFFIO_R31P/__DQ1R
M22 IO_B5___M22/__DIFFIO_R31N/__DQ1R
N16 IO_B5___N16/__DIFFIO_R40P
N17 IO_B5___N17/__DIFFIO_R33N
N18 IO_B5___N18/__DIFFIO_R33P/__DQS1R/CQ1R#_
N19 IO_B5___N19/__DIFFIO_R36P
N20 IO_B5___N20/__DIFFIO_R36N/__DQ1R
P15 IO_B5___P15/__DIFFIO_R46N
P16 IO_B5___P16/__DIFFIO_R46P
P17 IO_B5___P17
P21 IO_B5___P21/__DIFFIO_R38P/__DQ1R
P22 IO_B5___P22/__DIFFIO_R38N/__DQ1R
R18 IO_B5___R18/__DIFFIO_R42N
R19 IO_B5___R19/__DIFFIO_R42P/__DM1R/BWS#1R
R20 IO_B5___R20/__DIFFIO_R44N/__DQ3R
R21 IO_B5___R21/__DIFFIO_R39P/__DQ1R
R22 IO_B5___R22/__DIFFIO_R39N/__DQ1R
U19 IO_B5___U19/__DIFFIO_R50P
U20 IO_B5___U20/__DIFFIO_R50N/__DQ3R
U21 IO_B5___U21/__DIFFIO_R43P/__DQ3R
U22 IO_B5___U22/__DIFFIO_R43N/__DQ3R
V21 IO_B5___V21/__DIFFIO_R45P/__DQ3R
V22 IO_B5___V22/__DIFFIO_R45N/__DQ3R
W20 IO_B5___W20/__DQS3R/CQ3R#_CDPCLK4
W21 IO_B5___W21/__DIFFIO_R49P/__DQ3R
W22 IO_B5___W22/__DIFFIO_R49N/__DQ3R
Y21 IO_B5___Y21/__DIFFIO_R51P
Y22 IO_B5___Y22/__DIFFIO_R51N/__DQ3R
C21 IO_B6___C21/__DIFFIO_R6P/__DQ2R
C22 IO_B6___C22/__DIFFIO_R6N/__DQ2R
D21 IO_B6___D21/__DIFFIO_R9P
D22 IO_B6___D22/__DIFFIO_R9N/__DM2R
F17 IO_B6___F17/__DIFFIO_R2N/__DQ2R
F19 IO_B6___F19/__DIFFIO_R8P/__DQ2R
F21 IO_B6___F21/__DIFFIO_R18P/__DQ0R
F22 IO_B6___F22/__DIFFIO_R18N/__DQ0R
G17 IO_B6___G17/__DIFFIO_R2P
H16 IO_B6___H16/__DIFFIO_R10P
H17 IO_B6___H17/__DIFFIO_R7P
H19 IO_B6___H19/__DIFFIO_R13P/__DQ0R
H20 IO_B6___H20/__DIFFIO_R13N/__DQ0R
H21 IO_B6___H21/__DIFFIO_R22P/__DQ0R
H22 IO_B6___H22/__DIFFIO_R22N/__DQ0R
J17 IO_B6___J17/__DIFFIO_R10N
J21 IO_B6___J21/__DIFFIO_R23P/__DM0R
J22 IO_B6___J22/__DIFFIO_R23N/__DQS0R/CQ1R_D
K17 IO_B6___K17/__DIFFIO_R20N
K18 IO_B6___K18/__DIFFIO_R20P/__DQ0R
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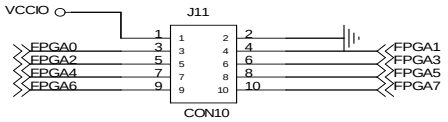
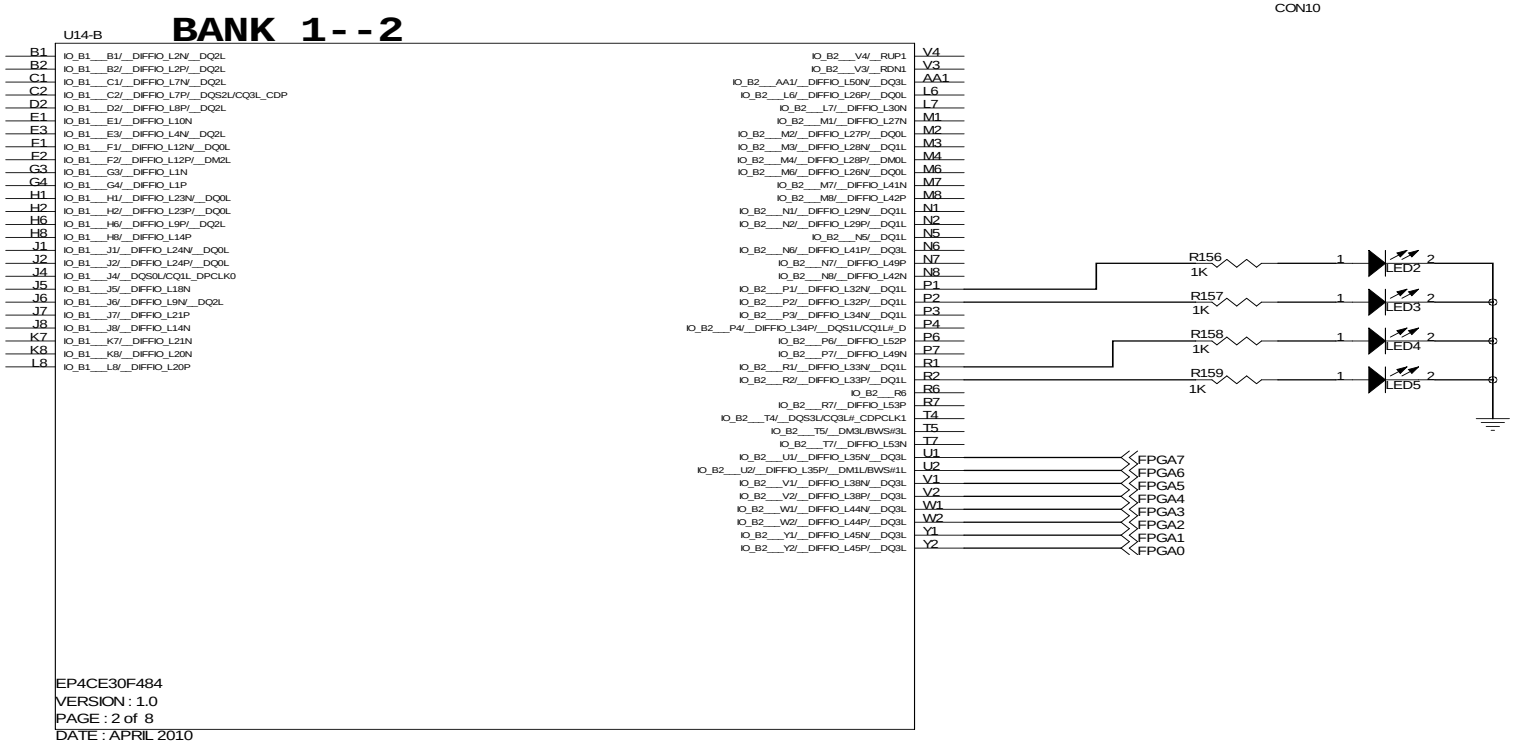

VCCIO
J11
FPGA0 3
FPGA2 5
FPGA4 7
FPGA6 9
1
2
4
6
8
10
FPGA1
FPGA3
FPGA5
FPGA7
CON10


U14-B
BANK 1--2
B1 IO_B1___B1/__DIFFIO_L2N/__DQ2L
B2 IO_B1___B2/__DIFFIO_L2P/__DQ2L
C1 IO_B1___C1/__DIFFIO_L7N/__DQ2L
C2 IO_B1___C2/__DIFFIO_L7P/__DQS2L/CQ3L_CDP
D2 IO_B1___D2/__DIFFIO_L8P/__DQ2L
E1 IO_B1___E1/__DIFFIO_L10N
E3 IO_B1___E3/__DIFFIO_L4N/__DQ2L
F1 IO_B1___F1/__DIFFIO_L12N/__DQ0L
F2 IO_B1___F2/__DIFFIO_L12P/__DM2L
G3 IO_B1___G3/__DIFFIO_L1N
G4 IO_B1___G4/__DIFFIO_L1P
H1 IO_B1___H1/__DIFFIO_L23N/__DQ0L
H2 IO_B1___H2/__DIFFIO_L23P/__DQ0L
H6 IO_B1___H6/__DIFFIO_L9P/__DQ2L
H8 IO_B1___H8/__DIFFIO_L14P
J1 IO_B1___J1/__DIFFIO_L24N/__DQ0L
J2 IO_B1___J2/__DIFFIO_L24P/__DQ0L
J4 IO_B1___J4/__DQS0L/CQ1L_DPCLK0
J5 IO_B1___J5/__DIFFIO_L18N
J6 IO_B1___J6/__DIFFIO_L9N/__DQ2L
J7 IO_B1___J7/__DIFFIO_L21P
J8 IO_B1___J8/__DIFFIO_L14N
K7 IO_B1___K7/__DIFFIO_L21N
K8 IO_B1___K8/__DIFFIO_L20N
L8 IO_B1___L8/__DIFFIO_L20P
V4 IO_B2___V4/__RUP1
V3 IO_B2___V3/__RDN1
AA1 IO_B2___AA1/__DIFFIO_L50N/__DQ3L
L6 IO_B2___L6/__DIFFIO_L26P/__DQ0L
L7 IO_B2___L7/__DIFFIO_L30N
M1 IO_B2___M1/__DIFFIO_L27N
M2 IO_B2___M2/__DIFFIO_L27P/__DQ0L
M3 IO_B2___M3/__DIFFIO_L28N/__DQ1L
M4 IO_B2___M4/__DIFFIO_L28P/__DM0L
M6 IO_B2___M6/__DIFFIO_L26N/__DQ0L
M7 IO_B2___M7/__DIFFIO_L41N
M8 IO_B2___M8/__DIFFIO_L42P
N1 IO_B2___N1/__DIFFIO_L29N/__DQ1L
N2 IO_B2___N2/__DIFFIO_L29P/__DQ1L
N5 IO_B2___N5/__DQ1L
N6 IO_B2___N6/__DIFFIO_L41P/__DQ3L
N7 IO_B2___N7/__DIFFIO_L49P
N8 IO_B2___N8/__DIFFIO_L42N
P1 IO_B2___P1/__DIFFIO_L32N/__DQ1L
P2 IO_B2___P2/__DIFFIO_L32P/__DQ1L
P3 IO_B2___P3/__DIFFIO_L34N/__DQ1L
P4 IO_B2___P4/__DIFFIO_L34P/__DQS1L/CQ1L#_D
P6 IO_B2___P6/__DIFFIO_L52P
P7 IO_B2___P7/__DIFFIO_L49N
R1 IO_B2___R1/__DIFFIO_L33N/__DQ1L
R2 IO_B2___R2/__DIFFIO_L33P/__DQ1L
R6 IO_B2___R6
R7 IO_B2___R7/__DIFFIO_L53P
T4 IO_B2___T4/__DQS3L/CQ3L#_CDPCLK1
T5 IO_B2___T5/__DM3L/BWS#3L
T7 IO_B2___T7/__DIFFIO_L53N
U1 IO_B2___U1/__DIFFIO_L35N/__DQ3L
U2 IO_B2___U2/__DIFFIO_L35P/__DM1L/BWS#1L
V1 IO_B2___V1/__DIFFIO_L38N/__DQ3L
V2 IO_B2___V2/__DIFFIO_L38P/__DQ3L
W1 IO_B2___W1/__DIFFIO_L44N/__DQ3L
W2 IO_B2___W2/__DIFFIO_L44P/__DQ3L
Y1 IO_B2___Y1/__DIFFIO_L45N/__DQ3L
Y2 IO_B2___Y2/__DIFFIO_L45P/__DQ3L
FPGA7
FPGA6
FPGA5
FPGA4
FPGA3
FPGA2
FPGA1
FPGA0
R156 1K
R157 1K
R158 1K
R159 1K
LED2
LED3
LED4
LED5
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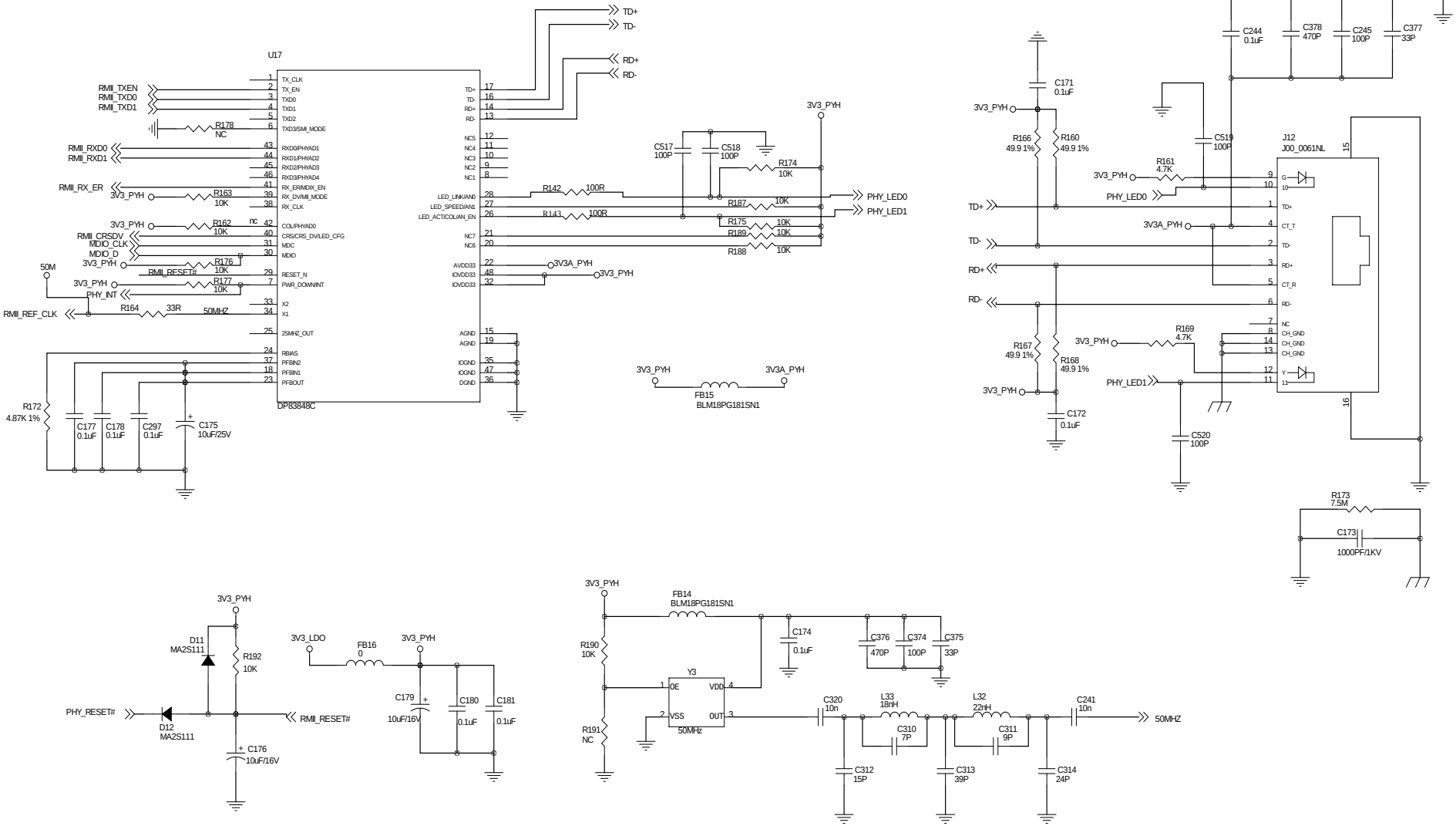
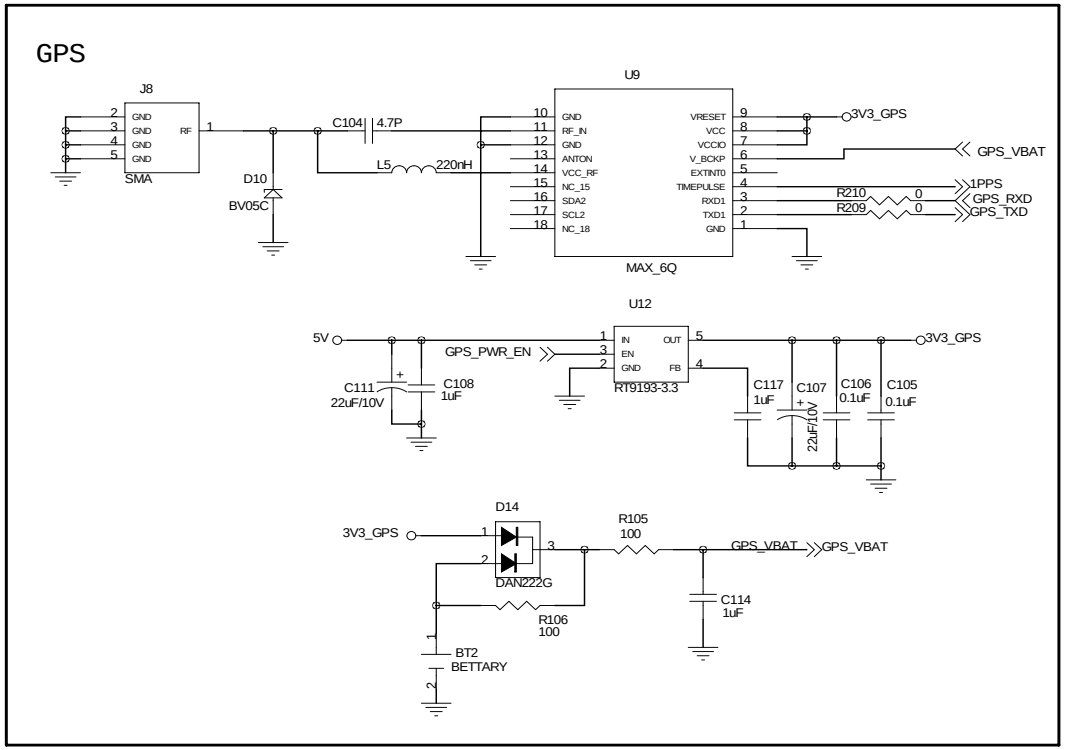
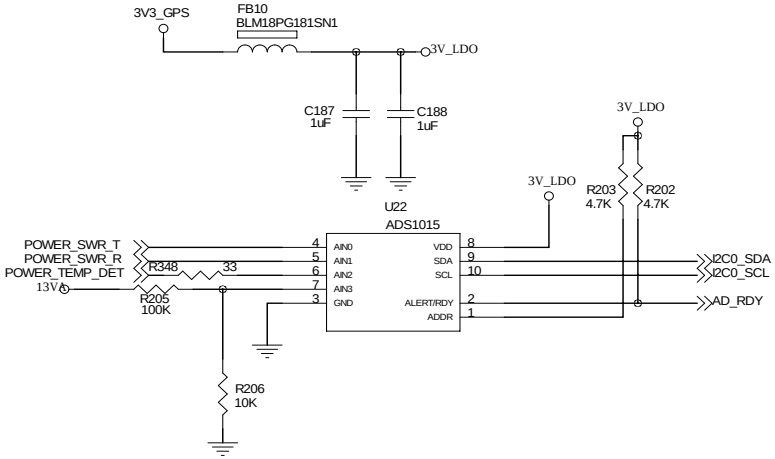
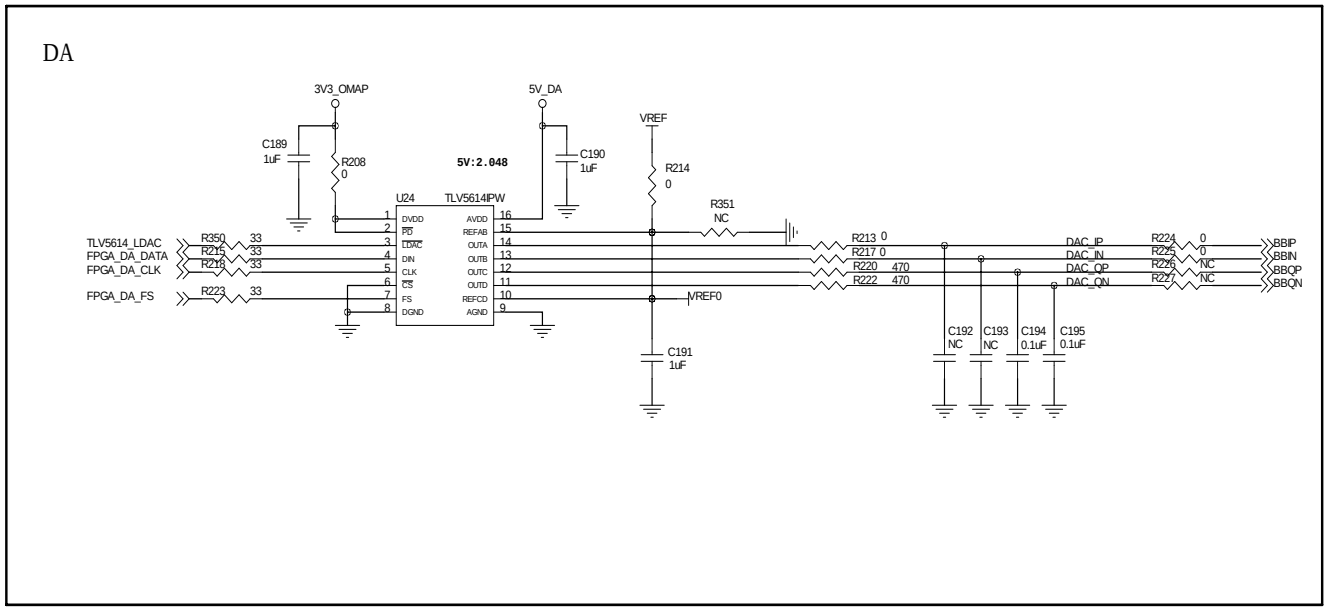
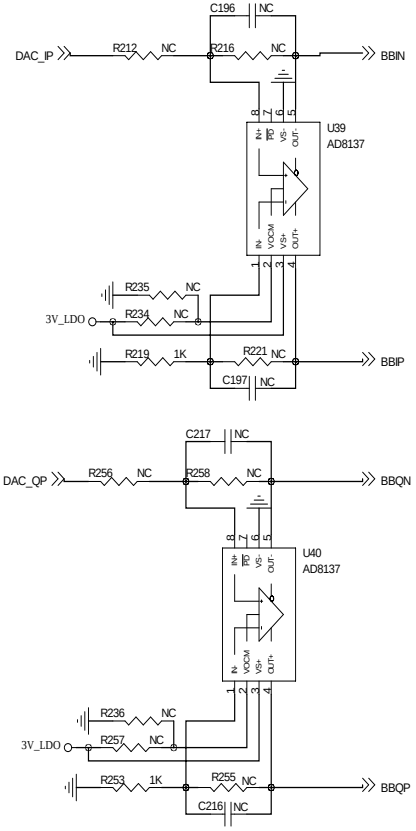
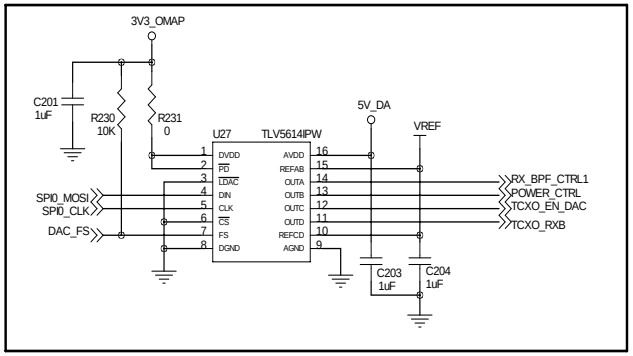

U17
DP83848C
RMII_TXEN
RMII_TXD0
RMII_TXD1
RMII_RXD0
RMII_RXD1
RMII_RX_ER
RMII_CRSDV
MDIO_CLK
MDIO_D
RMII_RESET#
PHY_INT
RMII_REF_CLK
50M
50MHZ
TD+
TD-
RD+
RD-
PHY_LED0
PHY_LED1
3V3_PYH
3V3A_PYH
R178 NC
R163 10K
R162 10K
R176 10K
R177 10K
R164 33R
R142 100R
R143 100R
R174 10K
R187 10K
R175 10K
R189 10K
R188 10K
R172 4.87K 1%
C177 0.1uF
C178 0.1uF
C297 0.1uF
C175 10uF/25V
C517 100P
C518 100P
FB15 BLM18PG181SN1
C171 0.1uF
C244 0.1uF
C378 470P
C245 100P
C377 33P
R166 49.9 1%
R160 49.9 1%
R161 4.7K
C519 100P
J12 J00_0061NL
R169 4.7K
R167 49.9 1%
R168 49.9 1%
C172 0.1uF
C520 100P
R173 7.5M
C173 1000PF/1KV
D11 MA2S111
D12 MA2S111
R192 10K
3V3_LDO
FB16 0
C179 10uF/16V
C180 0.1uF
C181 0.1uF
C176 10uF/16V
FB14 BLM18PG181SN1
R190 10K
R191 NC
Y3 50MHz
C174 0.1uF
C376 470P
C374 100P
C375 33P
C320 10n
L33 18nH
L32 22nH
C241 10n
C310 7P
C311 9P
C312 15P
C313 39P
C314 24P

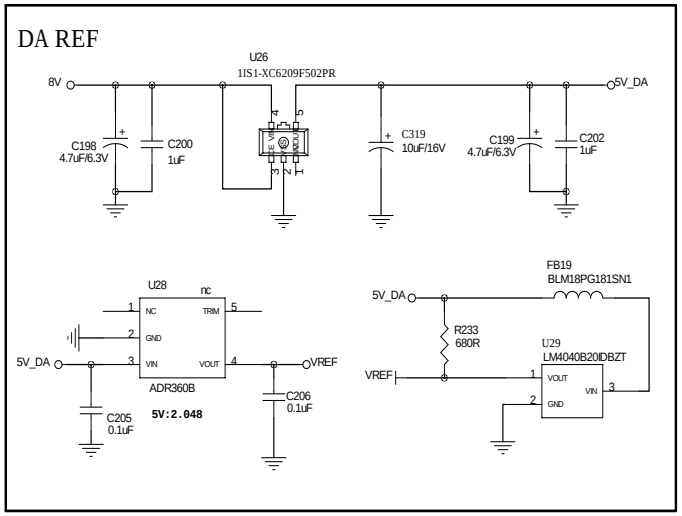

GPS
J8
SMA
D10
BV05C
C104 4.7P
L5 220nH
U9
MAX_6Q
3V3_GPS
GPS_VBAT
1PPS
GPS_RXD
GPS_TXD
R210 0
R209 0
U12
RT9193-3.3
5V
GPS_PWR_EN
C111 22uF/10V
C108 1uF
C117 1uF
C107 22uF/10V
C106 0.1uF
C105 0.1uF
D14
DAN222G
R105 100
R106 100
C114 1uF
BT2
BETTARY

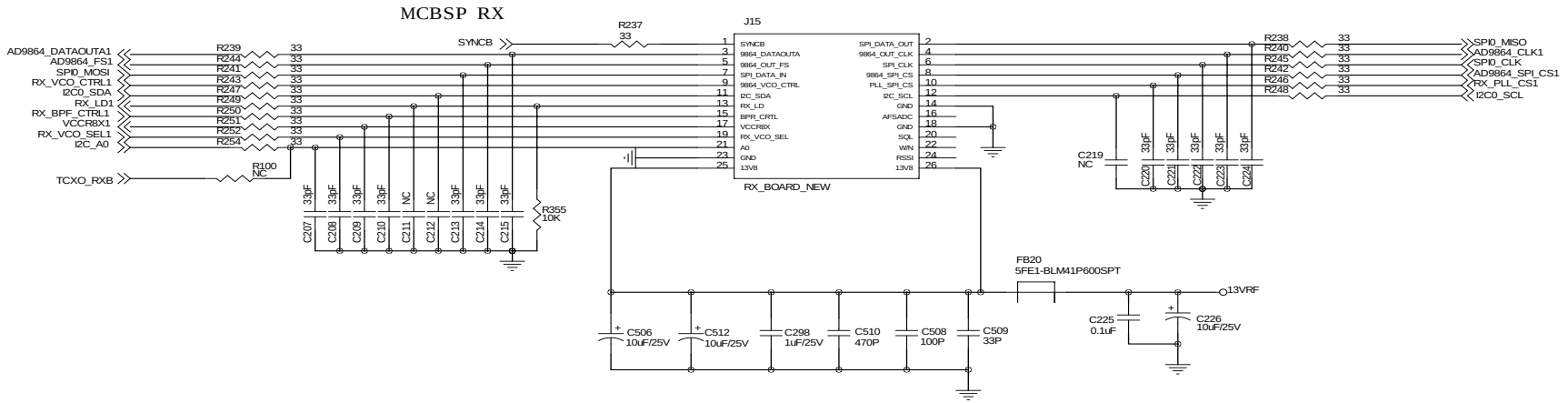

3V3_GPS
FB10
BLM18PG181SN1
3V_LDO
C187 1uF
C188 1uF
U22
ADS1015
R203 4.7K
R202 4.7K
POWER_SWR_T
POWER_SWR_R
POWER_TEMP_DET
13V
R348 33
R205 100K
R206 10K
I2C0_SDA
I2C0_SCL
AD_RDY

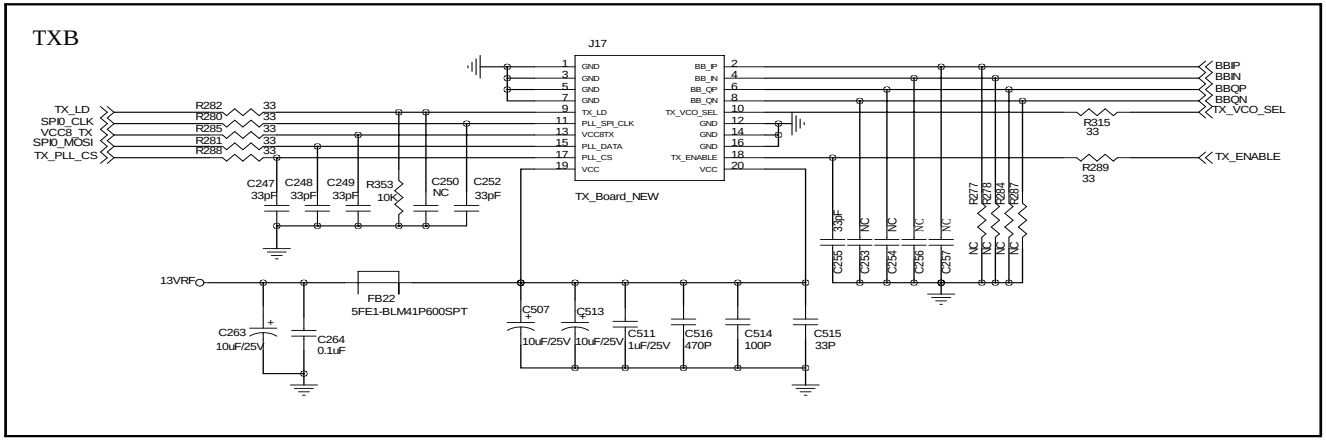

DA
3V3_OMAP
5V_DA
VREF
C189
1uF
R208
0
5V:2.048
C190
1uF
R214
0
U24
TLV5614IPW
R351
NC
TLV5614_LDAC
FPGA_DA_DATA
FPGA_DA_CLK
FPGA_DA_FS
R350
R215
R219
R223
33
R213 0
R217 0
R220 470
R222 470
DAC_IP
DAC_IN
DAC_QP
DAC_QN
R224 0
R225 0
R226 NC
R227 NC
BBIP
BBIN
BBQP
BBQN
VREF0
C191
1uF
C192
NC
C193
NC
C194
0.1uF
C195
0.1uF

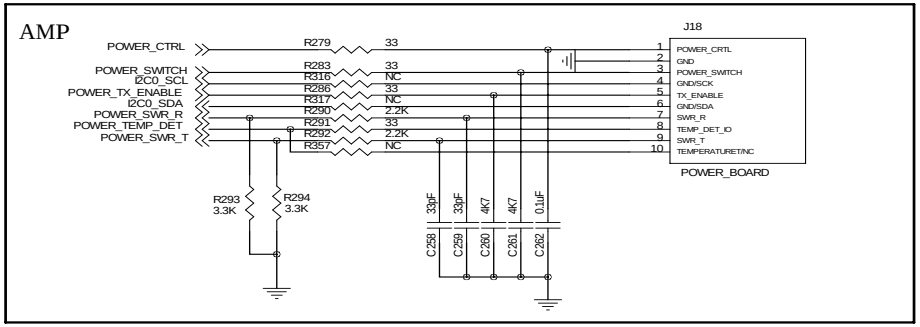

C196
NC
DAC_IP
R212
NC
R216
NC
BBIN
U39
AD8137
R235
NC
3V_LDO
R234
NC
R219
1K
R221
NC
BBIP
C197
NC
C217
NC
DAC_QP
R256
NC
R258
NC
BBQN
U40
AD8137
R236
NC
3V_LDO
R257
NC
R253
1K
R255
NC
BBQP
C216
NC

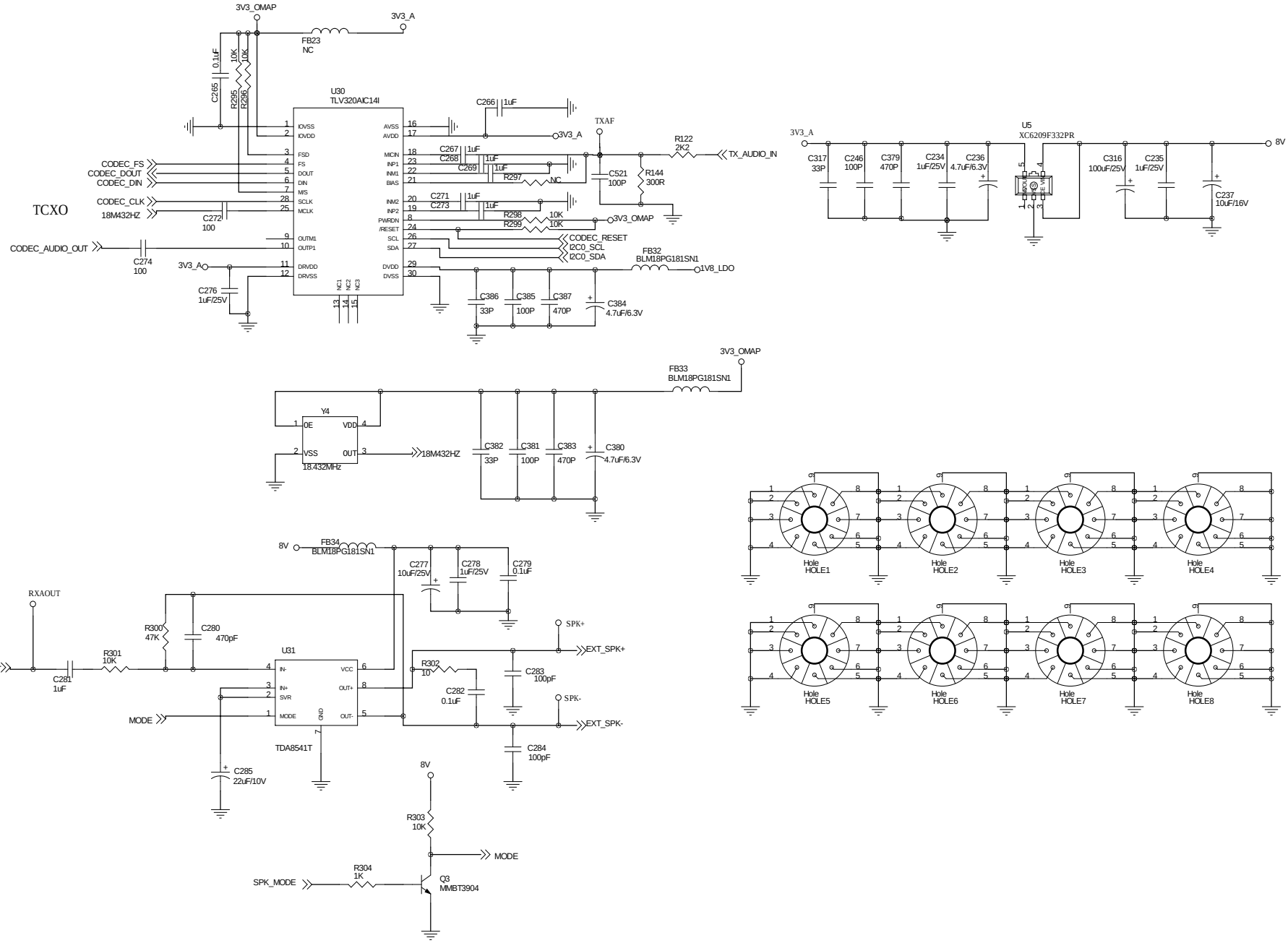

3V3_OMAP
C201
1uF
R230
10K
R231
0
U27
TLV5614IPW
5V_DA
VREF
SPI0_MOSI
SPI0_CLK
DAC_FS
RX_BPF_CTRL1
POWER_CTRL
TCXO_EN_DAC
TCXO_RXB
C203
1uF
C204
1uF


DA REF
U26
1IS1-XC6209F502PR
8V
5V_DA
C198
4.7uF/6.3V
C200
1uF
C319
10uF/16V
C199
4.7uF/6.3V
C202
1uF
U28
nc
ADR360B
5V:2.048
5V_DA
VREF
C205
0.1uF
C206
0.1uF
FB19
BLM18PG181SN1
R233
680R
U29
LM4040B20IDBZT


MCBSP RX
J15
RX_BOARD_NEW
SYNCB
AD9864_DATAOUTA1
AD9864_FS1
SPI0_MOSI
RX_VCO_CTRL1
I2C0_SDA
RX_LD1
RX_BPF_CTRL1
VCCR8X1
RX_VCO_SEL1
I2C_A0
TCXO_RXB
SPI0_MISO
AD9864_CLK1
SPI0_CLK
AD9864_SPI_CS1
RX_PLL_CS1
I2C0_SCL
FB20
5FE1-BLM41P600SPT
13VRF


TXB
J17
TX_Board_NEW
TX_LD
SPI0_CLK
VCC8_TX
SPI0_MOSI
TX_PLL_CS
BBIP
BBIN
BBQP
BBQN
TX_VCO_SEL
TX_ENABLE
FB22
5FE1-BLM41P600SPT
13VRF


AMP
J18
POWER_BOARD
POWER_CTRL
POWER_SWITCH
I2C0_SCL
POWER_TX_ENABLE
I2C0_SDA
POWER_SWR_R
POWER_TEMP_DET
POWER_SWR_T


3V3_OMAP
3V3_A
FB23
NC
C265 0.1uF
R295 10K
R296 10K
U30
TLV320AIC14I
C266 1uF
TXAF
R122
2K2
TX_AUDIO_IN
CODEC_FS
CODEC_DOUT
CODEC_DIN
CODEC_CLK
18M432HZ
C272
100
TCXO
C267 1uF
C268 1uF
C269 1uF
R297 NC
C521
100P
R144
300R
C271 1uF
C273 1uF
R298 10K
R299 10K
3V3_OMAP
CODEC_AUDIO_OUT
C274
100
3V3_A
C276
1uF/25V
CODEC_RESET
I2C0_SCL
I2C0_SDA
FB32
BLM18PG181SN1
1V8_LDO
C386
33P
C385
100P
C387
470P
C384
4.7uF/6.3V
3V3_A
U5
XC6209F332PR
8V
C317
33P
C246
100P
C379
470P
C234
1uF/25V
C236
4.7uF/6.3V
C316
100uF/25V
C235
1uF/25V
C237
10uF/16V
3V3_OMAP
FB33
BLM18PG181SN1
Y4
0E
VDD
VSS
0UT
18.432MHz
18M432HZ
C382
33P
C381
100P
C383
470P
C380
4.7uF/6.3V
8V
FB34
BLM18PG181SN1
C277
10uF/25V
C278
1uF/25V
C279
0.1uF
RXAOUT
R300
47K
C280
470pF
R301
10K
CODEC_AUDIO_OUT
C281
1uF
U31
TDA8541T
MODE
R302
10
C282
0.1uF
SPK+
EXT_SPK+
C283
100pF
SPK-
EXT_SPK-
C284
100pF
C285
22uF/10V
8V
R303
10K
MODE
R304
1K
SPK_MODE
Q3
MMBT3904
Hole
HOLE1
Hole
HOLE2
Hole
HOLE3
Hole
HOLE4
Hole
HOLE5
Hole
HOLE6
Hole
HOLE7
Hole
HOLE8

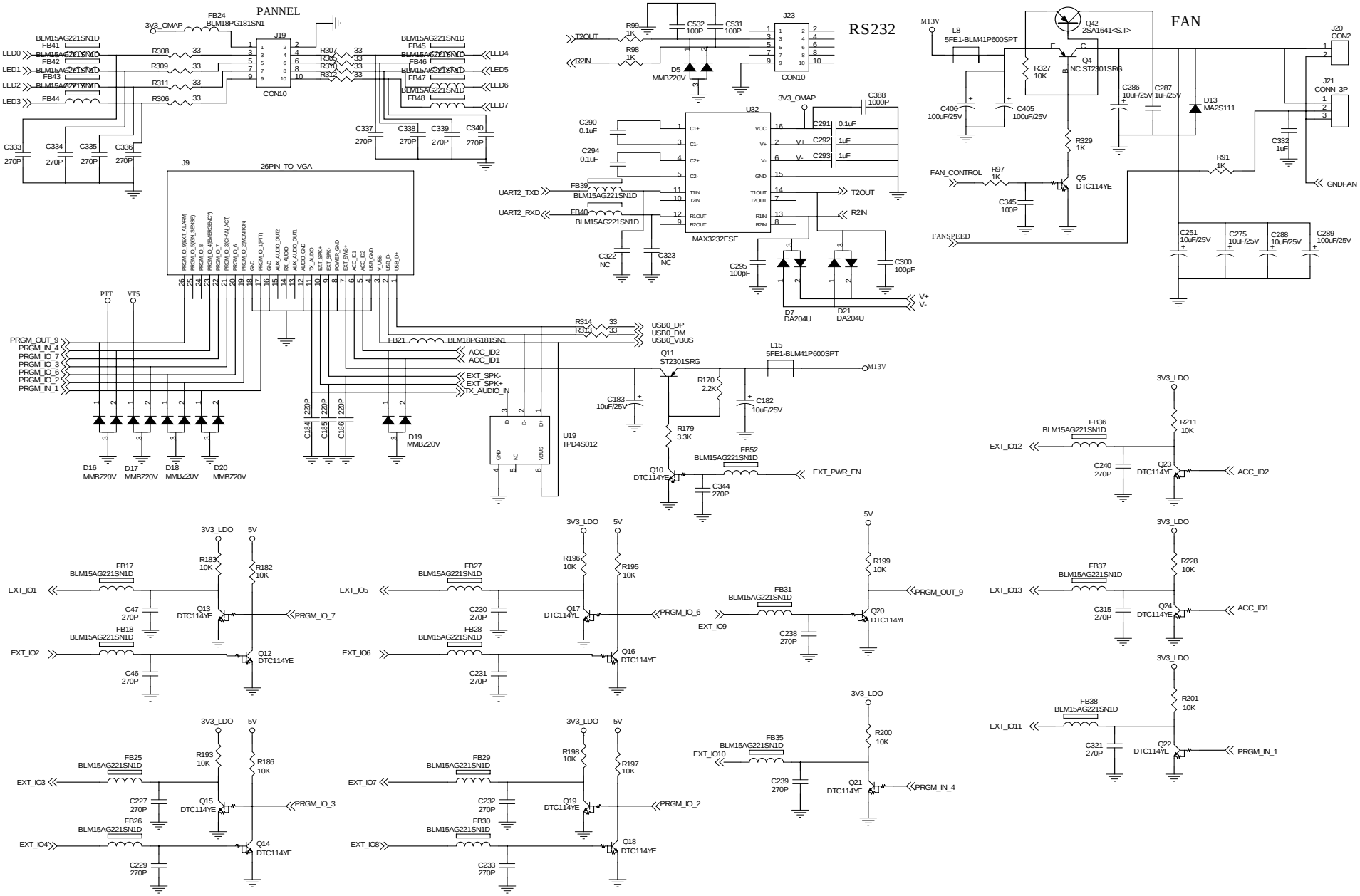

PANNEL
RS232
FAN
26PIN_TO_VGA
MAX3232ESE
TPD4S012
PRGM_OUT_9
PRGM_IN_4
PRGM_IO_7
PRGM_IO_3
PRGM_IO_6
PRGM_IO_2
PRGM_IN_1
EXT_PWR_EN
ACC_ID2
ACC_ID1
EXT_SPK-
EXT_SPK+
TX_AUDIO_IN
USB0_DP
USB0_DM
USB0_VBUS
UART2_TXD
UART2_RXD
T2OUT
R2IN
V+
V-
FAN_CONTROL
FANSPEED
GNDFAN
PTT
VT5
3V3_LDO
5V
M13V
EXT_IO1
EXT_IO2
EXT_IO3
EXT_IO4
EXT_IO5
EXT_IO6
EXT_IO7
EXT_IO8
EXT_IO9
EXT_IO10
EXT_IO11
EXT_IO12
EXT_IO13

Figure 17 Front Pannel Schemetic Diagram

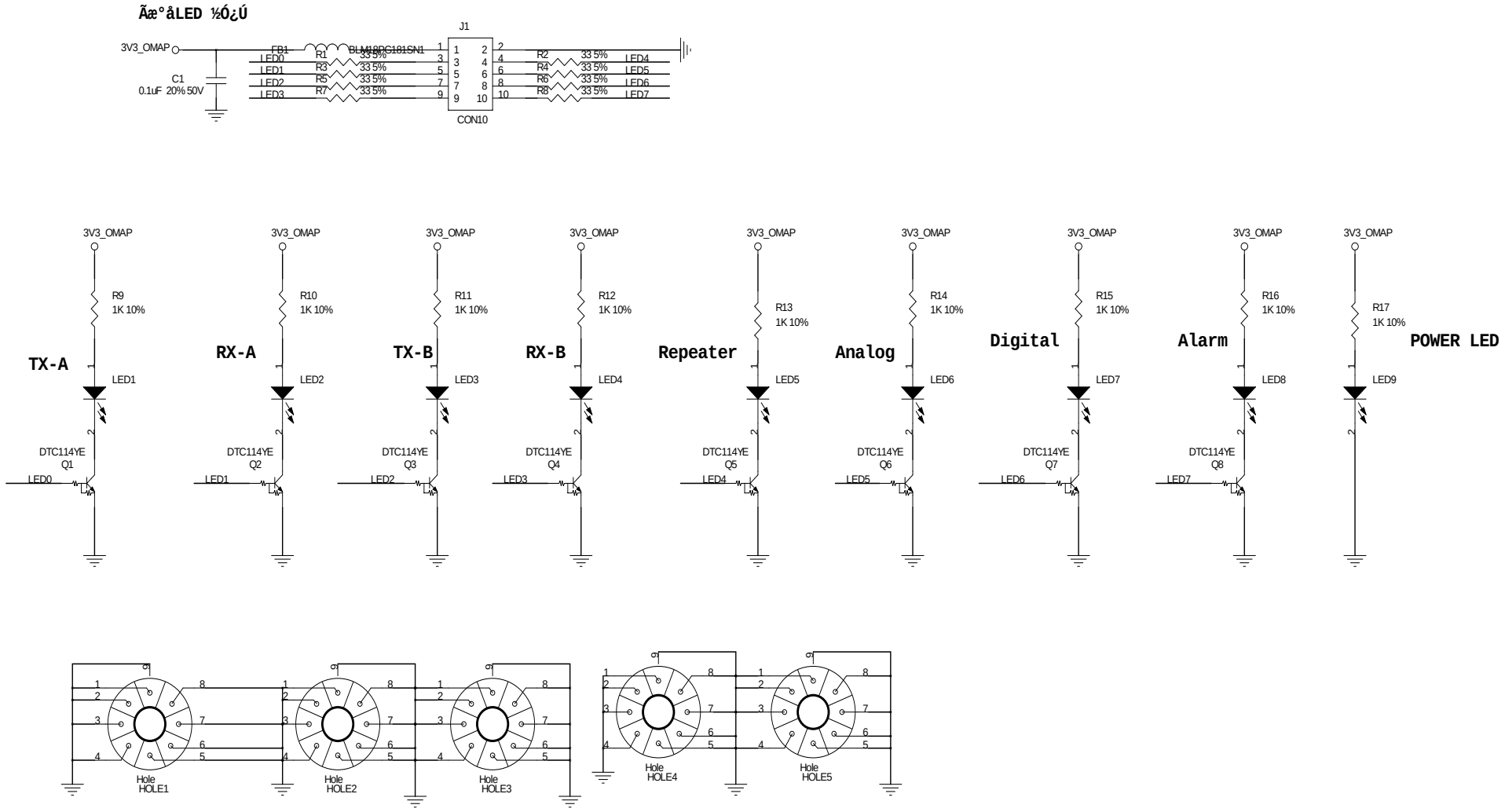


Figure 18 Power Board Schemetic

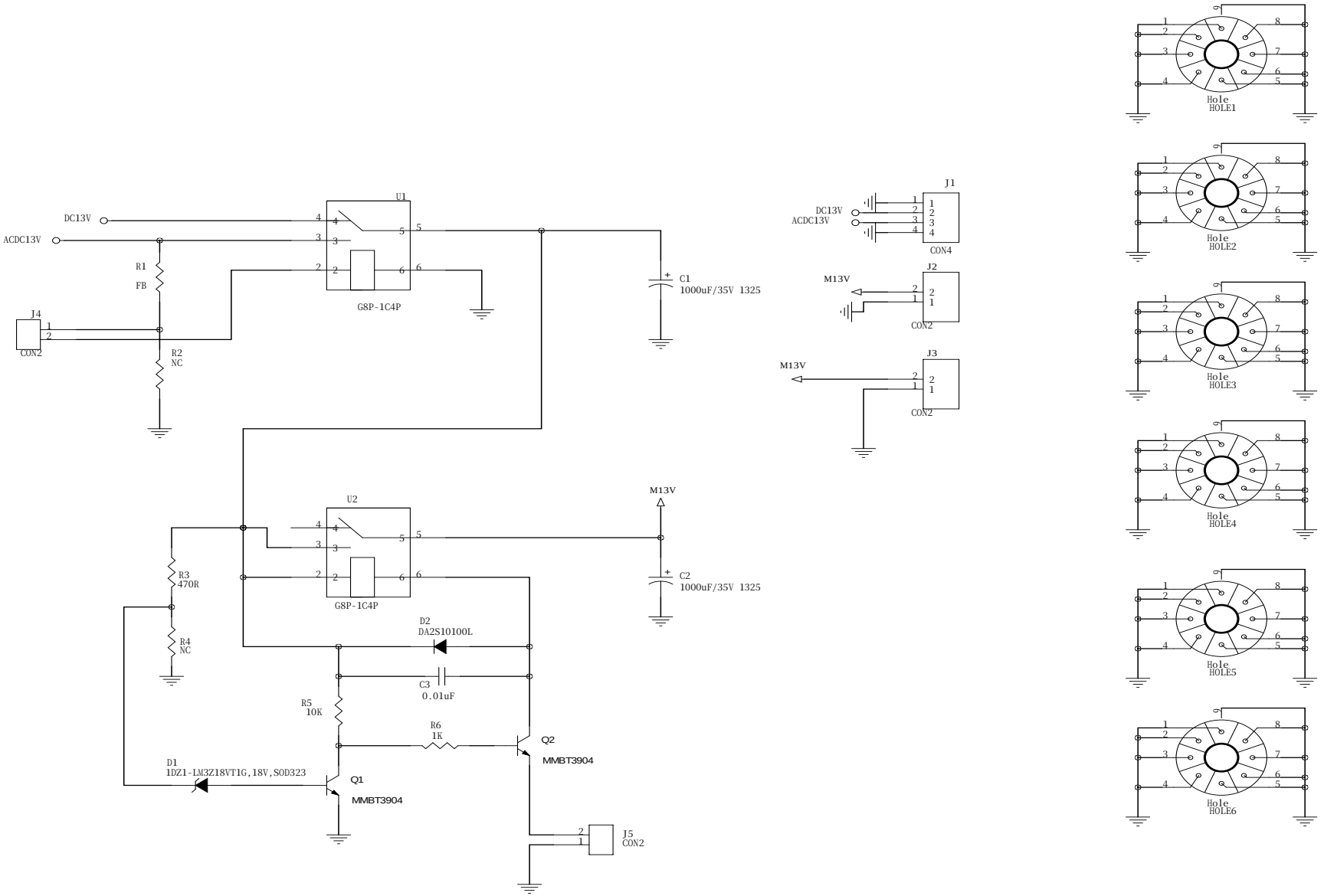


Figure 19 Accessory Schematic Diagram