SAMSUNG

UMTS TELEPHONE
SGH-Z150

SERVICE Manual

UMTS TELEPHONE

CONTENTS

SAMSUNG
ELECTRONICS

Code No.: GH68-11168A
BASIC.

1. Specification

1-1. GSM General Specification

	EGSM900	DCS1800	PCS1900	W-CDMA
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	1710~1785 1805~1880	1850~1910 1930~1990	1920~1980 2110~2170
ARFCN range	0~124 & 975~1023	512~885	512~810	UL:9612~9888 DL:10562~10838
Tx/Rx spacing	45MHz	95MHz	80MHz	190MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	3.84Mcps
Time Slot Period/Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	Frame length : 10ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	QPSK HQPSK
MS Power	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm	24dBm ~ - 50dBm
Power Class	4 (max +33dBm)	1 (max +30dBm)	1 (max +30dBm)	3 (max +24dBm)
Sensitivity	-102dBm	-100dBm	-100dBm	-106.7dBm
TDMA Mux	8	8	8	
Cell Radius	35Km	2Km	2Km	2Km

1-2. GSM TX power class

TX Power control level	GSM900
5	33±2 dBm
6	31±2 dBm
7	29±2 dBm
8	27±2 dBm
9	25±2 dBm
10	23±2 dBm
11	21±2 dBm
12	19±2 dBm
13	17±2 dBm
14	15±2 dBm
15	13±2 dBm
16	11±3 dBm
17	9±3dBm
18	7±3 dBm
19	5±3 dBm

TX Power control level	DCS1800
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

TX Power control level	PCS1800
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

2. Circuit Description

2-1. SGH-Z150 RF Circuit Description

- Antenna Switch Module (U600)

The antenna switch module allows multiple operating bands and modes to share the same antenna. A common antenna connects to one of seven paths: 1) UMTS-2100 Rx/Tx, 2) EGSM-900 Rx, 3) EGSM-900 Tx, 4) DCS-1800 Rx, and 5) DCS-1800 Tx. 6) PCS-1900 Tx, 7) PCS-1900 Rx, UMTS operation requires simultaneous reception and transmission.

- Filter

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

· GSM Rx FILTER (F600) → For filtering the frequency band between 925 and 960 MHz.
· DCS Rx FILTER (F601) → For filtering the frequency band between 1805 and 1880 MHz.
· PCS Rx FILTER (F602) → For filtering the frequency band between 1930 and 1990 MHz.
· WCDMA Rx FILTER (F700) → For filtering the frequency band between 2110 and 2170 MHz.
· WCDMA Tx FILTER (F701) → For filtering the frequency band between 1920 and 1980 MHz.

- VCTCXO (TCX700)

To generate the 19.2MHz reference clock to drive the logic and RF.

- Duplexer (F702)

A duplexer splits a single operating band into receive and transmit paths.

- WCDMA PAM (PAM702)

This is a key component in the transmitter chain and must complement the RTR6200 IC precisely; jointly they dominate the UMTS transmitter performance characteristics. Parameters such as gain, output power level, ACLR, harmonics, Rx-band noise, and power supply current are critical.

- GSM/DCS/PCS PAM (PAM602)

The PAM is a key component in any transmitter chain and must complement the rest of the transmitter precisely. For GSM, DCS, PCS operation, the closed-loop transmit power control functions add even more requirements relative to the UMTS PA. In addition to gain control and switching requirements, the usual RF parameters such as gain, output power level, several output spectrum requirements, and power supply current are critical.

- GSM/DCS/PCS Dual Tx VCO (VCO600)

The dual Tx VCO outputs, one for EGSM and one for DCS/PCS, drive a resistive network that splits the active signal into two signals: 1) the input to the active PAM which is the low loss path, and 2) the OPLL feedback signal.

- RFR6250 (U701)

The RFR6250 provides the Zero-IF receiver signal path, from RF to analog baseband, for UMTS-2100 applications. The RFR6250 includes an LNA circuit optimized for UMTS-2100 operation and a VCO which generate UMTS Rx LO signal. The RFR6250 accepts its UMTS input signal from the handset RF front-end design. The UMTS input is configured differentially to optimize second-order inter-modulation and common mode rejection performance, and implements MSM-controlled gain adjustments to extend the receiver dynamic range.

- RTR6250 (U601)

The RTR6250 supports multi-band, multi-mode phones with two receiver signal paths and three transmitter signal paths:

1) Receiver paths
- EGSM-900
- DCS-1800
- PCS-1900

2) Transmitter paths
- EGSM-900 (using OPLL technique)
- DCS-1800 (using OPLL technique)
- PCS-1900
- UMTS-2100

Numerous secondary functions are integrated on-chip as well:

3) Phase-locked loop circuits
- PLL and an external VCO supports EGSM Rx and Tx, DCS Rx and Tx, DCS Rx and Tx and UMTS Tx

4) Transceiver LO generation and distribution circuits
- EGSM-900 Rx and Tx
- DCS-1800 Rx and Tx
- PCS-1900 Rx and Tx
- UMTS-2100 Tx

2-2. SGH-Z150 Baseband Circuit description

2-2-1. PM6650-2

- Power Management

Ten low-dropout regulators designed specifically for GSM applications power the terminal and help ensure optimal system performance and long battery life. It provides seven LDO support for 1.375V, 1.8V, 2.6V, 2.85V, 3.0V, 3.3V while a self-resetting, electronically fused switch supplies power to external accessories. Ancillary support functions, such as RTC module and RTC charger, Clock Buffer, aid in reducing both board area and system complexity.
SBI BUS serial interface provides access to control and configuration registers. This interface gives full control of the MSM6250A and enables system designers to maximize both standby and talk times.
Supervisory functions. including a reset generator, an input voltage monitor, and a ADC Conertte 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).

- TCXO Controller and Buffers

The PM6650-2 IC includes circuits for controlling the TCXO warm-up and buffering its signal for distribution throughout the handset. Performance specifications are presented below.

2-2-2. Connector

- LCD Connector

LCD has 1.9", 176x220 resolution (color 260K TFT LCD). Chip select signals in MSM6250A, MAIN_LCD_CS can enable main LCD and MAIN_LCD_BACKLIGHT enables white LED of main LCD. nRESET_LCD signal initiates the reset process of the main LCD.

- Key

This is consisted of key interface pins among MSM6250A IC, KYPD_N(9,11,13,15,17) and KEYSENSE(0:3). These signals compose the matrix. Result of matrix informs the key status to key interface in the MSM6250A. Power on/off key(PHONE_ON) is separated from the matrix. The key LED use the "VREG_KEY_LED" supply voltage.

- ESD Filter

This system uses the ESD filter(GMF05LC) and ESD-EMI filter(ICVE21184E070R101FR) to protect noise from CONNECTORs and part.

- IF connetor and EAR-JACK

It is 20-pin connector and is compatibly used for IF connector or EAR-JACK. They are designed to use VBATT, USB_VBUS, VEXT_5V, JTAG_SEL, TDO_TX, TDI_RX, JIG_ON, USB_D+, USB_D-, EAR_MICP, EAR_MIC_N, TRST_EARR, TMS_EAR, TCK_EARSW, RTCK_JACKINT, ADC_BOOTSW. They are connected to power supply IC, microprocessor and signal processor IC.

2-2-3. Audio

YMU765 has a built-in amplifier, and thus, is an ideal device for outputting sounds that are used by mobile phones in addition to game sounds and ringing melodies that are replayed by a synthesizer.
The synthesizer section adopts "stereophonic hybrid synthesizer system" that are given advantages of both FM synthesizers and Wave Table synthesizers to allow simultaneous generation of up to 32 FM voices and 32 Wave Table voices. Furthermore, YMU765 has a built-in hardware sequencer that helps to realize complex play without heavily loading the host CPU. And this device also has a built-in circuit for controlling vibrators and LEDs synchronizing with play of music. The consumed electric current can be stopped to the minimum by power down mode when not operating.
The hardware sequence built in this device allows playing of the complex music without giving excessive load to the CPU of the portable telephones. Moreover, the registers of the FM synthesizer can be operated directly for real time sound generation, allowing, for example, utilization of various sound effects when using the game software installed in the portable telephone.

2-2-4. Memory

The signals in the MSM6250A enable two memories. They use volt supply voltage, VREG_MSMP, VREG_MSME from the PM6650-2. This system uses SEC's memory, KBE00F005A-D411. It is consisted of 1G bits flash NAND memory and 512M bits SDRAM memory. It has 16 bit data line, D1[0~15] which is connected to MSM6250A.

2-2-5. Camera

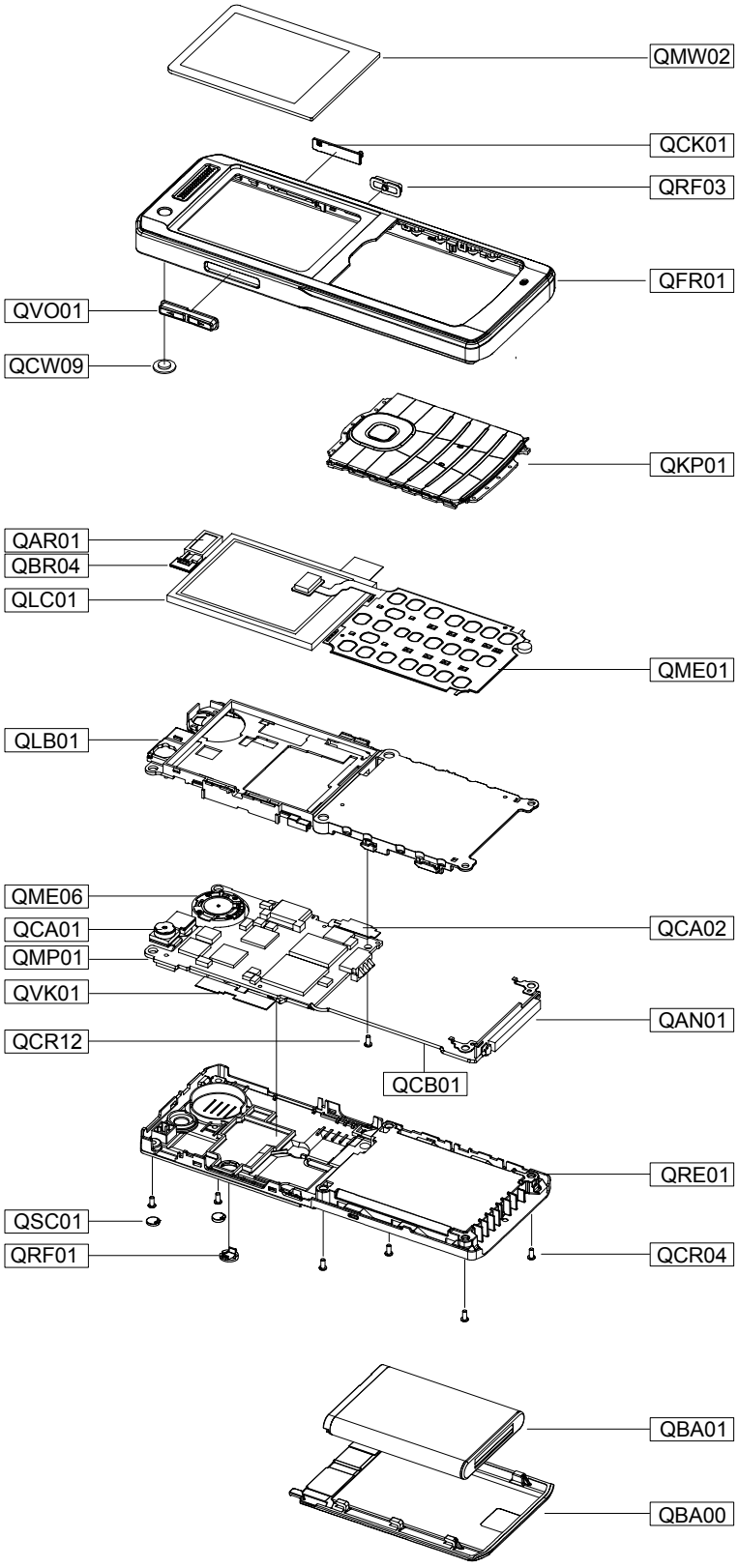
The camera module consists of dual VGA pixel of system LSI(Samsung Techwin), 1/8" VGA CMOS image sensor with an embedded image signal processor. Pixel size is 2.8 um and effective resolution is 640(H) x 480(V).

2-2-6. Bluetooth

This system uses Bluetooth module, LBDA245AN0, Murata's. Chip solution is of Broadcom, BCM2004. It uses a power signal, "VREG_BT". This system uses Blue-Q interface in that module has RF circuit and base band bluetooth part is in MSM6250A.

3. Exploded View and Parts List

3-1. Exploded View

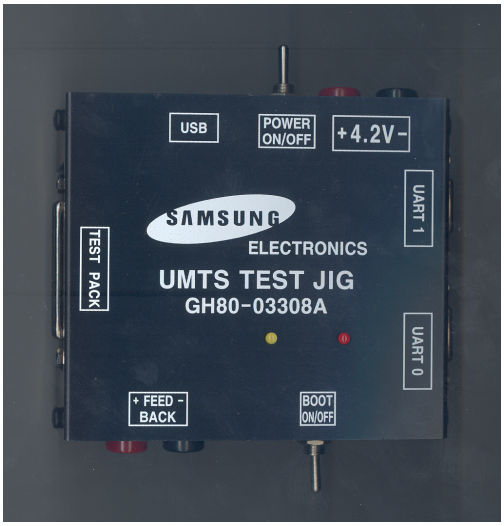


3-2. Parts List

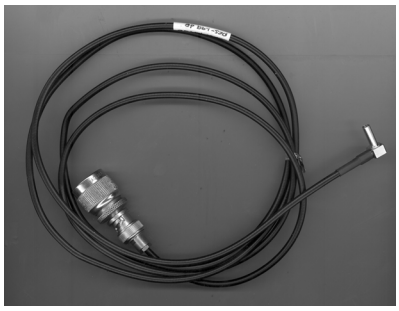
Location No		Description	SEC CODE
QAN01		ANTENNA-CHIP ANT SGH-Z150	GH42-00739A
QAR01		AUDIO-RECEIVER	3009-001165
QBA00		MEC-CASE BATTERY	GH75-09155B
QBA01		INNER BATTERY PACK-900MAH,BLAC	GH43-02322A
QBR04		MEC-CUSHION BRACKET RECEIVER	GH75-09632A
QCA01		UNIT-CAMERA	GH59-02797A
QCA02		UNIT-CAMERA KEY	GH59-02600A
QCB01		CBF COAXIAL CABLE	GH39-00517A
QCR04		SCREW-MACHINE	6001-001479
QCR12		SCREW-MACHINE	6001-001530
QCW09		MEC-COVER WIN CAM BACK	GH75-09154B
QKP01		MEC-KEYPAD(TIM/OSA)	GH75-09152B
QLB01		MEC-BRACKET LCD	GH75-09153A
QLC01		LCD-LCD MODULE	GH07-00800A
QME01		UNIT-MAIN KEY FPCB	GH59-02646A
QME06		UNIT-MULTI MODE SPEAKER	GH59-02847A
QMP01		PBA MAIN-SGH Z150 (SEI)	GH92-02560A
QMW02		PCT-COVER WINDOW MAIN	GH72-28858B
QRE01		MEC-CASE REAR(TIM)	GH75-09151B
QRF01		PMO-COVER RF	GH72-27738B
QSC01		RMO-COVER SCREW	GH73-06393C
QVK01		UNIT-VOLUME KEY	GH59-02599A
QFR01		MEC-CASE FRONT(TIM)	GH75-09148B
	QCK01	MEC-CAMERA KEY	GH75-09150A
	QRF03	PMO-COVER EAR	GH72-27739C
	QVO01	MEC-VOLUME KEY	GH75-09149A

Description	SEC CODE
BAG PE	6902-000634
CBF INTERFACE-DATA LINK CABLE	GH39-00444B
ADAPTOR-SGHD800 TA(EU)	GH44-01060B
S/W CD-SGH-Z150 PC STUDIO C	GH46-00194A
UNIT-EARPHONE	GH59-02499B
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL USERS-TIM ITALIAN	GH68-09137A
LABEL(R)-MAIN(TIM_SIL)	GH68-09256E
LABEL(R)-MASTR(TIM_SIL)	GH68-09314G
CUSHION-CASE	GH69-03599A
BOX(P)-UNIT(TIM)	GH69-03642B
PCT-COVER WIN CAM TOP	GH72-28859A
RMO-CUSHION MSN	GH73-06421A
RMO-CUSHION MEMORY	GH73-06422A
MPR-TAPE EL	GH74-14881A
MPR-SPONGE SIDE KEY	GH74-19099A
MPR-TAPE CONNECOR LCD	GH74-20833A
MPR-CUSHION F/CAM TOP	GH74-20853A
MPR-VINYL BOHO WIN CAM	GH74-20855A
MPR-VINYL BOHO WIN CAM	GH74-20855A
MPR-VINYL BOHO F/CASE	GH74-20856A
MPR-VINYL BOHO FRONT LCD	GH74-20857A
MPR-VINYL BOHO KEY PAD	GH74-20858A
MPR-VINYL BOHO CAMERA	GH74-22188A
MPR-TAPE ANTENNA CONNECTOR	GH74-22192A
MPR-TAPE PCB	GH74-22193A
MPR-TAPE PCB BATTERY	GH74-22276A
MPR-TAPE SPK SHEET	GH74-22278A
MPR-TAPE PBA LIGHT	GH74-23277A
MPR-VINYL BOHO MAIN WIN	GH74-23633A
MEC-HANGER(BLK)	GH75-08867E

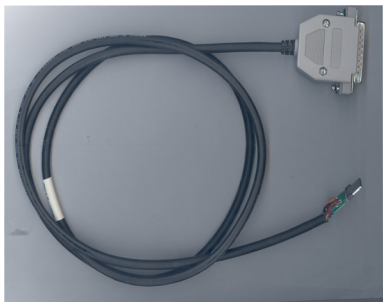
3-3. Test Jig (GH80-03308A)



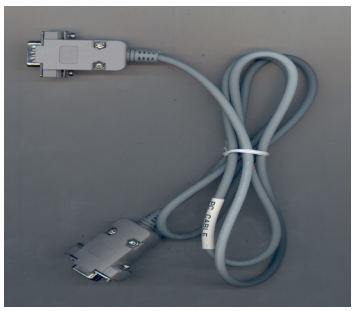
3-3-1. RF Test Cable (GH39-00283A)



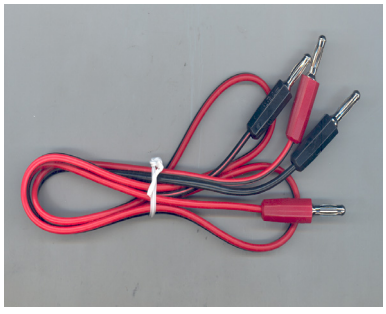
3-3-2. Test Cable



3-3-3. Serial Cable



3-3-4. Power Supply Cable



3-3-5. DATA CABLE

3-3-6. TA

4. Electrical Parts List

Ddsign LOC	Discription	SEC Code	STATUS
AN600	ANTENNA-CHIP	4202-001091	SA
BAT201	BATTERY-LI(2ND)	4302-001119	SA
BTC801	CONNECTOR-BATTERY	3711-006003	SA
C100	C-CER,CHIP	2203-006423	SA
C101	C-CER,CHIP	2203-006423	SA
C102	C-CER,CHIP	2203-006423	SA
C103	C-CER,CHIP	2203-006423	SA
C104	C-CER,CHIP	2203-006423	SA
C105	C-CER,CHIP	2203-006423	SA
C106	C-CER,CHIP	2203-006423	SA
C107	C-CER,CHIP	2203-006423	SA
C108	C-CER,CHIP	2203-006423	SA
C109	C-CER,CHIP	2203-006423	SA
C110	C-CER,CHIP	2203-006423	SA
C111	C-CER,CHIP	2203-006423	SA
C112	C-CER,CHIP	2203-006423	SA
C113	C-CER,CHIP	2203-006423	SA
C114	C-CER,CHIP	2203-006562	SA
C115	C-CER,CHIP	2203-006562	SA
C116	C-CER,CHIP	2203-006423	SA
C117	C-CER,CHIP	2203-006423	SA
C118	C-CER,CHIP	2203-006423	SA
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C124	C-CER,CHIP	2203-006423	SA
C125	C-CER,CHIP	2203-006423	SA
C126	C-CER,CHIP	2203-006562	SA
C127	C-CER,CHIP	2203-006423	SA
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C132	C-CER,CHIP	2203-006423	SA
C133	C-CER,CHIP	2203-006423	SA
C134	C-CER,CHIP	2203-005725	SA
C135	C-CER,CHIP	2203-005725	SA
C136	C-CER,CHIP	2203-000489	SA
C137	C-CER,CHIP	2203-005682	SA
C138	C-CER,CHIP	2203-006423	SA
C139	C-CER,CHIP	2203-006194	SA
C140	C-CER,CHIP	2203-006047	SA
C141	C-CER,CHIP	2203-000254	SA
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Ddsign LOC	Discription	SEC Code	STATUS
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C151	C-CER,CHIP	2203-000386	SA
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C208	C-CER,CHIP	2203-006423	SA
C209	C-CER,CHIP	2203-006305	SA
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C214	C-CER,CHIP	2203-006838	SA
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C217	C-CER,CHIP	2203-006208	SA
C218	C-CER,CHIP	2203-006838	SA
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C225	C-CER,CHIP	2203-005806	SA
C226	C-CER,CHIP	2203-006838	SA
C227	C-CER,CHIP	2203-006208	SA
C228	C-CER,CHIP	2203-005806	SA
C229	C-CER,CHIP	2203-000627	SNA
C230	C-CER,CHIP	2203-000627	SNA
C234	C-CER,CHIP	2203-005682	SA
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C258	C-CER,CHIP	2203-006562	SA
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C400	C-CER,CHIP	2203-005682	SA
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C421	C-CER,CHIP	2203-005682	SA
C422	C-CER,CHIP	2203-005682	SA
C423	C-CER,CHIP	2203-005682	SA
C424	C-CER,CHIP	2203-005682	SA
C425	C-CER,CHIP	2203-005682	SA
C426	C-CER,CHIP	2203-005682	SA
C427	C-CER,CHIP	2203-005682	SA
C428	C-CER,CHIP	2203-005682	SA

Ddsign LOC	Discription	SEC Code	STATUS
C429	C-CER,CHIP	2203-005682	SA
C430	C-CER,CHIP	2203-005682	SA
C431	C-CER,CHIP	2203-005682	SA
C432	C-CER,CHIP	2203-005682	SA
C433	C-CER,CHIP	2203-005682	SA
C434	C-CER,CHIP	2203-005682	SA
C435	C-CER,CHIP	2203-000254	SA
C436	C-CER,CHIP	2203-006838	SA
C437	C-CER,CHIP	2203-006423	SA
C438	C-CER,CHIP	2203-005682	SA
C500	C-CER,CHIP	2203-005729	SA
C502	C-CER,CHIP	2203-006648	SA
C503	C-CER,CHIP	2203-006648	SA
C504	C-CER,CHIP	2203-006305	SA
C505	C-CER,CHIP	2203-005729	SA
C506	C-CER,CHIP	2203-005779	SA
C507	C-CER,CHIP	2203-006305	SA
C508	C-CER,CHIP	2203-005719	SA
C510	C-CER,CHIP	2203-005729	SA
C513	C-CER,CHIP	2203-005719	SA
C514	C-CER,CHIP	2203-006648	SA
C515	C-CER,CHIP	2203-006648	SA
C516	C-CER,CHIP	2203-005729	SA
C517	C-CER,CHIP	2203-006423	SA
C518	C-CER,CHIP	2203-006194	SA
C519	C-CER,CHIP	2203-006348	SA
C520	C-CER,CHIP	2203-006399	SA
C521	C-CER,CHIP	2203-006399	SA
C523	C-CER,CHIP	2203-006208	SA
C524	C-CER,CHIP	2203-006423	SA
C526	C-CER,CHIP	2203-006305	SA
C527	C-CER,CHIP	2203-005682	SA
C528	C-CER,CHIP	2203-006562	SA
C529	C-CER,CHIP	2203-006399	SA
C530	C-CER,CHIP	2203-006562	SA
C531	C-CER,CHIP	2203-006647	SA
C534	C-CER,CHIP	2203-005719	SA
C535	C-CER,CHIP	2203-006647	SA
C536	C-CER,CHIP	2203-005806	SA
C537	C-CER,CHIP	2203-006208	SA
C538	C-CER,CHIP	2203-006423	SA
C539	C-CER,CHIP	2203-006423	SA
C540	C-CER,CHIP	2203-000438	SA
C541	C-CER,CHIP	2203-005719	SA
C542	C-CER,CHIP	2203-006190	SA
C543	C-CER,CHIP	2203-006648	SA
C545	C-CER,CHIP	2203-006423	SA
C546	C-CER,CHIP	2203-000654	SA
C547	C-CER,CHIP	2203-003054	SA
C548	C-CER,CHIP	2203-006190	SA

Ddsign LOC	Discription	SEC Code	STATUS
C549	C-CER,CHIP	2203-000438	SA
C550	C-CER,CHIP	2203-005719	SA
C551	C-CER,CHIP	2203-005719	SA
C552	C-CER,CHIP	2203-005719	SA
C553	C-CER,CHIP	2203-005719	SA
C554	C-CER,CHIP	2203-005719	SA
C556	C-CER,CHIP	2203-006562	SA
C600	C-CER,CHIP	2203-000885	SA
C601	C-CER,CHIP	2203-005682	SA
C602	C-CER,CHIP	2203-006423	SA
C603	C-CER,CHIP	2203-005682	SA
C604	C-CER,CHIP	2203-005736	SA
C605	C-CER,CHIP	2203-006399	SA
C606	C-CER,CHIP	2203-005682	SA
C607	C-CER,CHIP	2203-005736	SA
C610	C-CER,CHIP	2203-000854	SA
C612	C-CER,CHIP	2203-000725	SA
C613	C-CER,CHIP	2203-006194	SA
C614	C-CER,CHIP	2203-000836	SA
C615	C-CER,CHIP	2203-005725	SA
C616	C-CER,CHIP	2203-006423	SA
C617	C-CER,CHIP	2203-006423	SA
C618	C-CER,CHIP	2203-005682	SA
C620	C-CER,CHIP	2203-006423	SA
C622	C-CER,CHIP	2203-005682	SA
C623	C-CER,CHIP	2203-006423	SA
C624	C-CER,CHIP	2203-005806	SA
C625	C-CER,CHIP	2203-006423	SA
C626	C-CER,CHIP	2203-006423	SA
C627	C-CER,CHIP	2203-005682	SA
C628	C-CER,CHIP	2203-005682	SA
C629	C-CER,CHIP	2203-006423	SA
C632	C-CER,CHIP	2203-005682	SA
C633	C-CER,CHIP	2203-005682	SA
C634	C-CER,CHIP	2203-006423	SA
C637	C-CER,CHIP	2203-005717	SA
C638	C-CER,CHIP	2203-006423	SA
C641	C-CER,CHIP	2203-006556	SA
C642	C-CER,CHIP	2203-006556	SA
C648	C-CER,CHIP	2203-006194	SA
C649	C-CER,CHIP	2203-006194	SA
C650	C-CER,CHIP	2203-005659	SA
C651	C-CER,CHIP	2203-002443	SA
C652	C-CER,CHIP	2203-005234	SA
C653	C-CER,CHIP	2203-006194	SA
C654	C-CER,CHIP	2203-006194	SA
C656	C-CER,CHIP	2203-005806	SA
C657	C-CER,CHIP	2203-006838	SA

Ddsign LOC	Discription	SEC Code	STATUS
C658	C-CER,CHIP	2203-006194	SA
C659	C-CER,CHIP	2203-005806	SA
C660	C-CER,CHIP	2203-006838	SA
C661	C-CER,CHIP	2203-005682	SA
C662	C-CER,CHIP	2203-005682	SA
C663	C-CER,CHIP	2203-006838	SA
C664	C-CER,CHIP	2203-006838	SA
C666	C-CER,CHIP	2203-005682	SA
C667	C-CER,CHIP	2203-000438	SA
C668	C-CER,CHIP	2203-000311	SA
C670	C-CER,CHIP	2203-005344	SA
C671	C-CER,CHIP	2203-006399	SA
C673	C-CER,CHIP	2203-005682	SA
C674	C-CER,CHIP	2203-005682	SA
C675	C-CER,CHIP	2203-006423	SA
C677	C-CER,CHIP	2203-006423	SA
C678	C-CER,CHIP	2203-005682	SA
C679	C-CER,CHIP	2203-005682	SA
C682	C-CER,CHIP	2203-005719	SA
C683	C-CER,CHIP	2203-005719	SA
C684	C-CER,CHIP	2203-005719	SA
C685	C-CER,CHIP	2203-000812	SA
C686	C-CER,CHIP	2203-005719	SA
C687	C-CER,CHIP	2203-005444	SA
C688	C-CER,CHIP	2203-006556	SA
C700	C-CER,CHIP	2203-000330	SA
C702	C-CER,CHIP	2203-005806	SA
C703	C-CER,CHIP	2203-006838	SA
C704	C-CER,CHIP	2203-000330	SA
C705	C-CER,CHIP	2203-005729	SA
C706	C-CER,CHIP	2203-000330	SA
C708	C-CER,CHIP	2203-000330	SA
C711	C-CER,CHIP	2203-002677	SA
C714	C-CER,CHIP	2203-006423	SA
C715	C-CER,CHIP	2203-006305	SA
C716	C-CER,CHIP	2203-006120	SA
C717	C-CER,CHIP	2203-005736	SA
C718	C-CER,CHIP	2203-006423	SA
C719	C-CER,CHIP	2203-005288	SA
C720	C-CER,CHIP	2203-005806	SA
C723	C-CER,CHIP	2203-006194	SA
C724	C-CER,CHIP	2203-000725	SA
C726	C-CER,CHIP	2203-006121	SA
C727	C-CER,CHIP	2203-005288	SA
C729	C-CER,CHIP	2203-006121	SA
C730	C-CER,CHIP	2203-006838	SA
C731	C-CER,CHIP	2203-005683	SA
C732	C-CER,CHIP	2203-005736	SA
C733	C-CER,CHIP	2203-006423	SA
C734	C-CER,CHIP	2203-005736	SA

Ddsign LOC	Discription	SEC Code	STATUS
C735	C-CER,CHIP	2203-006423	SA
C736	C-CER,CHIP	2203-006194	SA
C737	C-CER,CHIP	2203-006194	SA
C738	C-CER,CHIP	2203-006423	SA
C739	C-CER,CHIP	2203-005806	SA
C740	C-CER,CHIP	2203-005736	SA
C741	C-CER,CHIP	2203-006423	SA
C742	C-CER,CHIP	2203-005736	SA
C744	C-CER,CHIP	2203-006423	SA
C745	C-CER,CHIP	2203-006305	SA
C746	C-CER,CHIP	2203-006423	SA
C747	C-CER,CHIP	2203-006423	SA
C748	C-CER,CHIP	2203-005736	SA
C749	C-CER,CHIP	2203-005740	SA
C750	C-CER,CHIP	2203-006305	SA
C751	C-CER,CHIP	2203-006423	SA
C801	C-CER,CHIP	2203-005682	SA
C805	C-CER,CHIP	2203-006423	SA
C806	C-CER,CHIP	2203-006838	SA
C807	C-CER,CHIP	2203-006399	SA
C809	C-CER,CHIP	2203-005482	SA
C810	C-CER,CHIP	2203-005719	SA
C811	C-CER,CHIP	2203-005719	SA
C812	C-CER,CHIP	2203-005719	SA
C813	C-CER,CHIP	2203-005719	SA
CN400	HEADER-BOARD TO BOARD	3711-005643	SA
CN402	CONNECTOR-FPC/FFC/PIC	3708-002162	SA
CN600	CONNECTOR-COAXIAL	3705-001358	SA
CN601	CONNECTOR-COAXIAL	3705-001339	SNA
CN802	HEADER-BOARD TO BOARD	3711-005345	SA
D200	DIODE-ARRAY	0407-001002	SA
D500	DIODE-SCHOTTKY	0404-001172	SA
D800	DIODE-TVS	0406-001203	SA
D801	DIODE-TVS	0406-001203	SA
D802	DIODE-TVS	0406-001203	SA
D803	DIODE-TVS	0406-001203	SA
D804	DIODE-TVS	0406-001203	SA
D805	DIODE-TVS	0406-001203	SA
DUF702	DUPLEXER-SAW	2910-000010	SA
F200	FILTER-EMI SMD	2901-001256	SA
F400	FILTER-EMI/ESD	2901-001326	SA
F401	FILTER-EMI/ESD	2901-001326	SA
F402	FILTER-EMI/ESD	2901-001326	SA
F403	FILTER-EMI/ESD	2901-001326	SA
F600	FILTER-SAW	2904-001628	SA
F601	FILTER-SAW	2904-001634	SA
F602	FILTER-SAW	2904-001635	SA
F700	FILTER-SAW	2904-001623	SA

Ddsign LOC	Discription	SEC Code	STATUS
F701	FILTER-SAW	2904-001629	SA
F800	FILTER-EMI SMD	2901-001254	SA
IFC800	SOCKET-INTERFACE	3710-002363	SA
L200	INDUCTOR-SMD	2703-002840	SA
L201	INDUCTOR-SMD	2703-002840	SA
L400	BEAD-SMD	3301-001756	SA
L401	BEAD-SMD	3301-001756	SA
L403	BEAD-SMD	3301-001756	SA
L500	BEAD-SMD	3301-001756	SA
L501	BEAD-SMD	3301-001756	SA
L502	BEAD-SMD	3301-001756	SA
L503	BEAD-SMD	3301-001158	SA
L504	BEAD-SMD	3301-001158	SA
L600	BEAD-SMD	3301-001756	SA
L601	INDUCTOR-SMD	2703-002155	SA
L602	BEAD-SMD	3301-001756	SA
L603	INDUCTOR-SMD	2703-002907	SNA
L604	INDUCTOR-SMD	2703-002870	SA
L605	INDUCTOR-SMD	2703-002910	SA
L606	INDUCTOR-SMD	2703-002907	SNA
L608	INDUCTOR-SMD	2703-002870	SA
L609	INDUCTOR-SMD	2703-002906	SA
L610	INDUCTOR-SMD	2703-002907	SNA
L611	INDUCTOR-SMD	2703-002906	SA
L612	INDUCTOR-SMD	2703-002870	SA
L614	INDUCTOR-SMD	2703-002794	SNA
L615	INDUCTOR-SMD	2703-002858	SA
L616	INDUCTOR-SMD	2703-002794	SNA
L618	INDUCTOR-SMD	2703-002367	SA
L622	BEAD-SMD	3301-001756	SA
L623	INDUCTOR-SMD	2703-002819	SA
L624	INDUCTOR-SMD	2703-002819	SA
L625	INDUCTOR-SMD	2703-002819	SA
L626	INDUCTOR-SMD	2703-002819	SA
L627	INDUCTOR-SMD	2703-002901	SNA
L628	INDUCTOR-SMD	2703-002901	SNA
L629	INDUCTOR-SMD	2703-002901	SNA
L630	INDUCTOR-SMD	2703-001409	SA
L700	INDUCTOR-SMD	2703-001737	SA
L701	INDUCTOR-SMD	2703-002281	SA
L702	INDUCTOR-SMD	2703-001729	SA
L704	INDUCTOR-SMD	2703-002267	SA
L707	BEAD-SMD	3301-001756	SA
L708	BEAD-SMD	3301-001756	SA
L709	INDUCTOR-SMD	2703-001750	SA
MIS700	FREQ-ISOLATOR	4709-001408	SNA
OSC100	RESONATOR-CERAMIC	2802-001182	SA
OSC200	CRYSTAL-SMD	2801-004339	SA
PAM602	IC-POWER AMP	1201-002218	SA
PAM702	IC-POWER AMP	1201-002325	SA

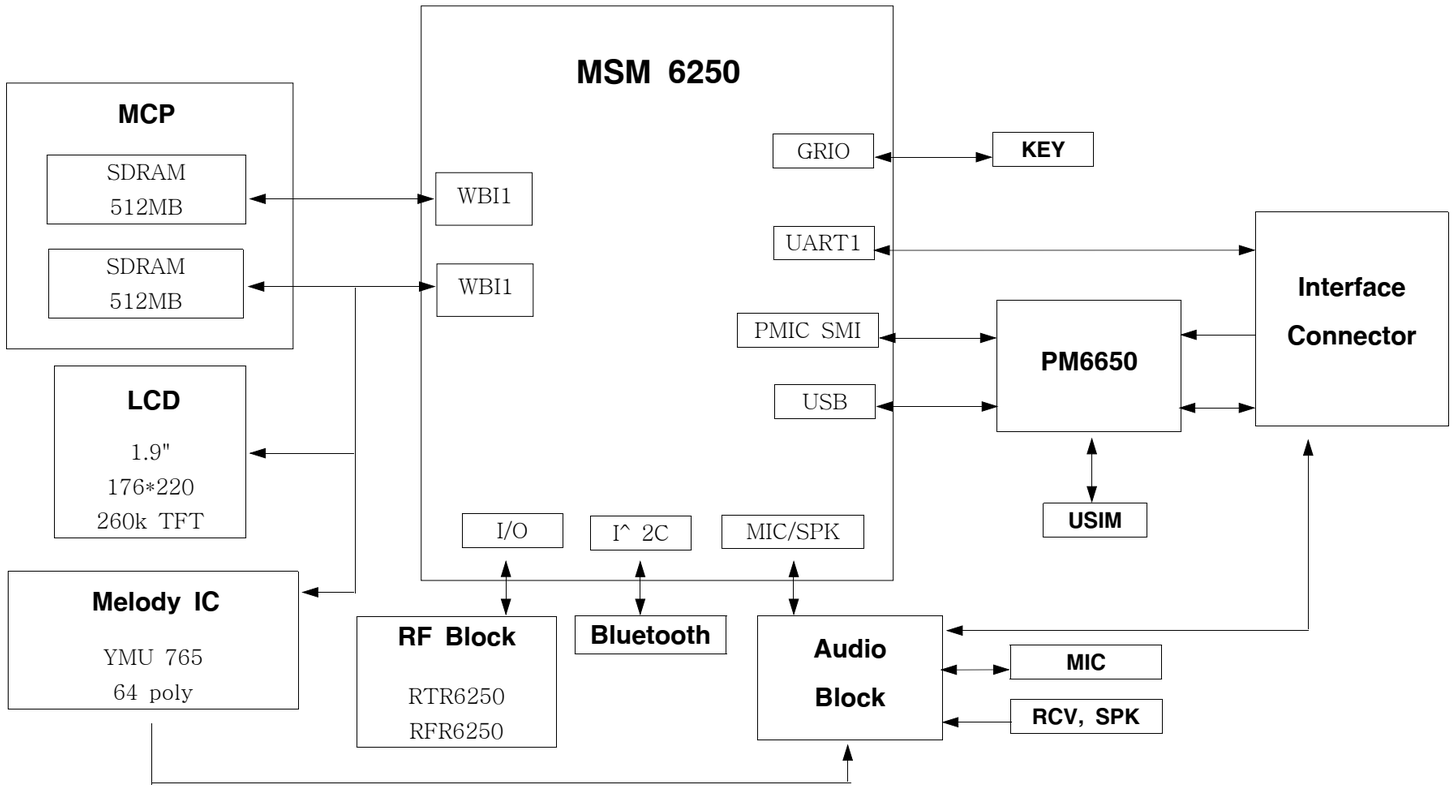
Ddsign LOC	Discription	SEC Code	STATUS
R100	R-CHIP	2007-008542	SA
R104	R-CHIP	2007-000140	SA
R105	R-CHIP	2007-000137	SA
R106	R-CHIP	2007-008419	SA
R107	R-CHIP	2007-009112	SNA
R108	R-CHIP	2007-008055	SA
R109	R-CHIP	2007-008765	SNA
R110	R-CHIP	2007-000171	SA
R111	R-CHIP	2007-000171	SA
R112	R-CHIP	2007-008516	SA
R113	R-CHIP	2007-009170	SA
R114	R-CHIP	2007-009170	SA
R115	R-CHIP	2007-008516	SA
R117	R-CHIP	2007-008548	SA
R118	R-CHIP	2007-008516	SA
R120	R-CHIP	2007-008542	SA
R121	R-CHIP	2007-008052	SA
R122	R-CHIP	2007-008542	SA
R123	R-CHIP	2007-009171	SA
R124	R-CHIP	2007-009171	SA
R125	R-CHIP	2007-009171	SA
R126	R-CHIP	2007-009171	SA
R127	R-CHIP	2007-009171	SA
R128	R-CHIP	2007-008588	SA
R129	R-CHIP	2007-008588	SA
R130	R-CHIP	2007-007142	SA
R131	R-CHIP	2007-003001	SA
R132	R-CHIP	2007-003001	SA
R135	R-CHIP	2007-008542	SA
R200	R-CHIP	2007-003015	SA
R201	R-CHIP	2007-003015	SA
R202	R-CHIP	2007-008516	SA
R203	R-CHIP	2007-008483	SA
R205	R-CHIP	2007-007468	SA
R206	R-CHIP	2007-008542	SA
R208	R-CHIP	2007-000151	SA
R210	R-CHIP	2007-008486	SA
R212	R-CHIP	2007-008478	SA
R213	R-CHIP	2007-008478	SA
R214	R-CHIP	2007-008055	SA
R215	R-CHIP	2007-007586	SA
R216	R-CHIP	2007-008275	SA
R217	R-CHIP	2007-000164	SA
R220	R-CHIP	2007-001298	SA
R221	R-CHIP	2007-007156	SA
R223	R-CHIP	2007-009223	SA
R224	R-CHIP	2007-009223	SA
R227	R-CHIP	2007-008516	SA

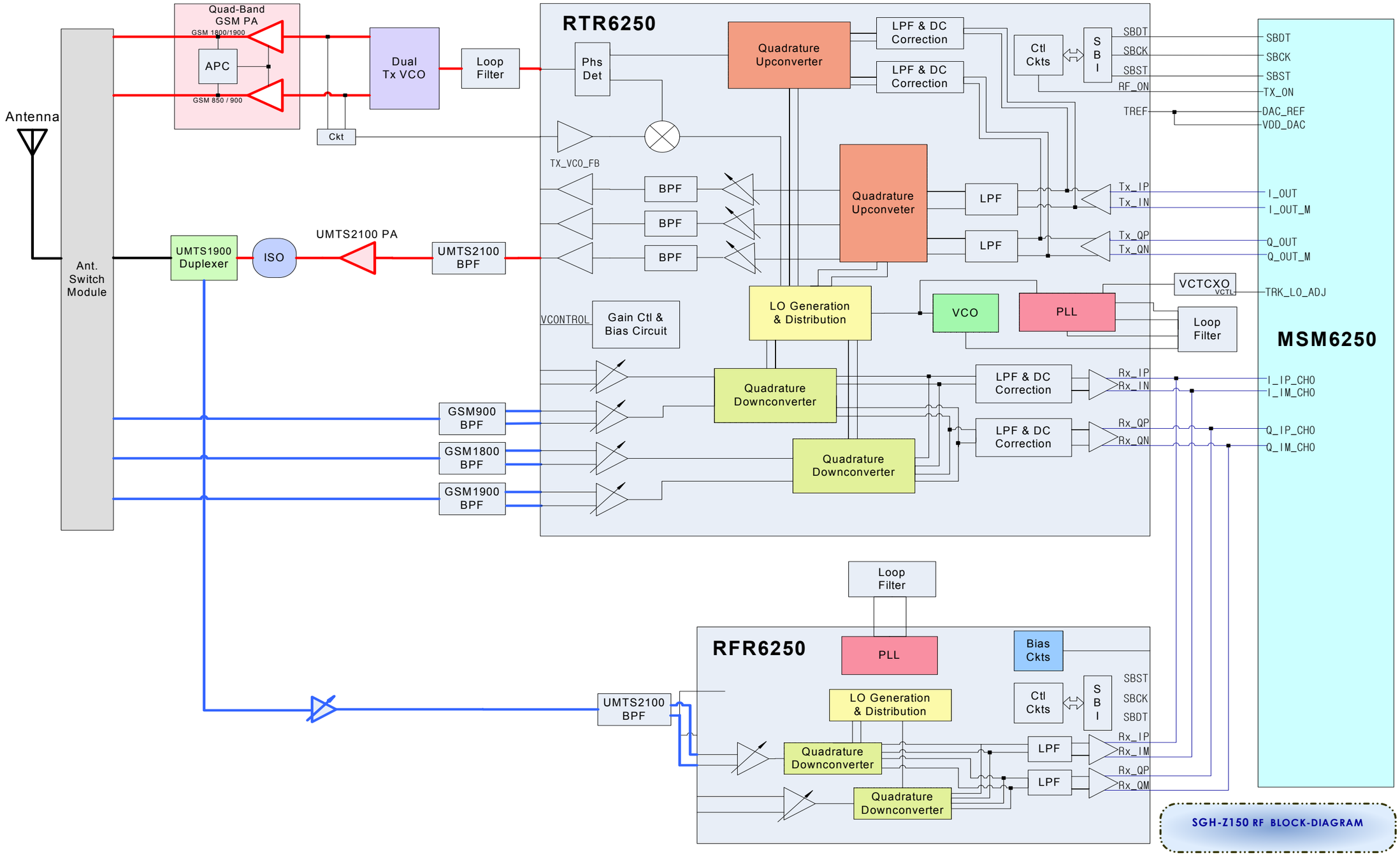
Ddsign LOC	Discription	SEC Code	STATUS
R301	R-CHIP	2007-009111	SA
R302	R-CHIP	2007-008516	SA
R303	R-CHIP	2007-008542	SA
R304	R-CHIP	2007-008419	SA
R306	R-CHIP	2007-008419	SA
R307	R-CHIP	2007-009170	SA
R308	R-CHIP	2007-009170	SA
R400	R-CHIP	2007-001284	SA
R500	R-CHIP	2007-009212	SA
R501	R-CHIP	2007-009212	SA
R502	R-CHIP	2007-008548	SA
R503	R-CHIP	2007-008548	SA
R504	R-CHIP	2007-008548	SA
R505	R-CHIP	2007-008548	SA
R506	R-CHIP	2007-009212	SA
R507	R-CHIP	2007-009212	SA
R508	R-CHIP	2007-008055	SA
R509	R-CHIP	2007-008056	SA
R511	R-CHIP	2007-007316	SA
R512	R-CHIP	2007-007529	SA
R513	R-CHIP	2007-007529	SA
R514	R-CHIP	2007-009168	SA
R515	R-CHIP	2007-007311	SA
R516	R-CHIP	2007-008786	SA
R517	R-CHIP	2007-008786	SA
R518	R-CHIP	2007-007311	SA
R519	R-CHIP	2007-000566	SA
R600	R-CHIP	2007-007318	SA
R602	R-CHIP	2007-000145	SA
R603	R-CHIP	2007-008045	SA
R604	R-CHIP	2007-000145	SA
R606	R-CHIP	2007-008531	SA
R607	R-CHIP	2007-008531	SA
R608	R-CHIP	2007-008531	SA
R609	R-CHIP	2007-008531	SA
R610	R-CHIP	2007-007491	SA
R613	R-CHIP	2007-007142	SA
R614	R-CHIP	2007-000147	SA
R616	R-CHIP	2007-008045	SA
R617	R-CHIP	2007-008045	SA
R619	R-CHIP	2007-001301	SA
R620	R-CHIP	2007-001301	SA
R624	R-CHIP	2007-001291	SA
R626	R-CHIP	2007-001217	SA
R627	R-CHIP	2007-001295	SA
R628	R-CHIP	2007-001307	SA
R629	R-CHIP	2007-001307	SA
R630	R-CHIP	2007-009201	SA
R631	R-CHIP	2007-009201	SA
R632	R-CHIP	2007-008047	SA

Ddsign LOC	Discription	SEC Code	STATUS
R633	R-CHIP	2007-008047	SA
R634	R-CHIP	2007-008047	SA
R635	R-CHIP	2007-008047	SA
R636	R-CHIP	2007-001307	SA
R637	R-CHIP	2007-008531	SA
R700	R-CHIP	2007-008806	SA
R701	R-CHIP	2007-001284	SA
R702	R-CHIP	2007-007491	SA
R703	R-CHIP	2007-008051	SA
R704	R-CHIP	2007-008213	SA
R707	R-CHIP	2007-008045	SA
R800	R-CHIP	2007-008542	SA
R801	R-CHIP	2007-008542	SA
R802	R-CHIP	2007-008542	SA
R803	R-CHIP	2007-008542	SA
R804	R-CHIP	2007-008542	SA
R805	R-CHIP	2007-008542	SA
R806	R-CHIP	2007-008419	SA
R807	R-CHIP	2007-008542	SA
R808	R-CHIP	2007-008542	SA
R809	R-CHIP	2007-009111	SA
R810	R-CHIP	2007-000143	SA
R811	R-CHIP	2007-008419	SA
SIM200	CONNECTOR-CARD EDGE	3709-001391	SA
TA150	C-TA,CHIP	2404-001380	SA
TA511	C-TA,CHIP	2404-001380	SA
TA512	C-TA,CHIP	2404-001380	SA
TA522	C-TA,CHIP	2404-001366	SA
TA525	C-TA,CHIP	2404-001366	SA
TA532	C-TA,CHIP	2404-001381	SA
TA533	C-TA,CHIP	2404-001381	SA
TA544	C-TA,CHIP	2404-001339	SA
TA555	C-TA,CHIP	2404-001381	SA
TA647	C-TA,CHIP	2404-001406	SA
TA802	C-TA,CHIP	2404-001268	SA
TA803	C-TA,CHIP	2404-001406	SA
TCX700	OSCILLATOR-VCTCXO	2809-001280	SA
TH100	THERMISTOR-NTC	1404-001224	SA
TR200	TR-DIGITAL	0504-001113	SA
TR201	TR-DIGITAL	0504-001113	SA
TR202	FET-SILICON	0505-002010	SA
U101	IC-SWITCH	1205-002784	SA
U200	IC-POWER SUPERVISOR	1203-003877	SA
U201	IC-VOL. DETECTOR	1203-003728	SA
U202	IC-BATTERY	1203-003742	SA
U203	DIODE-TVS	0406-001200	SA
U204	DIODE-ARRAY	0407-001038	SA
U206	IC-VOL. DETECTOR	1203-004124	SA

Ddsign LOC	Discription	SEC Code	STATUS
U207	IC-SWITCH	1205-002874	SNA
U208	IC-VOL. DETECTOR	1203-004124	SA
U209	IC-SWITCH	1205-002784	SA
U301	IC-ANALOG MULTIPLEX	1001-001306	SA
U302	IC-ANALOG MULTIPLEX	1001-001306	SA
U400	IC-POSI.FIXED REG.	1203-003523	SA
U401	IC-POSI.FIXED REG.	1203-003432	SA
U402	IC-DC/DC CONVERTER	1203-003708	SNA
U403	IC-CMOS LOGIC	0801-003016	SA
U404	IC-SWITCH	1205-002784	SA
U501	IC-CMOS LOGIC	0801-002345	SA
U502	IC-ANALOG SWITCH	1001-001261	SA
U503	IC-AUDIO AMP	1201-002195	SA
U504	IC-MELODY	1204-002138	SA
U505	IC-AUDIO AMP	1201-002233	SA
U506	IC-POSI.FIXED REG.	1203-003754	SA
U600	IC-SWITCH	1205-002724	SA
U601	IC-TRANSCEIVER	1205-002645	SA
U603	BLUETOOTH MODULE	4709-001363	SA
U700	TR-DIGITAL	0504-001151	SA
U701	IC-RECEIVER	1205-002781	SA
U800	IC-ANALOG SWITCH	1001-001265	SA
U802	DIODE-ZENER	0403-001411	SA
U807	IC-ANALOG SWITCH	1001-001265	SA
U808	IC-POSI.FIXED REG.	1203-003754	SA
UCP100	IC-MODEM	1205-002780	SA
UME300	IC-MCP	1108-000041	SA
VCO600	OSCILLATOR-VCO	2806-001380	SA
ZD800	DIODE-TVS	0406-001197	SA
ZD801	DIODE-TVS	0406-001197	SA
ZD802	DIODE-TVS	0406-001197	SA
ZD803	DIODE-TVS	0406-001197	SA
ZD804	DIODE-TVS	0406-001197	SA
ZD805	DIODE-ZENER	0403-001427	SA

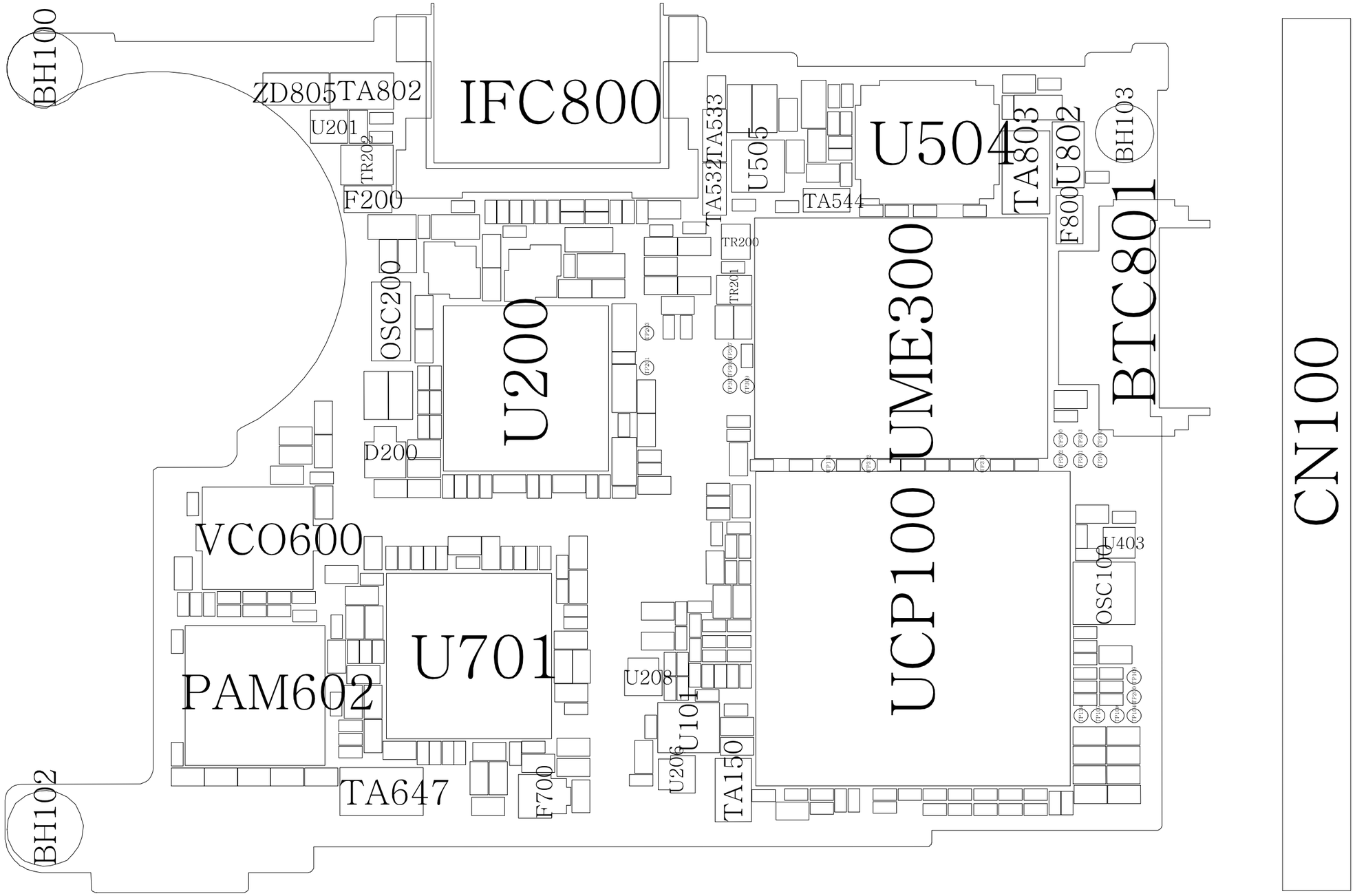
5. Block Diagrams



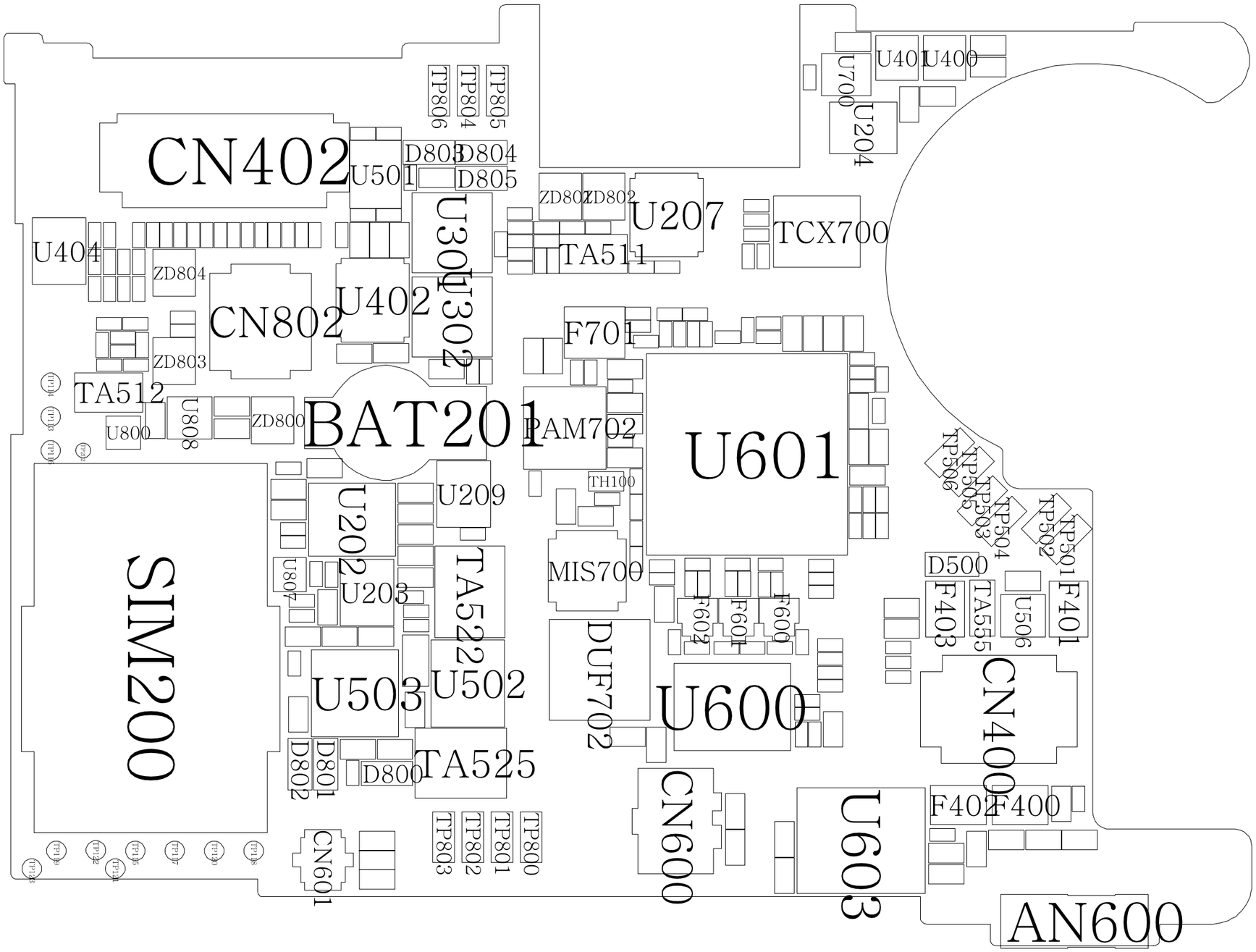


6. PCB Diagrams

6-1. PCB Top Diagram

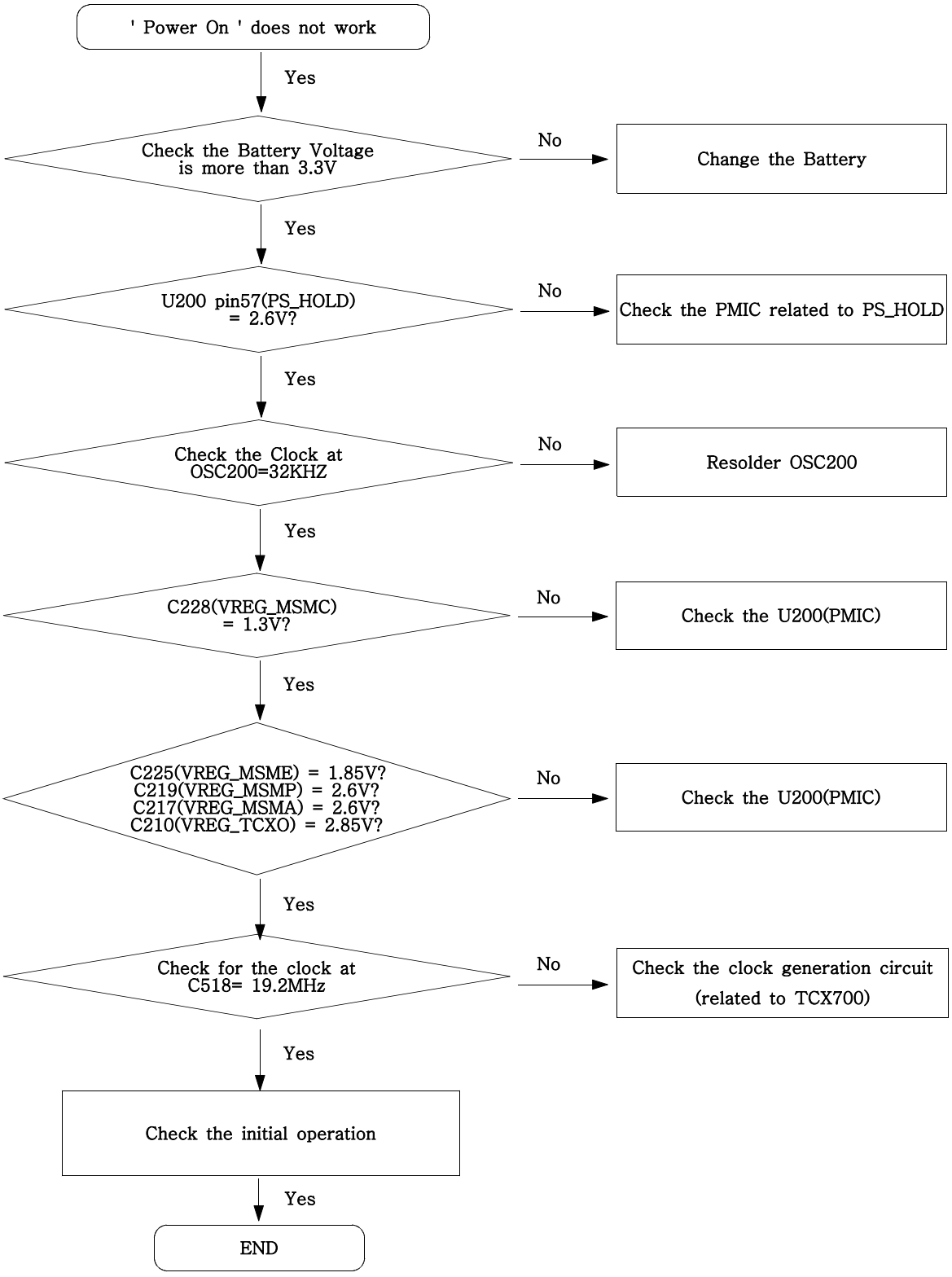


6-2. PCB Bottom Diagram

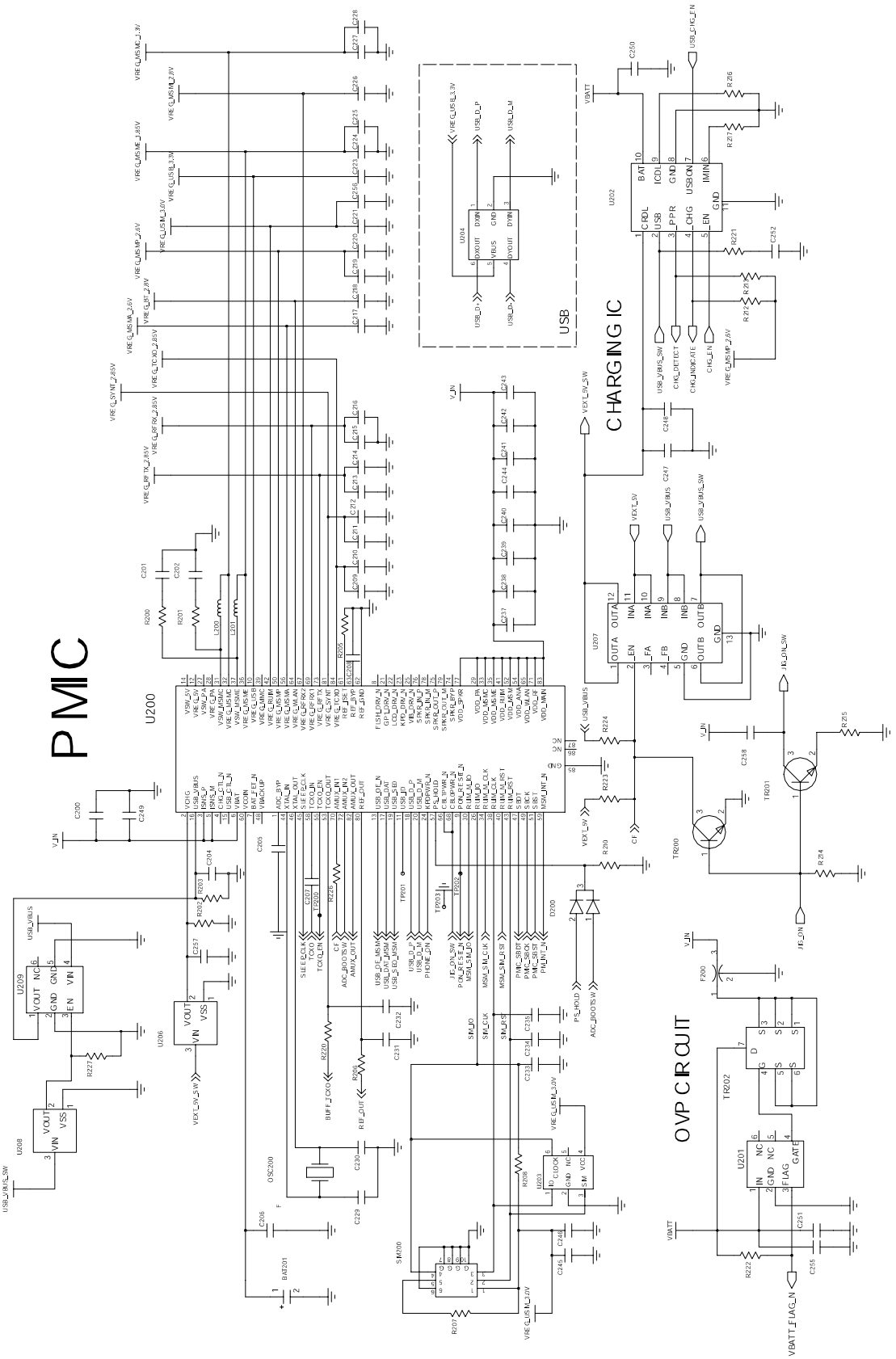


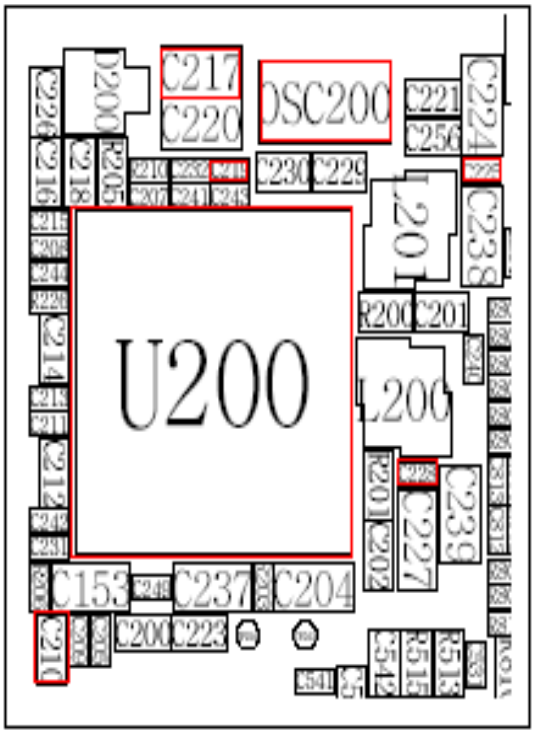
7. Flow Chart of Troubleshooting

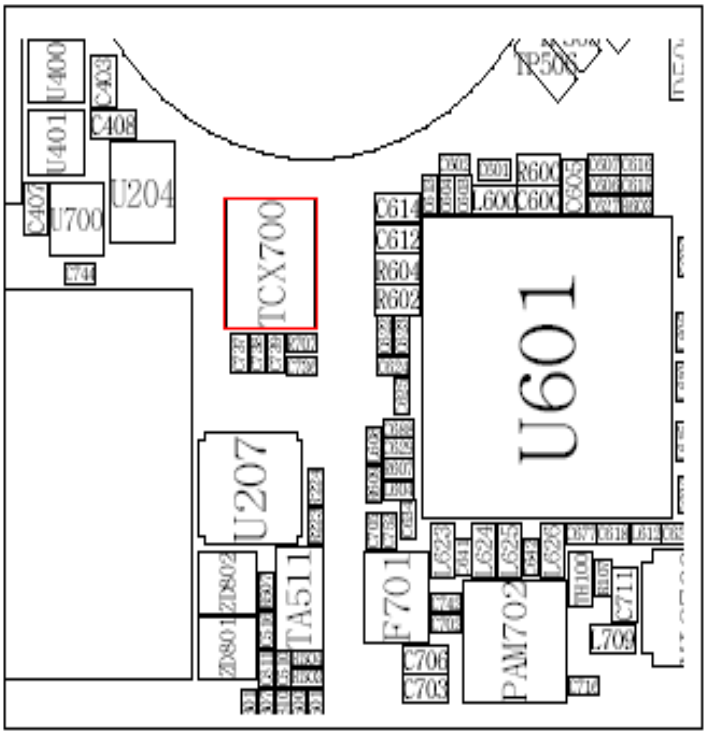
7-1. Power On

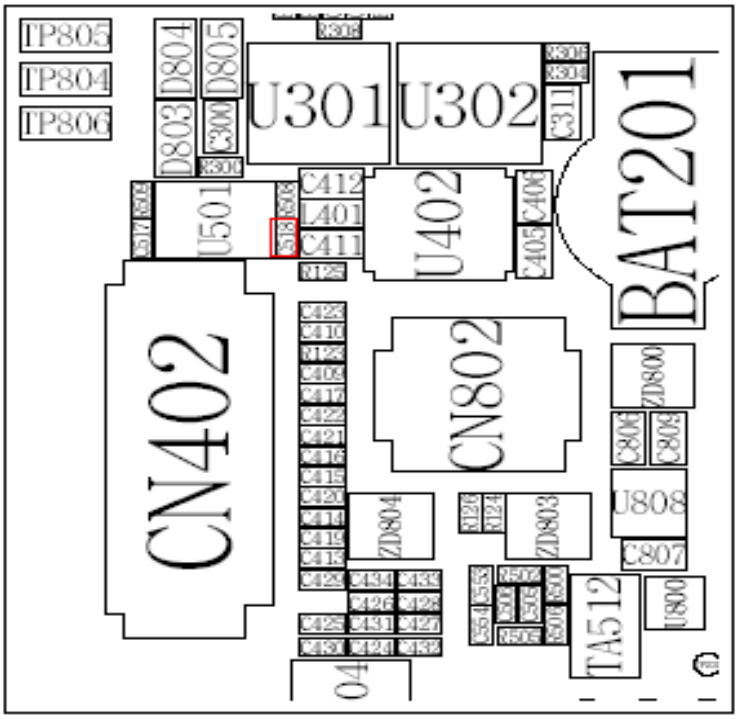


Power On

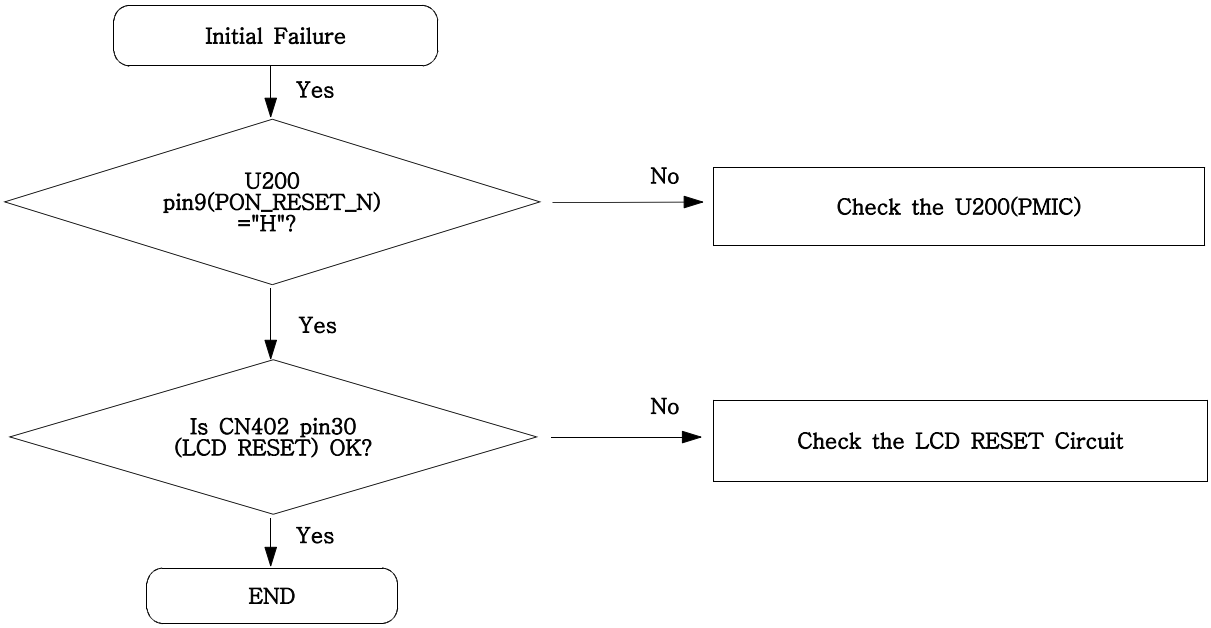


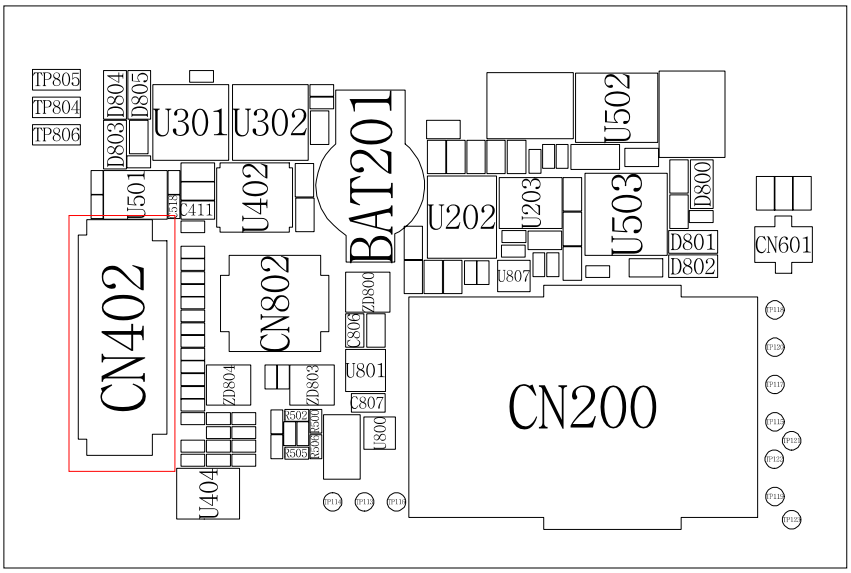


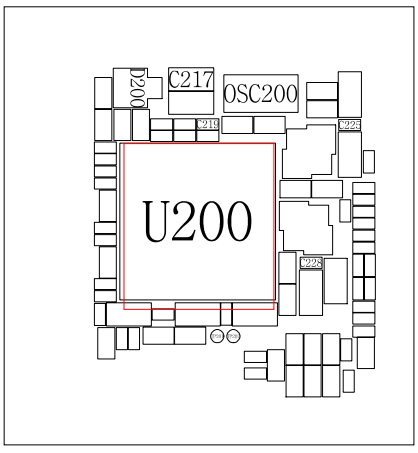




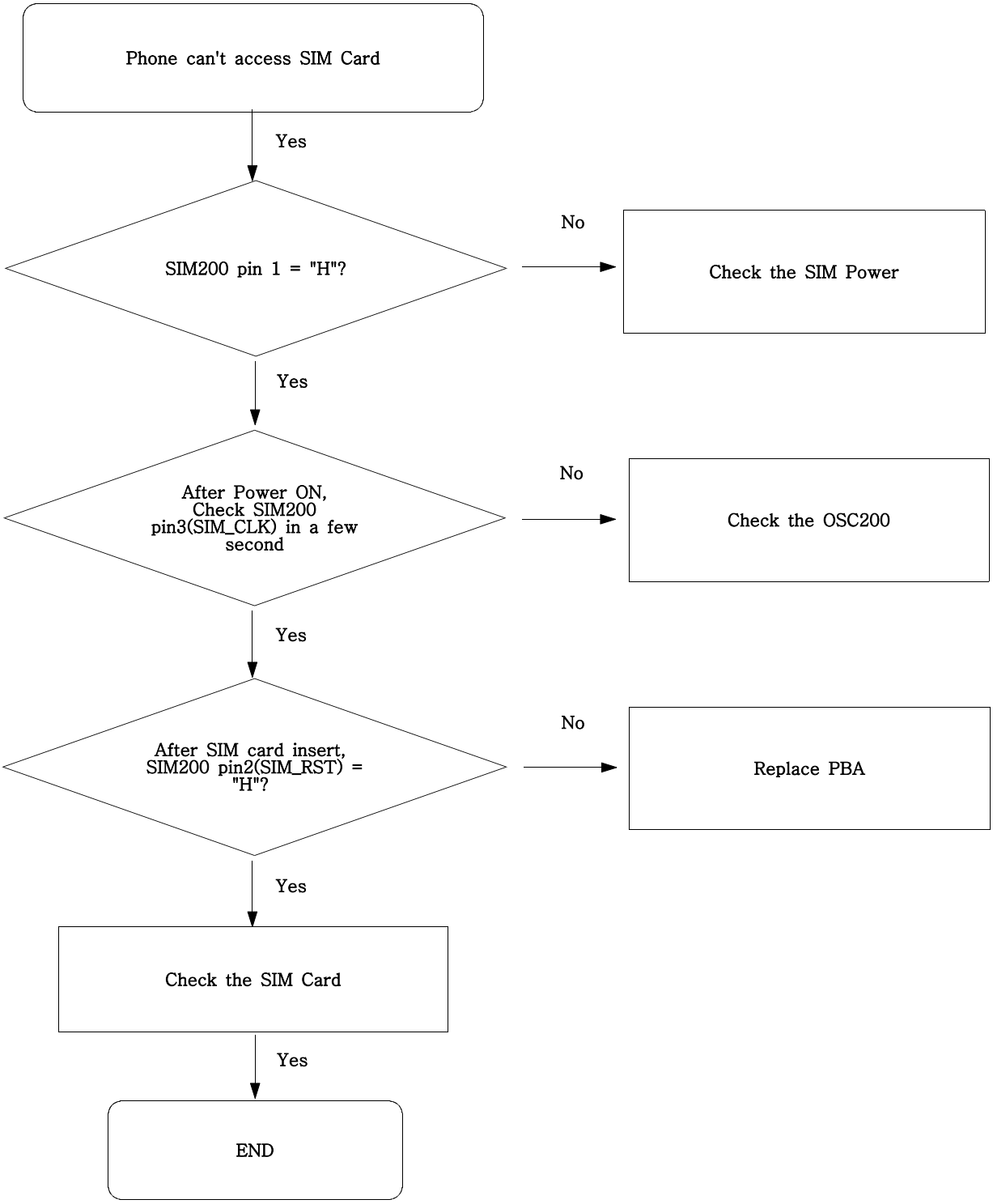
7-2. Initial



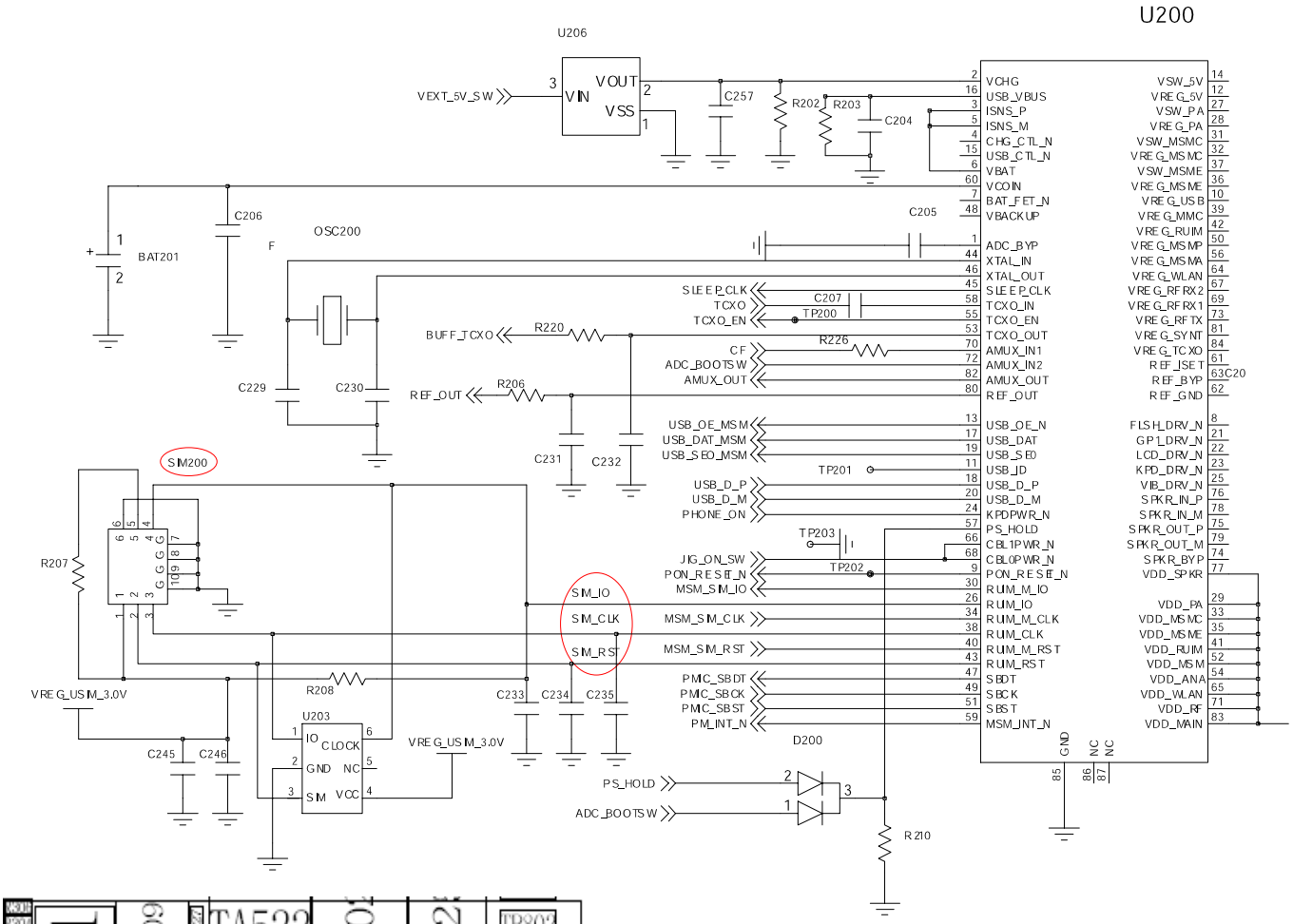


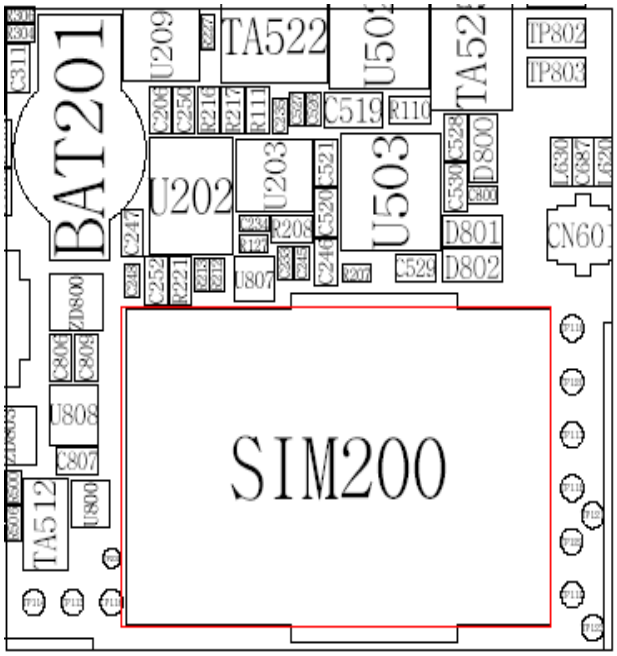


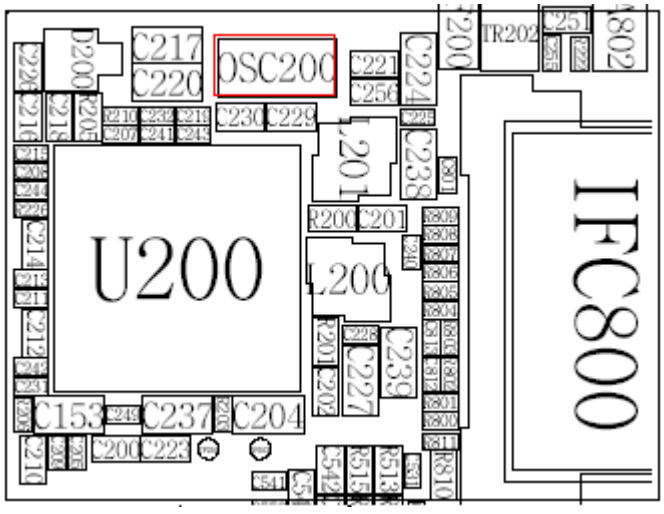
7-3. SIM Part



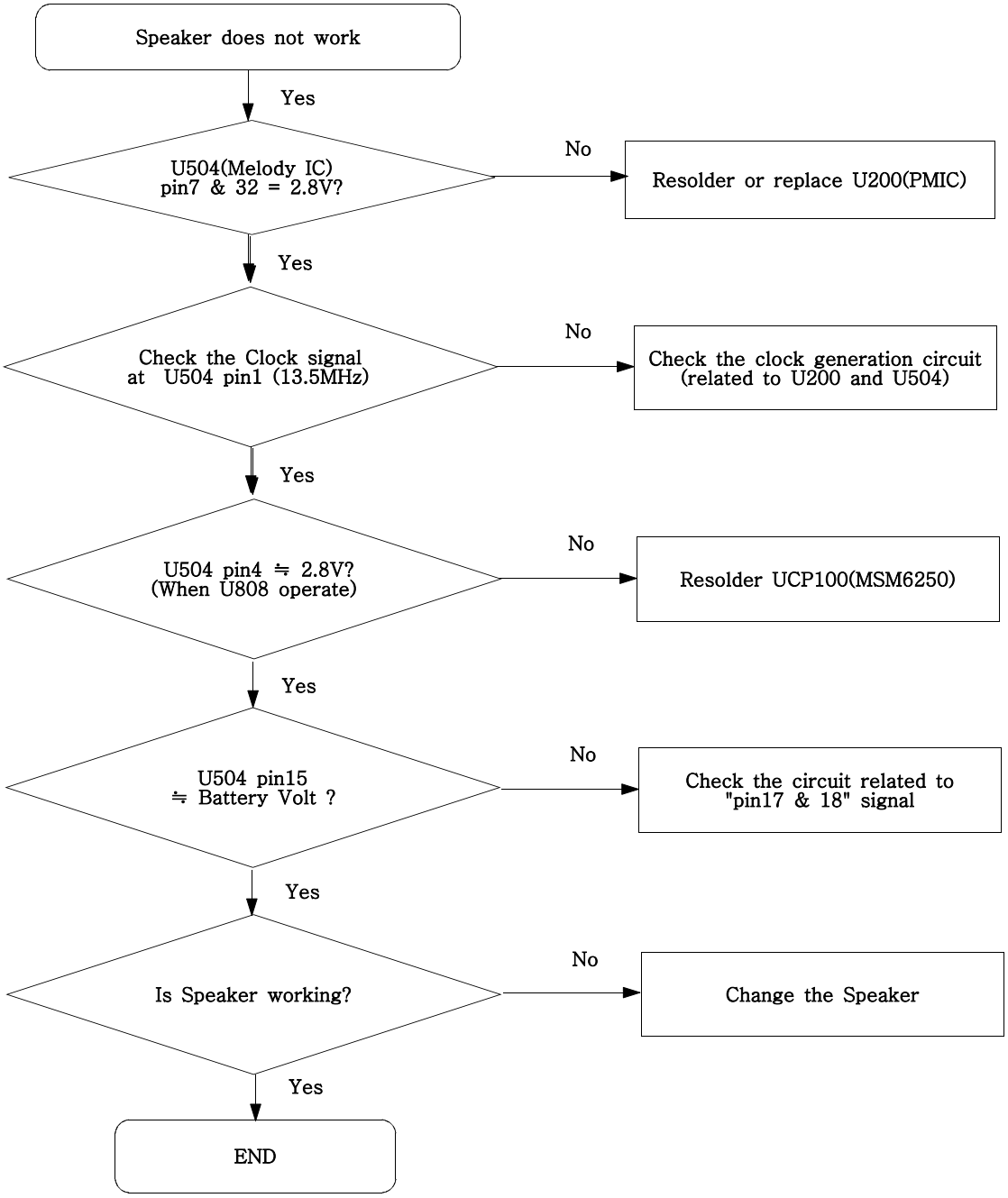
SIM



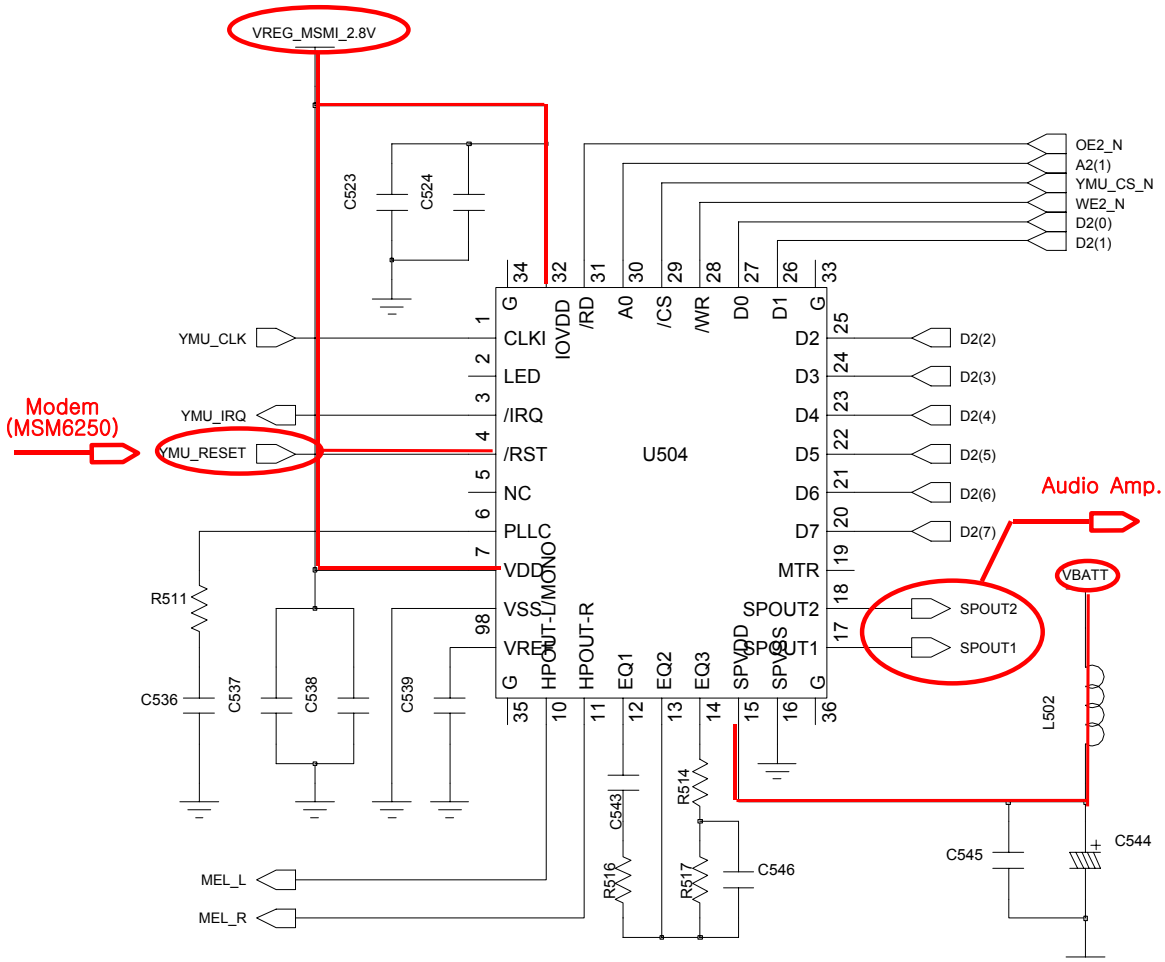




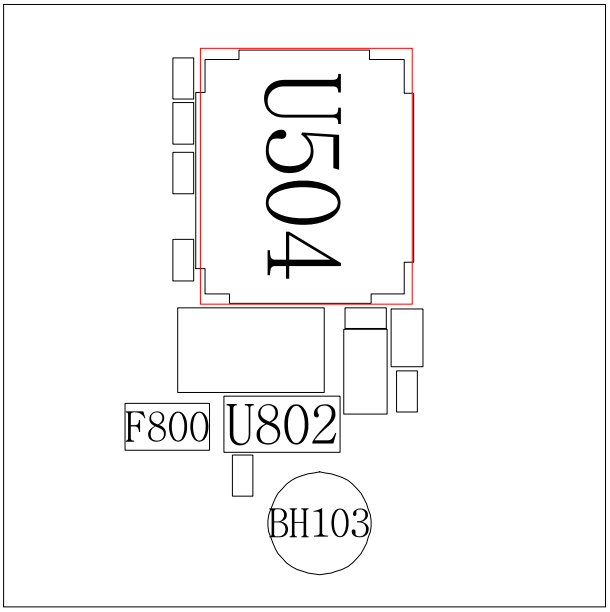
7-4. Speaker Part(Melody)



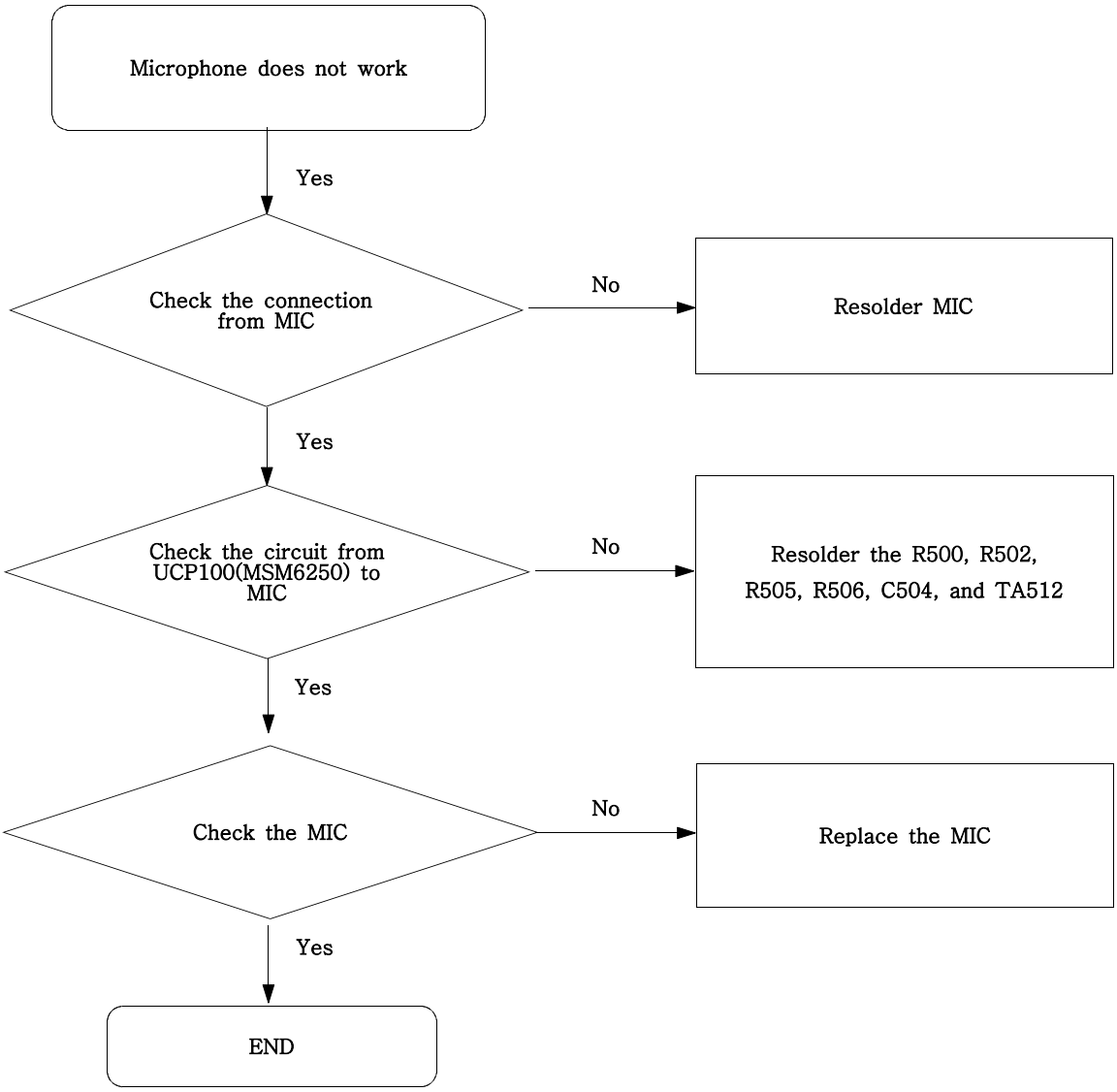
Speaker



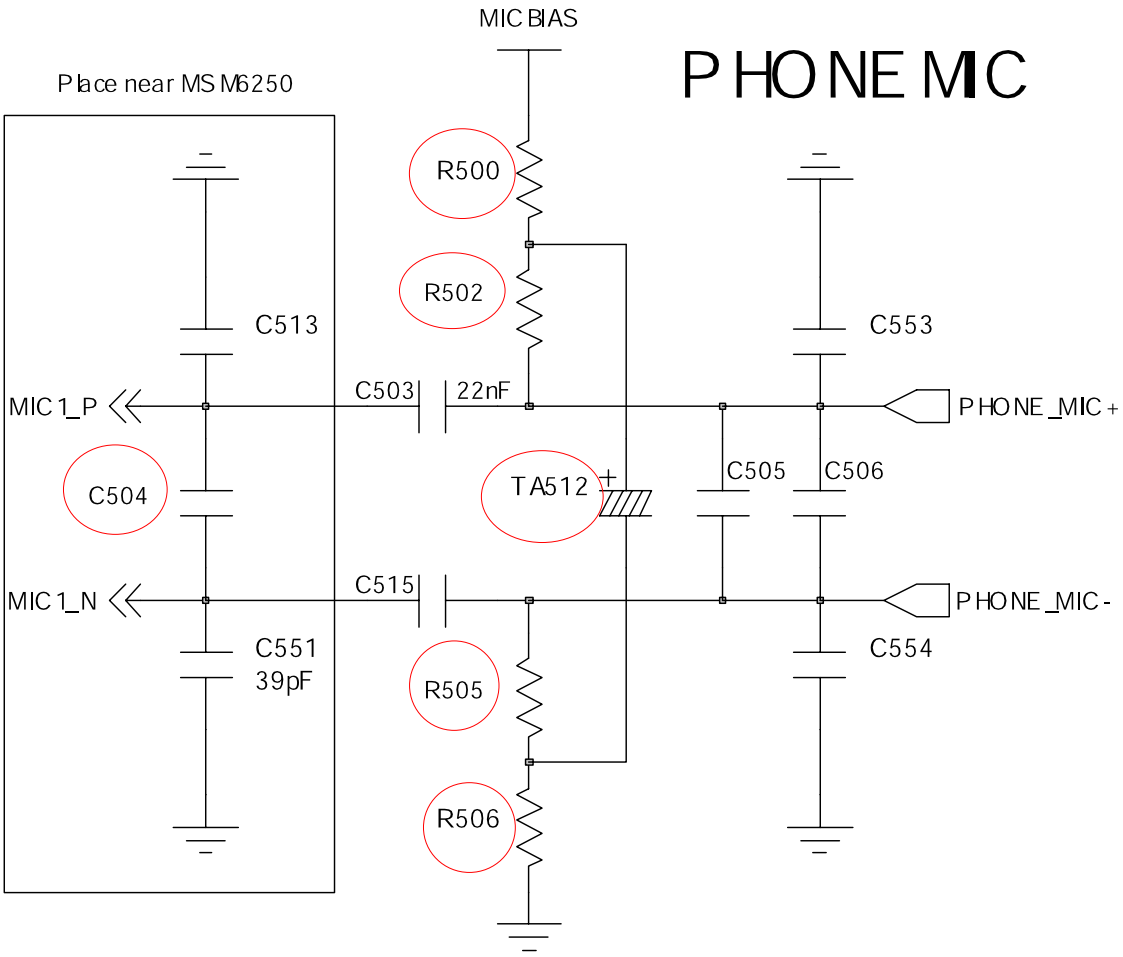
MELODY IC

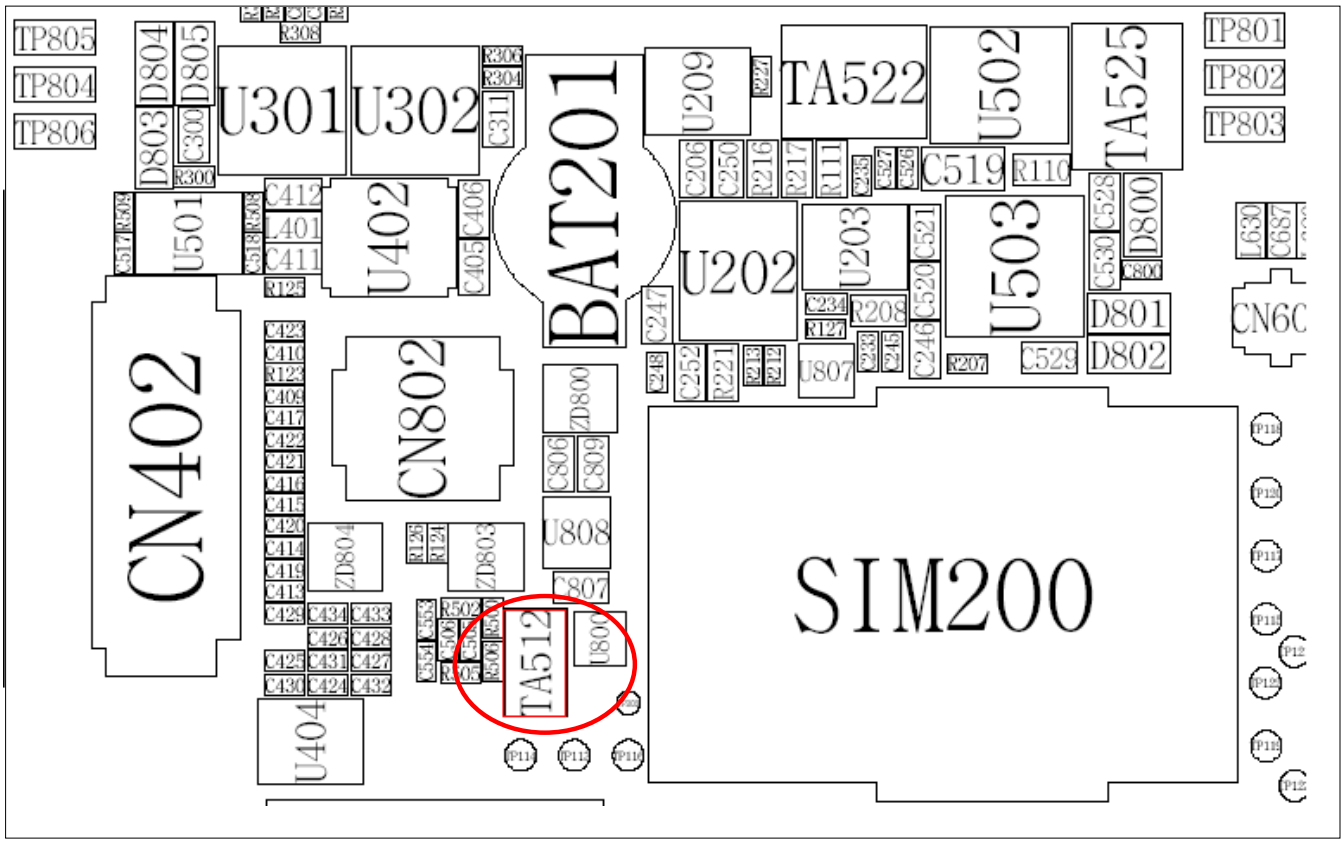


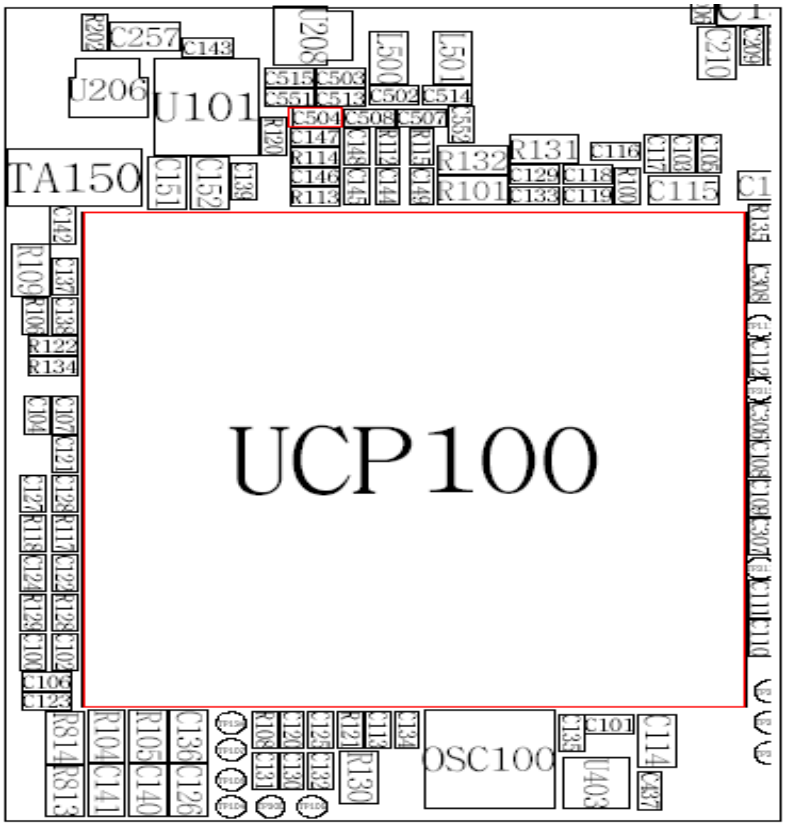
7-5. Microphone Part



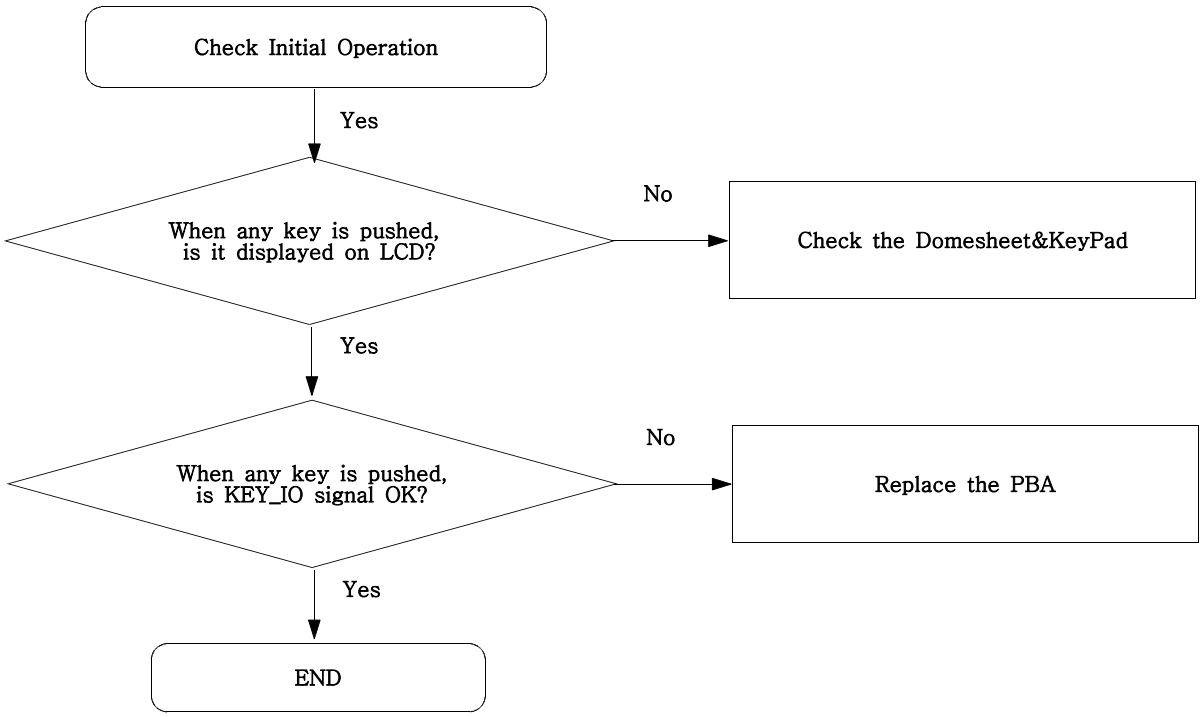
Microphone



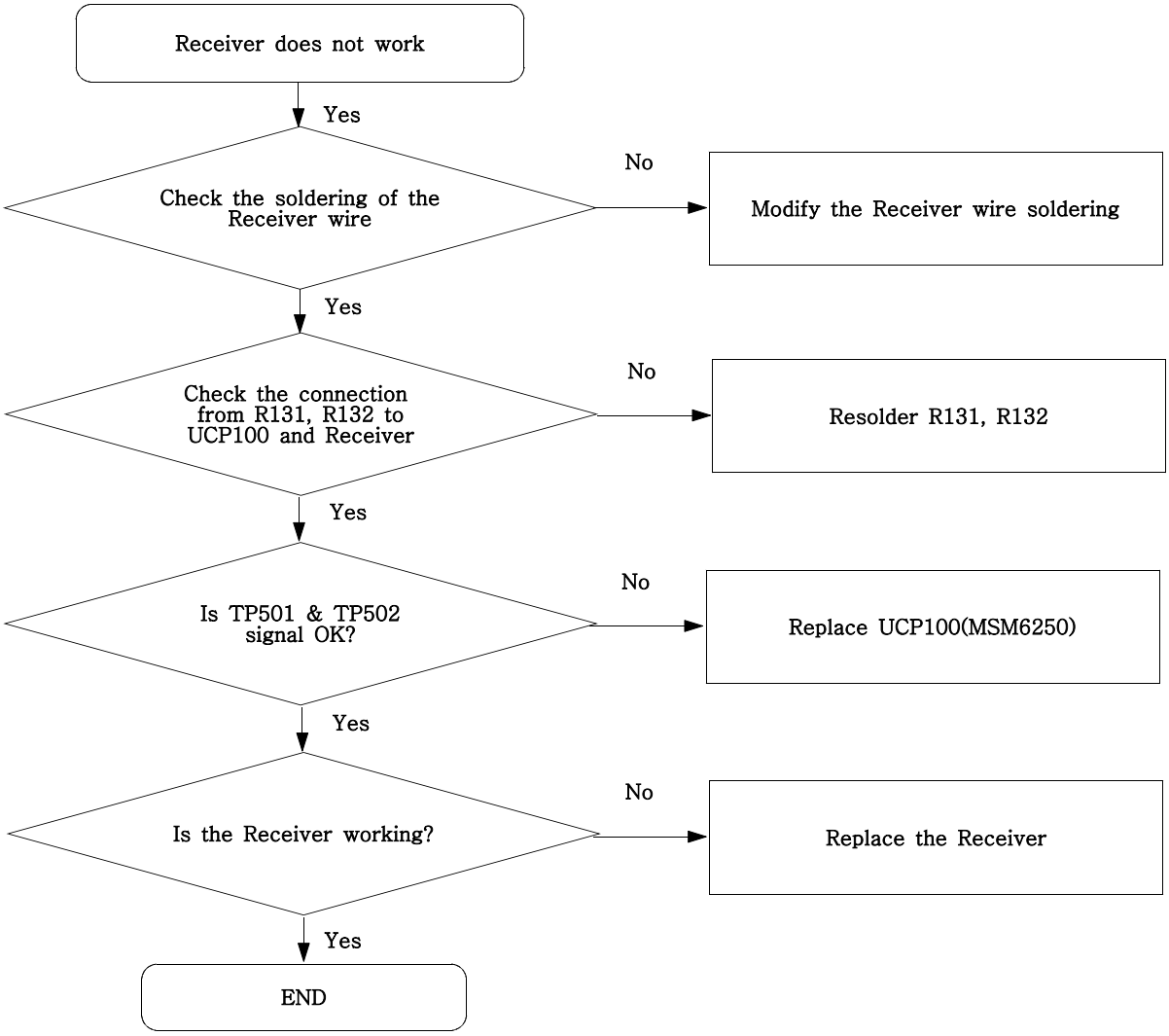


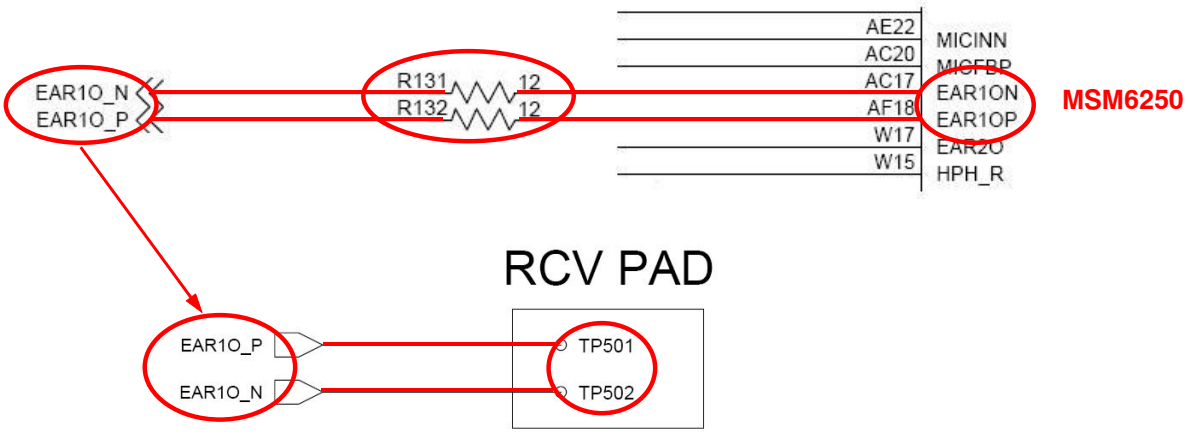


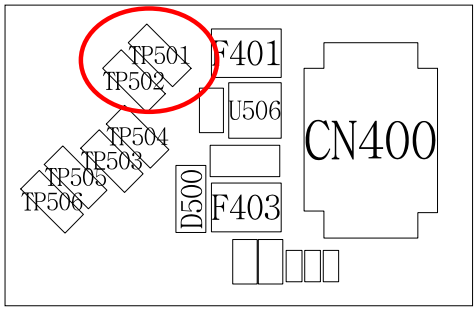
7-6. Key Data Input

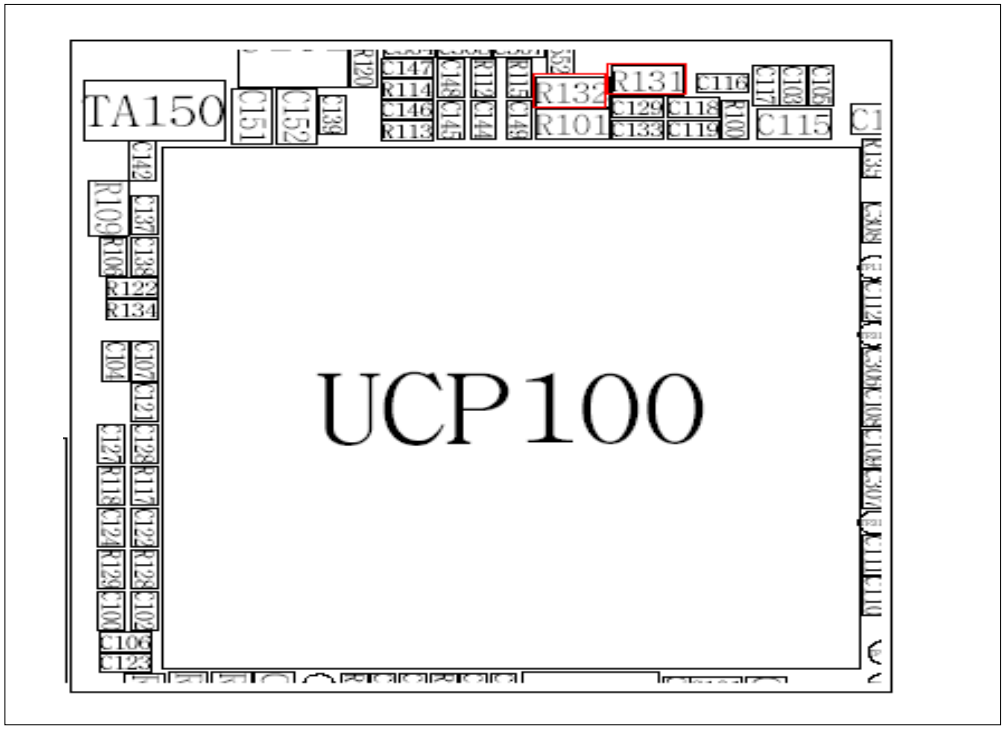


7-7. Receiver Part

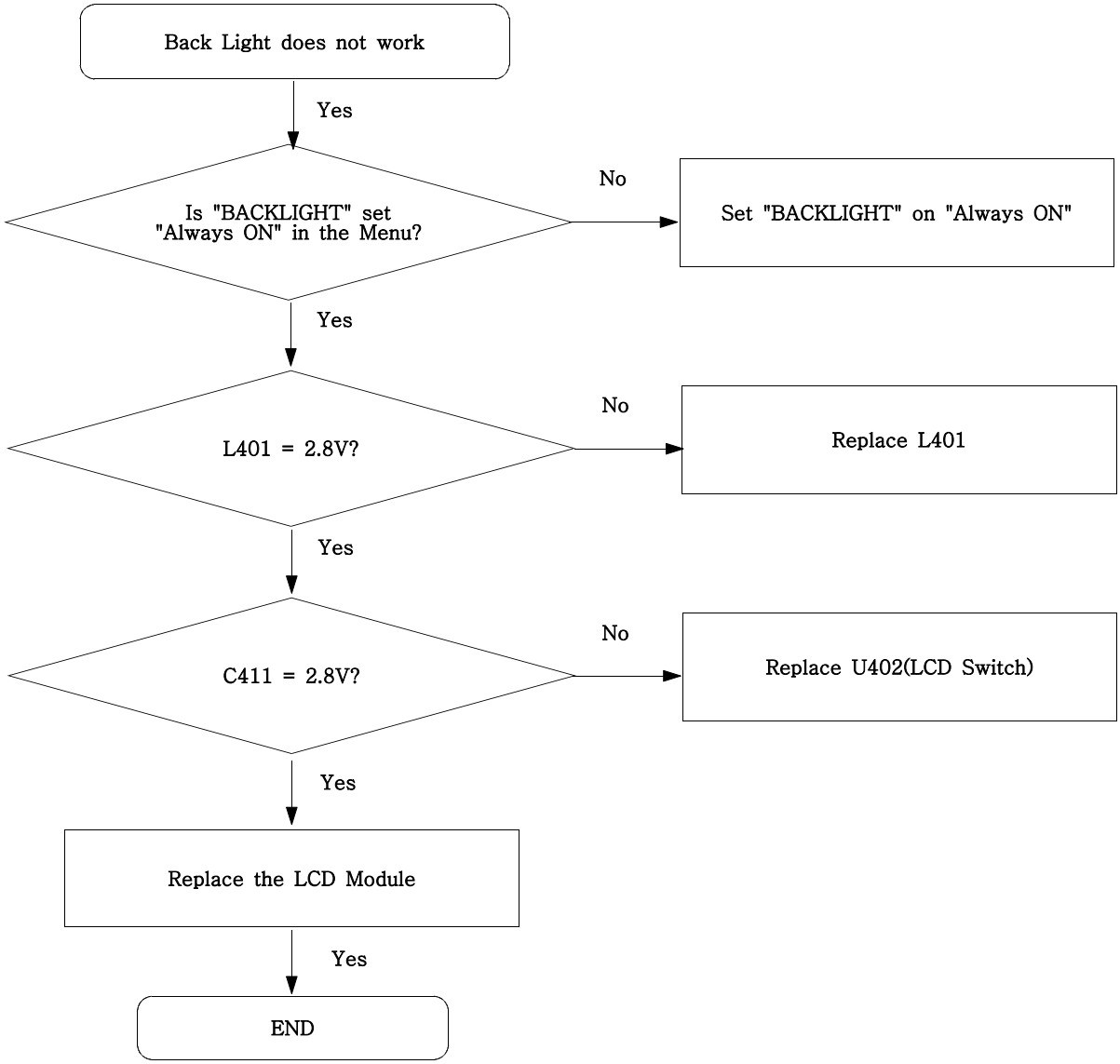


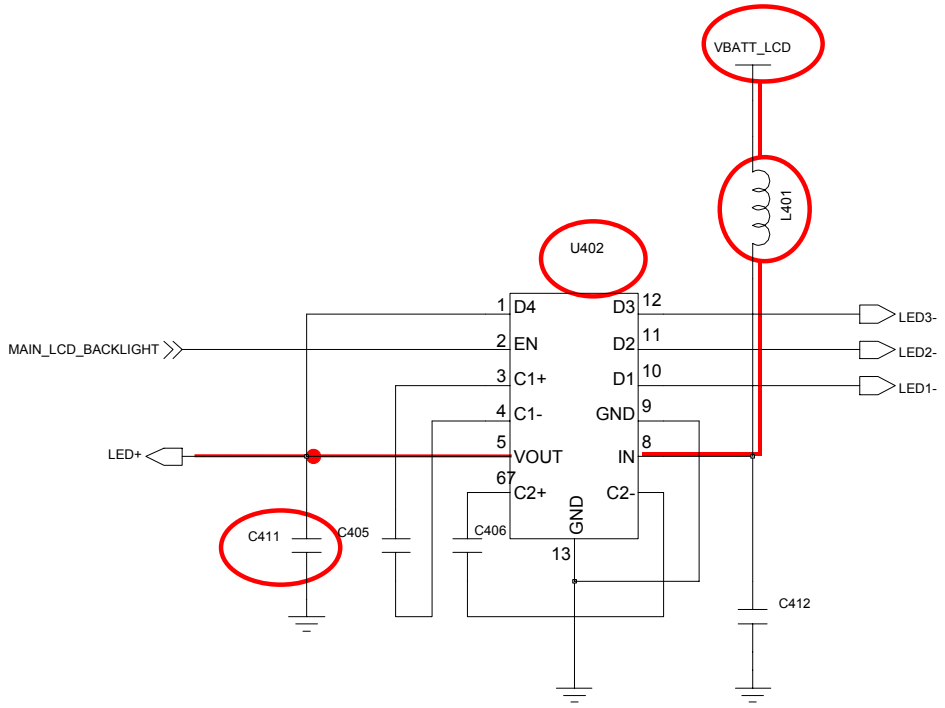


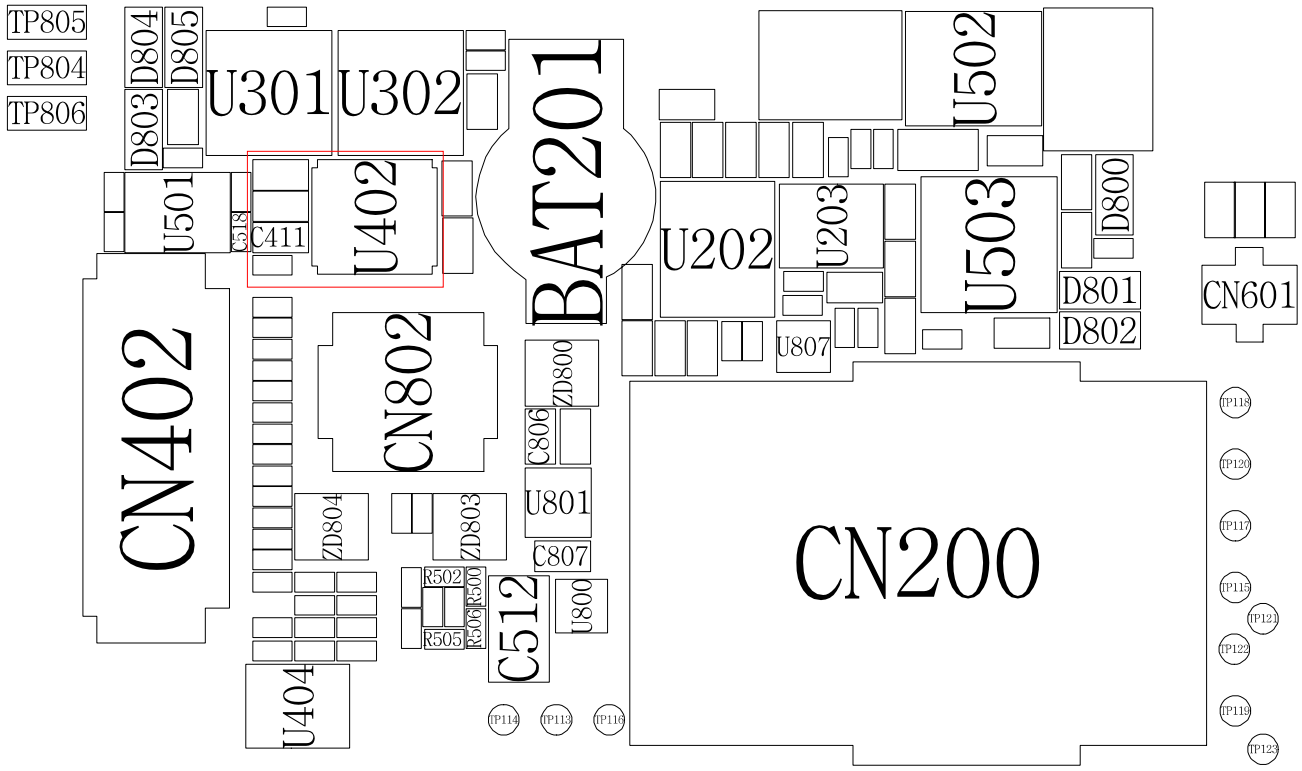




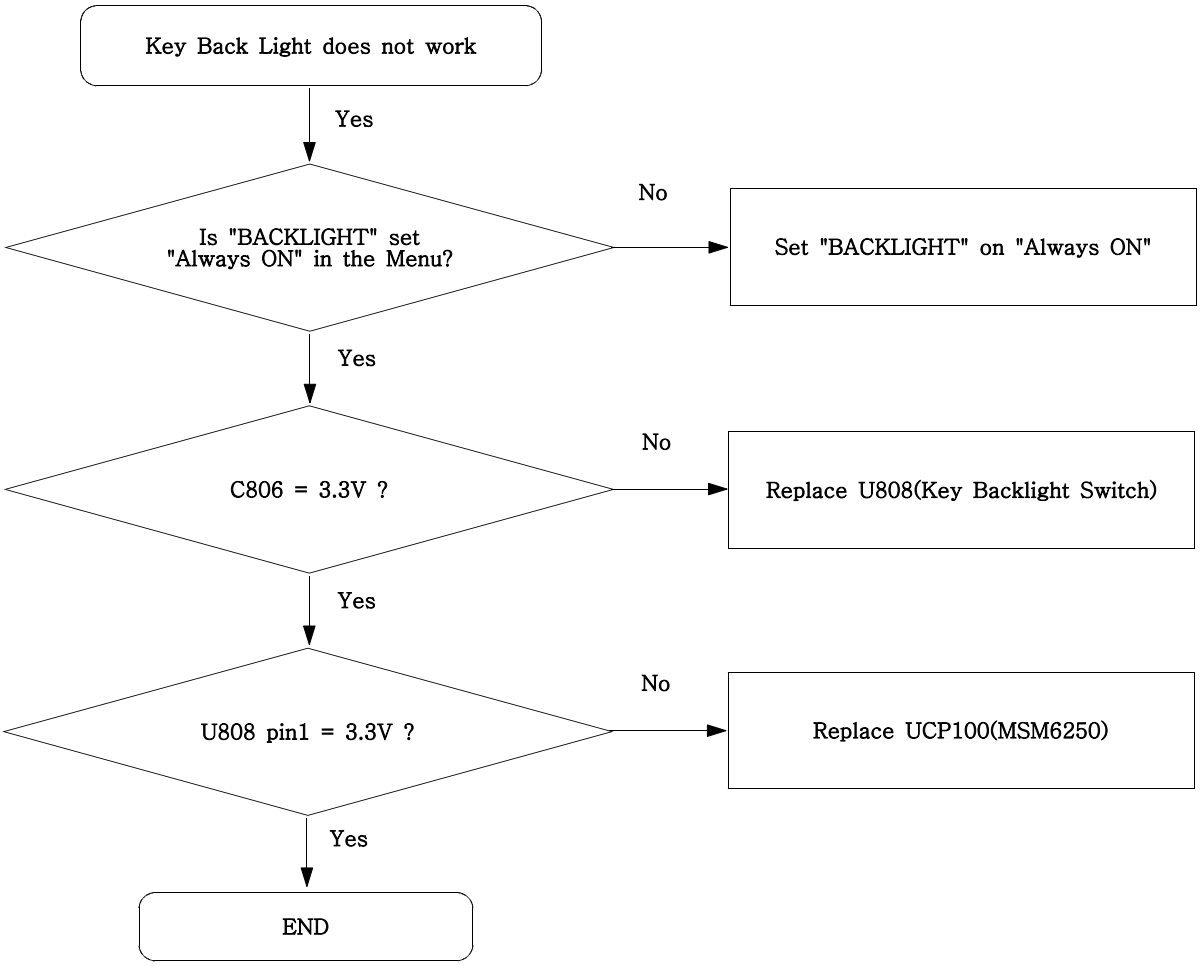
7-8. Back Light

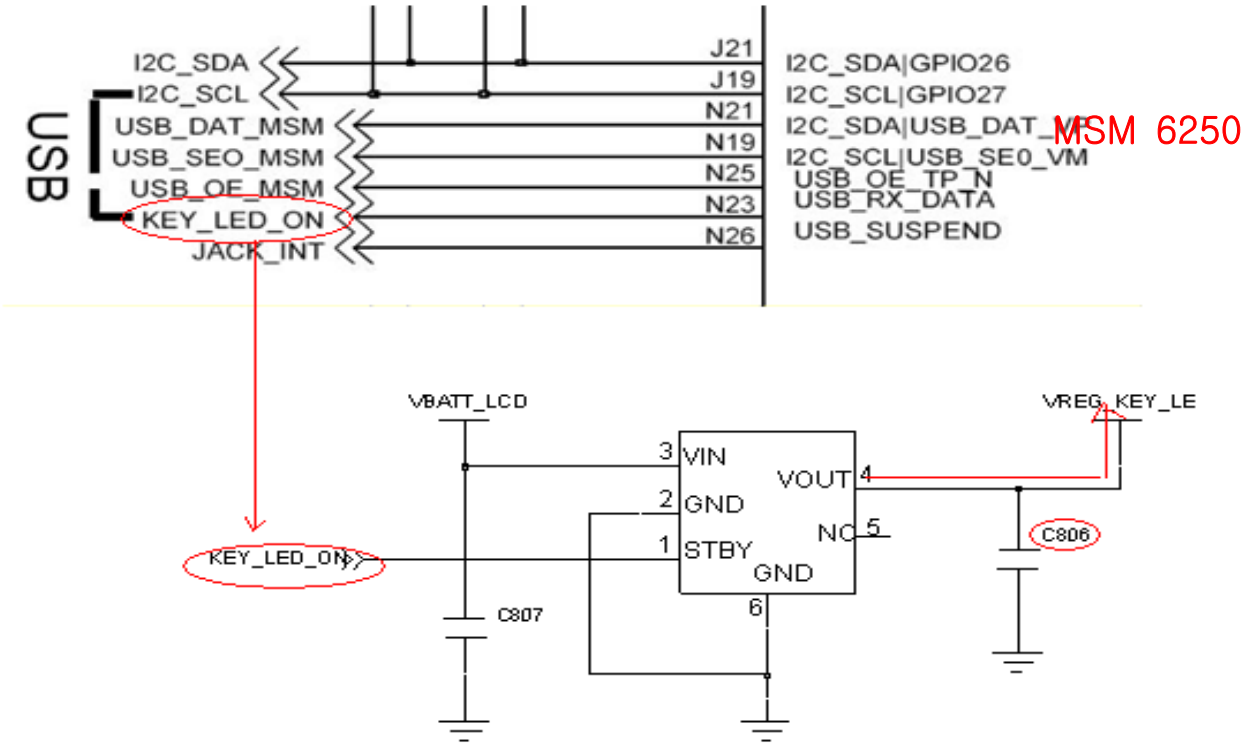


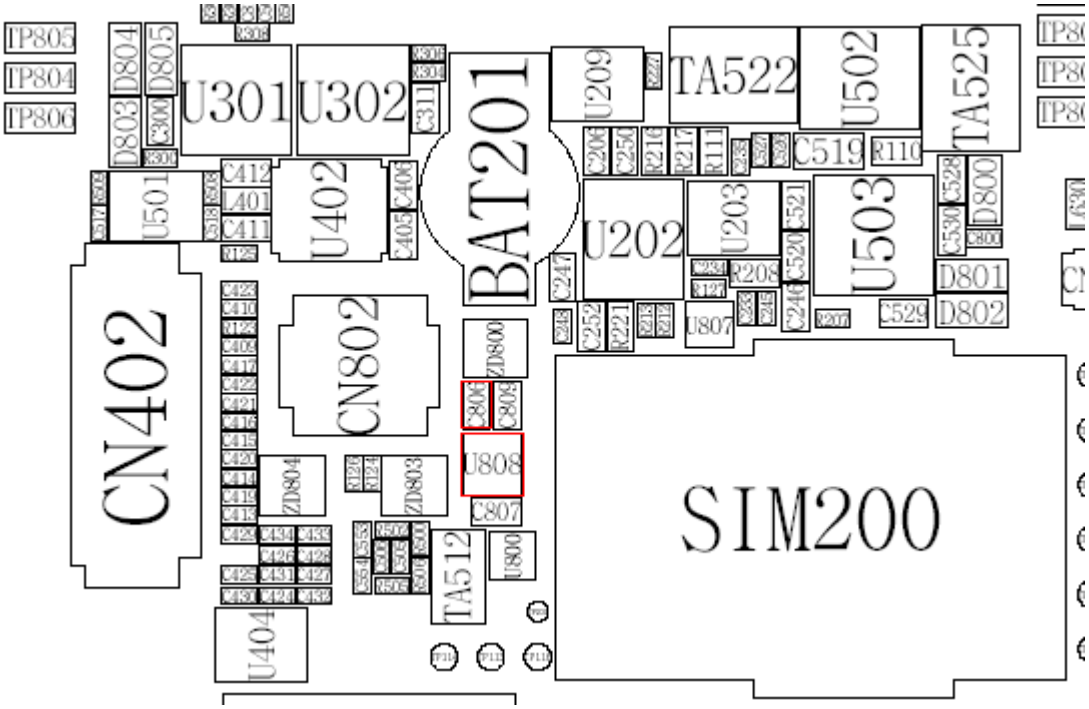




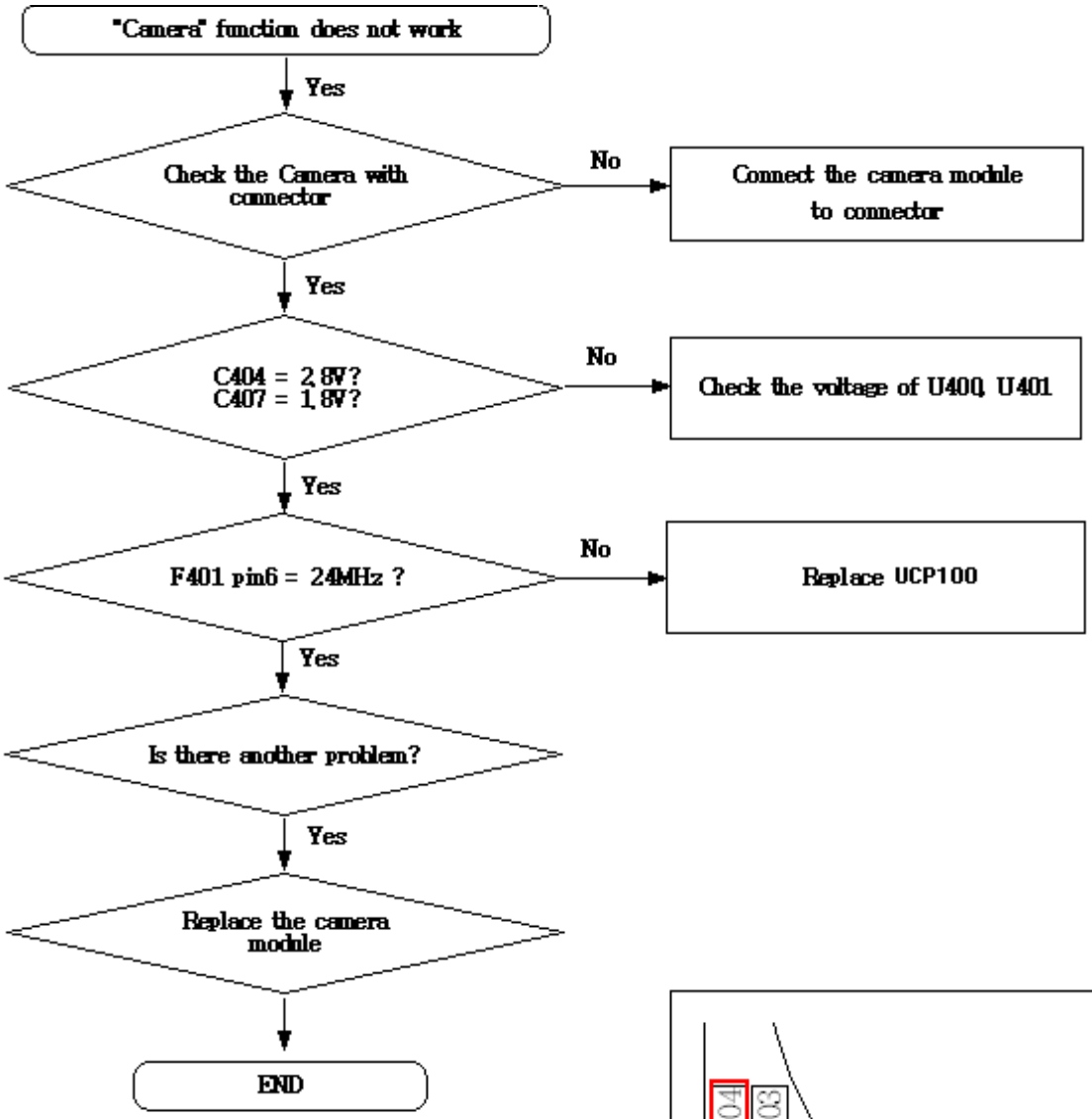
7-9. Key Back Light

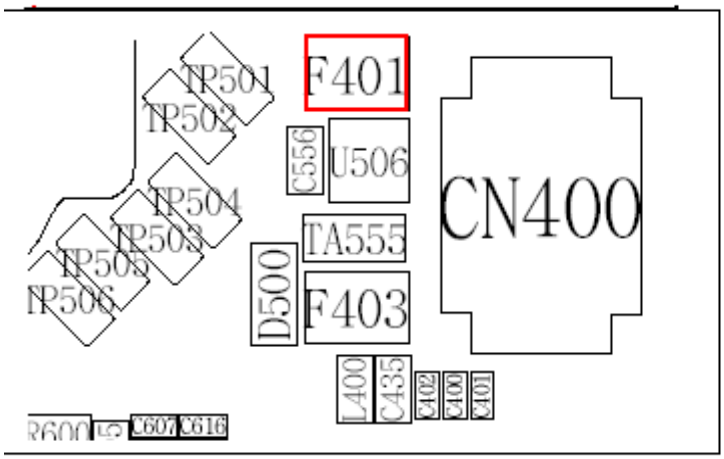




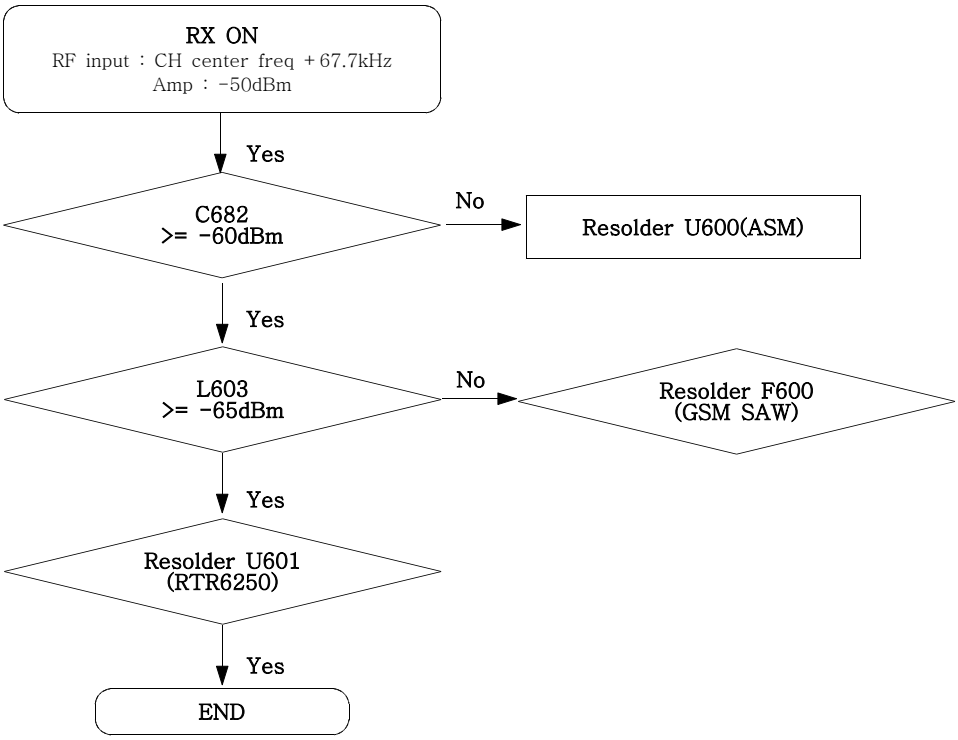


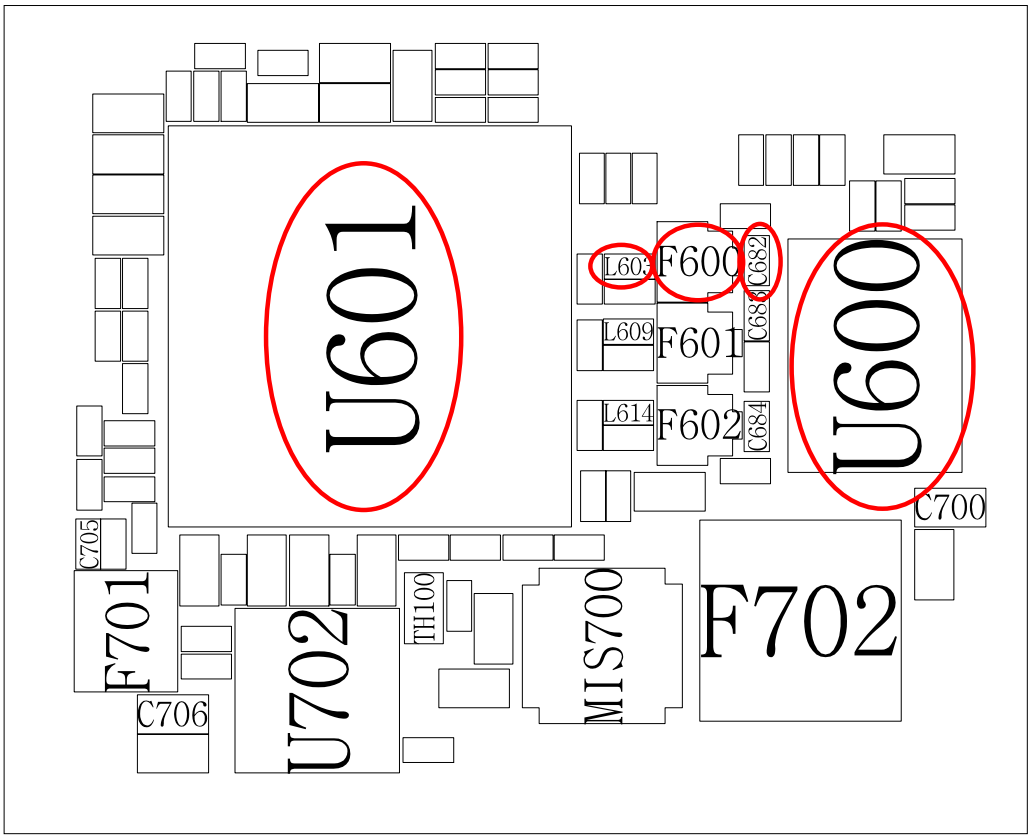
7-10. Camera part



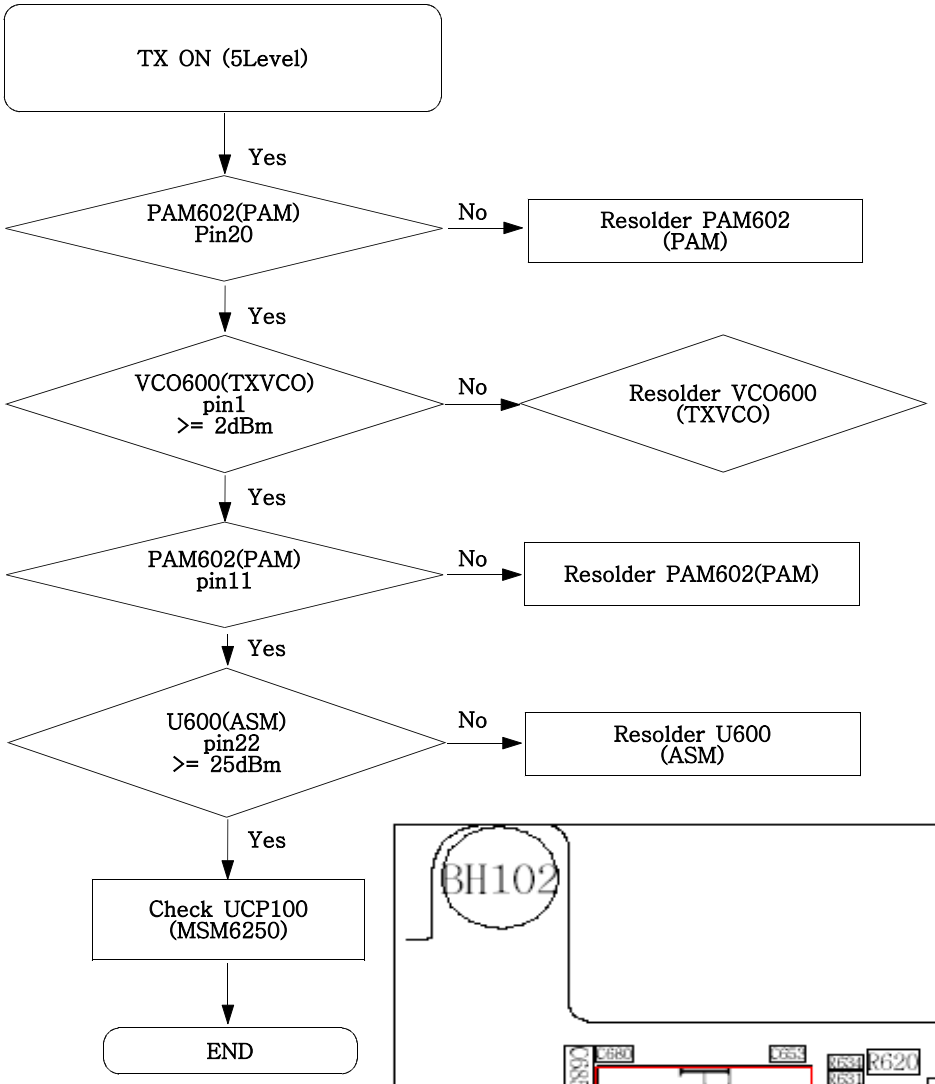


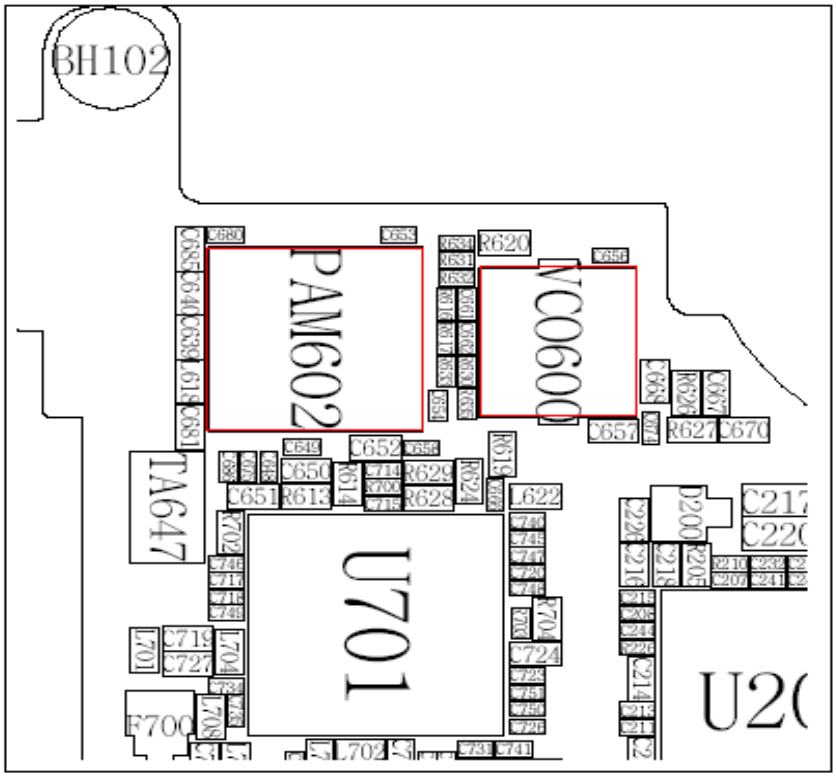
7-11. GSM Receiver



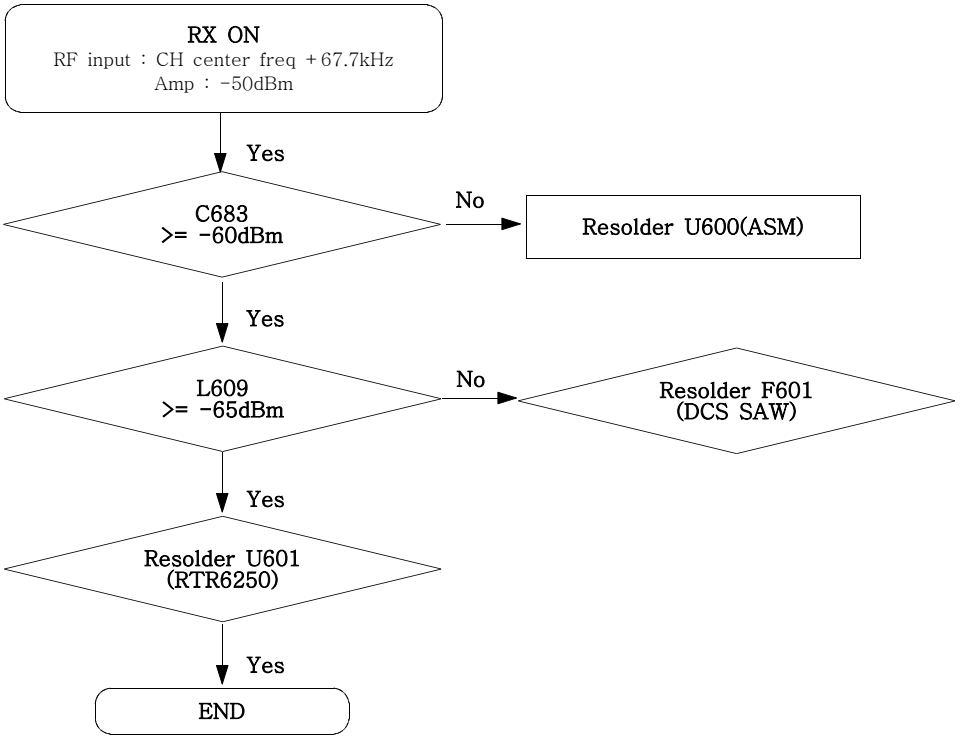


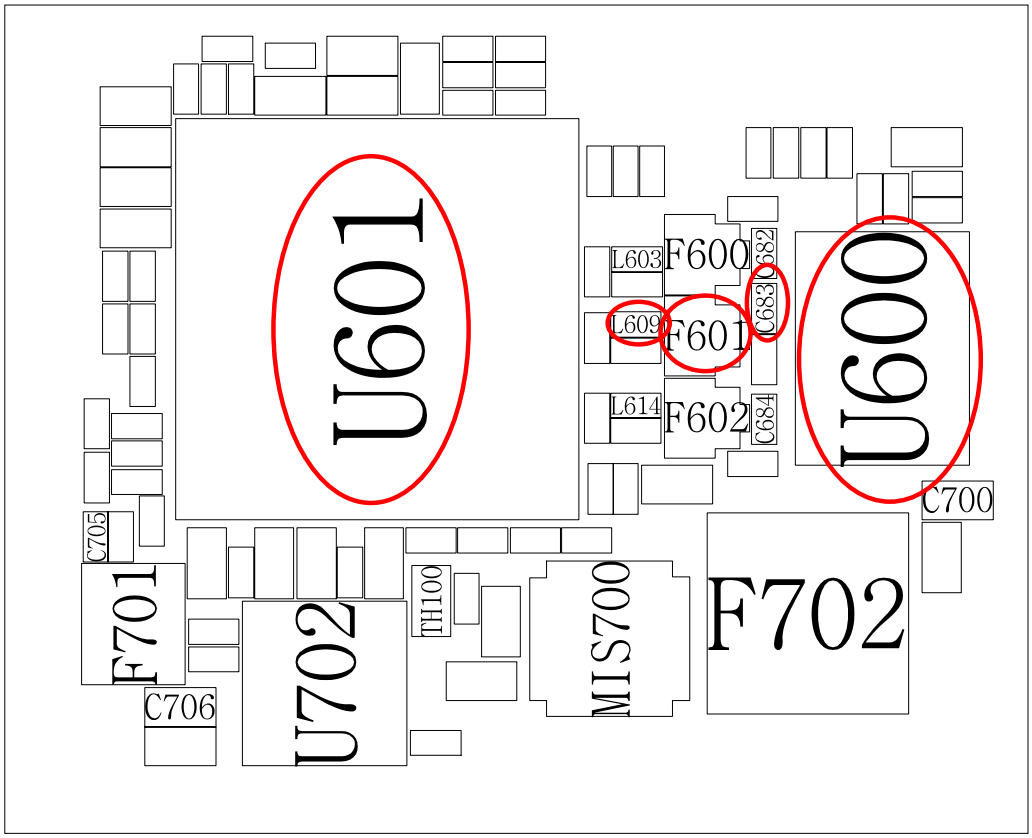
7-12. GSM Transmitter



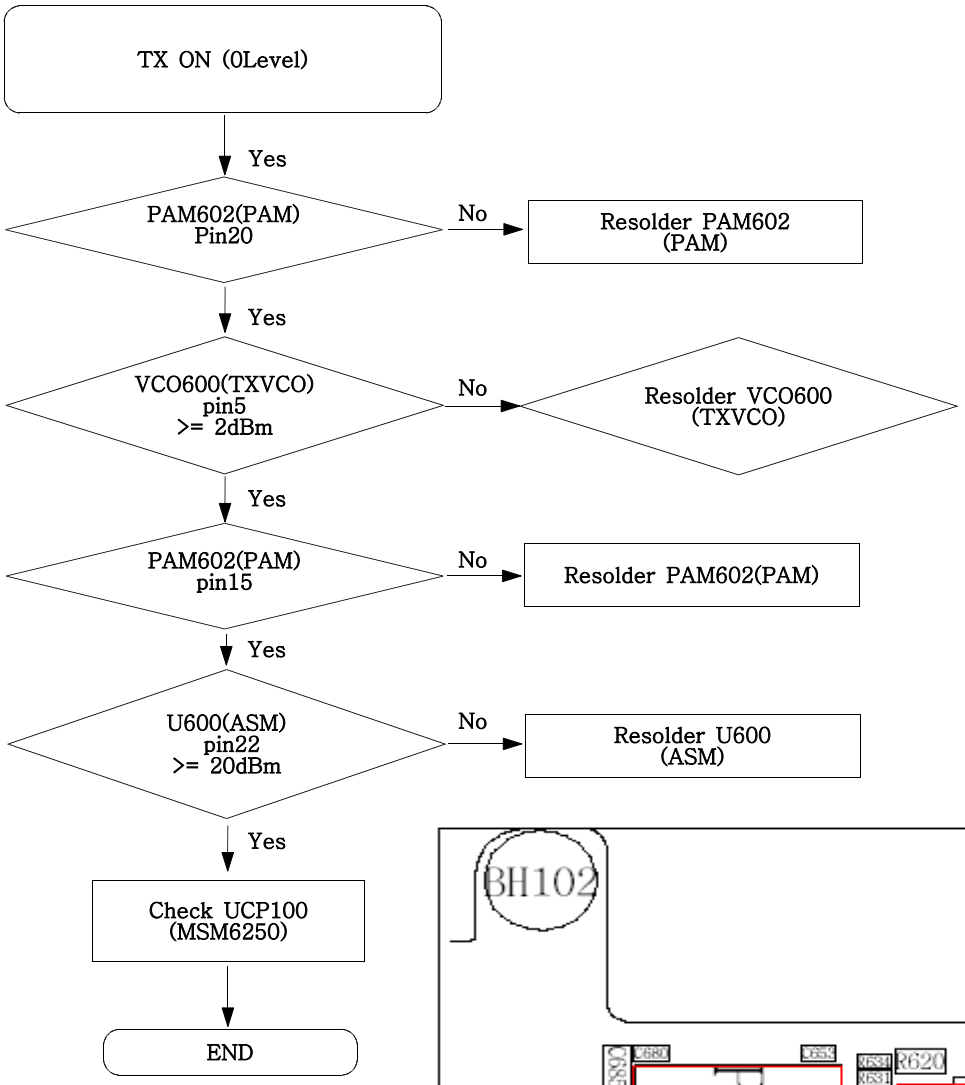


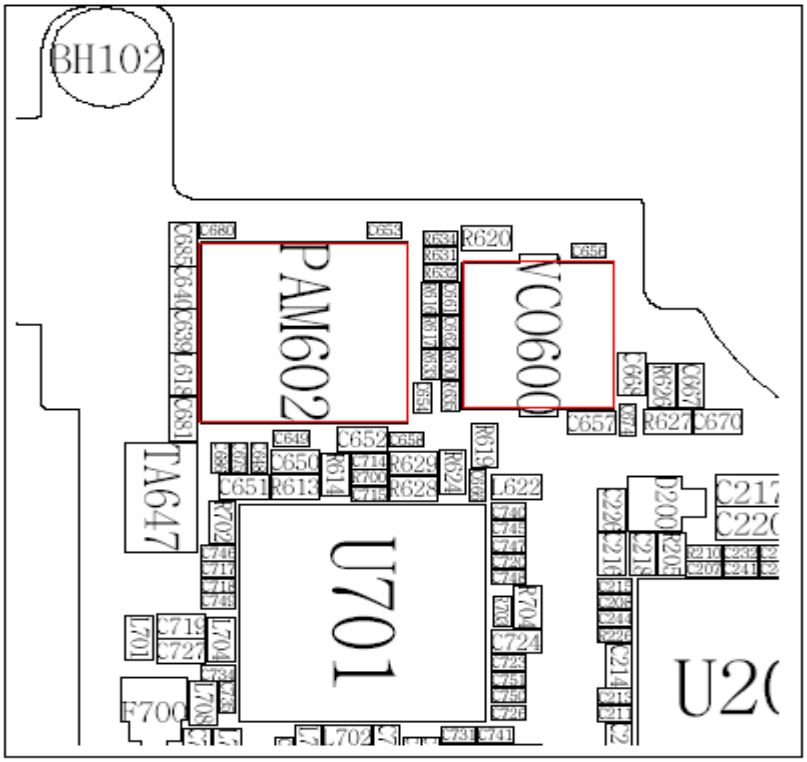
7-13. DCS Receiver



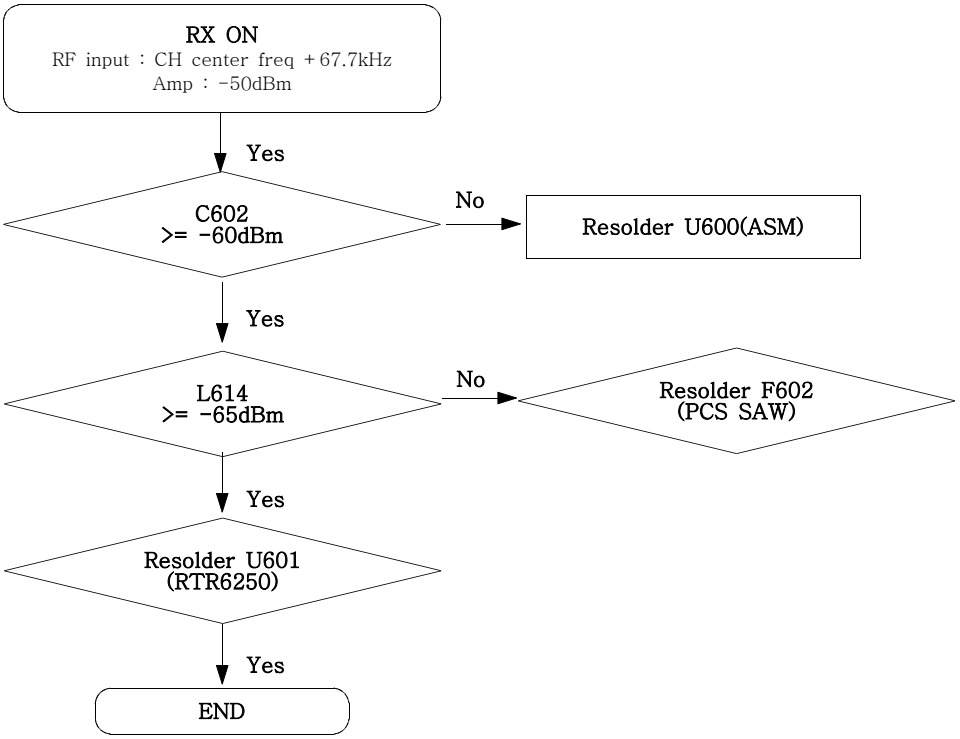


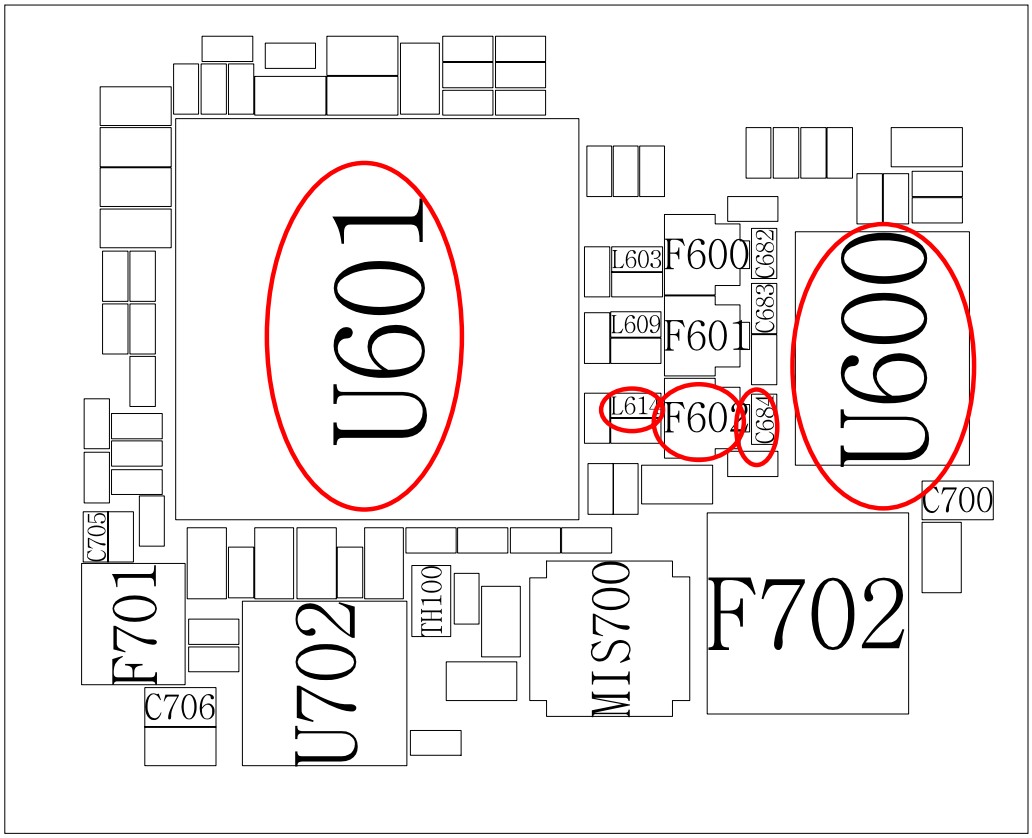
7-14. DCS Transmitter



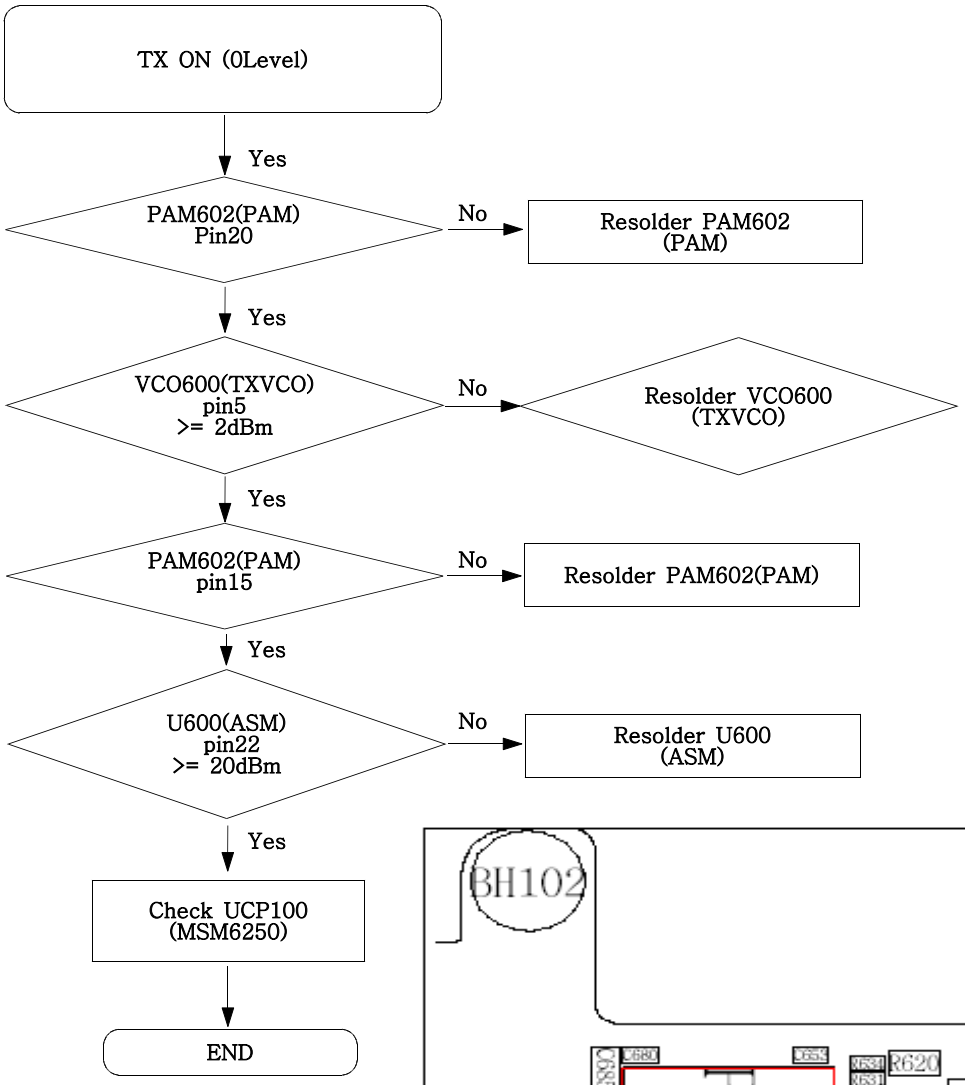


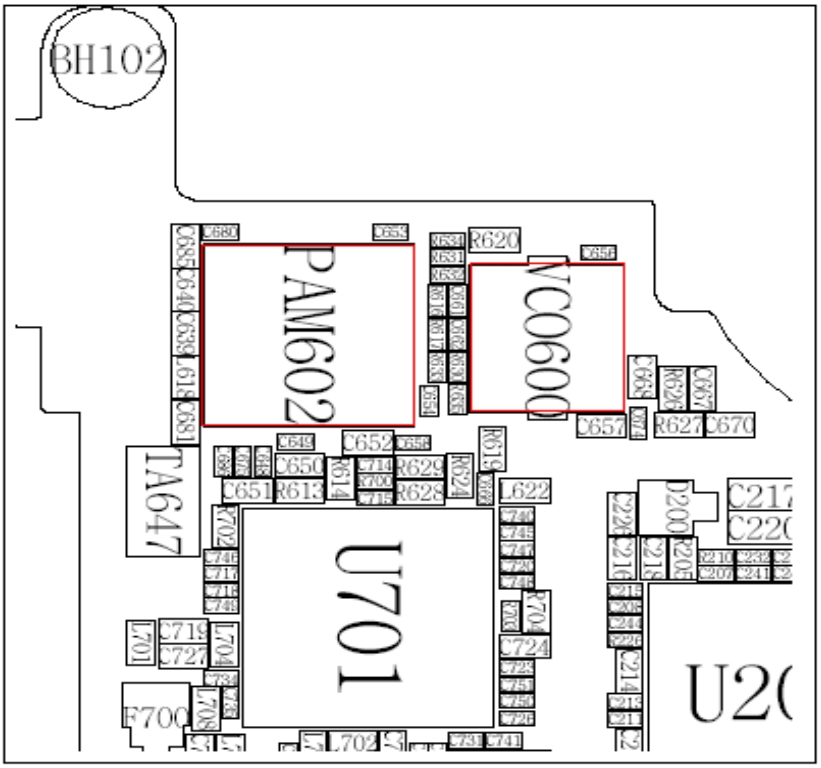
7-15. PCS Receiver



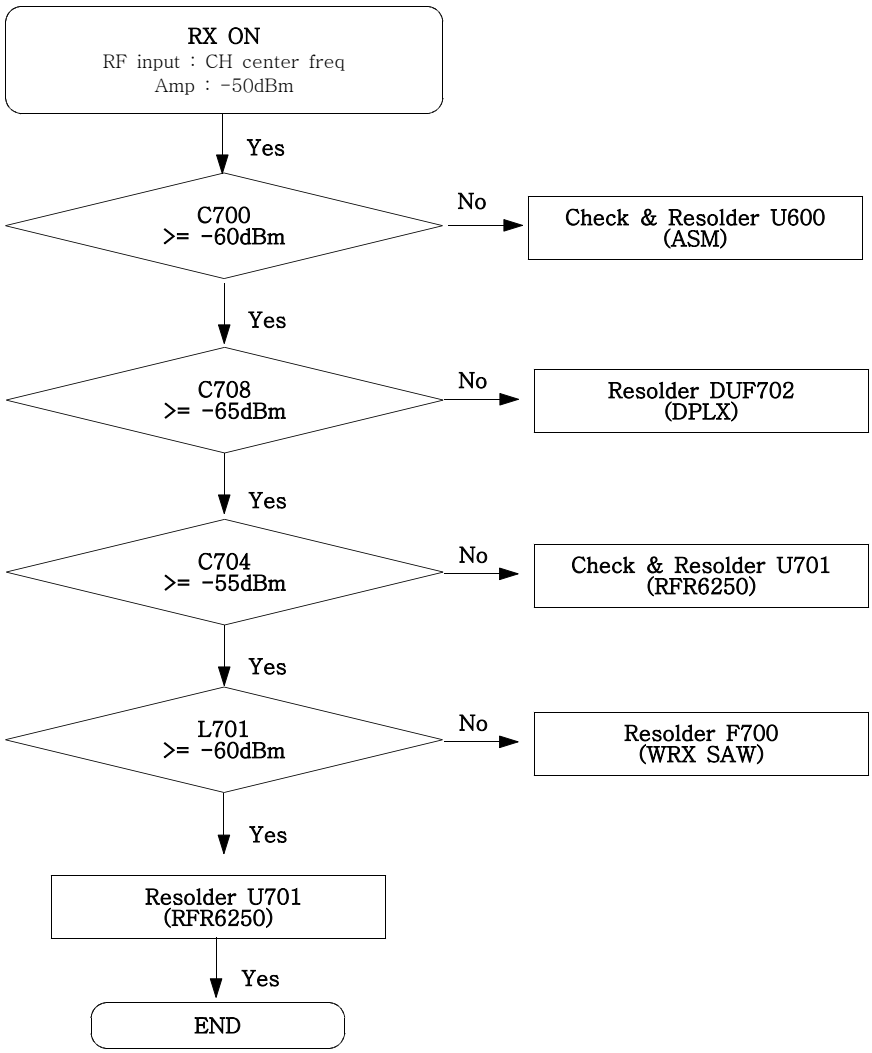


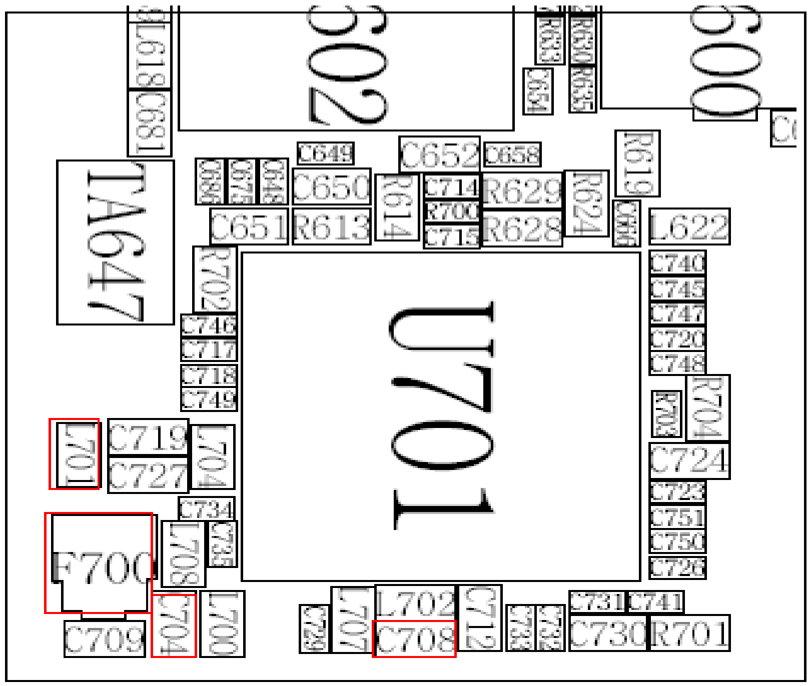
7-16. PCS Transmitter

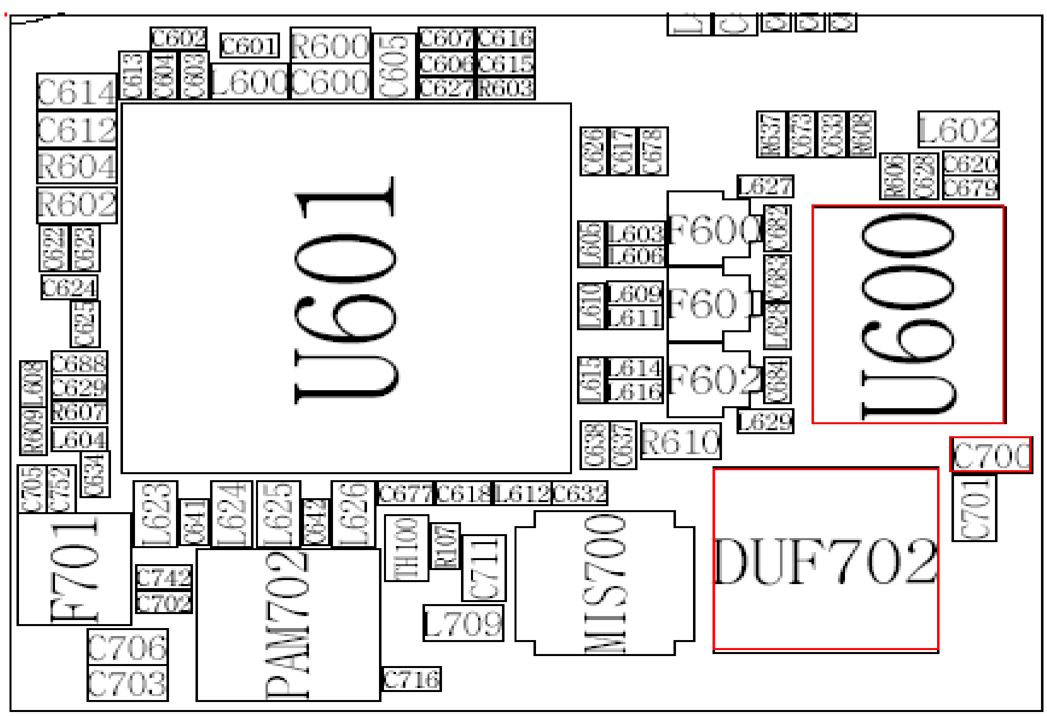




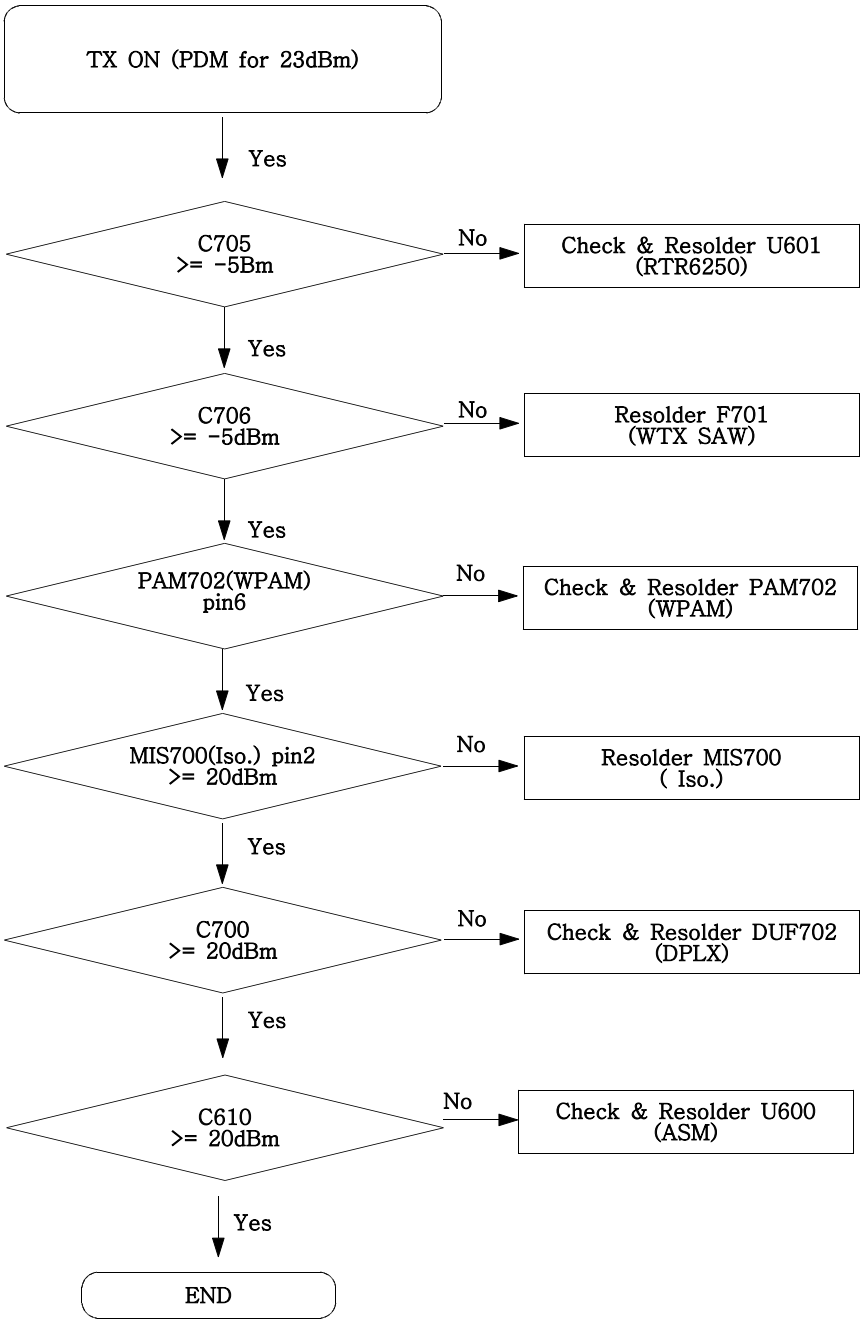
7-17. WCDMA Receiver

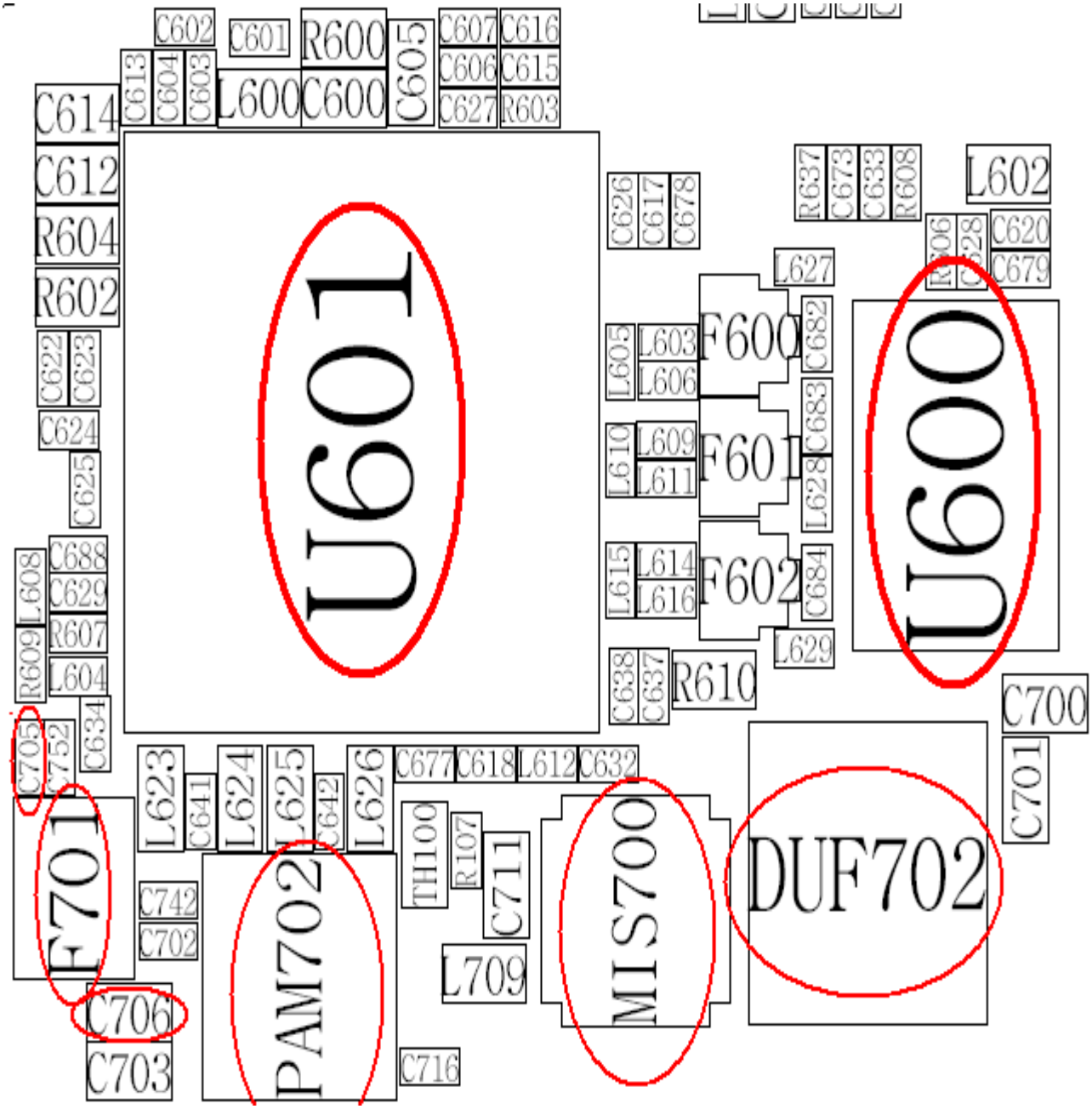




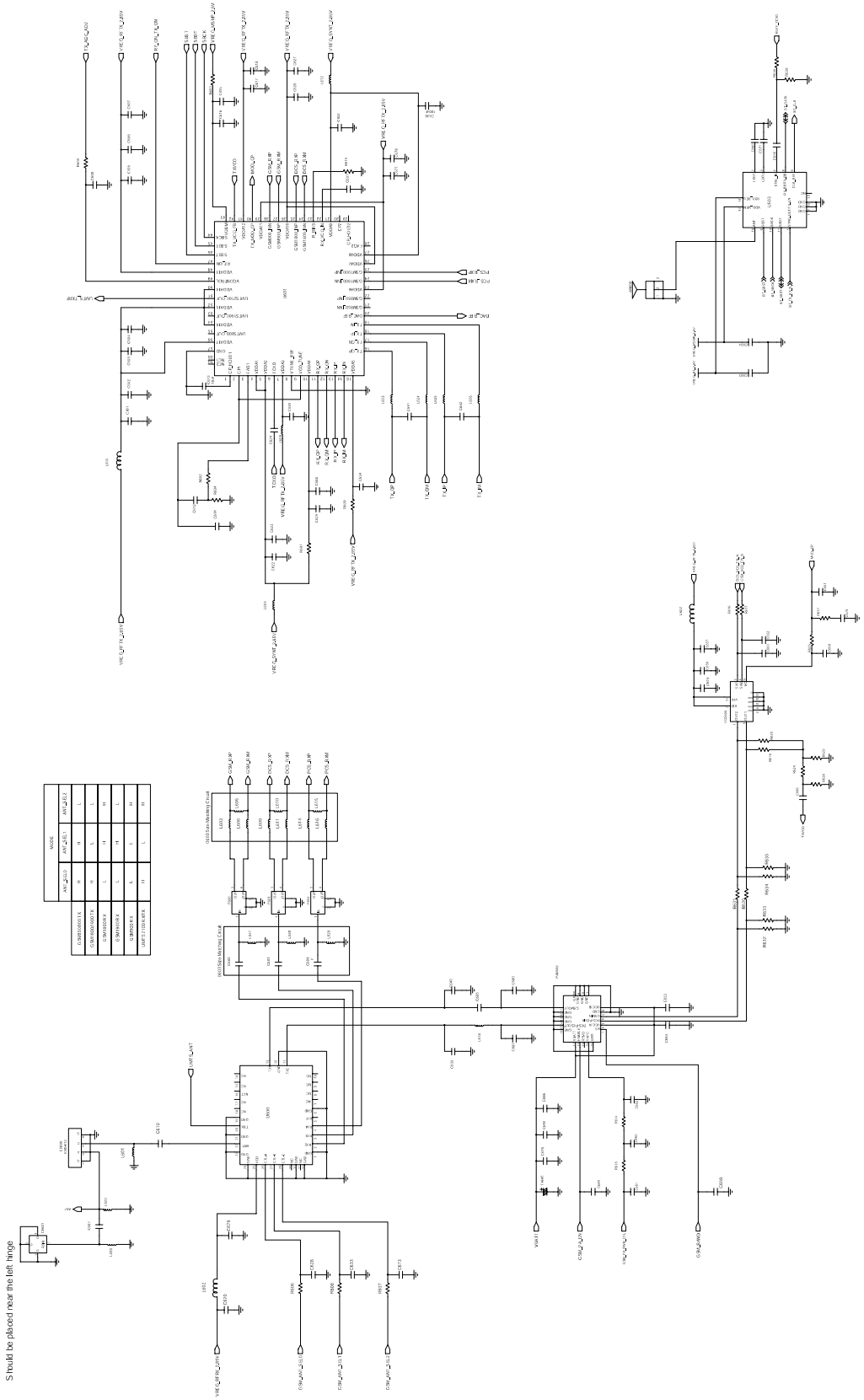


7-18. WCDMA Transmitter

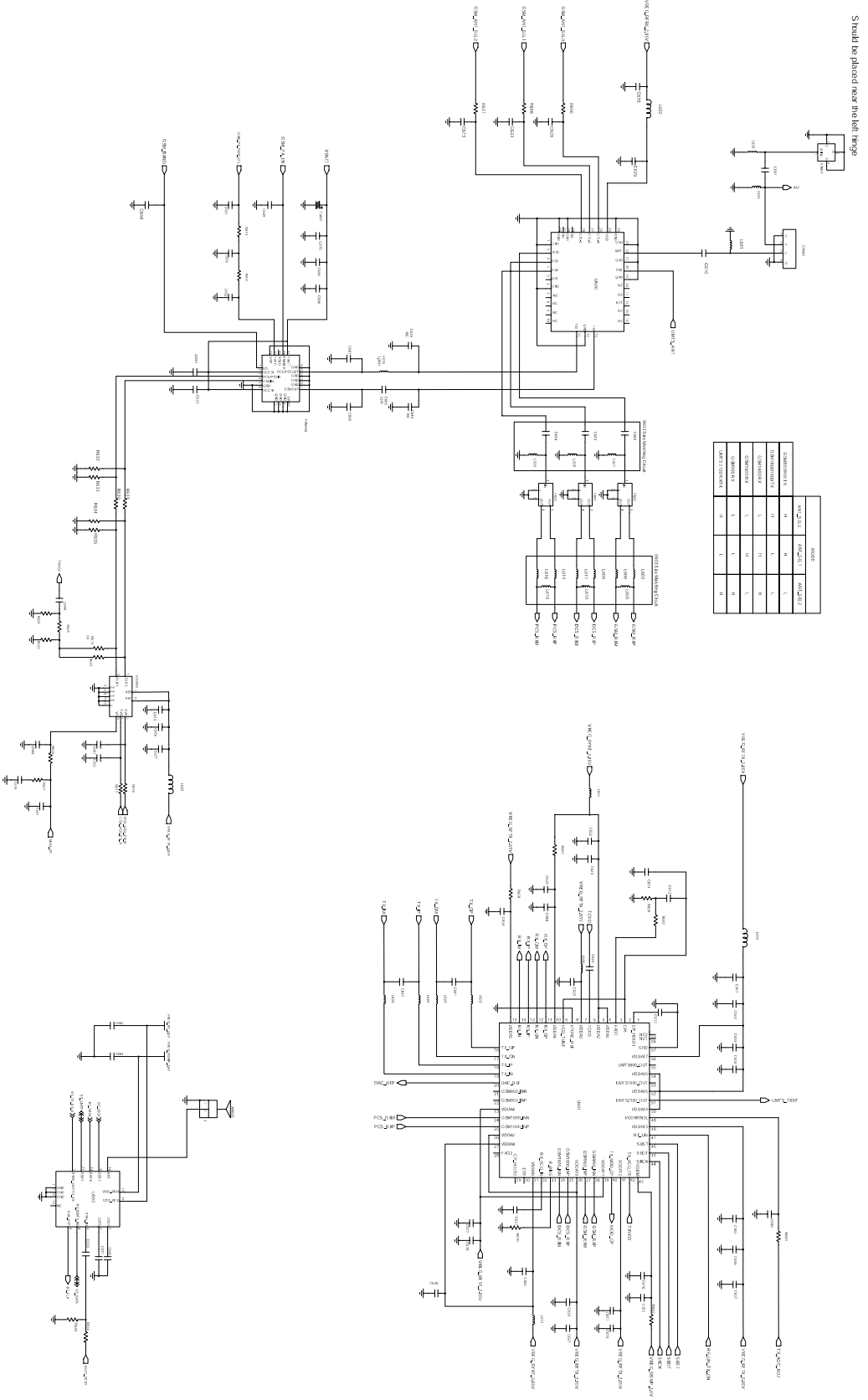




GSM Part

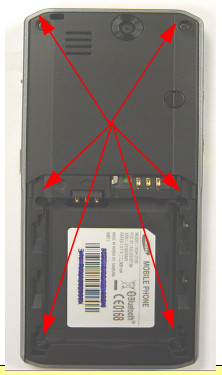
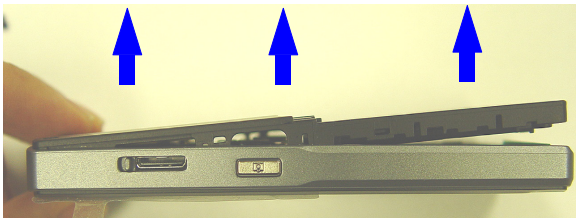
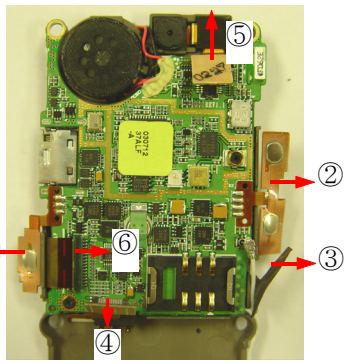


WCDMA Part

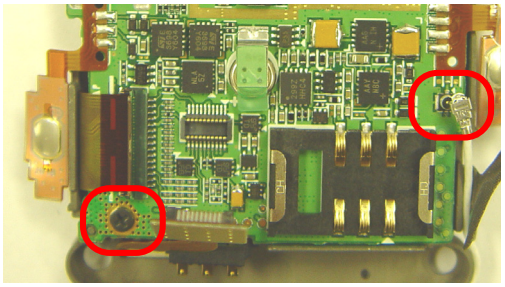


8. Disassembly and Assembly instructions

8-1. Disassembly

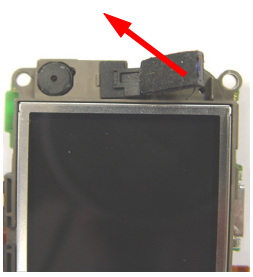
1 	2 
Remove the screw cover	**Unscrew 6 screws in rear**
3 	4 
Separate the rear cover	**Separate the LCD metal bracket from Front case**
5 	6 
Separate the LCD metal bracket from Front case	1. Remove Cam.KeyFpcb 2. Remove Vol.KeyFpcb 3. Detach Conductive Tape from PBA 4. Remove the MainKeyFpcb 5. Separate the Camera Module 6. Separate the LCD Module

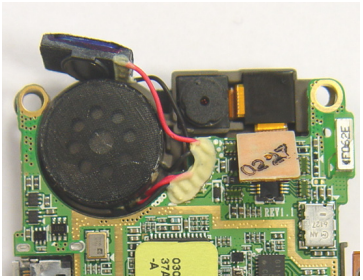
7



Unscrew 1point Screw
Separate Ant.cable from the PBA

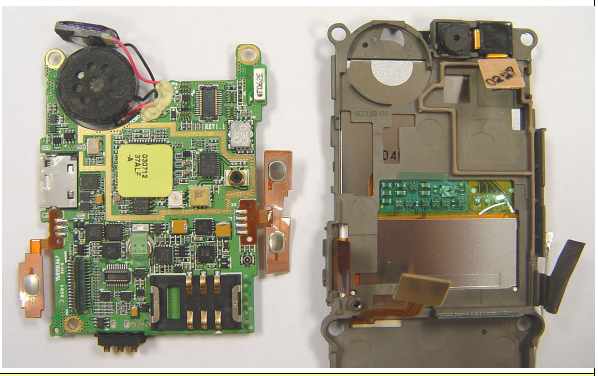
8





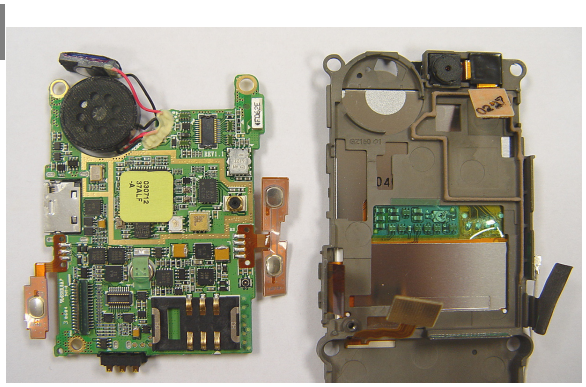
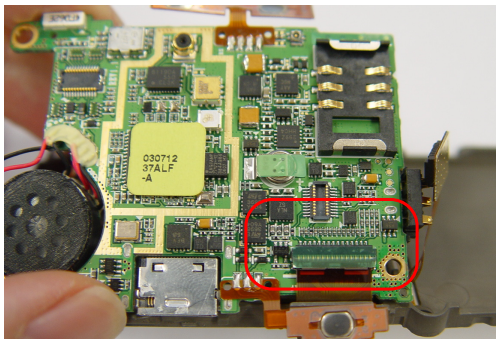
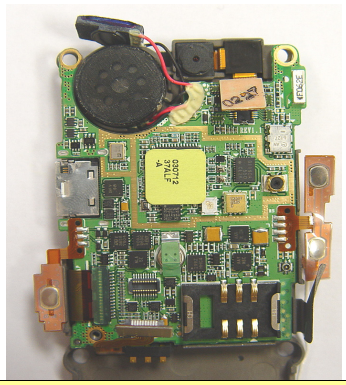
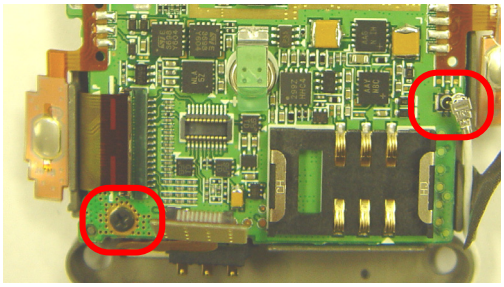
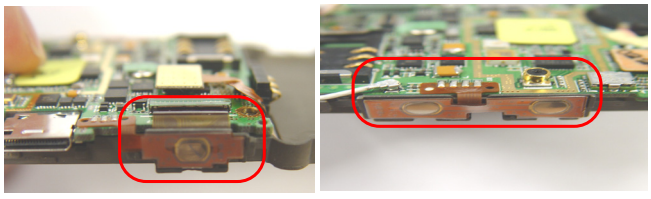
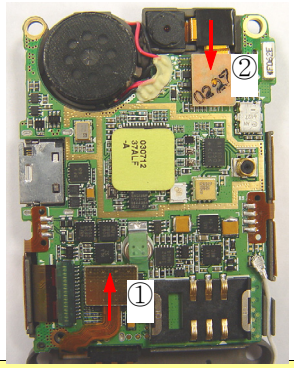
Remove the Receiver

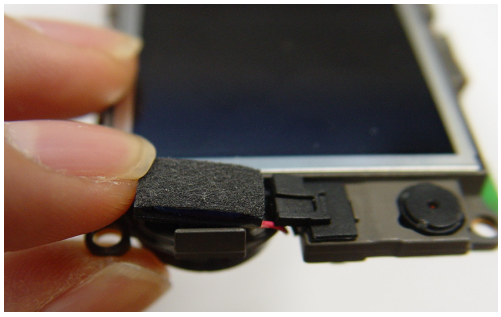
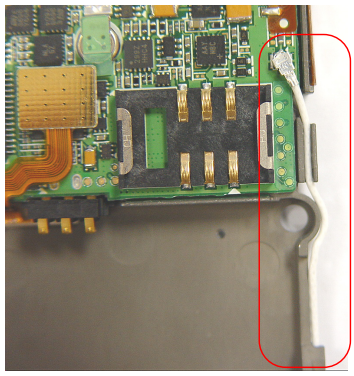
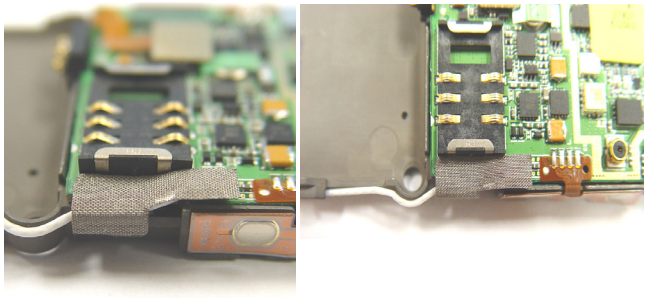
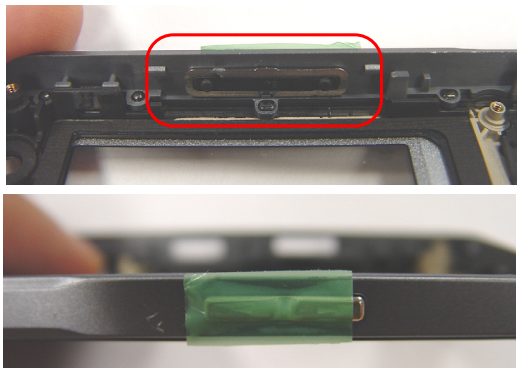
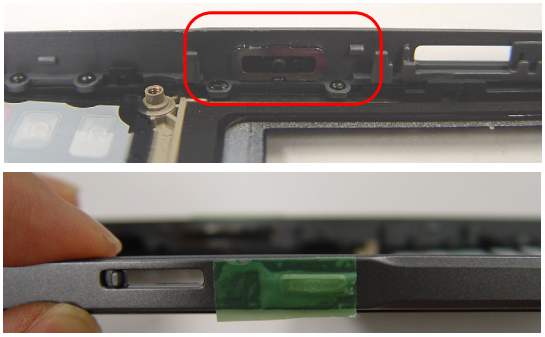
9



Separate the PBA from LCD Bracket

8-2. Assembly

1 	2 
Initial State	**Insert the LCD Fpcb to the LCD con. on the PBA**
3 	4 
Place Speaker & Receiver on the LCD bracket	**Screw the PBA on the LCD Bracket Combine the Ant. Cable con.**
5 	6 
Attach the Vol.KeyFpcb & Cam.KeyFpcb	**Combine the Camera Module and the Main Key Fpcb to the PBA**

7 	8 
Place the Receiver on the Bracket exactly	**Place the Antenna Wire(Cable) on the Bracket**
9 	10 
Combine the Ant. wire to Bracket rib(Side)	**Attach the Conductive Tape to the Bracket**
11 	12 
Fix the Vol. key to Front case by tape	**Fix the Cam. key to Front case by tape**

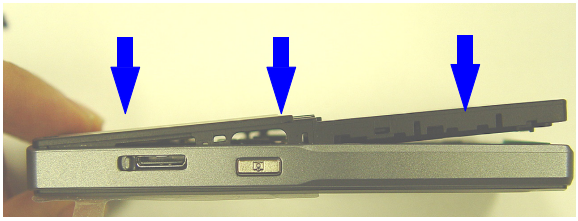
13

Place the LCD Bracket Assy (PBA Assy) on the Front case.

14

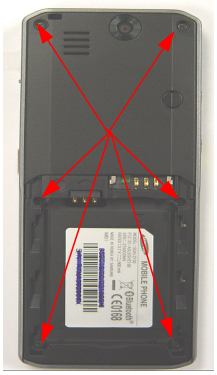
Fix the Ant Wire to the Bracket like above.

15



Close the Rear case like above

16



Screw the 6points

17

Combine the Screw Covers