

**SAMSUNG**

# GSM TELEPHONE

## SGH-D600E

# ***SERVICE*** *Manual*

### GSM TELEPHONE



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BASIC.

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# 1. Specification

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## 1-1. GSM General Specification

	<b>GSM900 Phase 1</b>	<b>EGSM 900 Phase 2</b>	<b>DCS1800 Phase 1</b>	<b>PCS1900</b>
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±2 dBm	0	30±2 dBm	0	30±2 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

### 1-3. GSM EDGE TX power class

TX Power control level	GSM900
8	27±3 dBm
9	25±3 dBm
10	23±3 dBm
11	21±3 dBm
12	19±3 dBm
13	17±3 dBm
14	15±3 dBm
15	13±3 dBm
16	11±5 dBm
17	9±5 dBm
18	7±5 dBm
19	5±5 dBm

TX Power control level	DCS1800
2	26 -4/+3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	12±3 dBm
9	10±3 dBm
10	14±3 dBm
11	12±4 dBm
12	10±4 dBm
13	8±4dBm
14	6±4 dBm
15	4±4 dBm

TX Power control level	PCS1900
2	26 -4/+3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	12±3 dBm
9	10±3 dBm
10	14±3 dBm
11	12±4 dBm
12	10±4 dBm
13	8±4dBm
14	6±4 dBm
15	4±4 dBm



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## 2. Circuit Description

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### 2-1. SGH-D600E RF Circuit Description

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

- FEM(F100 SWICHPLEXER)

Switching Tx, Rx path for GSM900, DCS1800 and PCS1900 by logic controlling.

- ANTENNA SWITCH Control Logic (F100) → Truth Table

	FESW1	FESW2	FESW3
Tx (GSM900)	H	L	L
TX (DCS1800/1900)	L	H	L(H)
RX (GSM900)	L	L	L
RX (DCS1800)	L	L	L
RX (PCS1900)	L	L	H

- FILTER

To convert Electromagnetic Field Wave to Acoustic Wave and then pass the specific frequency band.

- GSM900 FILTER (C119,C121,L114) → For filtering the frequency band between 925 ~ 960 MHz.
- DCS FILTER (C111,C115,L113) → For filtering the frequency band 1805 and 1880 MHz.
- PCS FILTER (L102,L104,C100) → For filtering the frequency band 1930 and 1990 MHz.

- VC-TCXO (U101)

To generate the 26MHz reference clock to drive the logic and RF.

After additional process, the reference clock applies to the U100 Rx IQ demodulator and Tx IQ modulator.

The oscillator for RX IQ demodulator and Tx modulator are controlled by serial data to select channel and use fast lock mode for GPRS high class operation.

- TRANSCEIVER (U102)

This chip fully integrated GSM GPRS quad-band transceiver with transmit baluns, loop filters and most of the passive component in it.

And 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 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-D600E

### 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).

#### - 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

LCD is consisted of main LCD (color 262K TFT LCD).

Chip select signals in the U301, LCD\_MAIN\_CS, can enable LCD. BACKLIGHT signal enables white LED of main LCD. 16-bit data lines (LD(0)~LD(15)) transfers data and commands to LCD. Data and commands use "RS" signal. If this signal is high, Inputs to LCD are commands. If it is low, Inputs to LCD are data. The signal which informs the input or output state to LCD, is required. But this system is not necessary this signal. So "L\_WRB" signal is used to write data or commands to LCD. Power signals for LCD are "VDD\_IO\_HIGH".

### 2-2-3. Key

This is consisted of key interface pins KEY\_ROW(0:4) and KEY\_COL(0:4) in PCF5213EL1. These signals compose the matrix. Result of matrix informs the key status to key interface in the PCF5213EL1. Power on/off key is separated from the matrix. So power on/off signal is connected with PCF50603 to enable PCF50603. Key LED is consisted of six white LEDs for sub key and twelve white LEDs for main key. White LED for sub key use the VBAT voltage.

"SLIDER\_KEY\_ON" signal enables Transistor for sub key backlight.

Main key LED use the 3.3V LDO for a supply voltage. KEY\_LED\_ON signal enables eight white LED.

"FLIP" informs the status of slide (open or closed) to the PCF5213EL1. This uses the hall effect IC, EM-1681

A magnet under LCD enables EM-1681.



#### 2-2-4. EMI ESD Filter

This system uses the EMI ESD filter, U500 to protect noise from IF CONNECTOR part.

#### 2-2-5. IF connetor

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

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

A complete constant-current/constant-voltage linear charger for single cell lithium-ion batteries.

If TA connected to phone, "V\_EXT\_CHARGE" enable charger IC and supply current to battery.

When fault condition caused, "CHG\_ON" signal level change low to high and charger IC stop charging process.

#### 2-2-7. Audio

HFR\_P and HFR\_N from PCF5213E11 are connected to the main speaker via analog switches. MIC\_P and MIC\_N are connected to the main MIC as well. EAR1 is the source of External Speaker. AK4642 is 16-bit stereo audio CODEC with a built-in microphone - Amplifier and Headphone - Amplifier.

I2S signals from CL8522S5 are decoded with audio analog signals. SAPA1D2-24ELP amplify these signals and deliver to stereo speakers.

#### 2-2-8. Memory

This system uses Samsung's memory, KBH10PD00M-D414. The KBH10PD00M is a Multi Chip Package Memory which combines 256Mbit Synchronous Burst Multi Bank NOR Flash Memory and two 1Gbit OneNAND Flash and 256Mbit Synchronous Burst UtRAM.

It has 16 bit data line, HD[1~16] which is connected to PCF5213 and CL8522S5, also has 24 bit address lines, HA[1~24]. There are 3 chip select signals, CS0n\_FLASH, CS4n\_NAND, and CS1n\_RAM.

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 PCF5213 choose different memories.

### 2-2-9. PCF5213EL1

The PCF5213EL1 is mainly composed of embedded DSP and ARM core. The DSP subsystem includes the Saturn DSP core with embedded RAM and ROM, and a set of peripherals. It has 24kx16 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 KBJ10KB00M (memory), MV319DNQ (image dsp) and YMU765 (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 YMU765 to communicate.

MV319DNQ(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. TCO-5888T (26MHz)

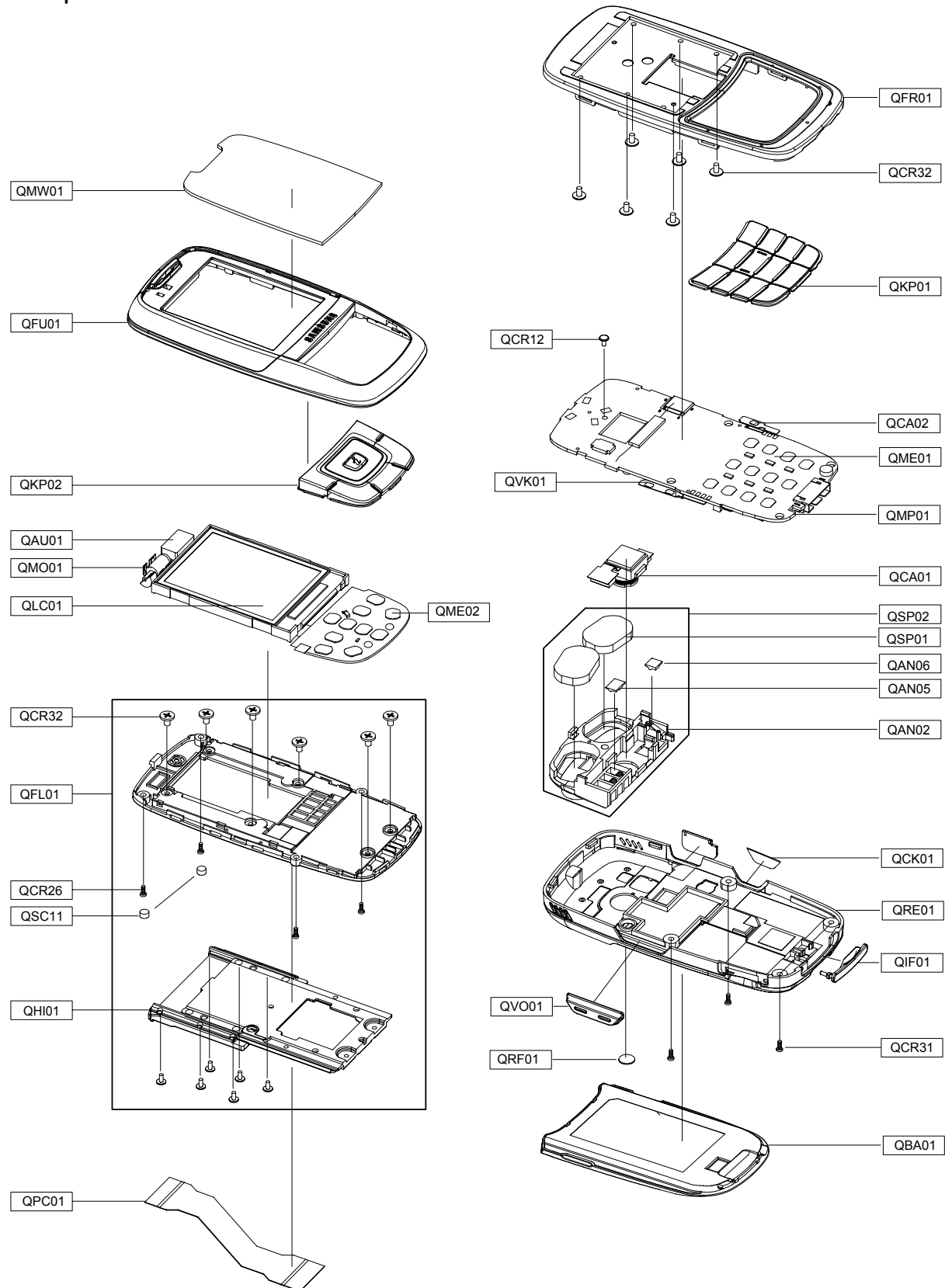
This system uses the 26MHz TCXO, TCO-5871U, Toyocom. AFC control signal from PCF5213 controls frequency from 26MHz x-tal. It generates the clock frequency. This clock is connected to PCF5213, YMU765 and UAA3587.

### 2-2-11. Multimedia Chip (CL8522S5)

CL8522S5 is the hardware based MPEG4 CODEC is available to capture the video signal of up to CIF Resolution (352X288, at 30FPS). CL8522S5 directly transmits and previews the RGB Data to the LCD graphic memory by processing the sensor output data. It can save the raw RGB data up to 1600x1200 into its image buffer and allows the host processor to download with scalable sized compressed data.

### 3. Exploded View and Parts List

#### 3-1. Exploded View

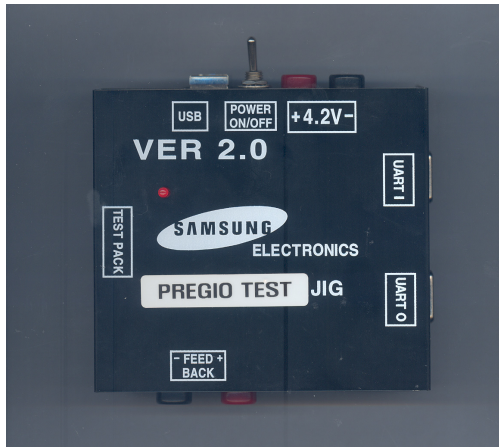


## 3-2. Parts List

Location No		Description	SEC Code
QAN02		ANTENNA-SGHD600;EWPADG006A,SGH-D600,	GH42-00596A
QAN05		MEC-ANTENNA CONN RUBBER;SGH-D600,EU,	GH75-08200A
QAN06		MEC-ANTENNA CONN RUB SM;SGH-D600,EU,	GH75-08201A
QAU01		AUDIO-RECEIVER;32ohm,109dB±2dB,11X6	3009-001125
QBA01		BATTERY-900MAH,BLK,ENG,M;BST4389BE,S	GH43-01939A
QCA01		UNIT-CAMERA;SGH-D600,IC04001AA,-,EU,	GH59-02171A
QCA02		UNIT-CAMERA KEY;SGH-D600,H/K F.P.C A	GH59-02208A
QCK01		PMO-CAMERA KEY;SGH-D600,PC(K2261),BL	GH72-22444A
QCR12		SCREW-MACHINE;PH,+,M1.4,L2.5,ZPC(BLK	6001-001530
QCR26		SCREW-MACHINE;CH,+,M1.7,L3,ZPC(BLK),	6001-001850
QCR31		SCREW-MACHINE;CH,+,M1.7,L3,ZPC(BLK),	6001-001795
QFR01		MEC-FRONT COVER;SGH-D600,EU,-,-,-,-,	GH75-07212A
QFU01		MEC-SLIDE UPPER;SGH-D600,EU,-,-,-,-,	GH75-07334A
QIF01		PMO-IF COVER;SGH-D600,PC+UREATHANE,B	GH72-22629A
QKP01		MEC-KEYPAD MAIN;SGH-D600,EU,-,-,-,-,	GH75-07207A
QKP02		MEC-KEYPAD SUB;SGH-D600,EU,-,-,-,-,C	GH75-07206A
QLC01		LCD-LCD MODULE;LTS200QV-F03-0,SGH-D6	GH07-00734A
QME01		UNIT-METAL DOME;SGH-D600,-,-,EU,12V,	GH59-02206A
QME02		UNIT-KEY PAD;SGH-D600,HUW9555-010010	GH59-02094A
QMO01		MOTOR DC-SGHZ130;DMJBRV83CG,SGH-Z130	GH31-00153B
QMP01		PBA MAIN-SGHD600 MAIN;SGH-D600E,EU,E	GH92-02342A
QMW01		PCT-WINDOW MAIN;SGH-D600,ACRYL,TRP,-	GH72-22505A
QPC01		PCB-FPCB;SGH-D600,POLYIMIDE,3L,-,0.0	GH41-00892A
QRE01		MEC-REAR COVER(ORA);SGH-D600E,ORA,-,	GH75-08431A
QRF01		MPR-R/F CAP;SGH-D600,PC SHEET,P5.4XT	GH74-15303A
QSC11		RMO-LOWER SCREW CAP;SGH-D600,CR RUBB	GH73-05136A
QSP01		SPEAKER;0.7W,8.0ohm,87dB±2dB,700Hz,	3001-001788
QSP02		UNIT-SPEAKER MODULE;SGH-D600,SS-SGH-	GH59-02364A
QVK01		UNIT-VOLUME KEY;SGH-D600,SGH-D600 V/	GH59-02207A
QVO01		PMO-VOLUME KEY;SGH-D600,PC(K2261),BL	GH72-22445A
QFL01		MEC-SLIDE LOWER;SGH-D600,EU,-,-,-,-,	GH75-07210A
	QCR32	SCREW-MACHINE;CH,+,M1.4,L2,ZPC(BLK),	6001-001700
	QHI01	MEC-HINGE MODULE;SGH-D600,EU,-,-,-,-,	GH75-07211A

Description	SEC Code
BAG PE;LDPE,T0.05,W80,L180,TRP,-,-	6902-000634
CBF INTERFACE-AV CABLE;SGH-D600,10 p	GH39-00410A
CBF INTERFACE-DATA LINK CABLE;SGH-D6	GH39-00423A
ADAPTOR-SGHD500 BLK;TAD137EBE,SGH-D5	GH44-00954A
S/W CD-SAMSUNG PC STUDIO;SGH-D600,SG	GH46-00167A
UNIT-EAR PHONE(BLK);SGH-D600,AEP421S	GH59-02335A
LABEL(P)-WATER SOAK;COMM,NORGE,100G,	GH68-02026A
MANUAL-WEEE CARD;COMM,SEC,ENGLISH,UN	GH68-07013A
LABEL(R)-MAIN(EU);SGH-D600E,EU,POLYE	GH68-07935B
MANUAL-USER;SGH-D600E,FTM,FRENCH,FRA	GH68-08330A
CUSHION-CASE(1-2);SGH-D600,PULP,T0.8	GH69-03036A
ICT-BATT LOCKER SPRING;SGH-D600,STS3	GH70-00611A
PMO-BATTERY LOCKER;SGH-D600,PC(K2261	GH72-22498A
MPR-TAPE BOHO MAIN WIN A;SCH-X850,3M	GH74-06456A
MPR-BOHO VINYL IF;SCH-X699,3M 4187C,	GH74-11062A
MPR-BOHO VINYL S/U (R);SGH-D500,STA	GH74-13284A
MPR-SUB BOARD PORON;SGH-D600,PORON S	GH74-14520A
MPR-MAIN CON INSULATION;SGH-D600,SP6	GH74-15311A
MPR-MAIN PBA DOWN L IN;SGH-D600,SP65	GH74-15312A
MPR-MAIN PBA DOWN R IN;SGH-D600,SP65	GH74-15313A
MPR-MAIN PBA UP L IN;SGH-D600,SP65,8	GH74-15314A
MPR-MAIN PBA UP R IN;SGH-D600,SP65,9	GH74-15315A
MPR-TAPE B TO B CON IN;SGH-D600,SP65	GH74-15317A
MPR-TAPE B TO B CON EMI;SGH-D600,DTF	GH74-15318A
MPR-SUB CON INSLATION;SGH-D600,SP65,	GH74-15319A
MPR-TAPE SUB CON EMI;SGH-D600,DTF-10	GH74-15320A
MPR-TAPE BASE BTB LA;SGH-D600,TAST49	GH74-16479A
MPR-BOHO VINYL MAIN WIN;SGH-D600,ST5	GH74-16880A
MPR-BOHO VINYL R/W LENS;SGH-D600,ST5	GH74-16881A
MPR-B TO B CON SIDE EMI;SGH-D600,DTF	GH74-16883A
MPR-TAPE IF HOLDER;SCH-V740,FABRIC T	GH74-17165A
MPR-TAPE BASE BTB;SGH-D600,TASA 4962	GH74-18234A
AS-ANTENNA FRONT GASKET;SGH-D600,-,G	GH81-02279A
AS-ANTENNA REAR GASKET;SGH-D600,-,GA	GH81-02280A
AS-SPEAKER;SGH-D600,BMS-171210SL08,-	GH81-02319A

### 3-3. Test Jig (GH80-01909A)



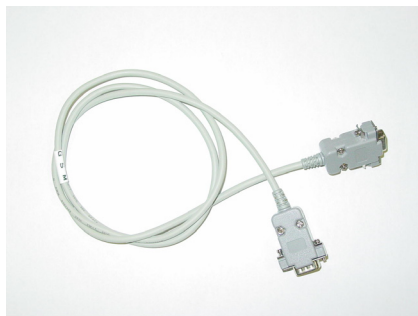
#### 3-3-1. RF Test Cable (GH39-00283A)



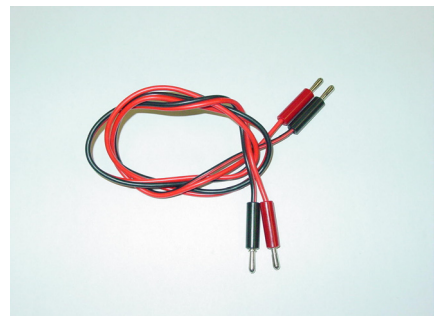
#### 3-3-2. Test Cable (GH39-00337C)



#### 3-3-3. Serial Cable



#### 3-3-4. Power Supply Cable



#### 3-3-5. DATA CABLE (GH39-00423A)



#### 3-3-6. TA (GH44-00954A)



#### 3-3-7. TV-OUT Cable (GH39-00410A)



## 4. Electrical Parts List

Design LOC	Description	SEC CODE
ANT101,ANT102,ANT302	NPR-CONTACT ANT	GH71-04813A
BAT400	BATTERY	4302-001177
BTC500	CONNECTOR-HEADER	3711-005880
C100	C-CERAMIC,CHIP	2203-005234
C101,C203,C205,C206	C-CERAMIC,CHIP	2203-005482
C102,C147	C-CERAMIC,CHIP	2203-005057
C106,C112,C113,C117	C-CERAMIC,CHIP	2203-000278
C111,C115,C119,C121	C-CERAMIC,CHIP	2203-000812
C116,C120,C130,C410	C-CERAMIC,CHIP	2203-000233
C122,C601	C-TA,CHIP	2404-001392
C123	C-CERAMIC,CHIP	2203-000628
C126,C140,C201,C202	C-CERAMIC,CHIP	2203-000254
C127,C708	C-CERAMIC,CHIP	2203-006190
C128,C613,C614	C-CERAMIC,CHIP	2203-000438
C131	C-CERAMIC,CHIP	2203-005446
C133,C407,C409	C-CERAMIC,CHIP	2203-000386
C134,C508,C701,C702	C-CERAMIC,CHIP	2203-000679
C136,C137	C-CERAMIC,CHIP	2203-001385
C143	C-CERAMIC,CHIP	2203-000530
C146,C606,C611,C811	C-CERAMIC,CHIP	2203-000995
C148,C605	C-CERAMIC,CHIP	2203-000278
C204,C215,C412,C715	C-CERAMIC,CHIP	2203-000812
C207,C208,C209,C210	C-CERAMIC,CHIP	2203-005482
C211,C301,C303,C312	C-CERAMIC,CHIP	2203-006399
C212,C213,C214,C216	C-CERAMIC,CHIP	2203-005482
C218,C305,C306,C308	C-CERAMIC,CHIP	2203-005482
C302,C304,C324,C404	C-CERAMIC,CHIP	2203-006562
C307	C-CERAMIC,CHIP	2203-000254
C309,C310,C311,C318	C-CERAMIC,CHIP	2203-005482
C313,C314	C-CERAMIC,CHIP	2203-000330
C315,C607	C-CERAMIC,CHIP	2203-005050
C316,C322,C403,C819	C-CERAMIC,CHIP	2203-006324
C320	C-TA,CHIP	2404-001225
C323,C501,C610,C803	C-CERAMIC,CHIP	2203-006399
C401	C-CERAMIC,CHIP	2203-000359
C402,C413,C415,C418	C-CERAMIC,CHIP	2203-006208
C405,C507,C612,C718	C-CERAMIC,CHIP	2203-006562
C406,C419,C503,C505	C-CERAMIC,CHIP	2203-005482
C408,C414,C416,C417	C-CERAMIC,CHIP	2203-006257
C411	C-TA,CHIP	2404-001394
C422	C-CERAMIC,CHIP	2203-000585
C423,C426,C805	C-CERAMIC,CHIP	2203-006208
C424,C425	C-CERAMIC,CHIP	2203-006257
C502	C-CERAMIC,CHIP	2203-005503
C504	C-CERAMIC,CHIP	2203-000854
C506	C-TA,CHIP	2404-001268
C602,C604,C617,C706	C-CERAMIC,CHIP	2203-005482
C609	C-CERAMIC,CHIP	2203-002443
C615	C-CERAMIC,CHIP	2203-001405
C616	COMP-SMD	NEW-IC002

## Electrical Parts List

Design LOC	Description	SEC CODE
C703,C704,C705,C712	C-CERAMIC,CHIP	2203-000679
C707	C-TA,CHIP	2404-001339
C710,C720,C801,C802	C-CERAMIC,CHIP	2203-005482
C713,C733	C-CERAMIC,CHIP	2203-000679
C716,C717	C-CERAMIC,CHIP	2203-006438
C719,C834,C835	C-CERAMIC,CHIP	2203-006562
C721	C-CERAMIC,CHIP	2203-000812
C804,C806,C807,C818	C-CERAMIC,CHIP	2203-005482
C810,C813,C814,C817	C-CERAMIC,CHIP	2203-006399
C812,C815,C816	C-CERAMIC,CHIP	2203-000995
C820,C821,C822,C824	C-CERAMIC,CHIP	2203-005482
C823	C-CERAMIC,CHIP	2203-000885
C826	C-CERAMIC,CHIP	2203-006399
C827,C828	C-CERAMIC,CHIP	2203-005482
C833	COMP-SMD	NEW-IC003
CN100	CONNECTOR-COAXIAL	3705-001358
CN500	CONNECTOR-CARD EDGE	3709-001393
CN600	JACK-PHONE	3722-002356
CN700	CONNECTOR-FPC/FFC/PIC	3708-002156
CN701	CONNECTOR-HEADER	3711-005643
F100	FILTER	2911-000018
F102	FILTER-EMI SMD	2901-001254
F103	FILTER-SAW	2904-001553
F300	FILTER-DUPLEXER	2909-001279
F500	FILTER-EMI SMD	2901-001315
F701,F702,F703,F704	FILTER-EMI SMD	2901-001286
F705	FILTER-EMI SMD	2901-001286
IFC500	CONNECTOR-SOCKET	3710-001994
L101,L103,L109,L122	INDUCTOR-SMD	2703-002313
L102,L104	INDUCTOR-SMD	2703-002176
L113	INDUCTOR-SMD	2703-002485
L114	INDUCTOR-SMD	2703-001752
L115,L701,L801,L814	CORE-FERRITE BEAD	3301-001729
L116	INDUCTOR-SMD	2703-002281
L118	INDUCTOR-SMD	2703-002198
L119	INDUCTOR-SMD	2703-002267
L124	INDUCTOR-SMD	2703-001701
L125	INDUCTOR-SMD	2703-001723
L126	INDUCTOR-SMD	2703-002199
L301	INDUCTOR-SMD	2703-002208
L401	CORE-FERRITE BEAD	3301-001120
L402	INDUCTOR-SMD	2703-002774
L601,L602	CORE-FERRITE BEAD	3301-001438
L603	CORE-FERRITE BEAD	3301-001534
L803,L804,L806,L807	INDUCTOR-SMD	2703-002201
L809,L810,L812,L813	INDUCTOR-SMD	2703-002201
L815,R102,R110,R112	R-CHIP	2007-000171
LED601,LED602,LED603	LED	0601-002055
LED604,LED605,LED606	LED	0601-002055
MIC600	MIC-CONDENSOR	3003-001107



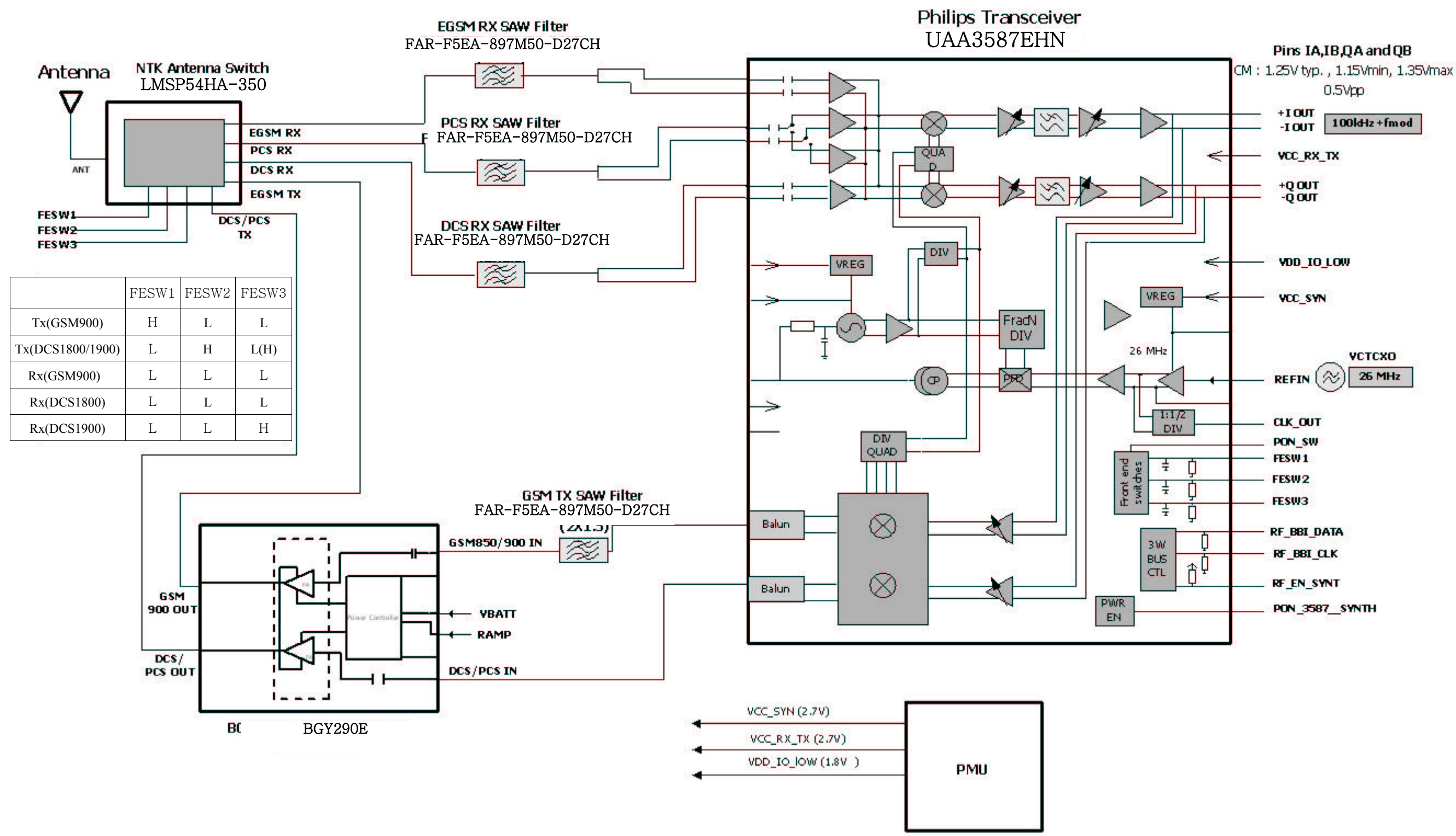
Design LOC	Description	SEC CODE
OSC300	CRYSTAL-UNIT	2801-004340
OSC400	CRYSTAL-UNIT	2801-004339
Q401	TR-DIGITAL	0504-001151
R103,R203,R217,R304	R-CHIP	2007-000148
R104	R-CHIP	2007-000172
R105,R106	R-CHIP	2007-000566
R107	R-CHIP	2007-001288
R108,R109	R-CHIP	2007-001313
R111	R-CHIP	2007-003001
R113,R114	R-CHIP	2007-000932
R115,R408,R504	R-CHIP	2007-000140
R116,R117,R118,R119	R-CHIP	2007-000171
R211,R212,R601	R-CHIP	2007-001319
R214	COMP-SMD	NEW-IC001
R215,R301,R305,R308	R-CHIP	2007-000162
R216,R706,R707	R-CHIP	2007-000143
R306,R515,R516,R810	R-CHIP	2007-000170
R307	R-CHIP	2007-007588
R309	R-CHIP	2007-000157
R310	R-CHIP	2007-007312
R311,R620	R-CHIP	2007-007142
R313	R-CHIP	2007-007009
R314	R-CHIP	2007-001306
R315,R402,R410,R501	R-CHIP	2007-000162
R401	R-CHIP	2007-008812
R403,R618	R-CHIP	2007-007107
R404	R-CHIP	2007-007100
R405,R406,R622,U824	R-CHIP	2007-000171
R502,R503	R-CHIP	2007-000758
R505,R506,R508,R511	R-CHIP	2007-000162
R507	R-CHIP	2007-000159
R509,R604,R807	R-CHIP	2007-000148
R510	R-CHIP	2007-000166
R512	R-CHIP	2007-007573
R513	R-CHIP	2007-000137
R514,R621	R-CHIP	2007-007334
R517	R-CHIP	2007-007489
R518	R-CHIP	2007-008275
R519	R-CHIP	2007-000152
R602,R608,R808	R-CHIP	2007-000162
R605	R-CHIP	2007-000141
R612,R613,R614,R615	R-CHIP	2007-000138
R616,R617,R704,R705	R-CHIP	2007-000138
R619	R-CHIP	2007-001339
R712	R-CHIP	2007-008964
R803,R804,R805,R806	R-CHIP	2007-007313
R811,R812,R813	R-CHIP	2007-000170
SIM400	CONNECTOR-CARD EDGE	3709-001357
U101	OSCILLATOR-VCTCXO	2809-001294
U102	IC	1205-002819

## Electrical Parts List

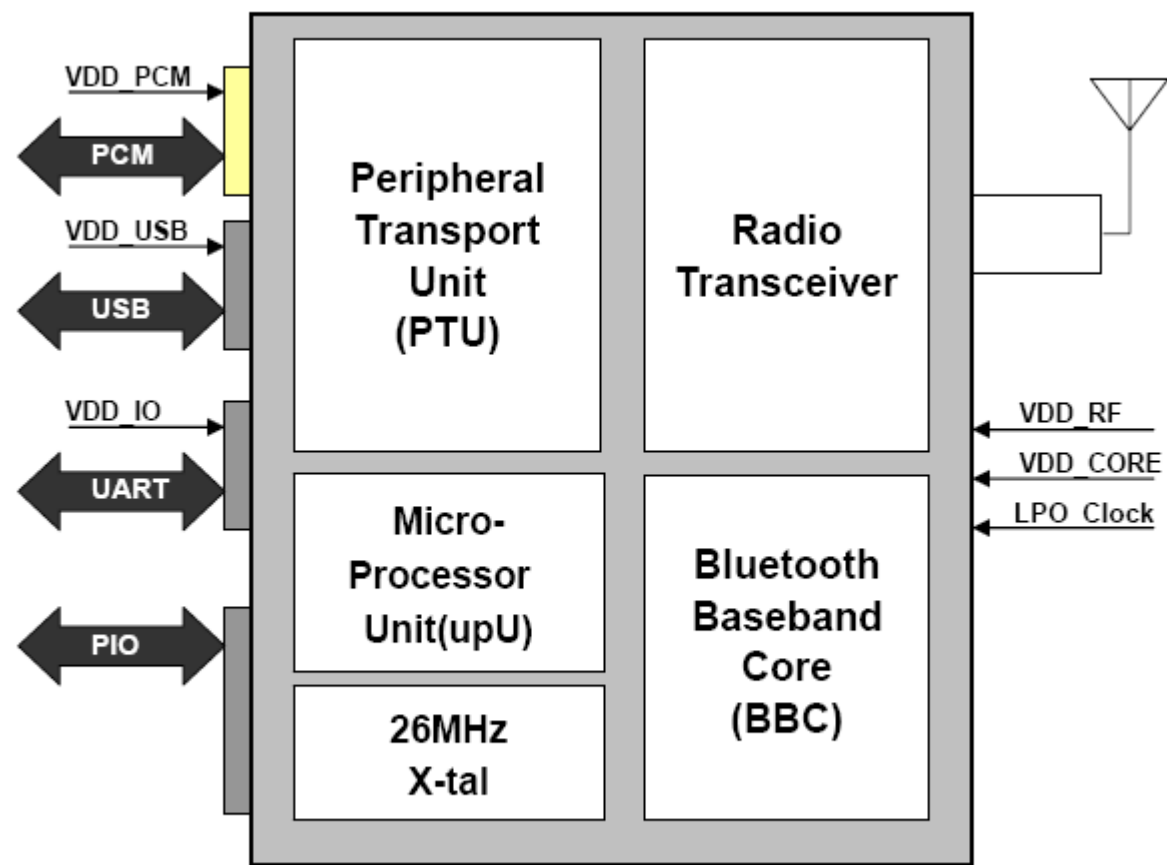
Design LOC	Description	SEC CODE
U103	IC	1201-002254
U200	IC	1205-002757
U300	MEMORY	1108-000030
U301	IC	1205-002746
U302	RF-MODULE	4709-001378
U303,U504	IC	0801-002237
U304,U401,U602,U802	IC	1203-003737
U305	IC	1203-003787
U306	IC	1201-002147
U307	IC	1203-003688
U400	IC	1203-003568
U402	IC	1203-003736
U500	DIODE-TVS	0406-001188
U501	IC	1203-003742
U502	DIODE-TVS	0406-001200
U503	IC	1203-003815
U600	IC	1009-001020
U601	IC	1001-001294
U603,U604	IC	1001-001231
U801	IC	1205-002681
U803	IC	1001-001345
U804	IC	1201-002241
U823	IC	1203-003496
U825	COMP-SMD	NEW-IC004
V400,V714,V715,V716	VARISTOR	1405-001082
V500	THERMISTOR	1404-001221
V601,V602,V701,V702	VARISTOR	1405-001138
V703,V704,V705,V706	VARISTOR	1405-001138
V707,V708,V709,V710	VARISTOR	1405-001138
V711,V712,V713	VARISTOR	1405-001138
V717,V718,V721	VARISTOR	1405-001082
ZD500	DIODE-ZENER	0403-001547
ZD501	DIODE-ZENER	0403-001427
ZD600	DIODE-TVS	0406-001190
ZD601	DIODE-TVS	0406-001104
ZD701,ZD702,ZD703	DIODE-TVS	0406-001208

5. Block Diagrams

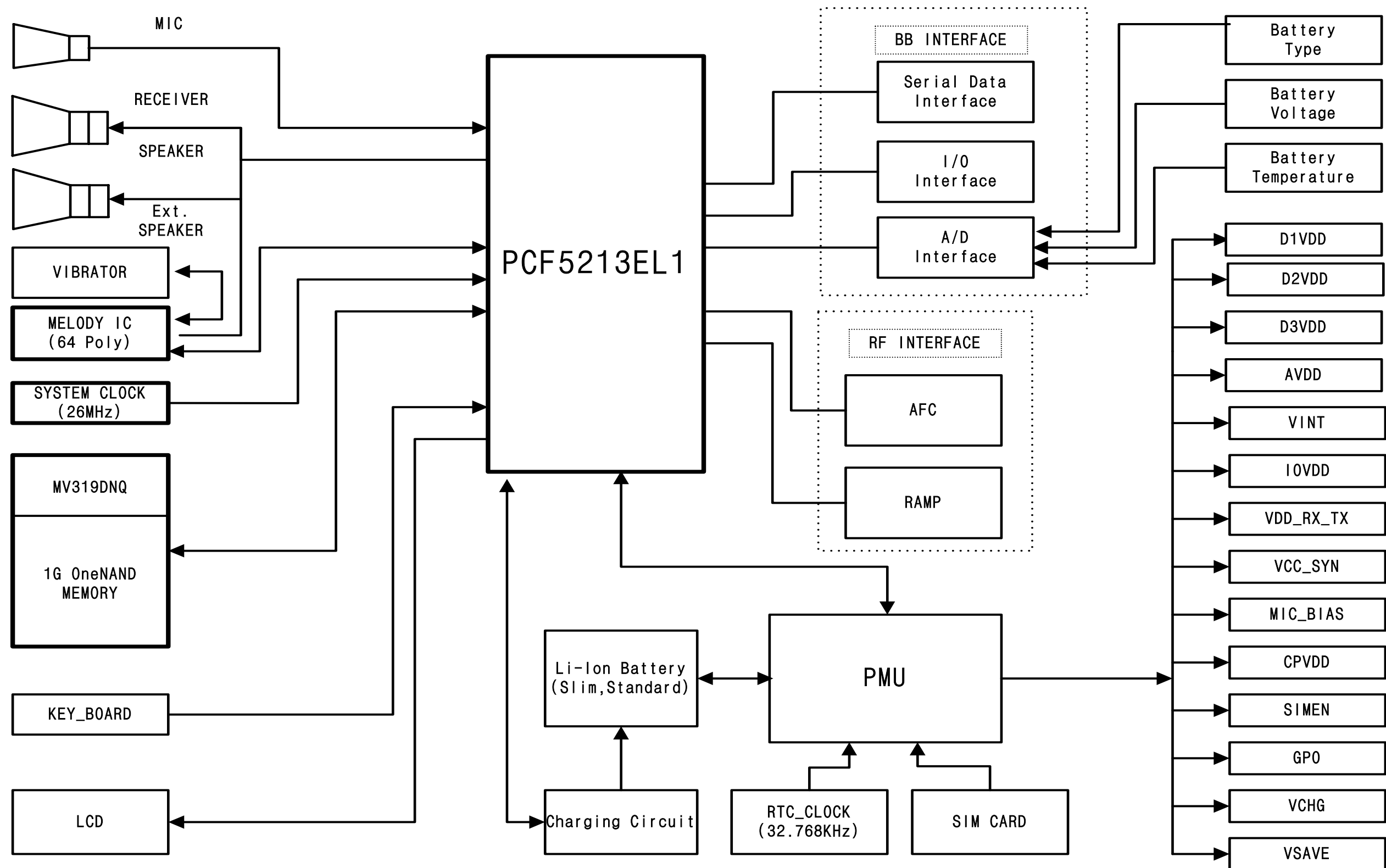
5-1. RF Solution Block Diagram



5-2. BT Solution Block Diagram



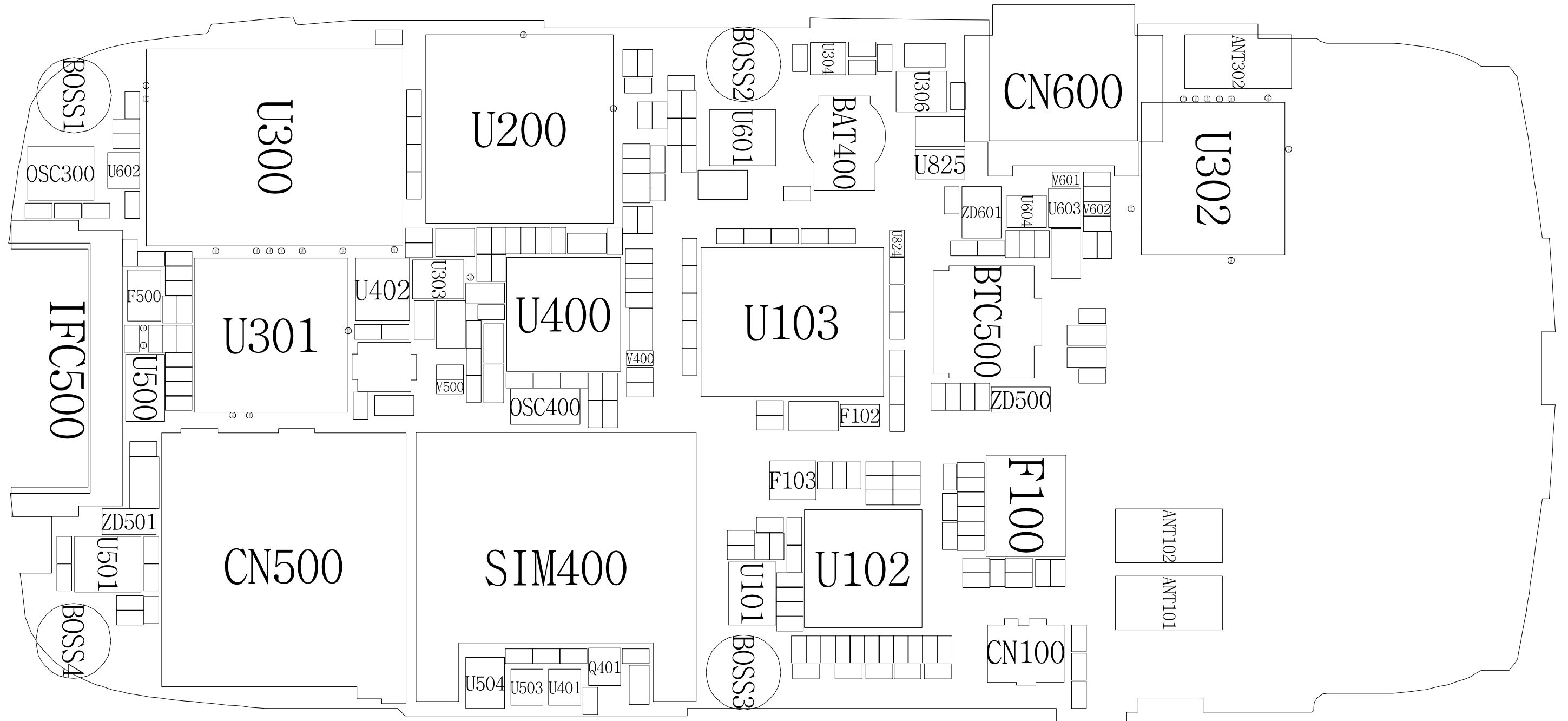
## 5-3. Base Band Solution Block Diagram



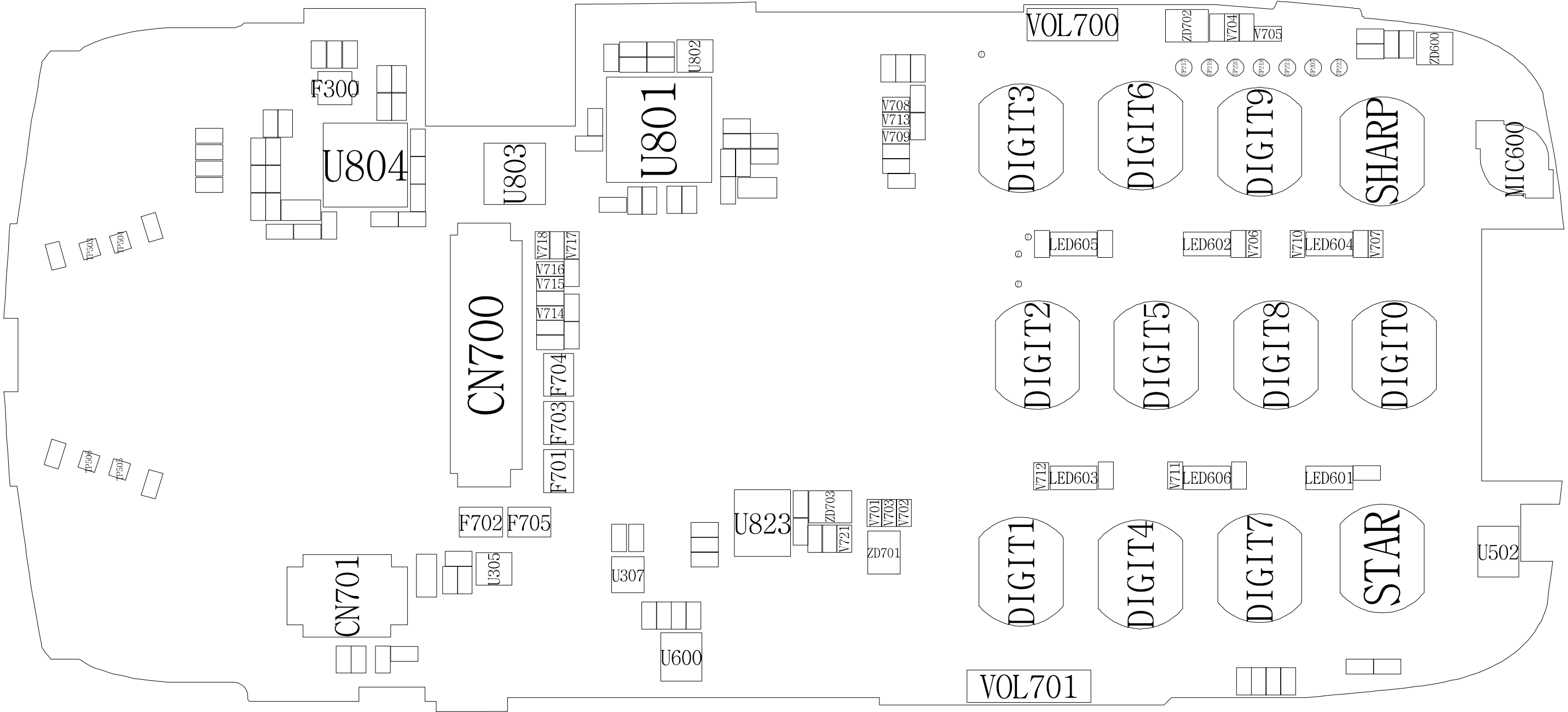


## 6. PCB Diagrams

## 6-1. PCB Top Diagram



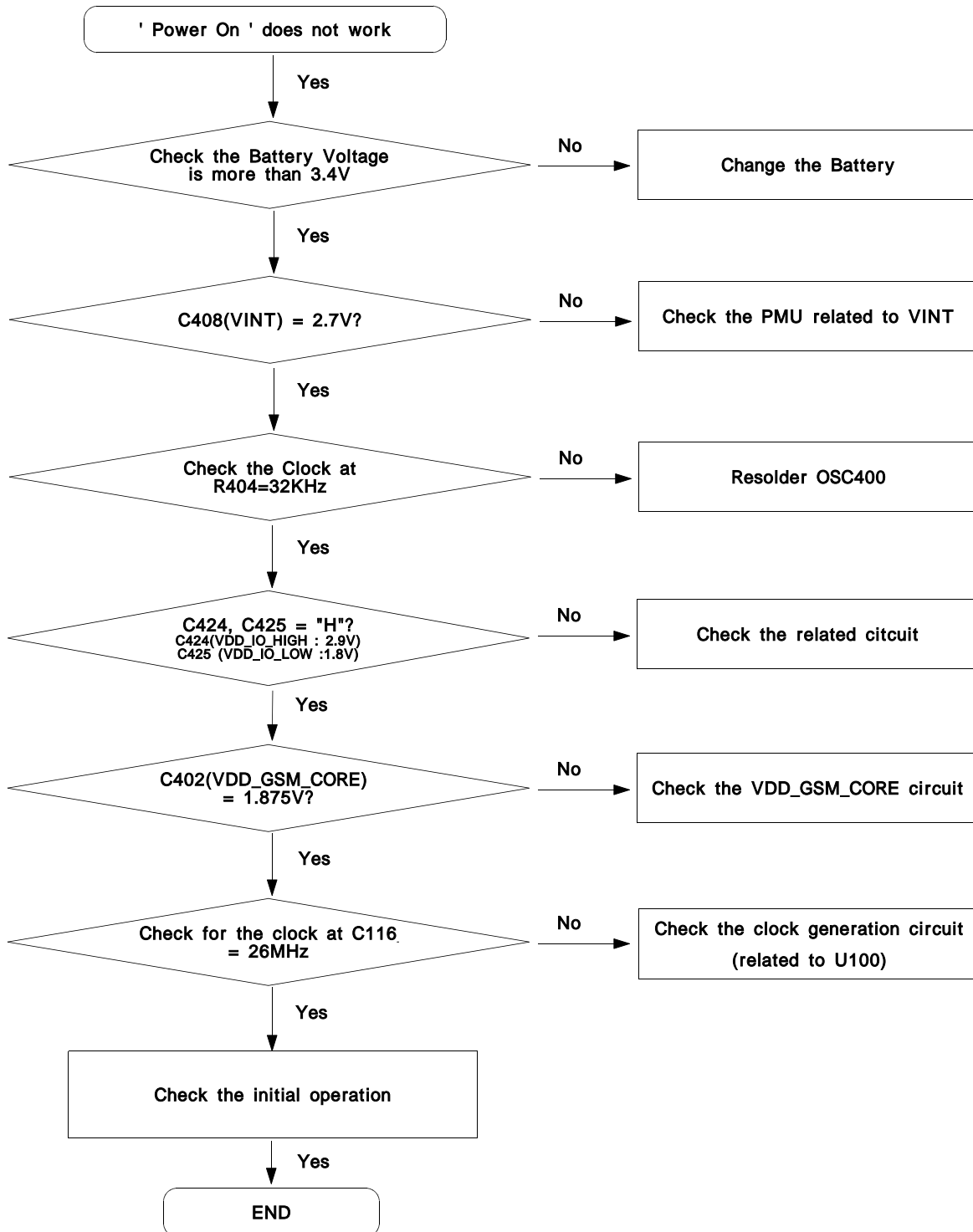
6-2. PCB Bottom Diagram



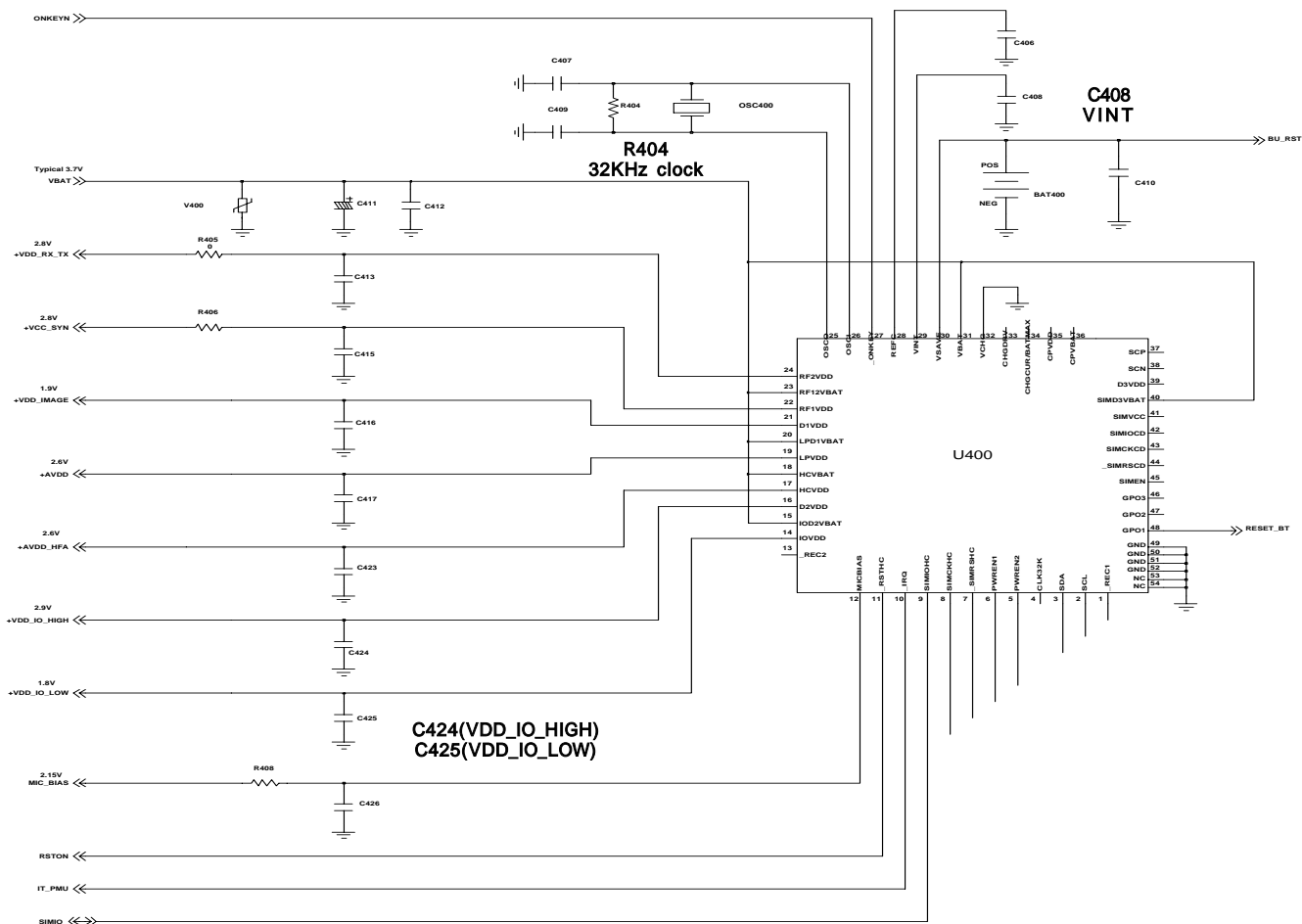


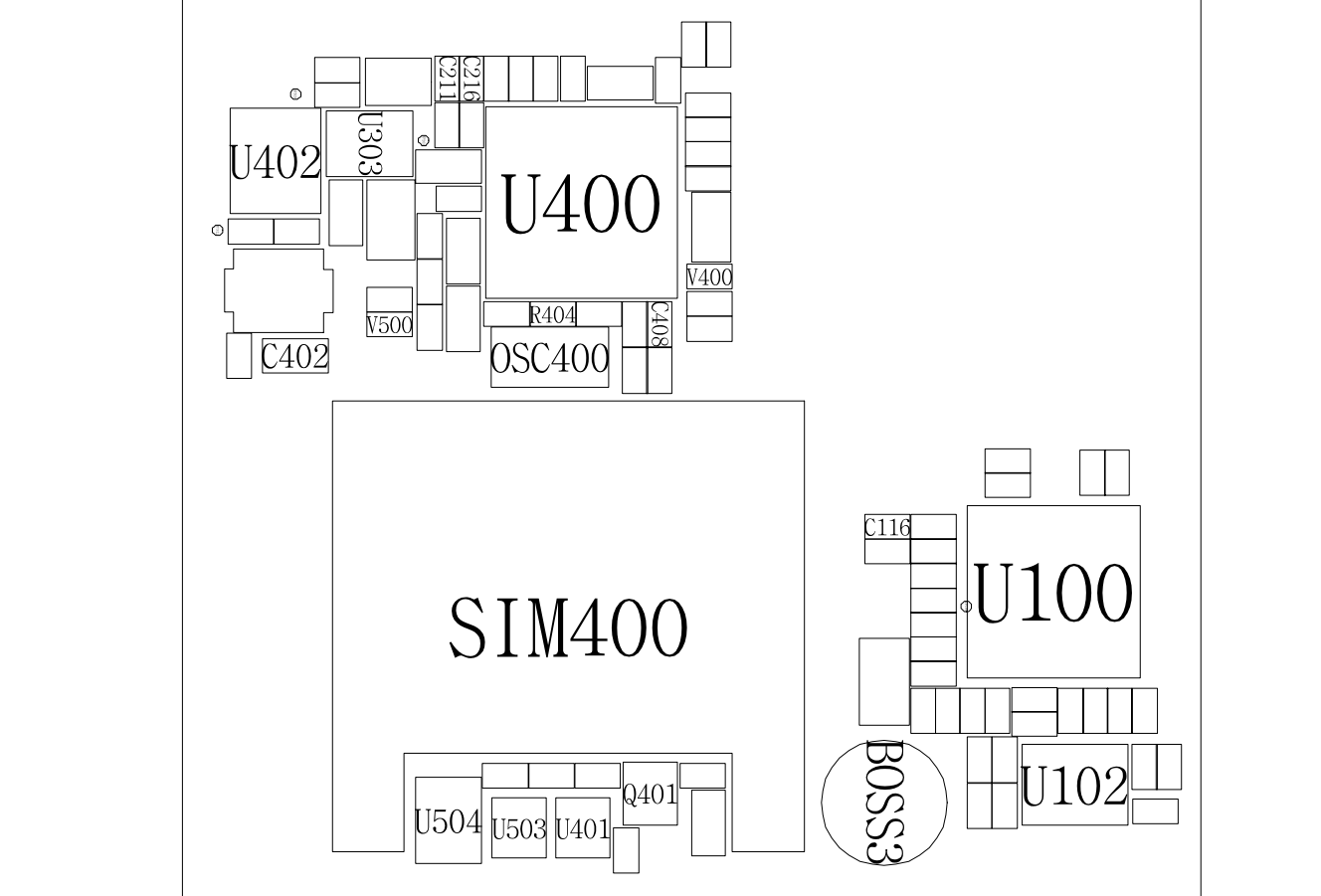
## 7. Flow Chart of Troubleshooting

### 7-1. Power On

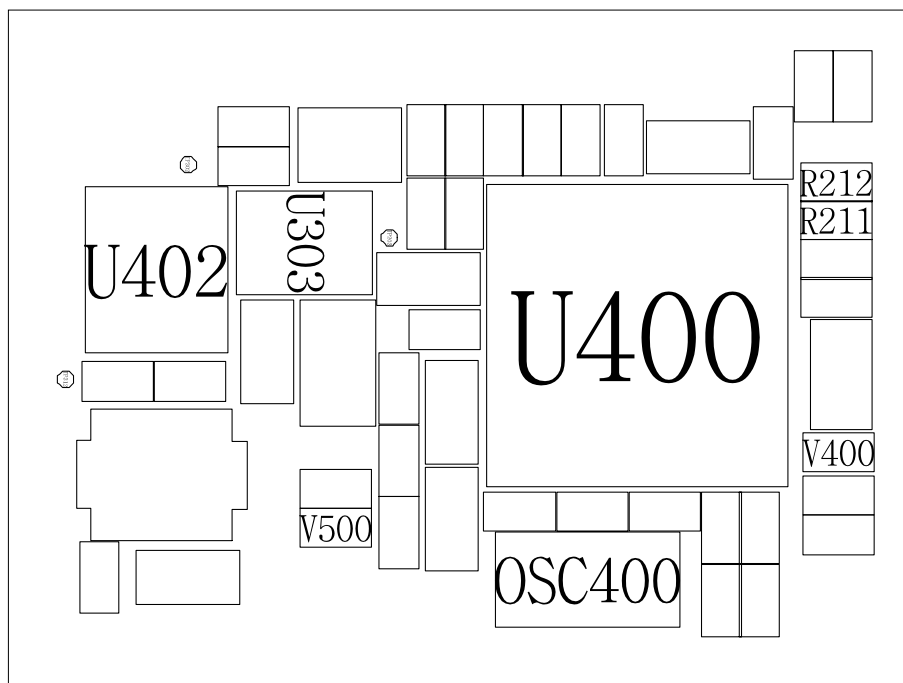
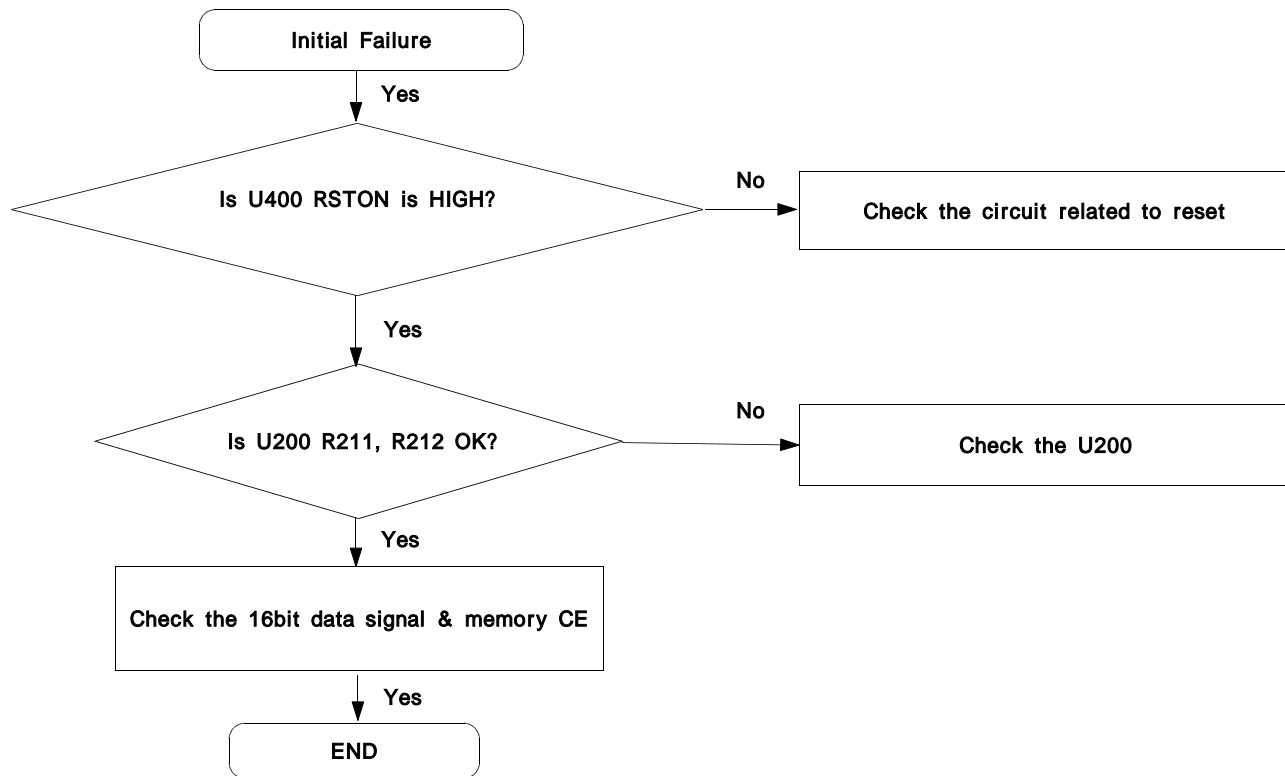


Power On

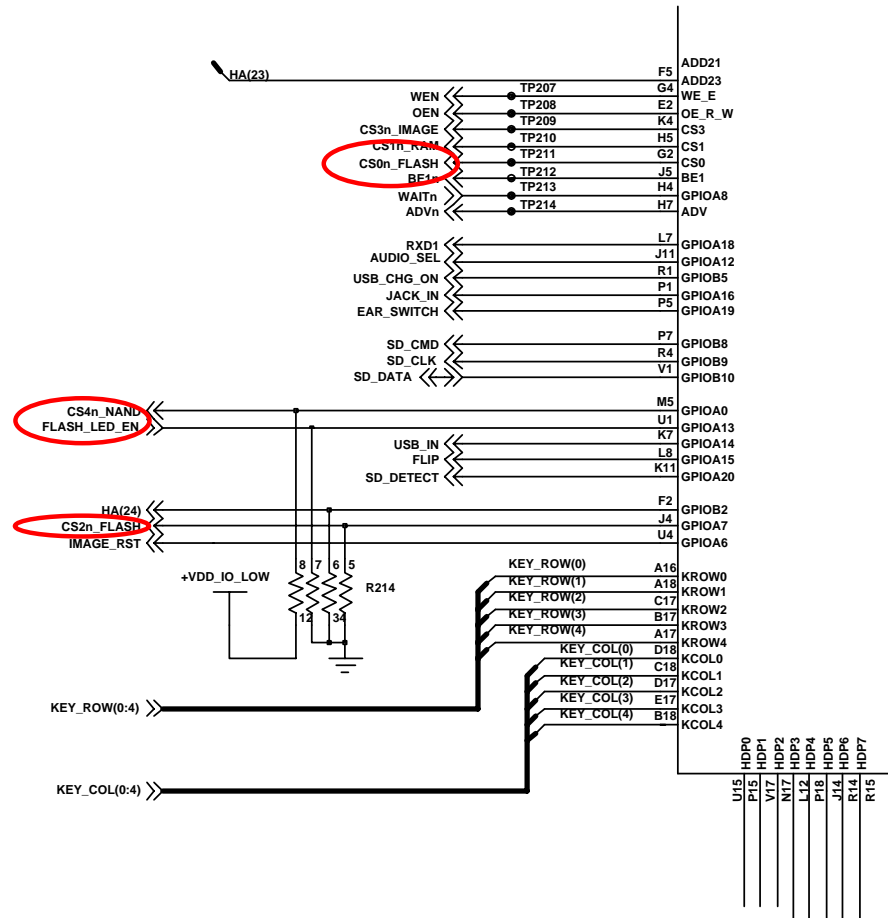
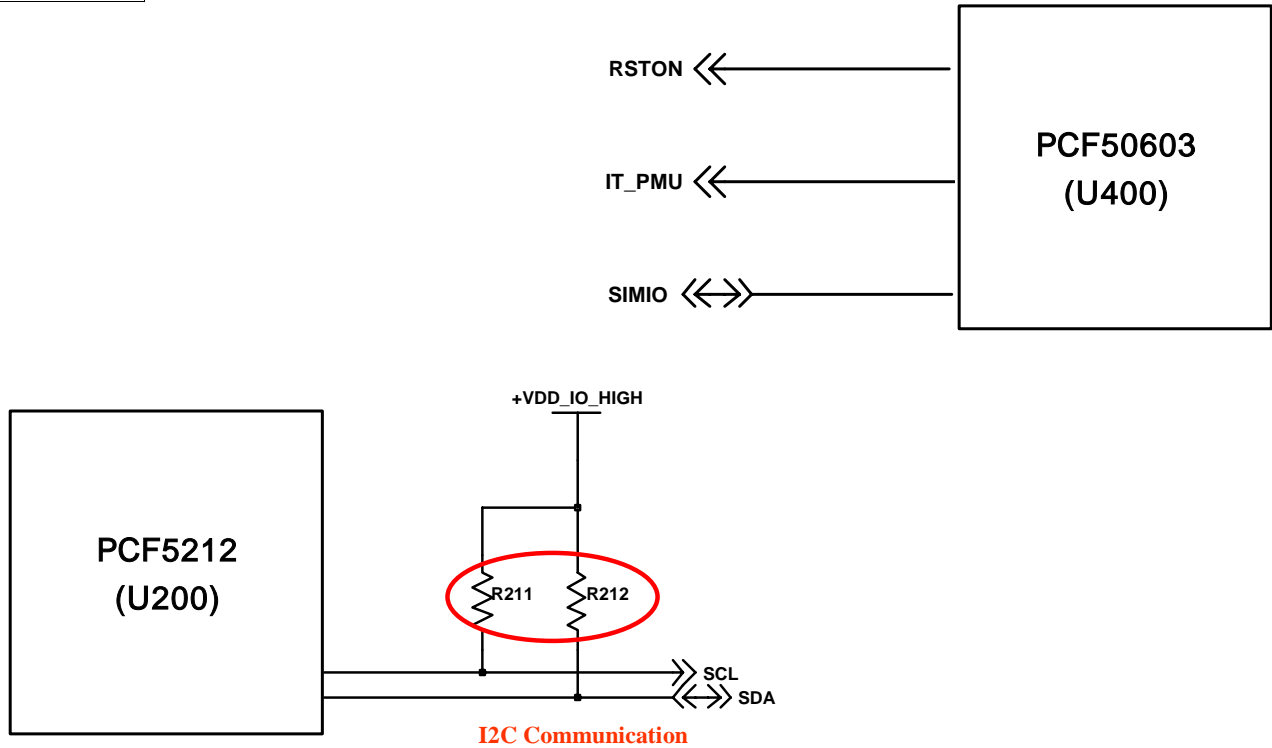




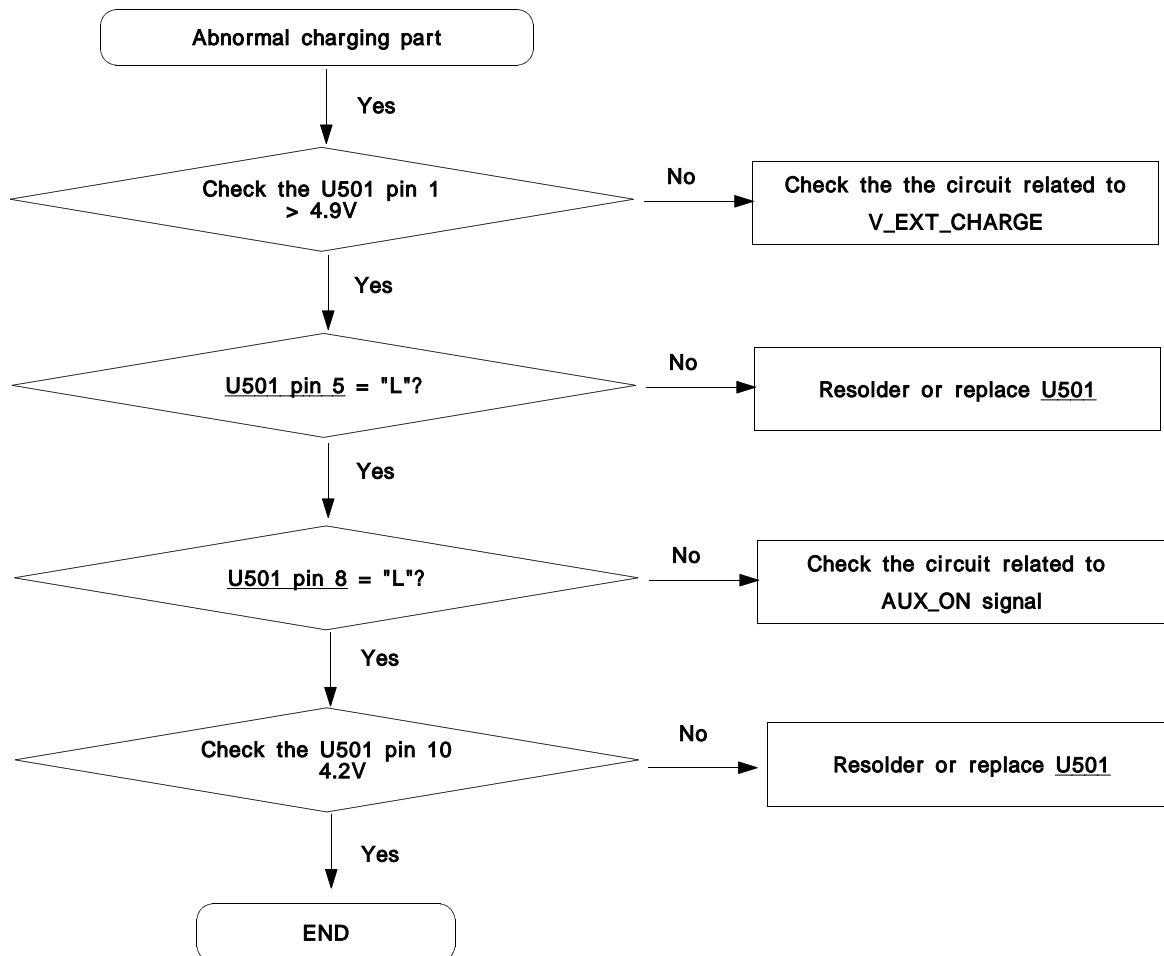
## 7-2. Initial



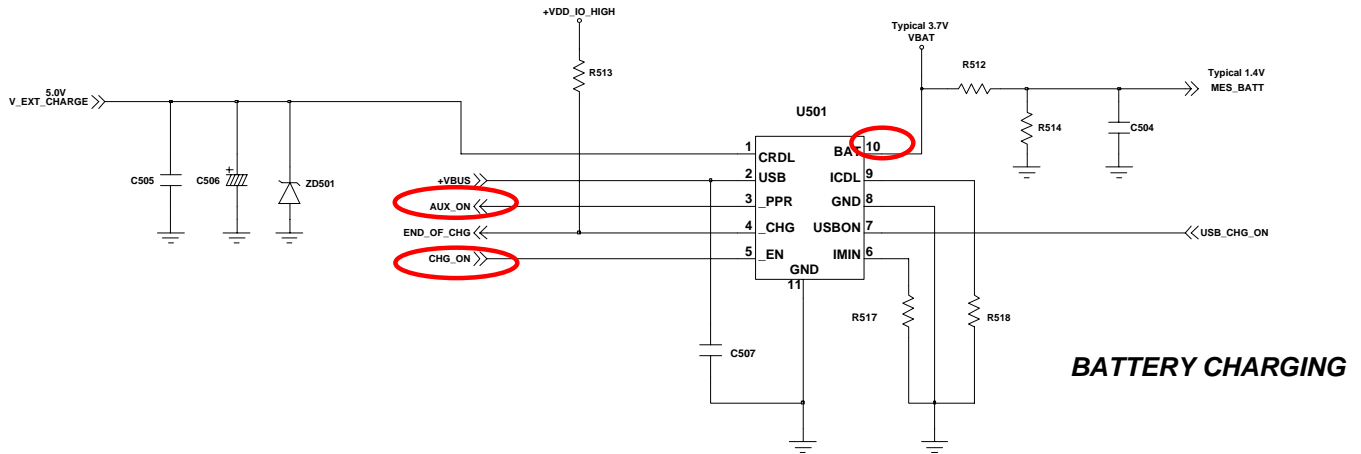
Initial



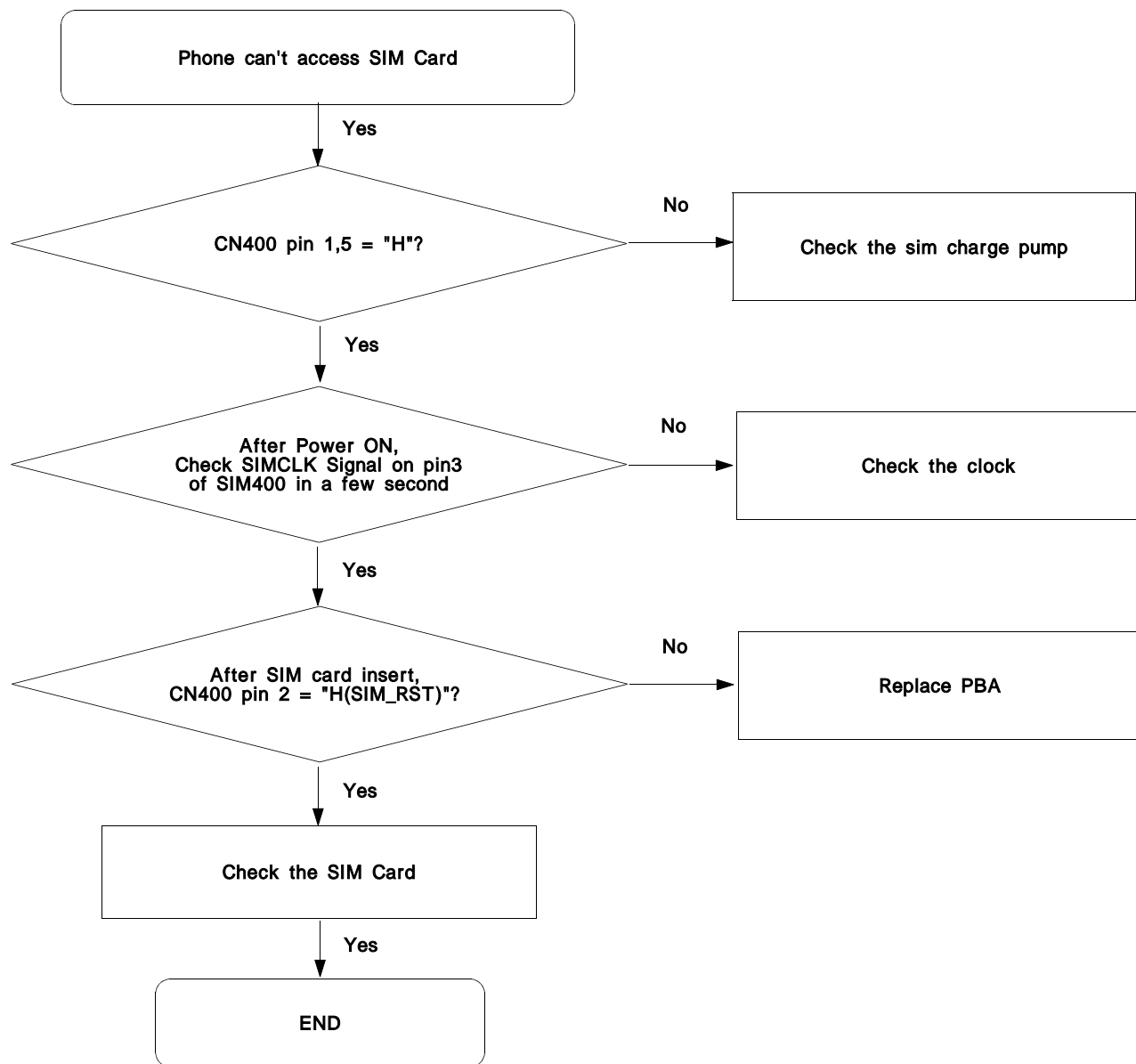
### 7-3. Charging Part



## Charging

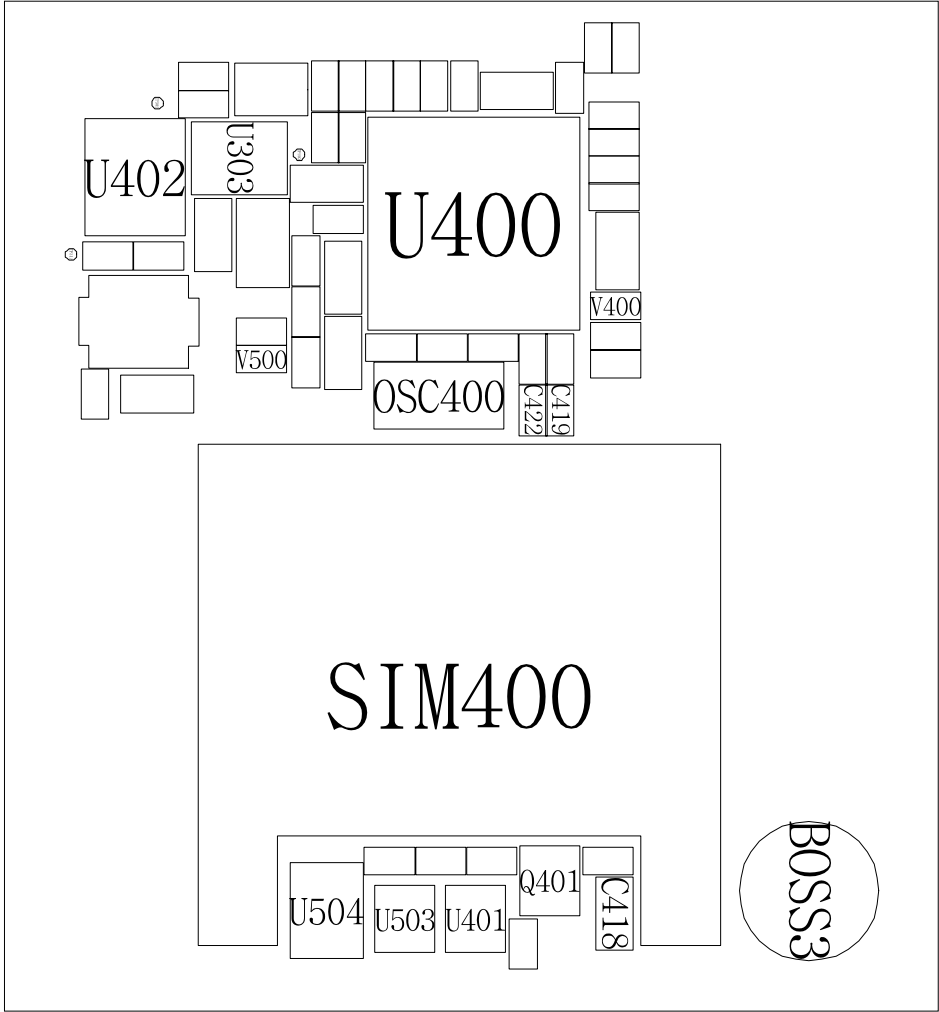
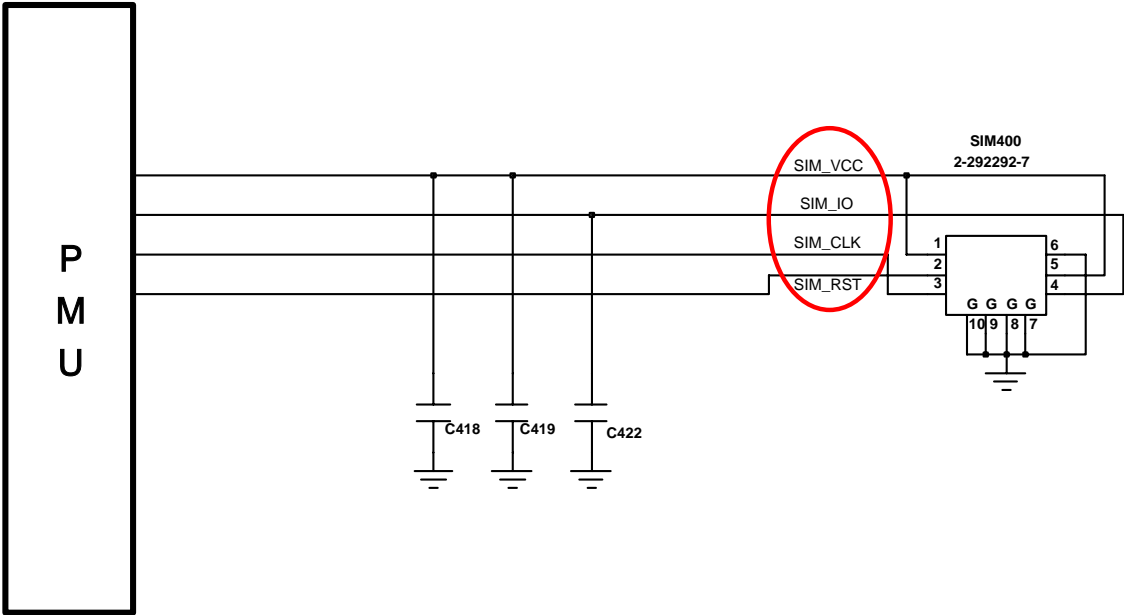


## 7-4. Sim Part

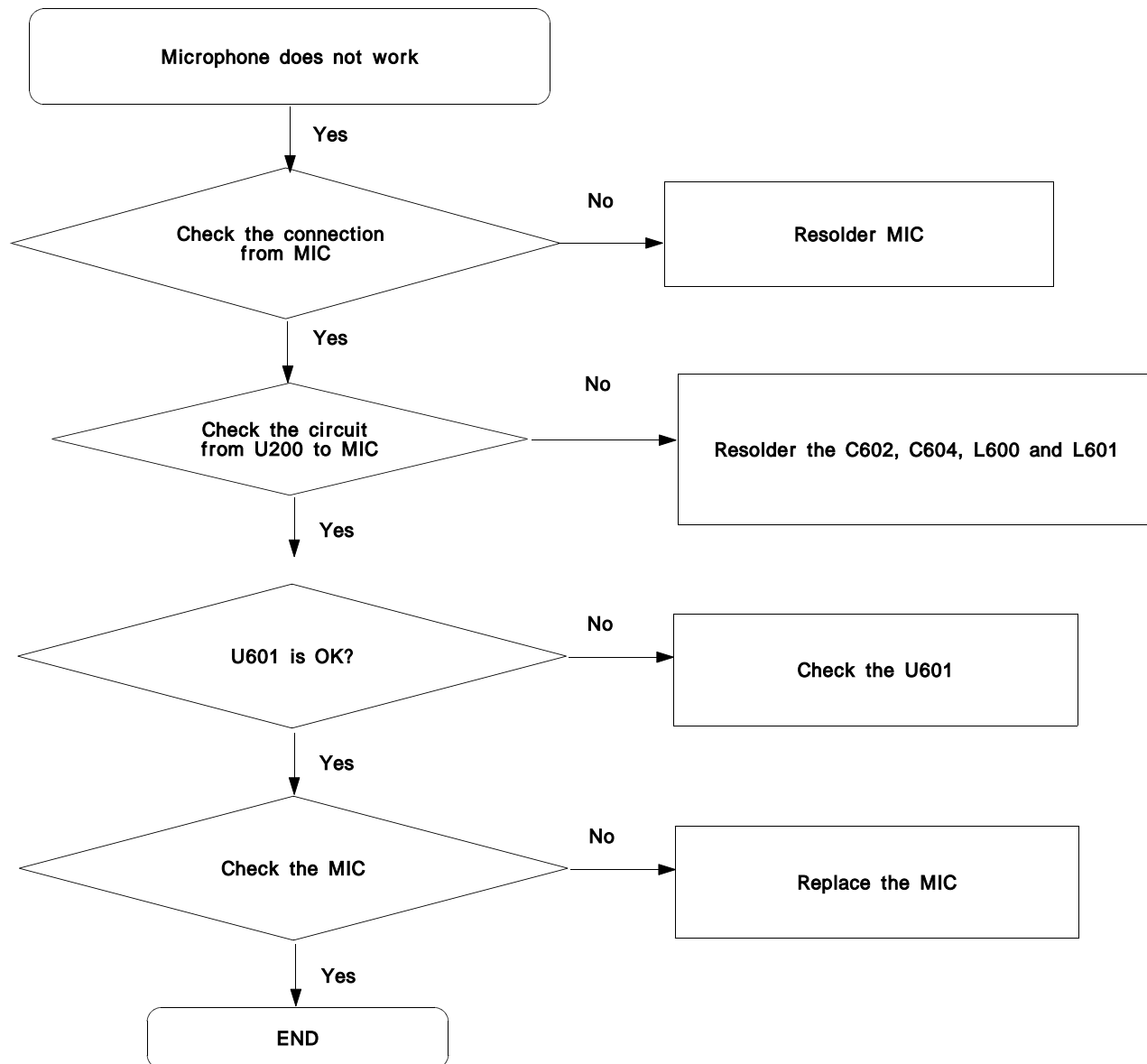




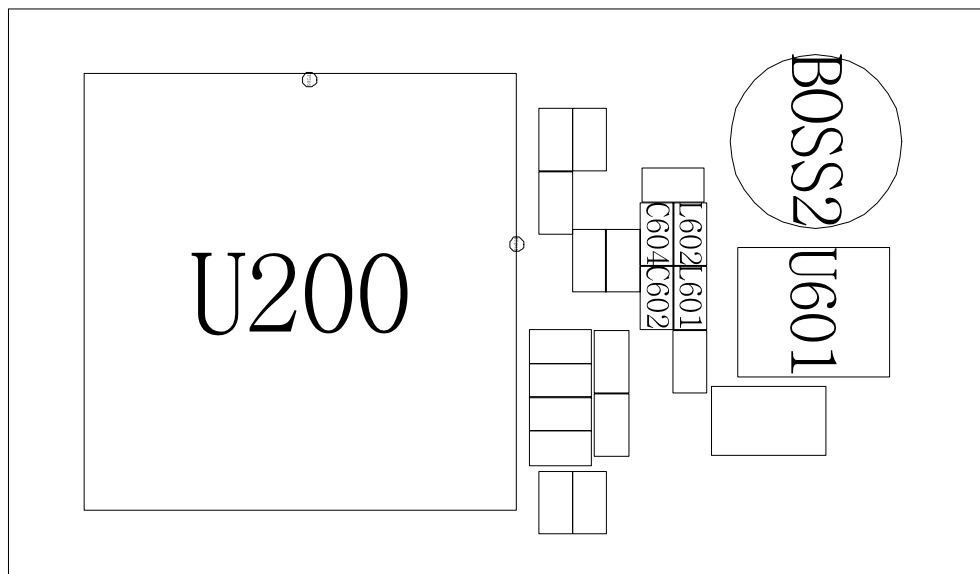
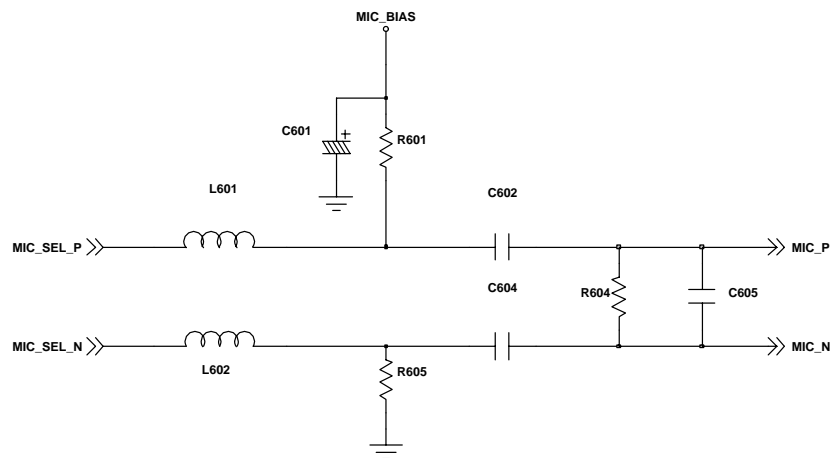
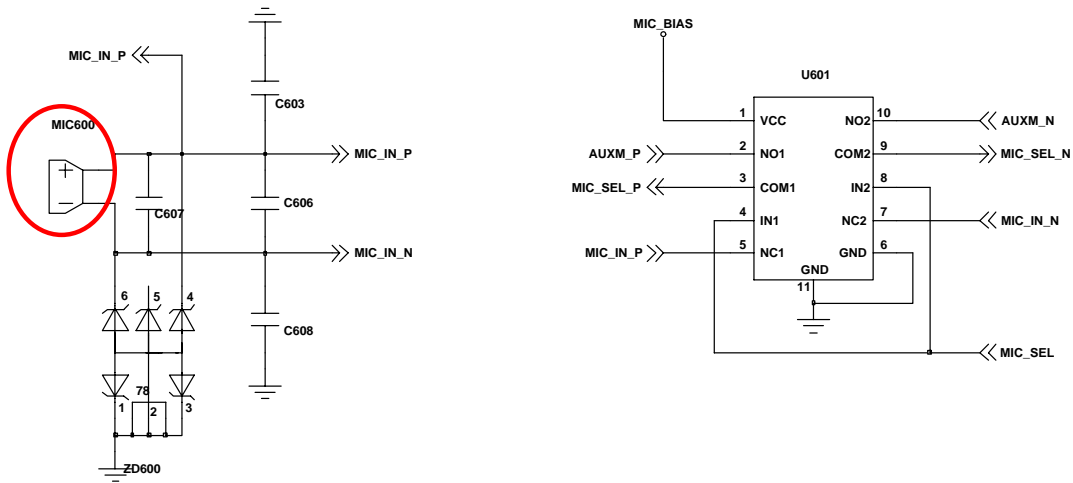
SIM



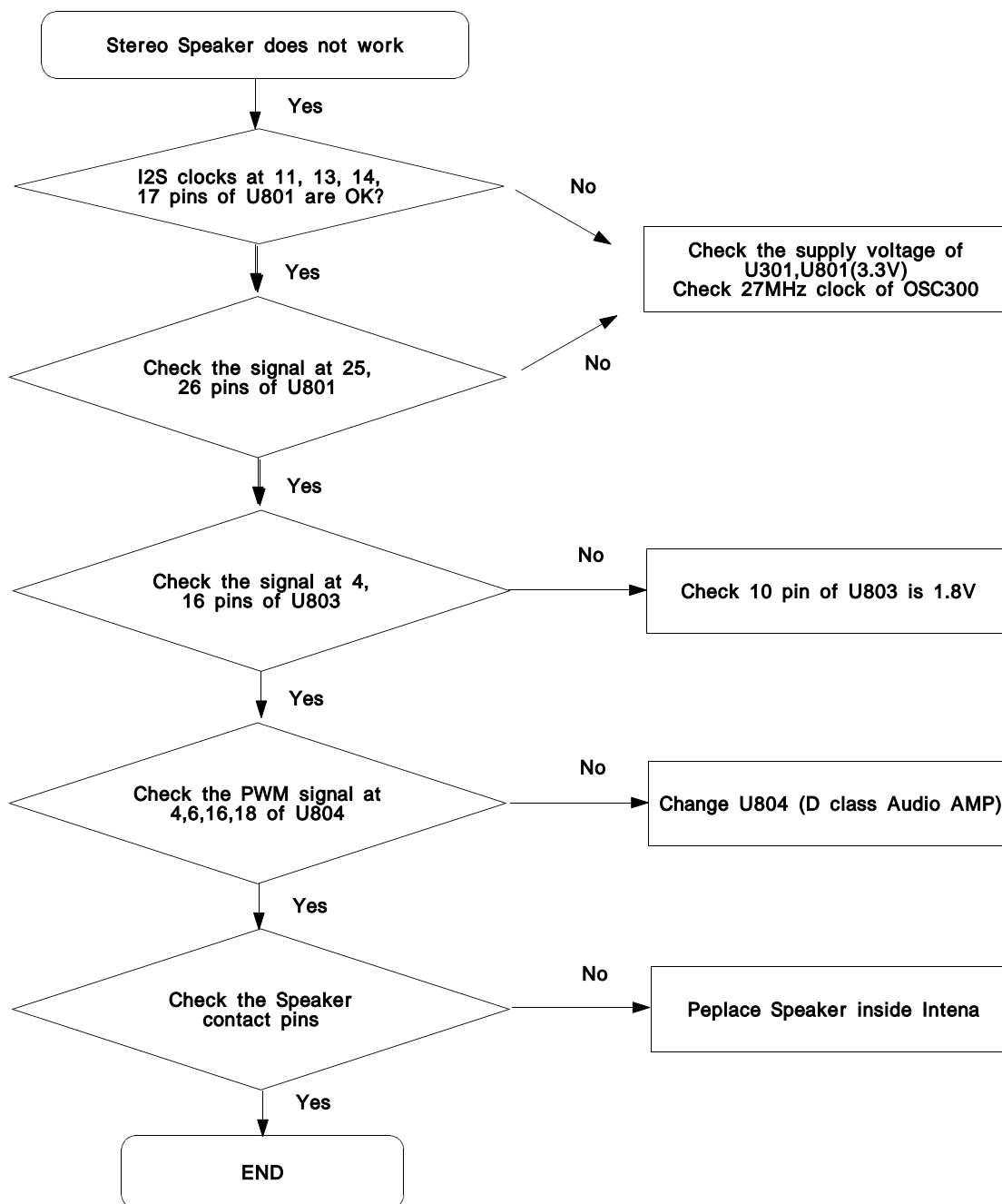
## 7-5. Microphone Part



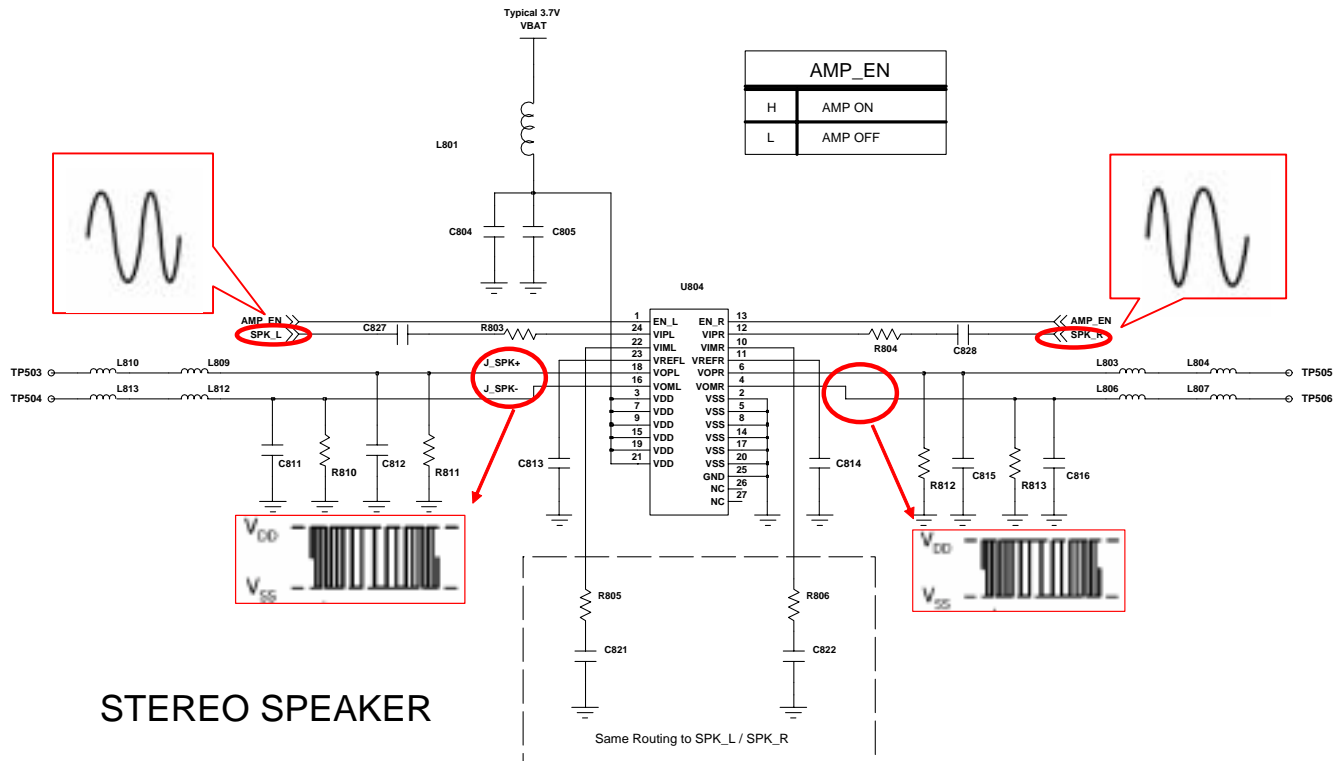
## Microphone



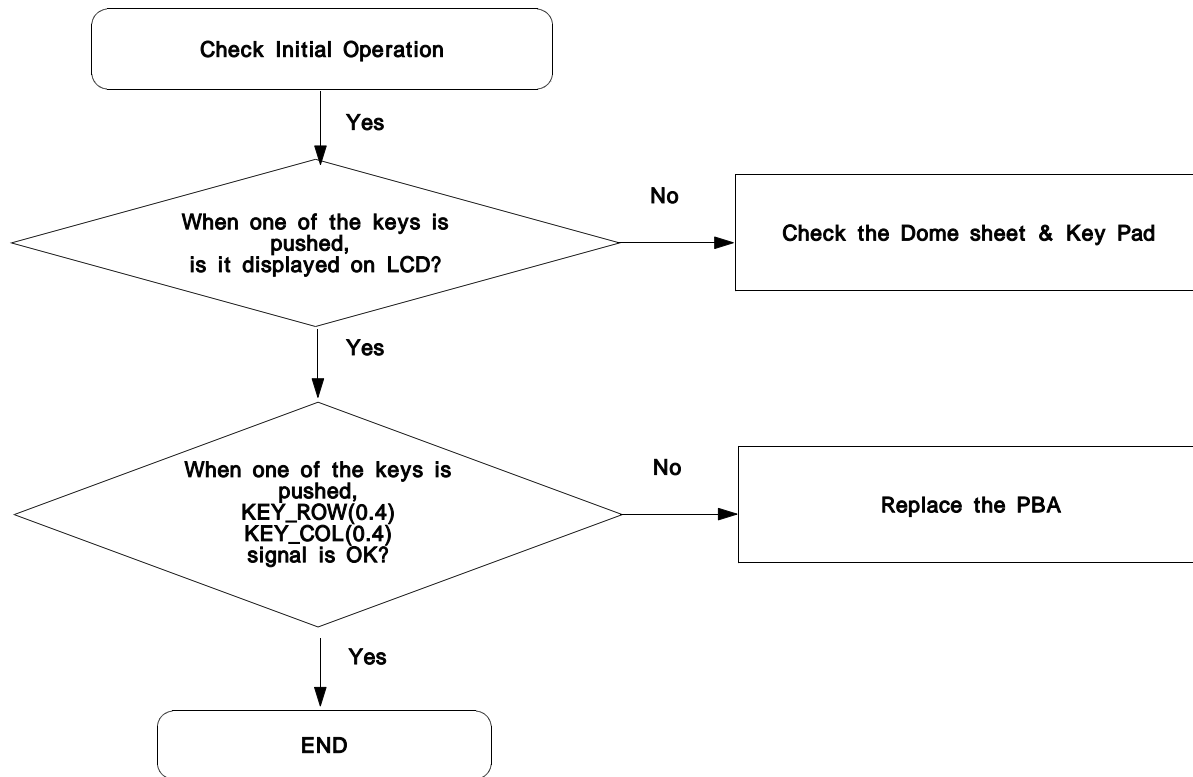
## 7-6. Speaker Part(MP3/Spk)



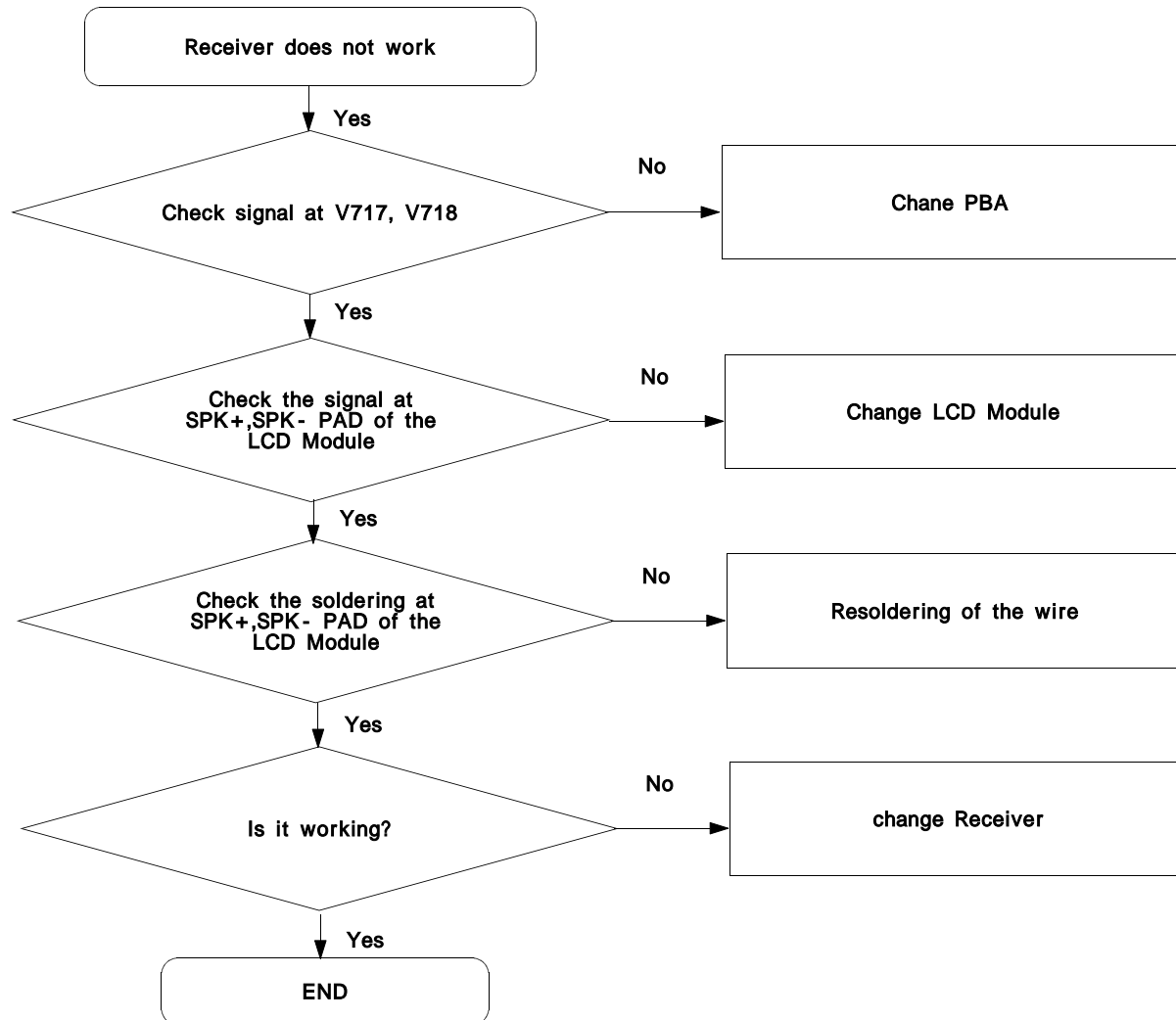
## Speaker

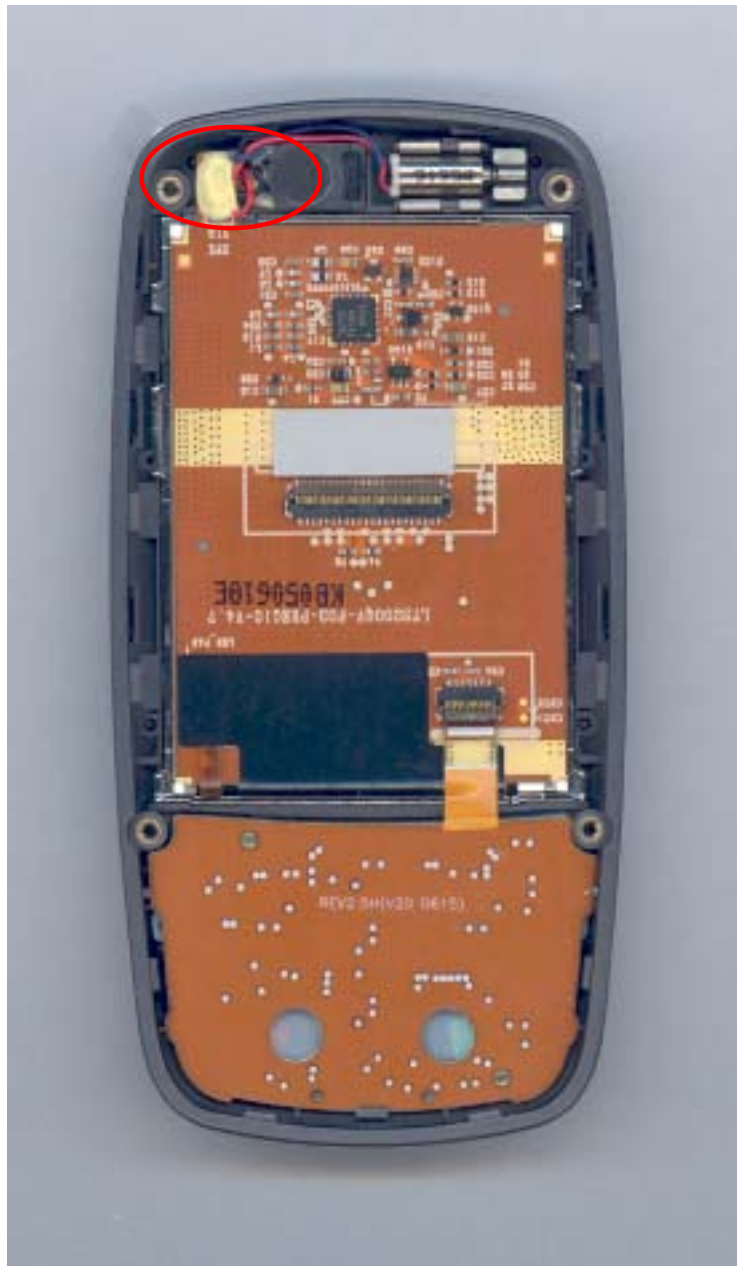


## 7-7. Key Data Input



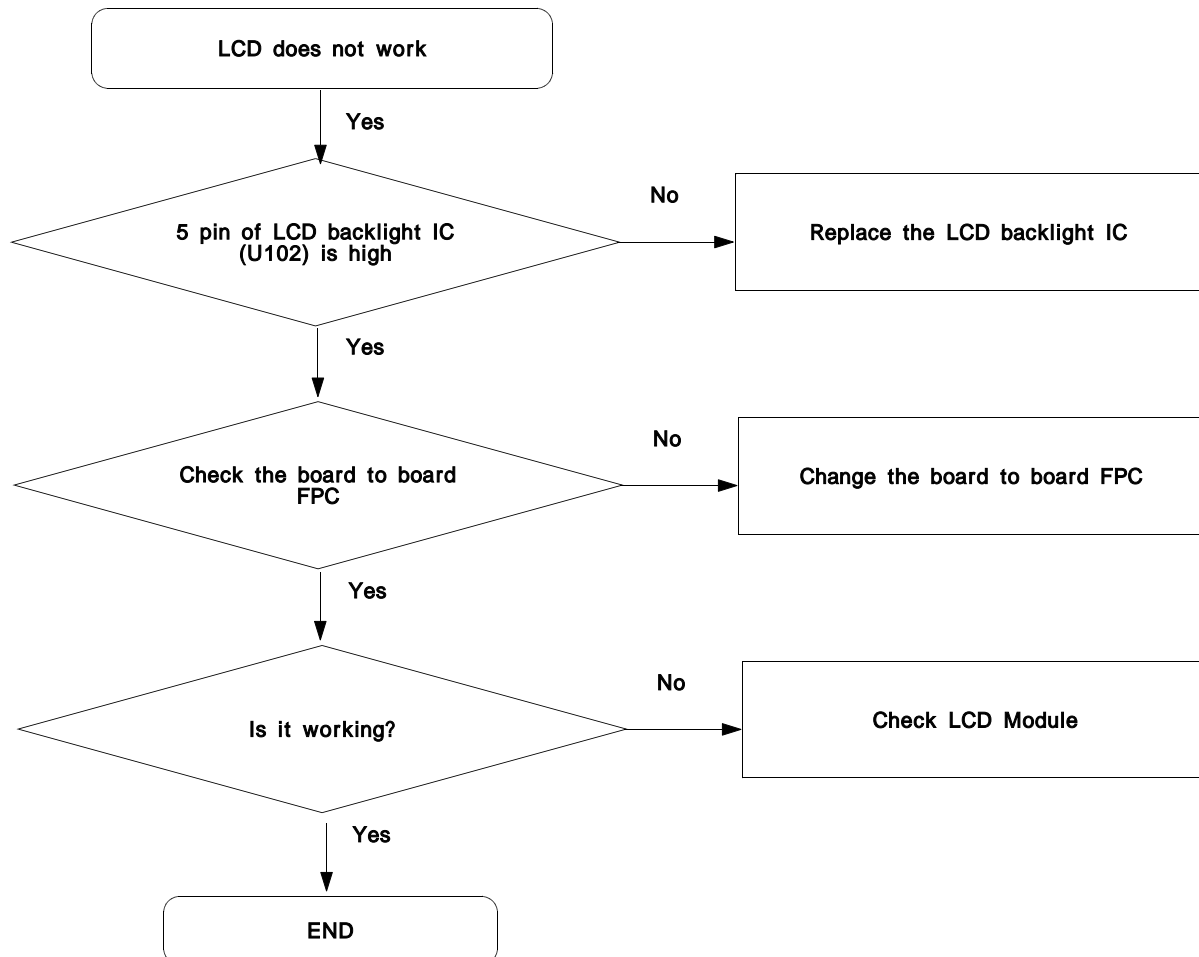
## 7-8. Receiver Part

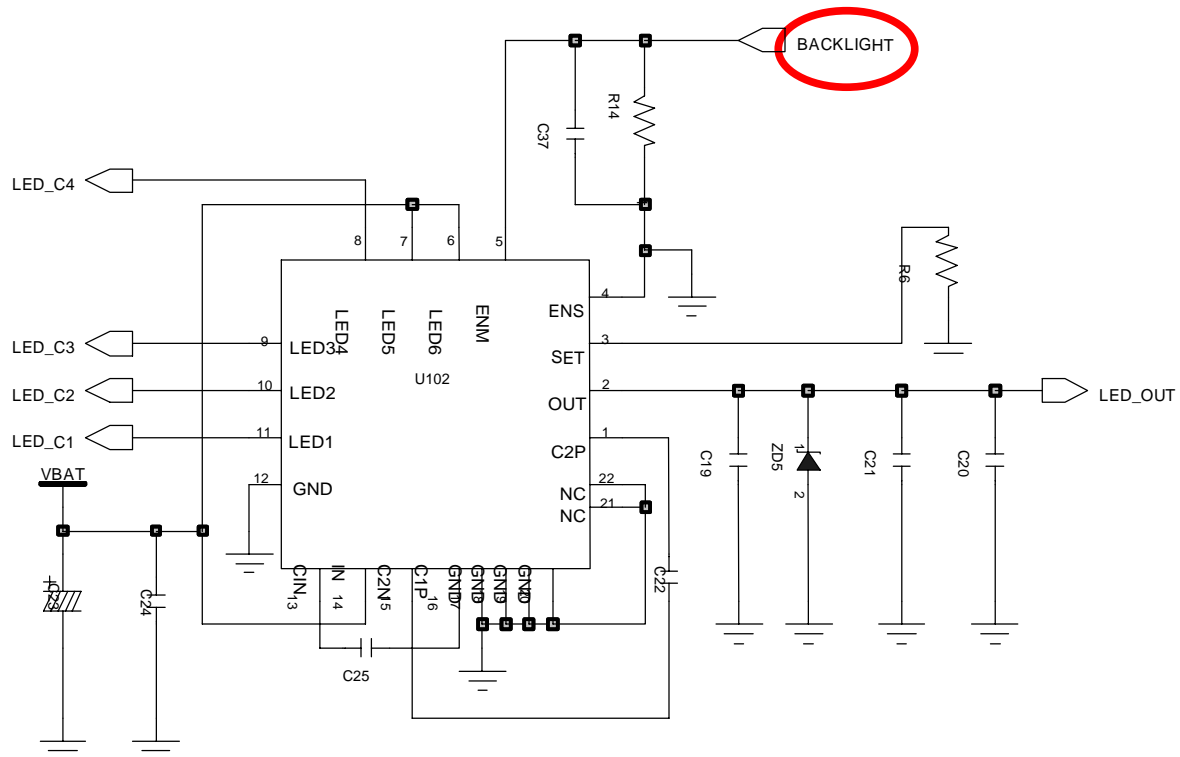




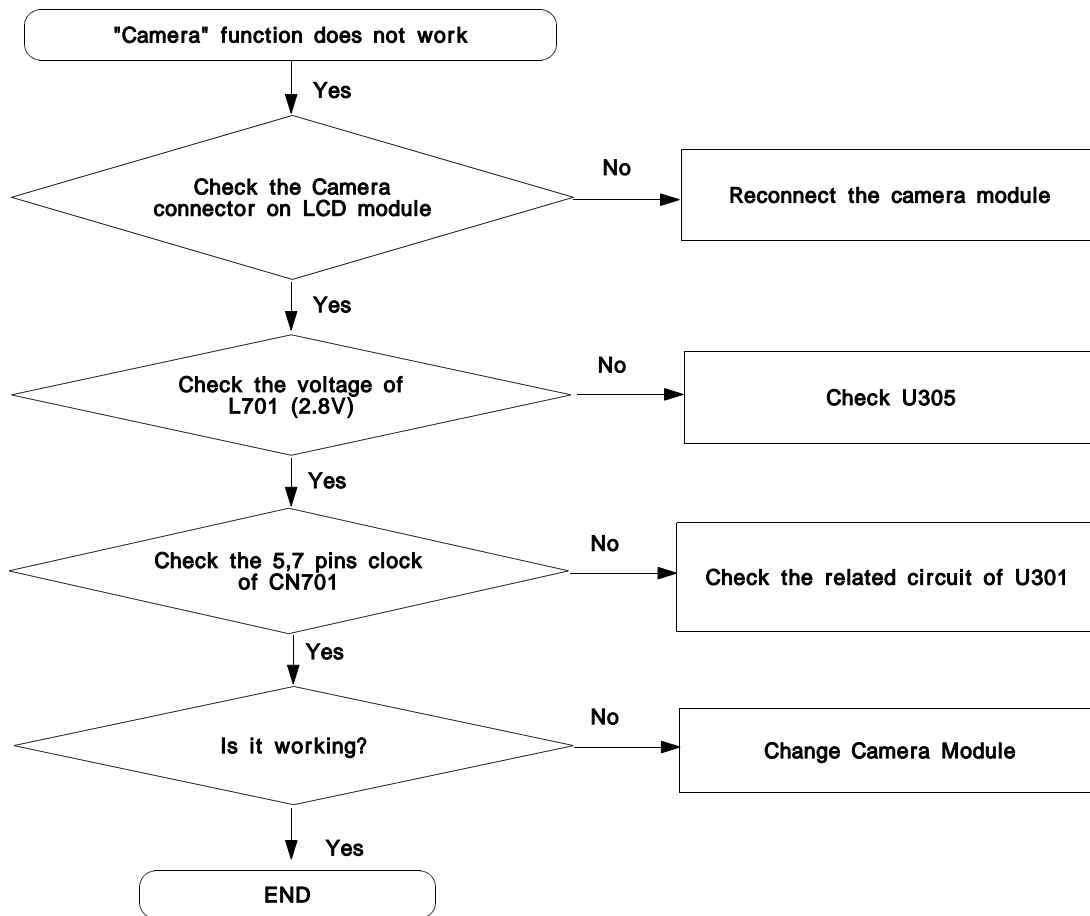


## 7-9. LCD Part

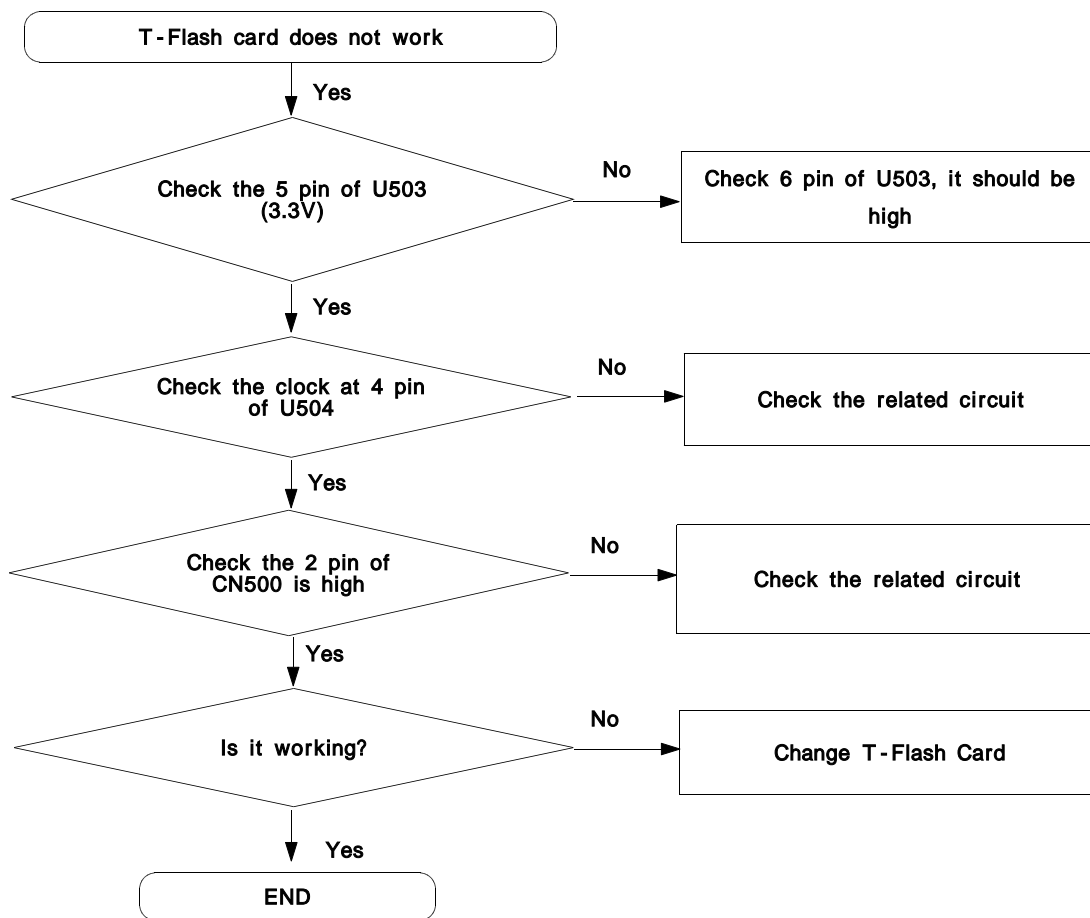




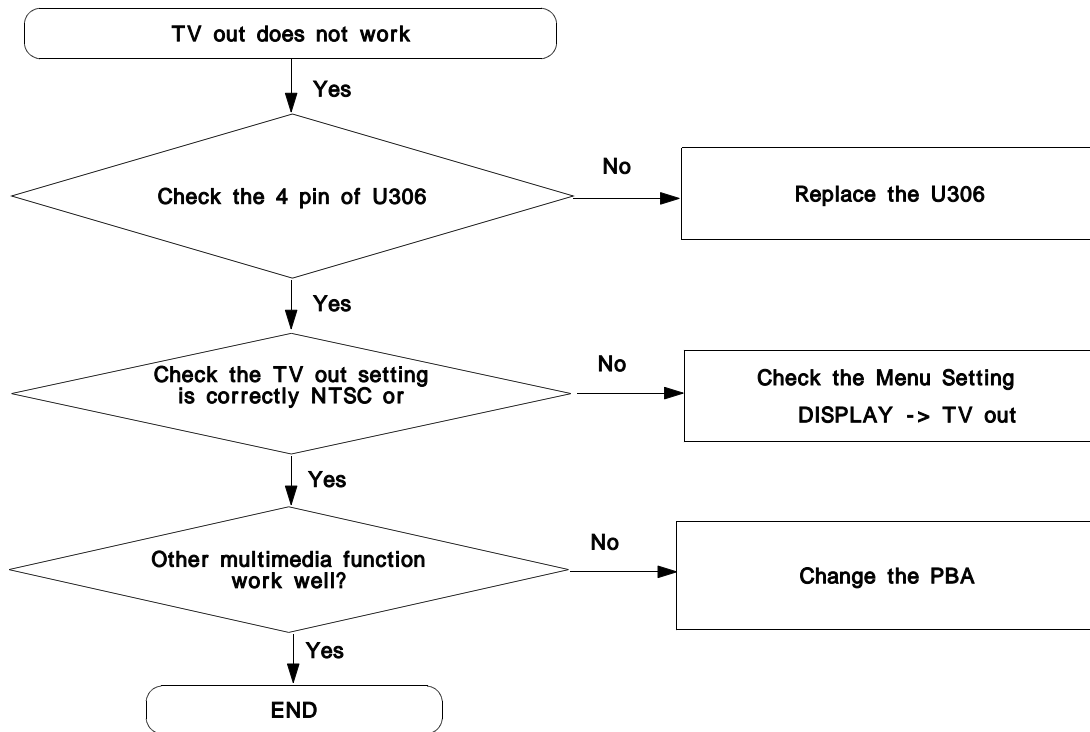
## 7-10. Camera part

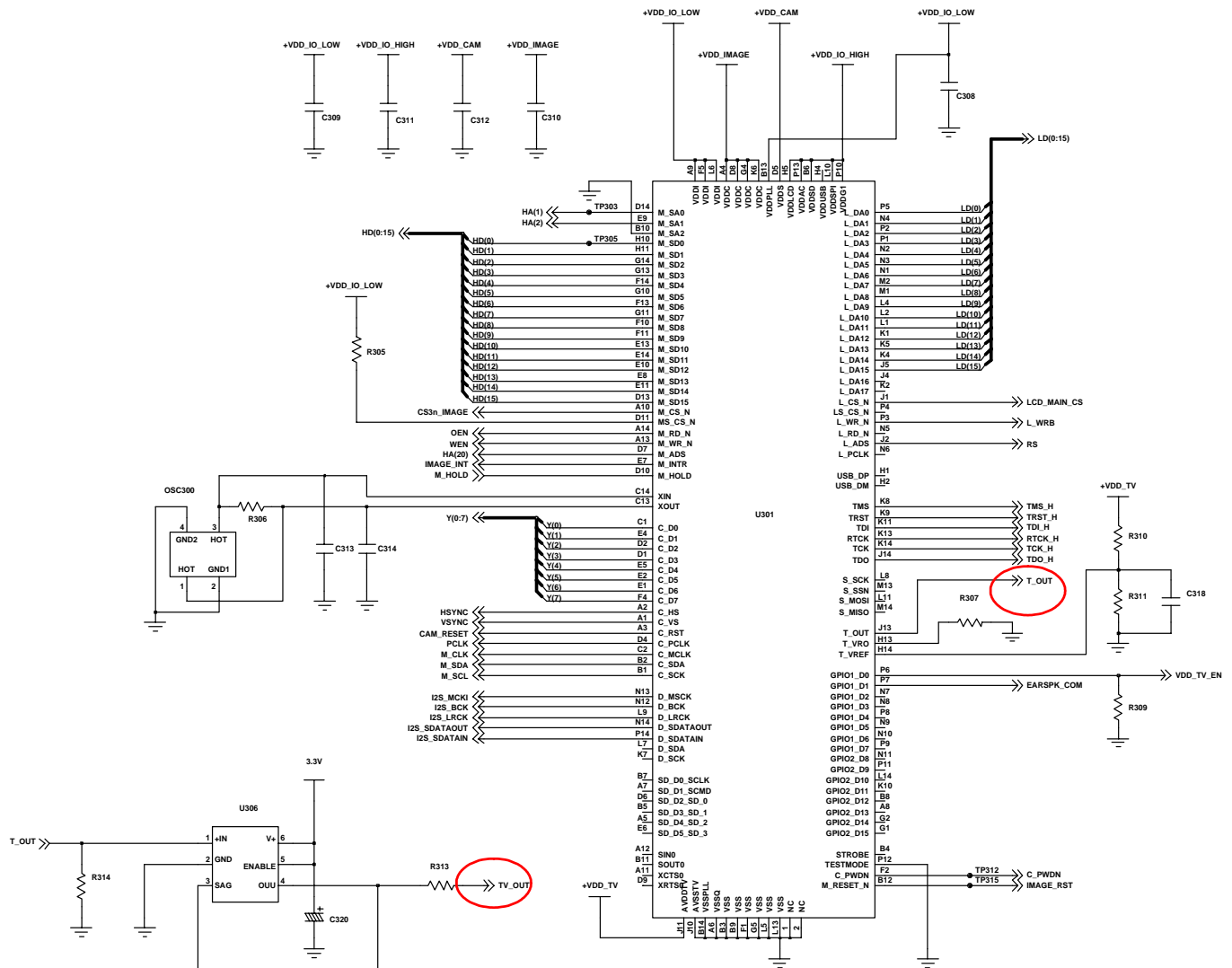


## 7-11. Trans Flash Card part

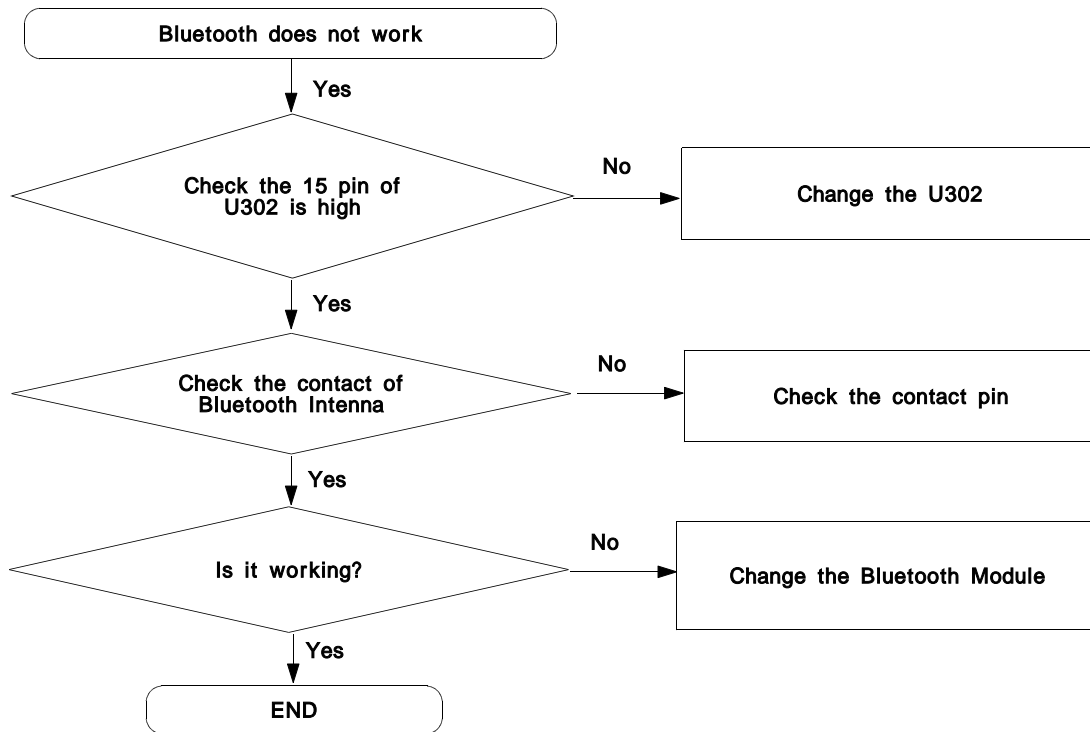


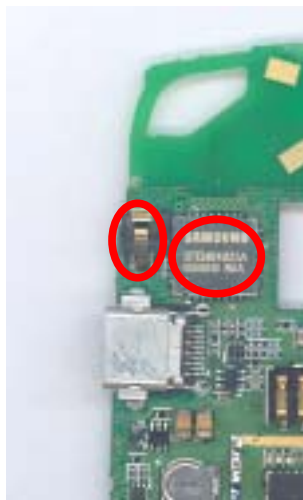
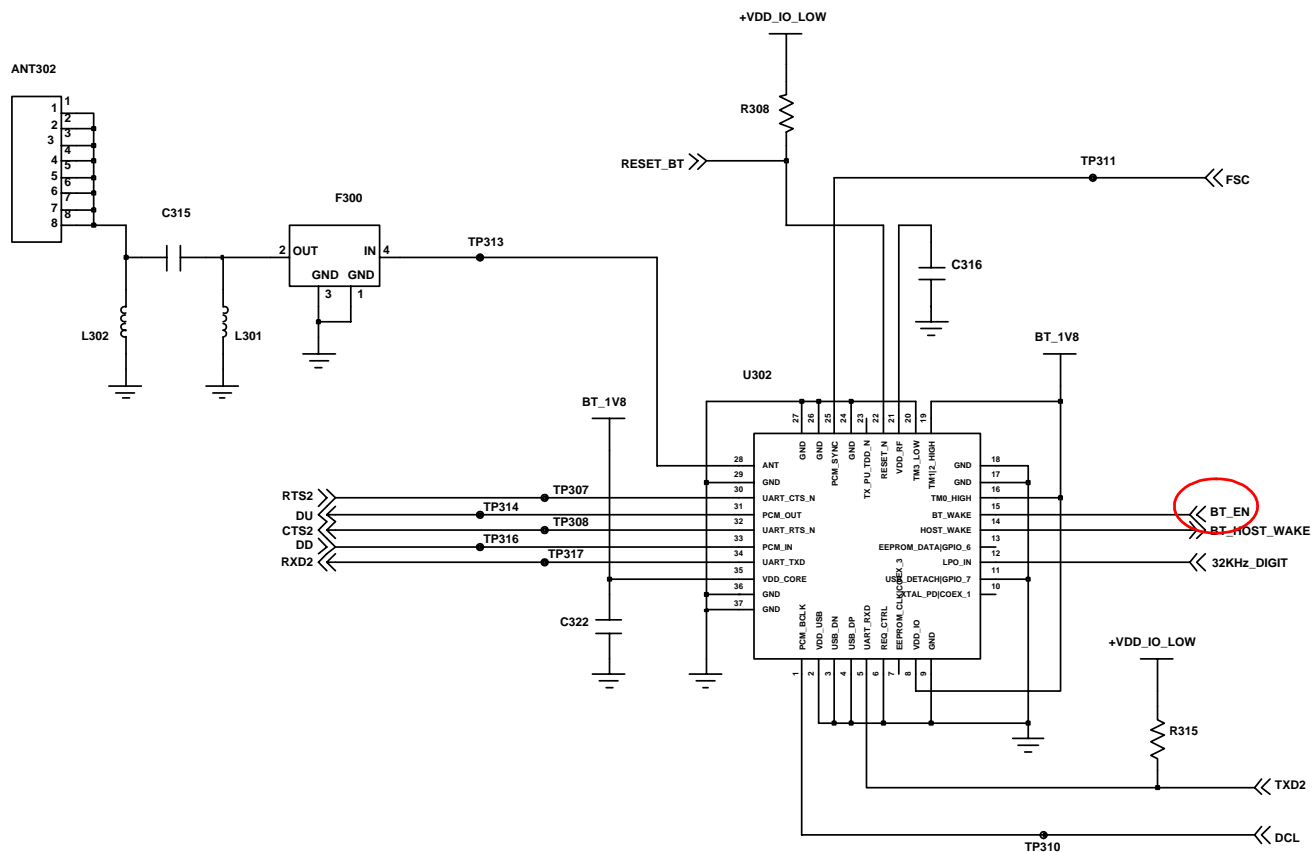
## 7-12. TV OUT





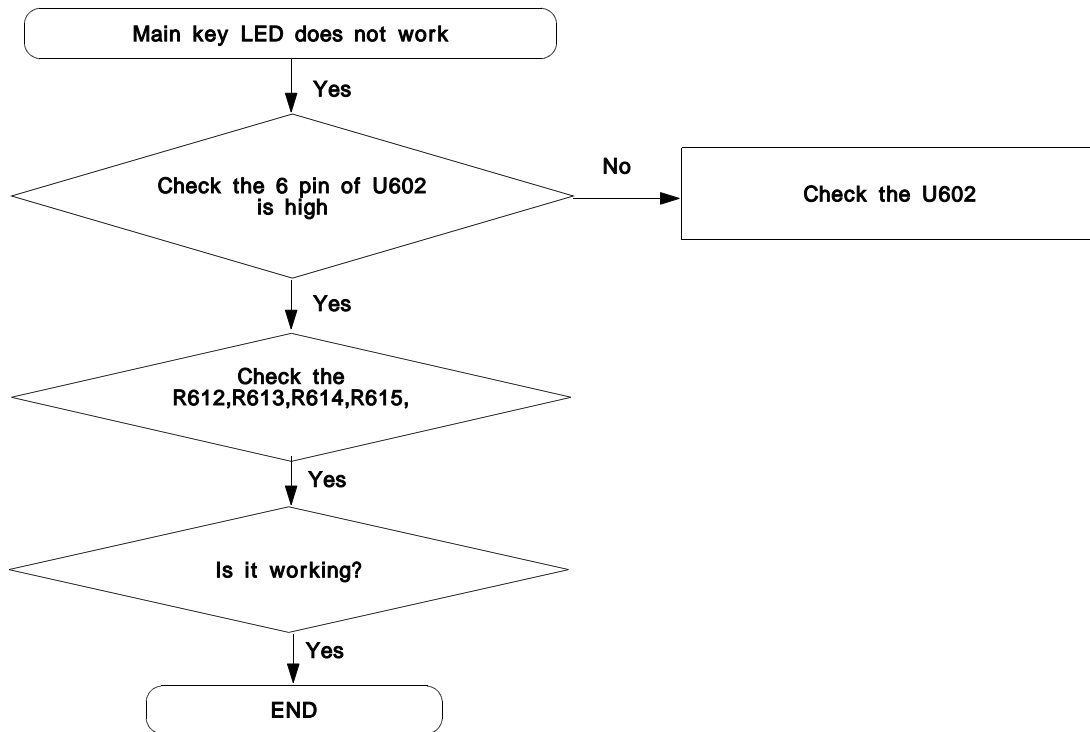
## 7-13. Bluetooth part



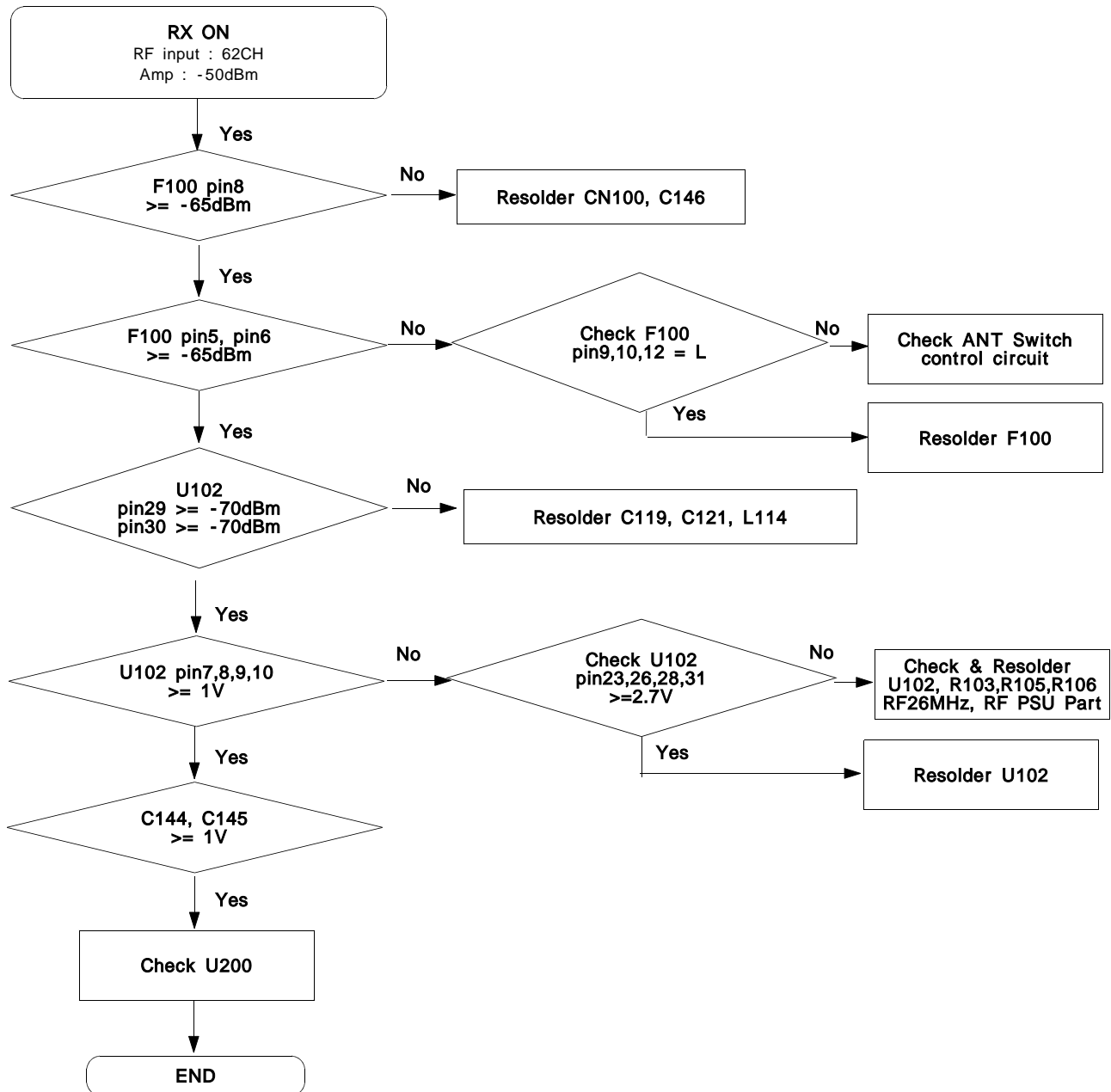




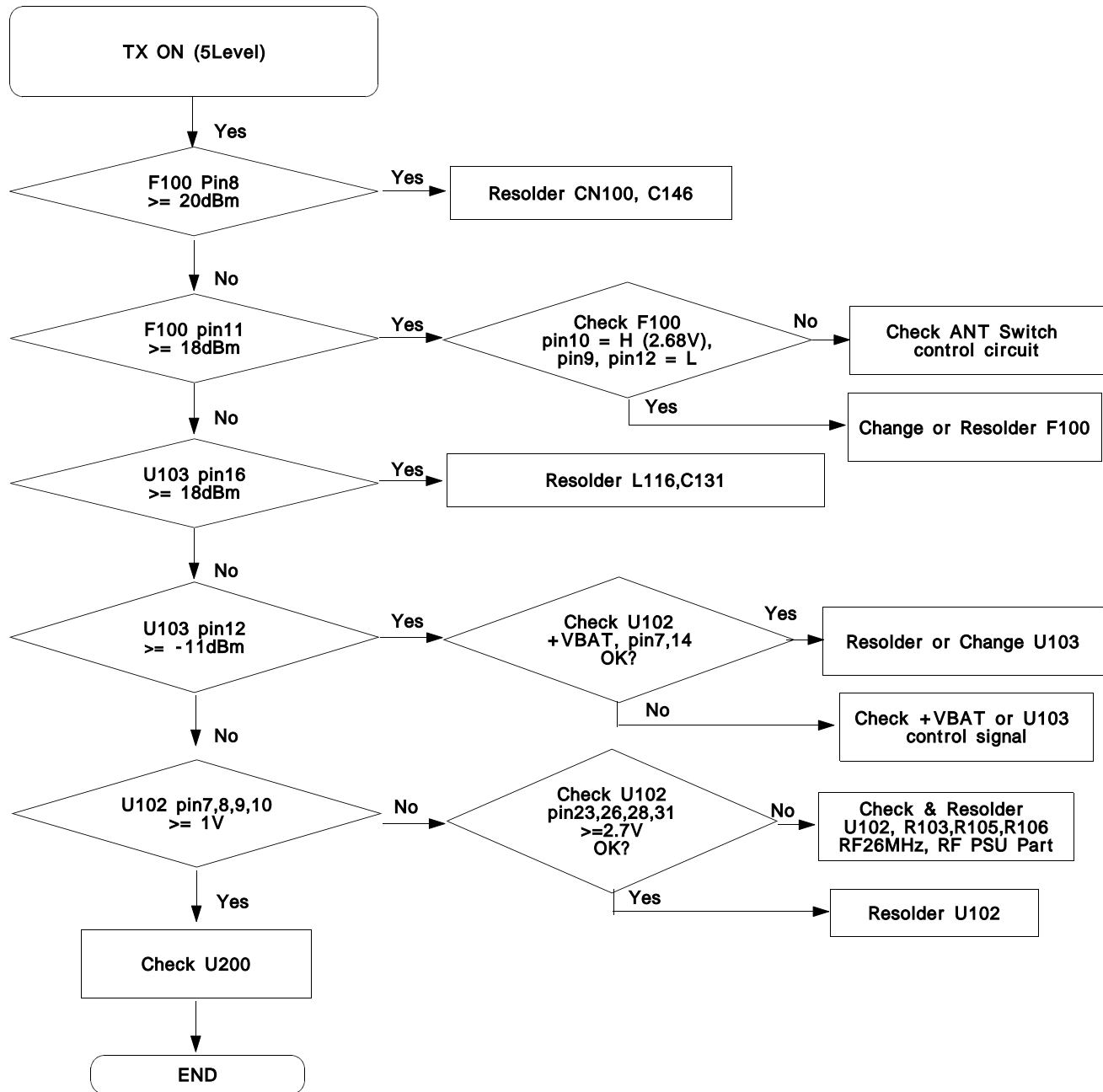
## 7-14. Main Key LED part



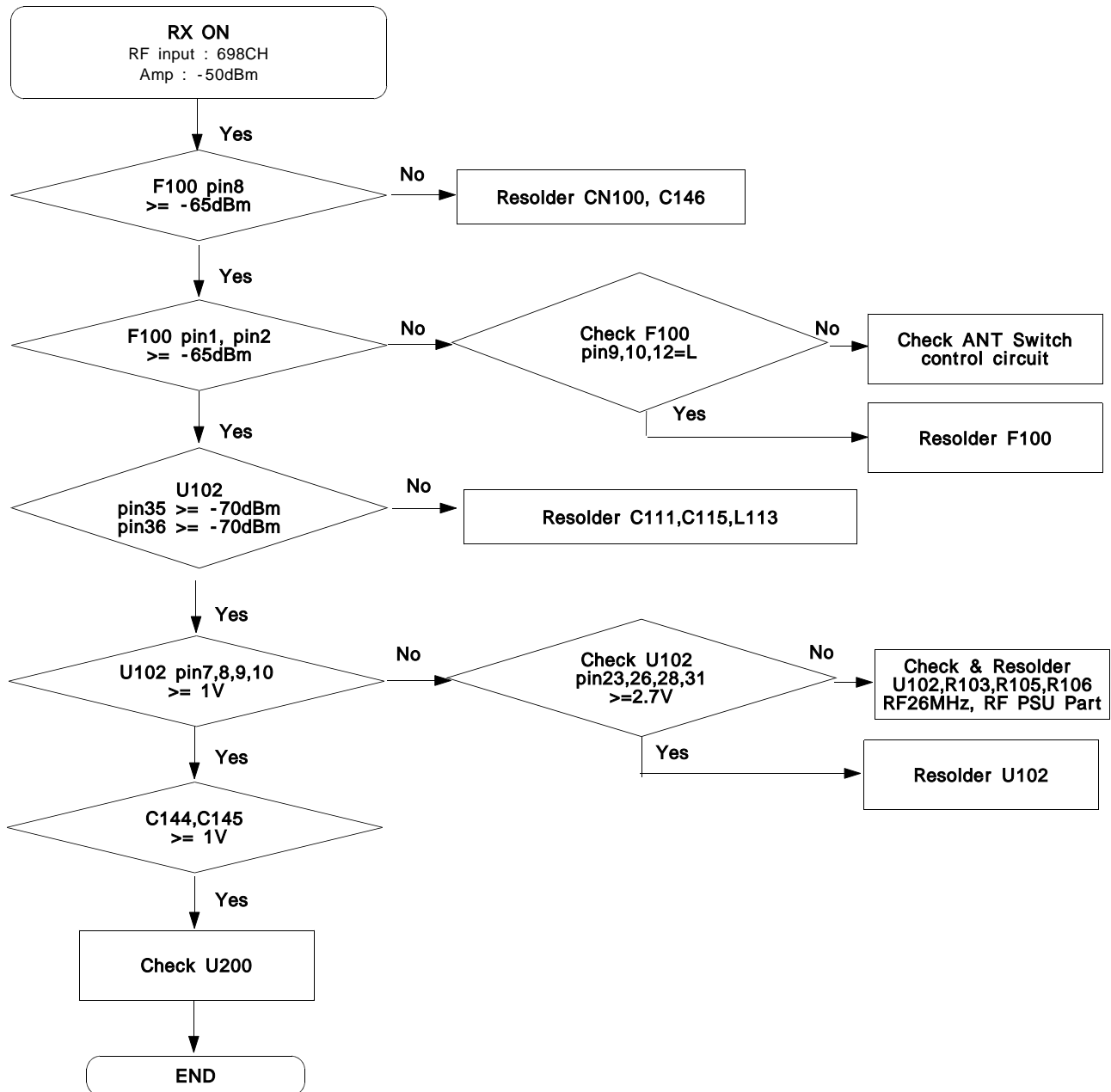
## 7-15. EGSM Receiver



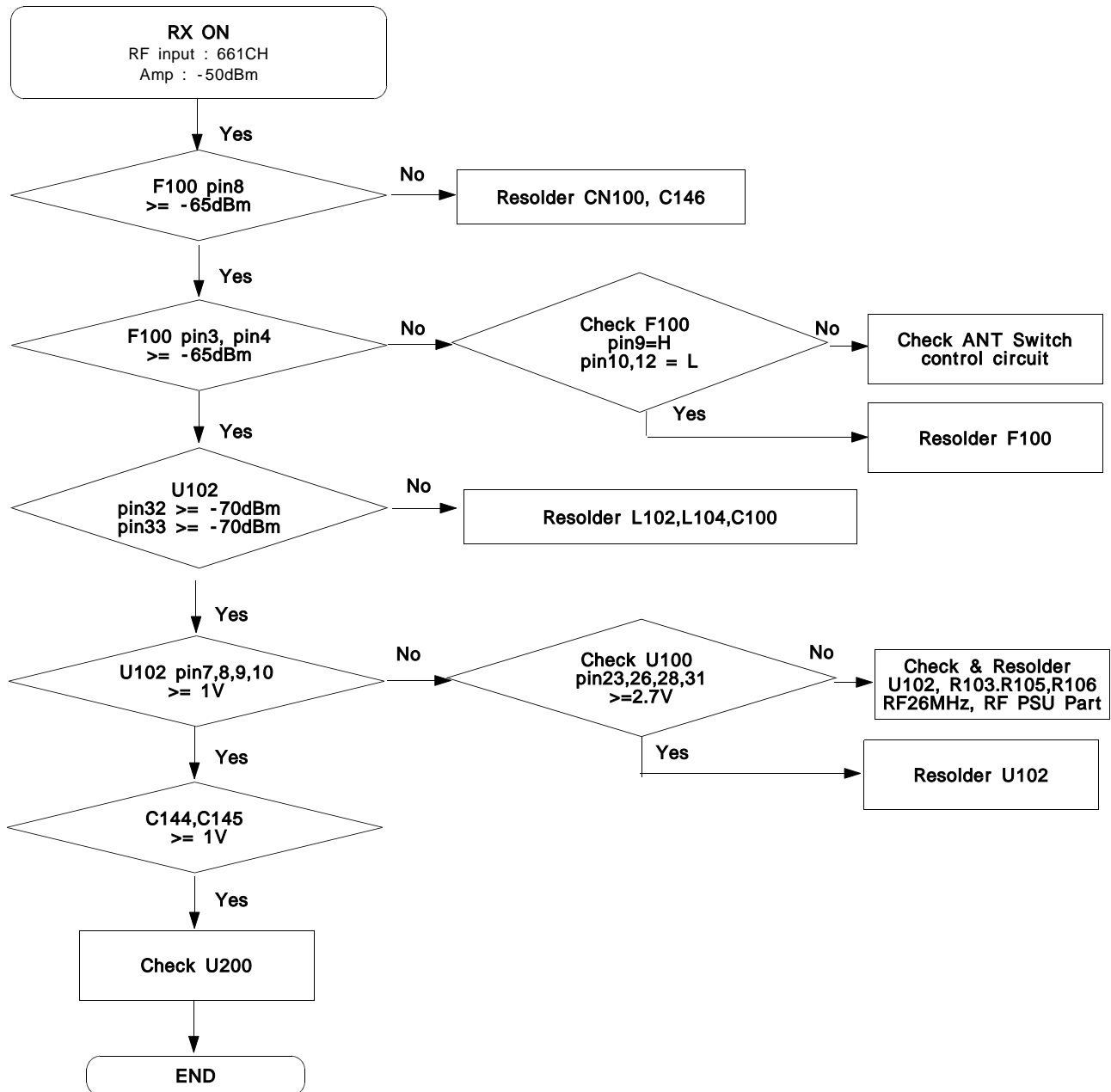
## 7-16. EGSM Transmitter



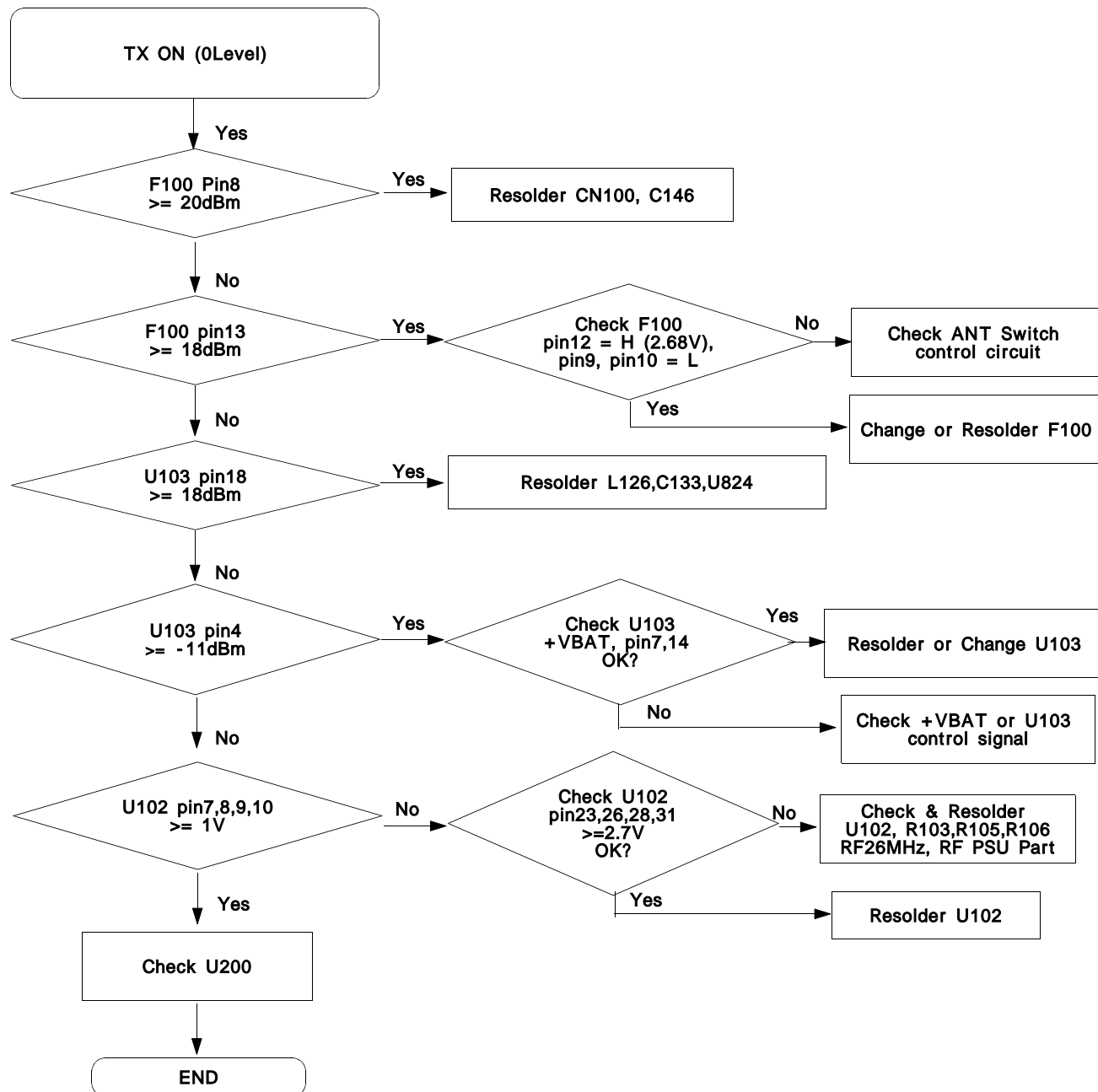
## 7-17. DCS Receiver

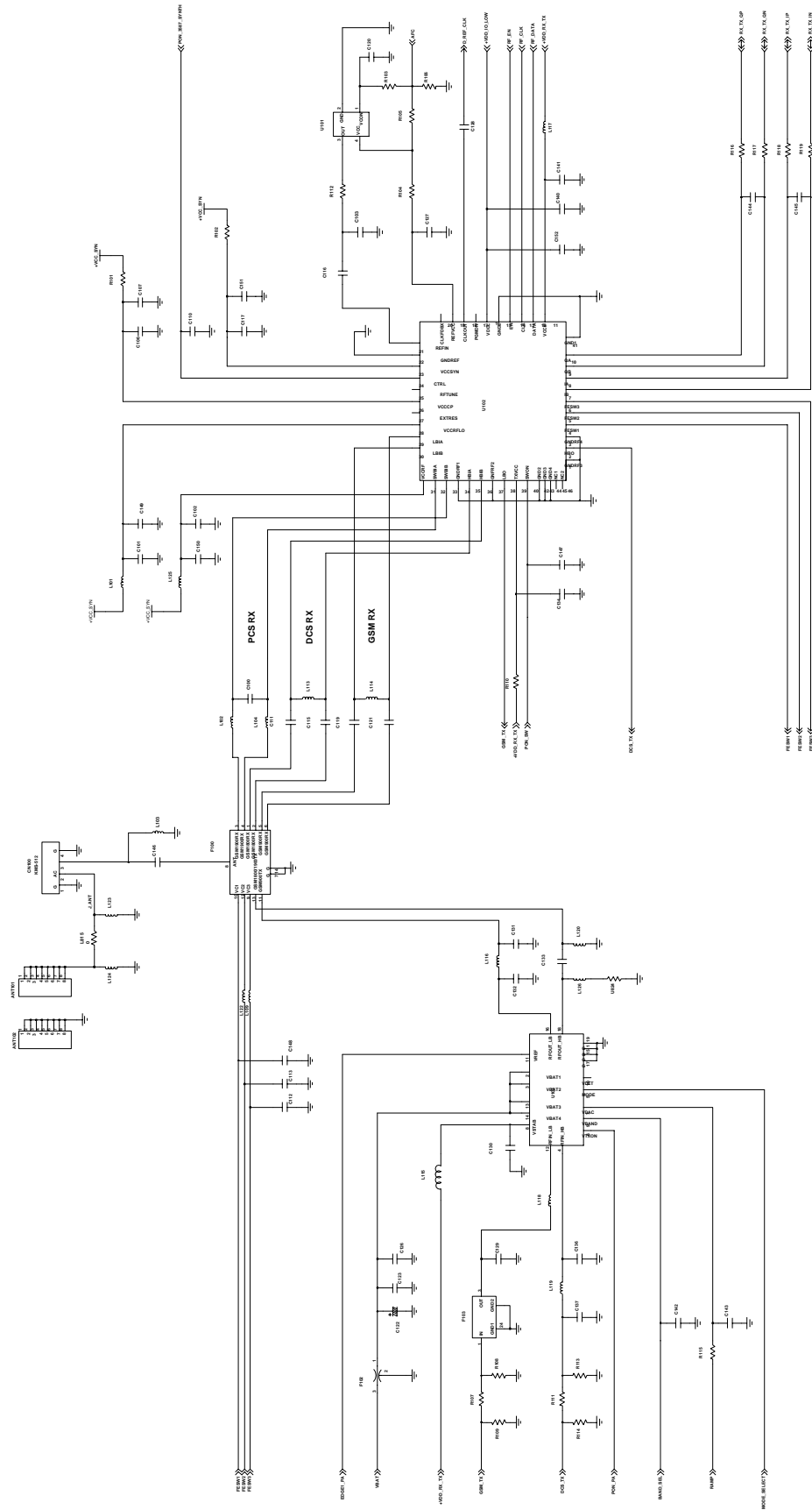


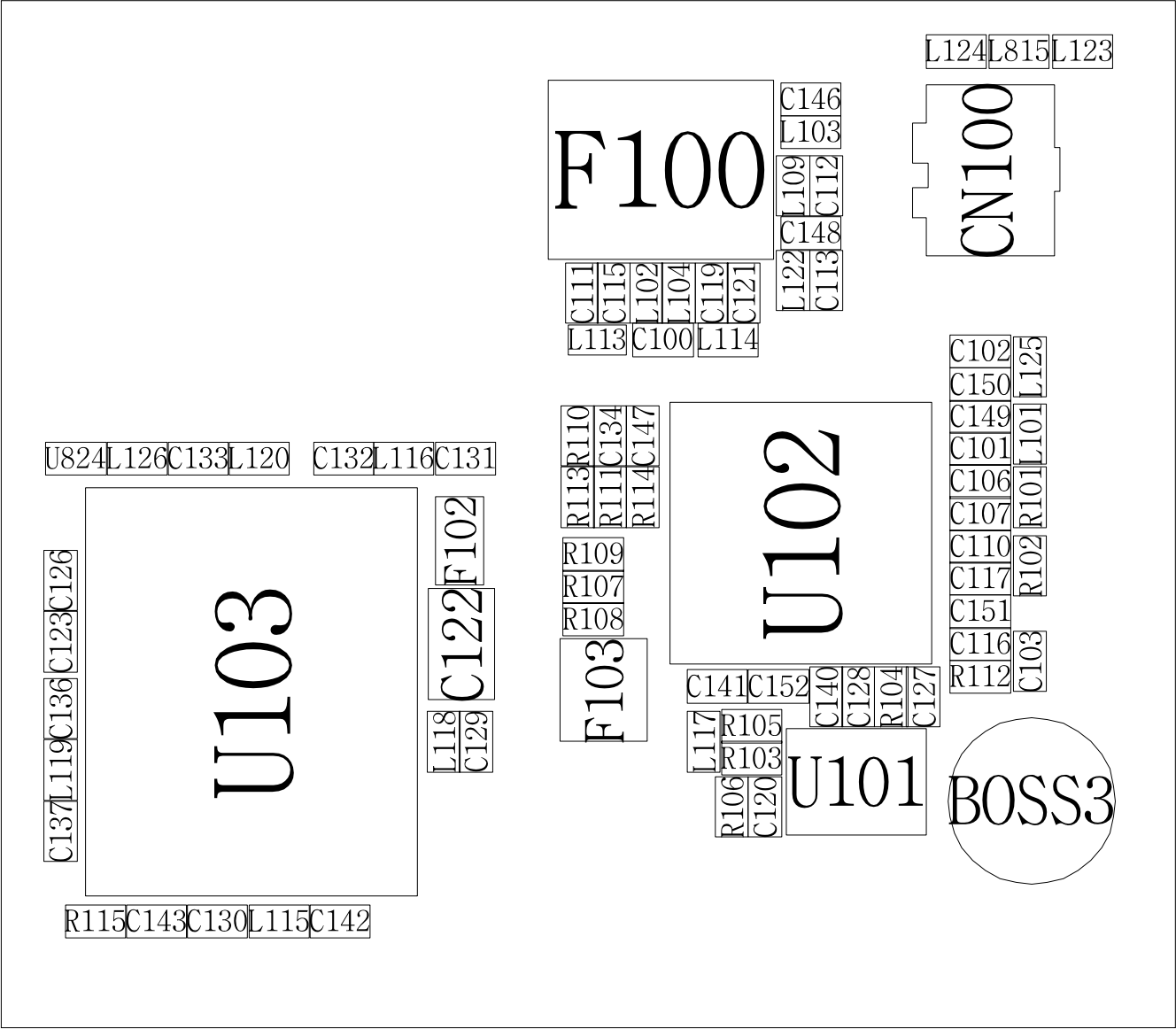
## 7-18. PCS Receiver



## 7-19. DCS/PCS Transmitter









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