



Professional wireless communication system solution supplier



FP560

Service Manual

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1. Overview

1.1. Scope

This manual is applied to service and maintenance of FP560 FM portable radios, and is intended for use by engineers and professional technicians that have been trained by Kirisun. It contains all the required service information for the equipment. Kirisun reserves the right to modify the product structure and specifications without notice in order to enhance product performance and quality. You can also contact your local dealer or us to get the latest service manual.

Please read this manual before repairing the product.

1.2. Safety Precaution

Electromagnetic Radiation

Radios will generate and radiate electromagnetic energy during transmit mode. Kirisun radio is designed to comply with national and international standards for human exposure to radio frequency electromagnetic energy. To derive optimal performance, and to guarantee that the electromagnetic radiation does no harm to you, always keep the radio in a vertical position to the ground and make sure that the microphone is 2-5cms from your mouth while using.

Electromagnetic Interference

In order to avoid electromagnetic interference, please turn off the radio in the place where there is a warning, e.g. hospital, health care center, airport and etc.

Explosive Atmosphere

It's prohibited to use radios in the following places:

Areas with a potentially explosive atmosphere, e.g. the lower deck of the ship, the storage and transportation equipment for fuel and chemical, places where there are chemical substances, particles, dust or metal dust.

Places near blasting sites or area with electrical blasting cap.

It is also prohibited to change or charge the battery in any area with a potentially explosive atmosphere.

Antenna

If the antenna is damaged, do not use the radio. Damaged antenna may cause light burning to skin.

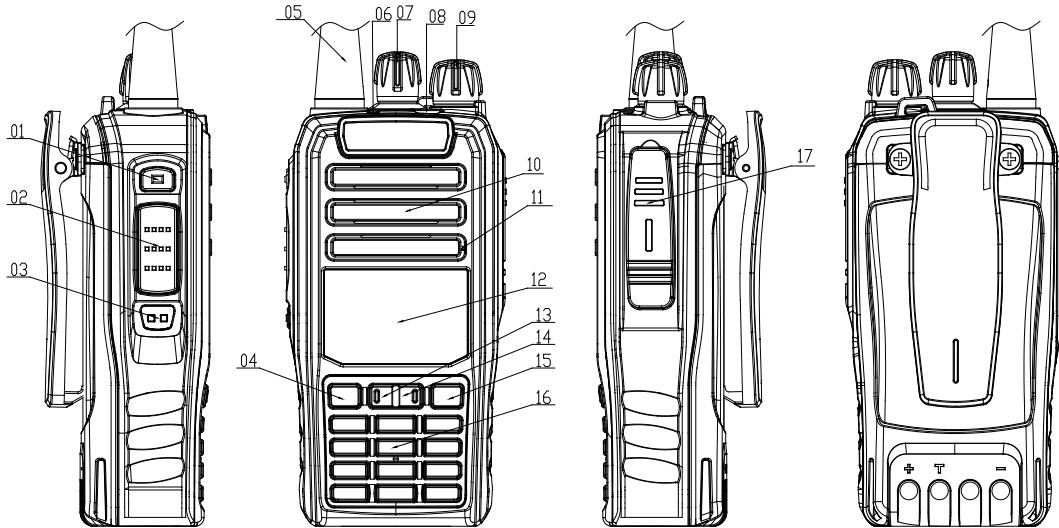
Replacement Parts

All the components should be supplied by Kirisun.

Please use the components with the corresponding model number for repair. Do not take the risk of using any improper components which are not required in Kirisun's service manual.

2. External View and Functional Keys

2.1. External View and Functional Keys



No.	Part Name	No	Part Name
01	Side Button 1 (Programmable Button)	02	PTT (PUSH-TO-TALK) Button Press and hold the PTT button and talk to the microphone to transmit; release it to listen.
03	Side Button 2 (Programmable Button)	04	Menu Key Press the menu key and enter the menu in the standby status. During the menu operation, press the key to confirm the option.
05	Antenna	06	LED Indicator The LED indicator glows red when transmitting, and glows green when receiving. The indicator flashes red in the condition of low battery.
07	Channel Knob Rotate to select channel 1-16.	08	Top Key (programmable key)
09	Power/Volume Switch: Rotate the switch clockwise to turn on the radio, and counter-clockwise it until a click is heard to turn off the radio. Rotate the switch to adjust the volume when the radio is powered-on.	10	Speaker

11	Microphone	12	LCD Screen It indicates the operation status of the radio. Please see other chapters for more details.
13	Up Key	14	Down Key
15	Delete Key	16	Digital Keyboard There are 12 keys in total. Press these keys to enter the numbers and edit the text or new contact.
17	Speaker/Microphone interface Open the cover to connect the external speaker and microphone.		

2.2. Programmable Button

You can require the dealer to program the keys listed below as shortcuts to certain functions for your convenience:

- Long press key and short press key can be set: side button 1, side button 2
- Long press key can be set: menu key, delete key

Note:

- Short Press: Press and release it quickly.
- Long Press: Press and hold it down for 2 seconds, then release.

Available Functions	Description
None	No feature will be enabled.
Zone up	If the radio has multiple zones, the user can press the button to change the zone from small to large.
Zone down	If the radio has multiple zones, the user could press the button to change the zone from large to small.
Power Level Adjustment	Switch to high/low power.
Squelch level adjustment	Signal strength needed when adjusting RX signal
Scan	Receives the activity of other channels. Press the button to switch on/off the feature.
Nuisance (temporary) Delete	Delete the channel that is not currently needed when scanning.
Digital Encryption Enable/Disable	Enable/disable Encryption on the channel that supports encryption feature.
Channel Announce	Announces the current channel.
Talkaround	Select repeater/talkaround mode on the channel that allows using repeater.
VOX enable/disable	Enable/disable VOX.

Monitor Mementary	If there is CTCSS on the current analog channel, press the key and switch to carrier squelch mode to cancel the CTCSS feature; the voice will be output when the carrier is matched. Release the key to go back to the original status.
Monitor	If there is CTCSS on the current analog channel, press the key and switch to carrier squelch mode to cancel the CTCSS feature; the voice will be output when the carrier is matched; press the key again to go back to the original status.
Squelch off momentary	When this key is pressed, the squelch feature will be invalid, and the user can hear the weak signal on the channel. Release the button to recover the squelch feature.
Cancel Squelch	Disable Squelch to receive the weak signals on the analog channel
Emergency Alarm On	Enable the emergency alarm feature to seek help.
Emergency Alarm Off	Disable the emergency alarm feature.
VOX Electric Level Selection	Adjust the strength of VOX triggering electric level.
Battery Check	Check the current battery power.
Whisper	Enable/disable Whisper. The receiver can hear clearly when you speak in a low voice when this feature is enabled.

2.3. LED Indicator

- The LED lights up red when transmitting
- The LED lights up green when receiving
- The LED flashes red in the condition of low battery.

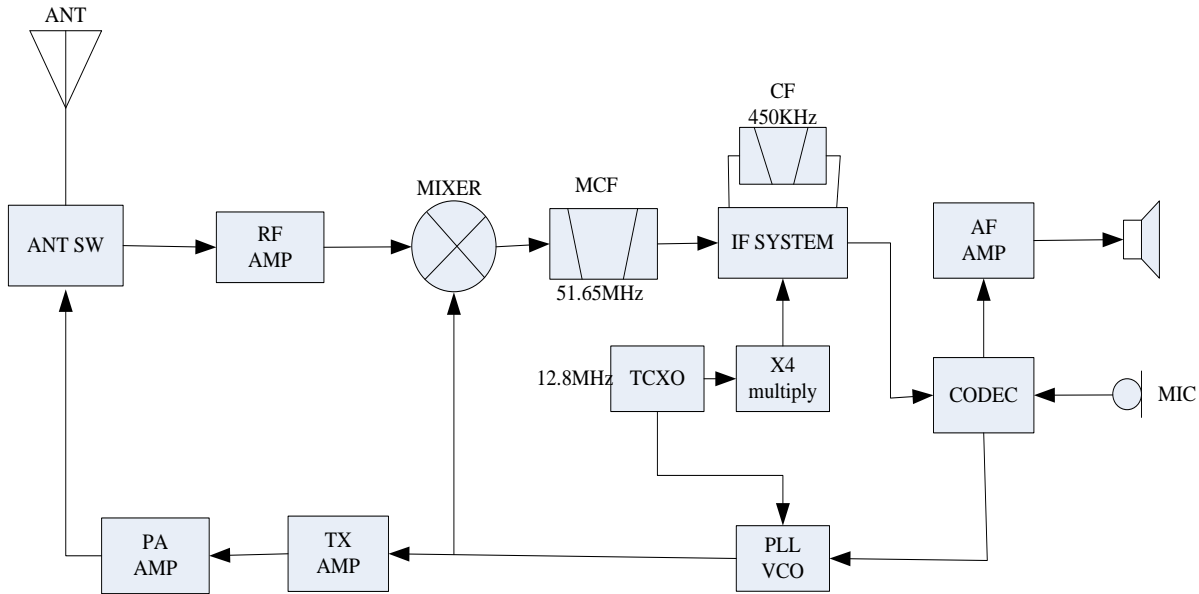
3. Circuit Description

3.1. Overview

This radio is FM portable equipment.

3.2. Frequency Composition

Figure 3-1 Circuit Diagram



This Radio applies twice frequency mixing method. The first intermediate-frequency is 51.65MHz. The second intermediate-frequency is 450kHz.

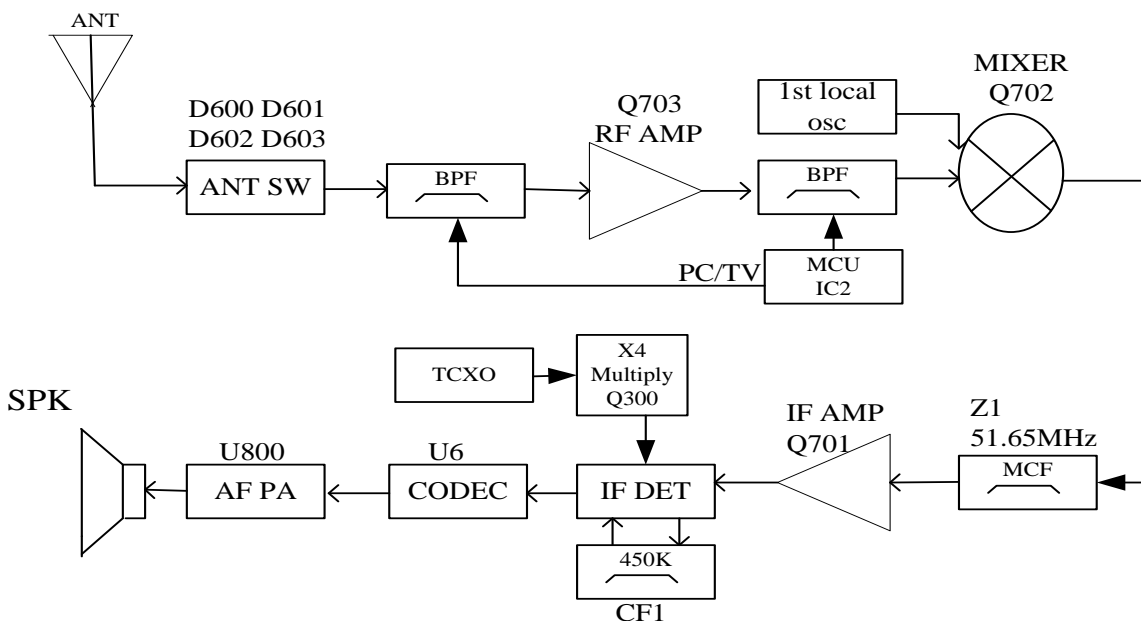
The first local oscillation is generated by frequency synthesizer, and the second local oscillation is generated by the quadruple frequency of 12.8MHz.

The transmitting signal is generated by frequency synthesizer.

The reference frequency of frequency synthesizer is generated by TCXO.

3.3. Principle of Receiver (RX)

Figure 3-2 Principle of Receiver



• Receiver Front End

Signals from the antenna through the receiving/transmission (RX/TX) switch (D600, D601, D602, D603),

which passed the band-pass filter (BPF) consisting of two levels of LC to eliminate the unnecessary signals, then sent to the low noise amplifier (LNA) consisting of Q703 and its peripheral components for enlargement.

After passing the band-pass filter (BPF) consisting of three levels of LC to further eliminate the unnecessary out-of-band signals, the output of LNA is then sent to the first frequency mixer (Q702).

• **The First Frequency Mixer**

The signal from LNA is mixed with the first local oscillator signal from the frequency synthesizer to generate the first intermediate-frequency signal (51.65MHz).

• **IF Circuit**

The first intermediate-frequency signal eliminates the signals from the adjacent channels or other signals through the crystal filter. (Z1)

The first intermediate-frequency signal from the crystal filter, after being amplified by the first intermediate-frequency (IF) amplifier (Q701), is sent to IF processing IC (IC700, GT3136).

IF IC consists of the second frequency mixer, IF amplifier, amplitude limiter, frequency detector, noise amplifier, audio low pass filter.

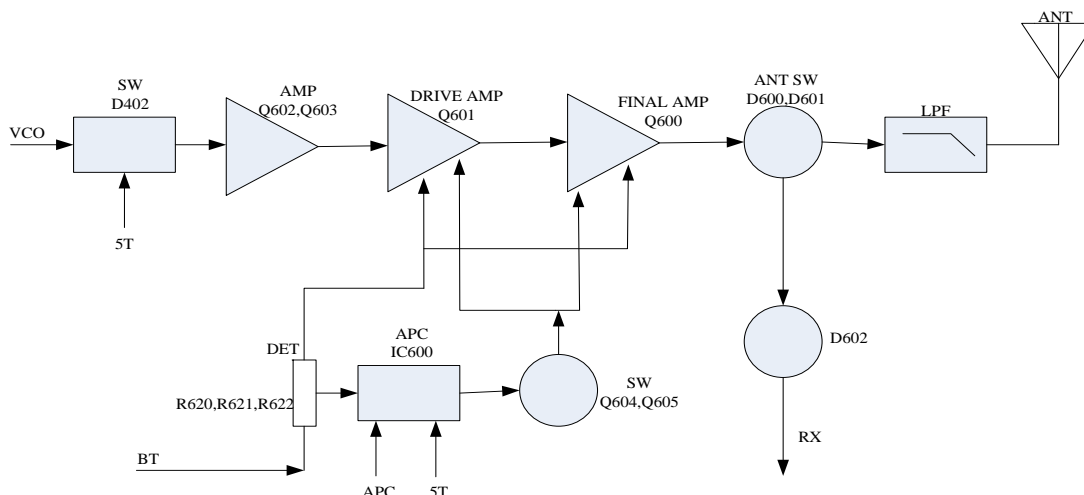
The 12.8MHz signal from X300, being amplified by Q300 and its peripheral circuit, becomes the second local oscillation signal (51.2MHz). The second local oscillation signal (51.2MHz) mixes with the first intermediate-frequency signal (51.65MHz) in IC700 to generate the second intermediate-frequency signal. The second intermediate-frequency signal amplified in IC700 with its amplitude being limited, being filtered by the FD1 ceramic filter (450 kHz), is demodulated by IC700 to generate the audio signal.

• **Squelch Circuit**

The signal demodulated by IC700 is sent to its own noise amplifier for amplification, and the amplified signal is sent to Q700 for further amplification and to D701 for detection; the produced direct current is then sent to MCU squelch control circuit, and its voltage is inversely proportional to the input signal.

3.4. Principle of Transmitter (TX)

Figure 3-3 Diagram of Power Amplification and Antenna Switch Principle



The modulated RF signal from VCO, being amplified by Q303、Q304、Q602、Q603、Q601, is sent to Q600 for power amplification.

The grid bias of Q601 and Q600 is controlled by APC (Automatic Power Control) circuit. Change the grid bias voltage to easily control the output power strength of the transmitter.

• **APC (Automatic Power Control) Circuit**

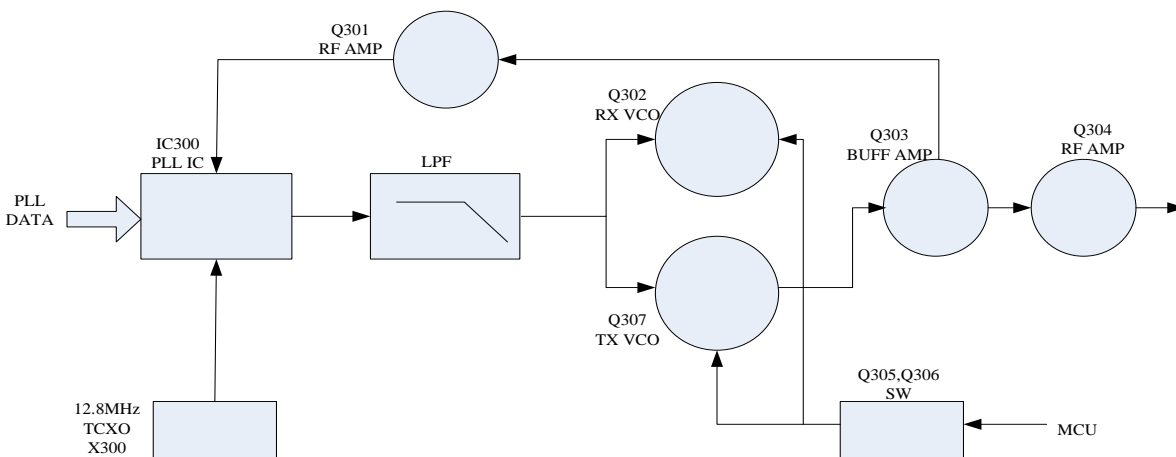
R620, R621 and R622 are power amplifier current detection, and IC600A is a power amplifier current sampling amplifier. IC600B is a power comparison amplifier.

The extra high output power of the transmitter will increase the power amplifier current and IC600A output with a decrease in IC600B output voltage. It will also decrease the bias voltage on Q601 and Q600, which decreases the output power of the transmitter, and vice versa. This enables the stability of the output power in different working circumstances.

MCU changes the voltage being input to IC600B to set the power.

3.5. Principle of Frequency Synthesizer

Figure 3-4 Diagram of Frequency Synthesizer



This radio applies PLL frequency synthesizer.

The frequency synthesizer consists of reference oscillator, voltage controlled oscillator (VCO), programmable frequency divider, phase comparator and low pass filter.

Q307, D305, D306, D307, D308 and other resistance-capacitance units make up the transmitting VCO unit. D304 is the modulation circuit of the transmitting VCO.

Q302、D300、D301、D302、D303 and other resistance-capacitance units make up the receiving VCO unit.

IC300 (MB15E03) is a PLL integrated circuit which contains a programmable reference frequency divider, programmable frequency divider, phase comparator and charge pump.

R329, C358, R330, C359, R331, R332 and C360 make up the loop filter.

The reference frequency is provided by X300 (TCXO, 12.8MHz).

The reference frequency from TCXO (Temperature Controlled Crystal Oscillator) is divided by the

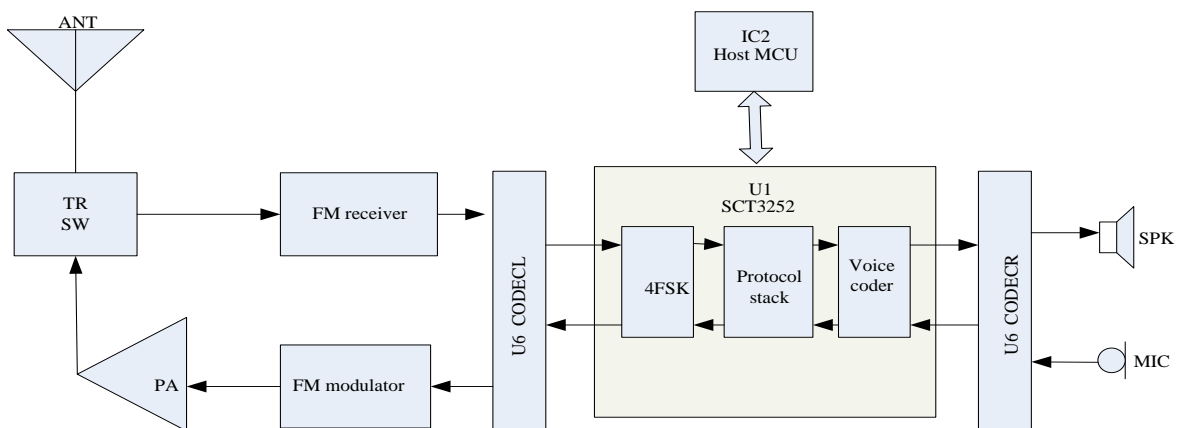
programmable reference frequency divider in IC300 to become the 5kHz or 6.25kHz (controlled by MCU, according to the setting channel) reference frequency .

The oscillation frequency from VCO, being amplified by the two-time frequency multiplier circuit, is sent to IC300 for comparison with reference frequency after being divided by the programmable frequency divider, and the error signal is then generated to change the oscillation frequency of VCO after filtered by the low pass filter. VCO is locked when the frequency of VCO reaches a certain set value.

Loss of Lock Detection: When PLL loses its lock, IC300 pin14 outputs the electric level signal to MCU, and MCU control transmitter forbids transmitting and issues an alert tone. The output voltage of IC300 pin14 is high electric level when it is locked.

3.6. Audio Processing Circuit

Figure 3-5



• MIC Signal Processing

The speech signal from MIC is sent to U6 for A/D switch, and sent to U1 SCT3252 for audio coding/decoding, communication protocol processing, channel coding modulation. Afterwards, the signal outputs MOD2 and MOD1 separately from U6, and then sends them to TCXO and VCO for two-point modulation. The signal outputs 4FSK modulating signal in digital state, and sine wave signal in analog state.

• Receiving Audio Signal Processing

The audio signal demodulated from IC700 is sent to U1 SCT3252 for processing after finishing A/D switch by U6. After the audio encoding/decoding, communication protocol processing and DSP, the audio signal is sent to U6 for D/A switch, and it is then output to the U800 (TDA2822) audio power amplifier for amplification so as to sound the speaker.

Squelch Circuit: It is output from IC700 after demodulation, and it filters out the noise from the demodulated signal after going through the filter circuit. It is sent to MCU after being detected by D701 and amplified by Q700. The MCU identifies the noise level and controls the squelch.

Speaker Impedance: 16 Ω

Note: Any terminal of the speaker must not be attached to the ground!

The emergency alert tone is not controlled by volume.

3.7. Power Supply

This radio applies 7.4V battery. The transmitter power amplifier circuit (Q601, Q600) and receiver audio processor (U800) directly use the battery for power supply with other circuits using the voltage stabilized 5V for power supply.

Q102: 5T switch, controlled by MCU.

5T: Supplies power for the transmitter front end.

Q100: 5R switch, controlled by MCU.

5R: Supplies power for the receiver RF amplifier, frequency mixer, IF processor, audio signal processor and the like.

Q1: 5C switch, controlled by MCU.

5C: The 5V power source controlled by power saving, and it supplies power for frequency synthesizer unit.

3.8. MCU Unit

MCU unit controls every unit operation of the radio to perform all the radio functions.

- Communicates with the external PC
- Deposits and withdraws the radio status data
- Controls PLL to generate the local oscillation frequency of receiving and transmitting
- Acquires the current channel status
- Controls the LED status indication
- Controls the power supply status of every unit
- Detects the operation of every function key
- Generates CTCSS signal
- Generates DCS signal
- Generates power-controlled signal
- Completes CTCSS decoding
- Completes DCS decoding
- Squelch detection and control
- Controls the content of voice prompt

Memorizer (E2PROM, AT24LC512BN)

It stores the radio channel data, CTCSS/DCS data, other function setting data and parameter adjustment

data.

CTCSS/DCS Signal Encoding and Decoding:

The CTCSS/DCS signal generated by MCU is sent separately to VCO and TCXO for modulation.

The CTCSS/DCS signal from the receiver is sent to MCU for decoding. The MCU identifies whether the CTCSS/DCS signal of the radio is the same as the receiving signal so as to turn on the speaker.

CTCSS

CTCSS (continuous tone control squelch system) is a squelch control system modulated on the carrier with the CTCSS signal being the pilot frequency. If the CTCSS feature is set, the conversation is enabled only when the CTCSS frequency from the receiver and transmitter is the same to avoid interference from other signals.

39 groups of standard CTCSS frequency of this radio are available. See Chart 1.

CTCSS signal is generated by MCU (PWM wave form), and it is sent to VCO for modulation after being filtered by the low pass filter composed of RC for eliminating the frequency higher than 300Hz.

Chart 3-1 CTCSS Frequency Chart

No.	Frequency [Hz]	No.	Frequency [Hz]	No.	Frequency [Hz]	No.	Frequency [Hz]
1	67.0	11	94.8	21	131.8	31	186.2
2	69.3	12	97.4	22	136.5	32	192.8
3	71.9	13	100.0	23	141.3	33	203.5
4	74.4	14	103.5	24	146.2	34	210.7
5	77.0	15	107.2	25	151.4	35	218.1
6	79.7	16	110.9	26	156.7	36	225.7
7	82.5	17	114.8	27	162.2	37	233.6
8	85.4	18	118.8	28	167.9	38	241.8
9	88.5	19	123.0	29	173.8	39	250.3
10	91.5	20	127.3	30	179.9		

DCS Signaling:

DCS (Digital code squelch) is a continuous numerical code which is modulated along with the speech signal on the carrier to control the squelch. If the DCS feature is set, the speaker is on only when the same DCS code is received to avoid the unnecessary signal interference.

83 kinds of standard code of this radio are available. See chart 2.

DCS signal is generated by MCU (PWM wave form), and it is sent to VCO and TCXO for modulation after being filtered by the low pass filter composed of RC for eliminating the frequency higher than 300Hz. VCO modulates the high frequency of DCS signal and TCXO modulates the low frequency of DCS signal.

CTCSS/DCS signal from the receiver is sent to MCU for decoding. MCU identifies whether the receiving signal has the same DCS code as the radio so as to turn on the speaker.

Chart 3-2 DCS Coding Chart

023	114	174	315	445	631
025	115	205	331	464	632
026	116	223	343	465	654
031	125	226	346	466	662
032	131	243	351	503	664
043	132	244	364	506	703
047	134	245	365	516	712
051	143	251	371	532	723
054	152	261	411	546	731
065	155	263	412	565	732
071	156	265	413	606	734
072	162	271	423	612	743
073	165	306	431	624	754
074	172	311	432	627	

3.9. Semiconductor Device Description

MCU Description

Chart 3-3 Microprocessor (M30620) Port Description

Pin No.	Port Name	Input/ output	Function
1	PCTV	D/A Output	Receiver sensitivity adjusting voltage output/power control (V)
2	DTMF	D/A Output	DTMF/Tone output, beep output
3	HSDI	I	Tone decoding input
4	EPDT	I/O	EEPROM data input/ output
5	EPCK	O	EEPROM clock
6	BYTE	I	Gnd
7	CNVSS	I	Gnd
8	BSHIFT	O	Clock beat frequency control
9	SV	O	Min. volume control
10	RESET	I	CPU reset input
11	XOUT	O	CPU clock output
12	VSS	-	Gnd
13	XIN	I	CPU clock input
14	VCC	-	+5V
15	NC	I	+5V
16	VDET	I	Voltage down detection
17	RDT	I	AK2346 MSK signal input
18	TCLK	I	AK2346 MSK data transmission clock
19	SCLK	O	AK2346 data transmission clock

20	CTCSS/DCS	I/O	CTCSS/DCS output
21	TDATA	O	AK2346 MSK data transmission output
22	StCtrl	O	Side tone volume control pin
23	DI/O	I	AK2346 data input output control pin
24	CTCSSVCO	O	CTCSS/DCS output VCO (PWM)
25	DIR	O	AK2346 IO control
26	APC	O	Power control (U)
27	NC	-	NC
28	CTCSSTCXO	O	CTCSS/DCS outputs (PWM)
29	TXD	O	TXD1 output
30	RXD	I	RXD1 input
31	NC	-	NC
32	APC SW	O	Power control output switch
33	TXD0	O	Extension
34	RXD0	I	Extension
35	DC SW	O	Power control switch
36	TX W/N	O	Transmission bandwidth switch
37	RX SW	O	Receiver VCO switch
38	TX SW	O	Transmitter VCO switch
39	NC	-	Gnd
40	PLL UL	I	Phase-locked loop loss of lock check pin
41	PLL STD	O	Phase-locked loop enabling control
42	PLL DATA	O	Phase-locked loop data output
43	PLL CLK	O	Phase-locked loop clock
44	NC	-	NC
45	RX W/N	O	Receiving bandwidth switch
46	EN1	I	UV band selection
47	EN2	I	Encoding switch input pin
48	EN3	I	Encoding switch input pin
49	EN4	I	Encoding switch input pin
50	EN5	I	Encoding switch input pin
51	W/N R1	O	Receiving IF bandwidth switch
52	W/N R2	O	Receiving IF bandwidth switch
53	AFCON	O	Audio power amplifier enabling control
54	RX MUTE	O	Receiving mute switch
55	A BUSY	I	Number reporting chip control
56	A DATA	O	Number reporting chip data output
57	A SCLK	O	Number reporting chip clock
58	A MUTE	O	Number reporting chip control
59	NC	-	NC
60	ACC	-	+5V
61	NC	-	NC
62	VSS	-	Gnd
63	NC	-	NC
64	SELF	-	Factory control options

65	OPT S1	I	Earphone check
66	OPT S2	I	External PTT
67	MAN DN	I	MAN DOWN input
68	PIO3	I/O	Extension
69	PIO2	I/O	Extension
70	PIO1	I/O	Extension
71	PINT	I	Extension
72	TK1	I	Top key
73	PTT	I	PTT key
74	SK2	I	Side key 2
75	SK1	I	Side key 1
76	SP SW	O	Speaker switch
77	MIC SW	O	MIC switch
78	R LED	O	LED red switch
79	G LED	O	LED green switch
80	5T C	O	5T control pin
81	5R C	O	5R control pin
82	5C C	O	5C control pin
83	P03	O	Fixed side tone control
84	P02	O	Phase-locked loop filter
85	NC	O	NC
86	NC	-	NC
87	MAN DOWN	I	Reverse detection input
88	BATT	I	Voltage check input
89	RSSI	I	Receiving filed intensity signal input
90	BUSY	I	Squelch voltage check input
91	VOX	I	VOX voltage check input
92	CTCSS/DCS IN	I	CTCSS/DCS input
93	DTMF IN	I	DTMF input
94	AVSS	-	Gnd
95	NC	-	NC
96	VREF	-	+5V
97	AVCC	-	+5V
98	NC	-	NC
99	MIC MUTE	O	External and internal MIC switch
100	HPF PC	O	High pass filter switch

Chart 3-4 Semiconductor Device Feature Description

Position No.	Item No.	Feature Description
IC202	PST9140NR	MCU reset circuit
U300	MB15E03	Frequency synthesizer
IC600	NJM2904	APC, voltage comparisom, drive

IC700	GT3136	Receiver 2nd local oscillation, 2nd IF amplification, amplitude limit, demodulation, noise amplification
IC204	NJM2902	Receiver demodulated signal is amplified, filter
IC2	M30620	MCU
IC200	AT24C512C	E2PROM, saving channel frequency data, feature setting parameters and adjustment status parameters.
U800	TDA2822	Receiver audio power amplification
Q302	2SK508NV	RX VCO oscillator tube
Q304	2SC5108	VCO buffer amplifier
Q305	DTA143TE	TX VCO control switch
Q301	2SC5108	Feedback loop amplifier
Q306	DTA143TE	TX VCO control switch
Q308	2SC4617	VCO power filter
Q303	2SC5108	VCO buffer amplifier
Q300	2SC5108	RX 2nd local oscillation amplifier
Q307	2SK508NV	TX VCO oscillator tube
Q601	RD01MUS1	Transceiver power amplifier drive
Q600	RD07S2B	TX final power amplifier
Q602	2SC5108	Transceiver 1st amplification
Q603	2SC3356	Transceiver 2st amplification
Q604	DTA144EE	APC output switch
Q703	3SK318	Receiver low noise amplifier
Q702	3SK318	1st frequency mixer
Q701	2SC5108	IF amplifier
Q700	2SC4617	Receiver noise amplifier
Q800	FMMT717	Audio output control switch
Q801	DTC144EE	Audio power amplification control switch
IC100	XC6204B502MR	Adjust output of 5C regulated voltage
IC100	XC6204B502MR	Adjust output of 5R regulated voltage
IC100	XC6204B502MR	Adjust output of 5T regulated voltage
IC102	XC6228D122VR	1.8V output adjustment
IC101	XC6204B332MR	3V output adjustment

Chart 3-5 Diode Tube Feature Description

Position No.	Item No.	Feature Description
D309	DA2S10100L	(Losing lock detected) diode tube
D310	DA2S10100L	VCO power filter acceleration diode
D304	1SV278	TX VCO modulated diode
D305,D306 D307,D308	HVC376	TX VCO oscillation varactor diode
D300,D301 D302,D303	HVC376	RX VCO oscillation varactor diode
D402	HSC277	VCO output switch

D604	HZU5ALL	APC output limited voltage diode
D600,D601 D602,D603	HVC131	Transmitter antenna switch diode
D704,D705,D 706,D707 D708	HVC355B	RX band pass filter varactor diode
D701	RB706F	Commutation diode

4. Function Description and Parameter Settings

4.1. Time-out Timer

This feature prevents the user from long occupation on the channel. If the transmitting period exceeds the dealer's preprogrammed time, the radio stops transmitting and rings alert tone. To stop the alert tone, please release the PTT button. For a second transmission, please press the PTT button after a certain period (set by the dealer). If the dealer preprograms the pre-warning feature, a warning is given when the transmitting period gets close to its time-out-timer limitation, indicating the transmission is forbidden soon.

4.2. Channel Scan

The channel scan is able to search for the channel where there is a signal, and the radio stays on the channel where a signal is detected for making a conversation. The scanning mode is the carrier control scan.

4.2.1. Carrier Control Scan

The radio scan stays on a busy channel until it is no longer busy, and the scan is enabled automatically after a certain period (the specific period time is set by the local dealer).

Press the Scan shortcut key, and the radio scans the scan list of the current channel. When the radio is scanning, you can press the "Scan" shortcut key to stop the scanning.

4.2.2. Scan Reply Channel

When the radio is scanning, press the PTT button to transmit and make a conversation on a preset channel, and the channel is preprogrammed by the local dealer.

4.3. Kill and Activation

If the dealer preprograms this feature, the radio can receive and decode other radio's signals of kill and activation before responding accordingly. After being killed, the radio can only receive the activated signal without being able to transmit or receive other signals. The radio is back to normal after activation.

4.4. Emergency

In a state of emergency, press the “Emergency On” button (the button is programmed as the “Emergency On” button) for the alarm call. To disable the emergency feature, please press the “Emergency Off” shortcut key or restart the radio.

The alarm method is composed of two parts:

- Alarm type: mainly specifies the acoustooptic reaction in the state of alarm call.
- Alarm mode: specifies the content sent in the state of alarm call. You can set these parameters through the dealer to meet your requirements.

Alarm Mode:

- None: No alarm feature (by default), and the alarm feature cannot be enabled by pressing the emergency button.
- Siren Only: The radio only emits siren locally.
- Regular: The acoustooptic alert can be enabled, and the radio is able to receive.
- Secret: No acoustooptic alert and the radio is not able to receive.
- Secret but receivable: No acoustooptic alert but the radio is able to receive.

Alarm Mode:

- Emergency Alarm: After the alarm feature is enabled, the radio only transmits an emergency alert, and afterwards, then automatic exit the alarm status.
- Emergency Alarm + Emergent Call: The radio transmits an emergency alarm and sends out an emergency call by pressing the PTT button.
- Emergency Alarm + Auto Transmission of Background Tone: The radio transmits an emergency alarm, and the background tone will be sent out periodically and automatically in the way of emergency call.

Note:

- Emergency Alarm: A non-speech signal transmitted by the radio to inform other radios to send out an alert.
- Emergency Call: A call mode in the priority of using the channel to ensure a successful call during emergency.

4.5. Parameter Settings

The radio is preset before the factory delivery, but the parameter of the digital feature, operational frequency, channel, QT/DQT, and auto scan feature may be reset according to different requirements of the customers. Hence, Kirisun designed a Chinese/English FP520 programming software with friendly interface, easy operation and clear visual display to complete the parameter settings for FP520.

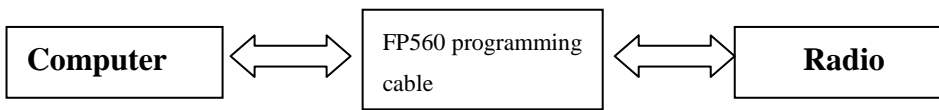
Procedure of setting the parameter with a computer.

A. Install the FP520 programming software on the computer.

B. As Figure 4-1 shows, using the FP520 programming cable to connects the computer with the radio

Note: During the connection, ① make sure the computer is off. ② make sure the radio is off.

Figure 4-2



C. Turn on the computer.

D. Turn on the Radio.

E. Click the execution procedure, and operate FP520 programming software.

F. In the main menu of FP520 programming software, click "read" menu to input the radio parameter into the computer.

G. For detailed operation, please refer to the "assistance" file of the programming software.

5. Assemble and Disassemble Instructions

This radio is sophisticated communication equipment with a precise and compact mechanism. The assembly and disassembly of the radio must be carefully done during the repair.

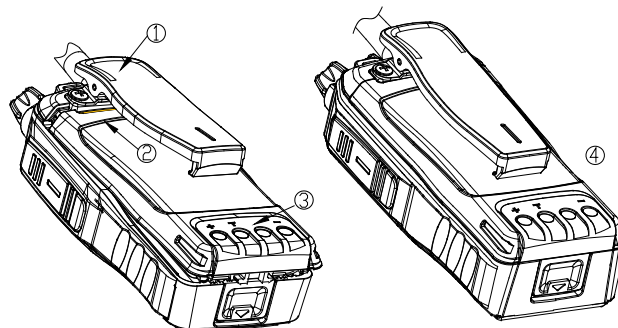
The description is as follows:

5.1. Attaching and Detaching the Battery

Attaching the battery

Press ① to bounce the belt clip; align the two bulges on the battery top with the corresponding slots on the aluminum shell, and insert the battery into the aluminum shell in the direction as ② shows. Press the battery bottom as ③ shows to completely bounce the latch, and the battery is attached until the battery is hooked as ④ shows (see Figure 5-1).

Figure 5-2



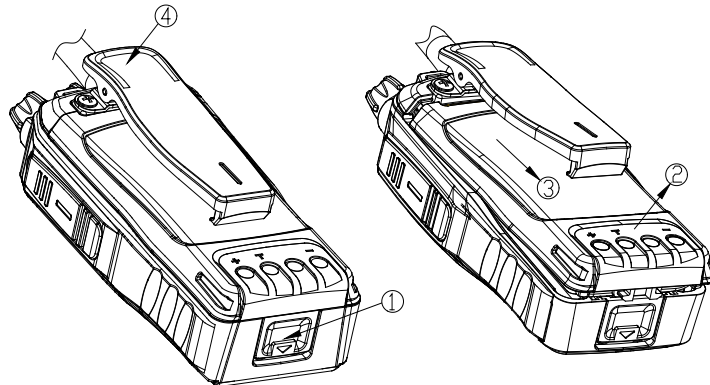
Detaching the Battery:

Make sure the radio is off when detaching the battery.

To detach the battery, please push the battery latch as ① shows to bounce the bottom of the battery as

② shows, and take out the battery as ③ shows; if the belt clip is attached, please press it as ④ shows and detach the battery downwards.

Figure 5-3



Notes:

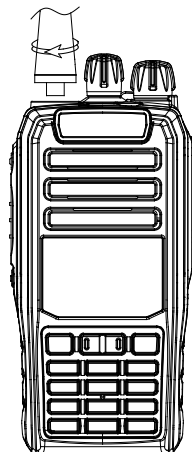
- Do not short circuit the battery terminals or abandon the battery into fire.
- Do not take the risk of disassembling the battery shell.

5.2. Attaching the antenna

When attaching, put the antenna end with screw thread into the threaded hole of the radio top, and turn it clockwise until it is fastened.

For detaching, hold the antenna bottom and turn it counterclockwise.

Figure 5-4

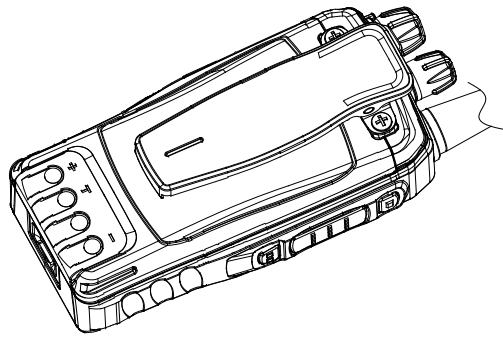


5.3. Attaching and Detaching the Belt Clip

When attaching, align the screw holes of the belt clip with the corresponding ones of the radio back shell, and use two 2.5x8.0 machine screws to fasten.

Loosen the two 2.5x8.0 machine screws to detach the belt clip.

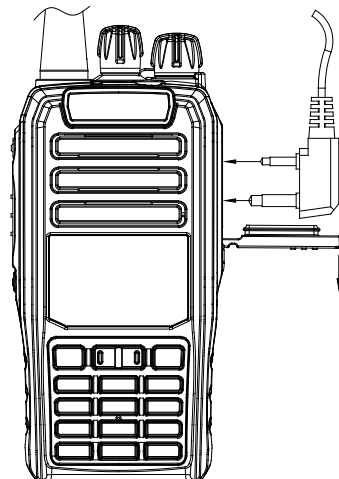
Figure 5-5



5.4. Attaching and Detaching the Earphone

When the earphone is needed, open the earphone cover on the upper right side of the radio, and put the earphone plug into the interface.

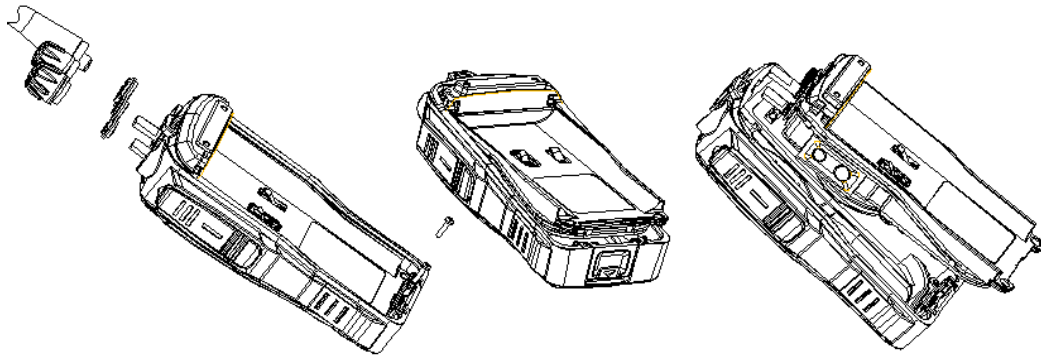
Figure 5-6



5.5. Separating the Front Cover from the Chassis

1. Remove the antenna, volume knob and channel knob;
2. Remove the two knob nuts and one antenna nut;
3. Remove the two aluminum screws with wabblers;
4. Use a pair of tweezers or other tools to lever open the bottom;
5. Pull out the Front Cover;
6. Use an electric soldering iron to cut off the speaker wire and MIC wire, and the separation is done.

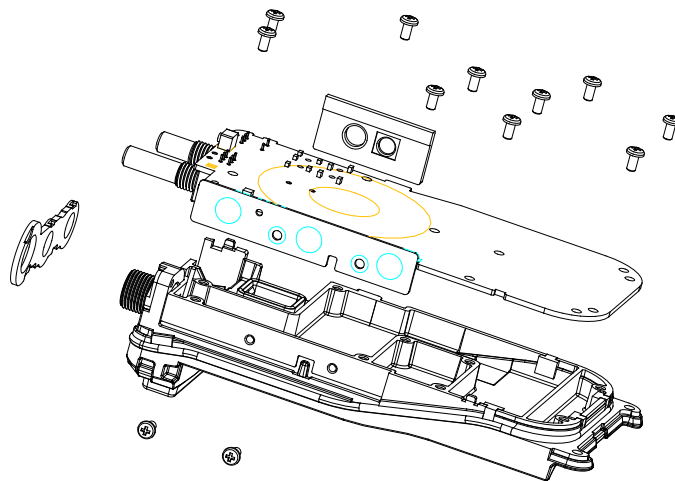
Figure 5-7



5.6. Separating the PCB Board from the Chassis

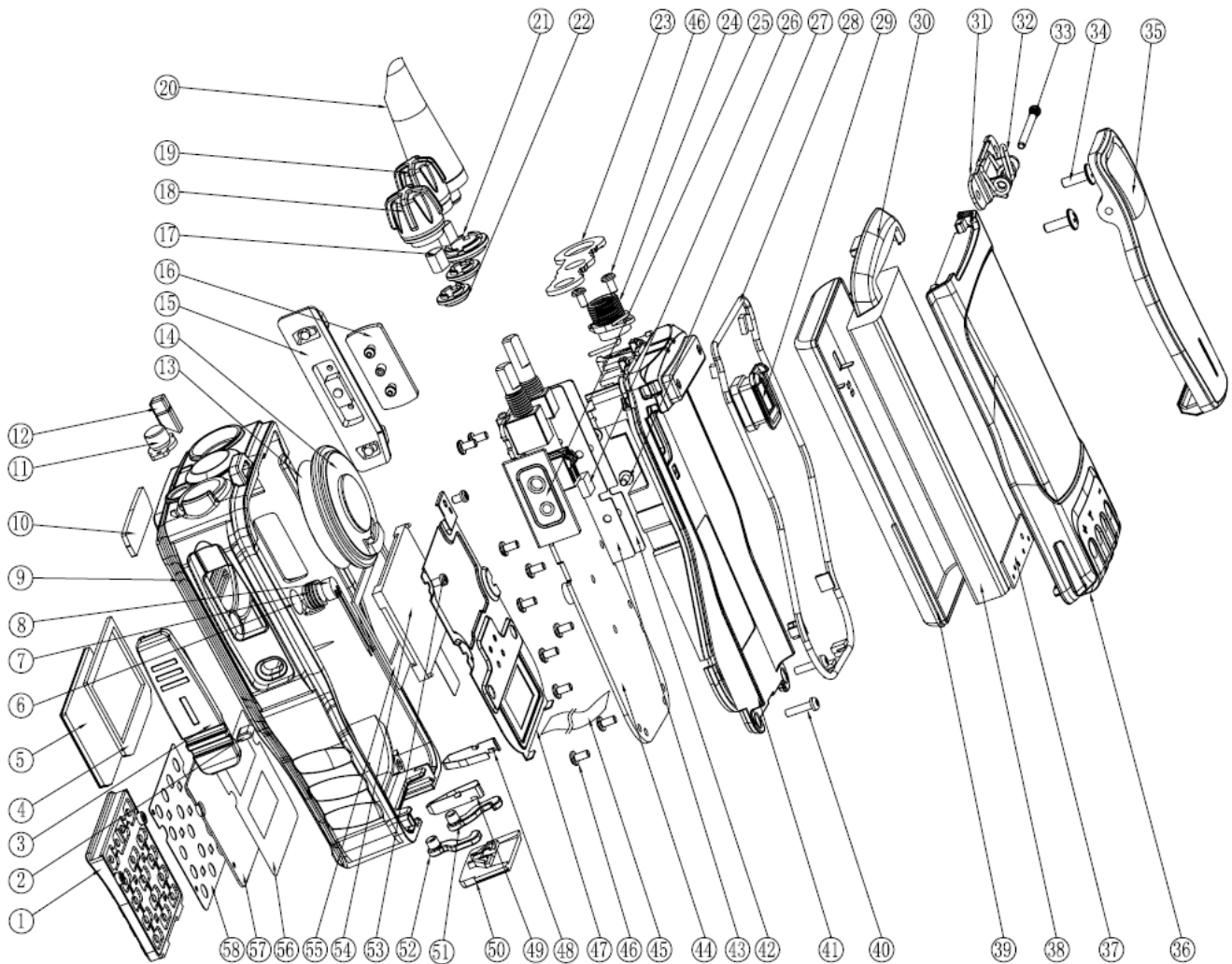
1. Remove the potentiometer waterproof pad on top;
2. Remove the earphone waterproof plug;
3. Remove the screws on the PCB mainboard;
4. Remove the two screws on the side PTT PCB;
5. Use an electric soldering iron to cut off the antenna terminal and the PCB board is removed. (PTT PCB is connected with the PCB mainboard. To avoid bonding pad damage, use an electric soldering iron to separate them instead of dividing them with force)

Figure 5-8



After the disassembly above is completed, the repair and adjustment can then be done.

5.7. Exploded View



No.	Part Number	Description	Quantity	Remark
1	7MHR-4091-01A-W0	FP560 digital keypad	1	Silicone gel+plastic key+plastic frame
2	7MHP-7208-06A-W0	PT560 earphone cover plug	1	ABS+PC;black
3	7MHP-7208-07A-W0	PT560 earphone cover board	1	TPU;black
4	7MHJ-4091-01A-W	FP560 lens double-sided adhesive tape	1	3M9448
5	7MBP-4091-01A-WC	FP560 lens	1	PC, silk print black frame
6	7GCB-070001	φ7 mic waterproof cloth	1	waterproof cloth,diameter φ7mm, thickness 0.1mm
7	7MHR-1727-09A-W3	558 mic cover	1	Silicone gel, hardness 40, orange
8	4SM7-6027-A40C	MIC S760 780	1	Φ6.0, -40±2dB omni directional, 2.2KΩ,2V, with 80mm red black wire

9	7MHP-4083-01A-W0	FP560 front shell	1	ABS+PC; black; silk print
10		PT560 LOGO sticker	1	T=0.3mm PC
11	7MHR-7208-05A-W3	PT560 emrgency button;	1	Silicone, orange
12	7MHR-7208-04A-W9	PT560 guide beam	1	Silicone; transparent milk white
13	7GCB-360001-W0	φ36 speaker wanterproof net	1	Black wanterproof cloth
14	4SS7-4050-016-100	∅ 40 speaker	1	MM4050-1638,16Ω,1W
15	7MHR-7208-06A-W0	PT560 side silicone gel button	1	Silicone; black
16	7MHP-7208-05A-W0	PT560_PTT cover board	1	ABS+PC, black
17	7MHS-1140-01A-W	3118/3208 knob circlip	2	Spring steel
18	7MHP-7208-01A-W0	PT560 volume knob	1	ABS; black, white paint
19	7MHP-7208-02A-W0	PT560 channel	1	ABS; black, white paint
20		PT558S antenna	1	Diameter 14mm
21	7NRC-090136039-B1	558 antenna nut	1	brass, internal diameter M9mm,external diameter φ13.6mm, thickness 3.9mm, black passivation
22	7NRC-060100035-B1	558 switch nut	2	brass, internal diameter M6mm, external diameter φ10mm, thickness 3.5mm, black passivation
23	7MHR-7208-02A-W0	PT560 top waterproof ring	1	Silicone; black
24	3CR7-SMA-50JFB-4	RF coaxial connector	1	SMA-J, flang plate installation
25	7MHP-7208-04A-W0	PT560 earphone socket waterproof plug	1	TPU; black
26	7MHR-7042-06B-W0	Thermally conductive silicone gel pad	1	Silicone, black,3*6*9mm
27	7SMF-020037M-SZCT-N	M2.0*3.7 cross sunken machine screw	2	Screw for fixing PTT PCB
28	7MHR-7208-01A-W0	PT560 major waterproof ring	1	Silicone; black;polished
29	7MHR-4083-01A-W0	FP560 pedestal waterproof pad		Silicone, black, hardness 60 degrees

30	7MHP-4091-02A-W0	PT560 main unit top cover	1	ABS,+PC black
31	7MJS-7013-01B-N	KBJ-09 belt clip bracket	1	Stainless steel ;(SUS304),1.00THK, bright nickel-plated
32	7MJS-7013-02A-W	KBJ-09 belt clip torsional spring	1	
33	7MJS-7013-03A-N	KBJ-09 belt clip spin axis	1	
34	7SMF-025080M-SZYB-Z1	M2.5*8 cross round flat head machine screw	2	For fixing belt clip
35	7MJP-4026-01A-W0	KBJ-15 belt clip	1	DP770 belt clip,PC+ABS, black
36	7MDP-7208-01A-W0A	FP560 battery top shell	1	ABS+PC
37	6PD7-7215-DPA	FP560 charging PCB	1	Thickness 0.6MM
38	6BLM-103445-074150-A	FP560 battery chip	1	li-ion 1500mHA
39	7MDP-4083-03A-W0A	FP560 battery bottom cover	1	
40	7SMF-020080M-MHH-T-N1	M2*8 torx thick -headed machine screw	2	For fixing aluminum shell
41	7MHL-4083-01A-W	FP560 aluminum alloy shell	1	ADC12
42	7MHS-4083-01A-W	FP560 PTT button metal dome	1	φ6mm,SUS301 square metal dome
43		FP560 PTT PCB	1	
44		FP560 MAIN PCB	1	Thickness 1.2mm
45	3WF7-05030-500C4	Flex cable(with radar absorption cotton)	1	Interval 0.5mm,30P, wire length 50mm
46	7SMF-020040M-SZYB-N	M2*4 cross round flat head machine screw	13	Fixing main board, PTT keypad and antenna screw
47	7MHS-4091-01A-W	FP560 LCD bracket	1	Stainless steel (SUS304),0.3THK
48	7MHS-7042-01B-W	latch 2	1	Stainless steel (SUS301),0.25THK
49	7MHS-7042-01A-W	latch 1	1	Stainless steel (SUS301),0.25THK
50	7MHP-7042-14A-W0	battery latch	1	POM,black
51	7MHX-7042-02B-Z	battery hook 2	1	Zinc alloy (Zn3#), cataphoresis, black
52	7MHX-7042-02A-Z	battery hook 1	1	Zinc alloy (Zn3#), cataphoresis, black
53	7STF-019047B-SZHT-	M1.9*4.7 cross	3	Fixing LCD hardware bracket

	X	round flat machine screw		
54	6MD7-F04932	FP560 LCD	1	Black and white screen ,128*64
55	7GCM-411294-J	FP560 LCD sponge pad	1	PRON, 41.1*29.4mm
56	7MHJ-4091-01A-W	FP560 keypad double-sided adhesive tape	1	3M9448
57	7MHR-4091-01A-W0	FP560 digital keypad PCB	1	Thickness 0.6mm
58	7MHS-4091-02A-W	FP560 digital keypad metal dome	1	SUS301, Φ 5mm Metal Dome

6. Adjustment

6.1. Components of Adjustment

During the service, a proper test and adjustment to the radio's technical criteria is necessary after changing the components.

6.1.1. Components needed for the adjustment

- (1) antenna interface convertor
- (2) universal interface

6.1.2. Manual Mode Adjustment

The radio needs adjustment of 5 frequencies.

The frequencies selected by the channel switch are shown in the chart below:

Model	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
FP560 VHF	136.05MHz	145.55MHz	155.05MHz	164.55MHz	173.95MHz
FP560 UHF	400.05MHz	415.05MHz	435.05MHz	455.05MH	469.975MHz

6.1.3. Computer Adjustment Method

VCO Part

The radio is receiving:

- a) The channel is on the receiving high frequency, adjust C335 and test T300, the spot voltage is $3.6 \pm 0.1V$.
- b) The channel is on the receiving low frequency, test T300, the spot voltage $> 0.6V$

The radio is transmitting :

- a) The channel is on the transmitting high frequency, adjust C371 test T300, spot voltage as $3.6 \pm 0.1V$
- d) The channel is on the transmitting low frequency, test T300, the spot voltage $> 0.6V$

TX Part

1). Transmitting Frequency

Under the computer mode, the transmitting frequency is adjusted within $\pm 100Hz$.

2). Power

- a. Under the computer mode (transmitting high power) (5 frequencies), the transmitting high power is adjusted to 3.8-4.2W.
- b. Under the computer mode (transmitting low power) (5 frequencies), the transmitting low power is adjusted to 0.8-1.1W.

3). The Maximum Frequency Deviation (the modulation signal is 1kHz/120mV)

Under the computer mode [the maximum audio frequency deviation] (the broadband has five frequencies and the narrowband has one; six frequencies in total), adjust the maximum transmitting frequency deviation to 1.8-2.5 kHz.

4). DCS Balance

Under the computer mode, [DCS balance] (the broadband has five frequencies), adjust the DQT and make it balanced, so the demodulated DQT wave can be square and smooth.

5). DCS Frequency Deviation (DQT: 023N)

Under the computer mode [DCS frequency deviation], adjust DCS frequency to 0.3-0.5kHz.

6). CTCSS Frequency Deviation (QT: 67.0Hz, 150.4Hz, 250.4Hz)

Under the computer mode [CTCSS (67Hz, 150.4Hz, 250.4Hz) frequency deviation] adjust the CTCSS frequency deviation to 0.3-0.5kHz.

7). DTMF Frequency Deviation

Under the computer mode [DTMF frequency deviation] (five frequencies), adjust the DTMF frequency deviation to 1.5-2 kHz.

8). Battery low voltage indication when transmitting: the voltage is set as 6.8V, under the computer mode

[transmitting low voltage], click OK when the digits are stabilized.

RX Part

1). Receiver Pass Band

- a. Program the spectrum analyzer, and test the receiver pass band at the test point with a high frequency probe.
- b. Under the computer mode [receiving sensitivity] (five frequencies), adjust the receiver pass band to the corresponding center frequency.

2). The Maximum Volume

Set the RF frequency as the center frequency, the signal strength as 1mV, and the modulated frequency deviation as 1.5 kHz. Under the computer mode, set the computer audio power as 1.1-1.3W.

3). First Level Squelch Adjustment

- a. Set the RF signal as -121dBm and the modulated frequency deviation as 1.5 kHz. Under the computer mode (on) (five frequencies), click OK when the digits are stabilized.
- b. Set the RF signal as -123dBm and the modulated frequency deviation as 1.5 kHz. Under the computer mode (off) (five frequencies), click OK when the digits are stabilized.

4). Field Strength

- a. Set the RF signal as -121dBm and the modulated frequency deviation as 1.5 kHz. Under the computer mode (low RSSI) (five frequency points), click OK when the digits are stabilized.
- b. Set the RF signal as -70dBm and the modulated frequency deviation as 1.5 kHz. Under the computer mode (high RSSI) (five frequency points), click OK when the digits are stabilized.

6.2. Radio Test

The following criteria should be tested:

RX Part

1. Sensitivity: $\leq -120\text{dBm}$ (0.25uV) 12dB SINAD
2. Distortion: $\leq 5\%$
3. Current: static current: $\leq 100\text{mA}$

RX working current: $\leq 400\text{mA}$

4. QT/DQT decode: when $\leq -116\text{dBm}$ (0.35uV), the radio decodes correctly.
5. Sensitivity of the 3rd squelch off: when RF input $\leq -124\text{dBm}$ 时, the squelch should be turned off.
6. Sensitivity of the 3rd squelch on: when RF input $\geq -119\text{dBm}$, the squelch should be turned on.

TX Part

1. Output power: High (3.8W---5W); low (0.9W---1.1W)
2. TX current: High power transmitting $\leq 1.6\text{A}$; low power transmitting $\leq 1.0\text{A}$

3. The maximum frequency deviation: 1.8kHz---2.5kHz
4. TX distortion: $\leq 5\%$
5. QT/DQT frequency deviation: 0.3---0.5kHz with fine wave form.
6. TX frequency deviation: Nominal frequency $\pm 500\text{Hz}$
7. DTMF frequency deviation: 1.5~2.0 kHz
8. FFSK frequency deviation: 1050Hz ± 50
9. Under voltage Indication: The voltage is 6.6V, the indicator glows red when PTT is pressed; no TX power.

7. Major Specifications

General Specification	
Model	FP560
Frequency Range	UHF: 400-470MHz VHF: 136-174MHz
Modulation Method	4FSK
Channel Capacity	256
Channel Spacing	6.25kHz/12.5kHz
Intermediate Frequency	The first IF: 51.65MHz the second IF: 450kHz
Operation Voltage	7.5V negative pole is connected to the ground
Operation Temperature	-25°C ~ +55°C
Antenna Impedance	50Ω
Microphone Impedance	2.2kΩ
Battery (Standard)	Li-ion battery DC 7.4V , 1500mAh, duration:12.5 hours
Dimension	118.2mm x55.7mmx32.9mm
Weight	270 (with battery and antenna)

RX Part	
Sensitivity (12dB SINAD)	$\leq 0.25\mu\text{V}$
Squelch-On Sensitivity	$\leq 0.18\mu\text{V}$
Receiver Residual Output	$\leq -35\text{dB}$
Modulated RX Bandwidth	$\pm 3.5\text{kHz}$
Adjacent Channel Selectivity	$\geq 50\text{dB}$
Intermodulation Interference Rejection	$\geq 65\text{dB}$
Spurious Response Rejection	$\geq 70\text{dB}$
Audio Output Power	1.3W, BTL @distortion $\leq 10\%$, 16 Ω
RX Consumption Current	$\leq 400\text{mA}$
TX Part	
Tx Power	4.0W/1.0W@7.5V DC
Frequency Stability	$\leq \pm 2.5\text{ppm}$
The Maximum Modulated Frequency Deviation	$\pm 2.5\text{kHz}$
Modulation Distortion (300~3000Hz)	$\leq 3\%$
Adjacent Channel TX Power	$\geq 60\text{dB}$
Spurious TX	$\geq 70\text{ dB}$
Residual Modulated Frequency	$\geq 40\text{ dB}$
TX Consumption Current	$\leq 1.7\text{A}@7.5\text{V DC}$

8. Maintenance and Test Equipment

During the service and test, the following equipment and apparatus are needed.

Equipment	Specification
Standard Signal Generator	Frequency Range: 400- 470MHz Modulation: FM and External Modulation Output: $-127\text{dBm}/0.1\mu\text{v}$ or $\geq -47\text{dBm}/1\text{mv}$
Power Meter	Input Impedance: 50Ω Operation Frequency: 400 - 470MHz Measurement Range: about 10W
Deviation Meter	Frequency Range: 400-470MHz
Digital Voltmeter	Measurement Range: DC 10mv - 10v Input Impedance: high input impedance for the minimum circuit load
Oscilloscope	Frequency Range: DC - 30MHz
High Sensitivity Frequency Counter	Frequency Range: 50Hz - 10KHz Frequency Stability: 0.2ppm or lower
Ammeter	Maximum Current: 5A
Audio Voltmeter	Frequency Range: 50Hz - 10KHz Volt Range: 1mv - 10v
Audio Generator	Frequency Range: 50Hz - 5KHz or higher Output: 0 - 1v
Spectrum Analyzer	Measurement Range: DC - 1GHz or higher
Path Generator	Center Frequency: 50KHz - 600MHz Output Voltage: 100mv or higher
16 Ω Dummy Load	About 16 Ω , 3W
Adjustable Power Supply	5v - 10v, about 5A

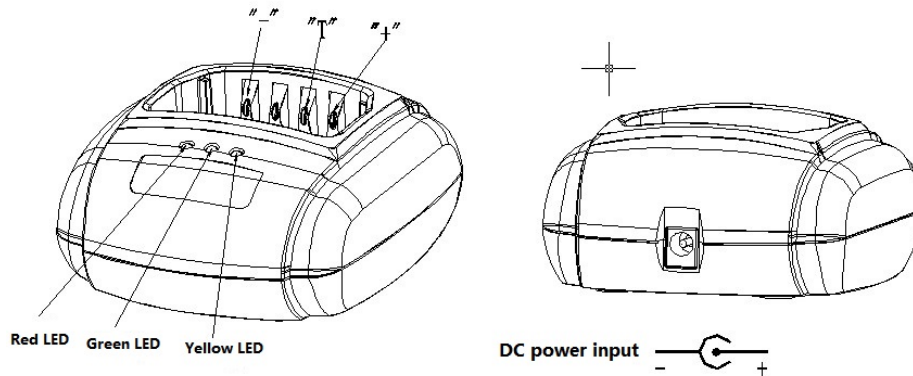
9. KBC-51 Charger

9.1. The Operational Conditions and Basic Specification of Charger

- a) Battery Specification: Li-ion (2*3.7V) ,battery capacity (1~2.4AH).
- b) Power Adaptor Specification: DC 11V~16V, 500~1500mA power adaptor, standard voltage is 12V.
- c) No-load Input Current: $\leq 15\text{mA}$
- d) Precharged Current: $200\text{mA} \pm 40\text{mA}$
- e) Precharged Time Limit: 15Min
- f) Constant Current Charging Current: $800\text{mA} \pm 40\text{mA}$
- g) Maximum Li-ion Charging Voltage: 8.32~8.42V.

9.2. Function Introduction

1. This charger is intelligent with fast charging, reliability, safety and high charging saturation.
2. Status Indication: The indicator flashes red for precharging and lights red for charging; it lights green for full charging, no battery and battery protection; it flashes yellow for battery output short circuit.
3. The external port identifies the lithium battery.
4. Battery Short Circuit Protection: When there is a short circuit in the negative and positive pole of the charger, the indicator flashes yellow and the charging current will be cut off. The charging will continue automatically after troubleshooting.
5. The full battery is recharged for identification: When the full Li battery is recharged, if the voltage is higher than 8.25V, the charging stops, and if it is lower than 8.25V, the charging continues.
6. Temperature Protection: When the Li-ion battery is charging, the charging stops with the yellow light on if the temperature is higher than 55 degrees. The charging is restarted when the temperature is down to 45 degrees.
7. Put the radio on the charger when it is on standby mode, and the charging automatically begins when the battery voltage is lower than 8.2 V.
8. The yellow light indicates the charger automatic protection. The charging is restarted after the troubleshooting.



LED lights red: Charging

LED lights green: Full battery

LED lights yellow: Abnormal charging

10. Troubleshooting

No.	Problem	Cause and Solution
1	Power-on Failure	A. The battery pack may be out of power. Please charge it or change to a new one, then try again. B. Power switch failure. Change to a new power switch. C. CPU failure. Change to a new CPU. D. Protective tube F100 failure. Change to a new protective tube.
2	PLL is unlocked (beeping)	A. The PLL crystal oscillator X300 is broken, please change to a new one. B. The oscillation tube is broken, please change to a new one. C. The PLL chip IC300 is broken, please change to a new one.
3	Communication Failure	A. The frequency is not the same. Please reselect a channel with the same frequency B. The signaling codes of CTCSS/DCS are different, please reset them with the computer. C. Beyond the communication range.

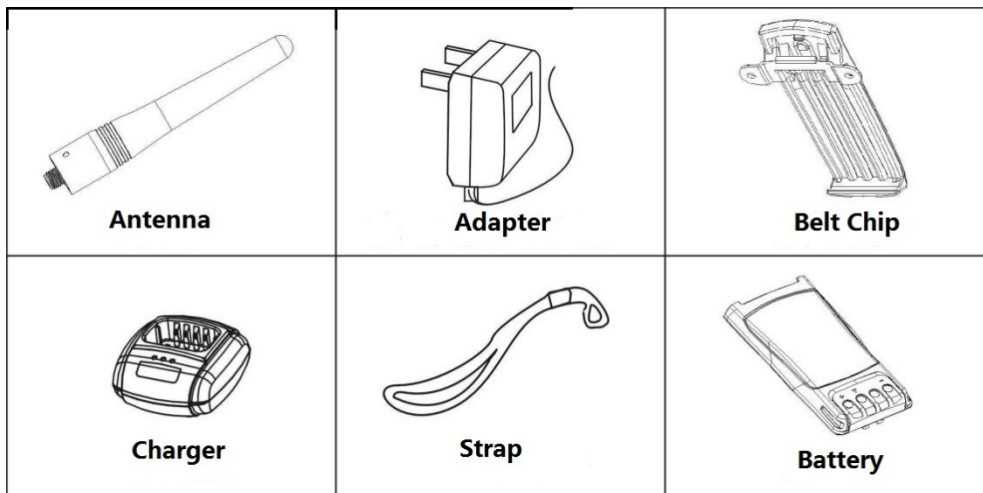
4	No Signal	<p>A. The antenna is in poor contact, please fasten it again.</p> <p>B. Low sensitivity, adjust the parameter in the “test mode” .</p> <p>C. The high-mu tube Q703 is broken, please change it.</p> <p>D. The squelch level is too high to turn it on, please adjust the squelch level.</p> <p>E. Mixer tube Q702 is broken, please change it.</p> <p>F. FM processing chip IC700 is broken, please change to a new IC.</p>
5	No voice on the receiving radio when the indicator glows red on the transmitting radio.	<p>A. The power amplifying tube is broken with no power output, please change it.</p> <p>B. The microphone is broken, please change it.</p> <p>C. The operational amplifier Q601 is broken, please change it.</p>
6	No voice received when the indicator glows green.	<p>A. The speaker is broken, please change it.</p> <p>B. The audio power amplifier U800 is broken, please change to a new IC.</p> <p>C. The switch diode Q801 is broken, please change it.</p>
7	Abnormal Programming	<p>A. Improper connection, please check the cable connection.</p> <p>B. The computer serial port output is abnormal, please check the computer.</p> <p>C. The earphone jack is in poor contact, please check it and change it if broken.</p>

Appendix 1 Abbreviation

AMP	Amplify, Amplifier
ANT	Antenna
APC	Automatic Power Control
BPF	Band Pass Filter
CTCSS	Continuous Tone Control Squelch System
DCS	Digital Code Squelch
DEMODO	Demodulation
E2PROM	Electrically Erasable Programmable Read-Only Memory
HPF	High Pass Filter
IDC	Instantaneous Deviation Control
IF	Intermediate Frequency
LED	Light-Emitting Diode
LNA	Low Noise Amplifier
LPF	Low Pass Filter
MCU	Micro Control Unit
MIC	Microphone
MOD	Modulation
MONI	Monitor
PLL	Phase-Lock Loop
PTT	Push-To-Talk
RX	Receiver
SPK	Speaker
TCXO	Temperature Control Oscillator
TX	Transmitter
UL	Un-Lock
VCO	Voltage Control Oscillator

Appendix 2 Accessory List

Accessory	Quantity
Antenna	1
Adapter	1
Belt Clip	1
Intelligent Charger	1
Strap	1
Battery	1
User Guide	1



Appendix 3

List 1 Spare Part List (Electronic Section 400-470MHz)

Part Number	Item Name	Specification	Quantity	Plug-in Unit Position
	FP560-02	400-470MHz,4W, charger KBC-51	0	
6SS3-4109-AA	FP560-02 main unit	400-470MHz, 6.25K,pb-free	1	
6SS1-4083-HMC	FP520-02 main unit SMD (change vocoder)	FP520-02,,pb-free	1	
0SS1-4083-HMC	FP520-02 main unit SMD (change vocoder)	FP520-02, pb-free	1	
1DS1-HSC277	SMD switch diode tube	HSC277,1608	3	D402 D602 D700

1DS1-HVC131	SMD switch diode tube	HVC131(P1),1608	2	D600 D601
1DS1-DA2S10100L	SMD switch diode tube	DA2S10100L	3	D309 D310 D709
1DS1-RB706F-40	SMD switch diode tube	Schottky diode RB706F-40,SOT-323	1	D701
1DV1-1SV278	SMD varactor diode tube	1SV278(T1)	1	D304
1DV1-HVC376B	SMD varactor diode tube	HVC376B(B9)	13	D300 D301 D302 D303 D305 D306 D307 D308 D704 D705 D706 D707 D708
1DZ1-HZU5ALL	SMD regulated voltage diode tube	HZU5ALL,2012,5V	1	D604
1IL1-NJM2904V	SMD linear IC	Dual operational amplification NJM2904V,TSSOP-8	1	IC600
1IM1-AT24C512C	SMD memorizer IC	AT24C512C, ,pb-free	1	IC200
1IS1-MB15E03SL	SMD PLL IC	MB15E03SL,TSSOP-16	1	IC300
1IS1-PST9124NR	SMD reset IC	Reset IC,PST9124NR	1	IC202
1IS1-SCT3252PS	Digital baseband processor chip; forFP520 FP560	SCT3252PS, LQFP100, ,pb-free	1	U1
1IS1-SCT3252PN	Baseband chip	SCT3252PN	1	
1IM1-ST24	Vocoder, 6.25K series	vocoder/ST24, 6.25K series	1	
1IS1-GT3136	SMD specialized IC	GT3136,SSOP16	1	IC700
1IS1-TDA2822	SMD specialized IC	TDA2822	1	U800
1IS1-WM8758B	CODEC chip, for FP520 FP560	WM8758CB, 32-Pin QPN,5*5*0.9MM, ,	1	U6

		pb-free		
1IS1-XC6204B502 MR	SMD regulated voltage IC	Regulated voltage integrated 5V,SOT-23-5	1	IC100
1TF1-2SK1824	SMD FET	2SK1824(B1)	3	Q606 Q6 Q704
1TF1-2SK508NV-K52	SMD FET		2	Q302 Q307
1TF1-3SK318	SMD dual grid FET.	3SK318(YB-)	2	Q702 Q703
1TF1-RD01MUS2	SMD FET		1	Q601
1TF1-RD07MUS2 B	SMD FET	RD07MUS2B, ,p b-free	1	Q600
1TF1-ST2302	SMD FET	ST2302,SOT-23	2	Q802 Q803
1TT1-2SA1586	SMD triode	2SA1586	1	Q805
1TT1-2SC3356-R 24	SMD triode	2SC3356-R24,SO T23,NPN	1	Q603
1TT1-2SC4617-R	SMD triode	2SC4617-R(BR),E MT3	2	Q308 Q700
1TT1-2SC5108-Y	SMD triode	2SC5108-Y(MC), NPN	6	Q300 Q301 Q303 Q304 Q602 Q701
1TT1-DTA143TE	SMD triode	Digital triode,DTA143TE(93),SOT323	3	Q305 Q306 Q604
1TT1-DTC144EE	SMD triode	Digital triode , DTC144EE(26),S OT323	11	Q2 Q4 Q101 Q103 Q200 Q201 Q605 Q801 Q804 Q806 Q707
1TT1-FMMT717T A	SMD triode	FMMT717A,PNP, SOT23	1	Q800
1TT1-KTA1298-Y	SMD triode	KTA1298-Y,SOT2 3	4	Q1 Q3 Q100 Q102
2CA1-TZVY2Z100 A110	SMD adjusted capacitor	2-10P,+100/-0%,N P0±300PPm/°C	2	C335 C371
2CC1-10-C0G500 -100D	flake multi-layer capacitor	1005,10P±0.5P,50 V,C0G	4	C308 C309 C318 C321
2CC1-10-C0G500 -101J	flake multi-layer capacitor	1005,100P±5%,50 V,C0G	6	C329 C361 C375 C621 C643 C765
2CC1-10-C0G500 -120J	flake multi-layer capacitor	1005,12P±5%,50V ,C0G	2	C331 C363
2CC1-10-C0G500 -150J	flake multi-layer capacitor	1005,15P±5%,50V ,C0G	2	C327 C618
2CC1-10-C0G500 -160J	flake multi-layer capacitor	1005,16P±5%,50V ,C0G	1	C311
2CC1-10-C0G500 -180J	flake multi-layer capacitor	1005,18P±5%,50V ,C0G	2	C620 C732
2CC1-10-C0G500	flake multi-layer	1005,22P±5%,50V	2	C225 C227

-220J	capacitor	,C0G		
2CC1-10-C0G500 -270J	flake multi-layer capacitor	1005,27P±5%,50V ,C0G	1	C313
2CC1-10-C0G500 -2R0C	flake multi-layer capacitor	1005,2P±0.25P,50 V,C0G	2	C302,C731
2CC1-10-C0G500 -330J	flake multi-layer capacitor	1005,33P±5%,50V ,C0G	3	C754,C355,C612
2CC1-10-C0G500 -3R0C	flake multi-layer capacitor	1005,3P±0.25P,50 V,C0G	5	C702 C328 C741 C725 C724
2CC1-10-C0G500 -470J	flake multi-layer capacitor	1005,47P±5%,50V ,C0G	1	C306
2CC1-10-C0G500 -4R0C	flake multi-layer capacitor	1005,4P±0.25P,50 V,C0G	3	C324 C332 C364
2CC1-10-C0G500 -5R0C	flake multi-layer capacitor	1005,5P±0.25P,50 V,C0G	6	C305 C314 C315 C356 C703 C704
2CC1-10-C0G500 -680J	flake multi-layer capacitor	1005,68P±5%,50V ,C0G	1	C323
2CC1-10-C0G500 -6R0C	flake multi-layer capacitor	1005,6P±0.25P,50 V,C0G	4	C723 C700,C736,C333
2CC1-10-C0G500 -820J	flake multi-layer capacitor	1005,82P±5%,50V ,C0G	1	C759
2CC1-10-C0G500 -R50B	flake multi-layer capacitor	1005,0.5P±0.1P,5 0V,C0G	4	C343 C362 C325、C357
2CC1-10-X5R6R3 -105K	flake multi-layer capacitor	1005,1uF±10%,6. 3V,X5R	6	C81 C6 C60 C61 R807 C38
2CC1-10-X7R160- 104K	flake multi-layer capacitor	1005,100nF±10%, 16V,X7R	38	C40 C10 C12 C14 C21 C22 C23 C24 C25 C26 C27 C28 C32 C39 C50 C51 C55 C56 C89 C91 C92 C100 C101 C111 C114 C224 C334 C345,C707 C715 C749 C764 C801 C808 C816 C818 C819 C822
2CC1-10-X7R500- 333K	flake multi-layer capacitor	1005,33nF±10%,2 5V,	2	C48 C57
2CC1-10-X7R500- 102K	flake multi-layer capacitor	1005,1000P±10%, 50V,X7R	23	C34 C122 C304 C322 C347 C351 C366 C636 C645 C647 C706 C709 C711 C712 C713 C714 C742 C743 C751 C753 C72 C54 C41
2CC1-10-X7R500- 103K	flake multi-layer capacitor	1005,10nF±10%,5 0V,X7R	15	C46, C47, C720、C719 C5 C341 C112 C115 C629 C639 C640 C648 C726 C800 C812
2CC1-10-X7R500-	flake multi-layer	1005,1800P±10%,	2	C708 C820

182K	capacitor	50V,X7R		
2CC1-10-X7R500-471K	flake multi-layer capacitor	1005,470P±10%,50V,X7R	80	C42 C43 C45 C58 C59 C102 C104 C105 C107 C108 C110 C113 C207 C208 C221 C222 C230 C231 C232 C233 C300 C301 C316 C320 C336 C337 C338 C339 C53 C52 C755 C756 C757 C758 C760 C762 C763 C803 C804 C809 C810 C813 C814 C821
2CC1-16-C0G500-120J	flake multi-layer capacitor	1608,12P±5%,50V,C0G	1	C607
2CC1-16-C0G500-1R0C	flake multi-layer capacitor	1608,1P±0.25P,50V,C0G	1	C634
2CC1-16-C0G500-1R5C	flake multi-layer capacitor	1608,1.5P±0.25P,50V,C0G	1	C604
2CC1-16-C0G500-220J	flake multi-layer capacitor	1608,22P±5%,50V,C0G	1	C602
2CC1-16-C0G500-270J	flake multi-layer capacitor	1608,27P±5%,50V,C0G	1	C610
2CC1-16-C0G500-2R0C	flake multi-layer capacitor	1608,2P±0.25P,50V,C0G	2	C603 C614
2CC1-16-C0G500-330J	flake multi-layer capacitor	1608,33P±5%,50V,C0G	1	C326
2CC1-16-C0G500-3R5C	flake multi-layer capacitor	1608,3.5P/3.6±0.25P,50V,C0G	1	C605
2CC1-16-C0G500-4R0C	flake multi-layer capacitor	1608,4P±0.25P,50V,C0G	1	C616
2CC1-16-C0G500-5R0C	flake multi-layer capacitor	1608,5P±0.25P,50V,C0G	4	C365 C601 C613 C615
2CC1-16-C0G500-6R0C	flake multi-layer capacitor	1608,6P±0.25P,50V,C0G	1	C608
2CC1-16-C0G500-6R0D	flake multi-layer capacitor	1608,6P±0.5P,50V,C0G	1	C609
2CC1-16-X7R500-471K	flake multi-layer capacitor	1608,470P±10%,50V,X7R	1	C611
2CC1-20-Y5V160-106Z	flake multi-layer capacitor	2012,10uF+80%/-20%,16V,Y5V	24	C8 C9 C11 C15 C16 C17 C18 C63 C103 C106 C109 C116 C119 C319 C344 C348 C642 C750 C752 C802 C806 C815 C817 C49
2CT1-TS32-160-1R0M	SMD tantalum capacitor	3216,1µF±20%,16V,TS series (level	1	C359

		A)		
2CT1-TS32-350-R10M	SMD tantalum capacitor	3216,0.1 μ F \pm 20%, 35V,TS series (level A)	1	C358
2CT1-TS32-6R3-150M	SMD tantalum capacitor	3216,15 μ F \pm 20%,6.3V,TS series (level A)	2	C1 C376
2CT1-TS35-6R3-101M	SMD tantalum capacitor	C-TAN,100uF,20%,SIZE-B,6.3V	1	C805
2LH1-R401R5-R03-05	SMD chip inductor	Wire diameter ϕ 0.40, internal diameter ϕ 1.5,3 circles, pin height 0.5mm	8	L600 L601 L603 L709 L710 L711 L713 L714
2LH1-R401R5-R04-05	SMD chip inductor	Wire diameter ϕ 0.40, internal diameter ϕ 1.5,4 circles,pin height 0.5mm	2	L602 L605
2LH1-R401R5-R08-05	SMD chip inductor	Wire diameter ϕ 0.40, internal diameter ϕ 1.5,8 circles, high pin	1	L607
2LH1-R501R5-L05-05	SMD chip inductor	Wire diameter ϕ 0.50, internal diameter ϕ 1.5,5 circles, high pin	1	L606
2LL1-16-12NJ	lamination inductor	1608,12nH \pm 5%(MLG1608B12NJ/LL 1608-FH12N)	1	L611
2LL1-16-1R0K	lamination inductor	1608,1 μ H \pm 10%(MLF1608A1R0K)	1	L703
2LL1-16-22NJ	lamination inductor	1608,22nH \pm 5%(MLG1608B22NJ)	1	L311
2LL1-16-27NJ	lamination inductor	1608,27nH \pm 5%(MLG1608B27NJ)	1	L609
2LL1-16-33NJ	lamination inductor	1608,33nH \pm 5%(MLG1608B33NJ)	1	L313
2LL1-16-3N9S	lamination inductor	1608,3.9nH \pm 0.3nH(MLG1608B3N9S)	1	L604
2LL1-16-3R3K	lamination inductor	1608,3.3 μ H \pm 10%(MLF1608A3R3K TA00)	2	L309 L323
2LL1-16-82NJ	lamination inductor	1608,82nH \pm 5%(M	2	L307 L310

		LG1608B82NJ)		
2LL1-16-R22J	lamination inductor	1608,0.22 μ H \pm 5% (LG HK 1608R22J-T/MLG 1608B220N)	4	L306 L319 L324,L303
2LL1-16-R56K	lamination inductor	1608,560nH \pm 10% (MLF1608DR56K)	1	L300
2LW1-16UC-180J	SMD wire inductor	1608,18nH \pm 5%,ce ramic chip(C1608CB-18 NJ)	3	L301 L700 L304
2LW1-16UC-181J	SMD wire inductor	1608,180nH \pm 5%, ceramic chip (C1608CB-R18J)	1	L321
2LW1-16UC-680J	SMD wire inductor	1608,68nH \pm 5%, ceramic chip (C1608CB-68NJ)	2	L701 L706
2LW1-20UC-221J	SMD wire inductor	2012,220nH \pm 5%, ceramic chip (LQN21AR22J/LQ W2BHNR22J03L)	1	L608
2LW1-25UC-103J	SMD wire inductor	2520,10 μ H \pm 5%, ceramic chip (FLM2520-100J)	1	L305
2LW1-25UC-331K	SMD wire inductor	2520,330nH \pm 10%, ceramic chip (FLM2520-R33K/S GWI2520HR33J)	1	L704
2LW1-25UC-561K	SMD wire inductor	2520,560nH \pm 10%, ceramic chip (FLM2520-R56K)	1	L705
2LW1-32UC-170J	SMD wire inductor	3216,17nH \pm 5%, (LQN1A23NJ04/L QW31HN17NJ03L)murata	1	L322
2LW1-32UC-270J	SMD wire inductor	3216,27nH \pm 5% (LQN1A27NJ04/L QW31HN27NJ01L)	1	L308
2RE1-10-22R0	SMD precise resistor	1005,22 Ω \pm 1%	1	R804
2RE1-16-1503	SMD precise resistor	1608,150K \pm 1%	7	R617 R618 R619 R624 R625 R627 R628
2RS1-10-0000	flake resistor	1005,0 Ω	22	R45 C2、C3、R13、R206、R41 R14、R19 R1 R16 R17 R18

				R39 R40 R107 R143 R604 R616 R824 C73 C74 R51
2RS1-10-100J	flake resistor	1005,10Ω±5%	5	R231 R244 R300 R308 R324
2RS1-10-101J	flake resistor	1005,100Ω±5%	3	R321 R703 R248
2RS1-10-102J	flake resistor	1005,1K±5%	22	R823 R15 R38 R106 R197 R198 R229 R236 R237 R238 R239 R254 R255 R301 R304 R341 R602 R606 R719 R53 R50 R57
2RS1-10-103J	flake resistor	1005,10K±5%	28	R813 R815 R822 R806 R32 R227 R8 R33 R34 R35 R36 R37 R43 R100 R103 R250 R251 R252 R327 R337 R338 R339 R340 R344 R718 R801 R816
2RS1-10-104J	flake resistor	1005,100K±5%	9	R105 R342 R704 R724 R727 R739 R316 R4 C7
2RS1-10-105J	flake resistor	1005,1M±5%	8	R626 R725 R729 R730 R731 R732 R733 R734
2RS1-10-151J	flake resistor	1005,150Ω±5%	1	R333
2RS1-10-152J	flake resistor	1005,1.5K±5%	3	R607 R817 R331
2RS1-10-153J	flake resistor	1005,15K±5%	1	R25
2RS1-10-154J	flake resistor	1005,150K±5%	4	R716 R303 R314 R728
2RS1-10-182J	flake resistor	1005,1.8K±5%	1	R44
2RS1-10-184J	flake resistor	1005,180K±5%	1	R736
2RS1-10-204J	flake resistor	1005,200K±5%	1	R302
2RS1-10-220J	flake resistor	1005,22Ω±5%	5	R305 R323 R611 R715 R721
2RS1-10-221J	flake resistor	1005,220Ω±5%	2	R722 R726
2RS1-10-222J	flake resistor	1005,2.2K±5%	5	R7 R42 R101 R102 R800
2RS1-10-223J	flake resistor	1005,22K±5%	1	R26
2RS1-10-241J	flake resistor	1005,240Ω±5%	2	R310 R328
2RS1-10-271J	flake resistor	1005,270Ω±5%	3	R309 R318 R605
2RS1-10-272J	flake resistor	1005,2.7K±5%	1	R313
2RS1-10-273J	flake resistor	1005,27K±5%	2	R631 R720
2RS1-10-274J	flake resistor	1005,270K±5%	3	R104 R325 R326
2RS1-10-330J	flake resistor	1005,33Ω±5%	1	R610
2RS1-10-332J	flake resistor	1005,3.3K±5%	4	R312 R708 R711 R735
2RS1-10-333J	flake resistor	1005,33K±5%	2	C811 R701
2RS1-10-334J	flake resistor	1005,330K±5%	2	R228 R702
2RS1-10-392J	flake resistor	1005,3.9K±5%	2	R614 R738
2RS1-10-393J	flake resistor	1005,39K±5%	1	R612

2RS1-10-470J	flake resistor	1005,47Ω±5%	1	R600
2RS1-10-471J	flake resistor	1005,470Ω±5%	3	R11 R814 R811
2RS1-10-472J	flake resistor	1005,4.7K±5%	6	R706 R322 R343 R406 R407 R700
2RS1-10-473J	flake resistor	1005,47K±5%	16	R22 R23 R24 R27,R29 R30 R31 R240 R241 R242 R243 R601 R608 R613 R61 R62
2RS1-10-474J	flake resistor	1005,470K±5%	1	R805
2RS1-10-512J	flake resistor	1005,5.1K±5%	3	R199 R200 R218
2RS1-10-560J	flake resistor	1005,56Ω±5%	1	R710
2RS1-10-562J	flake resistor	1005,5.6K±5%	4	R812 R317 R603 R2
2RS1-10-563J	flake resistor	1005,56K±5%	3	R629 R705 R723
2RS1-10-564J	flake resistor	1005,560K±5%	1	R712
2RS1-10-823J	flake resistor	1005,82K±5%	1	R609
2RS1-16-000O	flake resistor	1608,0Ω	5	L100 L102 L103 L708 L610
2RS1-16-153J	flake resistor	1608,15K±5%	1	R615
2RS1-20-000O	flake resistor	2012,0Ω	1	L707
2RS1-32-R47J	flake resistor	3216,0.47Ω±5%	3	R620 R621 R622
2RT1-NTH5G16P 42B104K	SMD thermistor	1608,NTH5G16P4 2B104K07TH	1	R707
3ST1-SKRTLBE0 10	SMD tact switch	SKRTLBE010,4.5* 3.55*3.3mm(ALPS)	1	S1
4PE1-16-F2	SMD LED	1608,red light,19-21SUR/S5 30-A2/TR8	1	D202
4PE1-16-F5	SMD LED	1608, green light,,H19-213SYG C	1	D203
5FC1-D51606GQ 1-0705	SMD crystal filter	DSF753SDF,51.6 5MHz±3KHz/5dB, 7.0*5.0*1.3	1	Z1
5FE1-BLM11A221 SPT	SMD EMI suppressed filter	1608,BLM11A221 SPT/BLM18AG22 1S(0138-05)	9	FB1 FB7 FB8 FB9 FB12 FB16 FB17 L4 L5
5FE1-BLM11A601 S	SMD EMI suppressed filter	1608,BLM11A601 S/BLM18AG601S(0138-05)	15	L6 L7 L8 L10 L203 L314 L315 L316 L317 L318 L320 L613 L712 L715 L800
5FE1-BLM21P300 S	SMD EMI suppressed filter	2012,BLM21P300 S/BLM21PG300S(0149-05)	2	L612 L614
5OD1-12R28-ACL -2520	SMD temperature supplemented crysral oscillator	DSA221SJ,12.288 0MHz,±1.5PPm,-4 0~	1	Y3

		+85°C,2.5*2.0*0.8 mm		
5OT1-12R8-CEC3-0503	SMD temperature supplemented crystal oscillator	NT5032SA/NT5032SC,12.8MHz±2.5PPm,5.0*3.2*1.6mm	1	X300
5XC1-9R8-MPL20-0503	SMD crystal harmonic oscillator	9.8304MHz±30PPM,±50PPM,16P,-40°C to+80°C,NX5032GA	1	X200
6PM7-4083-HMB	FP560 UHFmainborad	FP520U-MAIN-140106.PCB;1.0MM; 47X101.5MM; FR-4,four layers; pb-free	1	Mainboard PCB
7MHP-7042-12A-W	battery connector	3600 568 567 7800	1	DC1
1ID1-MC74VHC1GT04	Single phase inverter IC for FP520 FP560	MC74VHC1GT04, SC-88A/SOT353, pg-free	1	U8
2CC1-20-Y5V160-105Z	layer multi-layer capacitor	2012,1uF+80%/-20%,16V,Y5V	2	C36 C218
3CF1-BL112-30RU	SMD FFC/FPC connector	Interval 0.5mm,30 chip,	1	J4
3FW1-42932-302320	SMD fuse	429003/433003/466003,3216,3A/32V	1	F100
2CC1-10-C0G500-3R0D	Flake multi-layer capacitor	1005,3.0P±0.25P, 50V,C0G,GJM1555C1H3R0CB01, HIQ	1	C226
2CC1-20-Y5V100-334Z	Flake multi-layer capacitor	2012,330nF+80%/-20%,10V,Y5V	1	C705
2CC1-10-C0G500-1R0C	Flake multi-layer capacitor	1005,1P±0.25P,50V,C0G	2	C728 ,C739
2CC1-10-C0G500-8R0C	Flake multi-layer capacitor	1005,8P±0.25P,50V,C0G	4	C738、C740、C734,C744
2CC1-10-C0G500-R75B	Flake multi-layer capacitor	1005,0.75P±0.1P, 50V,C0G	1	C729
1IS1-XC6204B332MR	SMD regulated voltage IC	Regulated voltage integrated 3.3V,SOT-23-5,150mA	2	IC101 IC4
2CC1-16-C0G500-1R5B	Flake multi-layer capacitor	1608,1.5P±0.1P,50V,C0G	1	D703
1IS1-XC6228D12	SMD specialized	Power	1	IC102

2VR	IC	IC,XC6228D122V R-G,SOT-25J,5PI N, ,pb-free		
2CT1-TS32-350-R 33M	SMD tantalum capacitor	3216,0.33 μ F \pm 20% ,35V,TS series(A level)	1	C360
1DV1-HVC350B	SMD varactor diode	HVC350B(B0),SO D523	1	D702
2RS1-10-331J	flake resistor	1005,330 Ω \pm 5%	4	R713、 R714 R330 R247
2CC1-10-C0G500 -7R0C	Flake multi-layer capacitor	1005,7P \pm 0.25P,50 V,C0G	1	C746
2RS1-10-123J	flake resistor	1005,12K \pm 5%	1	C823
2RS1-10-511J	flake resistor	1005,510 Ω \pm 5%	1	R332
2RS1-10-122J	flake resistor	1005,1.2K \pm 5%	1	R329
2RS1-10-682J	flake resistor	1005,6.8K \pm 5%	2	R20, R21
2CC1-10-X7R500- 271K	flake multi-layer resistor	1005,270P \pm 10%,5 0V,X7R	1	C307
1IP1-0FP520-R01	FP560 burning chip	CPU,M16C-M306 2LFGPGP, pb-free	1	IC2
1IP1-M16CM3062 LFGPGP	SMD CPU	CPU,M16C-M306 2LFGPGP,FLASH	1	
9FSO-6500V333	MCU software		1	
1IM1-25X32VSIG	SMD memorizer IC	25Q32BVSSIG,8P IN,SOIC, ,pb-free	1	IC3
6SS1-4085-HPA	FP560 PTT board SMD	FP520	1	
0SS1-4085-HPA	FP560 PTT board SMD	FP520	1	
6PD7-4083-HPA	FP560 PTT board	FP520-PTT-20130 816.PCB;thicknes s0.6MM; 52.9X10.1MM; FR-4;2 layers,pb-free	1	
2RS1-10-223J	flake resistor	1005,22K \pm 5%	1	R227
2RS1-10-512J	flake resistor	1005,5.1K \pm 5%	1	R1
6SS1-4091-HKA	FP560 KEYbaord SMD	FP560,pb-free	1	
0SS1-4091-HKA	FP560 keypad SMD	Keypad PCBA,2 layers, FP560KEY	1	
2CC1-10-X7R500- 102K	flake multi-layer capacitor	1005,1000P \pm 10%, 50V,X7R	1	C13
2CC1-10-X5R6R3 -105K	flake multi-layer capacitor	1005,1 μ F \pm 10%,6. 3V,X5R	2	C2 C3

2CC1-10-X7R500-471K	flake multi-layer capacitor	1005,470P±10%,50V,X7R	2	C105 C107
1TT1-DTC144EE	SMD triode	Digital triode DTC144EE(26),SOT323	2	Q1 Q201
2CC1-20-Y5V160-106Z	flake multi-layer capacitor	2012,10uF+80%/-20%,16V,Y5V	1	C106
3CF1-BL112-30RU	SMD FFC/FPC connector	Interval 0.5mm,30 chip	1	J1
3CF1-BL112-16RL	SMD FFC/FPC connector	Interval 0.5mm,16chip,BL112-16RL,	1	J2
4PE1-16-F9-A	SMD LED	LED, 0603, white, height 0.4mm	6	D1 D2 D3 D4 D5 D205
2RS1-16-000O	flake resistor	1608,0Ω	1	L102
2RS1-10-100J	flake resistor	1005,10Ω±5%	3	R1 R2 R244
2RS1-10-221J	flake resistor	1005,220Ω±5%	1	R250
2RS1-10-220J	flake resistor	1005,22Ω±5%	1	R3
6PD7-4091-HKB	FP560 KEY board PCB	FP560-key-14022 4.PCB SIZE:35X41mm thickness: 0.6mm 2 layers ,pb-free FR-4	1	PCB board
6SS3-CZ4083-A	KBC-51 charger	Charging current 800mA, input voltage:12V, automatically identify NI-MH or Lithium battery, pre-charge	1	
0SS3-4083-CMA	KBC-51 assembly	KBC-51,pb-free	1	
7GCR-080020-J	868P charger foot pad	rubber, Φ=8mm,δ=2mm	4	
7MCP-1846-01B-W0	charger top cover (cover die)	ABS ,pb-free	1	
7MCP-1846-02B-W0	charger bottom cover (cover die)	ABS, ,pb-free	1	
7MHP-7208-09A-W0	charger sink	ABS;black,pb-free	1	
7MCP-1846-05B-W0	guide beam	PMMA,transparent , ,pb-free	1	
7STF-020045A-SZYB-Z	M2.0*4.5 cross round head self-tapping screw	Hardened iron, Φ2mm*4.5mm	4	
7STF-026100A-S	M2.6*10	Hardened	4	

ZHT-B	crossthick-headed self-tapping screw	iron, $\Phi 2.6\text{mm} \times 10\text{mm}$		
6SS2-4083-CMA	KBC-51 charging board suite	nucleus	1	
0SS2-4083-CMA	KBC-51 charging board plug-in units	nucleus	1	
1DR3-P6KE30A	plug-in unit commutation diode	P6KE30A, DO15	1	
1IS3-TL431AA	plug-in unit specialized IC charger IC	TL431AA, TO92	1	
2CE3-GM350-101 M0812	plug-in unit Aluminum electrolysis capacitor charger	8 \times 12, 100 $\mu\text{F} \pm 20\%$, 35V, GM [replaced by 2CE3-GM350-101 M0611]	1	
2CE3-GM250-470 M0511	plug-in unit Aluminum electrolysis capacitor charger	5 \times 11, 47 $\mu\text{F} \pm 20\%$, 25V, GM 型	1	
2CE3-GM350-471 M1016	plug-in unit Aluminum electrolysis capacitor charger	10 \times 16, 470 $\mu\text{F} \pm 20\%$, 35V, GM 型	1	
2LI3-0911-331K	plug-in I-shaped inductor.	9 \times 11, 330 $\mu\text{H} \pm 10\%$, 3A	1	
3CP3-DS210-63K	DC power socket	DS210-6.3/DC-470	1	
4PE3-3R0-Y2-C	plug-in unit LED	$\Phi 3\text{mm}$, red light, long pin	1	
4PE3-3R0-Y4-C	plug-in unit LED	$\Phi 3\text{mm}$, yellow light, long pin	1	
4PE3-3R0-Y5-C	plug-in unit LED	$\Phi 3\text{mm}$, green light, long pin	1	
7MCC-1846-01A-N	charger spring tablet	$\delta = 0.3\text{mm}$, nickel-plated	4	
2RM3-12-R22J	Metal-coated resistor	1/2WF, 0.22R, $\pm 1\%$, pb-free	1	R16
6SS1-4083-CMA	KBC-51 charger SMD	nucleus	1	
0SS1-4083-CMA	KBC-51 charger SMD	nucleus	1	
1DR1-IN5819	SMD commutation diode	IN5819, SMD	3	
1TT1-MMBT3906	SMD triode	MMBT3906(2A), S	1	

		OT23,PNP(
1TT1-AO3401A	SMD triode	AO3401A,SOT-23 , can be replaced by 1TT3-2SB772SL	1	
1TT1-S9013LT1	SMD triode	S9013LT1,SOT-2 3,NPN	3	
2CC1-16-X7R500- 102K	flake multi-layer capacitor	1608,1000P±10%, 50V,X7R	3	
2CC1-16-Y5V250- 104Z	flake multi-layer capacitor	1608,100nF+80%, 25V,Y5V	7	
2RE1-16-1503	SMD precise resistor	1608,150K±1%	3	
2RE1-16-2402	SMD precise resistor	1608,24K±1%	1	
2RE1-16-3601	SMD precise resistor	1608,3.6K±1%	2	
2RE1-16-5102	SMD precise resistor	1608,51K±1%	2	
2RE1-16-8201	SMD precise resistor	1608,8.2K±1%	1	
2RS1-16-100J	flake resistor	1608,10Ω±5%	1	
2RS1-16-102J	flake resistor	1608,1K±5%	5	
2RS1-16-103J	flake resistor	1608,10K±5%	6	
2RS1-16-202J	flake resistor	1608,2K±5%	1	
2RS1-16-204J	flake resistor	1608,200K±5%	1	
2RS1-16-362J	flake resistor	1608,3.6K±5%	1	
2RS1-16-510J	flake resistor	1608,51Ω±5%	1	
2RS1-16-513J	flake resistor	1608,51K±5%	1	
2RS1-20-000O	flake resistor	2012,0Ω	14	
1IP1-1936-CM-L1	SMD CPU IC charger chip 51c	MCU,GT6312,SO P-20, program version M-1936-CM-L1 0308	1	
6PS7-1979-CMB	charging plate	1979-CMB.PCB, board thickness 1.6mm	1	
2RE1-16-1002	SMD precise resistor	1608,10K±1%	1	

List 2 Spare Part List (Electronic Section 136-174MHz)

Part Number	Item Name	Specification	Quantity	Plug-in Unit Postion
6SS1-4085-HMB	FP520-01 main board SMD	FP520-01, 136-174MHz.	1	
0SS1-4085-HMD	FP520-01mainb oard SMD	FP520-01mainboard SMD,136-174MHz.	1	
6PM7-4085-HMB	FP520 VHF mainboard	FP520V-MAIN-1401 06.PCB;1.0MM ; 47X101.5MM,FR-4;f our-layers,pb-free	1	FP520
7MHP-7042-12A- W	battery connector	3600 568 567 7800	1	DC1
1DS1-DA2S1010 0L	SMD switch diode	DA2S10100L	3	D309 D310 D709
1DS1-HSC277	SMD switch diode	HSC277,1608	2	D402 D700
1DS1-HVC131	SMD switch diode	HVC131(P1),1608	4	D600 D601 D602 D603
1DS1-RB706F-40	SMD switch diode	Schottky diode, RB706F-40,SOT-32 3	1	D701
1DV1-1SV278	SMD varactor	1SV278(T1)	1	D304
1DV1-1SV305	SMD varactor	1SV305	4	D704 D706 D707 D708
1DV1-1SV325	SMD varactor 7200 , 568,4208,8200,4 200-4,5200V , 7808	1SV325(V8)	2	D300 D302
1DV1-HVC376B	SMD varactor	HVC376B(B9)	4	D305 D306 D307 D308
1DZ1-HZU5ALL	SMD regulated voltage diode	HZU5ALL,2012,5V	1	D604
1ID1-MC74VHC1 GT04	Reverter IC, FP520 FP560	MC74VHC1GT04 , SC-88A/SOT353 , pb-free	1	U8
1IL1-NJM2904V	SMD linear IC	Dual operational amplification NJM2904V,TSSOP- 8	1	IC600

1IM1-25X32VSI	SMD memorizer , IC	25Q32BVSSIG,8PIN ,SOIC,pb-free	1	IC3
1IM1-AT24C512C	SMD memorizer IC	AT24C512C, pb-free	1	IC200
1IS1-GT3136	SMD IC	GT3136,SSOP16	1	IC700
1IS1-MB15E03SL	SMD PLL IC	MB15E03SL,TSSOP-16	1	IC300
1IS1-PST9124NR	SMD reset IC	Reset IC,PST9124NR	1	IC202
1IS1-SCT3252PS	Digital baseband processor chip	SCT3252PS , LQFP100, pb-free	1	U1
1IS1-SCT3252PN	Baseband chip	SCT3252PN , baseband chip	1	
1IM1-ST24	Vocoder	vocoder/ST24 , 6.25K series	1	
1IS1-TDA2822	SMD IC	TDA2822	1	U800
1IS1-UPB1509GV	SMD IC	Frequency divider UPB1509GV,SSOP	1	IC4
1IS1-WM8758B	CODEC chip FP520 FP560	WM8758CB, 32-Pin QPN,5*5*0.9MM, pb-free	1	U6
1IS1-XC6204B332MR	SMD voltage regulator IC	3.3V,SOT-23-5,150 mA	2	IC101 IC5
1IS1-XC6204B502MR	SMD voltage regulator IC	5V,SOT-23-5	1	IC100
1TF1-2SK1824	SMD FET	2SK1824(B1)	3	Q606 Q6 Q704
1TF1-RD07MUS2B	SMD FET	RD07MUS2B , pb-free	1	Q600
1TF1-2SK508NV-K52	SMD FET		2	Q302 Q307
1TF1-3SK318	SMD dual grid FET	3SK318(YB-)	2	Q702 Q703
1TF1-RD01MUS2	SMD FET		1	Q601
1TF1-ST2302	SMD FET	ST2302,SOT-23	2	Q802 Q803
1TT1-2SA1586	SMD triode	2SA1586	1	Q805
1TT1-2SC3356-R24	SMD triode	2SC3356-R24,SOT23,NPN	1	Q603
1TT1-2SC4617-R	SMD triode	2SC4617-R(BR),EM	2	Q308 Q700

		T3		
1TT1-2SC5108-Y	SMD triode	2SC5108-Y(MC),NP N	6	Q300 Q301 Q303 Q304 Q602 Q701
1TT1-DTA143TE	SMD triode	Digital triode DTA143TE(93),SOT 323	3	Q305 Q306 Q604
1TT1-DTC144EE	SMD triode	Digital triode DTC144EE(26),SOT 323	11	Q2 Q4 Q101 Q103 Q200 Q201 Q605 Q801 Q804 Q806 Q707
1TT1-FMMT717T A	SMD triode	FMMT717A,PNP,S OT23	1	Q800
1TT1-KTA1298-Y	SMD triode	KTA1298-Y,SOT23	4	Q1 Q3 Q100 Q102
2CA1-TZVY2Z10 0A110	SMD adjustment capacitor	2-10P,+100/-0%,NP 0±300PPm/°C	2	C335 C371
2CC1-10-C0G50 0-100D	flake multi-layer capacitor	1005,10P±0.5P,50V, C0G	5	C308 C309 C318 C321 C328
2CC1-10-C0G50 0-101J	flake multi-layer capacitor	1005,100P±5%,50V, C0G	6	C612 C765 C375 C643 C725 C751
2CC1-10-C0G50 0-151J	flake multi-layer capacitor	1005,150P±5%,50V, C0G	3	C323 C718 C722
2CC1-10-C0G50 0-150J	flake multi-layer capacitor	1005,15P±5%,50V, C0G	1	C62
2CC1-10-C0G50 0-160J	flake multi-layer capacitor	1005,16P±5%,50V, C0G	1	C311
2CC1-10-C0G50 0-180J	flake multi-layer capacitor	1005,18P±5%,50V, C0G	2	C620 C732
2CC1-10-C0G50 0-181J	flake multi-layer capacitor	1005,180P±5%,50V, C0G	1	C355
2CC1-10-C0G50 0-220J	flake multi-layer capacitor	1005,22P±5%,50V, C0G	1	C52
2CC1-10-C0G50 0-270J	flake multi-layer capacitor	1005,27P±5%,50V, C0G	3	C313 C225、C227
2CC1-10-C0G50 0-2R0C	flake multi-layer capacitor	1005,2P±0.25P,50V, C0G	3	C302 C747 C729
2CC1-10-C0G50 0-330J	flake multi-layer capacitor	1005,33P±5%,50V, C0G	6	C704 C736 C740 C744 C746 C754
2CC1-10-C0G50 0-3R0C	flake multi-layer capacitor	1005,3P±0.25P,50V, C0G	3	C305 C731 C745
2CC1-10-C0G50 0-3R5C	flake multi-layer capacitor	1005,3.5P±0.25P,50 V,C0G	1	C332
2CC1-10-C0G50 0-470J	flake multi-layer capacitor	1005,47P±5%,50V, C0G	2	C306,C618
2CC1-10-C0G50 0-4R0C	flake multi-layer capacitor	1005,4P±0.25P,50V, C0G	5	C364 C724 C737 C356 C363
2CC1-10-C0G50	flake multi-layer	1005,4.7P±0.25P,50	1	C741

0-4R7C	capacitor	V,C0G		
2CC1-10-C0G50 0-5R0C	flake multi-layer capacitor	1005,5P±0.25P,50V,C0G	5	C621 C314 C315 C324 C723
2CC1-10-C0G50 0-820J	flake multi-layer capacitor	1005,82P±5%,50V,C0G	1	C759
2CC1-10-C0G50 0-8R0D	flake multi-layer capacitor	1005,8P±0.5P,50V,C0G	1	C703
2CC1-10-C0G50 0-9R0D	flake multi-layer capacitor	1005,9P±0.5P,50V,C0G	1	C702
2CC1-10-C0G50 0-R50B	flake multi-layer capacitor	1005,0.5P±0.1P,50V,C0G	3	C325 C343 C357
2CC1-10-X5R6R 3-105K	flake multi-layer capacitor	1005,1uF±10%,6.3V,X5R	6	C81 C38 C60 C61 R807 C6
2CC1-10-X7R160 -104K	flake multi-layer capacitor	1005,100nF±10%,16V,X7R	39	C40 C10 C21 C22 C24 C25 C26 C27 C28 C32 C50 C51 C55 C56 C89 C91 C14 C23 C12 C39 C92 C100 C101 C111 C114 C224 C334 C345 C707 C715 C749 C764 C801 C808 C816 C818 C819 C822 C712
2CC1-10-X7R500 -333K	flake multi-layer capacitor	1005,33nF±10%,25V	2	C48 C57
2CC1-10-X7R500 -102K	flake multi-layer capacitor	1005,1000P±10%,50V,X7R	34	R12 C34 C64 C327 C622 C633 C638 C733 C735 C742 C743 C757 C758 C760 C762 C763 C122 C304 C322 C347 C351 C366 C636 C645 C647 C706 C709 C711 C713 C714 C719 C753 C72 C71
2CC1-10-X7R500 -103K	flake multi-layer capacitor	1005,10nF±10%,50V,X7R	12	C5 C112 C115 C629 C639 C640 C648 C726 C800 C812 C720 C41
2CC1-10-X7R500 -182K	flake multi-layer capacitor	1005,1800P±10%,50V,X7R	2	C708 C820
2CC1-10-X7R500 -471K	flake multi-layer capacitor	1005,470P±10%,50V,X7R	70	C338 C339 C340 C346 C349 C350 C352 C353 C367 C368 C369 C372 C373 C432 C619 C623 C626 C627 C628 C630 C631 632 C635 C641 C644 C646 C716 C717 C727 C755 C756 C803 C804 C809 C810 C813 C814 C821 C730 C70 C69

2CC1-16-C0G50 0-100D	flake multi-layer capacitor	1608,10P±0.5P,50V, C0G	4	C501 C508 C509 C514
2CC1-16-C0G50 0-110J	flake multi-layer capacitor	1608,11P±5%,50V, C0G	1	C504
2CC1-16-C0G50 0-120J	flake multi-layer capacitor	1608,12P±5%,50V, C0G	1	C503
2CC1-16-C0G50 0-130J	flake multi-layer capacitor	1608,13P±5%,50V, C0G	1	C516
2CC1-16-C0G50 0-180J	flake multi-layer capacitor	1608,18P±5%,50V, C0G	1	C515
2CC1-16-C0G50 0-270J	flake multi-layer capacitor	1608,27P±5%,50V, C0G	1	C65
2CC1-16-C0G50 0-330J	flake multi-layer capacitor	1608,33P±5%,50V, C0G	1	C326
2CC1-16-C0G50 0-5R0C	flake multi-layer capacitor	1608,5P±0.25P,50V, C0G	1	C365
2CC1-16-C0G50 0-680J	flake multi-layer capacitor	1608,68P±5%,50V, C0G	2	C66 C634
2CC1-16-C0G50 0-7R0D	flake multi-layer capacitor	1608,7P±0.5P,50V, C0G	1	C505
2CC1-16-X7R500 -102K	flake multi-layer capacitor	1608,1000P±10%,5 0V,X7R	1	C611
2CC1-20-Y5V100 -334Z	flake multi-layer capacitor	2012,330nF+80%/-2 0%,10V,Y5V	1	C705
2CC1-20-Y5V160 -106Z	flake multi-layer capacitor	2012,10uF+80%/-20 %,16V,Y5V	24	C8 C9 C11 C15 C16 C17 C18 C63 C103 C106 C109 C116 C119 C319 C344 C348 C642 C750 C752 C802 C806 C815 C817 C68
2CT1-TS32-160- 3R3M	SMD tantalum capacitor	3216,3.3μF±20%,16 V,TS series(level A)	1	C359
2CT1-TS32-350- R10M	SMD tantalum capacitor	3216,0.1μF±20%,35 V,TS series(level A)	1	C360
2CT1-TS32-350- R33M	SMD tantalum capacitor	3216,0.33μF±20%,3 5V,TS series(level A)	1	C358
2CT1-TS32-6R3- 150M	SMD tantalum capacitor	3216,15μF±20%,6.3 V,TS series(level A)	2	C1 C376
2CT1-TS35-100- 470M	SMD tantalum capacitor	3528,47μF±20%,10 V,TS series(level B)	1	C805
2LH1-R301R5-L0 5-05	SMD inductor	Wire diameter φ0.30, internal diameter φ1.5 5 circles, high pin	1	L11
2LH1-R301R0-L0 7-05	SMD inductor	Wire diameter φ0.30, internal	1	L501

		diameter ϕ 1.0, 7 circles, high pin		
2LH1-R301R5-R 07-05	SMD inductor	Wire diameter ϕ 0.30, internal diameter, 1.5 7 circles, high pin	3	L505,L502,L503
2LH1-R401R5-R 03-05	SMD inductor	Wire diameter ϕ 0.40, internal diameter, ϕ 1.5,3 circles, pin height 0.5mm	2	L9 L500
2LH1-R401R5-L0 8-05	SMD inductor	Wire diameter, ϕ 0.40, internal diameter, ϕ 1.5,8 circles, high pin	1	L607
2LL1-16-1R0K	lamination inductor	1608,1 μ H \pm 10%(MLF 1608A1R0K)	1	L703
2LL1-16-22NJ	lamination inductor	1608,22nH \pm 5%(ML G1608B22NJ)	1	L610
2LL1-16-33NJ	lamination inductor	1608,33nH \pm 5%(ML G1608B33NJ)	2	L700 L301
2LL1-16-39NJ	lamination inductor	1608,39nH \pm 5%(ML G1608B39NJ)	1	L311
2LL1-16-3R3K	lamination inductor	1608,3.3 μ H \pm 10%(M LF1608A3R3K TA00)	2	L309 L323
2LL1-16-82NJ	lamination inductor	1608,82nH \pm 5%(ML G1608B82NJ)	2	L313 L609
2LL1-16-R10J	lamination inductor	1608,0.1uH \pm 5%(ML G1608BR10J/MLG1 608B100NJ/HK1608 R10J-T)	2	L611 L307
2LL1-16-68NJ	lamination inductor	1608,68nH \pm 5%(ML G1608B68NJ)	1	L701
2LL1-16-R18J	lamination inductor	1608,0.18 μ H \pm 5%(L G HK 1608R18J-T/MLG16 08B180N)	2	L321 L324
2LL1-16-R22J	lamination inductor	1608,0.22 μ H \pm 5%(L G HK 1608R22J-T/MLG16 08B220N)	4	L306 L310 L319 L303
2LL1-16-R56K	lamination inductor	1608,560nH \pm 10%(M LF1608DR56K)	1	L300
2LW1-16UC-180 J	SMD wire inductor	1608,18nH \pm 5%,cera mic core,	1	L304

		(C1608CB-18NJ)		
2LW1-20UC-220 G	SMD inductor	wire ceramic core (C2012CB-22NG)	1	L308
2LW1-20UC-221 J	SMD inductor	wire ceramic core (LQN21AR22J/LQW 2BHNR22J03L)	1	L608
2LW1-20UC-390 GA	SMD inductor	wire ceramic core (C2012C-39NG)	1	L322
2LW1-20UC-470 J	SMD inductor	wire ceramic core (C2012C-47NJ)	1	L714
2LW1-20UC-680 J	SMD inductor	wire ceramic core (C2012C-68NJ)	1	L2
2LW1-20UC-560 JA	SMD inductor	wire ceramic core (C2012C-56NJ)	3	L706 L709 L713
2LW1-25UC-102 JA	SMD inductor	wire ceramic core (FHW1008UC1R0J)	1	L606
2LW1-25UC-103 J	SMD inductor	wire ceramic core (FLM2520-100J)	1	L305
2LW1-25UC-331 K	SMD inductor	wire ceramic core (FLM2520-R33K/SG WI2520HR33J)	1	L704
2LW1-25UC-821 K	SMD inductor	wire ceramic core (FLM2520-R82K)	1	L705
2RE1-16-1503	SMD resistor	precise 1608,150K±1%	7	R617 R618 R619 R624 R625 R627 R628
2RS1-10-000O	flake resistor	1005,0Ω	28	C700,C2,C3,C73,C74,R65,C 226 R1 R16 R17 R18 R39 R40 R107 R143 R604 R616 R20 R824 R721 R739 C721 R206 R13 R14 R19 R60 R41
2RS1-10-100J	flake resistor	1005,10Ω±5%	5	R231 R244 R300 R308 R324
2RS1-10-101J	flake resistor	1005,100Ω±5%	6	R321 R309 R328 R333 R703 R248
2RS1-10-102J	flake resistor	1005,1K±5%	23	R717 R15 R51 R106 R197 R198 R229 R236 R237 R238

				R239 R254 R255 R301 R304 R341 R602 R822 R823 R331 R52 R53 R57
2RS1-10-103J	flake resistor	1005,10K±5%	28	R813 R809 R806 R8 R33 R34 R35 R36 R37 R38 R43 R100 R103 R250 R251 R252 R327 R337 R338 R339 R340 R344 R700 R718 R801 R815 R816 R32
2RS1-10-123J	flake resistor	1005,12K±5%	2	C823 R21
2RS1-10-104J	flake resistor	1005,100K±5%	2	R704 R724 R105 R342 R736 R316 R601 R4 C7
2RS1-10-105J	flake resistor	1005,1M±5%	5	R626 R729 R731 R732 R734
2RS1-10-152J	flake resistor	1005,1.5K±5%	1	R607
2RS1-10-153J	flake resistor	1005,15K±5%	1	R25
2RS1-10-154J	flake resistor	1005,150K±5%	2	R303 R314
2RS1-10-181J	flake resistor	1005,180Ω±5%	1	R310
2RS1-10-182J	flake resistor	1005,1.8K±5%	2	R44 R817
2RS1-10-184J	flake resistor	1005,180K±5%	1	R727
2RS1-10-204J	flake resistor	1005,200K±5%	1	R302
2RS1-10-220J	flake resistor	1005,22Ω±5%	4	R305 R611 R715 R804
2RS1-10-221J	flake resistor	1005,220Ω±5%	1	R726
2RS1-10-222J	flake resistor	1005,2.2K±5%	5	R7 R42 R101 R102 R800
2RS1-10-223J	flake resistor	1005,22K±5%	1	R26
2RS1-10-271J	flake resistor	1005,270Ω±5%	1	R605
2RS1-10-272J	flake resistor	1005,2.7K±5%	3	R313,C46,R603
2RS1-10-273J	flake resistor	1005,27K±5%	2	R631 R720
2RS1-10-274J	flake resistor	1005,270K±5%	3	R104 R325 R326
2RS1-10-330J	flake resistor	1005,33Ω±5%	1	R610
2RS1-10-331J	flake resistor	1005,330Ω±5%	7	R50 R318 R606 R714 R330 R713 R247
2RS1-10-332J	flake resistor	1005,3.3K±5%	4	R317 R708 R711 R735
2RS1-10-333J	flake resistor	1005,33K±5%	4	C811 R701,R613,R609
2RS1-10-334J	flake resistor	1005,330K±5%	2	R228 R702
2RS1-10-392J	flake resistor	1005,3.9K±5%	2	R614 R738
2RS1-10-393J	flake resistor	1005,39K±5%	1	R612
2RS1-10-470J	flake resistor	1005,47Ω±5%	2	R323 R600
2RS1-10-471J	flake resistor	1005,470Ω±5%	3	R811 R814 R332
2RS1-10-562J	flake resistor	1005,5.6K±5%	3	R2,R312, R812
2RS1-10-472J	flake resistor	1005,4.7K±5%	5	R706 R322 R343 R406 R407
2RS1-10-473J	flake resistor	1005,47K±5%	14	R22 R23 R24 R27 R29 R30 R31 R227 R240 R241 R242 243 R608 R61

2RS1-10-474J	flake resistor	1005,470K±5%	2	R716 R805
2RS1-10-512J	flake resistor	1005,5.1K±5%	3	R199 R200 R218
2RS1-10-560J	flake resistor	1005,56Ω±5%	2	R710,R722
2RS1-10-563J	flake resistor	1005,56K±5%	1	R629
2RS1-10-564J	flake resistor	1005,560K±5%	1	R712
2RS1-10-823J	flake resistor	1005,82K±5%	2	R705 R723
2RS1-16-000O	flake resistor	1608,0Ω	4	L100 L102 L103 L708
2RS1-16-153J	flake resistor	1608,15K±5%	1	R615
2RS1-20-000O	flake resistor	2012,0Ω	1	L707
2RS1-32-R47J	flake resistor	3216,0.47Ω±5%	3	R620 R621 R622
2RT1-NTH5G16P 42B104K	SMD thermistor	1608,NTH5G16P42 B104K07TH	1	R707
3CF1-BL112-30R U	SMD FFC/FPC connector	Interval 0.5mm, 30 chip	1	J201
3FW1-42932-302 320	SMD fuse	429003/433003/466 003,3216,3A/32V	1	F100
3ST1-SKRTLBE0 10	SMD tact switch	SKRTLBE010,4.5*3. 55*3.3mm(ALPS)	1	S1
4PE1-16-F2	SMD LED	1608, red light, 19-21SUR/S530-A2/ TR8	1	D202
4PE1-16-F5	SMD LED	1608, green light, H19-213SYGC	1	D203
5FC1-D51606GQ 1-0705	SMD crystal filter for FP520	DSF753SDF,51.65 MHz±3KHz/5dB,7.0* 5.0*1.3	1	Z1
5FE1-BLM11A22 1SPT	SMD EMI suppressed filter	1608,BLM11A221S PT/BLM18AG221S(0138-05)	9	FB1 FB7 FB8 FB9 FB12 FB16 FB17 L4 L5
5FE1-BLM11A60 1S	SMD EMI suppressed filter	1608,BLM11A601S/ BLM18AG601S(013 8-05)	16	L3 L6 L7 L8 L10 L203 L314 L315 L316 L317 L318 L320 L613 L712 L715 L800
5FE1-BLM21P30 0S	SMD EMI suppressed filter	2012,BLM21P300S/ BLM21PG300S(014 9-05)	2	L612 L614
5OD1-12R28-AC L-2520	SMD temperature compensated crystal oscillator	DSA221SJ,12.2880 MHz,±1.5PPm,-40 ~ +85 °C ,2.5*2.0*0.8m m	1	Y3
5OT1-12R8-ACL 4-0303	SMD temperature compensated crystal oscillator	12.8MHz±1.5ppm,V cont=1.5V±1.0V , dragging range±20ppm,-40 °C ~+85	1	X300
5XC1-9R8-MPL2	SMD crystal	9.8304MHz±30PPM,	1	X200

0-0503	oscillator	±50PPM,16P,-40 °C to+80°C,NX5032GA		
1DR1-1SR154-400	SMD commutation diode	1SR154-400,4532	1	D100
1IS1-XC6228D122VR	SMD specialized IC	Power IC,XC6228D122VR- G,SOT-25J,5PIN,pb- free	1	IC102
2LL1-16-27NJ	lamination inductor	1608,27nH±5%(ML G1608B27NJ)	1	L604
2RS1-10-224J	flake resistor	1005,220K±5%	1	R728
2CC1-10-C0G500-390J	flake multi-layer capacitor	1005,39P±5%,50V, C0G	1	C734
2CC1-10-C0G500-7R0D	flake multi-layer capacitor	1005,7P±0.5P,50V, C0G	2	C333 C331
2RS1-10-681J	flake resistor	1005,680Ω±5%	1	R329
2CC1-20-Y5V160-105Z	flake multi-layer capacitor	2012,1uF+80%/-20 %,16V,Y5V	2	C36 C218
2CC1-16-C0G500-200J	flake multi-layer capacitor	1608,20P±5%,50V, C0G	1	C613
2CC1-16-C0G500-121J	flake multi-layer capacitor	1608,120P±5%,50V, C0G	1	C610
1IP1-0FP520-R01	burning chip	CPU,M16C-M3062L FGPGP,pb-free	1	IC2
1IP1-M16CM3062LFGPGP	SMD CPU	CPU,M16C-M3062L FGPGP,FLASH	1	
9FSO-6500V333	MCU software		1	
1IM1-25X32VSIG	SMD memorizer, IC	25Q32BVSSIG,8PIN ,SOIC,pb-free	1	IC3
6SS1-4085-HPA	PTT board SMD	FP520 PTT	1	
0SS1-4085-HPA	PTT board SMD	FP520 PTT board SMD	1	
6PD7-4083-HPA	PTT board	FP520-PTT-201308 16.PCB;thickness0. 6MM ; 52.9X10.1MM ; FR-4;2 layers, pb-free	1	
2RS1-10-223J	flake resistor	1005,22K±5%	1	R227
2RS1-10-512J	flake resistor	1005,5.1K±5%	1	R1
6SS1-4091-HKA	FP560KEYboard SMD	FP560 pb-free	1	
0SS1-4091-HKA	FP560 keypad SMD	Keypad PCBA,2 layers, FP560KEY	1	

2CC1-10-X7R500-102K	flake multi-layer capacitor	1005,1000P±10%,50V,X7R	1	C13
6SS1-4085-HMB	FP520-01 mainboard SMD	FP520-01,136-174MHz.	1	
0SS1-4085-HMD	FP520-01 mainboard SMD	FP520-01 mainboard SMD,136-174MHz.	1	
6PM7-4085-HMB	FP520 VHF mainboard	FP520V-MAIN-140106.PCB;1.0MM ; 47X101.5MM; FR-4; four layers, pb-free	1	FP520- VHF mainboard PCB
7MHP-7042-12A-W	PT568 battery connector	3600 568 5677800	1	DC1
1DS1-DA2S10100L	SMD switch diode	DA2S10100L	3	D309 D310 D709
1DS1-HSC277	SMD switch diode	HSC277,1608	2	D402 D700
1DS1-HVC131	SMD switch diode	HVC131(P1),1608	4	D600 D601 D602 D603
1DS1-RB706F-40	SMD switch diode	Schottky diode, RB706F-40,SOT-323	1	D701
1DV1-1SV278	SMD varactor	1SV278(T1)	1	D304
1DV1-1SV305	SMD varactor	1SV305	4	D704 D706 D707 D708
1DV1-1SV325	SMD varactor	1SV325(V8)	2	D300 D302
1DV1-HVC376B	SMD varactor diode	HVC376B(B9)	4	D305 D306 D307 D308
1DZ1-HZU5ALL	SMD voltage regulator diode	HZU5ALL,2012,5V	1	D604
1ID1-MC74VHC1GT04	Reverter IC for FP520 FP560	MC74VHC1GT04 , SC-88A/SOT353 , pb-free	1	U8
1IL1-NJM2904V	SMD linear IC	Dual operational amplification NJM2904V,TSSOP-8	1	IC600
1IM1-25X32VSSIG	SMD memorizer IC	25Q32BVSSIG,8PIN ,SOIC,pb-free	1	IC3
1IM1-AT24C512C	SMD memorizer IC,	AT24C512C, pb-free	1	IC200
1IS1-GT3136	SMD specialized IC	GT3136,SSOP16	1	IC700
1IS1-MB15E03SL	SMD PLL IC	MB15E03SL,TSSOP-16	1	IC300
1IS1-PST9124N	SMD reset IC	Reset	1	IC202

R		IC,PST9124NR		
1IS1-SCT3252PS	Digital baseband processor chip for FP520 FP560	SCT3252PS , LQFP100, pb-free	1	U1
1IS1-SCT3252PN	Baseband chip	SCT3252PN	1	
1IM1-ST24	Vocoder	ST24, 6.25K series	1	
1IS1-TDA2822	SMD specialized IC	TDA2822	1	U800
1IS1-UPB1509GV	SMD specialized IC	Frequency divider UPB1509GV,SSOP	1	IC4
1IS1-WM8758B	CODEC chip for FP520 FP560	WM8758CB, 32-Pin QPN, 5*5*0.9MM,pb-free	1	U6
1IS1-XC6204B332MR	SMD voltage regulator IC	3.3V,SOT-23-5,150mA	2	IC101 IC5
1IS1-XC6204B502MR	SMD voltage regulator IC	5V,SOT-23-5	1	IC100
1TF1-2SK1824	SMD FET	2SK1824(B1)	3	Q606 Q6 Q704
1TF1-RD07MUS2B	SMD FET	RD07MUS2B , pb-free	1	Q600
1TF1-2SK508NV-K52	SMD FET		2	Q302 Q307
1TF1-3SK318	SMD dual grid FET	3SK318(YB-)	2	Q702 Q703
1TF1-RD01MUS2	SMD FET		1	Q601
1TF1-ST2302	SMD FET	ST2302,SOT-23	2	Q802 Q803
1TT1-2SA1586	SMD triode	2SA1586	1	Q805
1TT1-2SC3356-R24	SMD triode	2SC3356-R24,SOT23,NPN	1	Q603
1TT1-2SC4617-R	SMD triode	2SC4617-R(BR),EMT3	2	Q308 Q700
1TT1-2SC5108-Y	SMD triode	2SC5108-Y(MC),NPN	6	Q300 Q301 Q303 Q304 Q602 Q701
1TT1-DTA143TE	SMD triode	Digital triode, DTA143TE(93),SOT323	3	Q305 Q306 Q604
1TT1-DTC144EE	SMD triode	Digital triode , DTC144EE(26),SOT323	11	Q2 Q4 Q101 Q103 Q200 Q201 Q605 Q801 Q804 Q806 Q707
1TT1-FMMT717TA	SMD triode	FMMT717A,PNP,SOT23	1	Q800
1TT1-KTA1298-Y	SMD triode	KTA1298-Y,SOT23	4	Q1 Q3 Q100 Q102

2CA1-TZVY2Z10 0A110	SMD adjusted capacitor	2-10P,+100/-0%,NP 0±300PPm/°C	2	C335 C371
2CC1-10-C0G50 0-100D	flake multi-layer capacitor	1005,10P±0.5P,50V, C0G	5	C308 C309 C318 C321 C328
2CC1-10-C0G50 0-101J	flake multi-layer capacitor	1005,100P±5%,50V, C0G	6	C612 C765 C375 C643 C725 C751
2CC1-10-C0G50 0-151J	flake multi-layer capacitor	1005,150P±5%,50V, C0G	3	C323 C718 C722
2CC1-10-C0G50 0-150J	flake multi-layer capacitor	1005,15P±5%,50V, C0G	1	C62
2CC1-10-C0G50 0-160J	flake multi-layer capacitor	1005,16P±5%,50V, C0G	1	C311
2CC1-10-C0G50 0-180J	flake multi-layer capacitor	1005,18P±5%,50V, C0G	2	C620 C732
2CC1-10-C0G50 0-181J	flake multi-layer capacitor	1005,180P±5%,50V, C0G	1	C355
2CC1-10-C0G50 0-220J	flake multi-layer capacitor	1005,22P±5%,50V, C0G	1	C52
2CC1-10-C0G50 0-270J	flake multi-layer capacitor	1005,27P±5%,50V, C0G	3	C313 C225、C227
2CC1-10-C0G50 0-2R0C	flake multi-layer capacitor	1005,2P±0.25P,50V, C0G	3	C302 C747 C729
2CC1-10-C0G50 0-330J	flake multi-layer capacitor	1005,33P±5%,50V, C0G	6	C704 C736 C740 C744 C746 C754
2CC1-10-C0G50 0-3R0C	flake multi-layer capacitor	1005,3P±0.25P,50V, C0G	3	C305 C731 C745
2CC1-10-C0G50 0-3R5C	flake multi-layer capacitor	1005,3.5P±0.25P,50 V,C0G	1	C332
2CC1-10-C0G50 0-470J	flake multi-layer capacitor	1005,47P±5%,50V, C0G	2	C306,C618
2CC1-10-C0G50 0-4R0C	flake multi-layer capacitor	1005,4P±0.25P,50V, C0G	5	C364 C724 C737 C356 C363
2CC1-10-C0G50 0-4R7C	flake multi-layer capacitor	1005,4.7P±0.25P,50 V,C0G	1	C741
2CC1-10-C0G50 0-5R0C	flake multi-layer capacitor	1005,5P±0.25P,50V, C0G	5	C621 C314 C315 C324 C723
2CC1-10-C0G50 0-820J	flake multi-layer capacitor	1005,82P±5%,50V, C0G	1	C759
2CC1-10-C0G50 0-8R0D	flake multi-layer capacitor	1005,8P±0.5P,50V, C0G	1	C703
2CC1-10-C0G50 0-9R0D	flake multi-layer capacitor	1005,9P±0.5P,50V, C0G	1	C702
2CC1-10-C0G50 0-R50B	flake multi-layer capacitor	1005,0.5P±0.1P,50V ,C0G	3	C325 C343 C357
2CC1-10-X5R6R	flake multi-layer	1005,1uF±10%,6.3V	6	C81 C38 C60 C61 R807 C6

3-105K	capacitor	,X5R		
2CC1-10-X7R160-104K	flake multi-layer capacitor	1005,100nF±10%,16V,X7R	39	C40 C10 C21 C22 C24 C25 C26 C27 C28 C32 C50 C51 C55 C56 C89 C91 C14 C23 C12 C39 C92 C100 C101 C111 C114 C224 C334 C345 C707 C715 C749 C764 C801 C808 C816 C818 C819 C822 C712
2CC1-10-X7R500-333K	flake multi-layer capacitor	1005,33nF±10%,25V,X7R,	2	C48 C57
2CC1-10-X7R500-102K	flake multi-layer capacitor	1005,1000P±10%,50V,X7R	34	R12 C34 C64 C327 C622 C633 C638 C733 C735 C742 C743 C757 C758 C760 C762 C763 C122 C304 C322 C347 C351 C366 C636 C645 C647 C706 C709 C711 C713 C714 C719 C753 C72 C71
2CC1-10-X7R500-103K	flake multi-layer capacitor	1005,10nF±10%,50V,X7R	12	C5 C112 C115 C629 C639 C640 C648 C726 C800 C812 C720 C41
2CC1-10-X7R500-182K	flake multi-layer capacitor	1005,1800P±10%,50V,X7R	2	C708 C820
2CC1-10-X7R500-471K	flake multi-layer capacitor	1005,470P±10%,50V,X7R	70	C338 C339 C340 C346 C349 C350 C352 C353 C367 C368 C369 C372 C373 C432 C619 C623 C626 C627 C628 C630 C631 632 C635 C641 C644 C646 C716 C717 C727 C755 C756 C803 C804 C809 C810 C813 C814 C821 C730 C70 C69
2CC1-16-C0G500-100D	flake multi-layer capacitor	1608,10P±0.5P,50V,C0G	4	C501 C508 C509 C514
2CC1-16-C0G500-110J	flake multi-layer capacitor	1608,11P±5%,50V,C0G	1	C504
2CC1-16-C0G500-120J	flake multi-layer capacitor	1608,12P±5%,50V,C0G	1	C503
2CC1-16-C0G500-130J	flake multi-layer capacitor	1608,13P±5%,50V,C0G	1	C516
2CC1-16-C0G500-180J	flake multi-layer capacitor	1608,18P±5%,50V,C0G	1	C515
2CC1-16-C0G500-270J	flake multi-layer capacitor	1608,27P±5%,50V,C0G	1	C65
2CC1-16-C0G500	flake multi-layer	1608,33P±5%,50V,	1	C326

0-330J	capacitor	C0G		
2CC1-16-C0G50 0-5R0C	flake multi-layer capacitor	1608,5P±0.25P,50V, C0G	1	C365
2CC1-16-C0G50 0-680J	flake multi-layer capacitor	1608,68P±5%,50V, C0G	2	C66 C634
2CC1-16-C0G50 0-7R0D	flake multi-layer capacitor	1608,7P±0.5P,50V, C0G	1	C505
2CC1-16-X7R500 -102K	flake multi-layer capacitor	1608,1000P±10%,50V,X7R	1	C611
2CC1-20-Y5V100 -334Z	flake multi-layer capacitor	2012,330nF+80%/-20%,10V,Y5V	1	C705
2CC1-20-Y5V160 -106Z	flake multi-layer capacitor	2012,10uF+80%/-20%,16V,Y5V	24	C8 C9 C11 C15 C16 C17 C18 C63 C103 C106 C109 C116 C119 C319 C344 C348 C642 C750 C752 C802 C806 C815 C817 C68
2CT1-TS32-160- 3R3M	SMD tantalum capacitor	3216,3.3μF±20%,16V,TS series(level A)	1	C359
2CT1-TS32-350- R10M	SMD tantalum capacitor	3216,0.1μF±20%,35V,TS series(level A)	1	C360
2CT1-TS32-350- R33M	SMD tantalum capacitor	3216,0.33μF±20%,35V,TS series(level A)	1	C358
2CT1-TS32-6R3- 150M	SMD tantalum capacitor	3216,15μF±20%,6.3V,TS series(level A)	2	C1 C376
2CT1-TS35-100- 470M	SMD tantalum capacitor	3528,47μF±20%,10V,TS series(level B)	1	C805
2LH1-R301R5-L0 5-05	SMD inductor	Wire diameter φ0.30, internal diameter φ1.5 5 circles, high pin	1	L11
2LH1-R301R0-L0 7-05	SMD inductor	Wire diameter φ0.30, internal diameter φ1.0, 7 circles, high pin	1	L501
2LH1-R301R5-R 07-05	SMD inductor	Wire diameter φ0.30 internal diameter φ1.5 7 circles high pin	3	L505,L502,L503
2LH1-R401R5-R 03-05	SMD inductor	Wire diameter φ0.40, internal diameter φ1.5, 3 circles, pin height 0.5mm	2	L9 L500
2LH1-R401R5-L0 8-05	SMD inductor	Wire diameter φ0.40, internal diameter φ1.5, 8 circles, high pin	1	L607

		circles, high pin		
2LL1-16-1R0K	lamination inductor	1608,1 μ H \pm 10%(MLF 1608A1R0K)	1	L703
2LL1-16-22NJ	lamination inductor	1608,22nH \pm 5%(MLG1608B22NJ)	1	L610
2LL1-16-33NJ	lamination inductor	1608,33nH \pm 5%(MLG1608B33NJ)	2	L700 L301
2LL1-16-39NJ	lamination inductor	1608,39nH \pm 5%(MLG1608B39NJ)	1	L311
2LL1-16-3R3K	lamination inductor	1608,3.3 μ H \pm 10%(MLF1608A3R3K TA00)	2	L309 L323
2LL1-16-82NJ	lamination inductor	1608,82nH \pm 5%(MLG1608B82NJ)	2	L313 L609
2LL1-16-R10J	lamination inductor	1608,0.1 μ H \pm 5%(MLG1608BR10J/MLG1608B100NJ/HK1608R10J-T)	2	L611 L307
2LL1-16-68NJ	lamination inductor	1608,68nH \pm 5%(MLG1608B68NJ)	1	L701
2LL1-16-R18J	lamination inductor	1608,0.18 μ H \pm 5%(MLG1608R18J-T/MLG1608B180N)	2	L321 L324
2LL1-16-R22J	lamination inductor	1608,0.22 μ H \pm 5%(MLG1608R22J-T/MLG1608B220N)	4	L306 L310 L319 L303
2LL1-16-R56K	lamination inductor	1608,560nH \pm 10%(MLF1608DR56K)	1	L300
2LW1-16UC-180J	SMD inductor	wire 1608,18nH \pm 5%, ceramic chip (C1608CB-18NJ)	1	L304
2LW1-20UC-220G	SMD inductor	wire 2012,22nH \pm 2%, ceramic chip (C2012CB-22NG)	1	L308
2LW1-20UC-221J	SMD inductor	wire 2012,220nH \pm 5%, ceramic chip (LQN21AR22J/LQW2BHNR22J03L)	1	L608
2LW1-20UC-390GA	SMD inductor	wire 2012,39nH \pm 2%, ceramic chip (C2012C-39NG)	1	L322
2LW1-20UC-470J	SMD inductor	wire 2012,47nH \pm 5%, ceramic chip (C2012C-47NJ)	1	L714

2LW1-20UC-680 J	SMD inductor	wire	2012,68nH±5%, ceramic chip (C2012C-68NJ)	1	L2
2LW1-20UC-560 JA	SMD inductor	wire	2012,56nH±5%, ceramic chip (C2012C-56NJ)	3	L706 L709 L713
2LW1-25UC-102 JA	SMD inductor	wire	2520,1μH±5%, ceramic chip (FHW1008UC1R0J)	1	L606
2LW1-25UC-103 J	SMD inductor	wire	2520,10μH±5%, ceramic chip (FLM2520-100J)	1	L305
2LW1-25UC-331 K	SMD inductor	wire	2520,330nH±10%, ceramic chip (FLM2520-R33K/SG WI2520HR33J)	1	L704
2LW1-25UC-821 K	SMD inductor	wire	2520,820nH±10%, ceramic chip (FLM2520-R82K)	1	L705
2RE1-16-1503	SMD resistor	precise	1608,150K±1%	7	R617 R618 R619 R624 R625 R627 R628
2RS1-10-000O	flake resistor		1005,0Ω	28	C700,C2,C3,C73,C74,R65,C 226 R1 R16 R17 R18 R39 R40 R107 R143 R604 R616 R20 R824 R721 R739 C721 R206 R13 R14 R19 R60 R41
2RS1-10-100J	flake resistor		1005,10Ω±5%	5	R231 R244 R300 R308 R324
2RS1-10-101J	flake resistor		1005,100Ω±5%	6	R321 R309 R328 R333 R703 R248
2RS1-10-102J	flake resistor		1005,1K±5%	23	R717 R15 R51 R106 R197 R198 R229 R236 R237 R238 R239 R254 R255 R301 R304 R341 R602 R822 R823 R331 R52 R53 R57
2RS1-10-103J	flake resistor		1005,10K±5%	28	R813 R809 R806 R8 R33 R34 R35 R36 R37 R38 R43 R100 R103 R250 R251 R252 R327 R337 R338 R339 R340 R344 R700 R718 R801 R815 R816 R32
2RS1-10-123J	flake resistor		1005,12K±5%	2	C823 R21
2RS1-10-104J	flake resistor		1005,100K±5%	2	R704 R724 R105 R342 R736 R316 R601 R4 C7
2RS1-10-105J	flake resistor		1005,1M±5%	5	R626 R729 R731 R732 R734
2RS1-10-152J	flake resistor		1005,1.5K±5%	1	R607

2RS1-10-153J	flake resistor	1005,15K±5%	1	R25
2RS1-10-154J	flake resistor	1005,150K±5%	2	R303 R314
2RS1-10-181J	flake resistor	1005,180Ω±5%	1	R310
2RS1-10-182J	flake resistor	1005,1.8K±5%	2	R44 R817
2RS1-10-184J	flake resistor	1005,180K±5%	1	R727
2RS1-10-204J	flake resistor	1005,200K±5%	1	R302
2RS1-10-220J	flake resistor	1005,22Ω±5%	4	R305 R611 R715 R804
2RS1-10-221J	flake resistor	1005,220Ω±5%	1	R726
2RS1-10-222J	flake resistor	1005,2.2K±5%	5	R7 R42 R101 R102 R800
2RS1-10-223J	flake resistor	1005,22K±5%	1	R26
2RS1-10-271J	flake resistor	1005,270Ω±5%	1	R605
2RS1-10-272J	flake resistor	1005,2.7K±5%	3	R313,C46,R603
2RS1-10-273J	flake resistor	1005,27K±5%	2	R631 R720
2RS1-10-274J	flake resistorv	1005,270K±5%	3	R104 R325 R326
2RS1-10-330J	flake resistor	1005,33Ω±5%	1	R610
2RS1-10-331J	flake resistor	1005,330Ω±5%	7	R50 R318 R606 R714 R330 R713 R247
2RS1-10-332J	flake resistor	1005,3.3K±5%	4	R317 R708 R711 R735
2RS1-10-333J	flake resistor	1005,33K±5%	4	C811 R701,R613,R609
2RS1-10-334J	flake resistor	1005,330K±5%	2	R228 R702
2RS1-10-392J	flake resistor	1005,3.9K±5%	2	R614 R738
2RS1-10-393J	flake resistor	1005,39K±5%	1	R612
2RS1-10-470J	flake resistor	1005,47Ω±5%	2	R323 R600
2RS1-10-471J	flake resistor	1005,470Ω±5%	3	R811 R814 R332
2RS1-10-562J	flake resistor	1005,5.6K±5%	3	R2,R312, R812
2RS1-10-472J	flake resistor	1005,4.7K±5%	5	R706 R322 R343 R406 R407
2RS1-10-473J	flake resistor	1005,47K±5%	14	R22 R23 R24 R27 R29 R30 R31 R227 R240 R241 R242 243 R608 R61
2RS1-10-474J	flake resistor	1005,470K±5%	2	R716 R805
2RS1-10-512J	flake resistor	1005,5.1K±5%	3	R199 R200 R218
2RS1-10-560J	flake resistor	1005,56Ω±5%	2	R710,R722
2RS1-10-563J	flake resistor	1005,56K±5%	1	R629
2RS1-10-564J	flake resistor	1005,560K±5%	1	R712
2RS1-10-823J	flake resistor	1005,82K±5%	2	R705 R723
2RS1-16-0000	flake resistor	1608,0Ω	4	L100 L102 L103 L708
2RS1-16-153J	flake resistor	1608,15K±5%	1	R615
2RS1-20-0000	flake resistor	2012,0Ω	1	L707
2RS1-32-R47J	flake resistor	3216,0.47Ω±5%	3	R620 R621 R622
2RT1-NTH5G16P 42B104K	SMD thermistor	1608,NTH5G16P42 B104K07TH	1	R707
3CF1-BL112-30R U	SMD FFC/FPC connector	Interval 0.5mm,30 chip	1	J201
3FW1-42932-302	SMD fuse	429003/433003/466	1	F100

320		003,3216,3A/32V		
3ST1-SKRTLBE010	SMD tact switch	SKRTLBE010,4.5*3.55*3.3mm(ALPS)	1	S1
4PE1-16-F2	SMD LED	1608,red light,19-21SUR/S530-A2/TR8	1	D202
4PE1-16-F5	SMD LED	1608,green light,H19-213SYGC	1	D203
5FC1-D51606GQ1-0705	SMD crystal filter for FP520	DSF753SDF,51.65MHz±3KHz/5dB,7.0*5.0*1.3	1	Z1
5FE1-BLM11A221SPT	SMD EMI suppressed filter	1608,BLM11A221SPT/BLM18AG221S(0138-05)	9	FB1 FB7 FB8 FB9 FB12 FB16 FB17 L4 L5
5FE1-BLM11A601S	SMD EMI suppressed filter	1608,BLM11A601S/BLM18AG601S(0138-05)	16	L3 L6 L7 L8 L10 L203 L314 L315 L316 L317 L318 L320 L613 L712 L715 L800
5FE1-BLM21P300S	SMD EMI suppressed filter	2012,BLM21P300S/BLM21PG300S(0149-05)	2	L612 L614
5OD1-12R28-ACL-2520	SMD temperature compensated crystal oscillator	DSA221SJ,12.2880MHz,±1.5PPm,-40~+85 °C ,2.5*2.0*0.8mm	1	Y3
5OT1-12R8-ACL4-0303	SMD temperature compensated crystal oscillator	12.8MHz±1.5ppm,Vcont=1.5V±1.0V ,dragging range±20ppm,-40 °C ~+85	1	X300
5XC1-9R8-MPL20-0503	SMD crystal oscillator	9.8304MHz±30PPM,±50PPM,16P,-40 °C to+80 °C,NX5032GA	1	X200
1DR1-1SR154-400	SMD commutation diode	1SR154-400,4532	1	D100
1IS1-XC6228D122VR	SMD specialized IC	Power IC,XC6228D122VR-G,SOT-25J,5PIN,pb-free	1	IC102
2LL1-16-27NJ	lamination inductor	1608,27nH±5%(MLG1608B27NJ)	1	L604
2RS1-10-224J	flake resistor	1005,220K±5%	1	R728
2CC1-10-C0G500-390J	flake multi-layer capacitor	1005,39P±5%,50V,C0G	1	C734
2CC1-10-C0G500-7R0D	flake multi-layer capacitor	1005,7P±0.5P,50V,C0G	2	C333 C331

2RS1-10-681J	flake resistor	1005,680Ω±5%	1	R329
2CC1-20-Y5V160-105Z	flake multi-layer capacitor	2012,1uF+80%/-20%,16V,Y5V	2	C36 C218
2CC1-16-C0G500-200J	flake multi-layer capacitor	1608,20P±5%,50V,C0G	1	C613
2CC1-16-C0G500-121J	flake multi-layer capacitor	1608,120P±5%,50V,C0G	1	C610
1IP1-0FP520-R01	burning chip	CPU,M16C-M3062L FGPGP,pb-free	1	IC2
1IP1-M16CM3062LFGPGP	SMD CPU	CPU,M16C-M3062L FGPGP,FLASH	1	
9FSO-6500V333	MCU software		1	
1IM1-25X32VSI	SMD memorizer IC	25Q32BVSSIG,8PIN ,SOIC,pb-free	1	IC3
6SS1-4085-HPA	PTT board SMD	FP520 PTT board SMD	1	
0SS1-4085-HPA	PTT board SMD	FP520 PTTboard SMD	1	
6PD7-4083-HPA	PTT board	FP520-PTT-201308 16.PCB; thickness 0.6MM ; 52.9X10.1MM ; FR-4;2 layers, pb-free	1	
2RS1-10-223J	flake resistor	1005,22K±5%	1	R227
2RS1-10-512J	flake resistor	1005,5.1K±5%	1	R1
6SS1-4091-HKA	FP560 KEYboard SMD	FP560KEY, pb-free	1	
0SS1-4091-HKA	FP560 keypad SMD	Keypad PCBA, 2 layers, FP560KEY	1	
2CC1-10-X7R500-102K	flake multi-layer capacitor	1005,1000P±10%,50V,X7R	1	C13
2CC1-10-X5R6R3-105K	flake multi-layer capacitor	1005,1uF±10%,6.3V ,X5R	2	C2 C3
2CC1-10-X7R500-471K	flake multi-layer capacitor	1005,470P±10%,50V,X7R	2	C105 C107
1TT1-DTC144EE	SMD triode	Digital triode DTC144EE(26),SOT 323	2	Q1 Q201
2CC1-20-Y5V160-106Z	flake multi-layer capacitor	2012,10uF+80%/-20%,16V,Y5V	1	C106
3CF1-BL112-30RU	SMD FFC/FPC connector	Interval 0.5mm,30 chip	1	J1
3CF1-BL112-16RL	SMD FFC/FPC connector	Interval 0.5mm,16 chip,BL112-16RL	1	J2

4PE1-16-F9-A	SMD LED	0603, white, height 0.4mm	6	D1 D2 D3 D4 D5 D205
2RS1-16-000O	flake resistor	1608,0Ω	1	L102
2RS1-10-100J	flake resistor	1005,10Ω±5%	3	R1 R2 R244
2RS1-10-221J	flake resistor	1005,220Ω±5%	1	R250
2RS1-10-220J	flake resistor	1005,22Ω±5%	1	R3
6PD7-4091-HKB	FP560 KEY board PCB	FP560-key-140224. PCB SIZE:35X41mm thickness:0.6mm 2 layers, pb-free FR-4	1	PCB
6SS3-CZ4083-A	KBC-51 charger	Charging current 800mA , input voltage:12V, pre-charge	1	
0SS3-4083-CMA	KBC-51 installation material	nucleus,KBC-51 installation material , pb-free	1	
7GCR-080020-J	868P charger foot pad	rubber,Φ=8mm,δ=2mm	4	
7MCP-1846-01B-W0	charger top cover(cover die)	ABS, pb-free	1	
7MCP-1846-02B-W0	charger bottom cover (cover die)	ABS,pb-free	1	
7MHP-7208-09A-W0	charger sink	ABS; black, pb-free	1	
7MCP-1846-05B-W0	guide beam	PMMA,transparent, pb-free	1	
7STF-020045A-S ZYB-Z	M2.0*4.5cross round flat head self-tapping screw	Hardened iron,Φ2mm*4.5mm	4	
7STF-026100A-S ZHT-B	M2.6*10 cross thick-headed self-tapping screw	Hardened iron, Φ2.6mm*10mm	4	
6SS2-4083-CMA	KBC-51 charging board suite	nucleus	1	
0SS2-4083-CMA	KBC-51 charging board plug-in unit	nucleus	1	
1DR3-P6KE30A	plug-in unit commutation diode	P6KE30A,DO15	1	

1IS3-TL431AA	plug-in unit specialized IC charger IC	TL431AA,TO92	1	
2CE3-GM350-10 1M0812	plug-in unit aluminum electrolysis capacitor charger	8*12,100 μ F \pm 20%,35 V,GM type [2CE3-GM350-101M 0611]	1	
2CE3-GM250-47 0M0511	plug-in unit aluminum electrolysis capacitor charger	5*11,47 μ F \pm 20%,25 V,GM type	1	
2CE3-GM350-47 1M1016	plug-in unit aluminum electrolysis capacitor charger	10*16,470 μ F \pm 20%, 35V,GM type	1	
2LI3-0911-331K	plug-in unit I-shaped inductor	9*11,330 μ H \pm 10%,3 A	1	
3CP3-DS210-63 K	DC power socket	DS210-6.3/DC-470	1	
4PE3-3R0-Y2-C	plug-in unit LED	Φ 3mm,red light,long pin	1	
4PE3-3R0-Y4-C	plug-in unit LED	Φ 3mm,yellow light, long pin	1	
4PE3-3R0-Y5-C	plug-in unit LED	Φ 3mm, green light, long pin	1	
7MCC-1846-01A- N	charger spring tablet	, δ =0.3mm, nickel-plated	4	
2RM3-12-R22J	Metal coated resistor	1/2WF, 0.22R, \pm 1%,pb-free	1	R16
6SS1-4083-CMA	KBC-51 charging board SMD	nucleus	1	
0SS1-4083-CMA	KBC-51 charging board SMD	nucleus	1	
1DR1-IN5819	SMD commutation diode	IN5819,SMD	3	
1TT1-MMBT3906	SMD triode	MMBT3906(2A),SO T23,PNP	1	
1TT1-AO3401A	SMD triode	AO3401A,SOT-23,c an be replaced by	1	

		1TT3-2SB772SL		
1TT1-S9013LT1	SMD triode	S9013LT1,SOT-23, NPN	3	
2CC1-16-X7R500-102K	flake multi-layer capacitor	1608,1000P±10%,50V,X7R	3	
2CC1-16-Y5V250-104Z	flake multi-layer capacitor	1608,100nF+80%,25V,Y5V	7	
2RE1-16-1503	SMD precise resistor	1608,150K±1%	3	
2RE1-16-2402	SMD precise resistor	1608,24K±1%	1	
2RE1-16-3601	SMD precise resistor	1608,3.6K±1%	2	
2RE1-16-5102	SMD precise resistor	1608,51K±1%	2	
2RE1-16-8201	SMD precise resistor	1608,8.2K±1%	1	
2RS1-16-100J	flake resistor	1608,10Ω±5%	1	
2RS1-16-102J	flake resistor	1608,1K±5%	5	
2RS1-16-103J	flake resistor	1608,10K±5%	6	
2RS1-16-202J	flake resistor	1608,2K±5%	1	
2RS1-16-204J	flake resistor	1608,200K±5%	1	
2RS1-16-362J	flake resistor	1608,3.6K±5%	1	
2RS1-16-510J	flake resistor	1608,51Ω±5%	1	
2RS1-16-513J	flake resistor	1608,51K±5%	1	
2RS1-20-000O	flake resistor	2012,0Ω	14	
1IP1-1936-CM-L1	SMD CPU IC 51c	MCU,GT6312,SOP-20,program version M-1936-CM-L1 0308	1	
6PS7-1979-CMB	charging plate	Single flame retardant board,1979-CMB.P CB, board thickness 1.6mm	1	
2RE1-16-1002	SMD precise resistor	1608,10K±1%	1	

List 3 Material List (Structure Material)

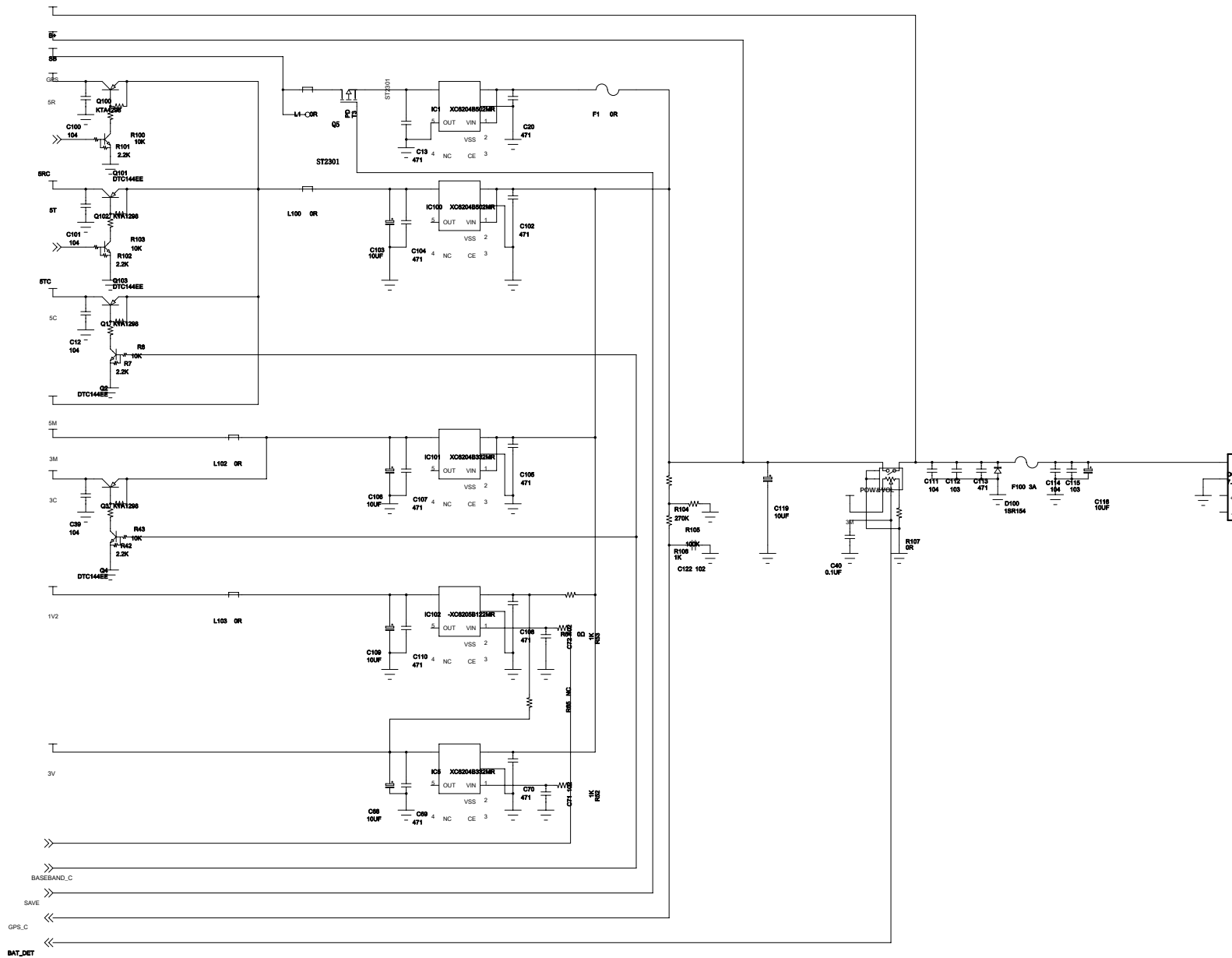
Part Number	Item Name	Specification	Unit	Quantity
7MHP-7208-01B-W0	FP560 volume knob	ABS, black, white paint; pb-free	PCS	1
7MHP-7208-02A-W0	FP560 channel knob	ABS, black,white paint,pb-free	PCS	1
7MHP-4091-02A-W0	FP560 top cover(cover die 1)	PC365; black; pb-free	PCS	1

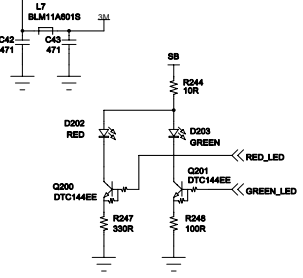
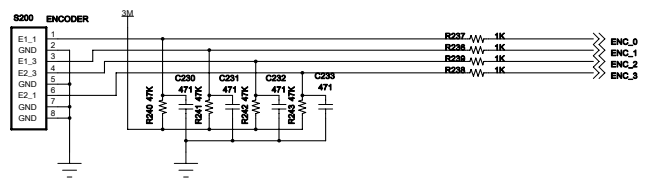
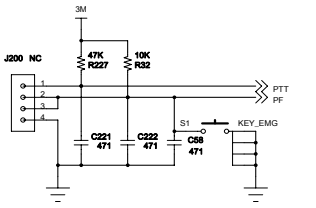
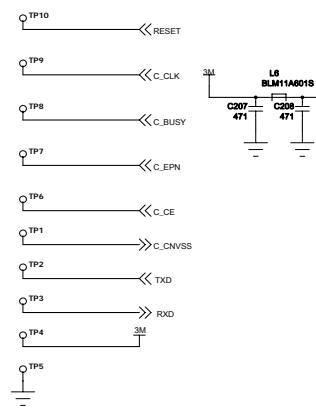
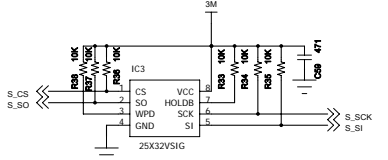
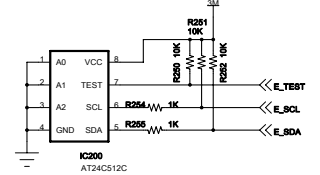
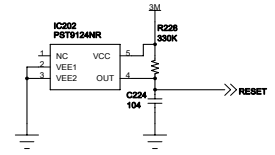
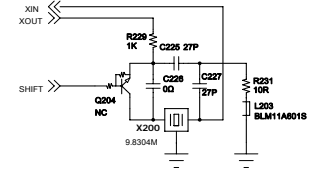
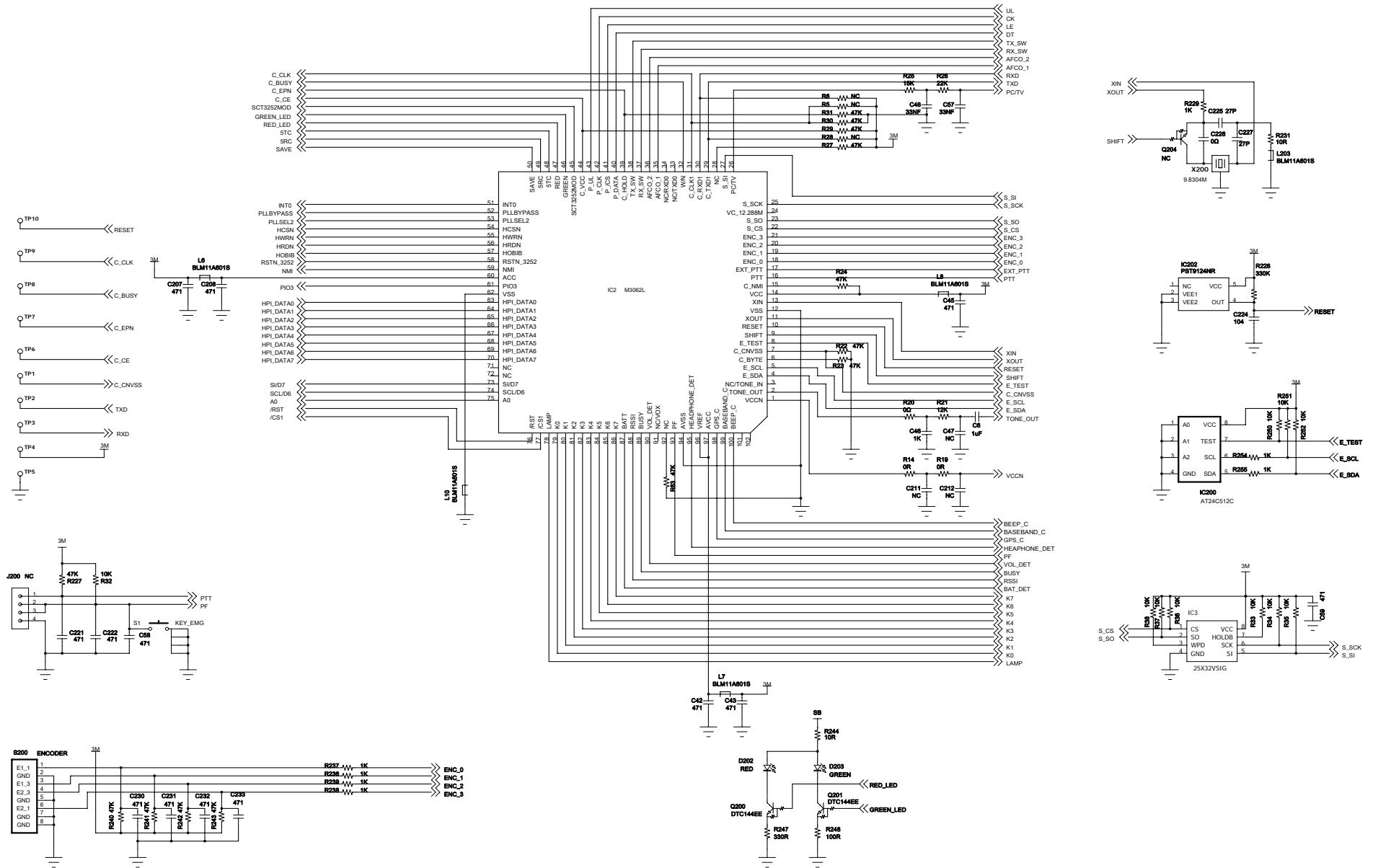
7MHR-7208-01A-W0	FP560 major waterproof ring	Silicone gel; black; polished; pb-free	PCS	1
7MHP-4083-02A-W0	FP560 earphone socket waterproof plug	TPU; black; pb-free	PCS	1
7MHR-7208-02A-W0	FP560 top channel waterproof ring	Silicone gel; black; pb-free	PCS	1
7MHR-7042-06B-W0	thermally conductive silicone gel pad	Silicone gel, black, 3*6*9mm. pb-free	PCS	1
7MHL-4083-01A-W	FP560 aluminum alloy shell	ADC12 aluminum alloy, pb-free	PCS	1
3CR7-SMA-50JFB-4	RF coaxial connector	SMA-J, flange plate installation(558, hole distance 14mm, chip length 10.5mm)	PCS	1
7NRC-090136039-B1A	Antenna nut	brass, internal diameter M9mm, external diameter ϕ 13.6mm, thickness 3.9mm, black passivation	PCS	1
7SMF-020040M-SZ YB-N	M2*4 cross rounf flat head machine screw	Hardened iron, Φ 2*4mm	PCS	11
7SMF-020037M-SZ CT-N	M2.0*3.7cross sunken machine screw	1018 Hardened iron, Φ 2.0*3.7mm	PCS	2
7SMF-020080M-MH HT-N1	M2*8 torx thick headed machine screw	Hardened iron, Φ 2*8mm	PCS	2
7NRC-060100035-B1A	Antenna nut	brass, internal diameter M6mm, external diameter ϕ 10mm, thickness 3.5mm, black passivation	PCS	2
7MHS-1140-01A-W	knob circlip	Spring steel	PCS	2
7MHR-4083-01A-W0	FP560pedestal waterproof pad	Silicone gel, black, hardness 60 degrees, pb-free	PCS	1
7STF-019047B-SZH T-X	M1.9*4.7 cross thick headed self-tapping screw	Hardened iron, Φ 1.9mm*4.7mm	PCS	3
7SMF-016030M-SZ YB-N2	M1.6*3 cross round flat head machine screw	Hardened iron, Φ 1.6mm*3mm	PCS	2
7MHS-4091-01A-W	FP560 LCD hardware bracket	Imported SUS304, 48H salt frog, pb-free	PCS	1
7MHR-4091-01A-W0	FP560 digital keypad	Combo keypad, silicone gel+ key aluminum+plastic frame, silk print, pb-free	PCS	1
7MHS-4091-02A-W	Digital key metal dome	SUS301, Φ 5mm Metal Dome, pb-free	PCS	1

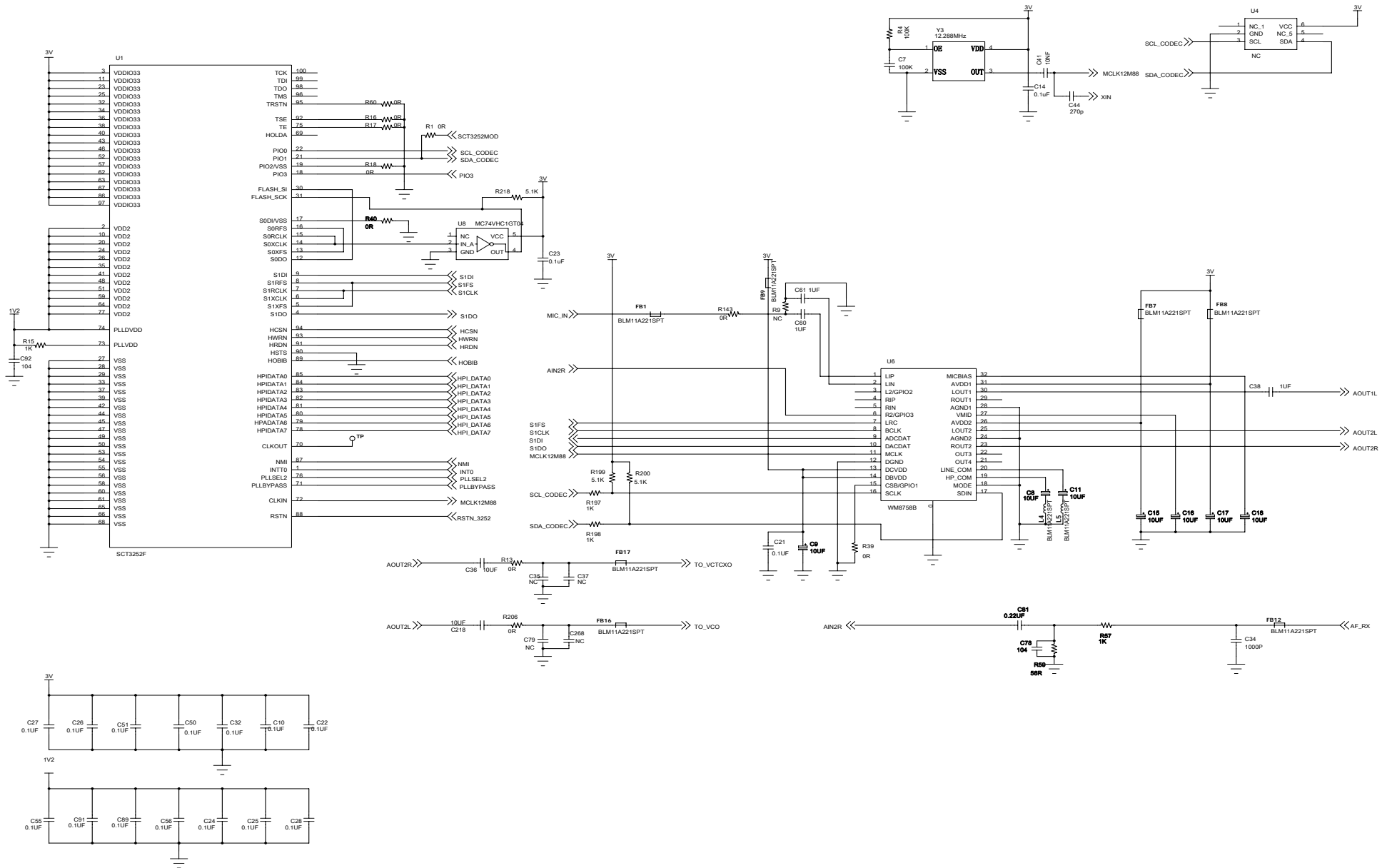
6MD7-F04932	FP560 LCD module	Black & white screen, 128*64, pb-free	PCS	1
4SS7-3605-016-100 A	FP560 36mm speaker	ND036GM13924, 16Ω, 1W, Φ36*H 5.0, pb-free	PCS	1
7GCB-320001-W0A	Speaker waterproof net	φ32 speaker waterproof net, diameter φ32mm*thickness 0.1mm	PCS	1
7MBP-4091-01A-W0	FP560 front shell	PC365; black; silk print; pb-free	PCS	1
7MHP-4091-01A-W C	FP560 guide beam	Silicone gel, 65 degrees, transparent white, pb-free	PCS	1
7MHR-7208-05A-W3	FP560 emergency key	Silicone gel; orange; pb-free	PCS	1
7MHR-7208-06A-W0	FP560 side silicone gel key	Silicone gel; black; pb-free	PCS	1
7MHP-7042-14B-W0	FP560 battery latch	POM, black, pb-free	PCS	1
7MHS-7042-01A-W	FP560 latch spring tablet 1	Stainless steel (SUS301), 0.25THK, pb-free	PCS	1
7MHS-7042-01B-W	FP560 latch spring tablet 2	Stainless steel (SUS301), 0.25THK, pb-free	PCS	1
7MHX-7042-02A-Z	FP560 battery hook 1	Zinc alloy (Zn3#), black zinc plated, pb-free	PCS	1
7MHX-7042-02B-Z	FP560 battery hook 2	Zinc alloy (Zn3#), black zinc plated, pb-free	PCS	1
7MHP-4091-01A-W0	PTT plastic key (cover die 1)	PC365; black; pb-free	PCS	1
7MHP-7208-06A-W0	FP560 earphone cover plug	ABS; black; pb-free	PCS	1
7MHP-7208-07A-W0	FP560 earphone cover board	TPU; black; pb-free	PCS	1
7MHJ-4091-01A-W	FP560 key board double-sided adhesive tape	3M9448, pb-free	PCS	1
7MHR-1727-09A-W3	FP560 microphone cover	Silicone gel, hardness 40, orange, no surface processing	PCS	1
4SM7-6027-A40C	MIC	Φ6.0, height 2.7, -40±2dB, all direction, 2.2KΩ, 2V, with 80mm red black wire	PCS	1
7GCB-070001	φ7 mic waterproof cloth	Waterproof cloth, diameter φ7mm, thickness 0.1mm	PCS	1
7GCM-411294-J	FP560 LCD sponge pad	PRON, 41.1*29.4mm, pb-free	PCS	1
7SMF-026060M-SZ HT-B1	M2.6*6 cross machine screw	Hardened iron, M2.5*6.0	PCS	2
7MHZ-1731-01A-J5	speaker insulated paper	18*8mm, thickness 0.2mm	PCS	1
7MHS-4083-01A-W	FP560 PTT key metal	φ6mm, SUS301 square metal	PCS	1

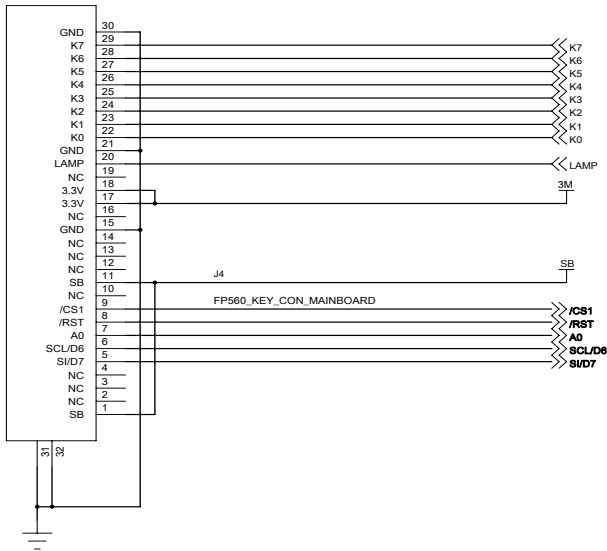
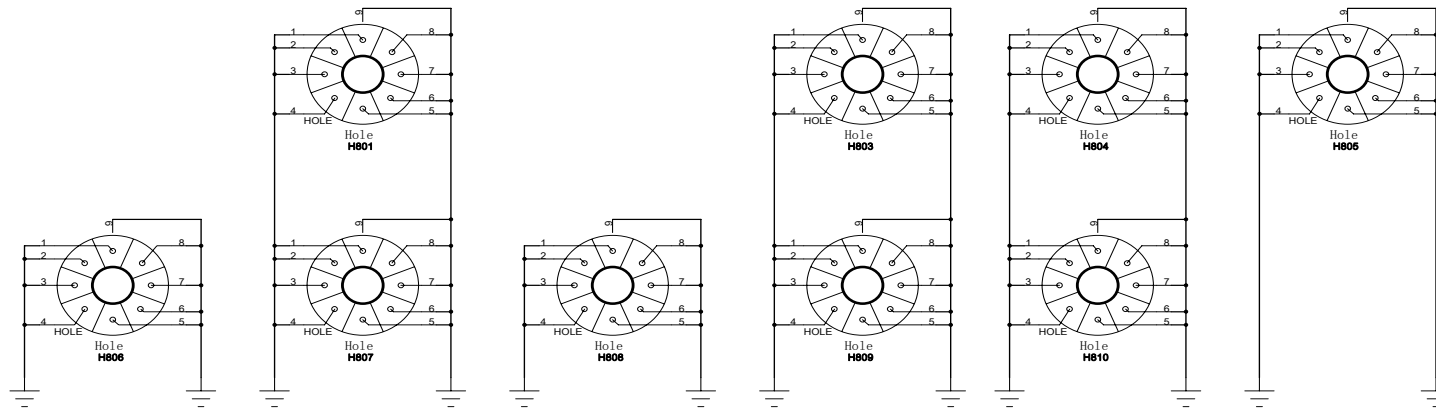
	dome	dome; pb-free		
3WF7-05030-500C4	Flexible connecting wire	Interval 0.5mm,30P, wire length 50mm	PCS	1
6SS3-BJ4026-A	belt clip	DP770 belt clip,PC+ABS, black, pb-free	pcs	1
7MJP-4026-01A-W0	belt clip	DP770 belt clip, PC+ABS, black, pb-free	PCS	1
7MJS-7013-01B-N	belt clip bracket	Stainless steel(SUS304),1.00THK, nickel plated,pb-free	PCS	1
7MJS-7013-02A-W	belt clip torsional spring	φ1.00 Stainless steel, pb-free	PCS	1
7MJS-7013-03A-N	belt clip rotating shaft	1018,φ2x24.4,nickel plated, pb-free	PCS	1

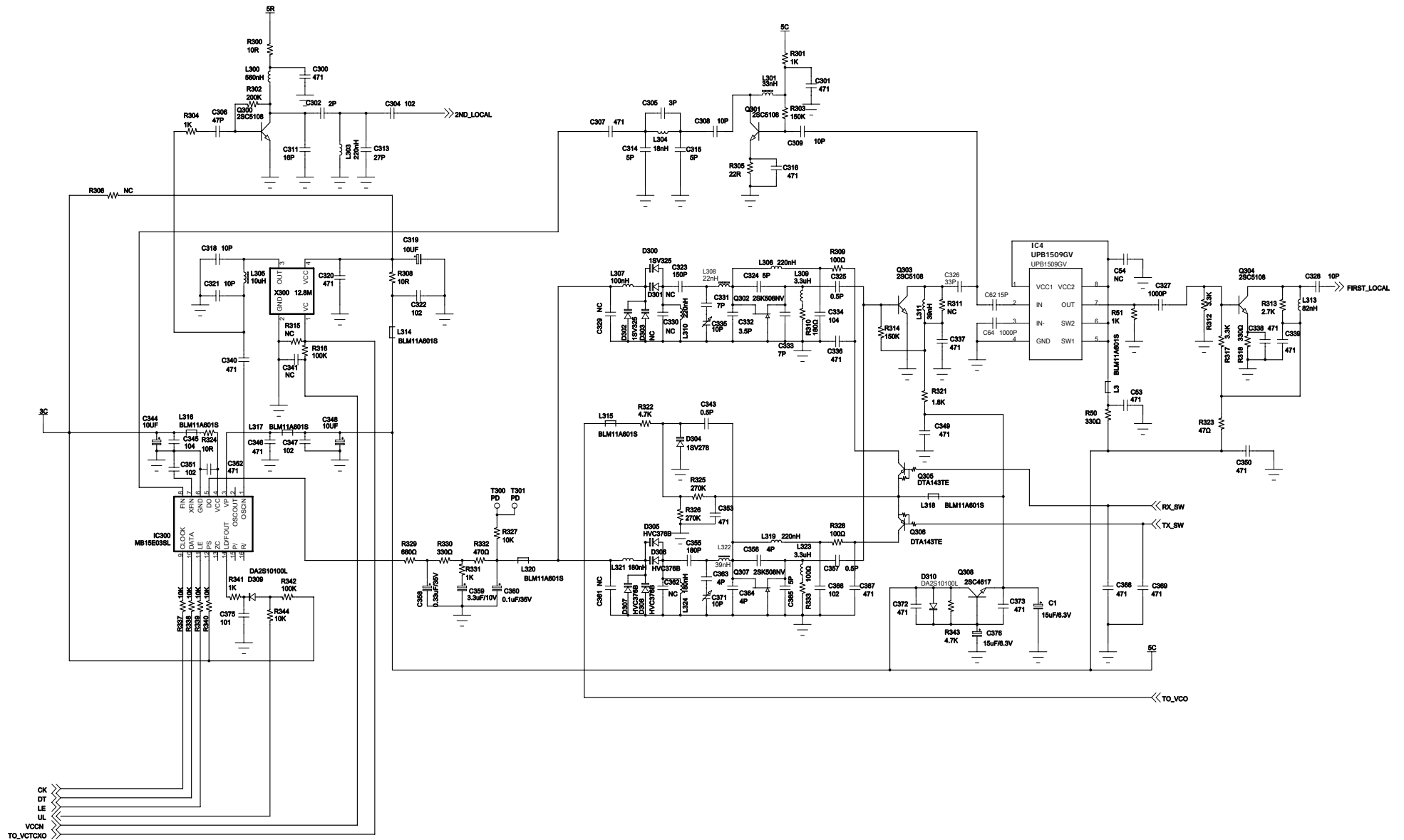
Figure 1 FP560-01 Mainboard Schematic Diagram (136-174MHz)

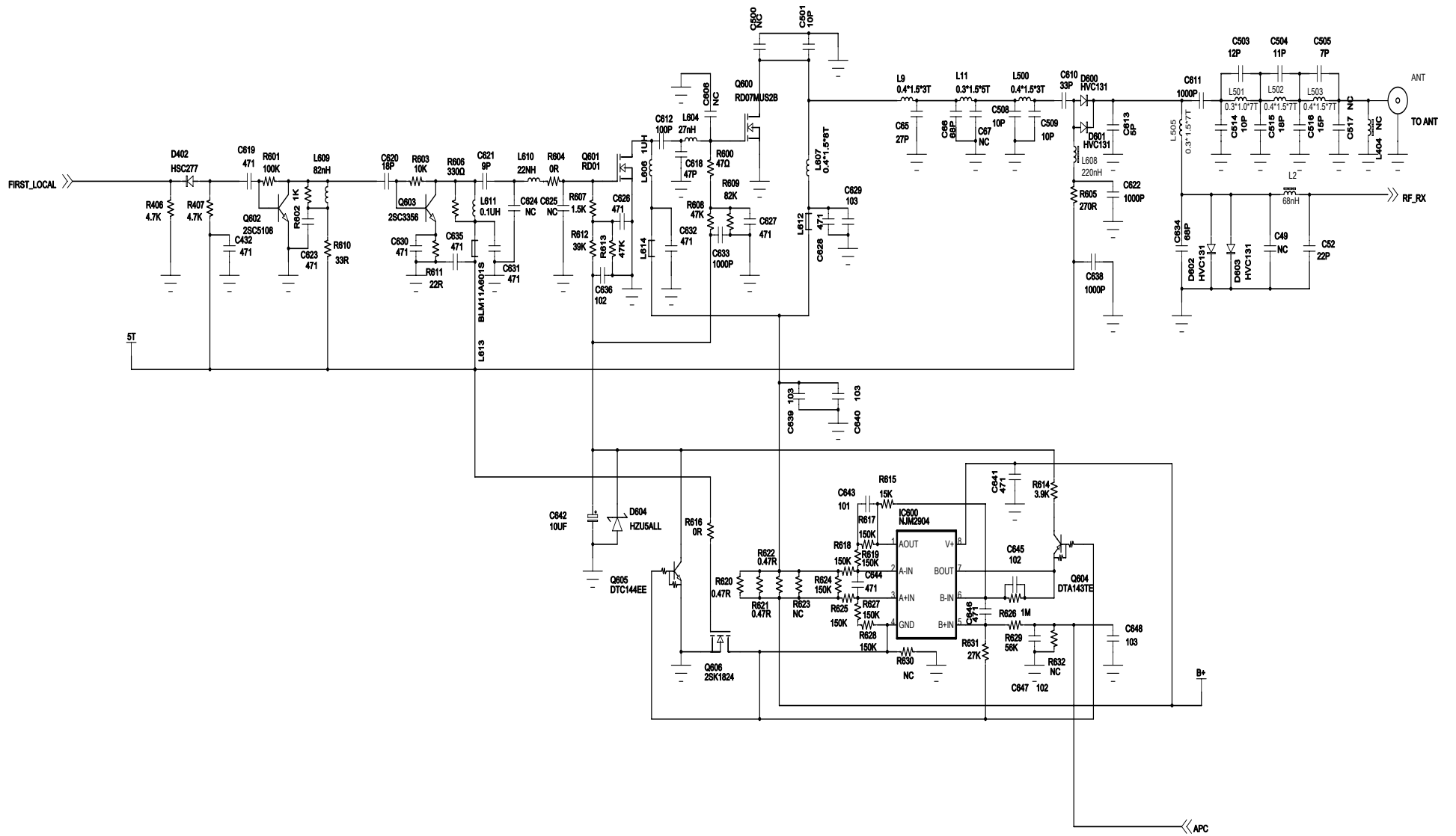


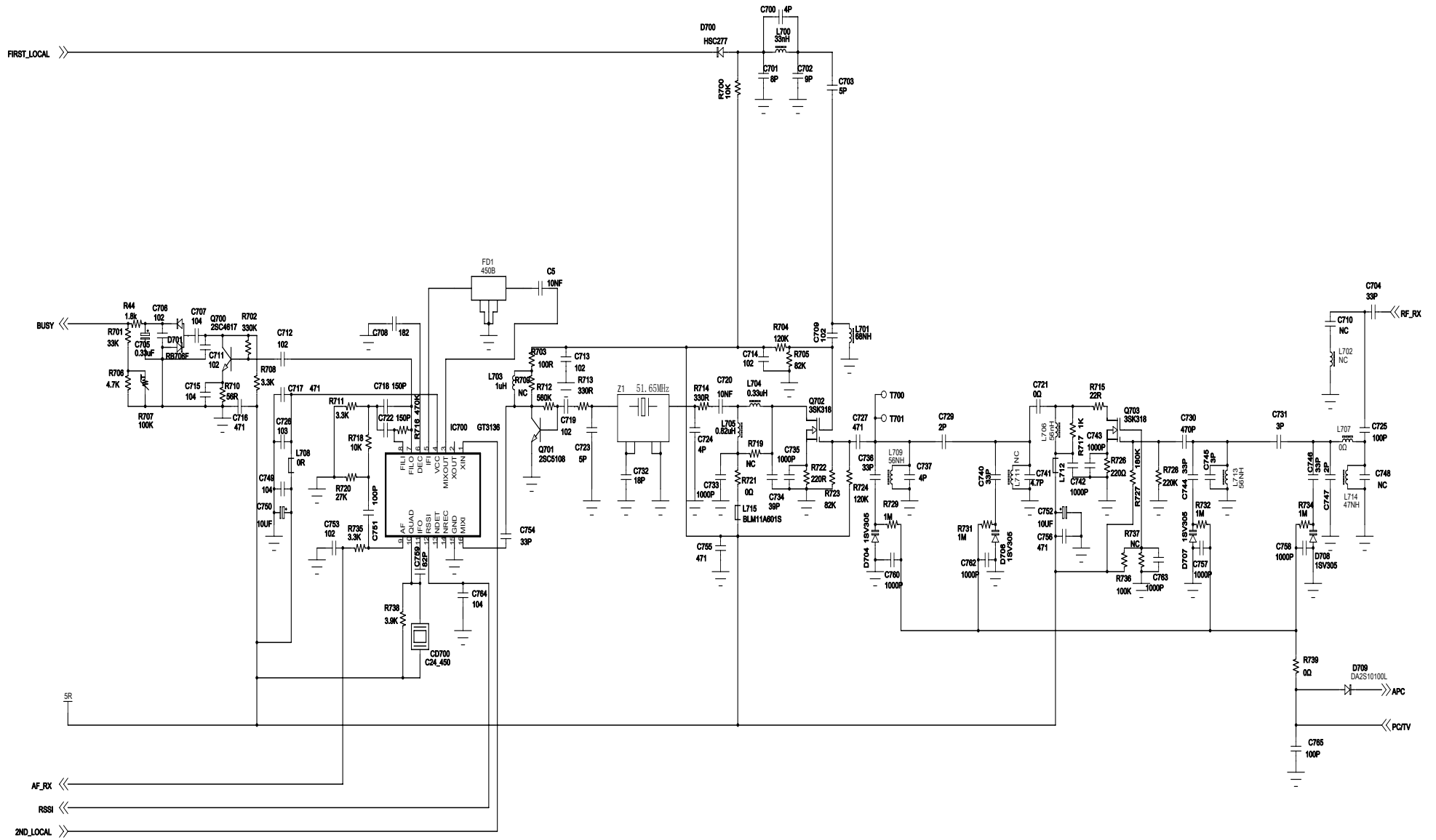












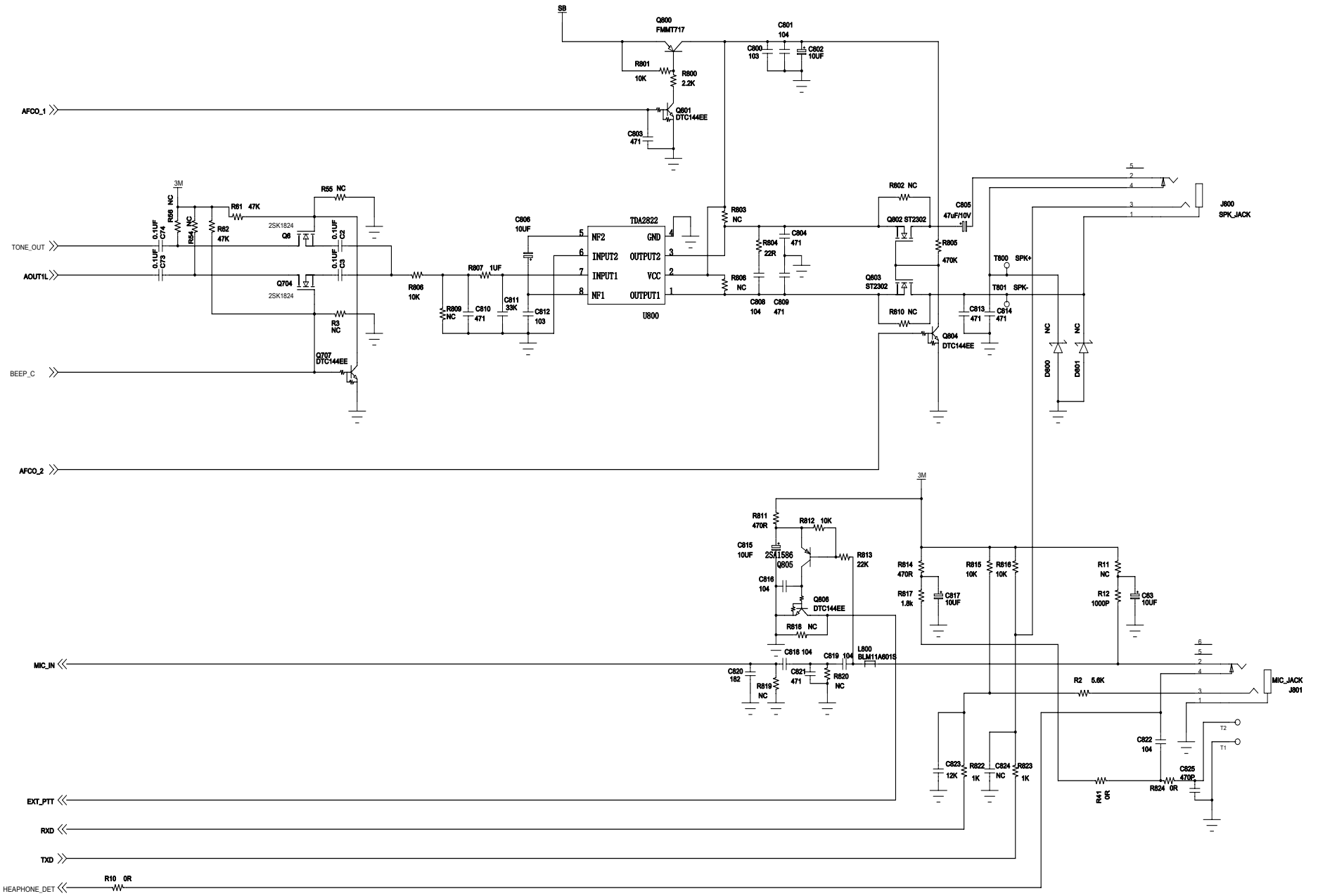


Figure 2 FP560-01 Top PCB Position Mark Diagram (136-174MHz)

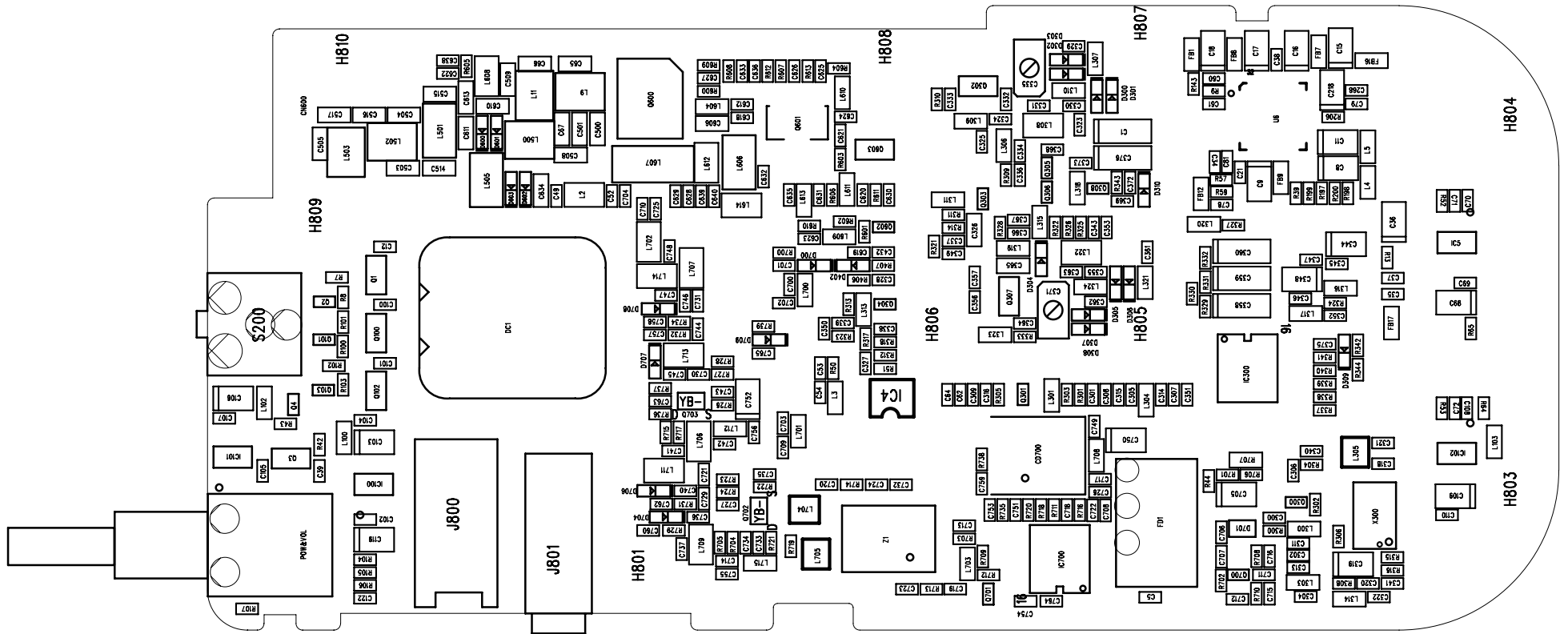


Figure 3 FP560-01 Bottom PCB Position Mark Diagram (136-174MHz)

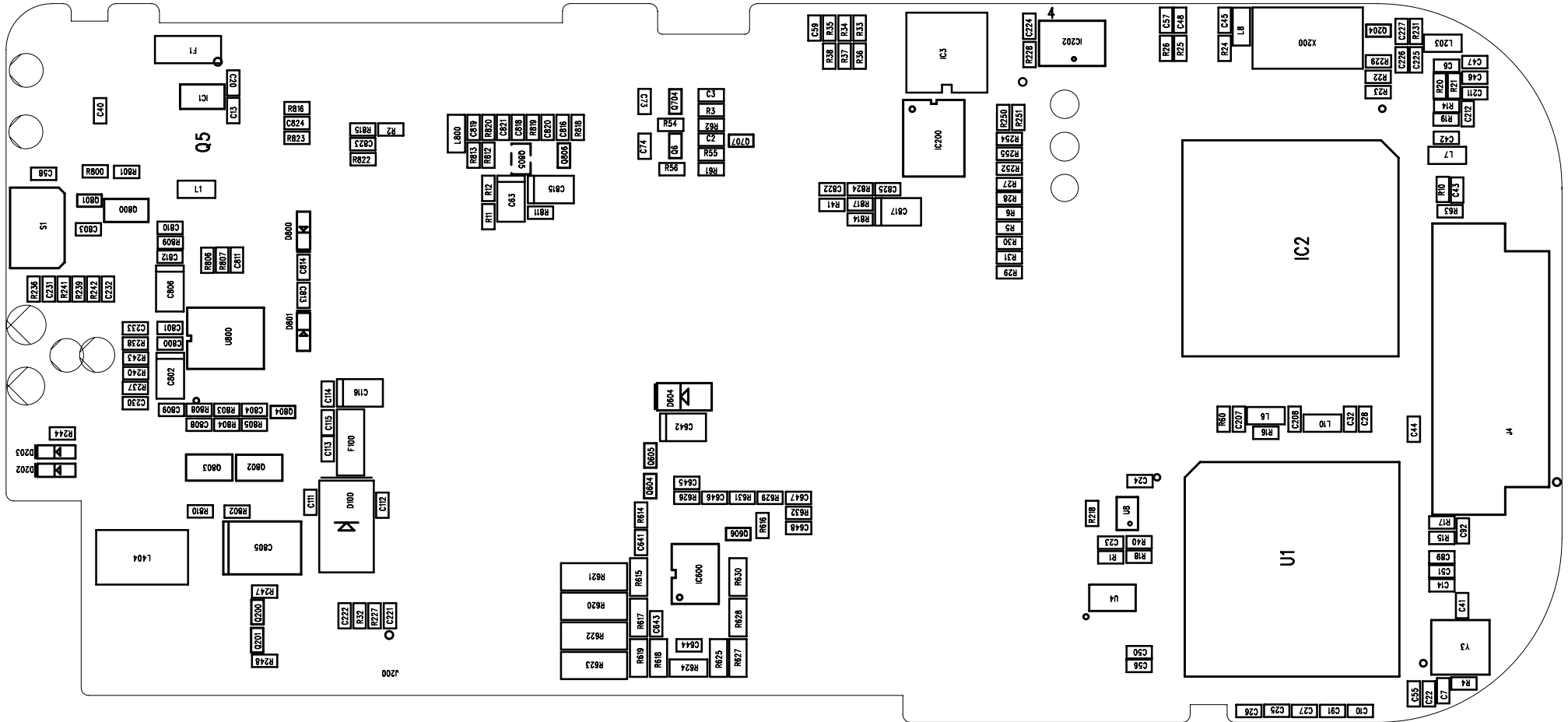
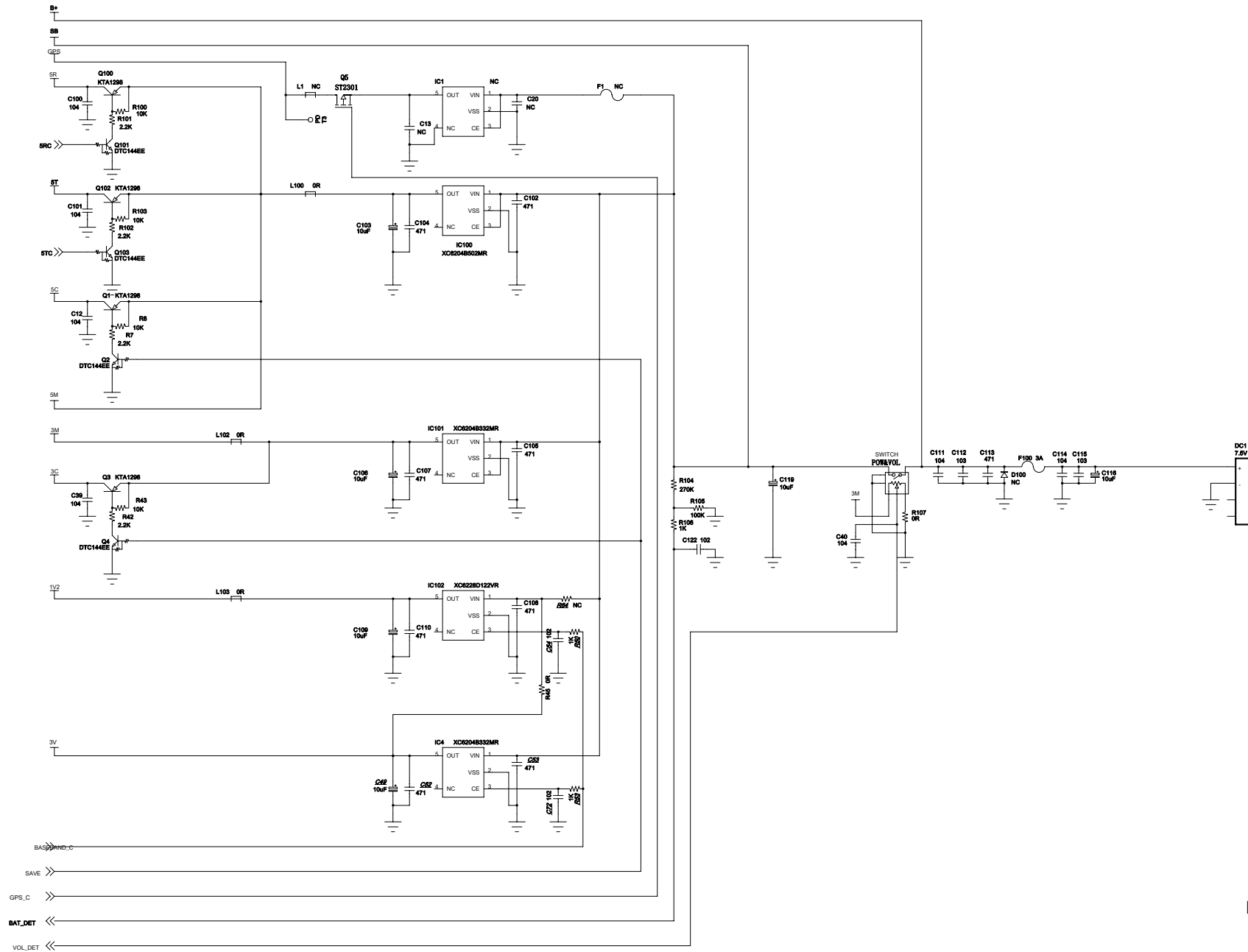
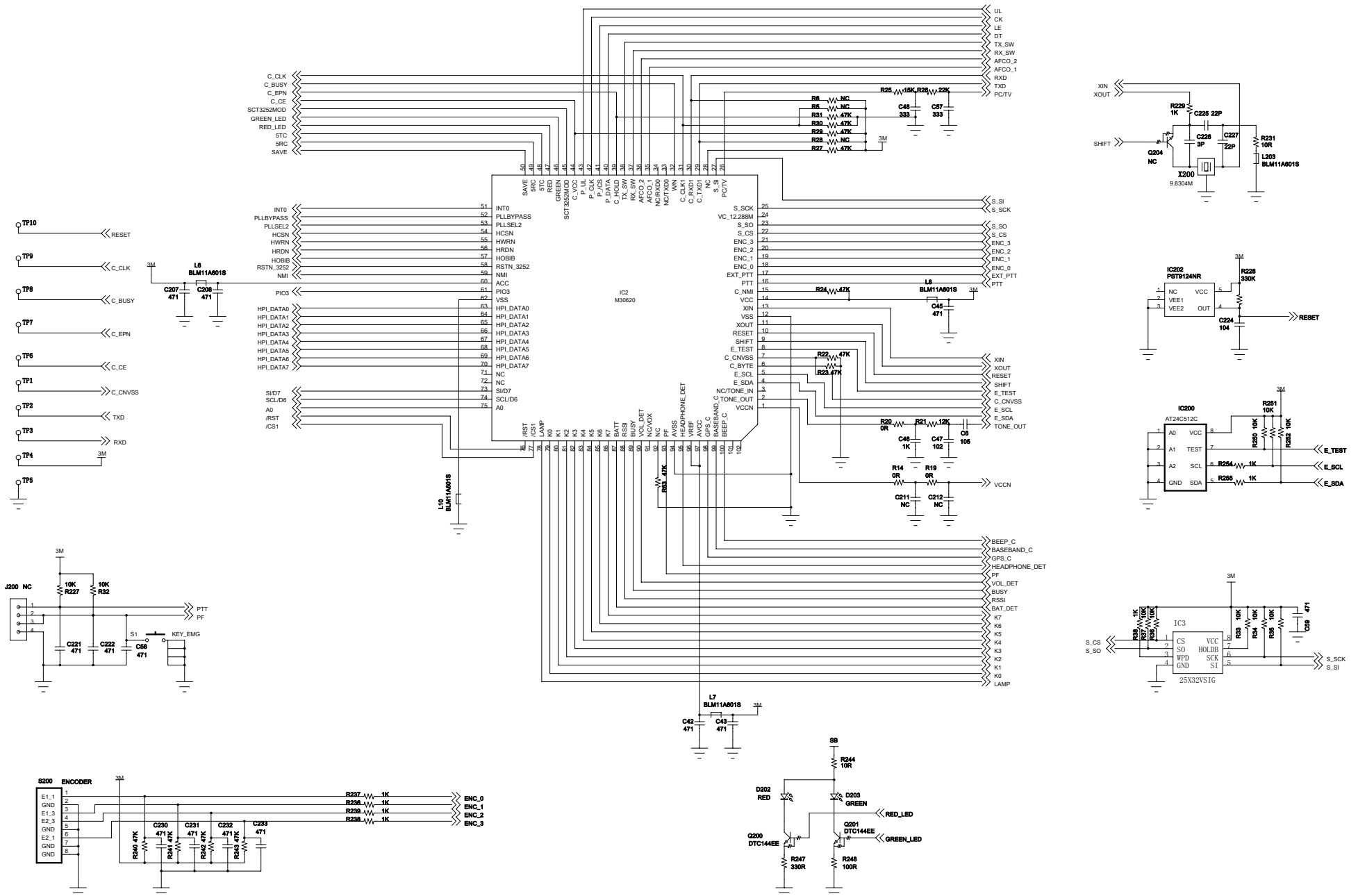
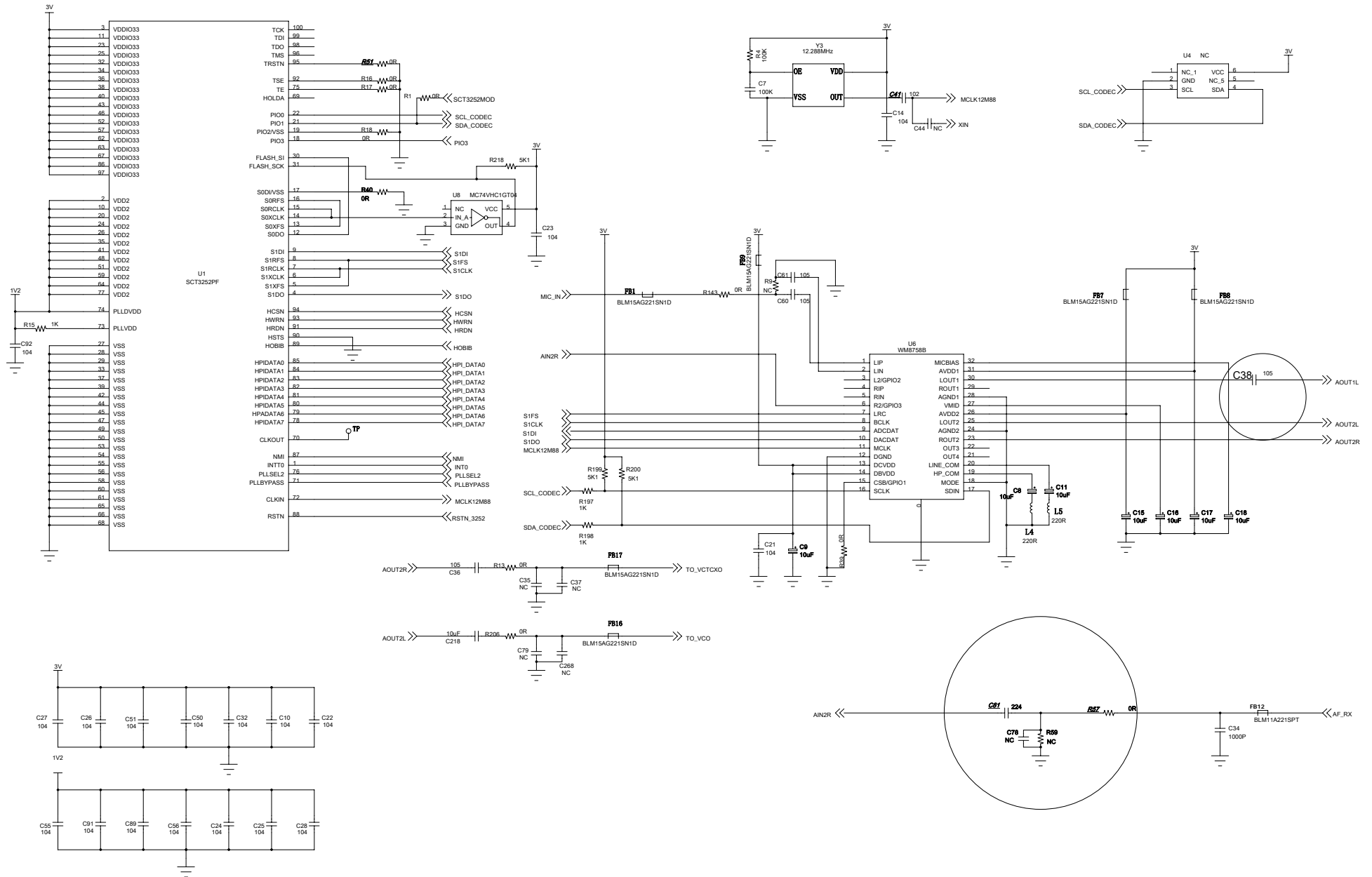
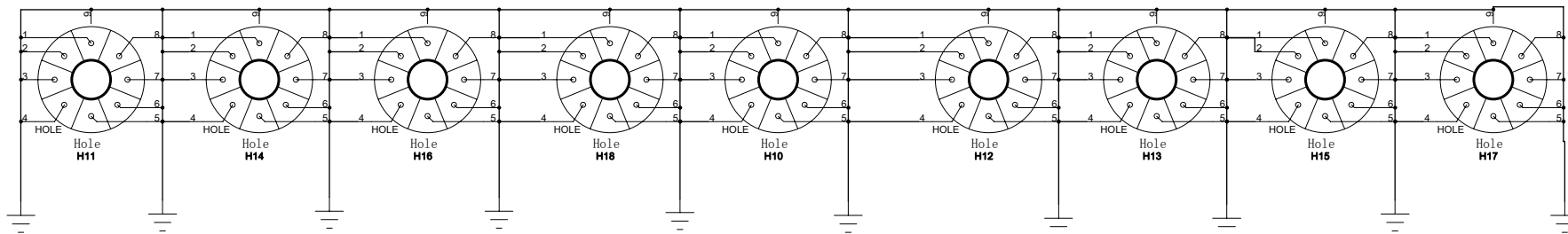
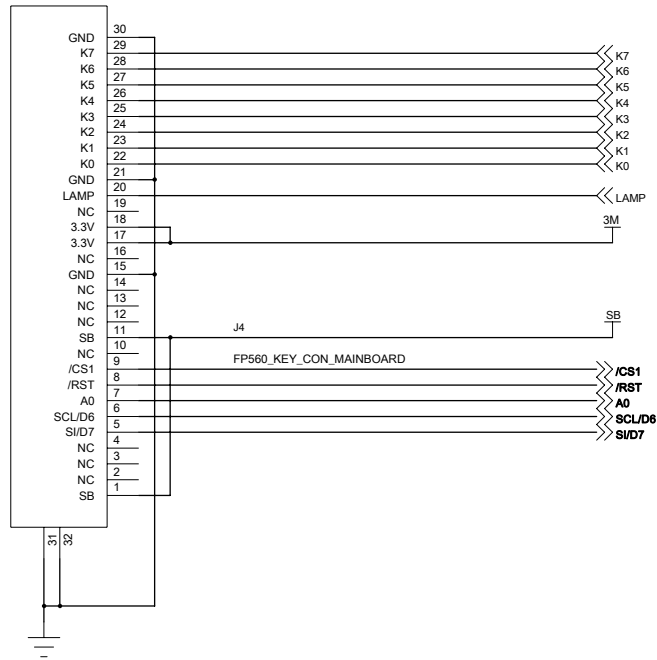


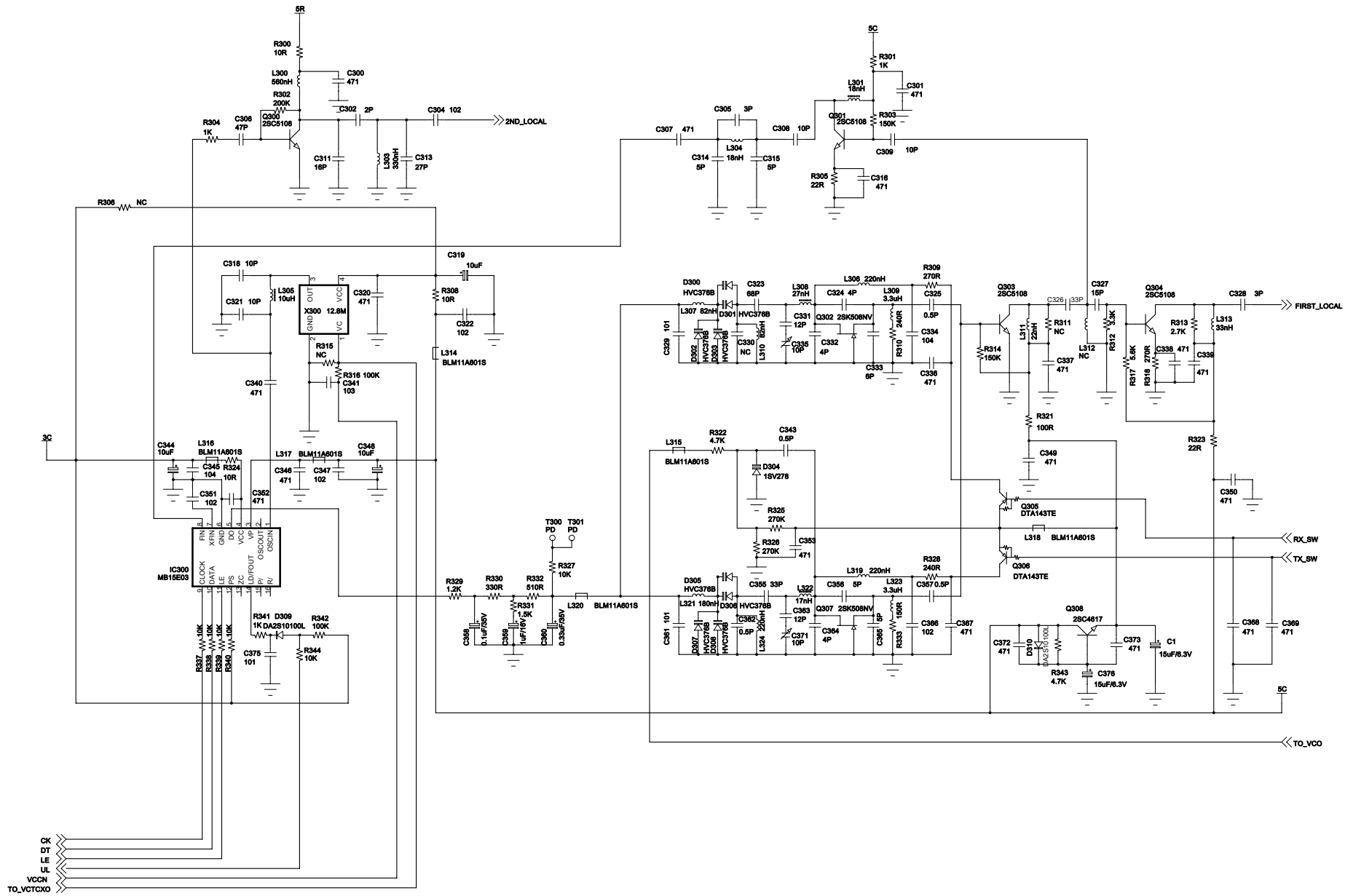
Figure 4 FP560-02 Mainboard Schematic Diagram (400-470MHz)

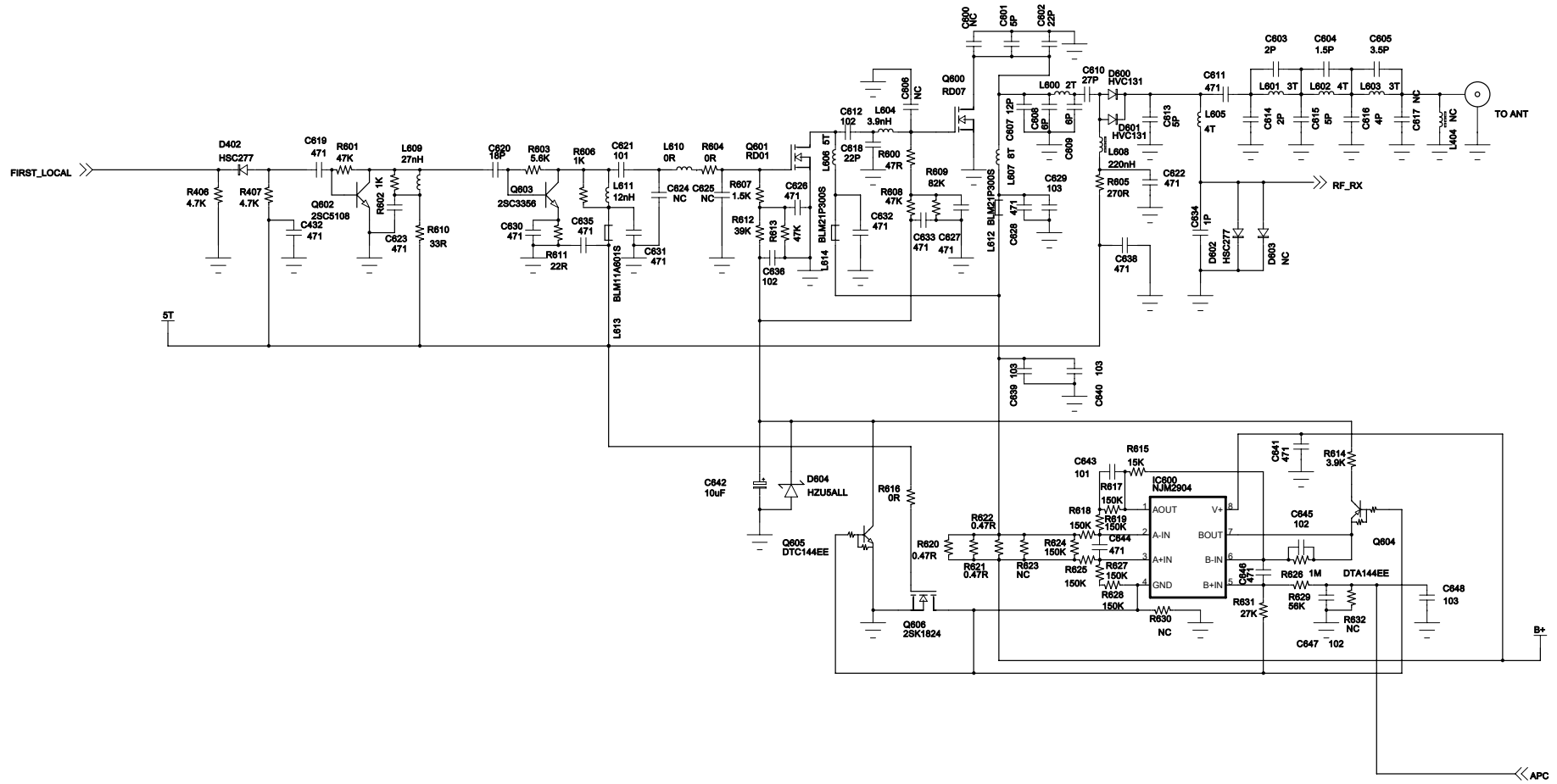












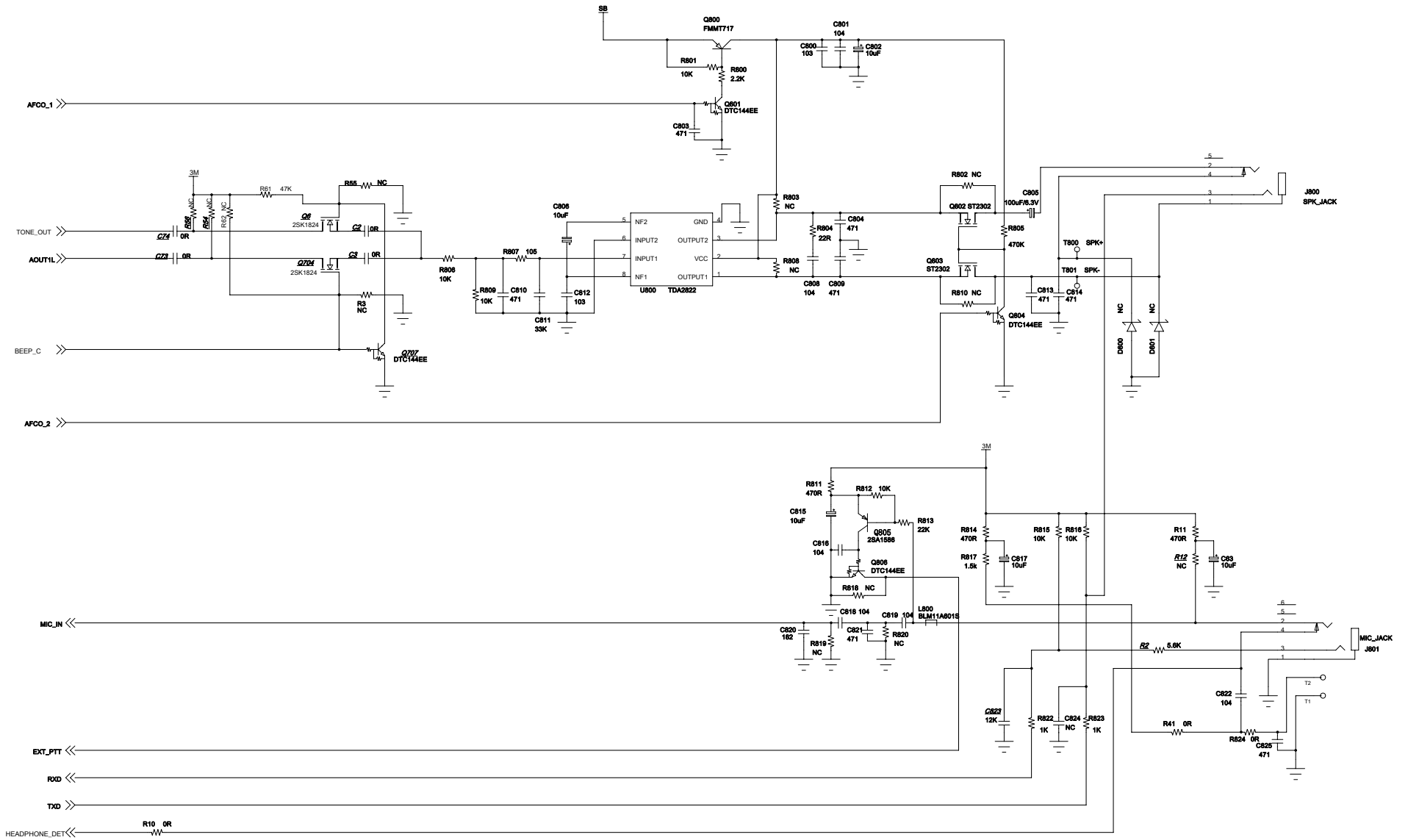


Figure 5 FP560-02 Top PCB Position Mark Diagram (400-470MHz)

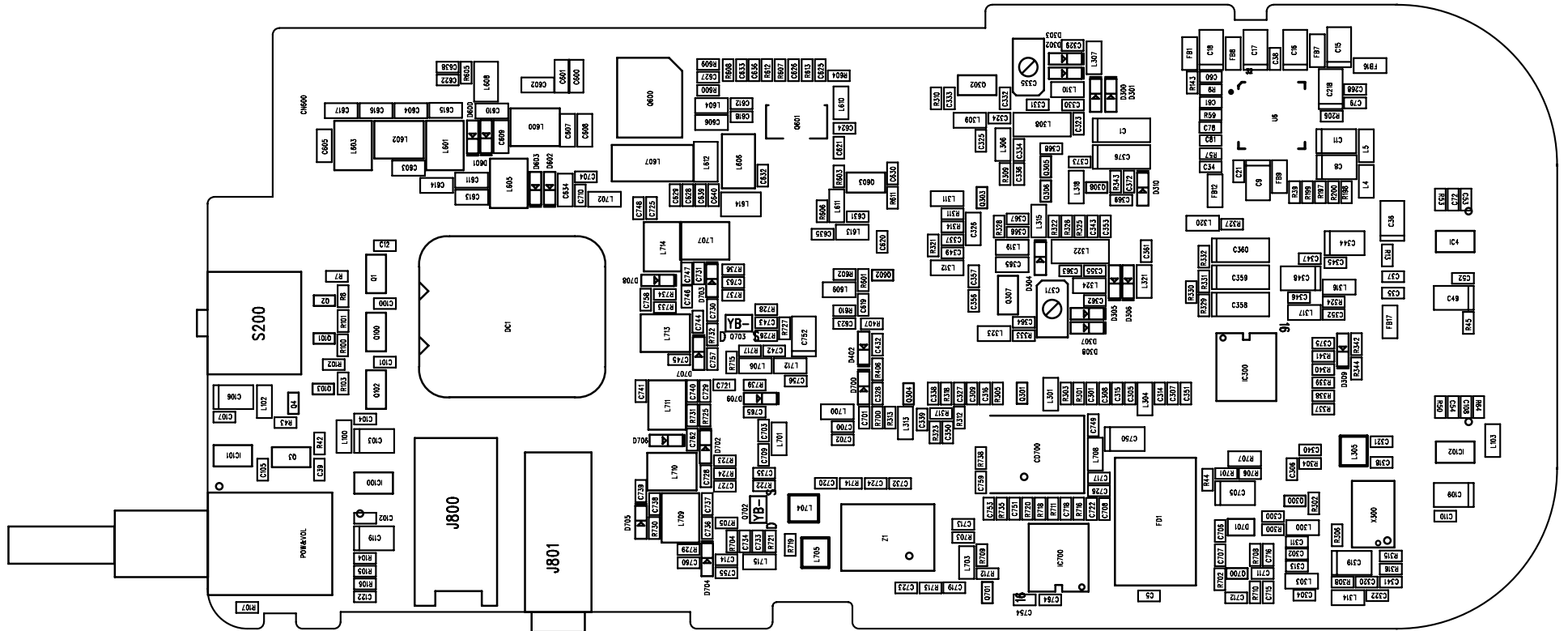


Figure 6 FP560-02 Bottom PCB Position Mark Diagram (400-470MHz)

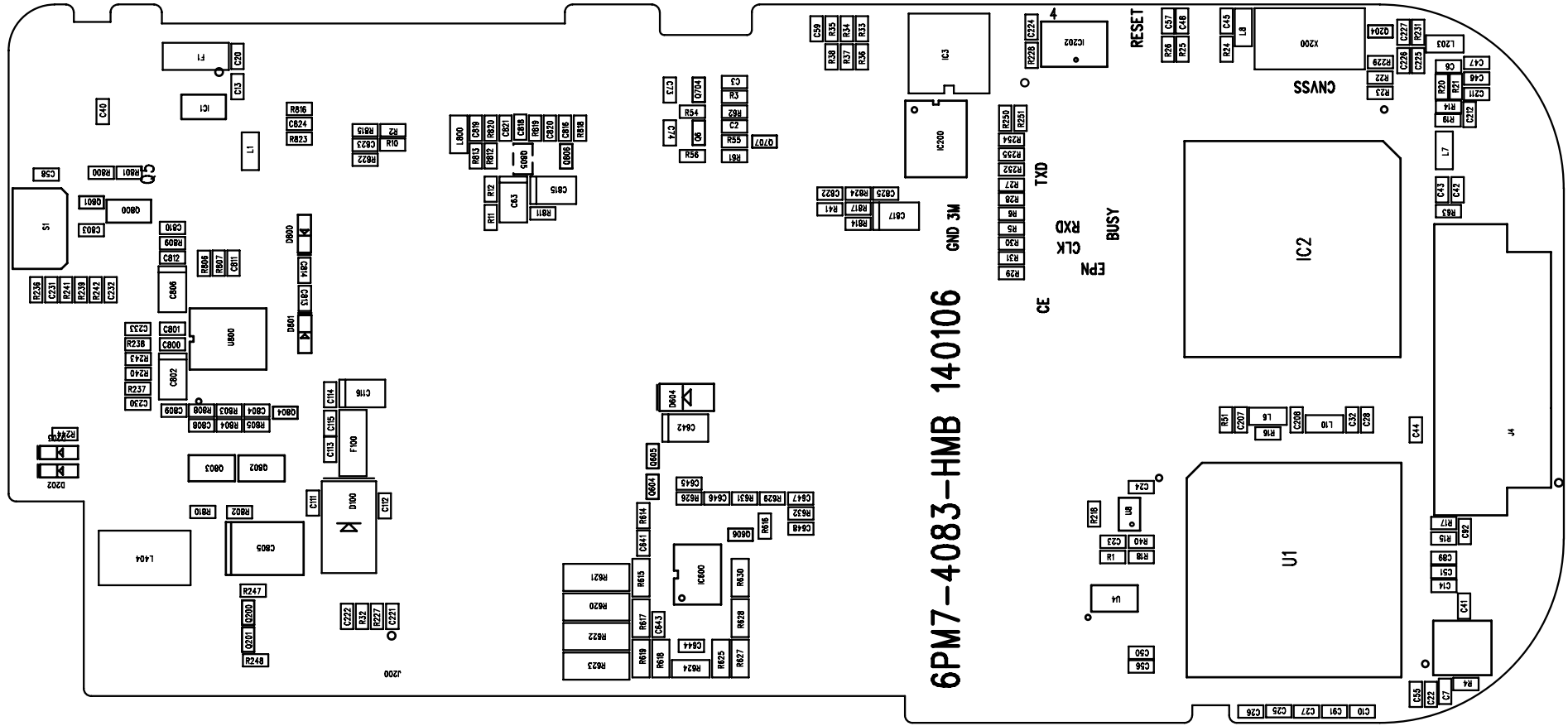


Figure 7 FP560 Kerypad Top PCB Position Mark

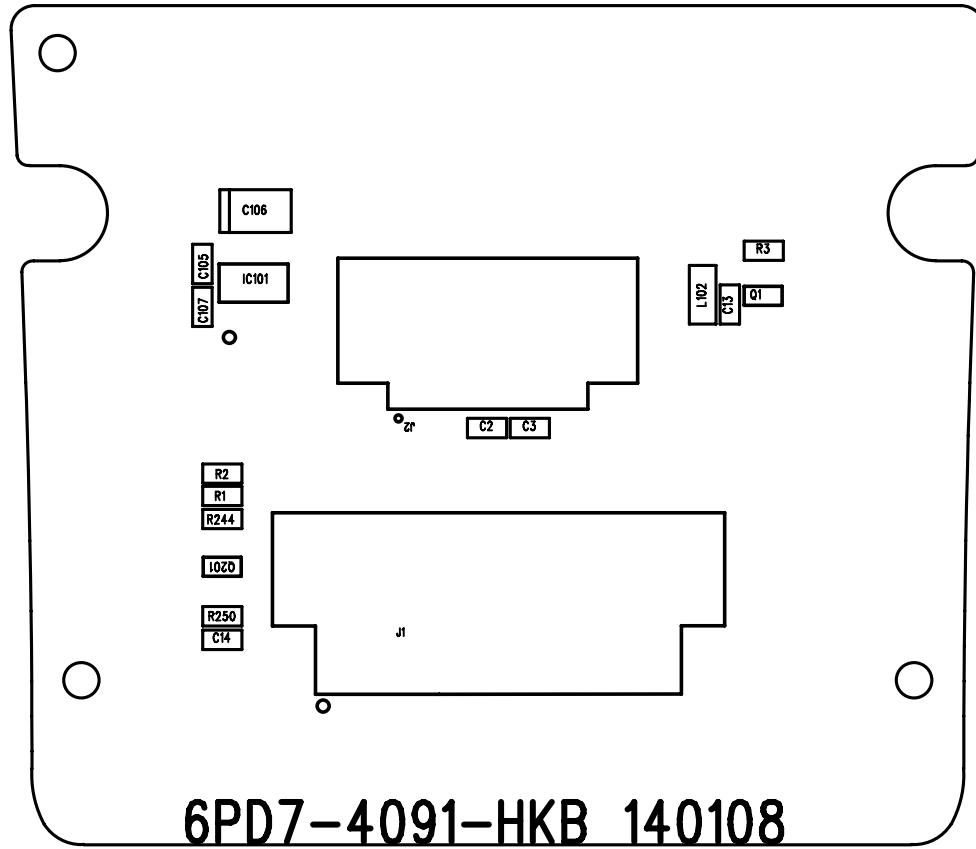


Figure 8 FP560 Keypad Bottom PCB Position Mark

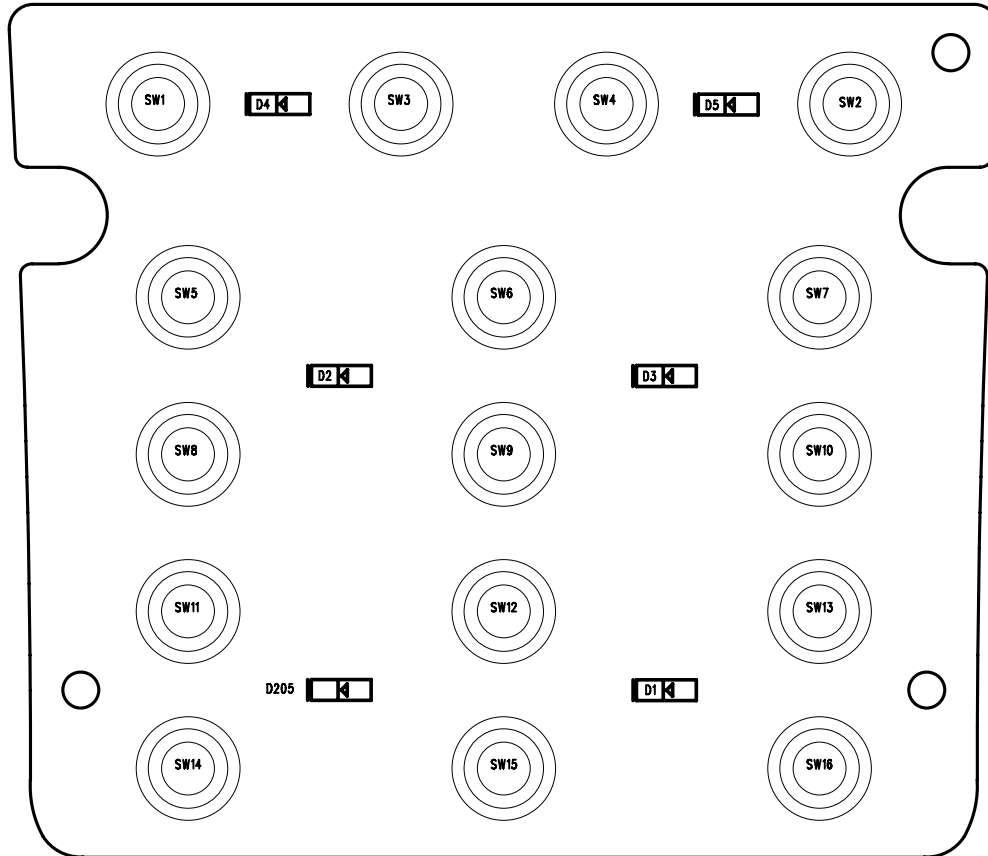


Figure 9 KBC-51 Charger Schematic Diagram

