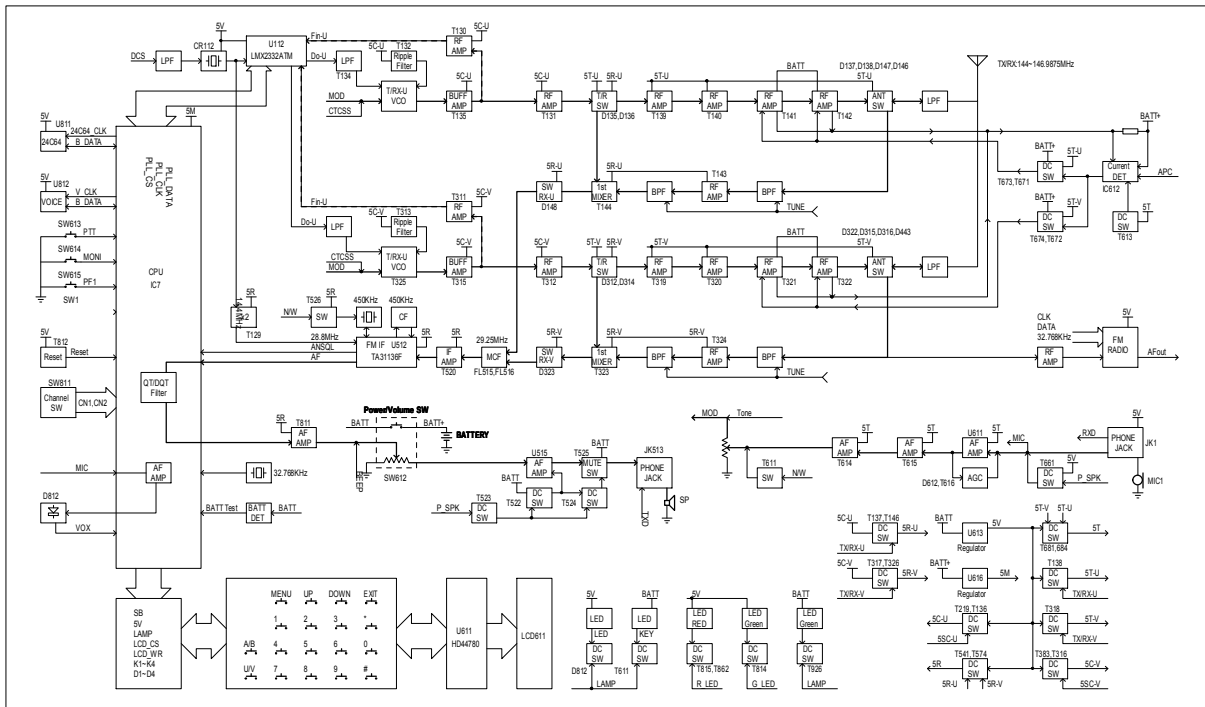


Service Manual

Brand: WOUXUN

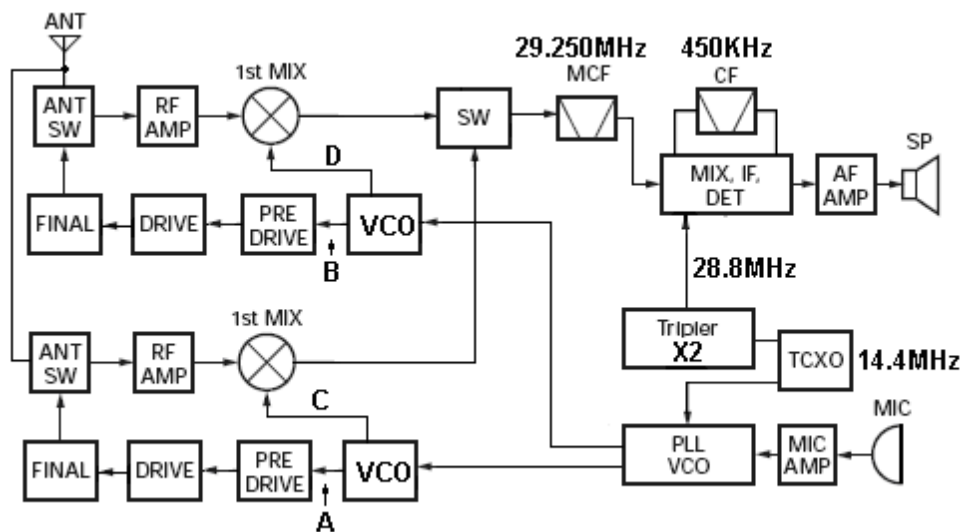
Model: KG-UV6D

Frequency: 136-174/400-480MHz



Frequency Constitution

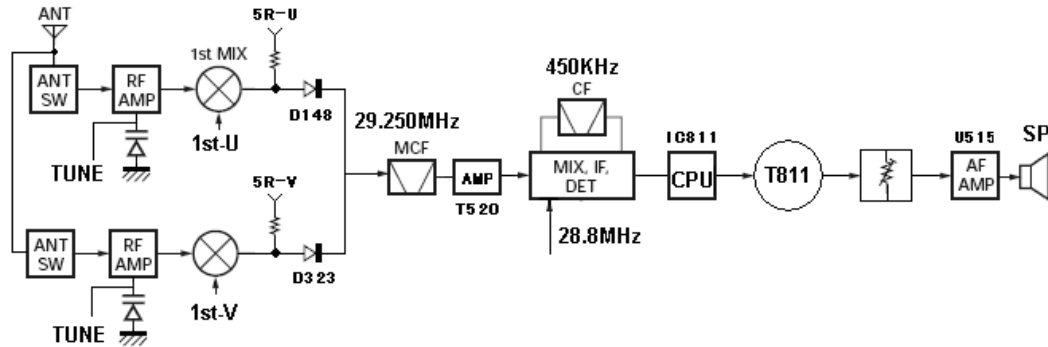
The transceiver uses twice frequency conversion, the first IF is 29.250MHz, and the second IF is 450kHz. The first local oscillations signal is supplied by PLL circuit, which produces the necessary transmitting frequency. (See PIC 1)



PIC1

Frequency constitute	A	C
	136~174.995MHz	400~479.995MHz

Receiver Part



PIC2

(1) the Front of U band (RF Amplifier)

The Signal received from antenna enters the diode circuit of transmitting/ Receiving switch(D148, D137, D138和D147), and then it enters into BPF(L191和L192), after that it is amplified by RF(T143). The signal enters the mixing through (L165, L189, L187 and L188,). These BPF are adjusted by variable condenser (D142, D143, D144, D145). The voltage that is input into the variable condenser is adjusted by the voltage from microprocessor (IC811).

(2) the Front of V band (RF Amplifier)

The Signal received from antenna enters the diode circuit of transmitting/ Receiving switch(D322, D315, D316 and D443), and then it enters into BPF(L344和L345), after that it is amplified by RF(T324). The signal enters the mixing through (L320, L342, L341 and L340). These BPF are adjusted by variable condenser (D318, D319, D320 and D321). The voltage that is input into the variable condenser is adjusted by the voltage from microprocessor (IC811).

(See PIC 2)

(3) The 1st mixer

The signal of the front in the U band mixes the first oscillation signal produced by PLL circuit on T144, and then creates the 1st intermediate frequency signal of 29.250MHz. The created signal goes through to the U.V band switcher.

The signal of the front in the V band mixes the first oscillation signal produced by PLL circuit on T323, and then creates the 1st intermediate frequency signal of 29.250MHz. The created signal goes through to the U.V band switcher.

The U.V band switcher changes the signals of the U band and the V band, referring to the working condition of the U/V band of the IC811. After the change, signal will be sent to the MCF(FL515, FL516)。(See PIC 2)

(4) Intermediate Frequency Amplifying Circuit

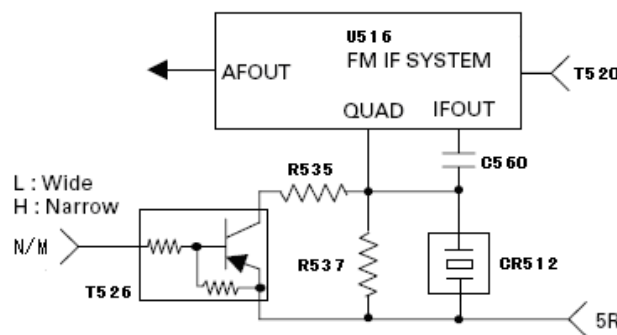
The 1st intermediate frequency signal eliminates the signal of adjacent channels through crystal filter (FL515, FL516).The first intermediate frequency signal through filtering is amplified by the 1st intermediate frequency amplifier (T520) and enters the intermediate frequency system CMOS chip (U516).The intermediate frequency system CMOS chip provides the 2nd mixer, the 2nd RX LO, the restriction amplifier, quadrature detector and RSSI (Indicator of receiving signal intension). The 2nd mixer outputs and mixes the first intermediate

frequency signal and the 2nd RX LO of 28.8MHz, and then creates the second intermediate frequency signal of 450kHz. The second intermediate frequency signal keeps eliminating the signal of the adjacent channels through ceramic filter (FL514).

The 2nd mixer through filtering is amplified by restriction amplifier, and demodulated by quadrature detector. The demodulated signal is filtering in microprocessor (IC811), and then enters the tone circuit. (See PIC 2)

(5) Wide/Narrow Switch Circuit

We can set the width of every channel by turning on the wide/narrow switch. The data of WIDE (Low Level) and NARROW (High Level) is outputted by the 14th pin of IC811. T528 connects when receiving WIDE (Low Level) data, and disconnects when receiving the NARROW (High Level) data. T528 connects/disconnects by the wide/narrow data. The outputted level from U516 detector always changes to maintain the constant outputted level during the wide/narrow signal process



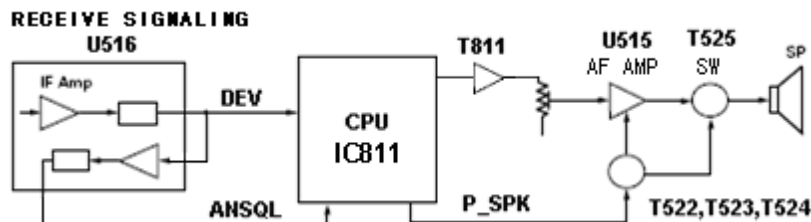
PIC3

(6) Tone Amplifier Circuit

After being filtered by microprocessor (IC811), the modulated signal from U514 is amplified by T811, and then is sent to tone amplifier. The signal through AF volume control is amplified on the tone power amplifier (U515) and sent to the mic. (See PIC 2)

(7) Squelch

A part of AF signal from FM IC (U516) enters IC again. The noise components is amplified and corrected by the filter and the amplifier, and produces DC voltage corresponding to the noise level. DC signal is sent to stimulated port 28th foot of the microprocessor (IC811) through FM IC. The microprocessor (IC811) decides whether output voice from speaker according to examining the input voltage is higher or lower the preset value. When the speaker outputs voice, the microprocessor (IC811) sends the high level signal to SP MUTE line, and opens AF AMP(U515) through T522, T523, T524and T525. (See PIC4)



PIC4

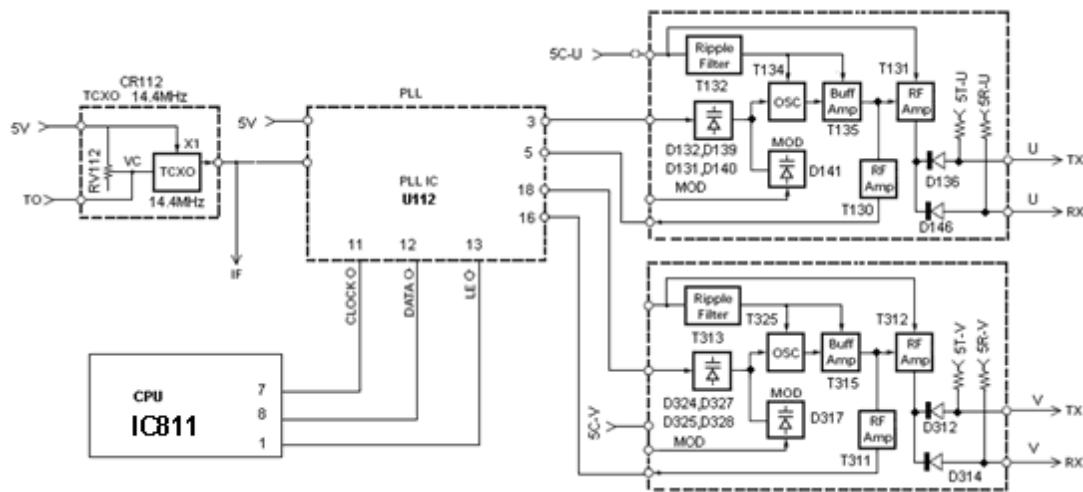
(8) Receiving channel(QT/DQT)

The signal from FM IC (U516) enters the microprocessor (IC811). The microprocessor (IC811) determines whether QT or DQT matches the setting value, and controls the outputting voice of P-SPK and speaker according to the result. (See PIC 4)

PIC4

PLL Frequency Compound

PLL circuit is produced by the 1st local oscillations signal and the RF signal for transmitting. The PLL this transceiver uses is the integrated circuit, which causes 2 different way for receiving, using the 1st local oscillations signal and the RF signal.



PIC5

(1) PLL

The frequency step of PLL circuit is 5 or 6.25 kHz.

The 14.4MHz referring Rx LO is divided frequency by a fixed arithmometer on U112. The output signal of the oscillator (VCO) is buffered and amplified by T130, and then is divided frequency by a programmable double module arithmometre. The signal of division frequency is compared on the phase comparator of U112, whose produced signal is sent to VCO to control the frequency of the oscillation after filtering by a low-pass filter. (See PIC5)

(2) VCO

① VCO in the U band of the radio

The frequency used in the U band of the radio is produced by T134 oscillation, when the frequency point of transmitting and receiving. Through the VCO controlling voltage that will be obtained from the phase comparator, it send to the variable diode (D132, D139, D131, D140) to control the oscillating frequency. The signal of the oscillating frequency is amplified through T135 and T131, then is separately sent to the transmitting frequency amplifier through D136 and D135, and eventually received. (See PIC 5)

② VCO in the V band of the radio

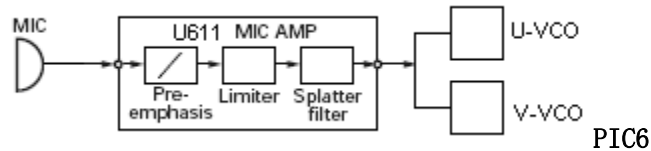
The frequency used in the V band of the radio is produced by T325 oscillation, when the frequency point of transmitting and receiving. Through the VCO controlling voltage that will be obtained from the phase comparator, it sends to the variable diode (D324, D325, D327, D328) to control the oscillating frequency. The signal of the oscillating frequency is amplified through T315 and T312, then is separately sent to the transmitting frequency amplifier through D312 and D314, and eventually received. (See PIC 5)

The Transmitting Segment

(1) Speaker Amplifier

The signal from the speaker goes through U611. When encoding DTMF, the inputted speaker signal is closed by U611. The signal processes the adjustment of the maximum frequency deviation through tone processor U611, and then is sent to VCO of U/V band to demodulate

and input. (See PIC6)



(2) Drivers and Terminal Amplifier

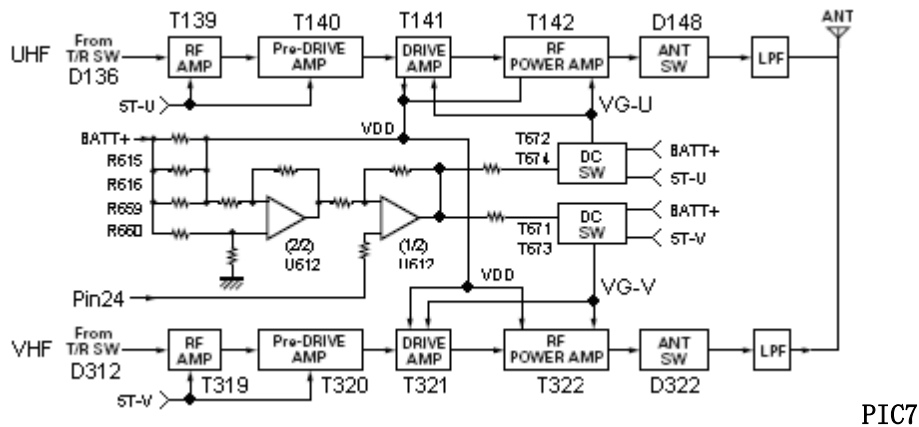
This radio has 2 separate drivers and Terminal Amplifiers, U band 's and V band' s.

① Drivers and Terminal Amplifier of U band

The signal from T/R switch (D136 ON) is amplified to 50mW by the pre-driver amplifier (T139, T140) and the driver amplifier (T141). The output of the driver amplifier is amplified to 4.0W by RF power amplifier (T142) (when the low power is 1W). The output of RF power amplifier is sent to the antenna terminal through harmonious wave filter (LPF) and antenna switch (D148). (See PIC7)

② Drivers and Terminal Amplifier of V band

The signal from T/R switch (D312 ON) is amplified to 50mW by the pre-driver amplifier (T319, T320) and the driver amplifier (T321). The output of the driver amplifier is amplified to 4.0W by RF power amplifier (T322) (when the low power is 1W). The output of RF power amplifier is sent to the antenna terminal through harmonious wave filter (LPF) and antenna switch (D322). (See PIC7)



(3) Auto Power Control (APC) Circuit

APC circuit always monitors the current passed by RF power amplifier (T142 or T322) and maintains its stability. The changes of current that is through RF power amplifier will cause the lower voltage of R615, R616, R659 and R660, which is sent to the differential amplifier U612(2/2). U612 (1/2) compares the output voltage from U612 (2/2) with the referring voltage from IC811. The output voltage of U612 (1/2) control the VG of RF power amplifier, driver amplifier and pre-drive amplifier to maintain the consistent voltage. The changes of High/Low power are enabled by changing the referring voltage. (See PIC 7).

(4) Encoding Signaling

QT/DQT

QT/DQT data is output by CPU of the 23rd pin. The signal is sent to TCXO CR112 through the low-pass CR filter, and another one is sent to mix with the audio frequency, eventually, sent to VCO of U/V band.

② DTMF

Electronic Power

This transceiver has 10 5V power. They are provided to the microprocessor: 5V, 5M. When the electronic power is on, 5V always keeps outputting. Although 5V is regular output, it is also closed by turning off the electronic power to prevent the microprocessor from malfunction.

5C-V is the common 5V for V band, and keeps outputting during the non-save status.

5C-U is the common 5V for U band, and keeps outputting during the non-save status.

5R-V is the receiving 5V for V band, and keeps outputting during receiving.

5R-U is the receiving 5V for U band, and keeps outputting during receiving.

5R-V is the transmitting 5V for V band, and keeps outputting during transmitting.

5R-U is the transmitting 5V for U band, and keeps outputting during transmitting.

5R is the 5V used in the intermediate circuit (U and V band receiving the common power)

5T is the power for the amplified speaker ((U and V band receiving the common power)

In addition, there are totally 2 adapters, BATT+ and BATT. BATT+ is the input power, and BATT is the power which is controlled by the switcher.

Circuit control

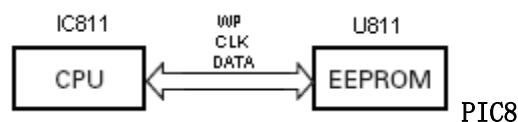
The circuit control is made up of the microprocessor (IC811) and the outer circuit. It is controlled by TX-RX units. The main functions of IC811 are including:

- (1) Switch the mode of transmitting and receiving referring the input signal if PTT.
- (2) Read out the system, group, frequency and the processor data from the memory circuit.
- (3) Send the frequency data to PLL.
- (4) Control ON/OFF of the squelch according to the DC voltage of the squelch circuit output.
- (5) Control audio mute referring the decoding data.

1) the memory circuit

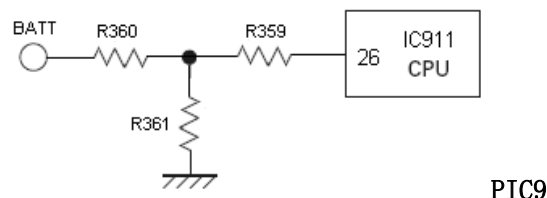
The memory circuit is made up of CPU(IC811) and EEPROM(U811).

Its capacity is 64K bits, including the handheld control processor CPU uses and the data for channel and operation function. (See PIC 8)



2) low-voltage Prompt

Watch out the voltage by the microprocessor. When the voltage is lower than the warning voltage, there will be a prompt for reminding. (See PIC9)

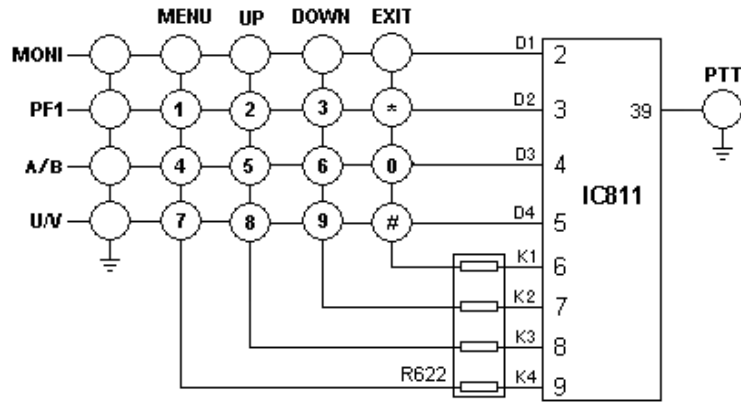


Keypad and the Power-on-Message

(1) keypad entry examination

K1, K2, K3, K4 are the output ports of the keypad, and D1, D2, D3, D4 are the entry ports of the keypad. There has the referred operation the after microprocessor (IC811) examination.

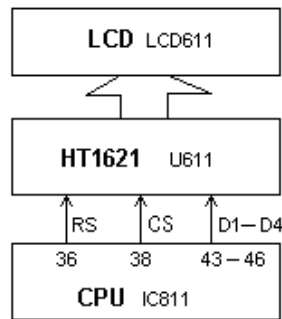
(See PIC10)



PIC10

(2) Power-on-Message

The information shown by LCD is by the microprocessor (IC811) controlling the screen (liquid crystal) and displaying the driver circuit.



PIC11

(3) the circuit in the poor light

The screen and the backlight of this transceiver use the single backlight, and the lighter is controlled by the 10th pin of IC811. (See PIC12)

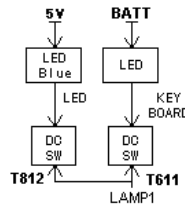
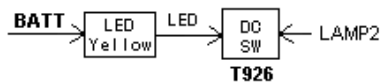


图12

(4) the illumination circuit

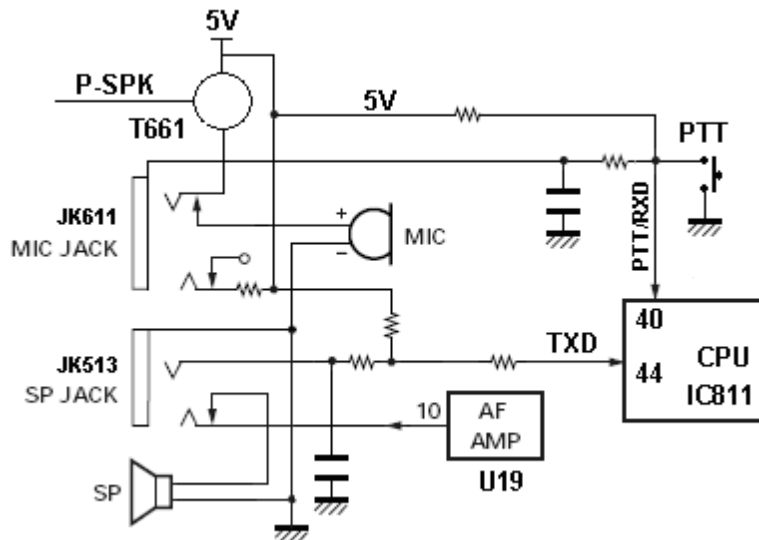
The illumination circuit is controlled by the 3rd pin of IC811. (See PIC13)



PIC13

The Programming communication

The radio does the data communication with PC through the RXD and TXD on the headset. (See PIC 14)



PIC14

Adjust
Public Part

ITEM	CONDIITON	TEST		ADJUSTMENT		SPEC. /NOTE
		equipment	terminal	parts	method	
1. setting	1) BATT Terminal Voltage: 7.5V 2) SSG Standard Modulation [WIDE] MOD: 1KHz, DEV: 3KHz [NARROW] MOD: 1KHz, DEV: 1.5KHz					
2. VCO Locked Voltage RX	1) CH: HIGH 2) CH: LOW	Power meter DVM	ANT CV		3.0V	+/-0.1V
					INSPECTION	0.6V or above
3. VCO Locked Voltage TX	1) CH: HIGH PTT: ON 2) CH: LOW PTT: ON				3.0V	+/-0.1V
					INSPECTION	0.6V or above

TX Part

ITEM	CONDIITON	TEST		ADJUSTMENT		PSEC/NOTE
		equipment	terminal	part	method	
1. frequency adjustment	1) CH: high 2) PTT: ON	cymometer	ANT			high frequency +/-50Hz
2. high-power adjustment	Test CH: low center high BATT terminal voltage: 7.5V PTT: ON	power meter ammeter				4.0W +/-0.1V 1.9 or below
						1.0W +/-0.1V
3. low frequency	Test CH: LOW CENTER					1.0W +/-0.1V

adjustment	HIGH BATT terminal Voltage:7.5V PTT:ON					0.9A or below
4. maximum frequency deviation adjustment (WIDE)	Test CH:LOW CENTER HIGH AG:1KHz/150mv deviation Frequency filter LPF:15KHz HPF:OFF PTT:ON	Power meter deviation frequency instrument Oscilloscope	ANT SP/MI connector		4.2KHz (max available)	+/-50Hz
[narrow]	TestCH: 中心 PTT:ON	AG AF VTVM			2.2KHz (max available)	+/-50Hz

RX Part

item	condition	test		adjustment		SPEC/NOTE
		equipment	terminal	part	method	
1. sensitivity check [WIDE]	Test CH:low center high SSG output:-117dBm(0.3uV) SSGMOD:3KHz	SSG DVM oscilloscope AF VTVM	ANT		inspection	12dB SINAD or above
[NARROW]	Test CH: center SSG output:-115dBm(0.4uV) SSGMOD:1.5 KHz					
3. SQL(Squelch value)write[wide]	Test CH: low center high SSG output:-123dBm(0.16uV) SSGMOD:3.0 KHz			Programming software	Read-in	Squelch open
[narrow]	Test CH: center SSG output:-122dBm(0.16uV) SSGMOD:3.0 KHz					
4. SQL(deep)	Test CH: center					

squelch valve value)read-in[wide]	low high SSG output:-117dBm(0. 3uV) SSGMOD:3.0 KHz					
[narrow]	Test CH: center SSG output:-116dBm(0. 35uV) SSGMOD:1.5 KHz					

Parts List

The Front parts on PC Board

Spec.	USE/Function	encapsulation	Digit. No	Quat.
NC	Laminated Capacitance	C0402	C148 C824 C657 C623 C167 C165 C161 C394 C390	9
104P	Laminated Capacitance	C0402	C833 C846 C845 C843 C842 C840 C837 C830 C827 C817 C814 C812 C641 C640 C638 C636 C634 C631 C624 C592 C589 C517 C514 C513 C511 C164 C162 C158 C614 C233 C841 C396 C389 R643	34
103P	Laminated Capacitance	C0402	C675 C364 C847 C844 C839 C825 C815 C813 C655 C625 C612 C611 C596 C545 C206 C168 C166 C163 C159 C138 C615 C393 C388 C237 C131	25
470P	Laminated Capacitance	C0402	C190 C639 C541 C134 C643 C616	6
102P	Laminated Capacitance	C0402	C360 C838 C829 C658 C652 C516 C512 C373 C169 C160 C156 C645 C644 C617 C397 C927 R631	17
68P	Laminated Capacitance	C0402	C590	1
220P	Laminated Capacitance	C0402	C851 C850 C832 C831 C656 C552	6
27P	Laminated Capacitance	C0402	C849 C848	2
223P	Laminated Capacitance	C0402	C836 C816 C635 C633 C626 C597 C216 C157	8
683P	Laminated Capacitance	C0402	C828 C826	2
100P	Laminated Capacitance	C0402	C823 C822 C821 C820 C632 C646	6

200P	Laminated Capacitance	C0402	C653 C651	2
272P	Laminated Capacitance	C0402	C637	1
680P	Laminated Capacitance	C0402	C630 C627	2
473P	Laminated Capacitance	C0402	C628	1
24P	Laminated Capacitance	C0402	C598 C594 C588	3
20P	Laminated Capacitance	C0402	C521	1
105P	Laminated Capacitance	C0402	C642	1
5P	Laminated Capacitance	C0402	C534	1
8P	Laminated Capacitance	C0402	C535	1
NC	Laminated Capacitance	C0603	C136 C431	2
105P	Laminated Capacitance	C0603	C647	1
10uF	Laminated Capacitance	C0805	C662 C661 E518 C196 C195 C193 C456 C457	8
2. 2uF	Laminated Capacitance	C0805	E615 E614 C455 C194	4
4. 7uF	Laminated Capacitance	C0805	E612 E611 E117	3
RED	LED	D0603	D815	1
GREEN	LED	D0603	D814	1
RLS4148	Diode	D-ESC	D811 D518 D326 D169 D517	5
LED	LED	LED	D926	1
RLS4148	Diode	USC	D611 D610	2
1SS372	Diode	USM	D812 D612	2
32. 768KHz	crystal	MC-146	CR811	1
2. 5 mm	Headset jack	ST-104	JK513	1
3. 5 mm	Mic jack	ST-301	JK611	1
JP20	20chip block	JP-20-2L	JP811	1
CH100nH	Fixed inductance	L0603	L811 L611 L520 L517	4
CH68nH	Fixed inductance	L0603	L519 L518	2
4. 7K	Laminated Capacitance	R0402	R221 R854 R840 R839 R630 R625 R624 R623 R618 R359 R216 R144 R133 R219 R927 C629	16

1K	Laminated Capacitance	R0402	R222 R132 R824 R669 R668 R663 R815 R814	8
0R	Laminated Capacitance	R0402	R152 R675 R859 R838 R641 R632 R856	7
10K	Laminated Capacitance	R0402	R674 R673 R672 R671 R813 R811 R633 R627 R651 R163	10
22K	Laminated Capacitance	R0402	R384 R852 R848 R637 R620 R576 R862 R134	8
180K	Laminated Capacitance	R0402	R131 R646	2
560K	Laminated Capacitance	R0402	R861	1
220K	Laminated Capacitance	R0402	R860 R858 R828 R819 R578 R218 R112	7
100R	Laminated Capacitance	R0402	R855 R664 R662 R617 R572	5
68K	Laminated Capacitance	R0402	R853 R644	2
100K	Laminated Capacitance	R0402	R851 R843 R818 R642	4
47K	Laminated Capacitance	R0402	R850 R817 R622 R596 R135 R118 R116 R115 R113 R648 R389 R379 R667	13
91K	Laminated Capacitance	R0402	R846	1
5.6K	Laminated Capacitance	R0402	R845 R844 R634	3
33K	Laminated Capacitance	R0402	R842 R841 R629 R628 R626 R621 R613 R137	8
120K	Laminated Capacitance	R0402	R830	1
330R	Laminated Capacitance	R0402	R829 R665	2
150R	Laminated Capacitance	R0402	R822 R821	2
2.2K	Laminated Capacitance	R0402	R820 R666 R639 R573 R119 R114 R390 R378	8
47R	Laminated Capacitance	R0402	R816	1
18K	Laminated Capacitance	R0402	R640	1
680K	Laminated Capacitance	R0402	R638	1
1.5K	Laminated Capacitance	R0402	R636	1

39K	Laminated Capacitance	R0402	R635 R139	2
10R	Laminated Capacitance	R0402	R619	1
1.8M	Laminated Capacitance	R0402	R612 R611	2
15K	Laminated Capacitance	R0402	R217 R140	2
NC	Laminated Capacitance	R0402	R145 R110	2
27K	Laminated Capacitance	R0402	R138	1
150K	Laminated Capacitance	R0402	R655 R654	2
1M	Laminated Capacitance	R0402	R650 R647 R645	3
5.6R	Laminated Capacitance	R0402	R926	1
560R	Laminated Capacitance	R0402	R117 R312	2
220R	Laminated Capacitance	R0603	R358 R356	2
15K	Laminated Capacitance	R0603	R360	1
150K	Laminated Capacitance	R0603	R658 R657 R656 R614	4
20K	Laminated Capacitance	R0603	R361	1
0.33R	Laminated Capacitance	R1206	R660 R615 R616	3
NC	Laminated Capacitance	R1206	R659	1
47K	exclusion	1206-4	RP812 RP811	2
50K	Fine-tuning resistance	RV1008	RES611	1
50K	Fine-tuning resistance	RV1208	RV112	1
PF1	switch	TD-26EA	SW615	1
MONI KEY	switch	TD-26EA	SW614	1
PTT KEY	switch	TD-30EA	SW613	1
2SK3476	FET	2-5N1A	T322 T142	2
2SC4617	transistor	ESM	T615 T614	2
DTA114EE	transistor	ESM	T661	1
DTC114EE	transistor	ESM	T222 T152 T674 T673 T672 T671 T815 T814 T611 T146	14

			T613 T219 T862 T326	
FT717	transistor	TSM	T138 T137 T136 T318 T317 T812	6
2SC2712	transistor	TSM	T926	1
2SC4116	transistor	USM	T811	1
2SC4226	transistor	USM	T521	1
1SS4181	transistor	USM	T616	1
RDA5807P	IC	QFN24	U514	1
EM78P568	IC	QFP44	IC811	1
24C64	IC	SOP8	U811	1
LM4558	IC	SOP	U611	1
LM358	IC	SOP8	U612	1
VOICE	voltage regulator tube	VOICE	U812	1

Inverse Parts on PC Board Chart

Spec.	USE/Function	Encapsulation	Digit.No	QTY
ANT-2	antenna	ANT-KX01	ANT112	1
BATTERY	Battery contacts	BATTERY3	BATT611	1
102P	Laminated Capacitance	C0402	C666 C819 C317 C137 C363 C264 C247 C546 C539 C281 C555 C532 C531 C426 C412 C405 C401 C400 C391 C375 C351 C339 C228 C212 C266 C183 C172 C170 C619 C122 C354 C348 C347 C124 C114 C113 C231 C385 C331 C852	40
104P	Laminated Capacitance	C0402	C667 C665 C316 C561 C525 C683 C573 C251 C234 C543 C319 C562 C529 C403 C374 C286 C283 C621 C538 C387 C329 C205	22
NC	Laminated Capacitance	C0402	C818 C559 C557 C682 C572 C540 C558 C530 C425 C378 C384 C376 C372 C244 C235 C224 C222 C210 C112 C284 C432 C430	22
103P	Laminated Capacitance	C0402	C622 C353 C365 C139 C684 C574 C345 C550 C542 C536 C221 C219 C650 C648 C620 C358 C428 C424 C402 C133 C130 C123 C230 C383 C218 C217 C203 C377	28

470P	Laminated Capacitance	C0402	C416 C423 C361 C135 C240 C239 C595 C144 C556 C433 C443 C429 C413 C408 C407 C392 C357 C355 C350 C332 C326 C147 C258 C254 C252 C248 C236 C220 C261 C257 C185 C184 C174 C173 C171 C129 C125 C120 C115 C649 C618 C366 C343 C285 C127 C117 C422 C414 C181 C176 C323 C321	52
18P	Laminated Capacitance	C0402	C313 C180 C177	3
5P	Laminated Capacitance	C0402	C312 C311 C398 C232 C263 C262 C260 C226 C225	9
473P	Laminated Capacitance	C0402	C549	1
100P	Laminated Capacitance	C0402	C547 C560 C449 C215 C213 C208 C204 C202 C192	9
224P	Laminated Capacitance	C0402	C563	1
272P	Laminated Capacitance	C0402	C554	1
180P	Laminated Capacitance	C0402	C528 C527 C282	3
10P	Laminated Capacitance	C0402	C526 C452 C381 C328 C209 R341 R335	7
56P	Laminated Capacitance	C0402	C447	1
2P	Laminated Capacitance	C0402	C445	1
27P	Laminated Capacitance	C0402	C442	1
3P	Laminated Capacitance	C0402	C440 C439 C419 C418 C191 C188 C187 C111	8
22P	Laminated Capacitance	C0402	C437	1
7P	Laminated Capacitance	C0402	C410 C246 C245 C265 C119	5
24P	Laminated Capacitance	C0402	C406 C280	2
12P	Laminated Capacitance	C0402	C404 C395 C346 C337 C333 C253	6
15P	Laminated Capacitance	C0402	C399 C342	2
0.5P	Laminated Capacitance	C0402	C330 C250 C242	3

1P	Laminated Capacitance	C0402	C322	1
6P	Laminated Capacitance	C0402	C318 C182	2
8P	Laminated Capacitance	C0402	C255 C259 C175 C533	4
82P	Laminated Capacitance	C0402	C227	1
51P	Laminated Capacitance	C0402	C211	1
11P	Laminated Capacitance	C0402	C189 C186 C152	3
4P	Laminated Capacitance	C0402	C179 C178 C229	3
3P	Laminated Capacitance	C0603	C453 C154 C153 C150	4
7P	Laminated Capacitance	C0603	C451	1
NC	Laminated Capacitance	C0603	C450 C446 C427 C409 C371 C132 C118 C267	8
8P	Laminated Capacitance	C0603	C444 C436 C142 C141	4
4P	Laminated Capacitance	C0603	C438	1
22P	Fixed inductance	C0603	L341 L340	2
30P	Laminated Capacitance	C0603	C435	1
33P	Laminated Capacitance	C0603	C420 C349	2
2P	Laminated Capacitance	C0603	C368 C151	2
102P	Laminated Capacitance	C0603	C367	1
220P	Laminated Capacitance	C0603	C356	1
470P	Laminated Capacitance	C0603	C352 C128 C121	3
100P	Laminated Capacitance	C0603	C320	1
56P	Laminated Capacitance	C0603	C238	1
1P	Laminated Capacitance	C0603	C155	1
5P	Laminated	C0603	C149	1

	Capacitance			
104P	Laminated Capacitance	C0603	C146	1
10P	Laminated Capacitance	C0603	C145 C116	2
13P	Fixed inductance	C0603	L319	1
0.5P	Laminated Capacitance	C0603	C143	1
27P	Laminated Capacitance	C0603	C140 C126	2
10uF	Laminated Capacitance	C0805	E665 E667 E519 E684 E574 E520	6
22uF	Laminated Capacitance	C0805	C256	1
470P	Laminated Capacitance	C0805	C338	1
1uF	Laminated Capacitance	C0805	C571 E521	2
4.7uF	Laminated Capacitance	C0805	E118 C454	2
1SV376	Variable capacitance diode	ESC	D328 D327 D325 D324 D140 D139 D132 D131	8
RLS4148	Diode	ESC	D682 D681 D542 D541 D661	5
HSC277	Diode	ESC	D133 D323 D316 D315 D314 D312 D148 D138	12
			D137 D136 D135 D311	
1SV305	Variable capacitance diode	ESC	D321 D320 D145 D144 D143 D142 D319 D318 D141	9
HSM88A	Diode	TSM	D443 D147	2
BA592	Diode	USC	D322 D146	2
1SV278	Variable capacitance diode	USC	D317	1
0.1uF	Laminated TA Electrolyte Capacitance	EIA3216	E314 E313 E121	3
4.7uF	Laminated TA Electrolyte Capacitance	EIA3216	E312 E119 E120 E311	4
0.22uF	Laminated TA Electrolyte Capacitance	EIA3216	E122	1

10uF	Laminated TA Electrolyte Capacitance	EIA3216	E616 E613	2
100uF	Laminated TA Electrolyte Capacitance	EIA6032	E522	1
450K	Filter	PBFC455R	FL514	1
29.250MHz	Filter	UM-5-3S	FL516 FL515	2
14.4MHz	Crystal	19.2MHZ	CR112	1
C24	Crystal	6060	CR512	1
CH68nH	Fixed Inductor	L0402	L339 L325	2
CH47nH	Fixed Inductor	L0402	L314	1
CH27nH	Fixed Inductor	L0402	L186	1
CH15nH	Fixed Inductor	L0402	L171	1
CH12nH	Fixed Inductor	L0402	L159	1
CH18nH	Fixed Inductor	L0603	L313 L170 L169 R351	4
CI3.3uH	Fixed Inductor	L0603	L166 L322 L167 L321	4
HW120nH	Fixed Inductor	L0603	L346 C336	2
HW18nH	Fixed Inductor	L0603	L345 L164	2
HW68nH	Fixed Inductor	L0603	L344 R346	2
HW82nH	Fixed Inductor	L0603	L343 L320 C415	3
HW560nH	Fixed Inductor	L0603	L326	1
CH220nH	Fixed Inductor	L0603	L324 L323	2
HW47nH	Fixed Inductor	L0603	L318	1
CH100nH	Fixed Inductor	L0603	L317 L153	2
CH120nH	Fixed Inductor	L0603	L316 L312 L311	3
CI6.8uH	Fixed Inductor	L0603	L315 L152	2
CH270nH	Fixed	L0603	L168 L162 L161 L160	4

	Inductor			
HW6. 8nH	Fixed Inductor	L0603	L163 L192	2
CI560nH	Fixed Inductor	L0603	L157	1
CI1uH	Fixed Inductor	L0603	L156	1
HW4. 7nH	Fixed Inductor	L0603	L191	1
HW12nH	Fixed Inductor	L0603	L190	1
HW56nH	Fixed Inductor	L0603	L189	1
HW27nH	Fixed Inductor	L0603	L188 L187	2
CH2. 2nH	Fixed Inductor	L0603	L177	1
HW220nH	Fixed Inductor	L0603	L173	1
HW1uH	Fixed Inductor	L0603	L172	1
HW150nH	Fixed Inductor	L0603	L165	1
CH15nH	Fixed Inductor	L0603	L155	1
CH22nH	Fixed Inductor	L0603	L154	1
CH12nH	Fixed Inductor	L0603	L158	1
CH100nH	Fixed Inductor	L0805	L333 L179	2
HW560nH	Fixed Inductor	L0805	L327	1
CI560nH	Fixed Inductor	L0805	L174	1
CI100nH	Fixed Inductor	L0805	L328	1
HW220nH	Fixed Inductor	L0805	L176 L330 L175	3
HW1uH	Fixed Inductor	L0805	L329	1
0. 31*1. 5*7 T	Air core coil	LC03155T	L338 L335	2
0. 31*1. 5*8 T	Air core coil	LC03155T	L336	1

0.31*1.5*5 T	Air core coil	LC03155T	L185 L182 L181	3
0.31*1.5*7 T	Air core coil	LC03157T	L183	1
0.35*1.5*8 T	Air core coil	LC035158T	L332 L178	2
0.4*1.0*3T	Air core coil	LC04103T	L334	1
1K	Laminated Resistance	R0402	R835 R834 R320 R538 R154 R149 R146 R158 C537	9
47K	Laminated Resistance	R0402	R833 R832 R683 R543 R542 R522 R363 R348 R162 R207 R375	11
4.7K	Laminated Resistance	R0402	R831 R823 R534 R681 R541 R161 R518 R533 R332 R331 R661 R392 R388 R382 R184 R183 R182 R181 R179 R322 R383	21
150K	Laminated Resistance	R0402	R321 R515 R325 R171 R148 R200 R199 R159	8
1.5K	Laminated Resistance	R0402	R537	1
3K	Laminated Resistance	R0402	R535	1
100R	Laminated Resistance	R0402	R511 R444 R380 R372 R329 R326 R178 R173 R121	9
2.2K	Laminated Resistance	R0402	R682 R523 R532 R531 R338 R155 R191 R376	8
56K	Laminated Resistance	R0402	R529 R352	2
33K	Laminated Resistance	R0402	R528 R353	2
470K	Laminated Resistance	R0402	R527	1
0R	Laminated Resistance	R0402	R526 R313 R157 R153 R151 R214 C448 C223 C421 C417	10
150R	Laminated Resistance	R0402	R525	1
10R	Laminated Resistance	R0402	R524 R438 R324 R147	4
3.9K	Laminated Resistance	R0402	R520 R598 R536 R439	4
180K	Laminated Resistance	R0402	R599 R512 R122	3
NC	Laminated Resistance	R0402	R539 R215 R196 R127 R143 R142 R141	7
820R	Laminated	R0402	R516 R395 R120	3

	Resistance			
2K	Laminated Resistance	R0402	R514	1
100K	Laminated Resistance	R0402	R513 R446 R362 R160 R198 R128	6
120K	Laminated Resistance	R0402	R463 R460 R458 R210 R209	5
200K	Laminated Resistance	R0402	R459	1
330R	Laminated Resistance	R0402	R456 R126	2
2.7K	Laminated Resistance	R0402	R455	1
82K	Laminated Resistance	R0402	R448 R447 R445 R201	4
47R	Laminated Resistance	R0402	R418 R176 R172 R166 R192 R334 R205 R187 R452	9
680R	Laminated Resistance	R0402	R417 R330 R317 R194 R190	5
10K	Laminated Resistance	R0402	R394 R349 R333 R186 R185 R364	6
3.3K	Laminated Resistance	R0402	R387 R328 R175 R180 R517	5
5.6K	Laminated Resistance	R0402	R377 R174	2
22R	Laminated Resistance	R0402	R354 R350 R339 R208 R202 R193	6
220R	Laminated Resistance	R0402	R327	1
180R	Laminated Resistance	R0402	R319 R136	2
1.8K	Laminated Resistance	R0402	R316 R206	2
560R	Laminated Resistance	R0402	R315 R177 R188	3
91R	Laminated Resistance	R0402	R168	1
68K	Laminated Resistance	R0402	R204	1
5.6R	Laminated Resistance	R0402	R195	1
220K	Laminated Resistance	R0402	R123	1
1M	Laminated Resistance	R0402	R465 R464 R130 R129 R125 R124 R451 R450	8

220R	Laminated Resistance	R0603	R213 R212	2
0R	Laminated Resistance	R0603	R203 L342 L331	3
10R	Laminated Resistance	R0603	R197	1
0R	Laminated Resistance	R0805	R355	1
ED087410	Channel switch	ED087410	SW811	1
R08710NS	Power/Volume Switch	R08710NS	SW612	1
2SC4617	Crystal Tune	ESM	T132 T313	2
DTA114EE	Crystal Tune	ESM	T526	1
DTC114EE	Crystal Tune	ESM	T681 T541 T523 T524 T383	5
2SC3357	Crystal Tune	SOT89	T320 T140	2
2SK1588	FET	SOT89	T525	1
2SK3475	FET	SOT89	T321 T141	2
FT717	Crystal Tune	TSM	T684 T574 T522 T316	4
2SC3356	Crystal	TSM	T319 T139	2
2SK508NV	FET	TSM	T325 T134	2
3SK318	FET	US4	T324 T323 T144 T143	4
2SC4215	Crystal Tune	USM	T520	1
2SC4226	Crystal Tune	USM	T129	1
2SC4226	Crystal Tune	USM	T311 T312 T131 T130	4
2SC5488	Crystal Tune	USM	T315 T135	2
TA7368	IC	SSOP10	U515	1
TA31136F	IC	SSOP16	U516	1
LMX2336	IC	SSOP20	U112	1
5V	Regulator Tune	5V	U616 U613	2

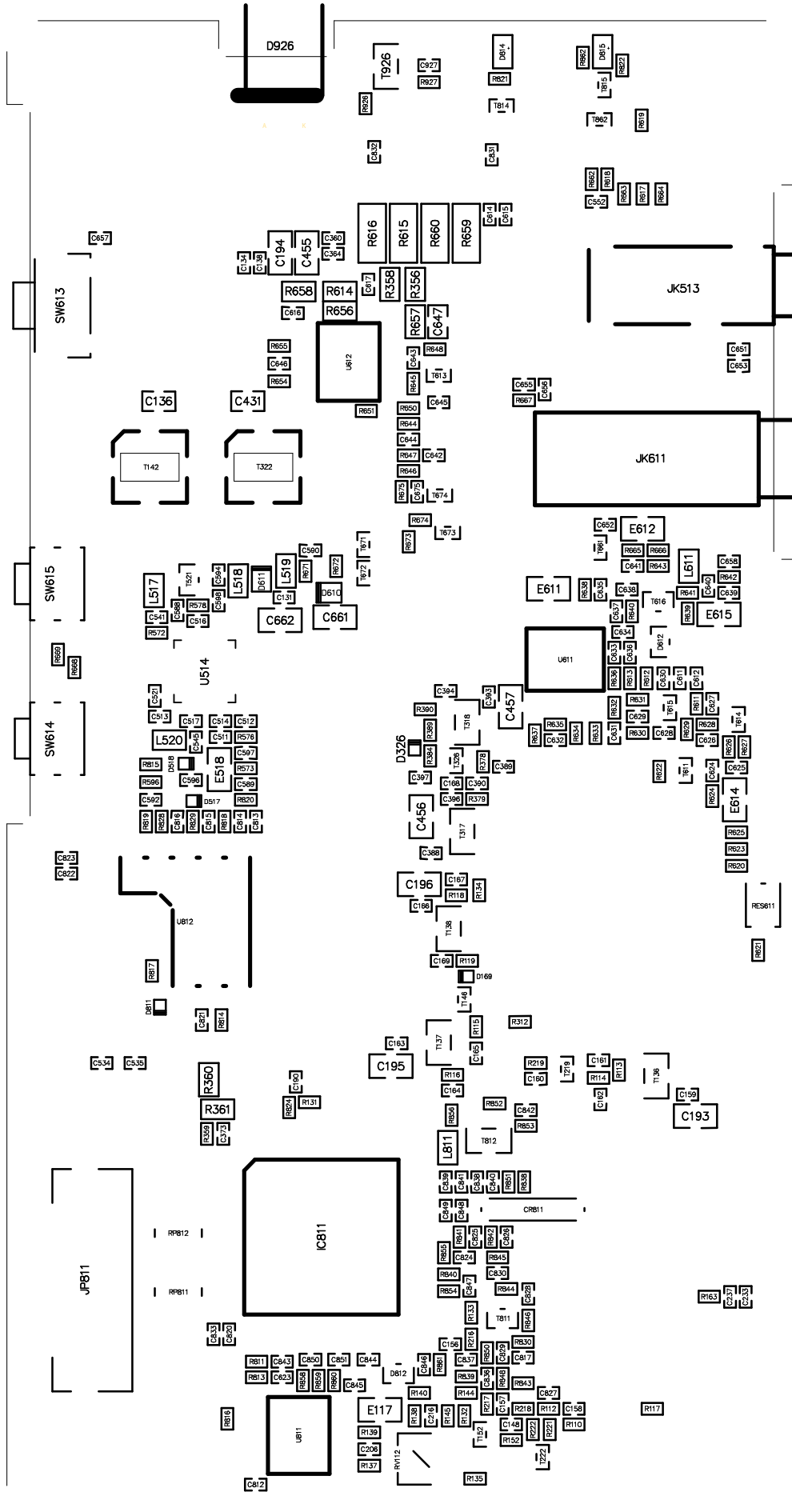
Parts form on LCD control Board

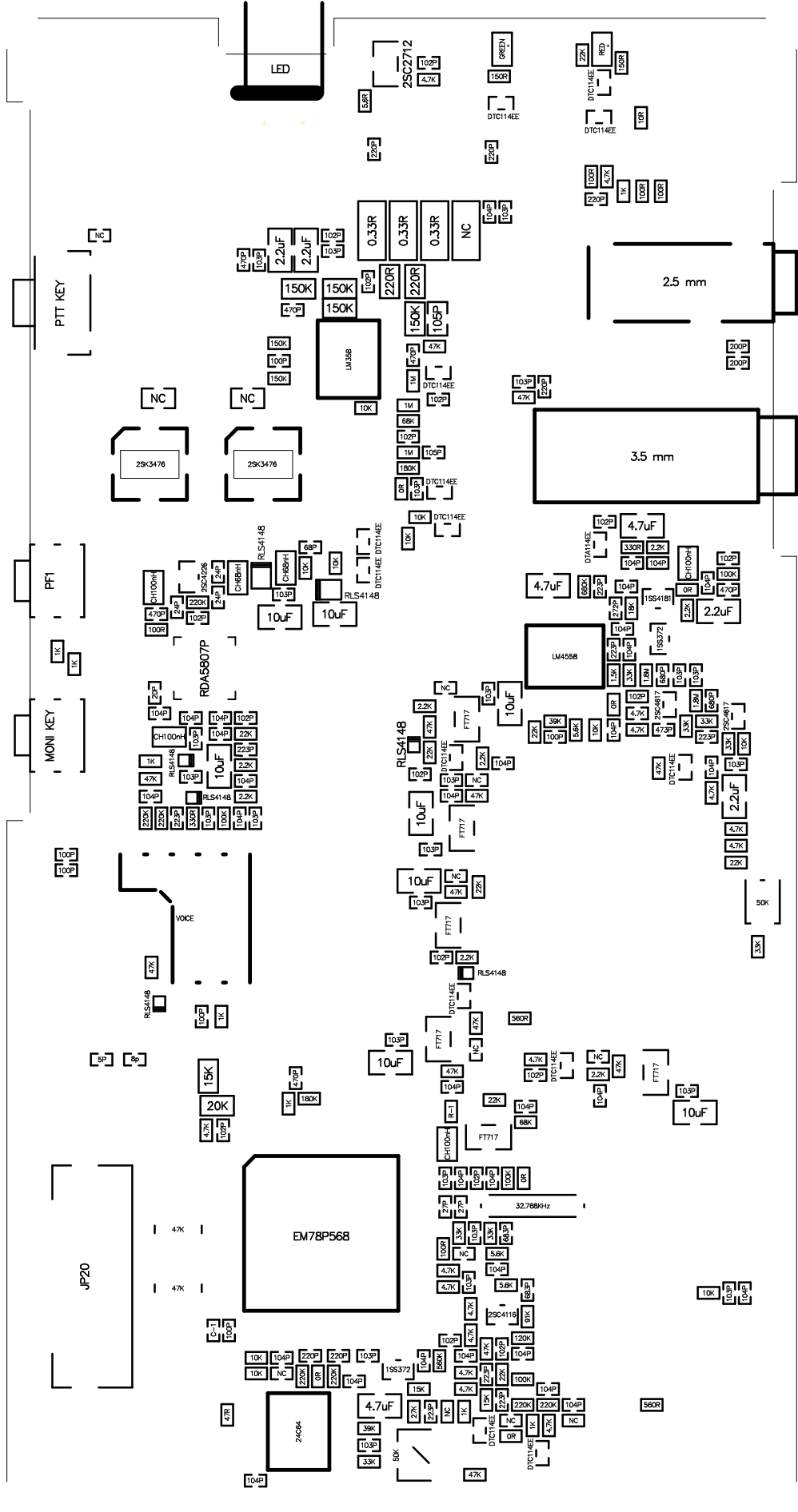
Parts on the front board				
Spec.	USE/Function	Encapsulation	Digit. No	quantity
LED	LBD	D0603	D616 D615 D612 D611	4
LED	Backlight chip	LED	D812	1
MIC	mic	MIC60	MIC611	1
Parts on the back board				
Spec.	Use/Function	Encapsulation	Digit. No	quantity
103P	Laminated Capacitance	C0402	C624 C620	2
102P	Laminated Capacitance	C0402	C619 C812	2

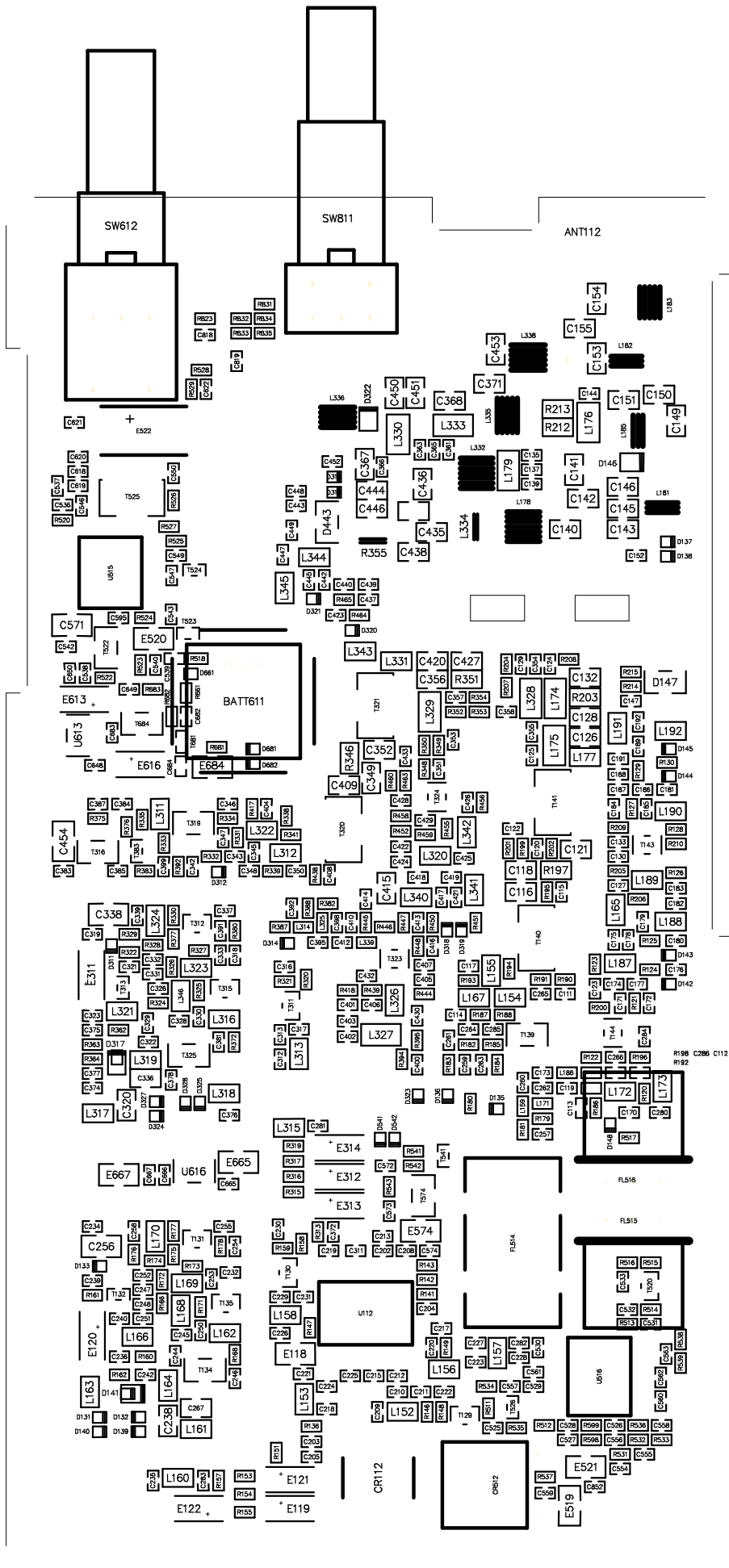
100P	Laminated Capacitance	C0402	C618 C617 C616 C615 C614 C613 C612 C611	8
10uF	TA Electrolyte Capacitance	EIA3216	E611	1
JP20	20 chip adapter	JP20	JP612	1
100nH	Fixed Inductor	L0603	L611	1
100R	Laminated Resistance	R0402	R623	1
1. 8K	Laminated Resistance	R0402	R621	1
2. 2K	Laminated Resistance	R0402	R618 R617 R614 R613	4
1. 2K	Laminated Resistance	R0402	R612	1
91K	Laminated Resistance	R0402	R611	1
510R	Laminated Resistance	R0402	R616 R615	2
1K	Laminated Resistance	R0402	R814 R619	2
510R	Laminated Resistance	R0603	R813 R812	2
4. 7K	exclusion	1206-4	R622	1
DTC114EE	Crystal Tune IC	ESM	T611 T812	2
HD44780		CHIP80	U611	1

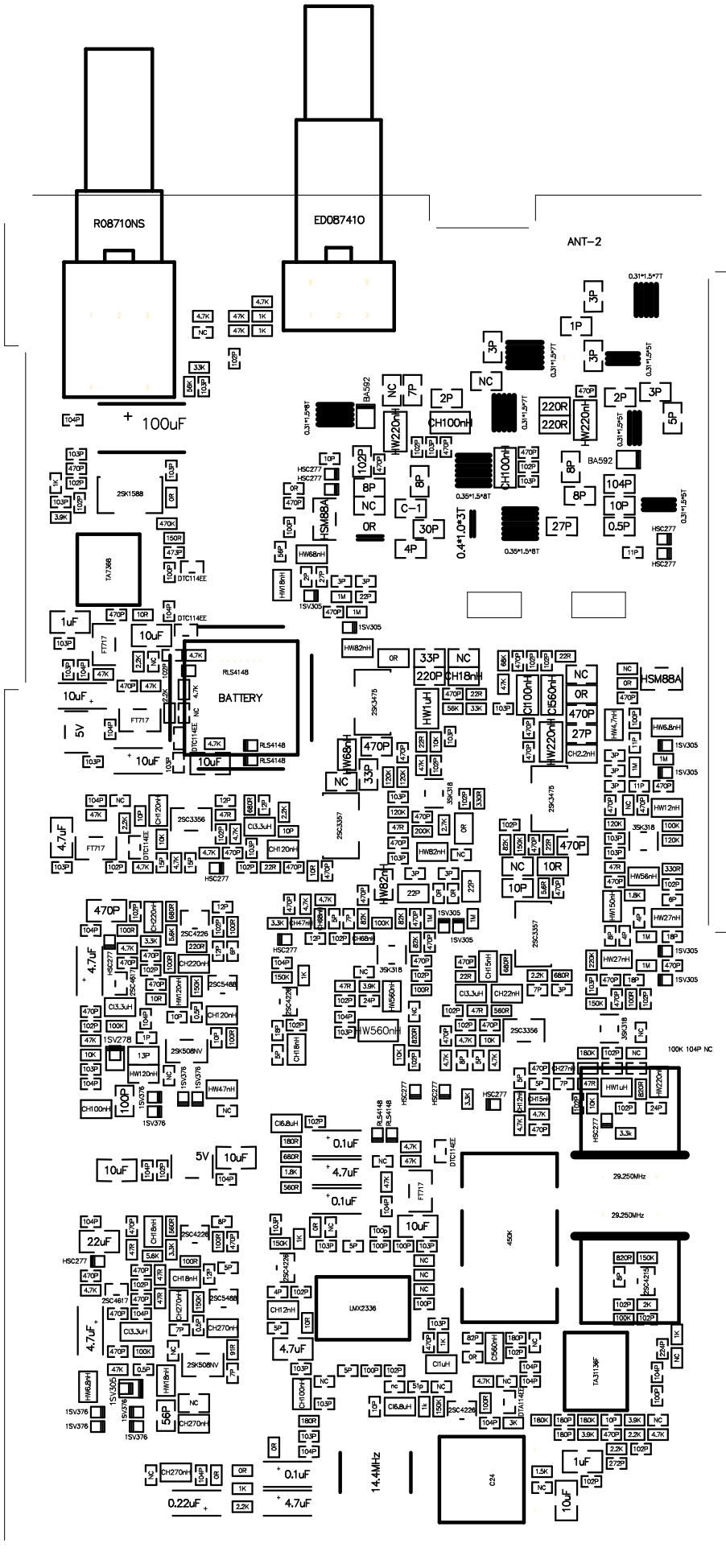
PC Board

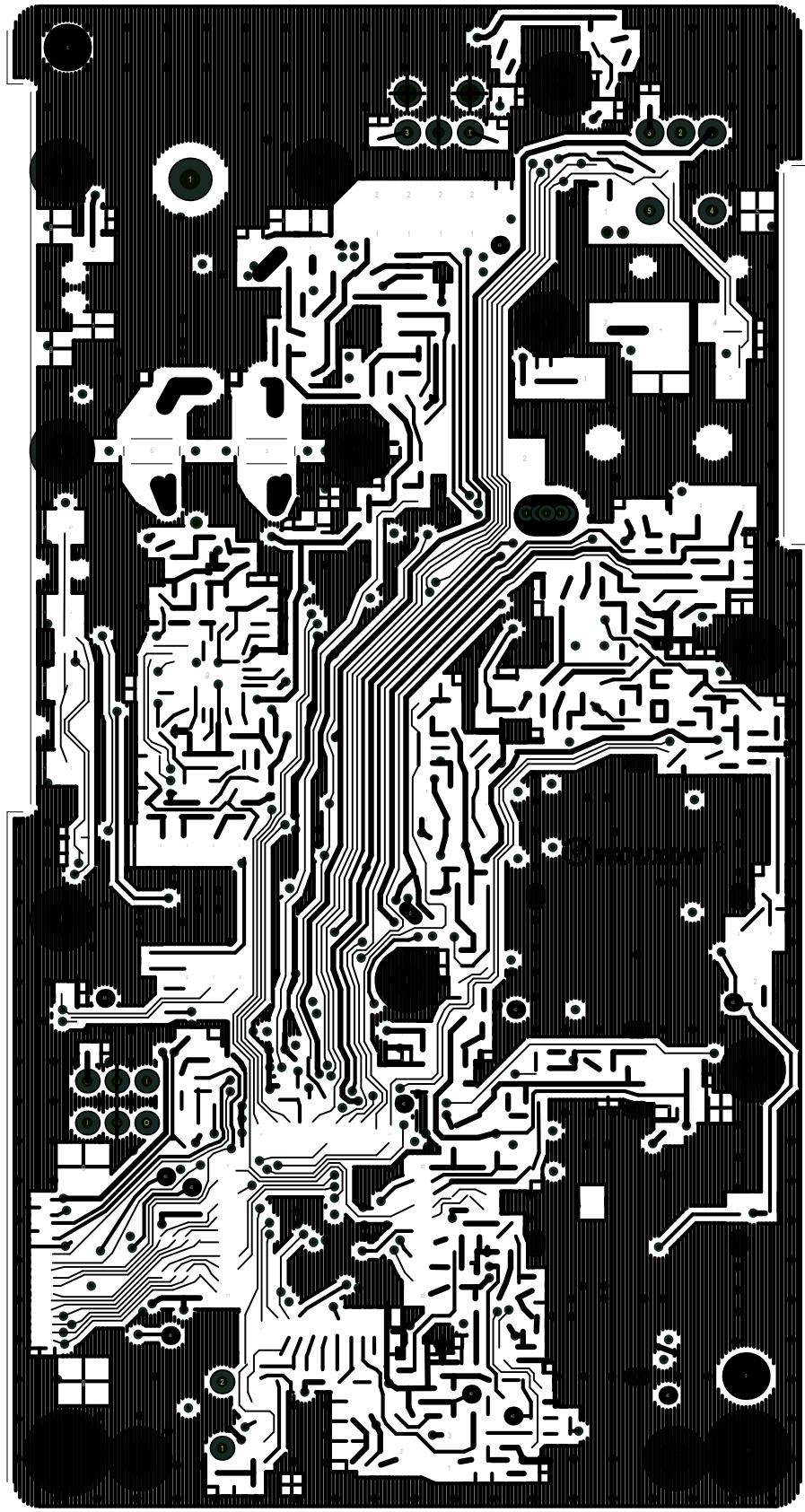
PC Board Schematic Diagram

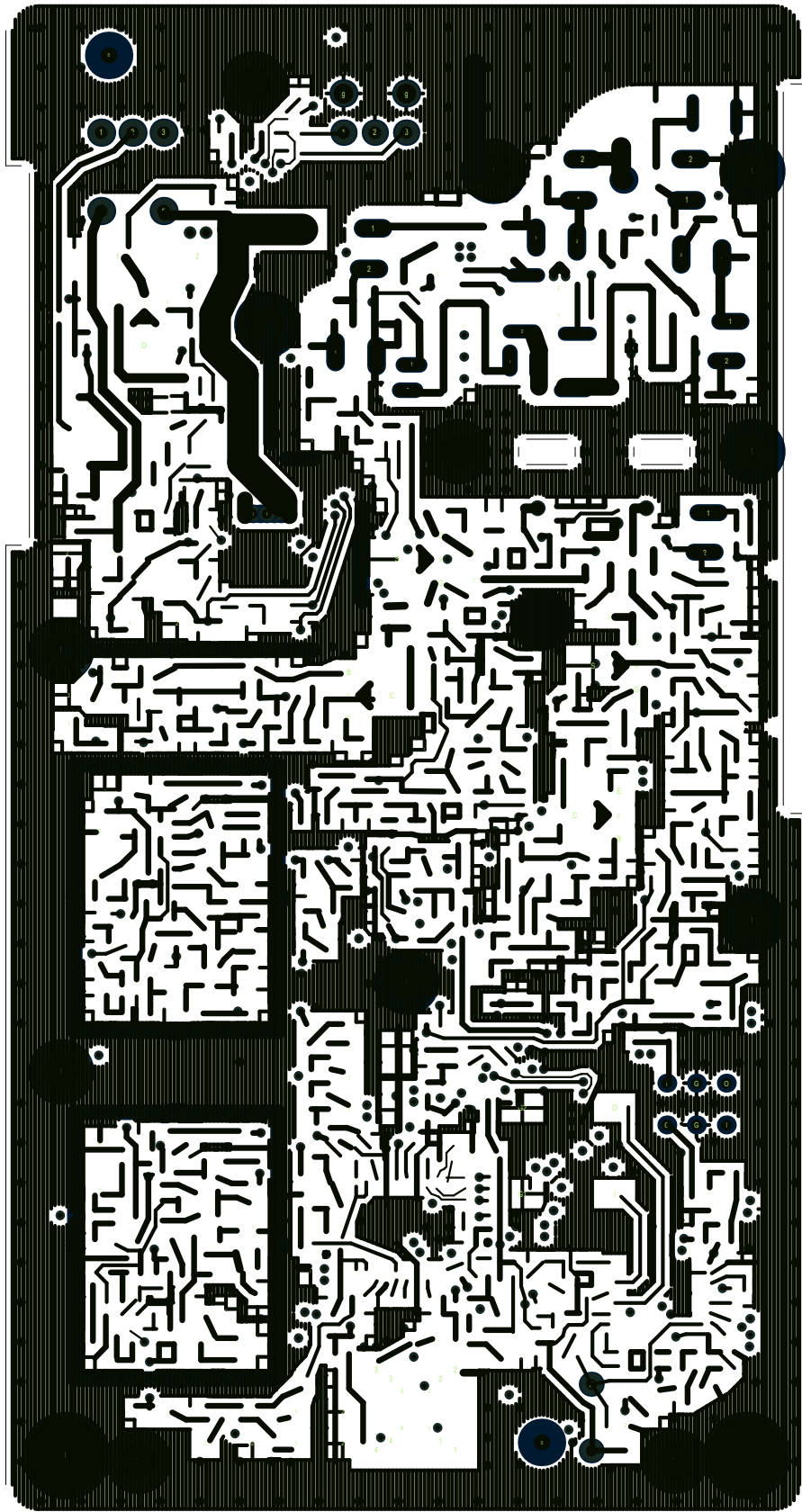






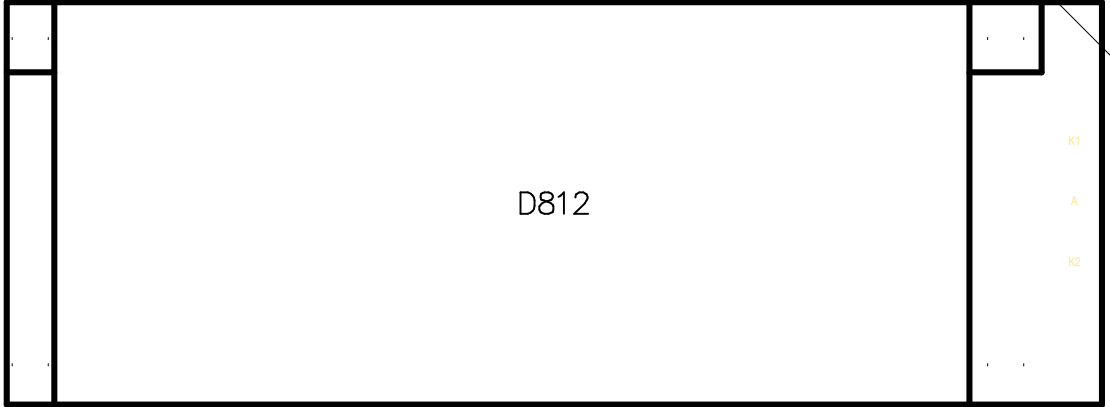






MIC611

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D812

K1

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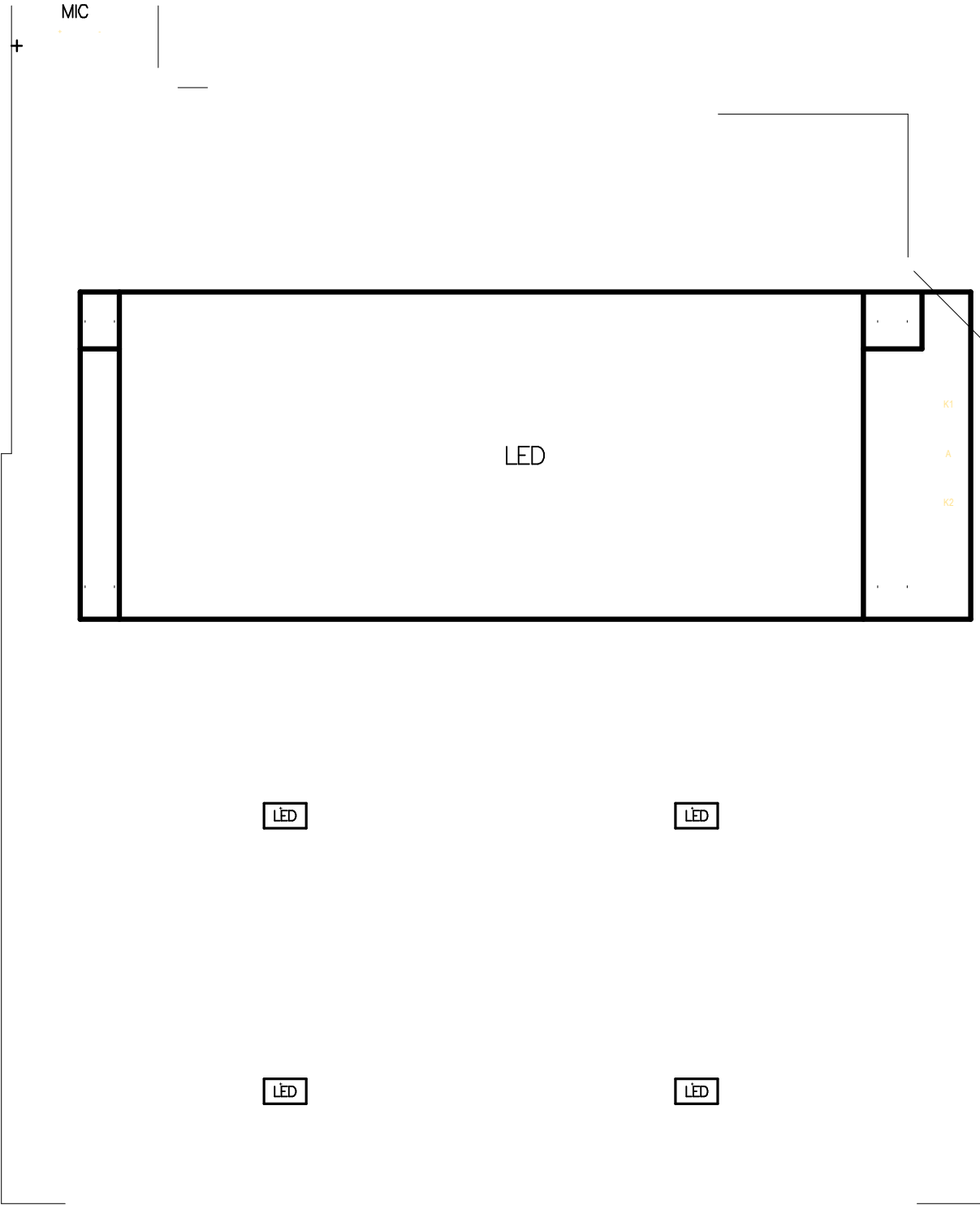
K2

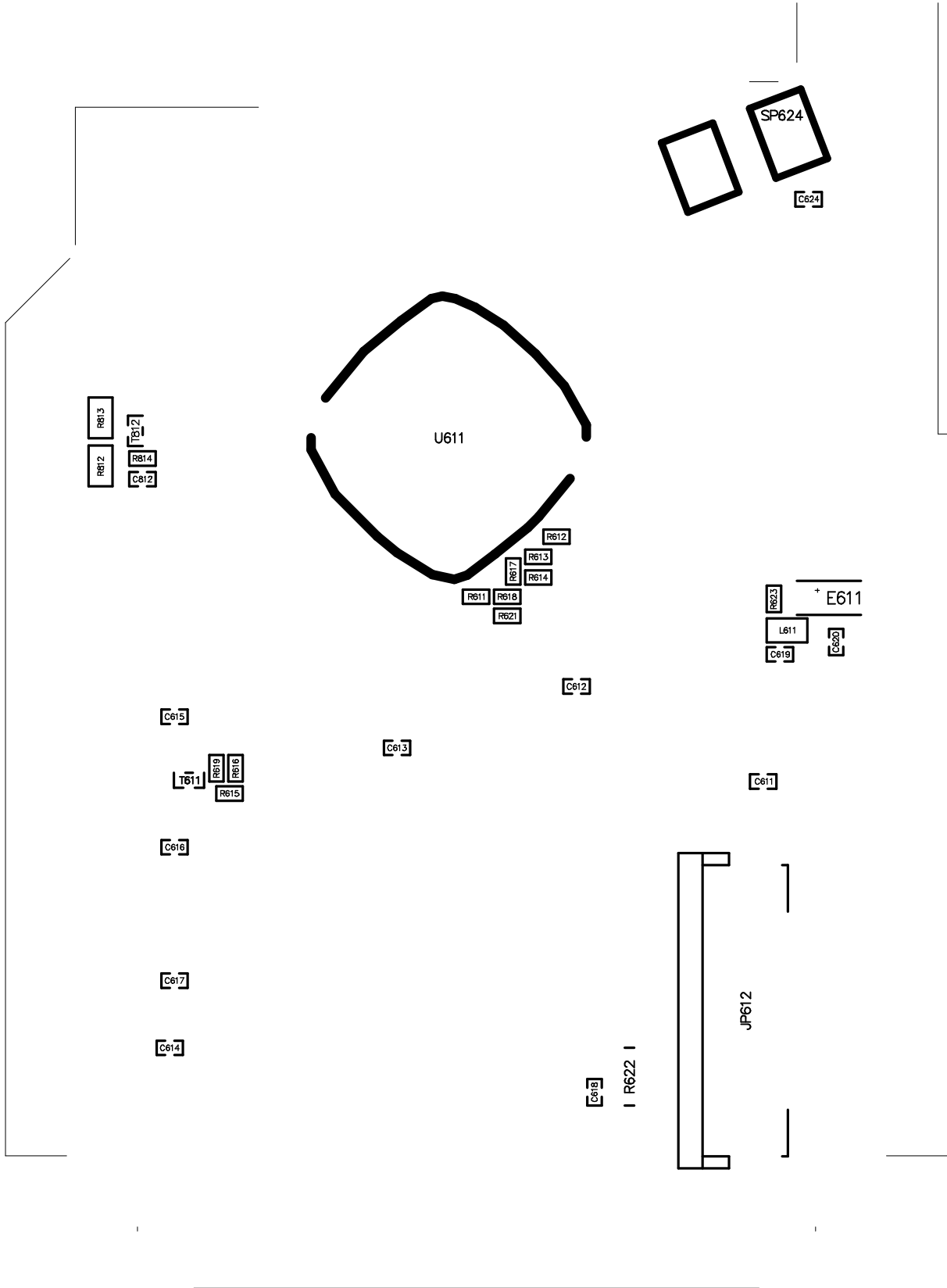
D612

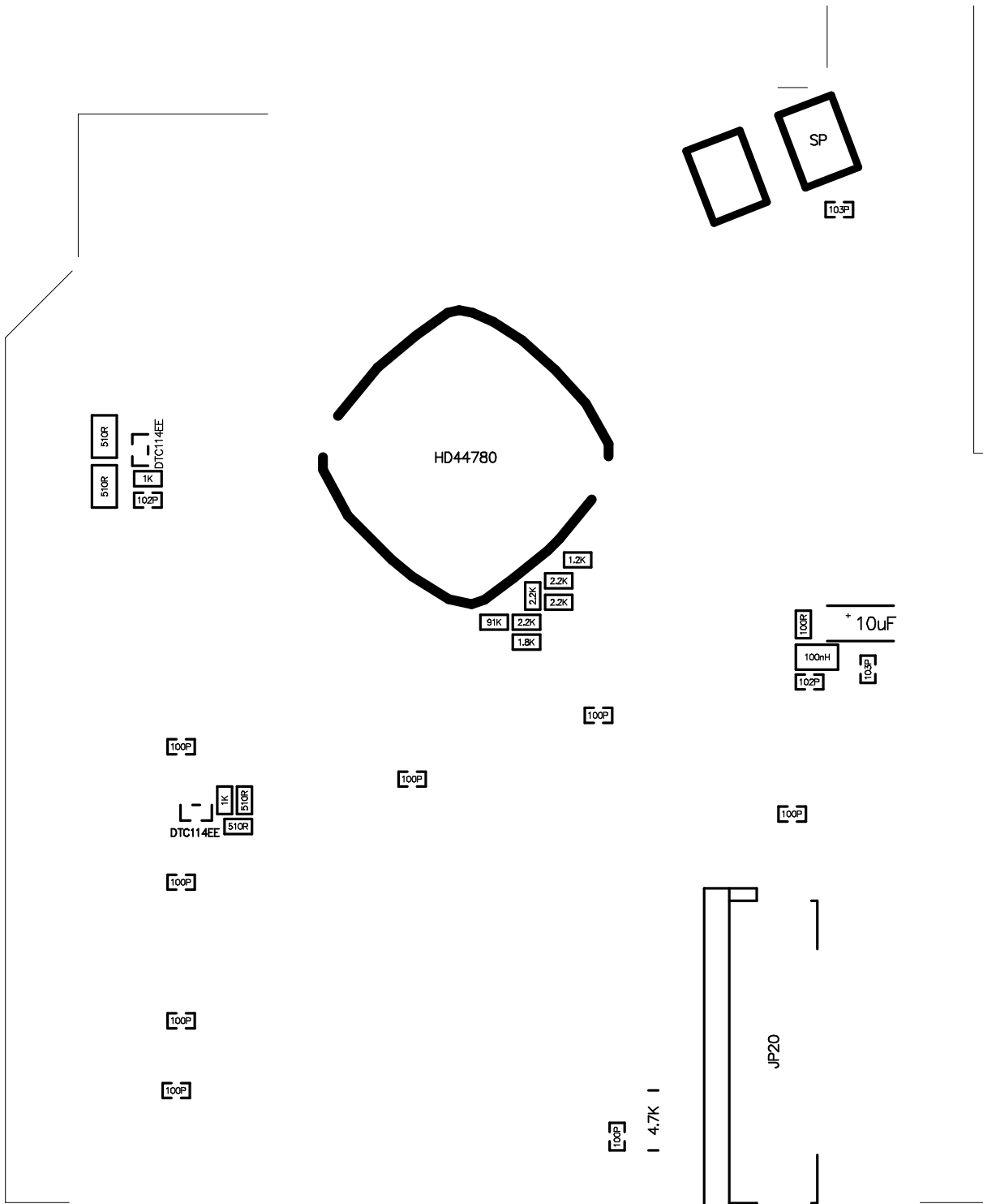
D616

D611

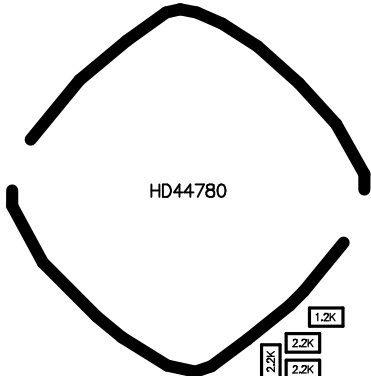
D615







510R 510R
100P 1K DTC114EE



91K 2.2K 1.8K 5.1K 2.2K 2.2K 1.2K



100R + 10uF
100hH 100P 100P

100P
1K 510R
DTC114EE 510R

100P

100P

100P

100P

100P

100P

100P | 4.7K |

