

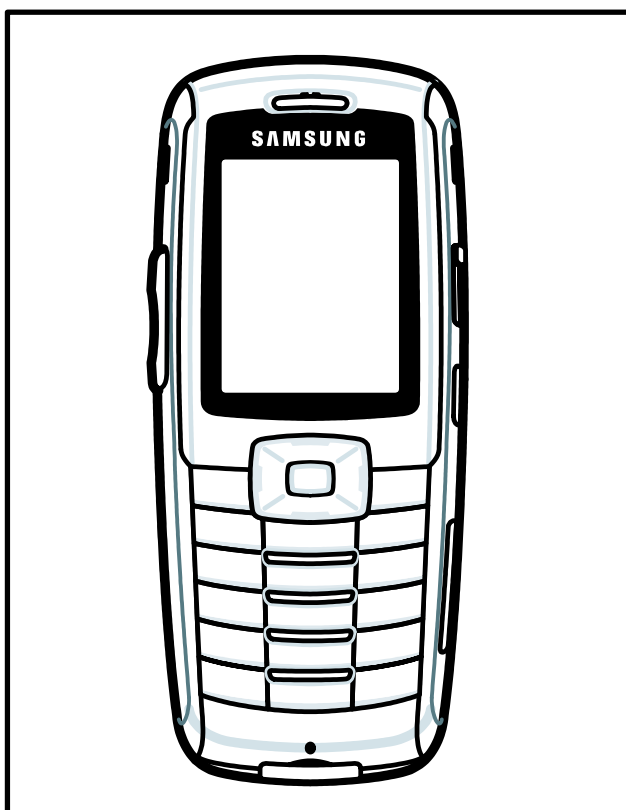
**SAMSUNG**

# GSM TELEPHONE

## SGH-X700

# ***SERVICE*** *Manual*

### GSM TELEPHONE



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# 1. Specification

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## 1-1. GSM General Specification

	GSM900 Phase 1	EGSM 900 Phase 2	DCS1800 Phase 1	PCS1900
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	1~124	0~124 & 975~1023	512~885	512~810
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz
Mod. Bit rate / Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us
Time Slot Period / Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm
Power Class	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux	8	8	8	8
Cell Radius	35Km	35Km	2Km	-

## 1-2. GSM TX power class

<b>TX Power control level</b>	<b>GSM900</b>	<b>TX Power control level</b>	<b>DCS1800</b>	<b>TX Power control level</b>	<b>PCS1900</b>
5	33±3 dBm	0	30±3 dBm	0	30±3 dBm
6	31±3 dBm	1	28±3 dBm	1	28±3 dBm
7	29±3 dBm	2	26±3 dBm	2	26±3 dBm
8	27±3 dBm	3	24±3 dBm	3	24±3 dBm
9	25±3 dBm	4	22±3 dBm	4	22±3 dBm
10	23±3 dBm	5	20±3 dBm	5	20±3 dBm
11	21±3 dBm	6	18±3 dBm	6	18±3 dBm
12	19±3 dBm	7	16±3 dBm	7	16±3 dBm
13	17±3 dBm	8	14±3 dBm	8	14±3 dBm
14	15±3 dBm	9	12±4 dBm	9	12±4 dBm
15	13±3 dBm	10	10±4 dBm	10	10±4 dBm
16	11±5 dBm	11	8±4dBm	11	8±4dBm
17	9±5 dBm	12	6±4 dBm	12	6±4 dBm
18	7±5 dBm	13	4±4 dBm	13	4±4 dBm
19	5±5 dBm	14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm

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## 2. Circuit Description

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### 2-1. SGH-X700 RF Circuit Description

#### 2-1-1. RX PART

- FRONT END MODULE(ANTENNA SWITCH MODULE + RX SAW FILTER) (U100)

It performs to switch Tx & Rx paths for GSM900, DCS1800 and PCS1900 with logic controls below.

- FEM Control Logic Table

	FESW1	FESW2
Tx Mode (GSM900)	H	L
Tx Mode (DCS1800/1900)	L	H
Rx Mode (GSM900)	L	L
Rx Mode (DCS1800)	L	L
Rx Mode (PCS1900)	L	L

- VC-TCXO (TCX100)

This module generates the 26MHz reference clock to drive the logic and RF systems.

It is turned on when the supply voltage (+VCC\_SYN\_2V8) is applied.

After buffering, the 26MHz reference clock is supplied to the other parts of the system through the transceiver pin CLKOUT.

- Transceiver (U102)

This chip is fully integrated GSM & GPRS tri-band transceiver with RF VCO, loop filters and most of the passive components required in it.

It also fully integrated fractional N RF synthesizer with AFC control possibility, RF VCO with integrated supply regulator. Semi integrated reference oscillator with integrated supply regulator.

RF Receiver front-end amplifies the E-GSM900, DCS1800 and PCS1900 aerial signal, convert the chosen channel down to a low IF of 100kHz.

In IF section, further amplifies the wanted channel, performs gain control to tune the output level to the desired value and rejects DC.

#### 2-1-2. TX PART

The transmitter is fully differential using a direct up conversion architecture. It consists of a signal side band power up mixer. Gain is controlled by 6 dB via 3-wire serial bus programing. The fully integrated VCO and power mixer achieve LO suppression, quadrature phase error, quadrature amplitude balance and low noise floor specification. Output matching/balun components drive a standard 50 ohms single ended load.

## 2-2. Baseband Circuit description of SGH-X700

### 2-2-1. PCF50603 (U400)

- Power Management

Eight low-dropout regulators designed specifically for GSM applications power the terminal and help ensure optimal system performance and long battery life. A programmable boost converter provides support for 1.8V, 3.0V SIMs, while a self-resetting, electronically fused switch supplies power to external accessories. Ancillary support functions, such as RTC module and High Voltage Charge pump, Clock generator, aid in reducing both board area and system complexity.

I2C BUS serial interface provides access to control and configuration registers. This interface gives a microprocessor full control of the PCF50603 and enables system designers to maximize both standby and talk times.

Supervisory functions, including a reset generator, an input voltage monitor, and a temperature sensor, support reliable system design. These functions work together to ensure proper system behavior during start-up or in the event of a fault condition (low microprocessor voltage, insufficient battery energy, or excessive die temperature).

- Pulse-Width Modulator

The Backlight Brightness Modulator (BBM) contains a programmable Pulse-width modulator (PWM) to modulate the intensity of a series of LED's or to control a DC/DC converter that drives LCD backlight.

This phone is using PWM control to modulate the LCD backlight brightness.

- Clock Generator

The Clock Generator (CG) generates all clocks for internal and external usage. The 32.768 kHz crystal oscillator provides an accurate low clock frequency for the PCF50603 and other circuitry.

### 2-2-2. LCD

X700 has just one 1.9" TFT LCD. 16-bit data lines (LD(0)~LD(15)) transfers data and commands to LCD. There are couple of control signals such as RS, CS, RD, WR, etc. RS stands for "Register Select pin." When RS = 0, data can be written to the index register or status can be read, and when RS = 1, an instruction can be issued or data can be written to or read from RAM. Read or write operation is selected according to RD/WR signals. The data is received when the R/W bit is 0, and is transmitted when the R/W bit is 1. At the falling edge of CS input, serial data transfer is initiated. On the other hand, at the rising edge of CS input, the data transfer is ceased.

### 2-2-3. Key

Key recognition part is consisted of 8 ports from PCF5213EL1. KEY\_ROW(0:4) & KEY\_COL(0:4)

These signals performs with the matrix. Any input from the matrix informs the key status to key interface in the PCF5213EL1. Power on/off key is independent of the matrix. Therefore, 'power on/off' signal is directly connected with PCF50603 to turn PCF50603 on.

3.3V LDO(U700) enables Key LED on. Key LED consists of 12 LEDs. It is controlled by "Key\_led\_on" signal.

#### 2-2-4. EMI ESD Filter (U500)

This system uses the EMI ESD filter (U500) to protect the device from noises from IF CONNECTOR part.

#### 2-2-5. IF connetor (IFC500)

It has 18-pin. They are designed to allocate VBAT, V\_EXT\_CHARGE, USB\_D+, +VBUS, USB\_D-, TXD1, RXD1, AUX\_ON, EXT1, EXT2 and GND. They connected to power supply IC, microprocessor and signal processor IC.

#### 2-2-6. Battery Charge Management

X700 has a complete constant-current/constant-voltage linear charger for single cell lithium-ion batteries inside.

If Travel Adapter is connected, "V\_EXT\_CHARGE" begins to provide the charger IC (to battery) with power (current).

When the charging operation is done, "End\_of\_charge" informs it to PCF5213EL1 to stop the operation. "CHG\_ON" signal enables the charger IC to operate in adequate circumstances.

#### 2-2-7. Audio - Part

X700 has several audio-outputs such as stere speaker, receiver, earphone, etc. RCV\_P/N signals from CPU are connected to the receiver via analog switche (U602). MIC\_P/N are connected to the main MIC as well.

YMU762 is a synthesizer LSI for mobile phones. This LSI has a built-in speaker amplifier for outputting sounds that are used by mobile phones in addition to game sounds and ringing melodies that are replayed by a synthesizer.

YMU762 has built a speaker amplifier of which maximum out is 580 mW at SPVDD=3.6V in this device. There is Stereophonic analog output for Headphone.

#### 2-2-8. Memory (UME300)

X700 has KAP17SG00A-D4U4 as a memory module.

The KAP17SG00A-D4U4 is a Multi Chip Package Memory which combines 256Mbit Synchronous Burst Multi Bank NOR Flash Memory and 512Mbit OneNAND Flash and 128Mbit Synchronous Burst U tRAM.

It has 16 bit data line, HD[1~16] which is connected to PCF5213 and MV3315DOQ, also has 24 bit address lines, HA[1~24]. There are 3 chip select signals, CS0n\_FLASH, CS1n\_RAM, and CS4n\_NAND.

In the wrting process, WEn is fallen to low and it enables writing process to operate. During reading process, OEn is fallen to low and it enables reading process to operate. Each chip select signals in the PCF5213EL1 choose different types of memory.

#### 2-2-9. PCF5213EL1 (UCP200)

The PCF5213EL1 is mainly composed of embeded DSP and ARM core. The DSP subsystem includes the Saturn DSP core with embedded RAM and ROM, and a set of peripherals. It has 24k×16 bits PRAM, 104k×16 bits, 32k×16 XYRAM and 63k×16 XYROM in the DSP.

The ARM946E-S consists of an ARM9E-S processor core, 8 kbyte instruction cache and 8 kbyte data cache, tightly-coupled ITCM (Instruction Tightly Coupled Memory) and DTCM (Data Tightly Coupled Memory) memories, a memory protection unit, and an AMBA (Advanced Microcontroller Bus Architecture) AHB (Advanced High-performance Bus) bus interface with a write buffer.

HD(0:15), data lines and HA(0:23), address lines are connected to KAP17SG00A (memory), MV3018B (image dsp) and YMU762 (melody IC). It has 64 kbyte SC RAM (0.5 Mbit) and 32 kbyte SC program ROM for bootstrap loader in the ARM core.

HD(0:15), data lines and HA(0:23), address lines are connected to memory and YMU762 to communicate.  
MV3018B(Camera DSP Chip) controls the communication between ARM core and DSP core.  
OEn, WEn control the access of memory. KROW, and KCOL recognize the key string input status.  
It has J-TAG control pins (TDI/TDO/TCK) for ARM and DSP core. J-SEL signal controls different access to ARM and DSP core.  
ADC(Analog to Digital Convertor) receives the condition of temperature, battery type and battery voltage.

HD(0:15), data lines and HA(0:23), address lines are connected to memory and YMU762 to communicate.  
MV3315DOQ(Camera DSP Chip) controls the communication between ARM core and DSP core.  
OEn, WEn control the access of memory. KROW, and KCOL recognize the key string input status.  
It has J-TAG control pins (TDI/TDO/TCK) for ARM and DSP core. J-SEL signal controls different access to ARM and DSP core.  
ADC(Analog to Digital Convertor) receives the condition of temperature, battery type and battery voltage.

## 2-2-10. VC-TCXO-214C6 (TCX100, 26MHz)

This system has the 26MHz TCXO, TCO-5871U from Toyocom. AFC controlling signal from PCF5213EL1 controls frequency from 26MHz X-tal. It generates the clock frequency. This clock is connected to PCF5213EL1, YMU762 and UAA3587.

## 2-2-11. Camera DSP (U303, MV3315DOQ)

MV3315DOQ provides rich video functions up to 30-frame display with minimized tasks in the handset main processor as well as hardware based real-time JPEG compression and decompression. MV3315DOQ directly transmits and previews the RGB data to the LCD graphic memory by processing the sensor output data according to the handset's command. It can save the raw RGB data up to VGA resolution into its image buffer and allows the host processor to download with scalable sized compressed data.  
It utilizes 16 bit data bus for communication with the main processor, including bus interface types.



## 4. Electrical Parts List

Design LOC	Description	SEC CODE	STATUS
AN300	ANTENNA-CHIP	4202-001060	SA
BAT400	BATTERY-LI(2ND)	4302-001119	SA
BTC500	HEADER-BATTERY	3711-006026	SA
C100	C-CER,CHIP	2203-001385	SA
C103	C-CER,CHIP	2203-000812	SA
C104	C-CER,CHIP	2203-000233	SA
C105	C-CER,CHIP	2203-000995	SA
C106	C-CER,CHIP	2203-000995	SA
C109	C-CER,CHIP	2203-001201	SA
C110	C-CER,CHIP	2203-005057	SA
C112	C-CER,CHIP	2203-000812	SA
C113	C-CER,CHIP	2203-000233	SA
C114	C-CER,CHIP	2203-000233	SA
C115	INDUCTOR-SMD	2703-001748	SA
C116	C-CER,CHIP	2203-005393	SA
C118	C-CER,CHIP	2203-000812	SA
C121	C-CER,CHIP	2203-000425	SA
C122	C-CER,CHIP	2203-000425	SA
C123	C-CER,CHIP	2203-006190	SA
C124	C-CER,CHIP	2203-000233	SA
C126	C-CER,CHIP	2203-005234	SA
C127	C-CER,CHIP	2203-000585	SA
C128	C-CER,CHIP	2203-000330	SA
C133	C-CER,CHIP	2203-000254	SA
C134	C-CER,CHIP	2203-005393	SA
C135	C-CER,CHIP	2203-000254	SA
C136	C-CER,CHIP	2203-000812	SA
C137	C-TA,CHIP	2404-001406	SA
C139	C-CER,CHIP	2203-005234	SA
C140	C-CER,CHIP	2203-000654	SA
C141	C-CER,CHIP	2203-001383	SA
C147	C-CER,CHIP	2203-002677	SA
C148	C-CER,CHIP	2203-005053	SA
C149	C-CER,CHIP	2203-002668	SA
C150	C-CER,CHIP	2203-000696	SA
C201	C-CER,CHIP	2203-000254	SA
C202	C-CER,CHIP	2203-005482	SA
C203	C-CER,CHIP	2203-005482	SA
C204	C-CER,CHIP	2203-000812	SA
C205	C-CER,CHIP	2203-005482	SA
C206	C-CER,CHIP	2203-005482	SA
C207	C-CER,CHIP	2203-005482	SA
C208	C-CER,CHIP	2203-005482	SA
C209	C-CER,CHIP	2203-005482	SA
C210	C-CER,CHIP	2203-000812	SA
C211	C-CER,CHIP	2203-005482	SA
C212	C-CER,CHIP	2203-005482	SA
C213	C-CER,CHIP	2203-005482	SA
C216	C-CER,CHIP	2203-005482	SA
C217	C-CER,CHIP	2203-005482	SA

## Electrical Parts List

Design LOC	Description	SEC CODE	STATUS
C218	C-CER,CHIP	2203-005482	SA
C219	C-CER,CHIP	2203-005482	SA
C300	C-CER,CHIP	2203-005480	SA
C301	C-CER,CHIP	2203-000254	SA
C302	C-CER,CHIP	2203-000233	SA
C303	C-CER,CHIP	2203-000254	SA
C304	C-CER,CHIP	2203-005482	SA
C306	C-CER,CHIP	2203-005480	SA
C307	C-CER,CHIP	2203-005480	SA
C308	C-CER,CHIP	2203-000995	SA
C309	C-CER,CHIP	2203-000679	SA
C310	C-TA,CHIP	2404-001394	SA
C311	C-CER,CHIP	2203-005482	SA
C312	C-CER,CHIP	2203-006562	SA
C313	C-CER,CHIP	2203-006137	SA
C314	C-CER,CHIP	2203-005482	SA
C315	C-CER,CHIP	2203-006137	SA
C316	C-CER,CHIP	2203-006137	SA
C317	C-CER,CHIP	2203-006137	SA
C318	C-CER,CHIP	2203-005480	SA
C319	C-CER,CHIP	2203-005482	SA
C320	C-CER,CHIP	2203-000233	SA
C321	C-CER,CHIP	2203-005482	SA
C322	C-CER,CHIP	2203-005482	SA
C323	C-CER,CHIP	2203-005482	SA
C324	C-CER,CHIP	2203-005482	SA
C325	C-CER,CHIP	2203-005482	SA
C326	C-CER,CHIP	2203-000679	SA
C327	C-CER,CHIP	2203-005482	SA
C328	C-CER,CHIP	2203-005482	SA
C329	C-CER,CHIP	2203-006208	SA
C330	C-CER,CHIP	2203-000725	SA
C331	C-CER,CHIP	2203-000438	SA
C332	C-CER,CHIP	2203-005482	SA
C336	C-CER,CHIP	2203-005482	SA
C337	C-CER,CHIP	2203-006399	SA
C338	C-CER,CHIP	2203-006399	SA
C339	C-CER,CHIP	2203-005482	SA
C340	C-TA,CHIP	2404-001394	SA
C350	C-CER,CHIP	2203-000233	SA
C400	C-CER,CHIP	2203-006053	SA
C401	C-CER,CHIP	2203-006053	SA
C402	C-TA,CHIP	2404-001394	SA
C403	C-TA,CHIP	2404-001375	SA
C404	C-CER,CHIP	2203-006364	SA
C405	C-CER,CHIP	2203-006708	SA
C406	C-CER,CHIP	2203-006708	SA
C407	C-CER,CHIP	2203-005482	SA
C408	C-CER,CHIP	2203-006257	SA
C409	C-CER,CHIP	2203-000330	SA

Design LOC	Description	SEC CODE	STATUS
C411	C-CER,CHIP	2203-000330	SA
C412	C-CER,CHIP	2203-000812	SA
C413	C-CER,CHIP	2203-006708	SA
C414	C-CER,CHIP	2203-006257	SA
C415	C-CER,CHIP	2203-006708	SA
C416	C-CER,CHIP	2203-006257	SA
C417	C-CER,CHIP	2203-006257	SA
C418	C-CER,CHIP	2203-006208	SA
C419	C-CER,CHIP	2203-005482	SA
C423	DIODE-TV5	0406-001203	SA
C424	C-CER,CHIP	2203-006708	SA
C425	C-CER,CHIP	2203-006708	SA
C426	C-CER,CHIP	2203-006257	SA
C427	C-CER,CHIP	2203-006257	SA
C428	C-CER,CHIP	2203-006190	SA
C502	C-CER,CHIP	2203-000278	SA
C503	C-CER,CHIP	2203-005482	SA
C504	C-TA,CHIP	2404-001268	SA
C506	C-CER,CHIP	2203-006399	SA
C507	C-TA,CHIP	2404-001394	SA
C601	C-TA,CHIP	2404-001281	SA
C603	C-CER,CHIP	2203-005482	SA
C604	C-CER,CHIP	2203-000995	SA
C605	C-CER,CHIP	2203-000995	SA
C606	C-CER,CHIP	2203-000995	SA
C607	C-CER,CHIP	2203-000995	SA
C608	C-CER,CHIP	2203-000278	SA
C609	C-CER,CHIP	2203-000679	SA
C610	C-CER,CHIP	2203-005057	SA
C611	C-CER,CHIP	2203-001153	SA
C612	C-CER,CHIP	2203-005482	SA
C615	C-TA,CHIP	2404-001281	SA
C618	C-CER,CHIP	2203-000438	SA
C619	C-CER,CHIP	2203-001259	SA
C620	C-CER,CHIP	2203-005482	SA
C621	C-CER,CHIP	2203-000995	SA
C622	C-CER,CHIP	2203-001153	SA
C624	C-CER,CHIP	2203-005395	SA
C625	C-CER,CHIP	2203-005482	SA
C627	C-CER,CHIP	2203-000438	SA
C628	C-CER,CHIP	2203-005482	SA
C629	C-CER,CHIP	2203-006090	SA
C630	C-CER,CHIP	2203-000254	SA
C631	C-CER,CHIP	2203-005482	SA
C637	C-CER,CHIP	2203-005395	SA
C638	C-CER,CHIP	2203-005052	SA
C639	C-CER,CHIP	2203-005482	SA

## Electrical Parts List

Design LOC	Description	SEC CODE	STATUS
C645	C-CER,CHIP	2203-005482	SA
C701	C-CER,CHIP	2203-006208	SA
C703	C-CER,CHIP	2203-006457	SA
C706	C-CER,CHIP	2203-000138	SA
C707	C-TA,CHIP	2404-001225	SA
C708	C-CER,CHIP	2203-006399	SA
C709	C-CER,CHIP	2203-006399	SA
C739	C-CER,CHIP	2203-006208	SA
C741	C-CER,CHIP	2203-005481	SA
C743	C-CER,CHIP	2203-005482	SA
CD500	CONNECTOR-CARD EDGE	3709-001344	SA
CN600	JACK-EAR PHONE	3722-002396	SNA
CN700	HEADER-BOARD TO BOARD	3711-005456	SA
CN705	HEADER-BOARD TO BOARD	3711-005605	SA
D401	DIODE-SCHOTTKY	0404-001172	SA
D500	DIODE-TVS	0406-001203	SA
D602	DIODE-SWITCHING	0401-001141	SA
D603	DIODE-SWITCHING	0401-001141	SA
D702	DIODE-TVS	0406-001203	SA
D703	DIODE-TVS	0406-001203	SA
D704	DIODE-TVS	0406-001203	SA
D705	DIODE-TVS	0406-001203	SA
D706	DIODE-TVS	0406-001203	SA
F103	FILTER-SAW	2904-001553	SA
IFC500	CONNECTOR-INTERFACE	3710-001611	SA
L100	INDUCTOR-SMD	2703-001748	SA
L101	INDUCTOR-SMD	2703-001722	SA
L102	INDUCTOR-SMD	2703-001178	SA
L103	R-CHIP	2007-000171	SA
L104	INDUCTOR-SMD	2703-001737	SA
L105	INDUCTOR-SMD	2703-002367	SA
L106	INDUCTOR-SMD	2703-002636	SA
L111	INDUCTOR-SMD	2703-002281	SA
L117	INDUCTOR-SMD	2703-001723	SA
L118	INDUCTOR-SMD	2703-002313	SA
L119	INDUCTOR-SMD	2703-001723	SA
L122	INDUCTOR-SMD	2703-002281	SA
L123	INDUCTOR-SMD	2703-002198	SA
L124	INDUCTOR-SMD	2703-001751	SA
L300	INDUCTOR-SMD	2703-001673	SA
L301	INDUCTOR-SMD	2703-002206	SA
L400	INDUCTOR-SMD	2703-002619	SA
L401	BEAD-SMD	3301-001120	SA
L402	INDUCTOR-SMD	2703-001723	SA
L600	R-CHIP	2007-000070	SA
L601	R-CHIP	2007-000070	SA
L602	R-CHIP	2007-000070	SA
L603	R-CHIP	2007-000070	SA
L604	INDUCTOR-SMD	2703-002313	SA

Design LOC	Description	SEC CODE	STATUS
L606	INDUCTOR-SMD	2703-001231	SA
L607	INDUCTOR-SMD	2703-002313	SA
L700	INDUCTOR-SMD	2703-002320	SA
L701	INDUCTOR-SMD	2703-002714	SA
OSC400	CRYSTAL-SMD	2801-003856	SA
PAM100	IC-POWER AMP	1201-002275	SNA
Q700	FET-SILICON	0505-001518	SA
Q701	FET-SILICON	0505-001518	SA
R100	INDUCTOR-SMD	2703-002201	SA
R103	R-CHIP	2007-000148	SA
R104	R-CHIP	2007-000566	SA
R105	R-CHIP	2007-000172	SA
R111	R-CHIP	2007-000171	SA
R112	R-CHIP	2007-000148	SA
R113	R-CHIP	2007-000162	SA
R114	R-CHIP	2007-000171	SA
R115	R-CHIP	2007-000171	SA
R116	R-CHIP	2007-000171	SA
R117	R-CHIP	2007-000171	SA
R120	R-CHIP	2007-000566	SA
R121	R-CHIP	2007-000171	SA
R122	R-CHIP	2007-000171	SA
R201	R-CHIP	2007-000148	SA
R204	R-CHIP	2007-000242	SA
R205	R-CHIP	2007-000242	SA
R208	R-CHIP	2007-000162	SA
R212	R-CHIP	2007-000162	SA
R213	R-CHIP	2007-000162	SA
R218	R-CHIP	2007-000162	SA
R220	R-CHIP	2007-000143	SA
R222	R-CHIP	2007-000162	SA
R300	R-CHIP	2007-000171	SA
R301	R-CHIP	2007-000775	SA
R302	R-CHIP	2007-001325	SA
R303	R-CHIP	2007-007013	SA
R304	R-CHIP	2007-000171	SA
R305	R-CHIP	2007-000171	SA
R306	R-CHIP	2007-007013	SA
R307	R-CHIP	2007-000148	SA
R309	R-CHIP	2007-000148	SA
R310	R-CHIP	2007-000171	SA
R311	R-CHIP	2007-000162	SA
R312	R-CHIP	2007-000148	SA
R313	R-CHIP	2007-007538	SA
R314	R-CHIP	2007-000162	SA
R315	R-CHIP	2007-001303	SA
R316	R-CHIP	2007-007139	SA
R317	R-CHIP	2007-000148	SA
R318	R-CHIP	2007-000141	SA
R319	R-CHIP	2007-000141	SA

## Electrical Parts List

Design LOC	Description	SEC CODE	STATUS
R320	R-CHIP	2007-000171	SA
R321	R-CHIP	2007-000162	SA
R322	R-CHIP	2007-000171	SA
R323	R-CHIP	2007-000171	SA
R324	R-CHIP	2007-001325	SA
R325	R-CHIP	2007-000171	SA
R401	R-CHIP	2007-007100	SA
R402	R-CHIP	2007-000162	SA
R403	R-CHIP	2007-000143	SA
R404	R-CHIP	2007-000171	SA
R501	R-CHIP	2007-000758	SA
R502	R-CHIP	2007-000162	SA
R503	R-CHIP	2007-000140	SA
R504	R-CHIP	2007-000162	SA
R505	R-CHIP	2007-000159	SA
R506	R-CHIP	2007-000162	SA
R507	R-CHIP	2007-000162	SA
R508	R-CHIP	2007-000758	SA
R510	R-CHIP	2007-000166	SA
R511	R-CHIP	2007-000148	SA
R512	R-CHIP	2007-000152	SA
R513	R-CHIP	2007-007334	SA
R514	R-CHIP	2007-000170	SA
R515	R-CHIP	2007-000170	SA
R517	R-CHIP	2007-000162	SA
R518	R-CHIP	2007-000157	SA
R519	R-CHIP	2007-007573	SA
R520	R-CHIP	2007-008117	SA
R521	R-CHIP	2007-007318	SA
R522	R-CHIP	2007-007588	SA
R523	R-CHIP	2007-007334	SA
R524	R-CHIP	2007-000172	SA
R525	R-CHIP	2007-000172	SA
R600	R-CHIP	2007-002796	SA
R601	R-CHIP	2007-000141	SA
R602	R-CHIP	2007-000141	SA
R603	R-CHIP	2007-002796	SA
R604	R-CHIP	2007-002796	SA
R605	R-CHIP	2007-000162	SA
R606	R-CHIP	2007-001339	SA
R607	R-CHIP	2007-000140	SA
R608	INDUCTOR-SMD	2703-002313	SA
R609	R-CHIP	2007-000070	SA
R610	R-CHIP	2007-000140	SA
R611	R-CHIP	2007-000070	SA
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R613	R-CHIP	2007-007573	SA
R614	R-CHIP	2007-007480	SA
R615	R-CHIP	2007-000162	SA
R617	INDUCTOR-SMD	2703-002308	SA

Design LOC	Description	SEC CODE	STATUS
R618	INDUCTOR-SMD	2703-002308	SA
R619	INDUCTOR-SMD	2703-001181	SA
R620	INDUCTOR-SMD	2703-001181	SA
R621	R-CHIP	2007-000162	SA
R701	R-CHIP	2007-000162	SA
R702	R-CHIP	2007-000162	SA
R703	R-CHIP	2007-000162	SA
R704	R-CHIP	2007-000775	SA
R705	R-CHIP	2007-000172	SA
R721	R-CHIP	2007-000162	SA
R722	R-CHIP	2007-000162	SA
R725	R-CHIP	2007-000162	SA
R726	R-CHIP	2007-000162	SA
R727	R-CHIP	2007-000168	SA
RFS100	CONNECTOR-COAXIAL	3705-001358	SA
SIM400	CONNECTOR-CARD EDGE	3709-001355	SA
TAC700	SWITCH-TACT	3404-001152	SA
TAC701	SWITCH-TACT	3404-001152	SA
TAC702	SWITCH-TACT	3404-001152	SA
TCX100	OSCILLATOR-VCTCXO	2809-001294	SA
U100	DUPLEXER-FEM	2911-000019	SNA
U101	FILTER-EMI SMD	2901-001254	SA
U102	IC-TRANSCEIVER	1205-002817	SA
U201	IC-ANALOG SWITCH	1001-001231	SA
U300	IC-DEMULATOR	1204-002398	SA
U301	IC-AUDIO AMP	1201-002241	SA
U302	IC-CMOS LOGIC	0801-002237	SA
U303	IC ASIC-SPHA800	GH13-00030A	SA
U304	BLUETOOTH MODULE	4709-001374	SA
U305	IC-MELODY	1204-002161	SA
U308	IC-CMOS LOGIC	0801-002237	SA
U309	IC-ANALOG SWITCH	1001-001221	SA
U400	IC-POWER SUPERVISOR	1203-003882	SA
U401	IC-DC/DC CONVERTER	1203-003545	SA
U402	IC-POSIFIXED REG.	1203-003621	SA
U403	IC-POSIFIXED REG.	1203-003079	SA
U500	DIODE-TVS	0406-001188	SA
U501	FILTER-EMI SMD	2901-001315	SA
U502	IC-BATTERY	1203-003823	SA
U503	TR-DIGITAL	0504-001151	SA
U506	IC-CMOS LOGIC	0801-002237	SA
U507	DIODE-TVS	0406-001200	SA
U600	IC-POSIFIXED REG.	1203-003105	SA
U601	IC-VOLTAGE COMP.	1202-001068	SA
U602	IC-ANALOG MULTIPLEX	1001-001306	SA
U700	IC-POSIFIXED REG.	1203-003105	SA
U703	FET-SILICON	0505-001570	SA
U704	IC-DC/DC CONVERTER	1203-003328	SA
U705	C-CER,CHIP	2203-005482	SA
UCP200	IC-COMM. CONTROLLER	1205-002757	SA

## Electrical Parts List

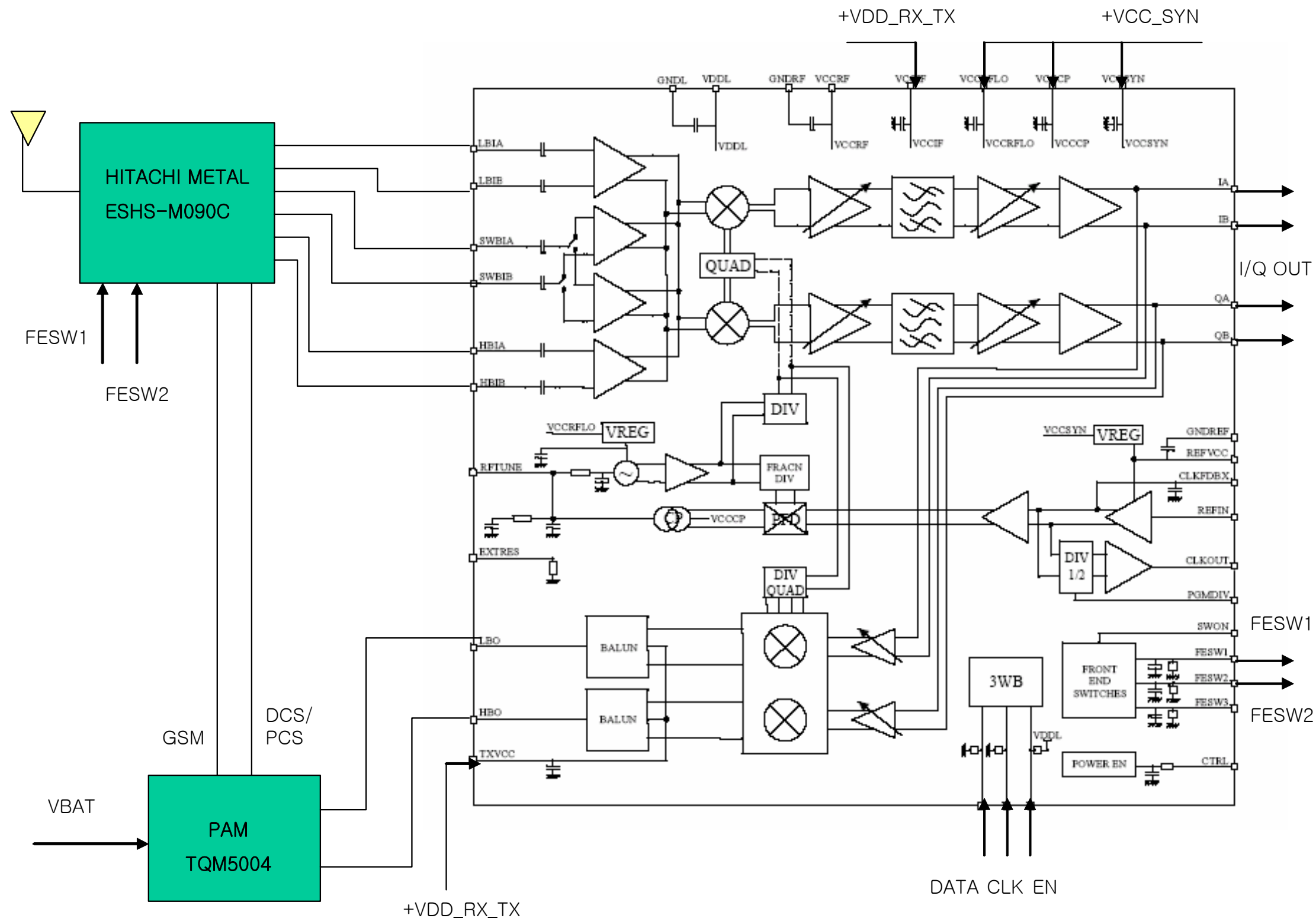
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Design LOC	Description	SEC CODE	STATUS
UME300	IC-MCP	1108-000018	SA
V200	VARISTOR	1405-001082	SA
V201	VARISTOR	1405-001082	SA
V202	VARISTOR	1405-001082	SA
V203	VARISTOR	1405-001082	SA
V300	VARISTOR	1405-001082	SA
V400	VARISTOR	1405-001082	SA
V500	THERMISTOR-NTC	1404-001221	SA
V600	DIODE-TVS	0406-001203	SA
V601	DIODE-TVS	0406-001203	SA
V602	VARISTOR	1405-001082	SA
V603	VARISTOR	1405-001082	SA
V604	VARISTOR	1405-001082	SA
V605	VARISTOR	1405-001082	SA
V606	VARISTOR	1405-001082	SA
V607	VARISTOR	1405-001082	SA
V608	VARISTOR	1405-001082	SA
V700	VARISTOR	1405-001161	SA
V701	VARISTOR	1405-001161	SA
V702	VARISTOR	1405-001161	SA
ZD501	DIODE-ZENER	0403-001427	SA
ZD502	DIODE-ZENER	0403-001547	SA
ZD603	DIODE-TVS	0406-001203	SA

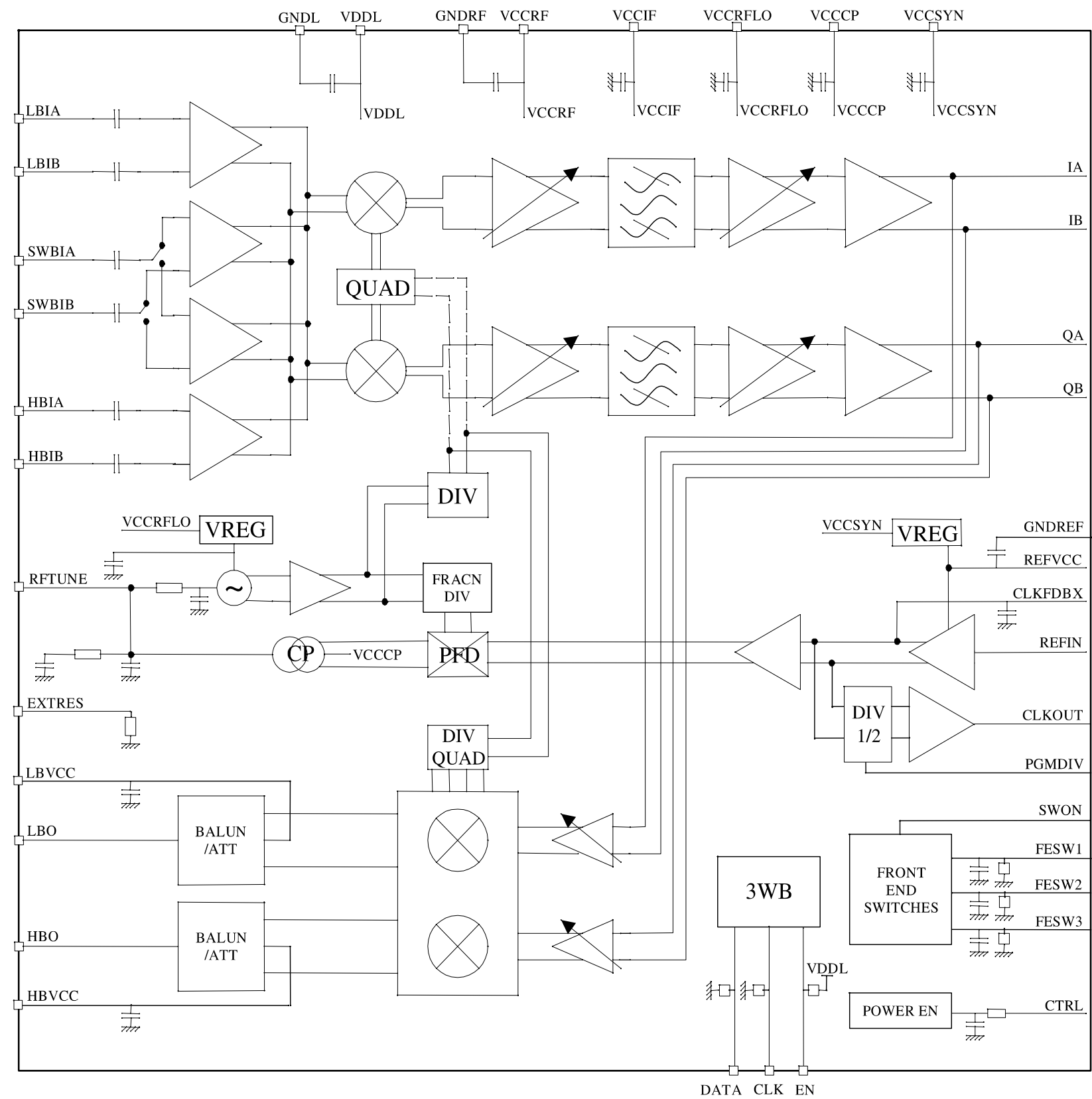


5. Block Diagrams

5-1. RF Solution Block Diagram



5-2. Base Band Solution Block Diagram

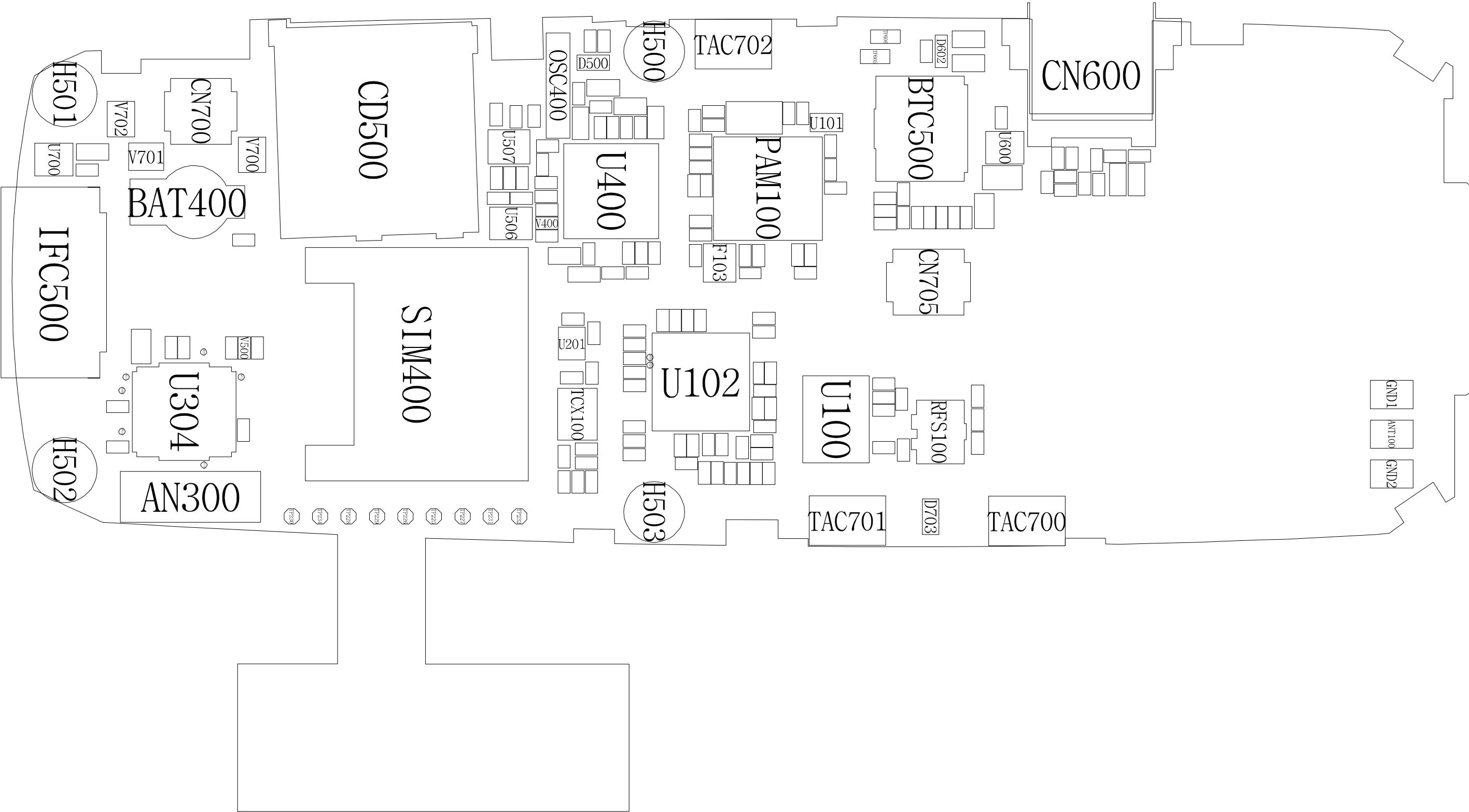


6. PCB Diagrams

6-1. PCB Top Diagram

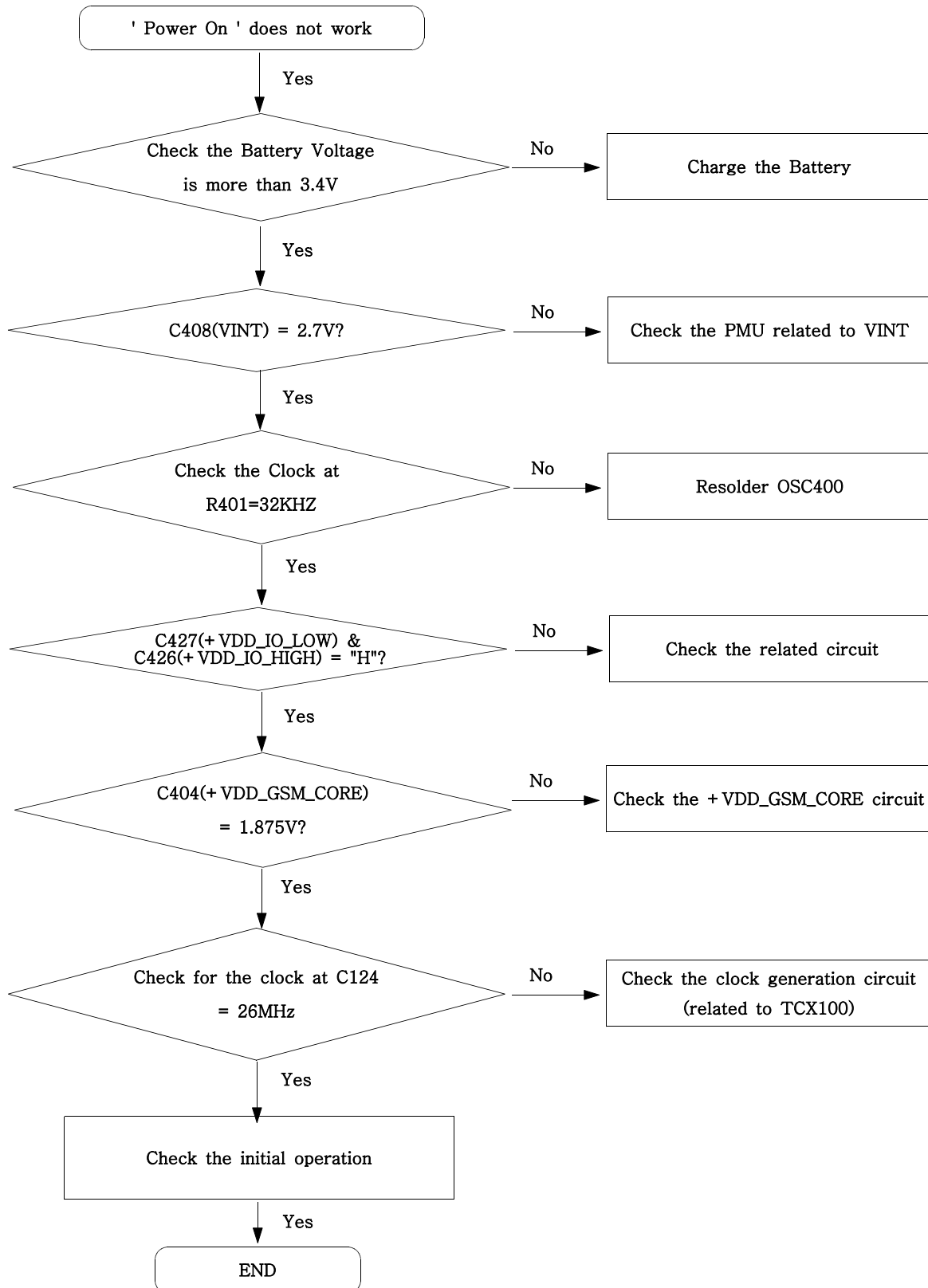


6-2. PCB Bottom Diagram

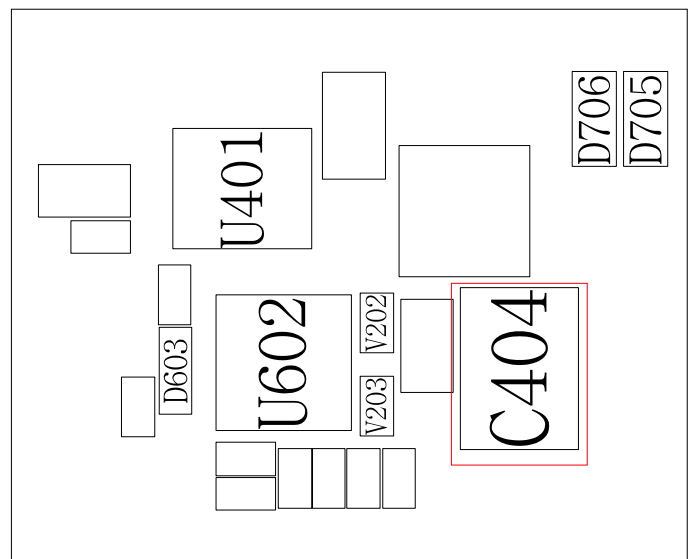
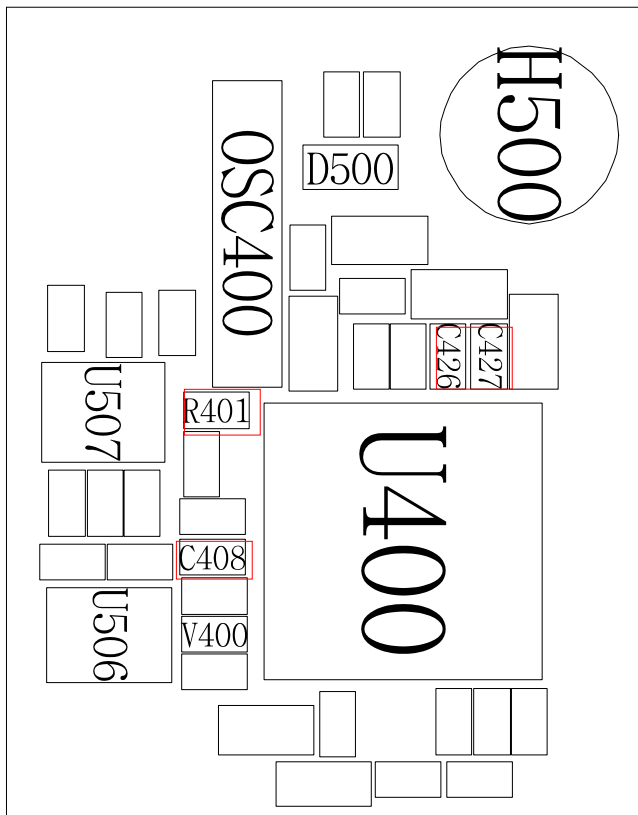
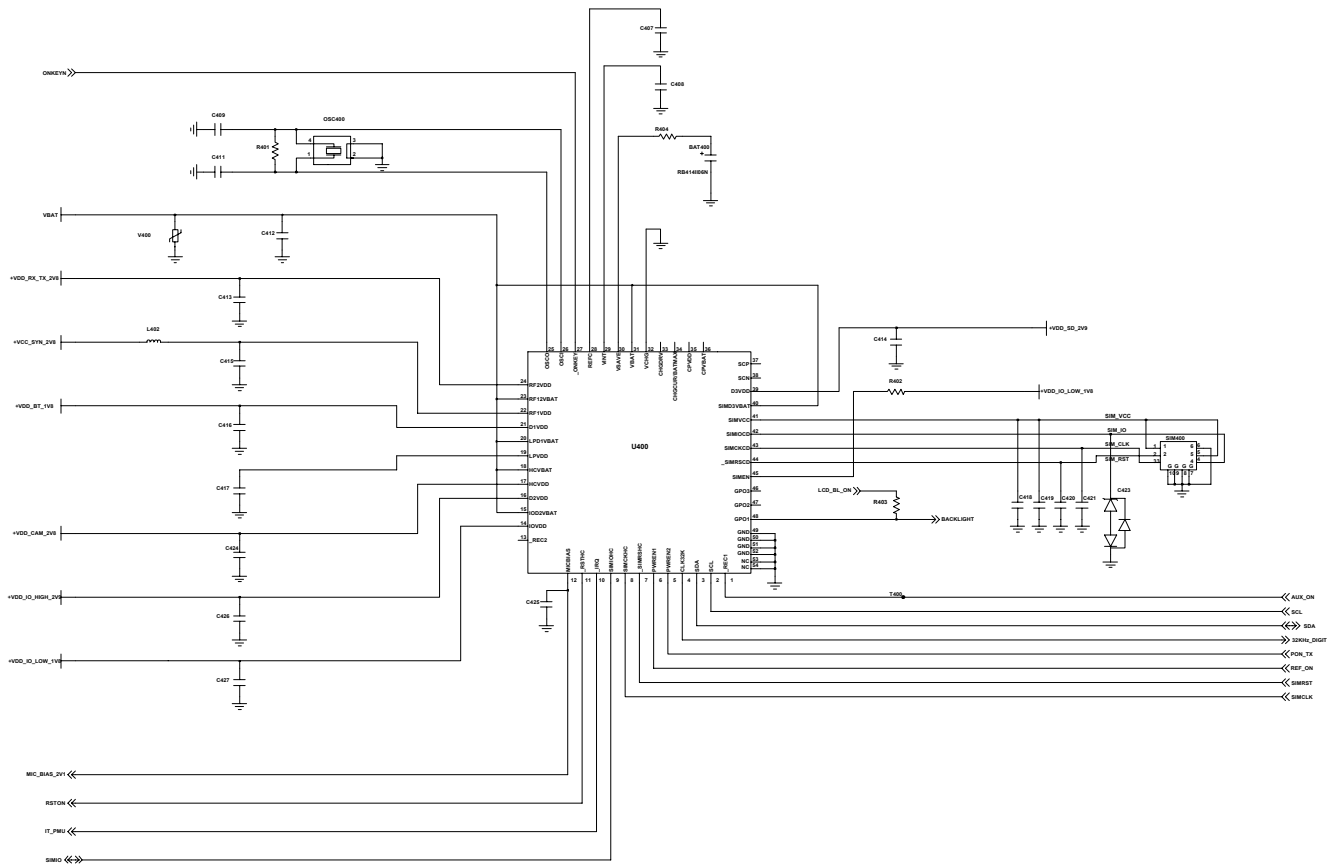


## 7. Flow Chart of Troubleshooting

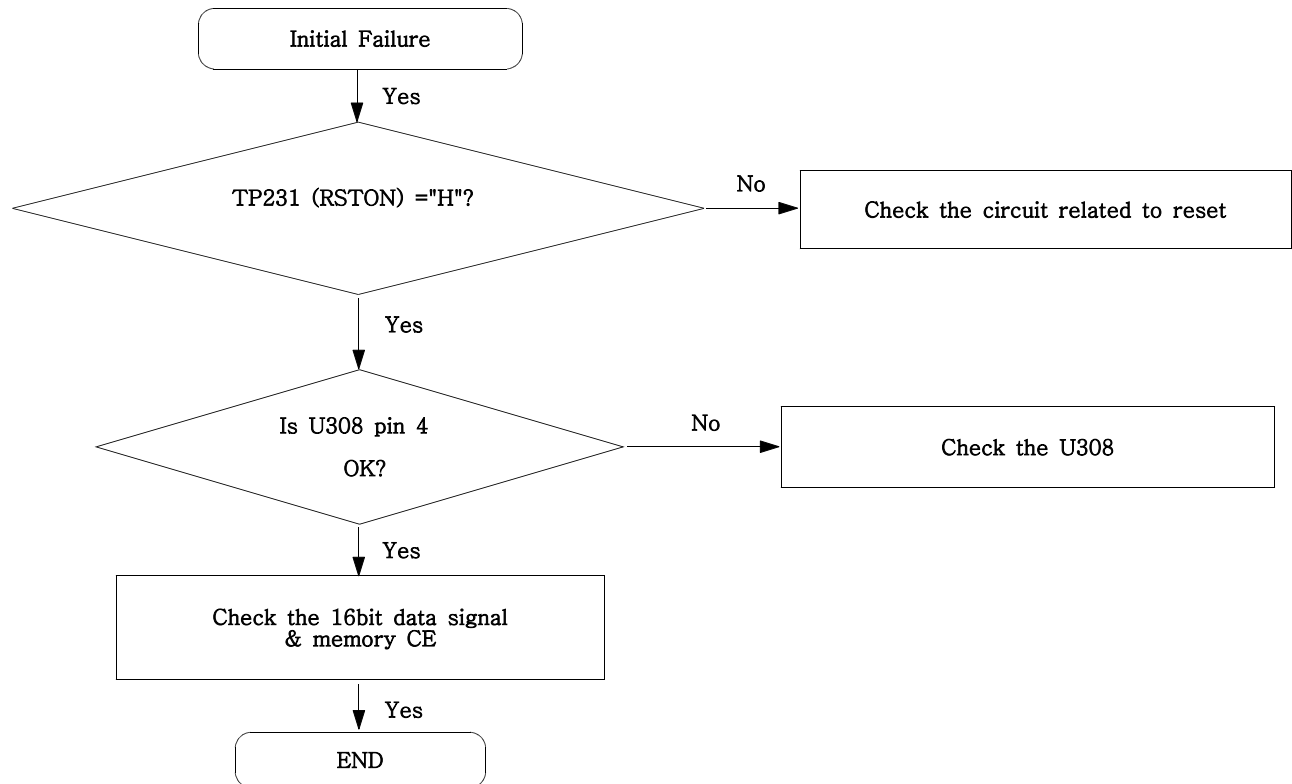
### 7-1. Power On



## Flow Chart of Troubleshooting

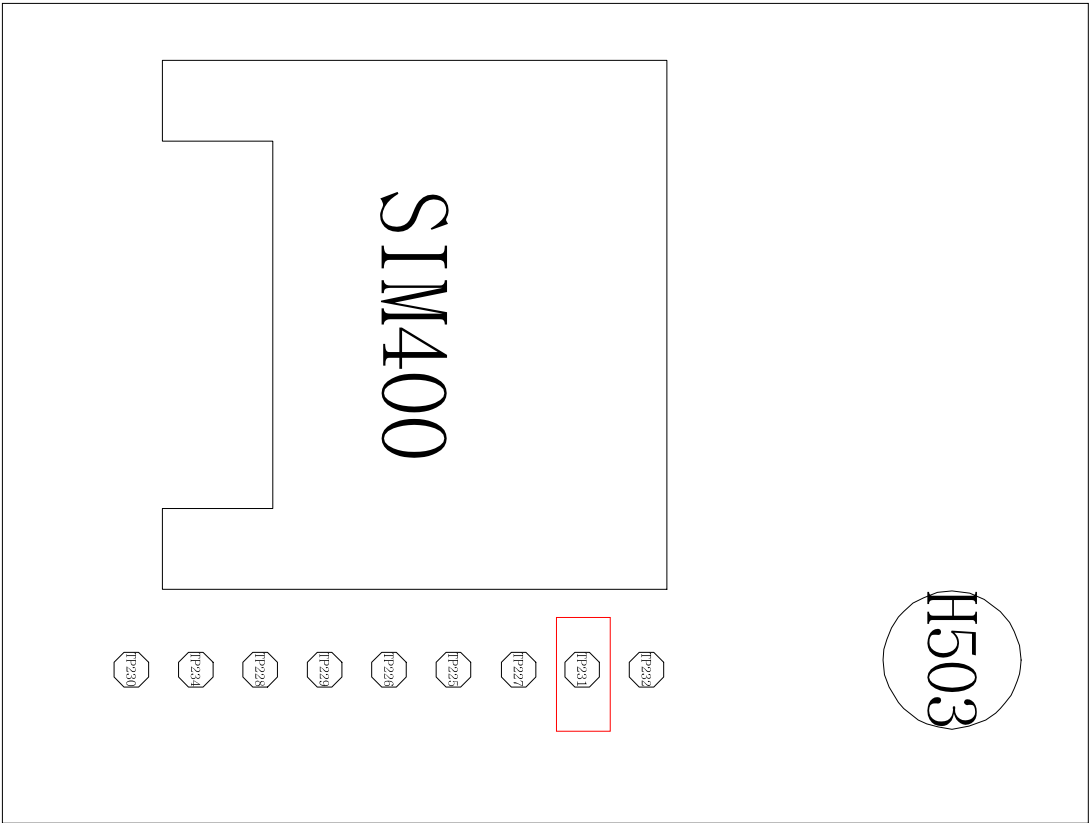
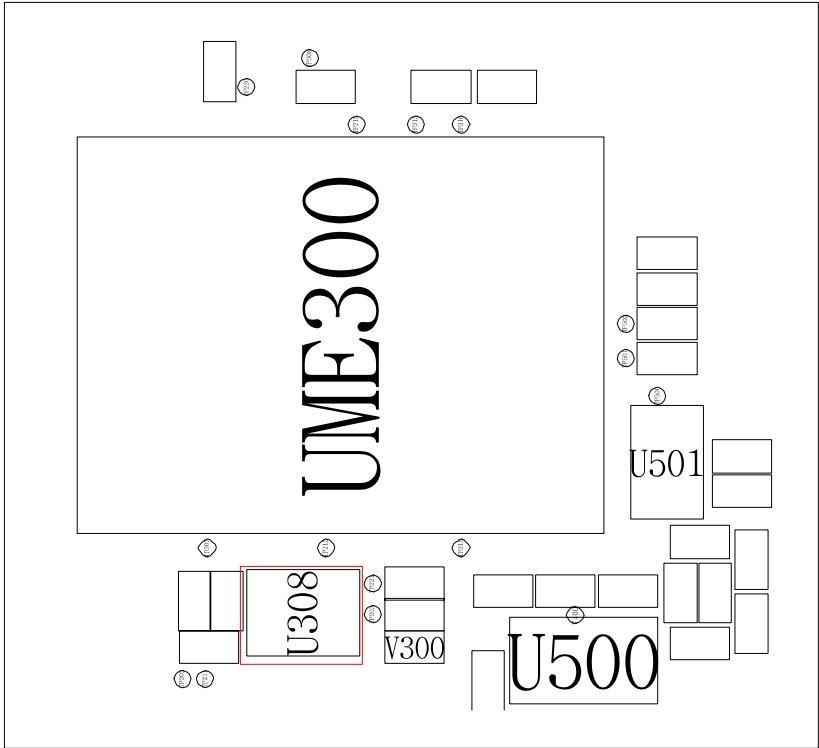


## 7-2. Initial

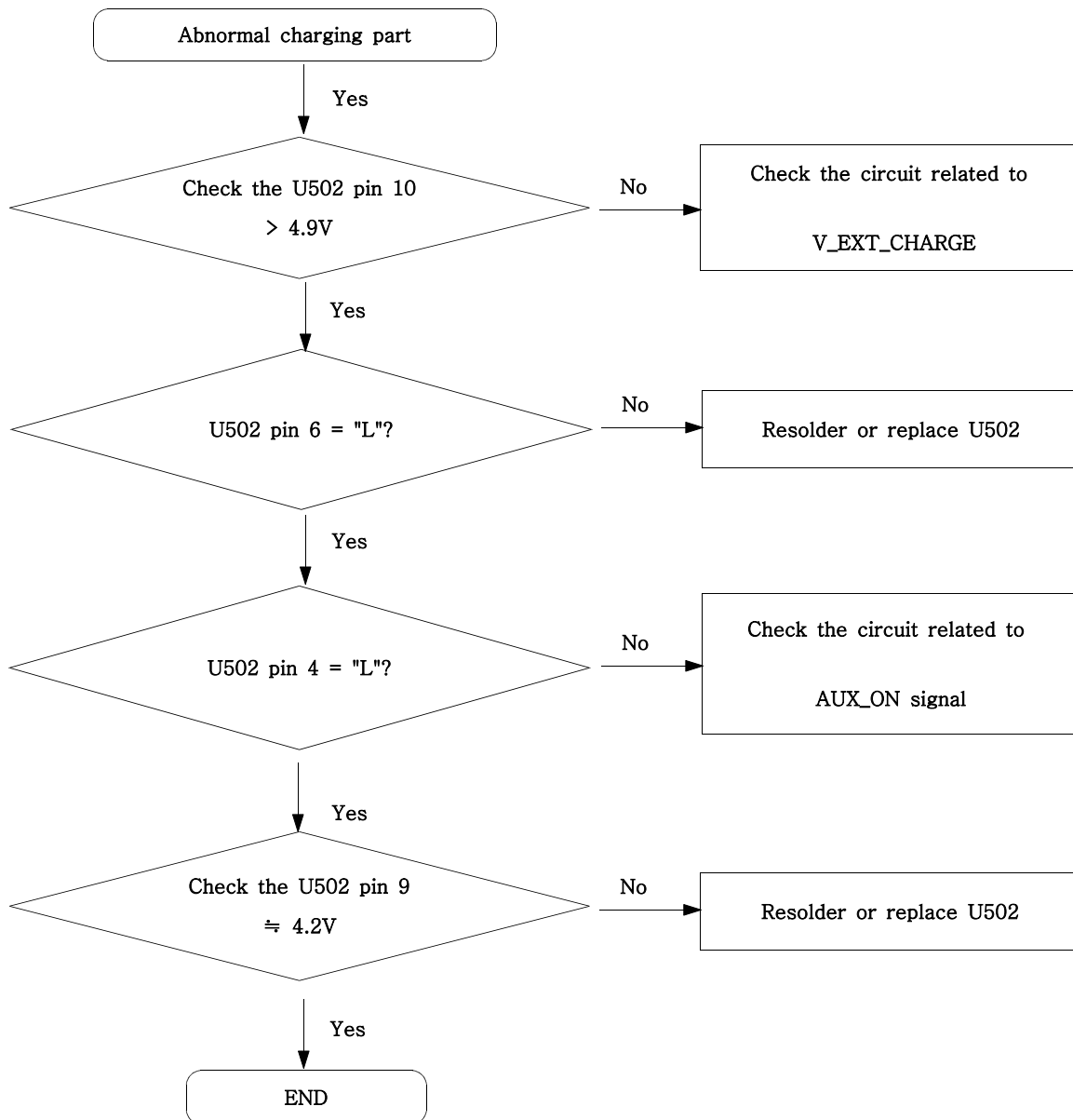


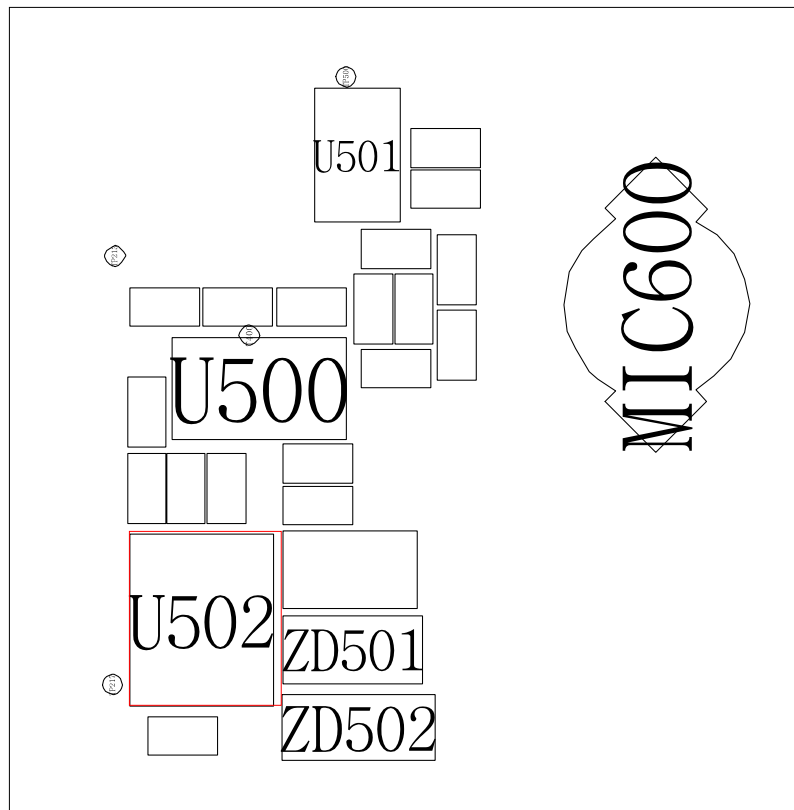
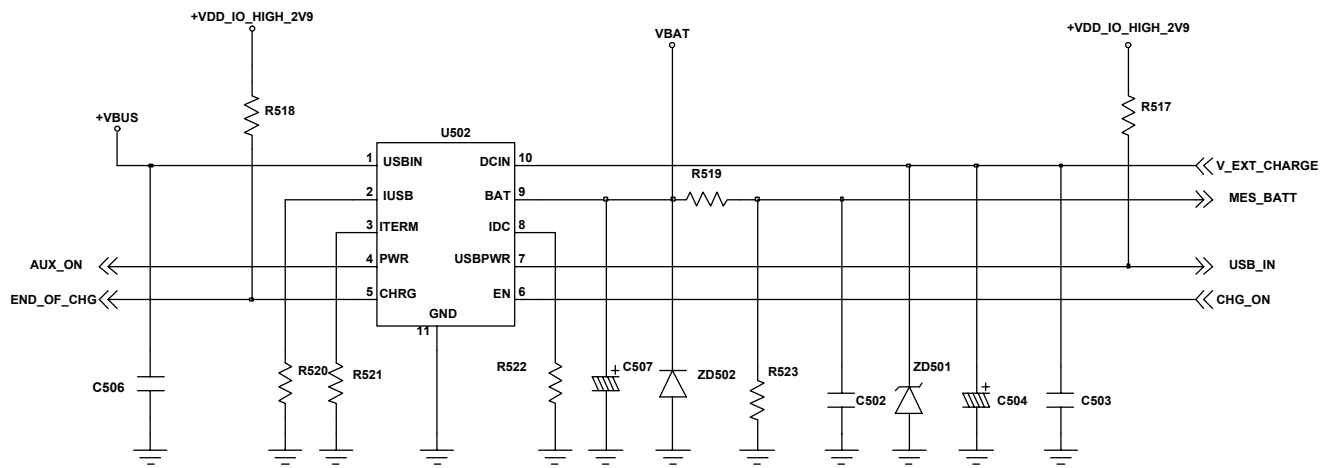




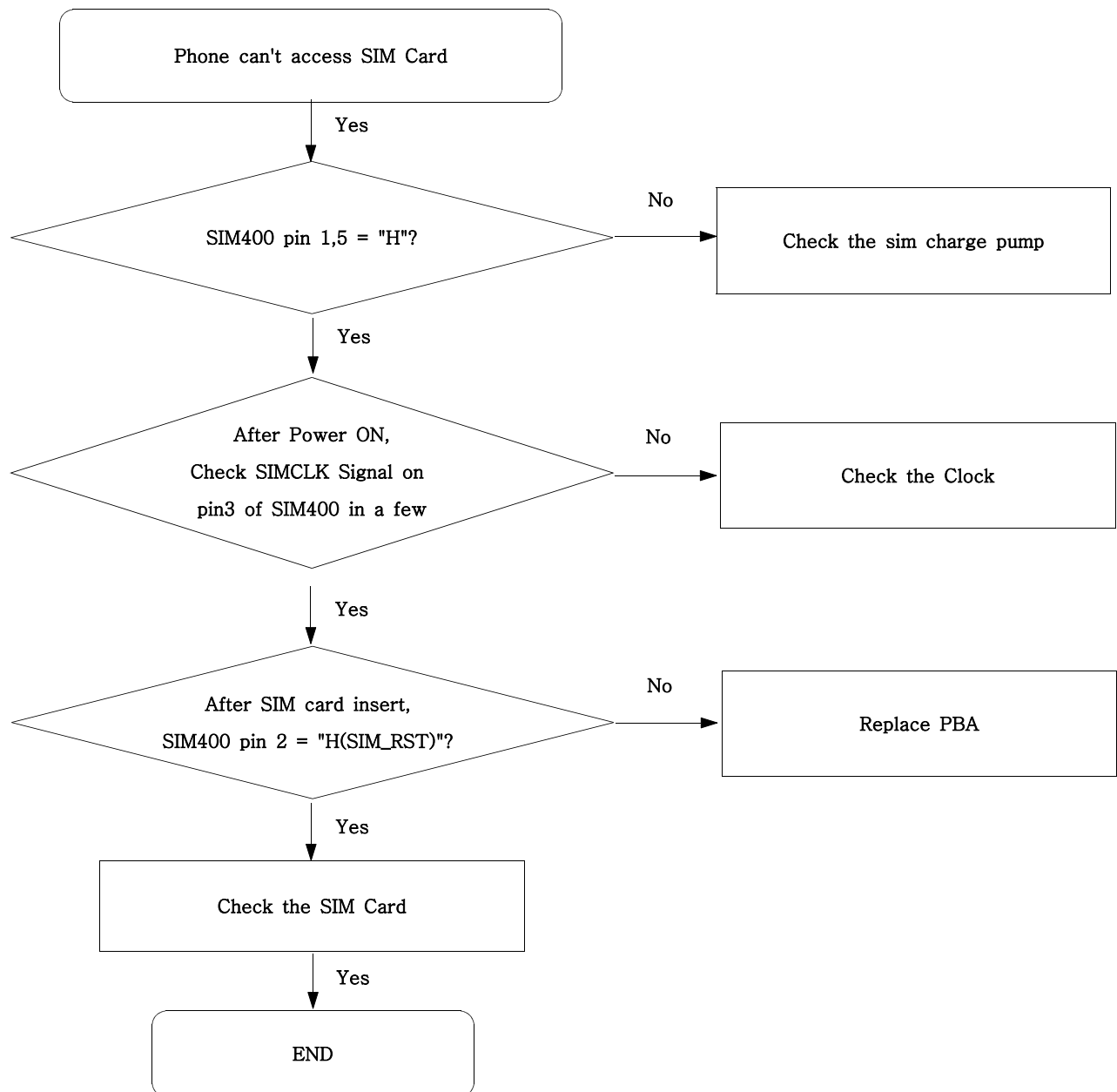


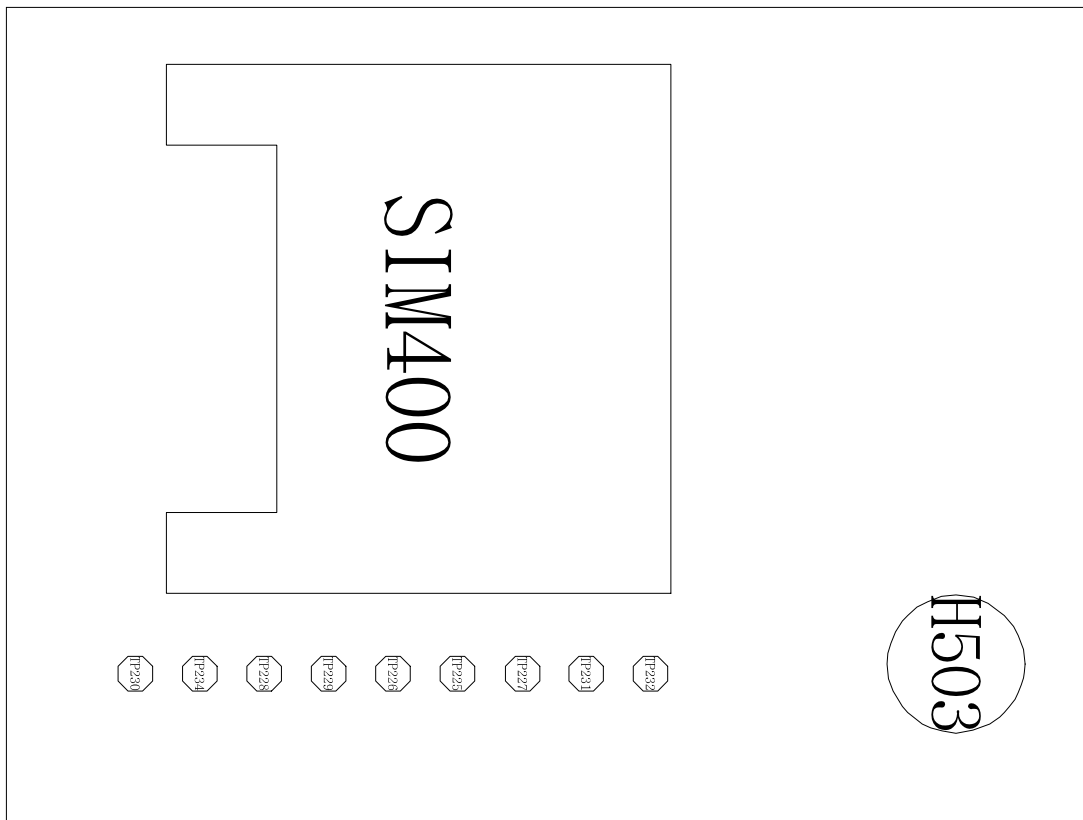
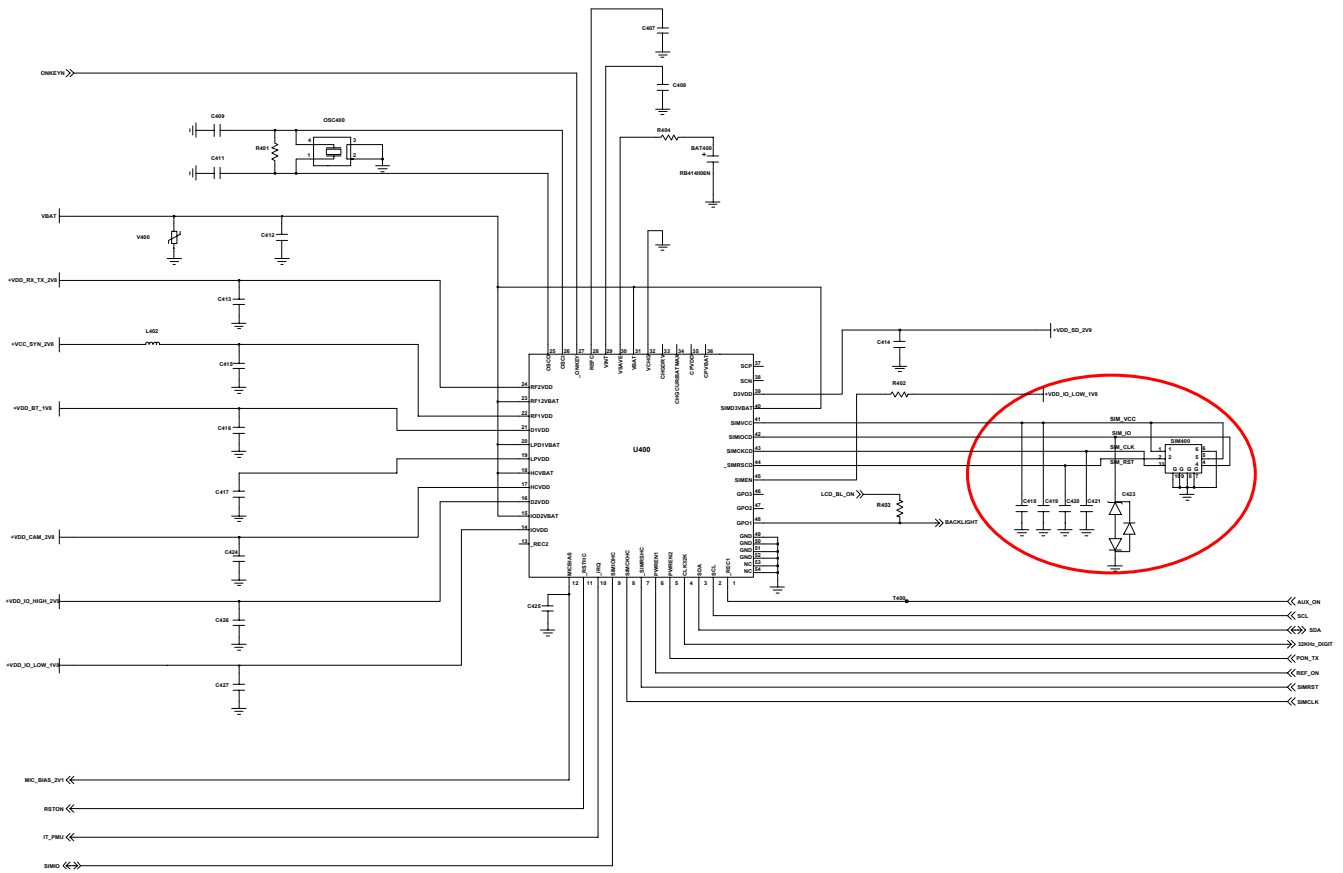
### 7-3. Charging Part



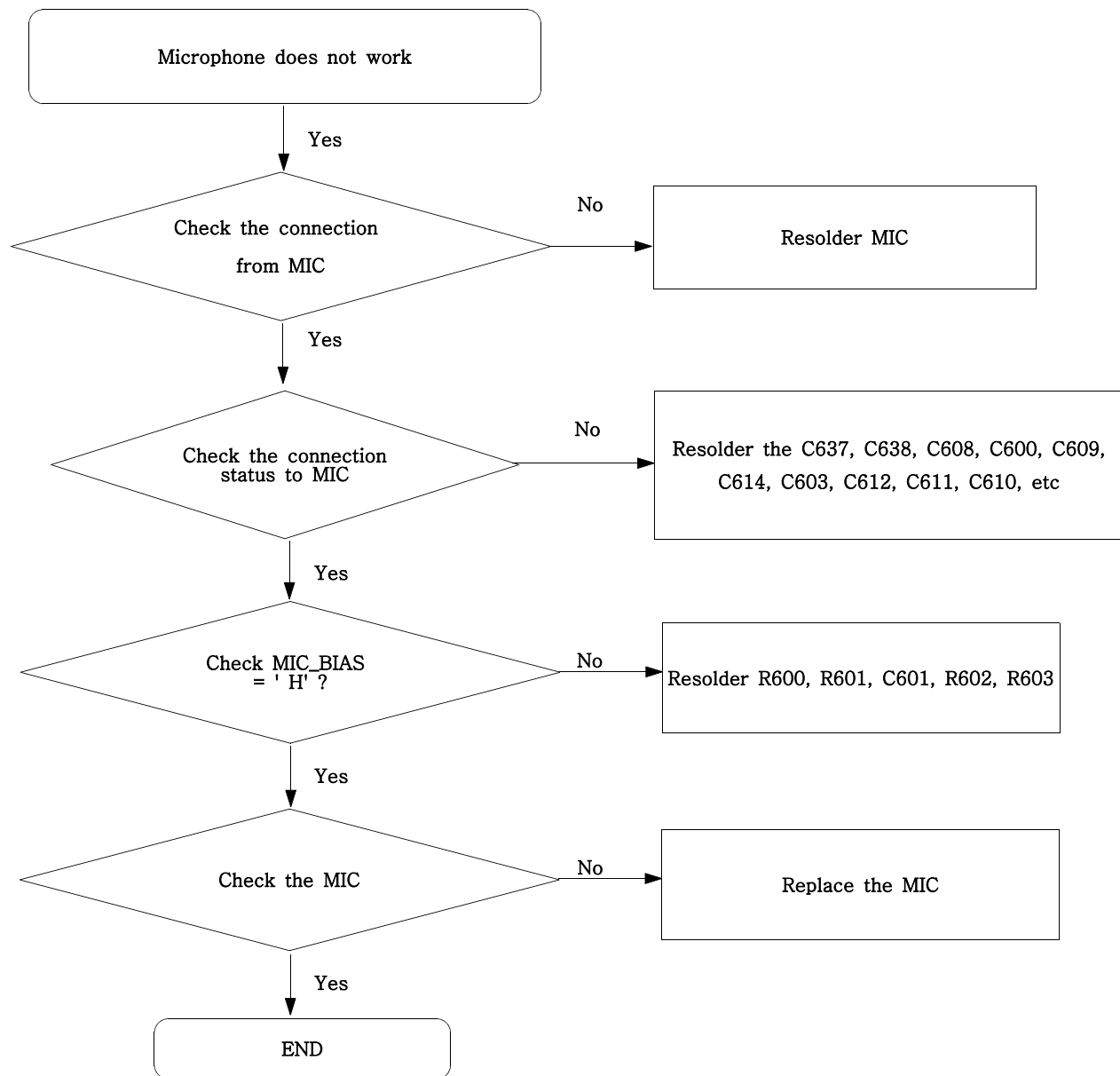


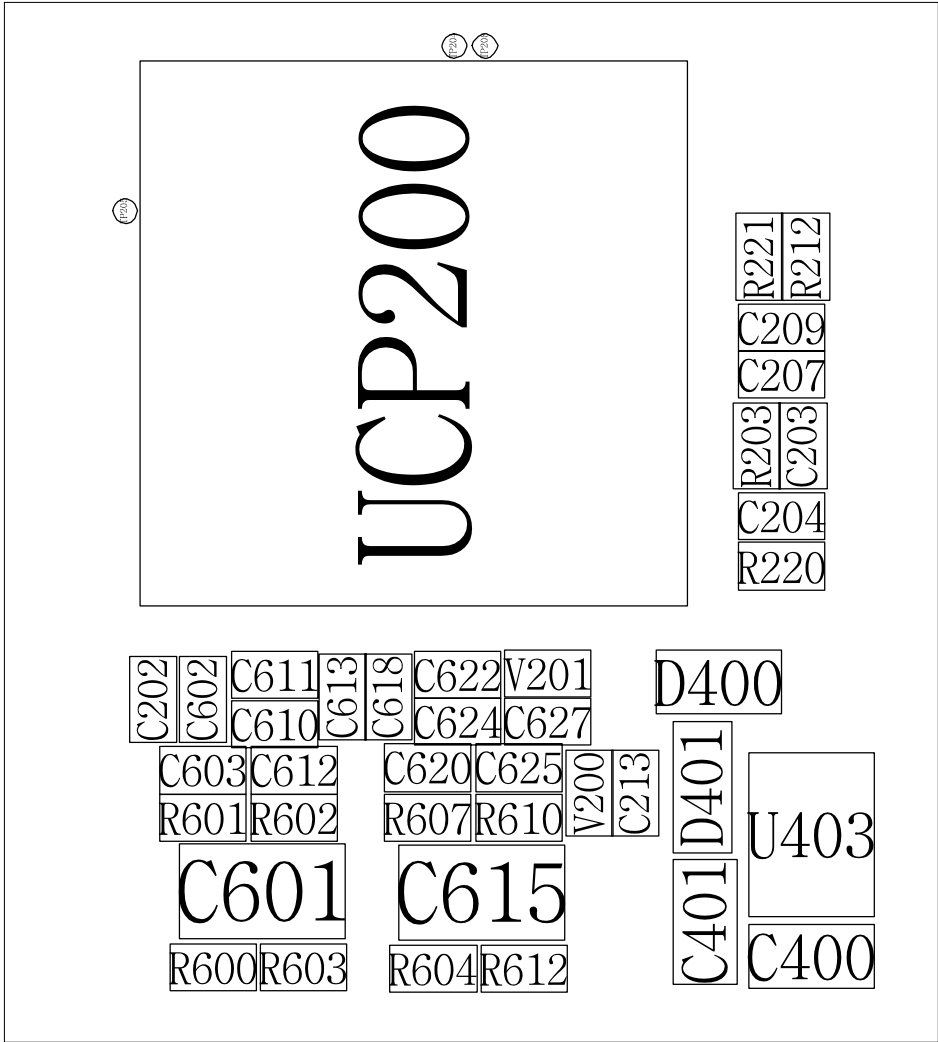
## 7-4. Sim Part



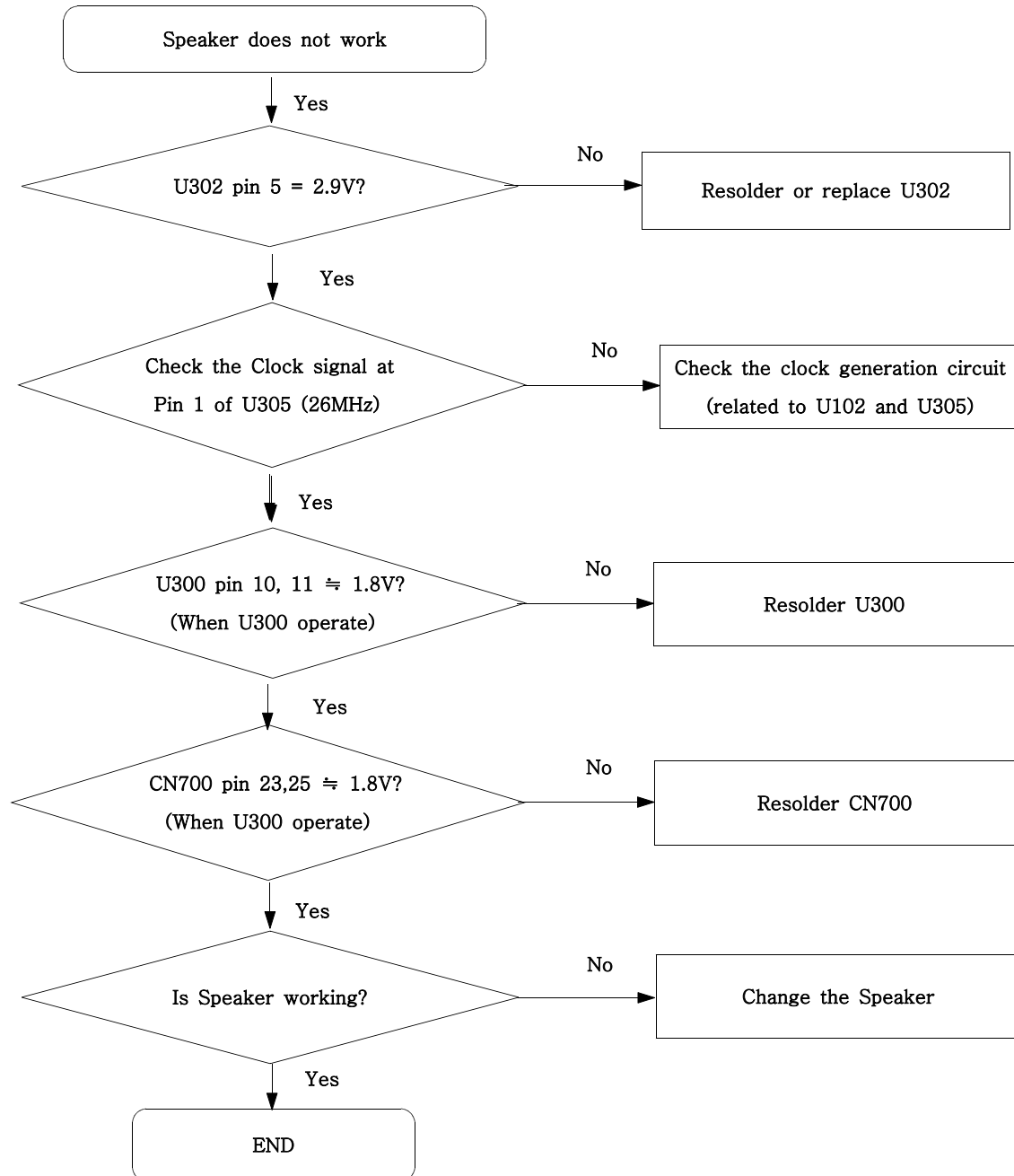


## 7-5. Microphone Part

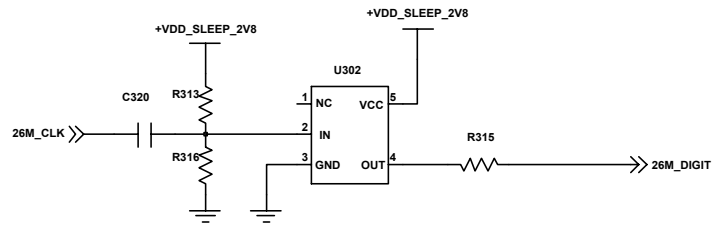




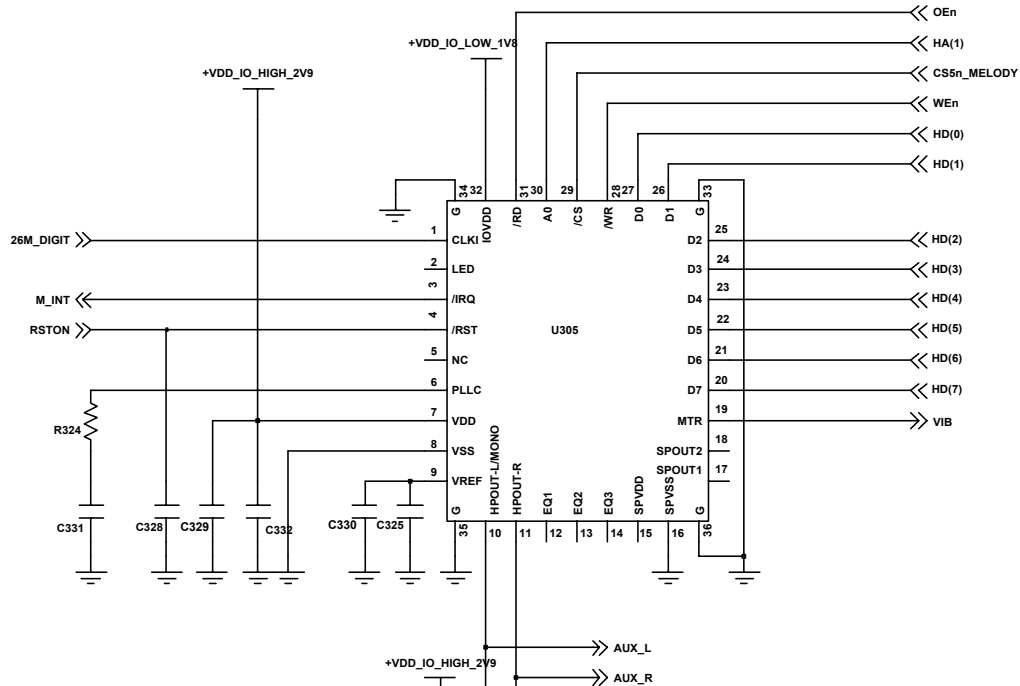
## 7-6. Speaker Part(Melody)



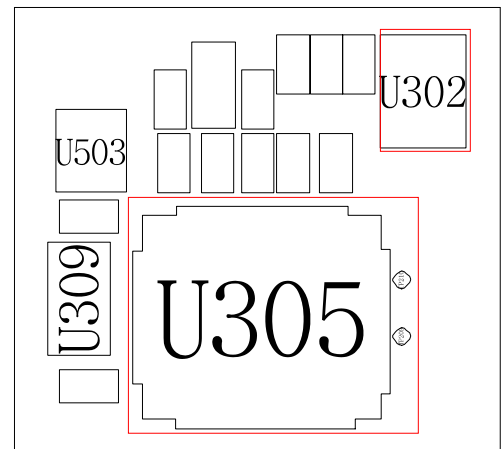




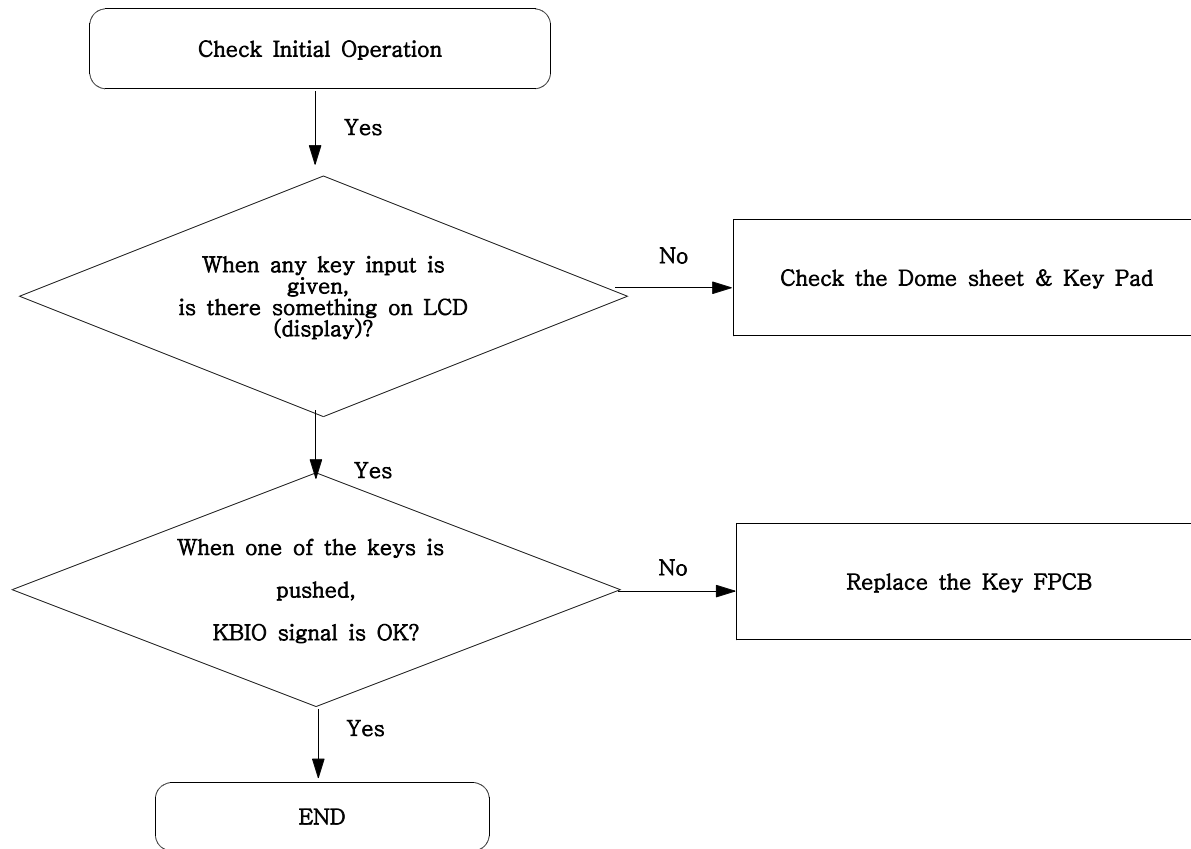
## MEMORY

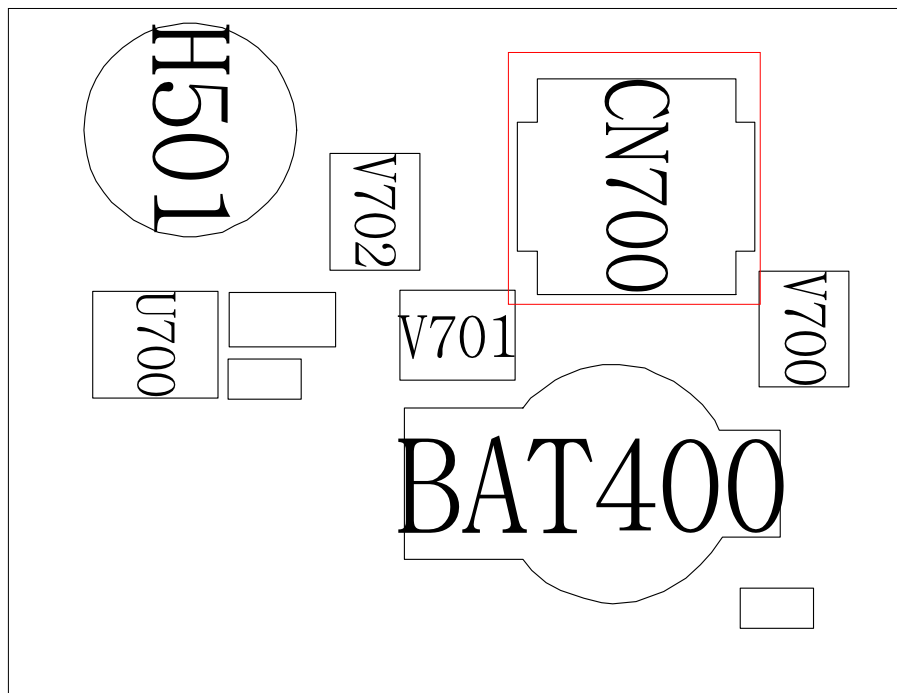
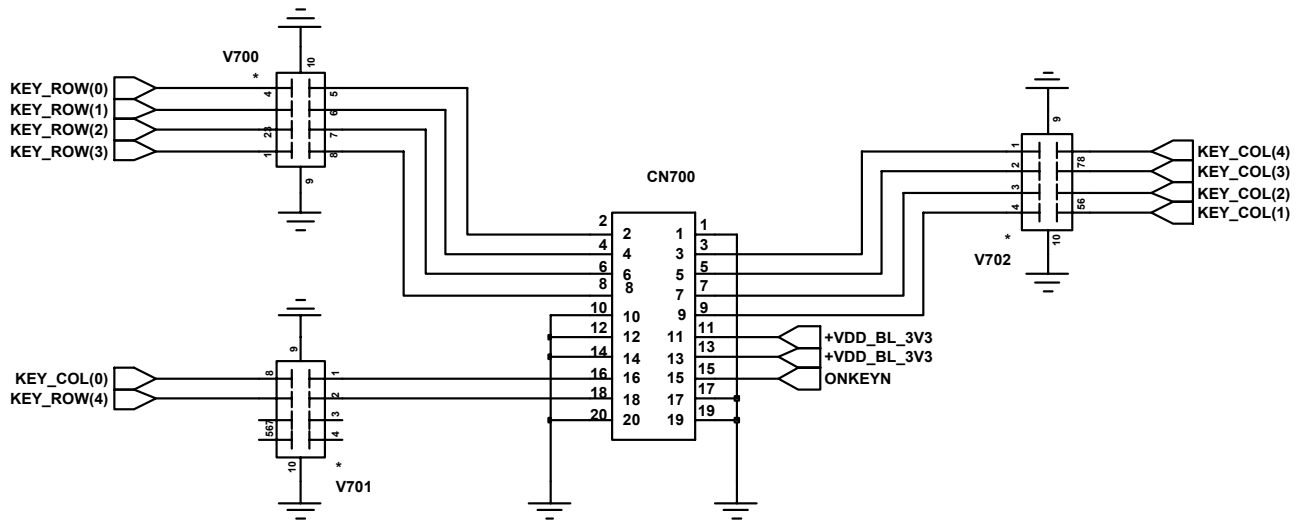


## MELODY IC

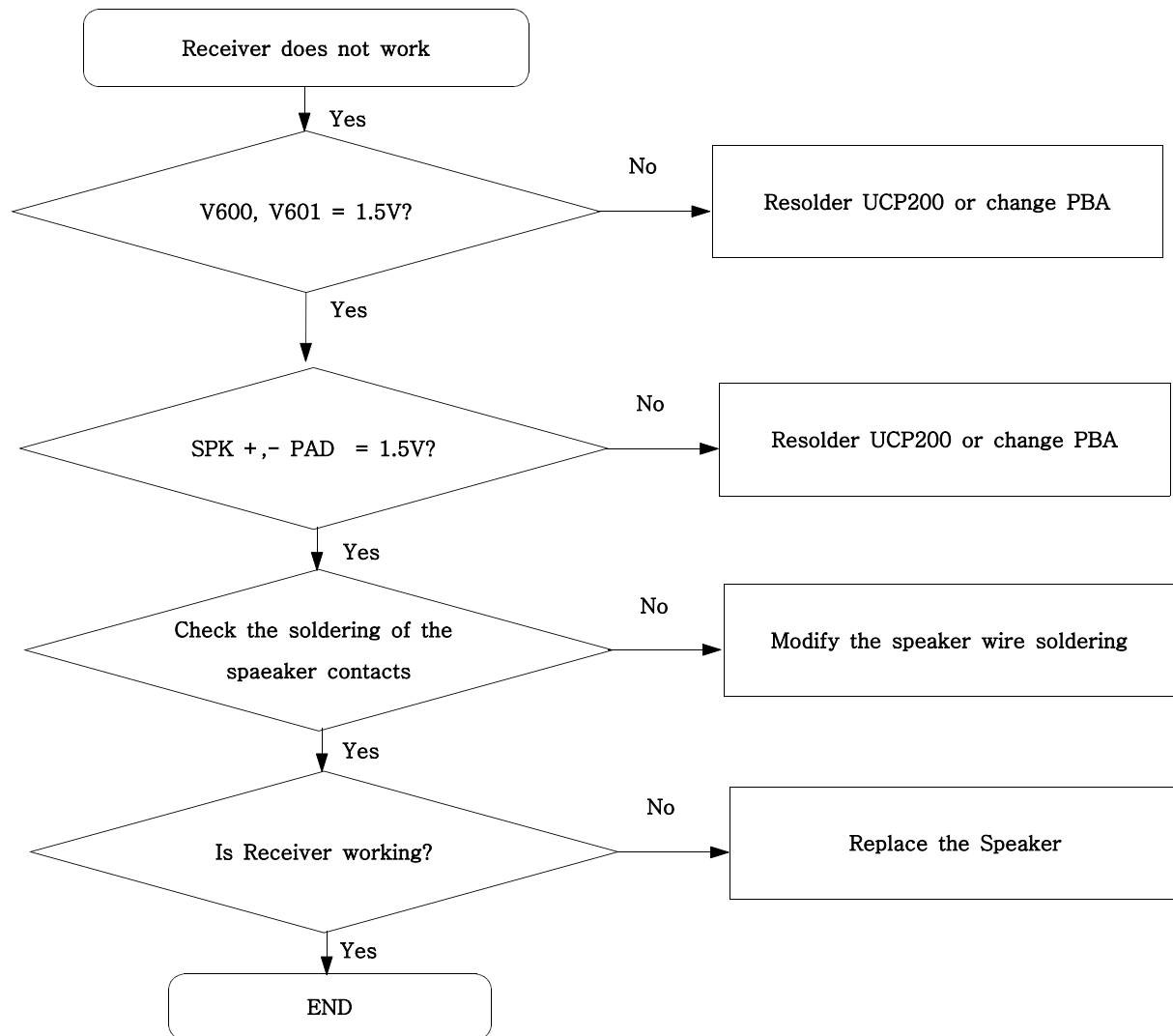


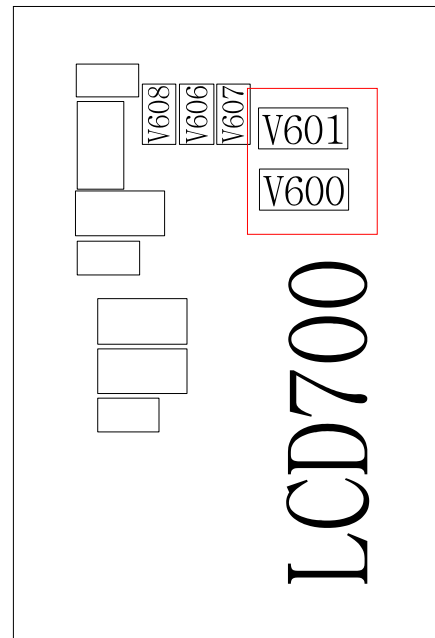
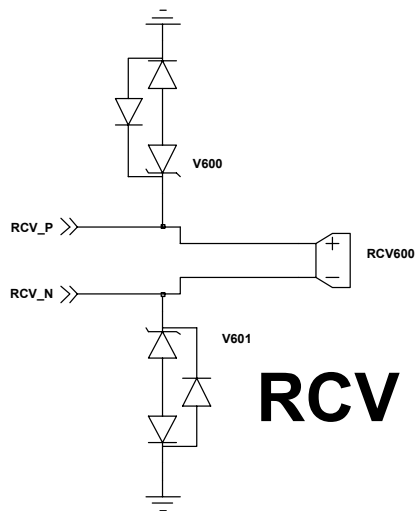
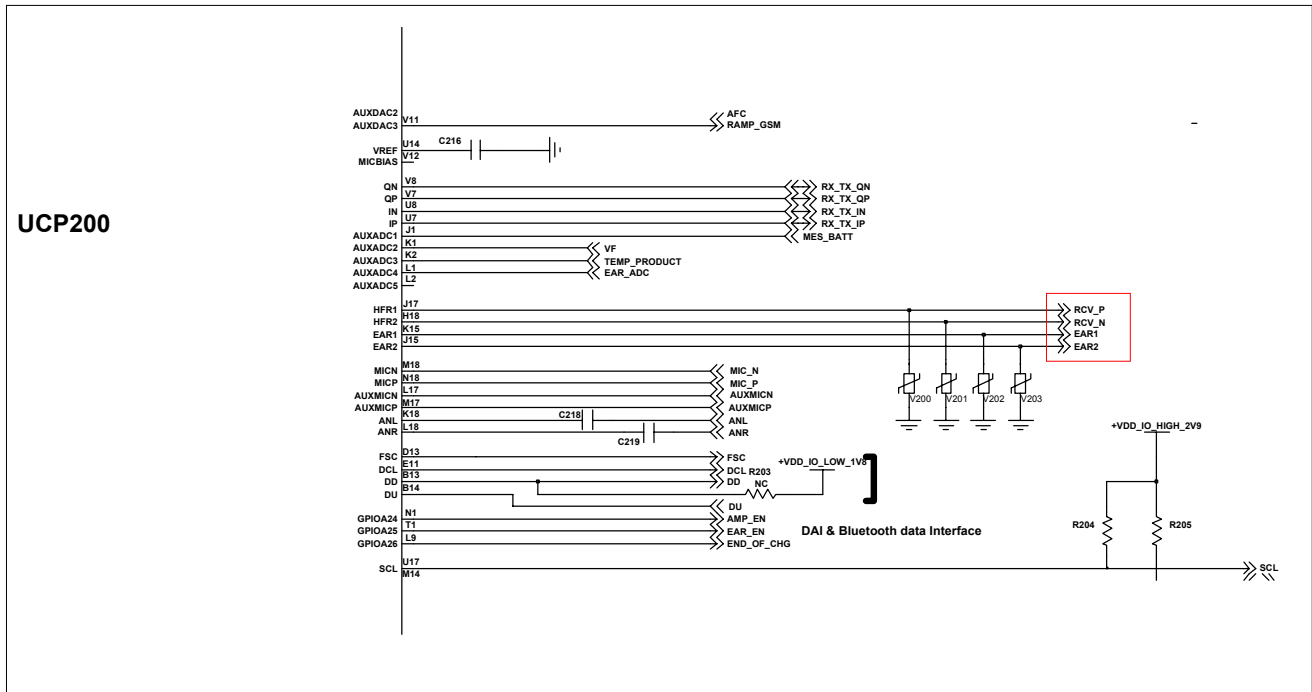
## 7-7. Key Data Input



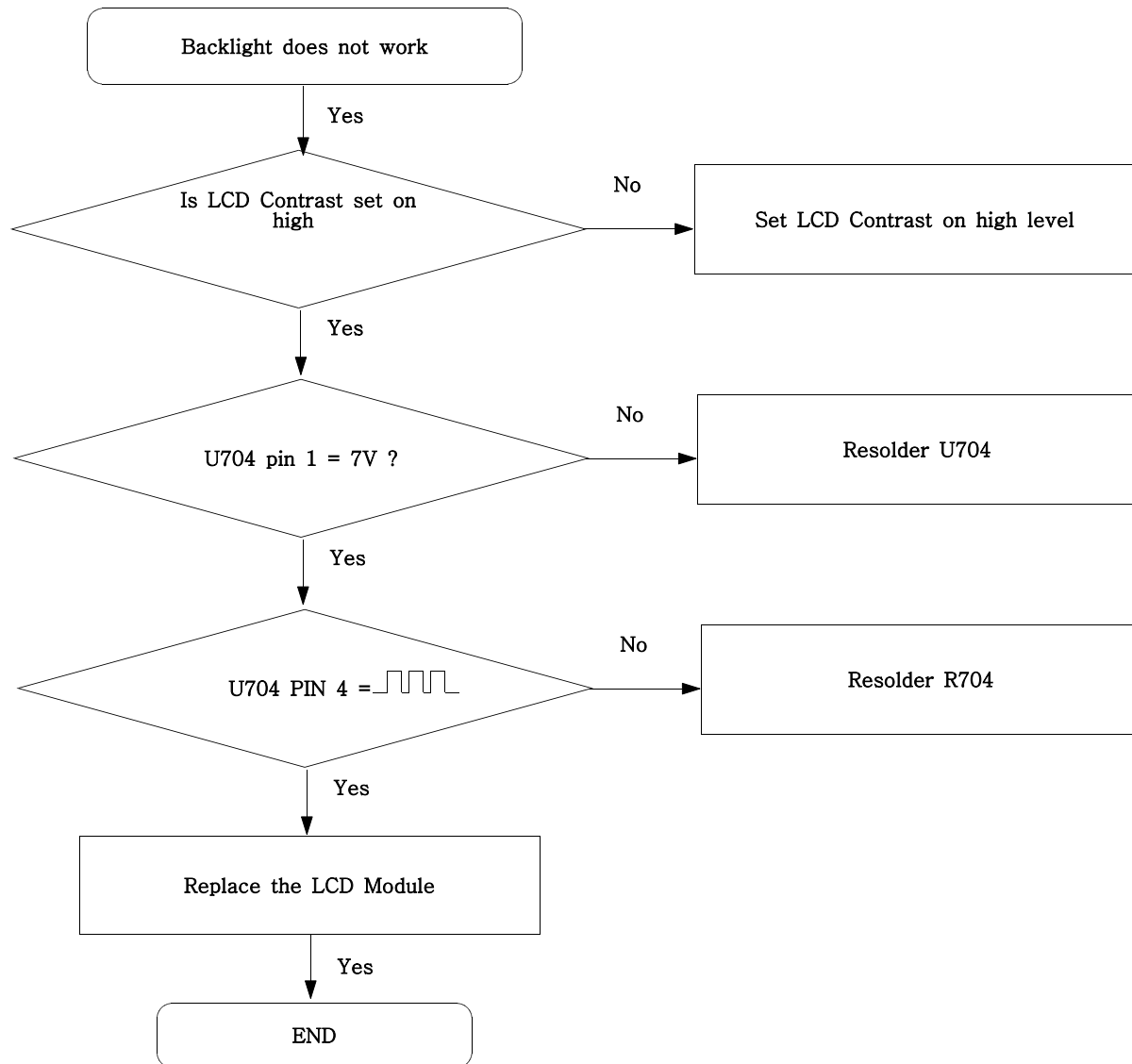


## 7-8. Receiver Part

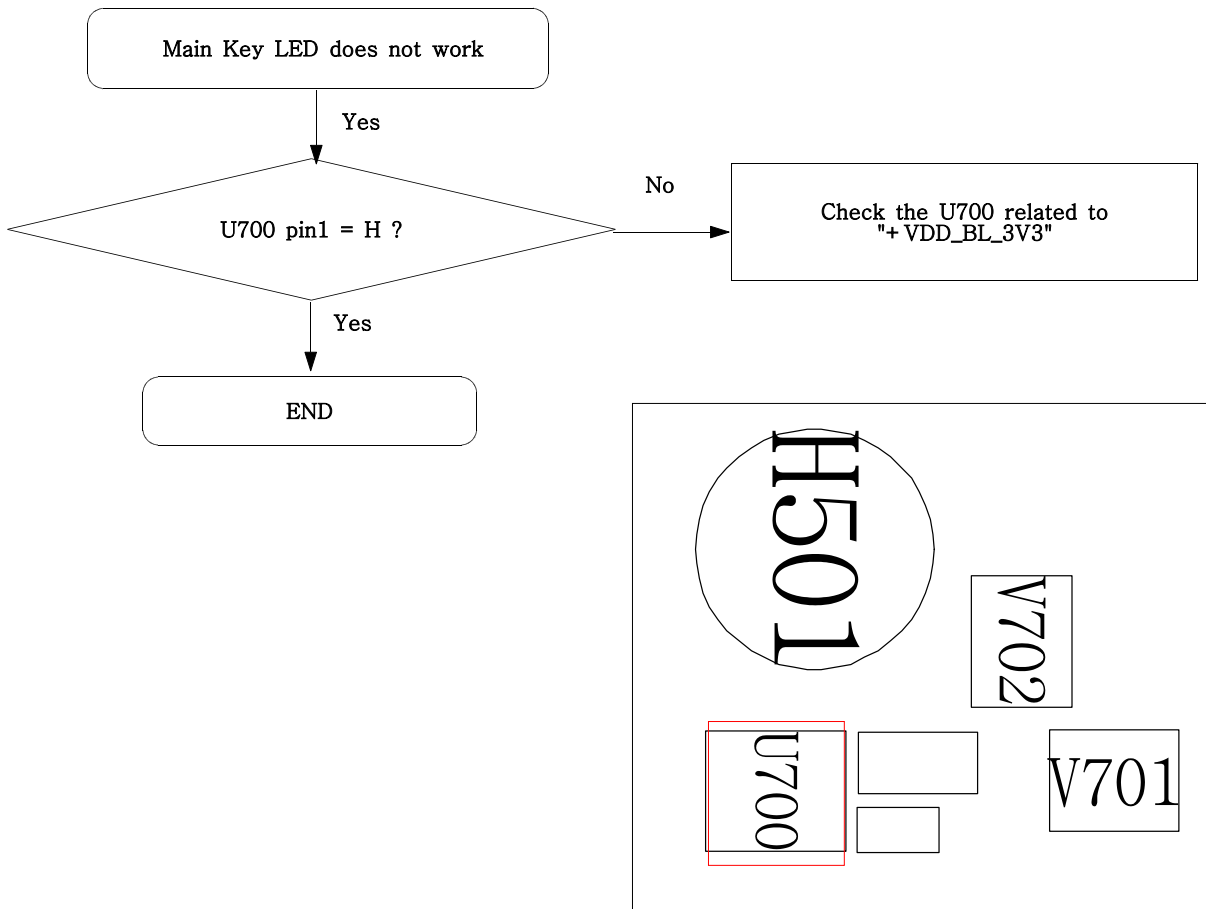




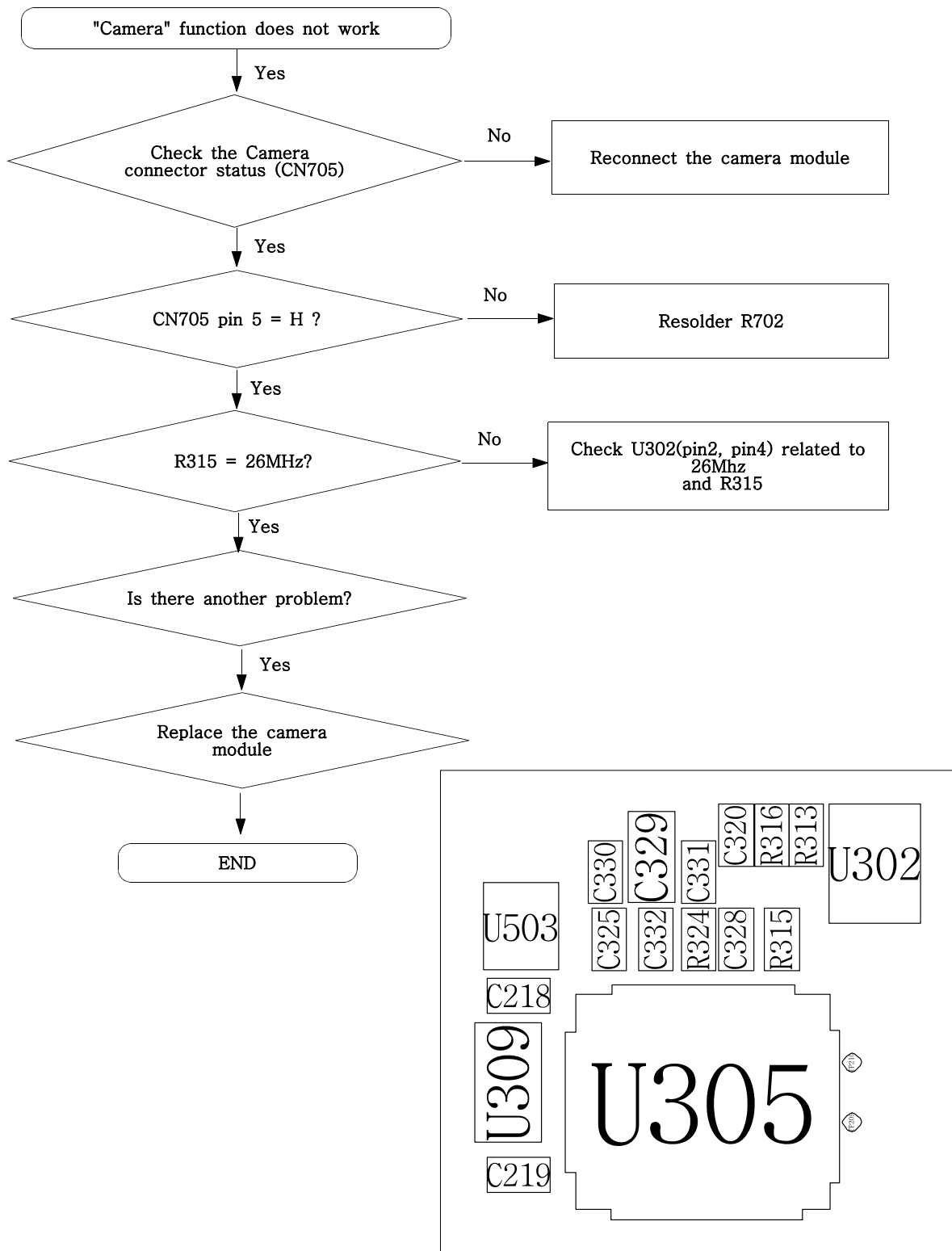
## 7-9. Back Light (for LCD)



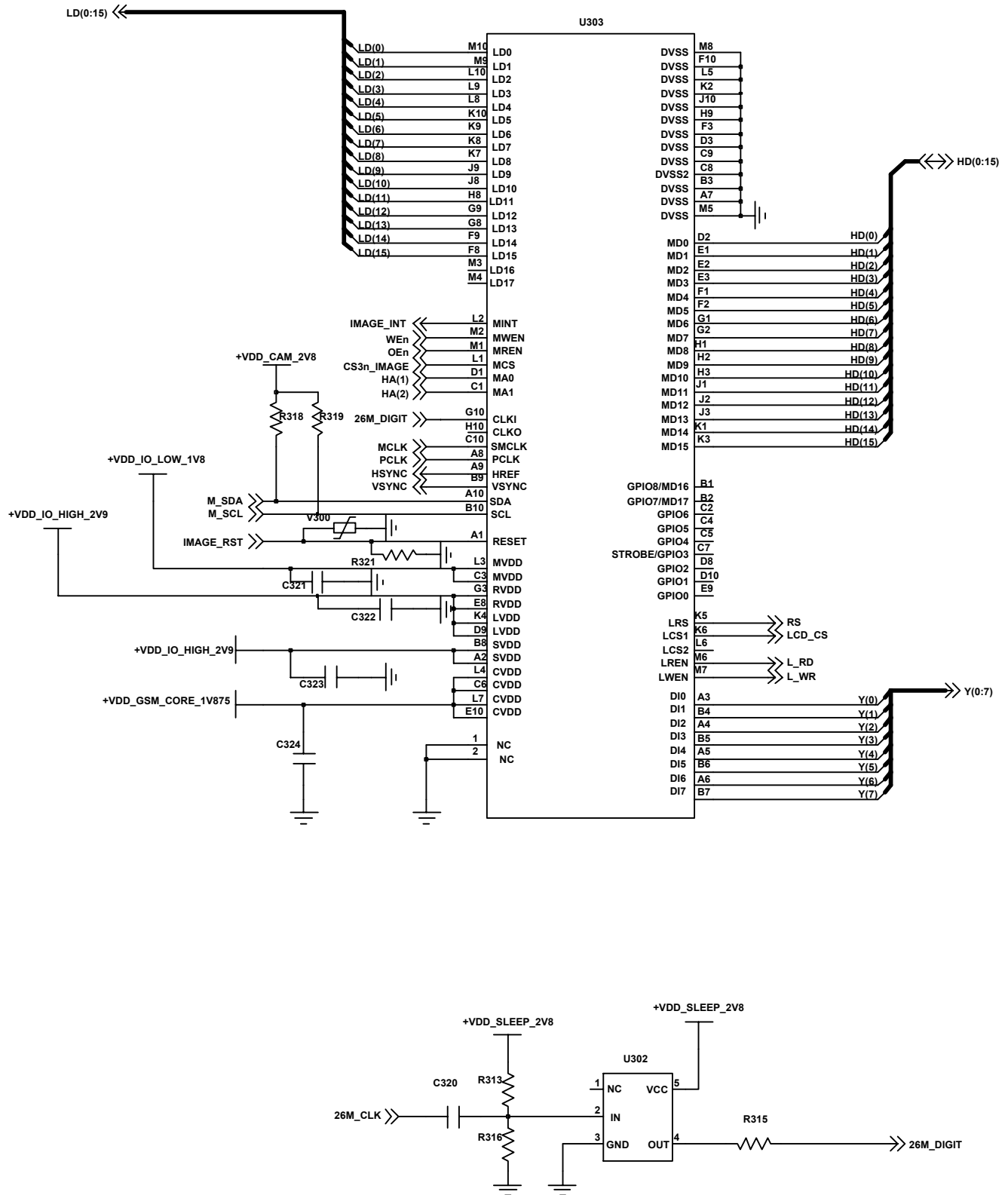
## 7-10. Key Back Light



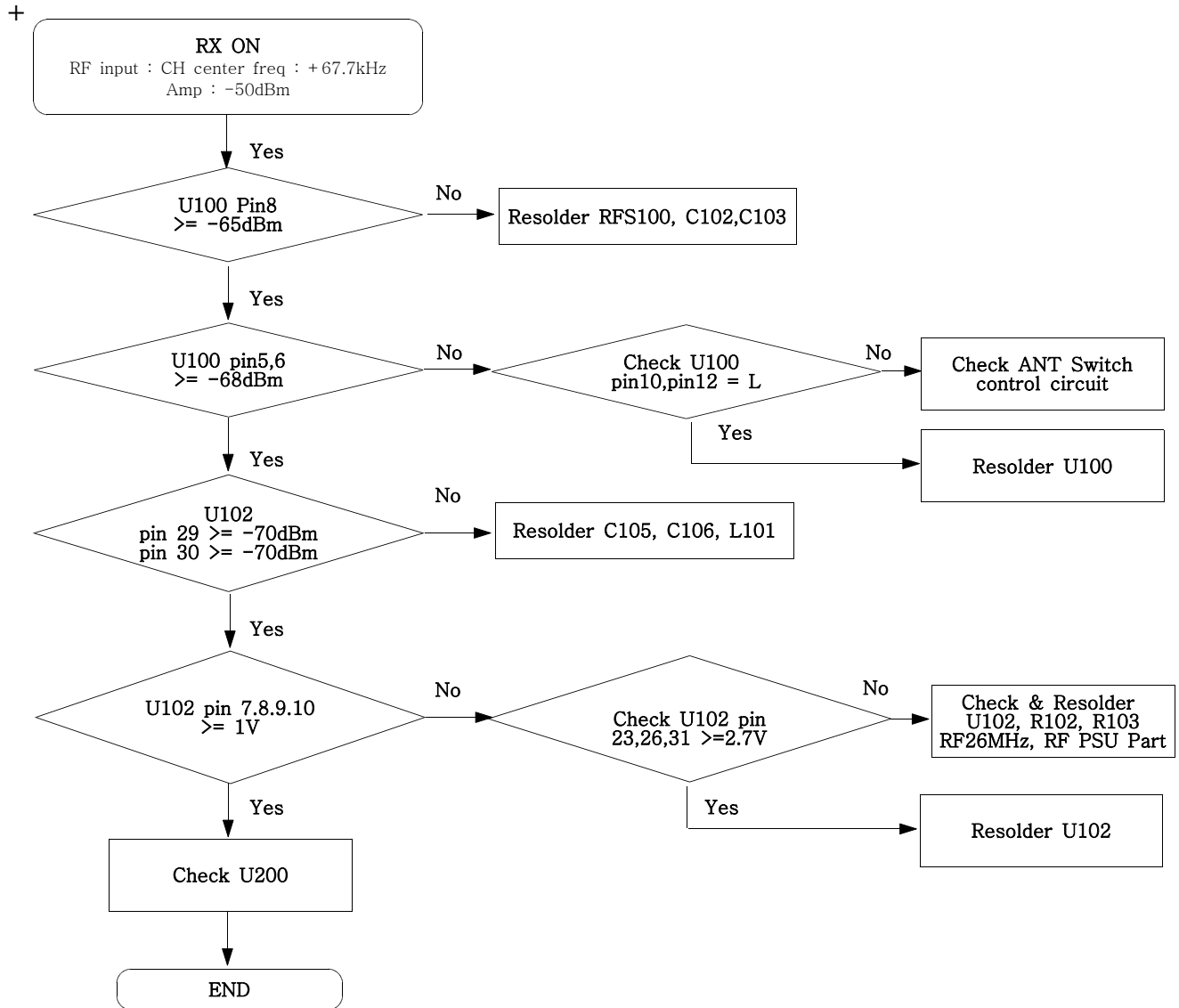
## 7-11. Camera part



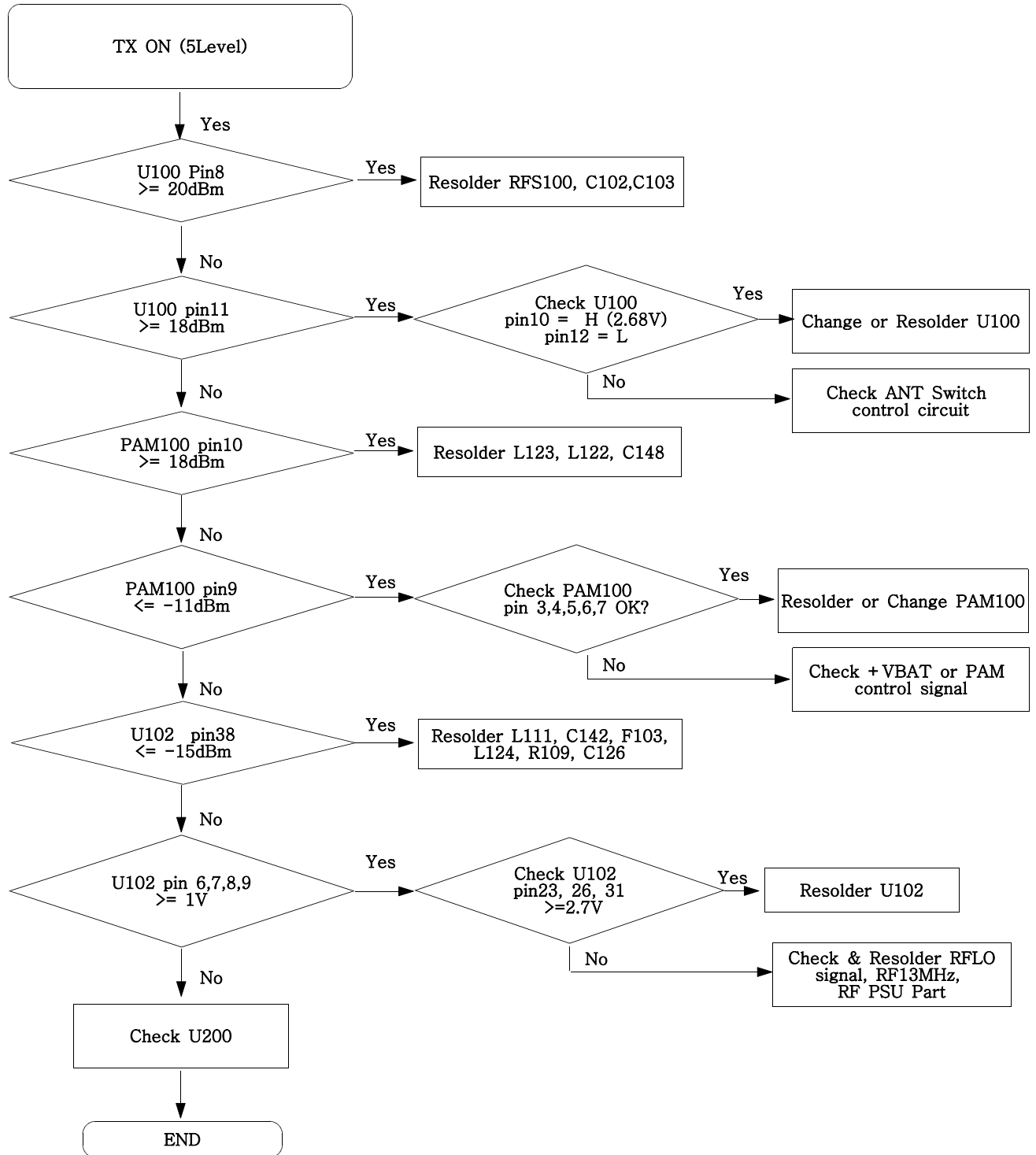




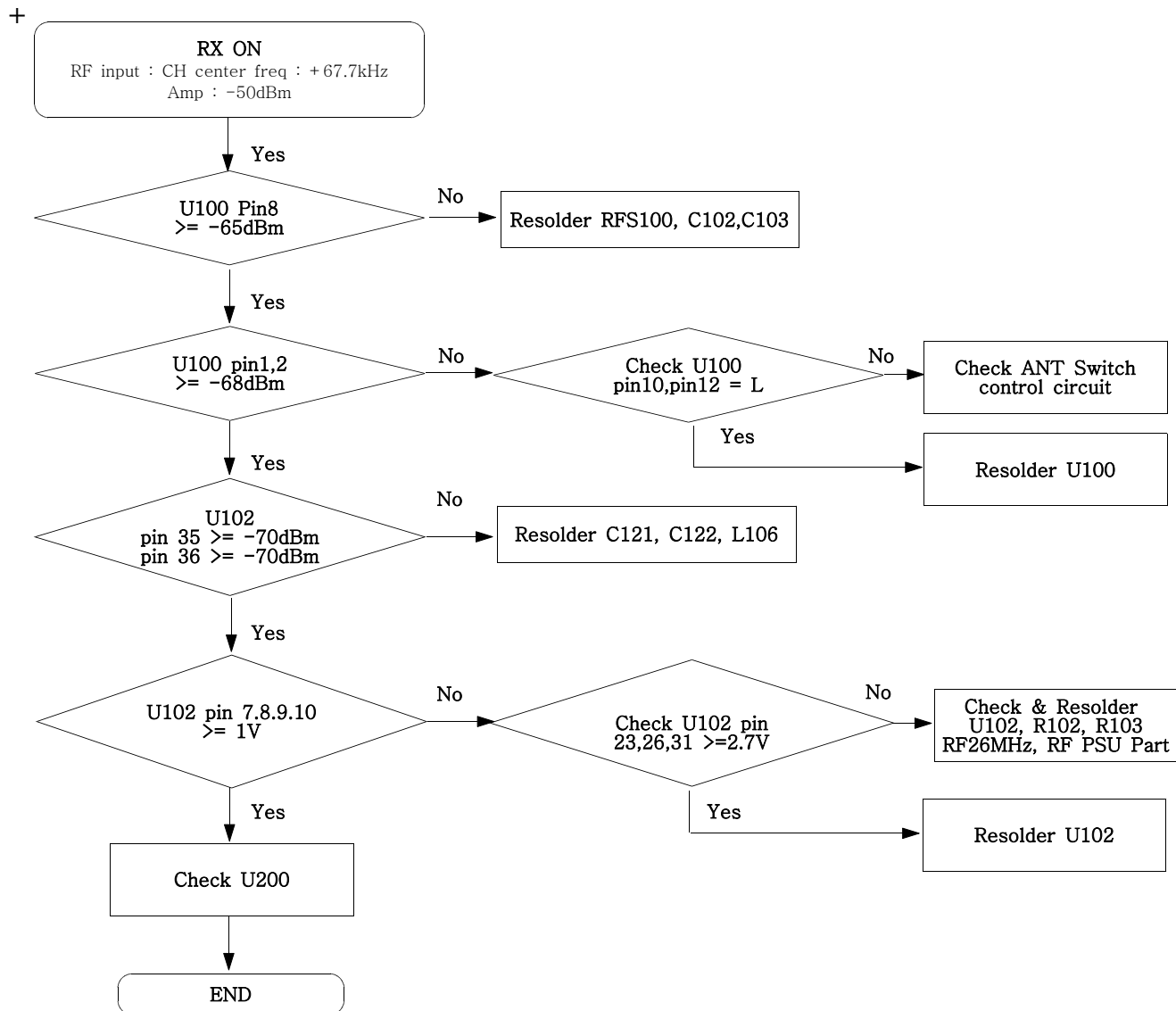
## 7-12. GSM Receiver



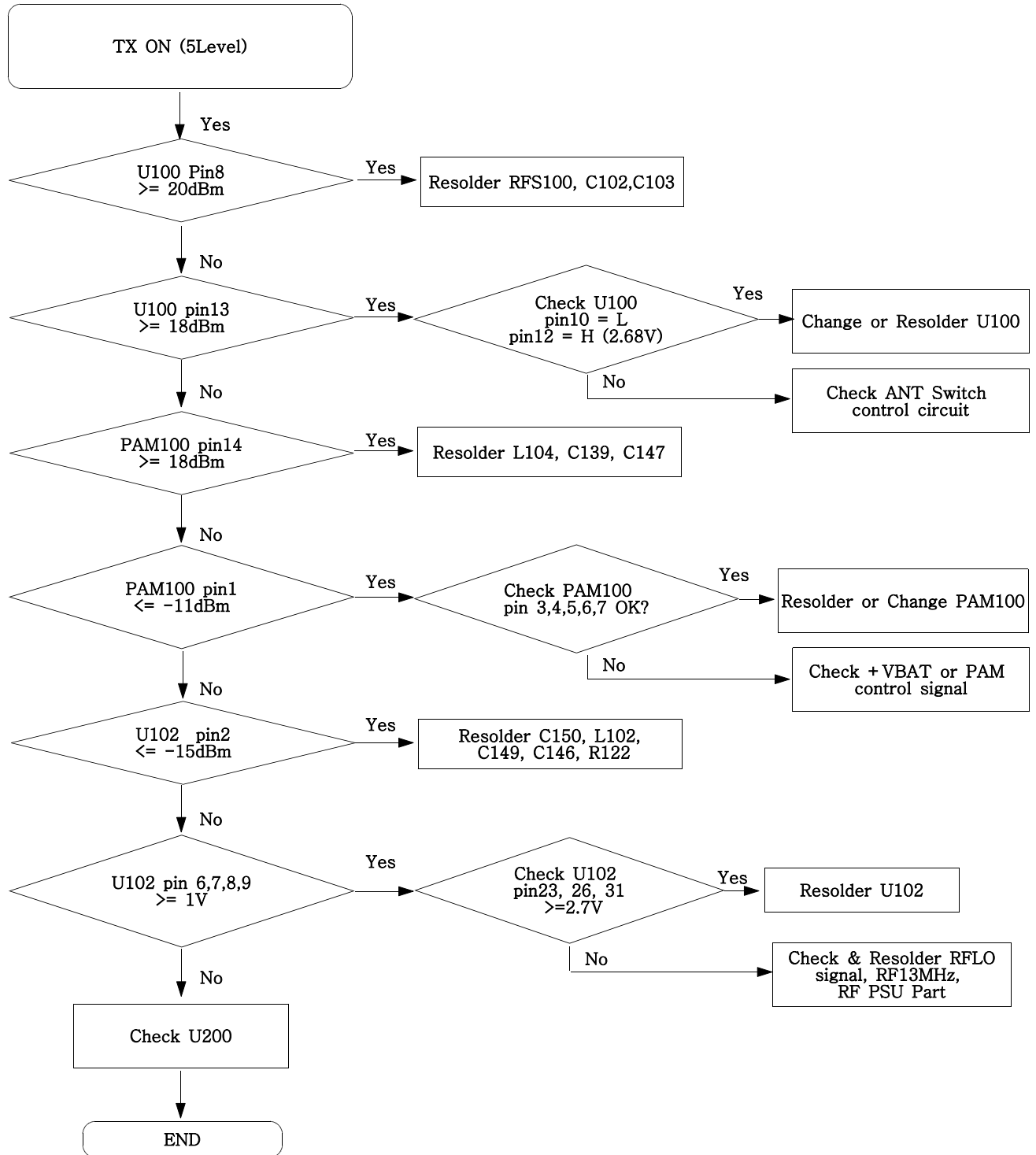
## 7-13. GSM Transmitter



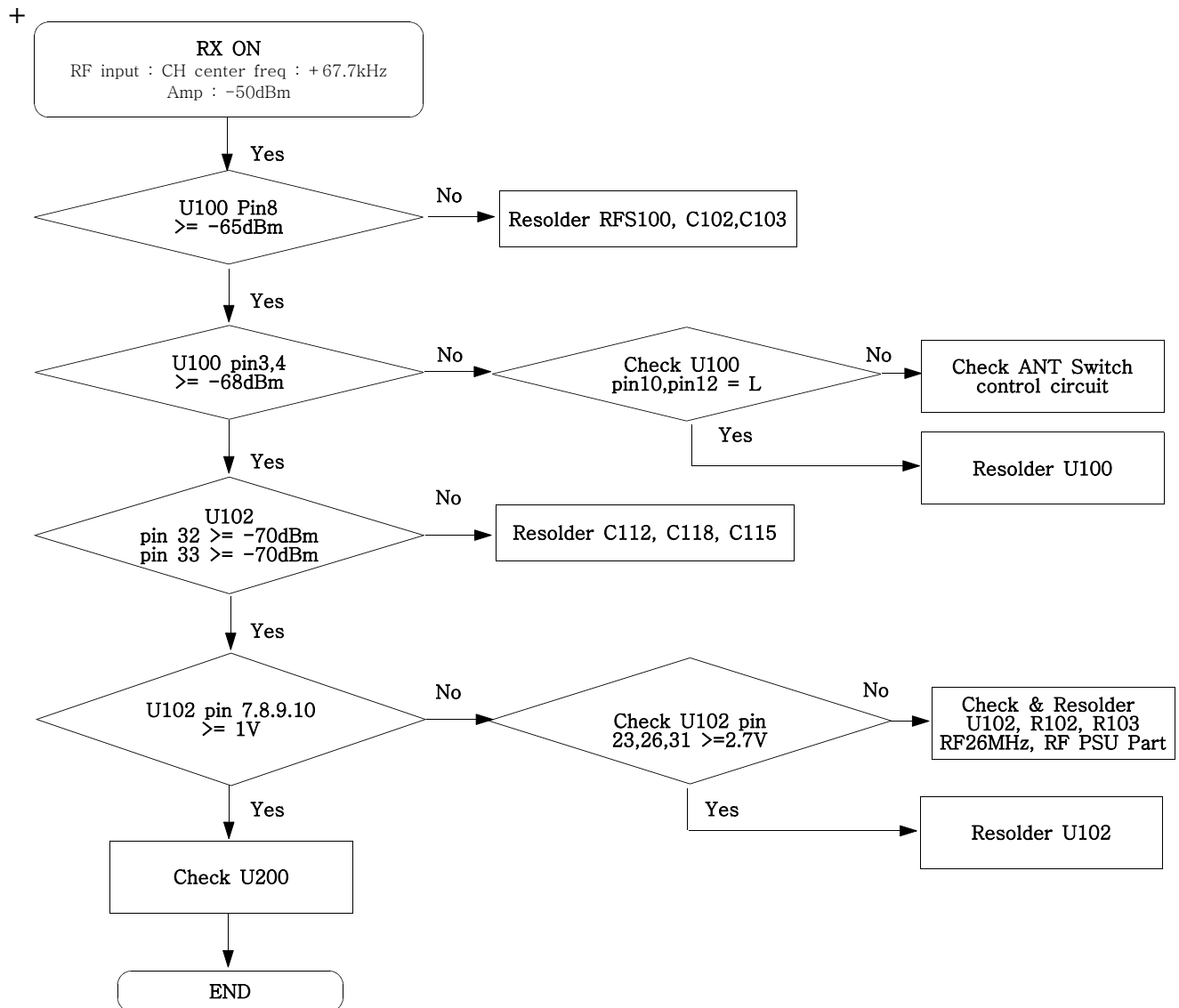
## 7-14. DCS Receiver



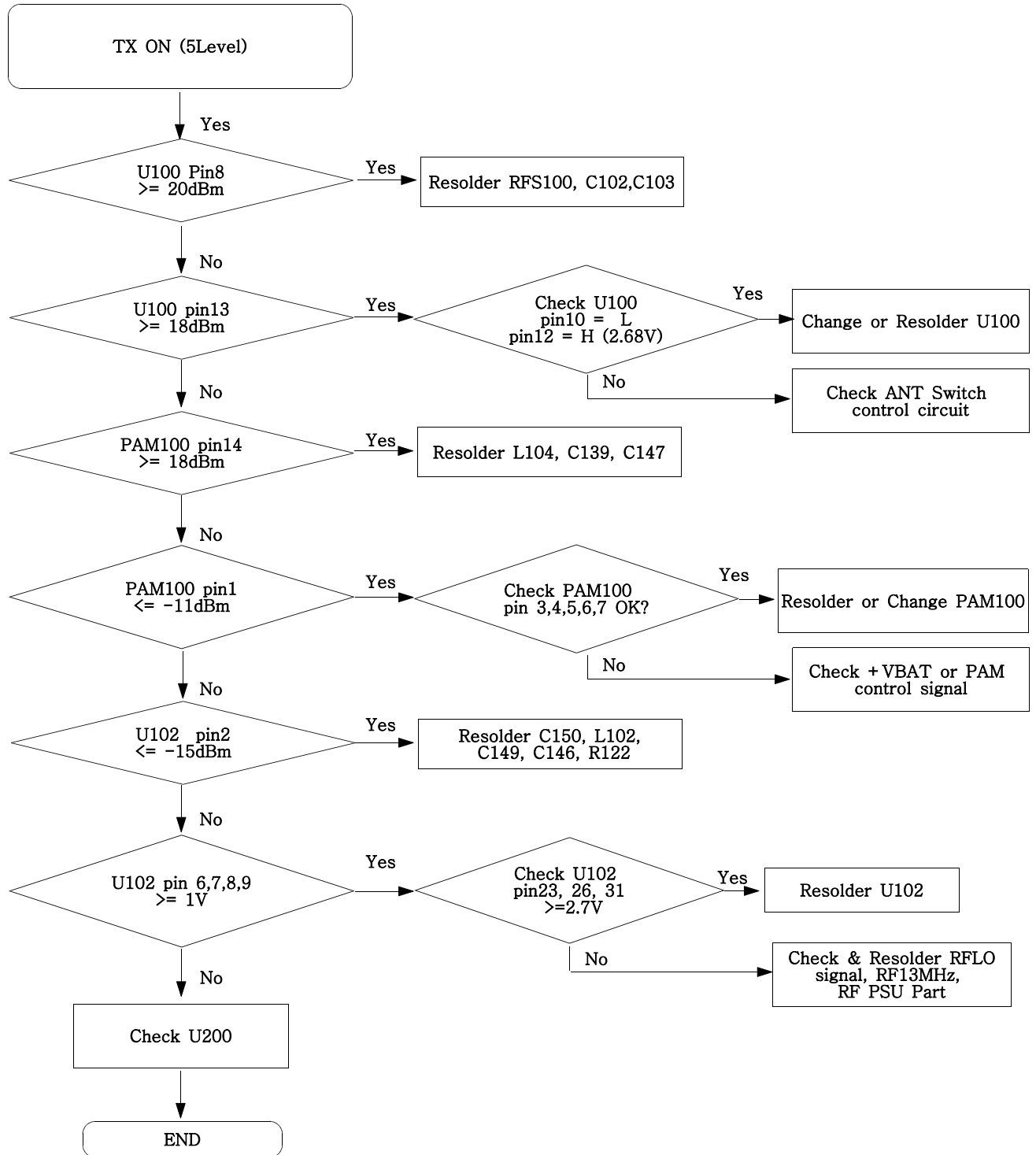
## 7-15. DCS Transmitter



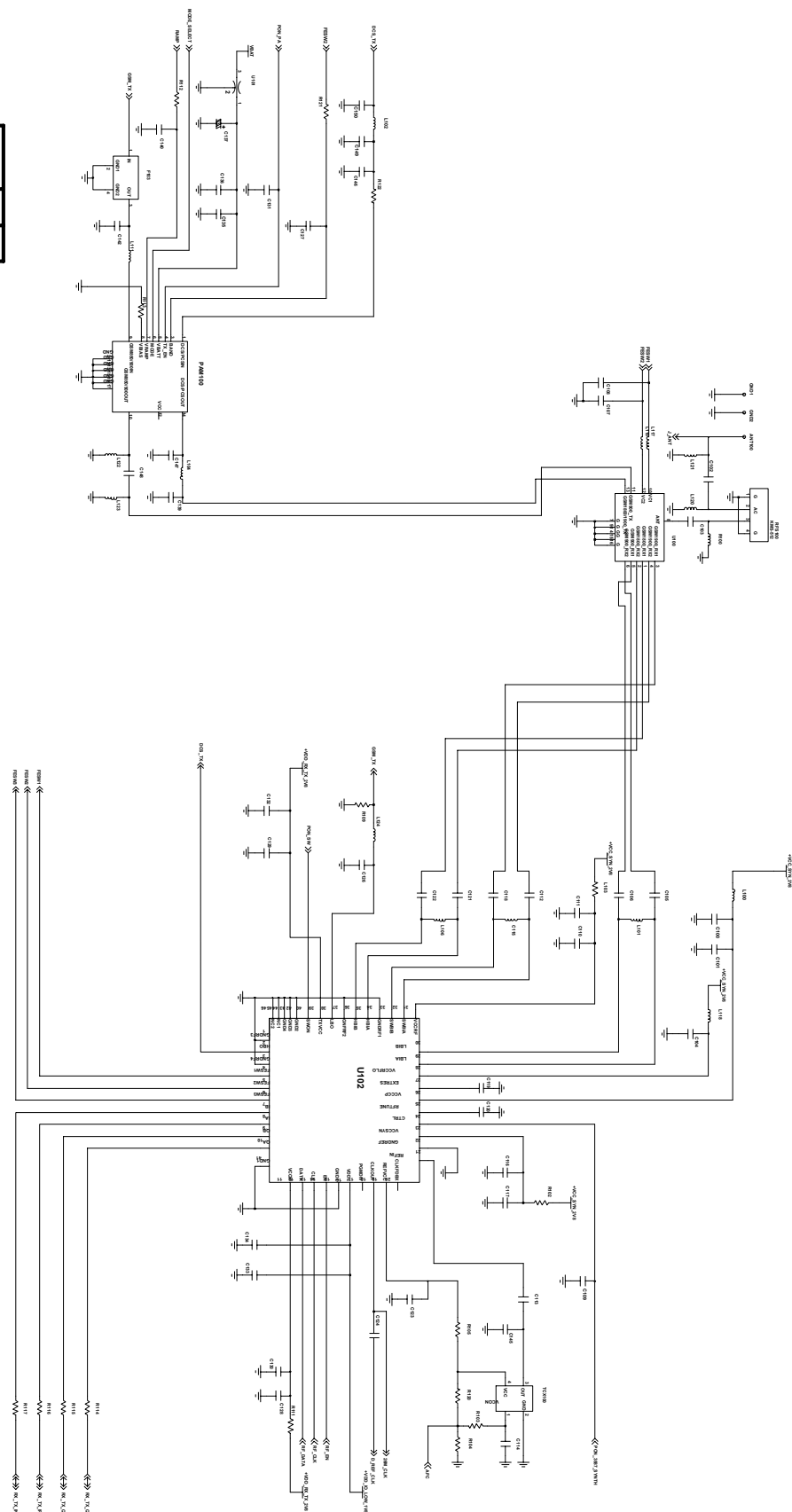
## 7-16. PCS Receiver



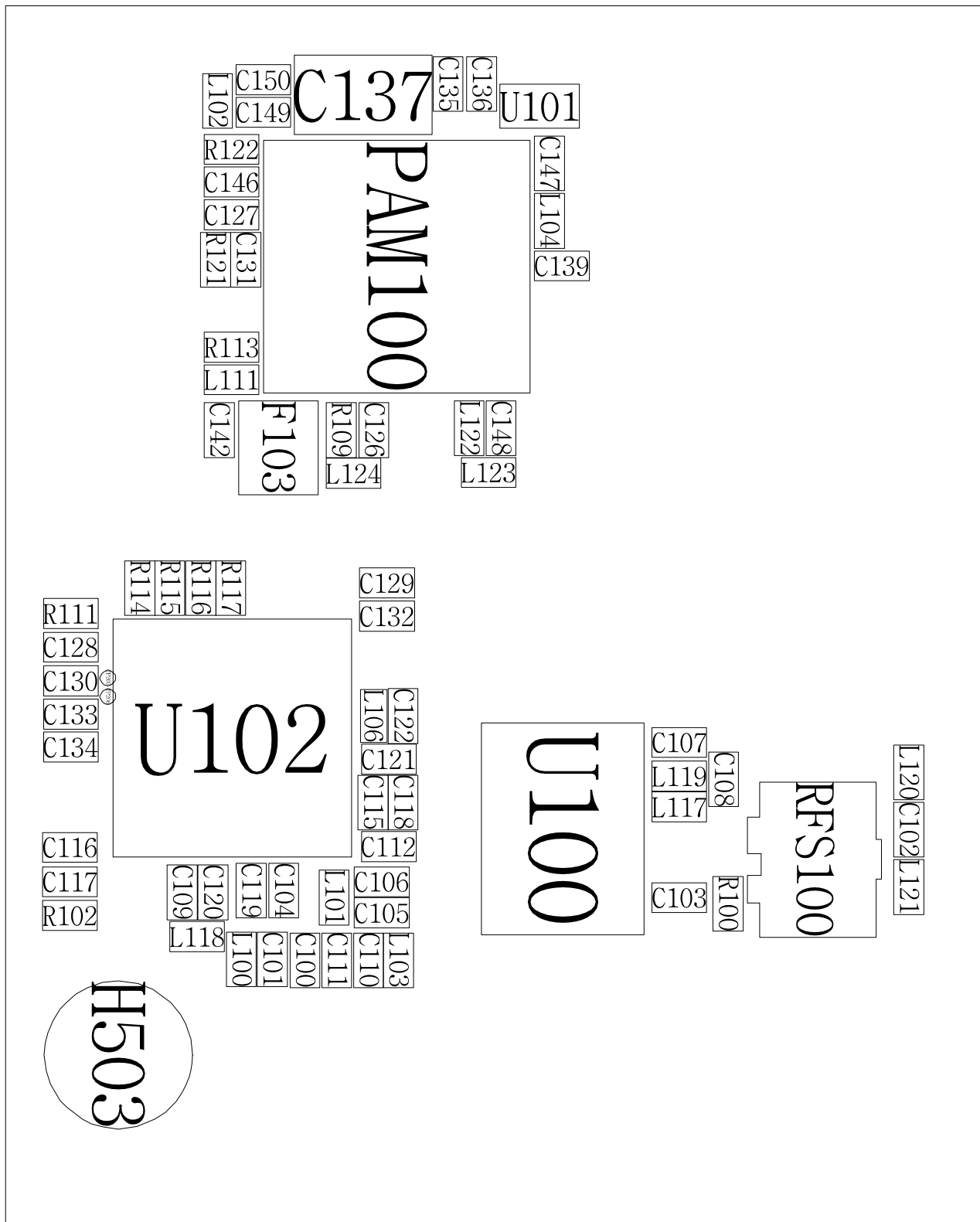
## 7-17. PCS Transmitter



TEST POINT	TEST POINT
TP1	TP2
TP3	TP4
TP5	TP6
TP7	TP8
TP9	TP10
TP11	TP12
TP13	TP14
TP15	TP16
TP17	TP18
TP19	TP20
TP21	TP22
TP23	TP24
TP25	TP26
TP27	TP28
TP29	TP30
TP31	TP32
TP33	TP34
TP35	TP36
TP37	TP38
TP39	TP40
TP41	TP42
TP43	TP44
TP45	TP46
TP47	TP48
TP49	TP50
TP51	TP52
TP53	TP54
TP55	TP56
TP57	TP58
TP59	TP60
TP61	TP62
TP63	TP64
TP65	TP66
TP67	TP68
TP69	TP70
TP71	TP72
TP73	TP74
TP75	TP76
TP77	TP78
TP79	TP80
TP81	TP82
TP83	TP84
TP85	TP86
TP87	TP88
TP89	TP90
TP91	TP92
TP93	TP94
TP95	TP96
TP97	TP98
TP99	TP100









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