

SAMSUNG

UMTS TELEPHONE

SGH-Z140

SERVICE *Manual*

UMTS TELEPHONE



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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	TX Power control level	DCS1800	TX Power control level	PCS1800
5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm	6	18±3 dBm	6	18±3 dBm
12	19±2 dBm	7	16±3 dBm	7	16±3 dBm
13	17±2 dBm	8	14±3 dBm	8	14±3 dBm
14	15±2 dBm	9	12±4 dBm	9	12±4 dBm
15	13±2 dBm	10	10±4 dBm	10	10±4 dBm
16	11±3 dBm	11	8±4dBm	11	8±4dBm
17	9±3dBm	12	6±4 dBm	12	6±4 dBm
18	7±3 dBm	13	4±4 dBm	13	4±4 dBm
19	5±3 dBm	14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm

2. Circuit Description

2-1. SGH-Z140 RF Circuit Description

- Antenna Switch Module (U103)

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 (F100) For filtering the frequency band between 925 ~ 960 MHz.
- DCS Rx FILTER (F101) For filtering the frequency band 1805 and 1880 MHz.
- PCS Rx FILTER (F102) For filtering the frequency band 1930 and 1990 MHz.
- WCDMA Rx FILTER (F200) For filtering the frequency band 2110 and 2170 MHz.
- WCDMA Tx FILTER (F201) For filtering the frequency band 1920 and 1980 MHz.

- VCTCXO (OSC200)

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

- Duplexer (F203)

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

- WCDMA PAM (U201)

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 PAM (U102)

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 Dual Tx VCO (OSC101)

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

- Dual VCO (OSC201)

The dual-band UHF VCO is a key component within its phase-locked loop; VCO performance directly impacts PLL and transceiver performance. GSM/DCS Rx/Tx LO & UMTS Rx LO signal is generated from this dual VCO's output.

- RFL6200 (U200)

The RFL6200 includes an LNA circuit optimized for UMTS-2100 operation. The LNA is separated from all other receive functions contained within the RFR6200 receiver IC to improve mixer LO to RF isolation – a critical parameter in the Zero-IF architecture.

- RFR6200 (U203)

The RFR6200 provides the Zero-IF receiver signal path, from RF to analog baseband, for UMTS-2100 applications. The RFR6200 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 (U101)

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#1 and an on-chip VCO supports UMTS Tx
- PLL#2 and an external VCO supports EGSM Rx and Tx, DCS Rx and Tx, DCS Rx and Tx and UMTS Rx

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. Baseband Circuit description of SGH-Z140

2-2-1. PM6650

- 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 MSM6250 and enables system designers to maximize both standby and talk times.

Supervisory functions, including a reset generator, an input voltage monitor, and a ADC Converter 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 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 is consisted of main LCD (color 260K TFT LCD) and small LCD (color 65K LCD). Main LCD has 1.8", 176x220 resolution and sub LCD has 1.07", 96x96 resolution. Sub LCD uses STR to improve reflection performance. Chip select signals in MSM6250, MLCD_CS_N can enable main LCD and SLCD_CS_N can enable small LCD. MLCD_BL_EN enables white LED of main LCD. MLCD_RESET signal initiates the reset process of the main LCD. SLCD_RESET signal initiates the Reset process of the small LCD.

- Key

This is consisted of key interface pins among U301, KEY_N(0:4). These signals compose the matrix. Result of matrix informs the key status to key interface in the U301. Power on/off key is separated from the matrix. The key LED use the "VREG_KEY_LED" supply voltage. "HALL_SW" informs the status of folder (open or closed) to the.

- EMI ESD Filter

This system uses the EMI ESD filter, GMF05LC to protect noise from IF CONNECTOR part.

- IF connector

It is 24-pin connector. They are designed to use VBATT, VF, MSM_TDI, MSM_TDO, MSM_TCK, MSM_TMS, MSM_TRST, MSM_RTCK, RFR, CTS, JIG_ON, USB_VBUS, RXD, TXD, BOOT_SW and GND. They 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 MSM6250 enable two memories. They use volt supply voltage, VREG_MSMP, VREG_MSME from the PM6650. This system uses SEC's memory, KBE00F005M-F411. 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 MSM6250.

2-2-5. Camera

The camera module consists of VGA pixel of system LSI(Samsung Techwin), 1/5.8" VGA CMOS image sensor with an embedded image signal processor. Pixel size is 4.0 um and effective resolution is 640(H) x 480(V).

2-2-6. Irda

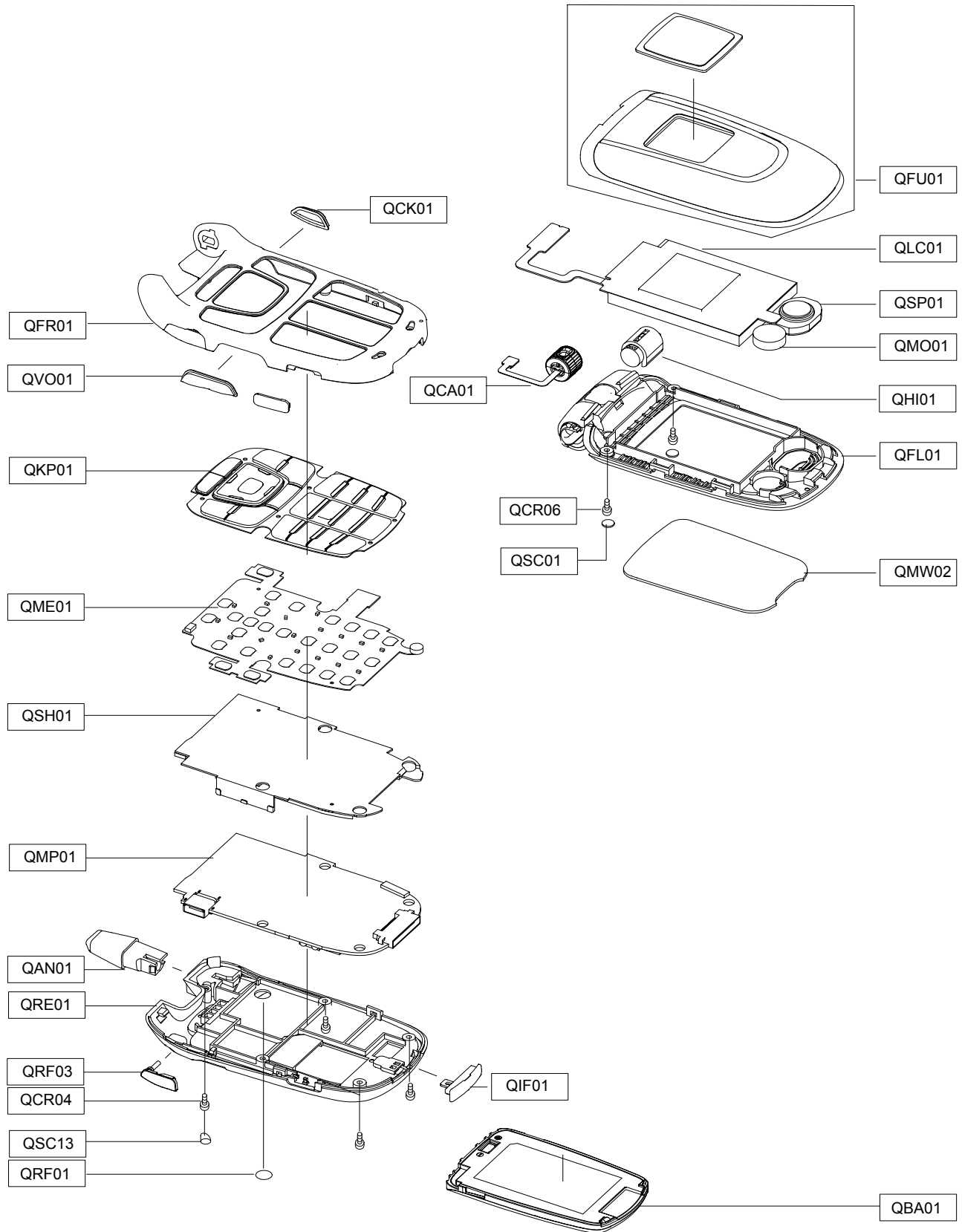
This system uses IRDA module, HSDL_32085, Agilent's. It uses two power signals, "VREG_MSMP" for circuit and "VBATT" for LED.

2-2-7. 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 MSM6250.

3. Exploded View and Parts List

3-1. Exploded View



3-2. Parts List

Location NO.		Description	SEC CODE
QBA01		BATTERY-1000MAH,BLK,ENG,M;BST456ABVC	GH43-01797A
QCA01		UNIT-CAMERA;SGH-Z140,S5K53BEA,-,USA,	GH59-02091A
QCK01		PMO-CAMERA KEY;SGH-Z140,PC+POLY URET	GH72-24665A
QCR04		SCREW-MACHINE;PH,+,M1.4,L4,NYLOK,SWR	6001-001479
QCR06		SCREW-MACHINE;PH(PI2.5),+,M1.4,L3.5,	6001-001155
QIF01		PMO-IF COVER;SGH-Z140,PC+POLY URETHA	GH72-22380A
QLC01		LCD-SGHZ140 LCD;LTD180QC-F0A,SGH-Z14	GH07-00712A
QME01		UNIT-KEY PAD;SGH-Z140,KBSGHZ140KM R2	GH59-02092A
QMO01		MOTOR DC-SPHA880 MOTOR;DMJBRK20ML,SP	GH31-00145A
QMP01		PBA MAIN-SGHZ140;SGHZ140,SEG,GERM,PB	GH92-02145A
QMW02		PCT-MAIN WINDOW V2;SGH-Z140,ACRYL SH	GH72-24809A
QRF01		MPR-TAPE RF COVER;SGH-Z140,PET,PI7XT	GH74-15117A
QSC01		MPR-SCREW CAP PC SHEET;SGH-Z140,PC S	GH74-15486A
QSC13		RMO-REAR SCREW CAP RUBBE;SGH-Z140,SI	GH73-05129A
QSH01		MEC-SHIELD CAN;SGH-Z140,EU,-,-,-,S	GH75-07325A
QSP01		SPEAKER;0.7W,8ohm,89dB+-2dB,800Hz,14	3001-001766
QVO01		PMO-VOLUME KEY;SGH-Z140,PC+POLY URET	GH72-24664A
QFL01		MEC-FOLDER LOWER;SGH-Z140,EU,-,-,-,-	GH75-07178A
	QHI01	MEC-HINGE;SGH-Z140,EU,-,-,-,-,SIL,-	GH75-07179A
QCH03		MEC-CAMERA HINGE;SGH-Z140,EU,-,-,-,-	GH75-07180A
QFR01		MEC-FRONT COVER;SGH-Z140,EU,-,-,-,-,	GH75-07181A
	QRF03	PMO-EAR COVER;SGH-Z140,PC+POLY URETH	GH72-22392A
QKP01		MEC-KEYPAD;SGH-Z140,EU,-,-,-,-,BLK,-	GH75-07257A
QFU01		MEC-FOLDER UPPER V2;SGH-Z140,EU,-,-,-	GH75-07996A
	QLB02	MEC-SUB LCD BRACKET V2;SGH-Z140,EU,-	GH75-08025A
QAN01		ANTENNA-SGHZ140;HFP-01502-0000AA,SGH	GH42-00562A
QRE01		MEC-REAR COVER;SGH-Z140,EU,-,-,-,-,B	GH75-07182A

Description	SEC CODE
BAG PE;LDPE,T0.05,W80,L180,TRP,-,-	6902-000634
CBF INTERFACE-DATA LINK CABLE;SGH-Z1	GH39-00421A
CHARGER-SGHZ500 TC;TCH137EBE,SGH-Z50	GH44-01007A
S/W CD-VODA_PN;SGH-Z500V,SGH-Z500V,E	GH46-00151A
UNIT-EARPHONE;SGH-C230,EM-SS550E-STB	GH59-02166A
LABEL(P)-WATER SOAK;COMM,NORGE,100G,	GH68-02026A
MANUAL-SVR CARD;COMM,XEP,PORTUGUESE,	GH68-02552A
LABEL(R)-MAIN(EU);SGH-Z140,EU,POLYE	GH68-07010A
MANUAL-WEEE CARD;COMM,SEC,ENGLISH,UN	GH68-07013A
MANUAL-USER;SGH-Z140,XEP,PORTUGUESE,	GH68-07596A
BOX(P)-UNIT(EU);SGH-Z140,SC300+S120+	GH69-02623A
CUSHION-CASE(1-2);SGH-Z140,PULP,T0.8	GH69-03037A
PMO-BATT LOCKER;SGH-Z140,PC,BLK,-,-,	GH72-22394A
MPR-SPK CUSHION;SGH-S100,PORON,PI8XT	GH74-03121A
MPR-BOHO VINYL IF;SGH-E720,#950,85X1	GH74-13606A
MPR-BOHO VINYL F/UP 2;SGH-Z140,ST-55	GH74-15134A
MPR-BOHO VINYL M/WIN 1;SGH-Z140,ST-5	GH74-15135A
MPR-BOHO VINYL M/WIN 2;SGH-Z140,SP-3	GH74-15136A
MPR-BOHO VINYL REAR;SGH-Z140,ST-5543	GH74-15142A
MEC-HANGER;SGH-Z500,TMN,STRAP,-,BLK,	GH75-03673H

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



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



3-3-2. Test Cable
(GH39-00337E)



3-3-3. Serial Cable



3-3-4. Power Supply Cable



3-3-5. DATA CABLE
(GH39-00279A)



3-3-6. TC
(GH44-00701A)



4. Electrical Parts List

Design LOC	Description	SEC CODE
AN1	ANTENNA(BLUETOOTH)	4202 - 001048
BAT500	BATTERY	4302 - 001177
C100,C103,C118,C127	C - CERAMIC,CHIP	2203 - 000254
C101,C104,C108,C109	C - CERAMIC,CHIP	2203 - 000812
C102,C116,C141,C151	C - CERAMIC,CHIP	2203 - 000438
C105,C110,C112,C115	C - CERAMIC,CHIP	2203 - 005482
C111,C117,C122,C126	C - CERAMIC,CHIP	2203 - 000812
C113,C203,C244	C - CERAMIC,CHIP	2203 - 000885
C114,C123,C129,C356	C - CERAMIC,CHIP	2203 - 000854
C119,C200,C206,C217	C - CERAMIC,CHIP	2203 - 000233
C120,C124,C144,C238	C - CERAMIC,CHIP	2203 - 000995
C121,C128,C138,C139	C - CERAMIC,CHIP	2203 - 005482
C130	C - CERAMIC,CHIP	2203 - 000725
C132,C137,C140,C146	C - CERAMIC,CHIP	2203 - 000812
C133	C - CERAMIC,CHIP	2203 - 000836
C134,C142,C215,C216	C - CERAMIC,CHIP	2203 - 002668
C145	C - CERAMIC,CHIP	2203 - 006141
C147,C229,C505,C517	C - CERAMIC,CHIP	2203 - 006208
C148,C201,C218,C220	C - CERAMIC,CHIP	2203 - 005482
C149,C150,C156,C168	C - CERAMIC,CHIP	2203 - 000254
C152	C - CERAMIC,CHIP	2203 - 000311
C153,C720	C - TA,CHIP	2404 - 001274
C154,C341	C - CERAMIC,CHIP	2203 - 005480
C159,C210,C248,C340	C - CERAMIC,CHIP	2203 - 000812
C160	C - CERAMIC,CHIP	2203 - 005503
C161	C - CERAMIC,CHIP	2203 - 002443
C162	C - CERAMIC,CHIP	2203 - 005234
C163,C165,C345,C617	C - CERAMIC,CHIP	2203 - 000386
C169,C235,C239,C337	C - CERAMIC,CHIP	2203 - 000254
C204,C236,C411	C - TA,CHIP	2404 - 001225
C205,C207,C211,C232	C - CERAMIC,CHIP	2203 - 000330
C208,C209,C645,C646	C - CERAMIC,CHIP	2203 - 000278
C221,C227,C231,C234	C - CERAMIC,CHIP	2203 - 000233
C222,C225	C - CERAMIC,CHIP	2203 - 005288
C223,C241,C421,C689	C - CERAMIC,CHIP	2203 - 000438
C224,C226,C230,C233	C - CERAMIC,CHIP	2203 - 005482
C228,C242	C - CERAMIC,CHIP	2203 - 000679

Design LOC	Description	SEC CODE
C237,C406,C576	C - CERAMIC,CHIP	2203 - 006257
C240,C424,C428,C540	C - CERAMIC,CHIP	2203 - 005482
C243,C575	C - CERAMIC,CHIP	2203 - 000940
C247,C339,C423,C566	C - CERAMIC,CHIP	2203 - 000233
C300,C320,C330,C353	C - CERAMIC,CHIP	2203 - 006093
C301,C302,C303,C304	C - CERAMIC,CHIP	2203 - 006194
C305,C308,C309,C404	C - CERAMIC,CHIP	2203 - 005806
C306,C307,C331,C332	C - CERAMIC,CHIP	2203 - 006194
C310,C311,C312,C313	C - CERAMIC,CHIP	2203 - 006423
C314,C315,C316,C317	C - CERAMIC,CHIP	2203 - 006423
C318,C319,C321,C322	C - CERAMIC,CHIP	2203 - 006423
C323,C324,C325,C326	C - CERAMIC,CHIP	2203 - 006423
C327,C328,C329,C343	C - CERAMIC,CHIP	2203 - 006423
C333,C403,C414	C - CERAMIC,CHIP	2203 - 006194
C334,C335	C - CERAMIC,CHIP	2203 - 000628
C336	C - CERAMIC,CHIP	2203 - 000489
C338,C342,C420,C422	C - CERAMIC,CHIP	2203 - 000254
C344	C - TA,CHIP	2404 - 001380
C346,C348,C350,C352	C - CERAMIC,CHIP	2203 - 006423
C347,C351	C - CERAMIC,CHIP	2203 - 006091
C354,C520,C524,C527	C - CERAMIC,CHIP	2203 - 006201
C355,C400,C401,C402	C - CERAMIC,CHIP	2203 - 006423
C409,C410,C417,C427	C - CERAMIC,CHIP	2203 - 006324
C412,C413,C416,C419	C - CERAMIC,CHIP	2203 - 006423
C415,C536,C537,C541	C - CERAMIC,CHIP	2203 - 005806
C418,C426,C702	C - CERAMIC,CHIP	2203 - 006053
C425	C - TA,CHIP	2404 - 001394
C429	C - TA,CHIP	2404 - 001386
C500,C501	C - CERAMIC,CHIP	2203 - 005138
C502,C506,C511,C514	C - CERAMIC,CHIP	2203 - 006423
C508,C516,C530,C532	C - CERAMIC,CHIP	2203 - 006093
C509	C - CERAMIC,CHIP	2203 - 005736
C515,C549,C550,C551	C - CERAMIC,CHIP	2203 - 006423
C518,C522,C523,C546	C - CERAMIC,CHIP	2203 - 006208
C521,C526,C529,C531	C - CERAMIC,CHIP	2203 - 006344
C528,C560,C577	C - CERAMIC,CHIP	2203 - 006201
C533	C - CERAMIC,CHIP	2203 - 006344

Design LOC	Description	SEC CODE
C538,C539,C544,C703	C - CERAMIC,CHIP	2203 - 000812
C542,C543,C672	C - CERAMIC,CHIP	2203 - 005806
C545	C - TA,CHIP	2404 - 001281
C547,C548,C657,C673	C - CERAMIC,CHIP	2203 - 006208
C552,C553,C554,C562	C - CERAMIC,CHIP	2203 - 006423
C561,C564,C565,C578	C - CERAMIC,CHIP	2203 - 006093
C563,C628,C658,C669	C - CERAMIC,CHIP	2203 - 006423
C567,C569,C729	C - CERAMIC,CHIP	2203 - 000233
C571,C704,C706,C707	C - CERAMIC,CHIP	2203 - 005482
C572	C - CERAMIC,CHIP	2203 - 006324
C573,C574	C - CERAMIC,CHIP	2203 - 000425
C602,C603,C604,C606	C - CERAMIC,CHIP	2203 - 006093
C607,C615,C641,C642	C - TA,CHIP	2404 - 001348
C608,C663,C686,C688	C - CERAMIC,CHIP	2203 - 006093
C610,C621,C625,C626	C - CERAMIC,CHIP	2203 - 000854
C616,C635,C639,C643	C - CERAMIC,CHIP	2203 - 003054
C624,C668,C716	C - TA,CHIP	2404 - 001381
C629,C630,C633,C650	C - CERAMIC,CHIP	2203 - 000854
C636,C640,C644,C670	C - CERAMIC,CHIP	2203 - 000386
C637,C638,C647,C648	C - CERAMIC,CHIP	2203 - 006137
C651,C655,C656,C665	C - CERAMIC,CHIP	2203 - 000854
C662,C671	C - CERAMIC,CHIP	2203 - 006190
C666,C667,C687	C - CERAMIC,CHIP	2203 - 000854
C674,C675,C694,C696	C - CERAMIC,CHIP	2203 - 006423
C690,C691	C - TA,CHIP	2404 - 001348
C692	C - CERAMIC,CHIP	2203 - 006137
C693,U611,U612	C - TA,CHIP	2404 - 001339
C695	C - CERAMIC,CHIP	2203 - 000654
C697	C - CERAMIC,CHIP	2203 - 000438
C698,C699	C - CERAMIC,CHIP	2203 - 005481
C701	C - TA,CHIP	2404 - 001268
C708	C - CERAMIC,CHIP	2203 - 000254
C709,C715,C727	C - CERAMIC,CHIP	2203 - 005482
C710,C711	C - CERAMIC,CHIP	2203 - 006093
C721	C - CERAMIC,CHIP	2203 - 006423
C722,C723,C724	C - CERAMIC,CHIP	2203 - 000386
C730,C731	C - CERAMIC,CHIP	2203 - 000386

Design LOC	Description	SEC CODE
CA600	VARISTOR	1405-001119
CN100	CONNECTOR - COAXIAL	3705-001358
CN500	CONNECTOR - CARD EDGE	3709-001355
CN600	JACK - PHONE	3722-002175
CN701	CONNECTOR - HEADER	3711-005370
CN703	CONNECTOR - HEADER	3711-005962
CN704	CONNECTOR - HEADER	3711-005296
CN705	CONNECTOR - SOCKET	3710-002120
CN706	CONNECTOR - HEADER	3711-005783
D501,D700	DIODE - ARRAY	0407-001002
F100	FILTER - SAW	2904-001550
F101	FILTER - SAW	2904-001570
F102	FILTER - SAW	2904-001571
F200	FILTER - SAW	2904-001439
F201	FILTER - SAW	2904-001438
F203	FILTER - Duplexer	2910-000004
F700,F701,F702,F703	FILTER - EMI SMD	2901-001311
F704,F705,F706	FILTER - EMI SMD	2901-001311
L101	INDUCTOR - SMD	2703-002207
L102	INDUCTOR - SMD	2703-002200
L103,L125,L126,L200	INDUCTOR - SMD	2703-002314
L105	INDUCTOR - SMD	2703-001723
L107,L109	INDUCTOR - SMD	2703-002208
L108,L112,L113,L709	INDUCTOR - SMD	2703-002203
L110,L400,L600,L701	CORE - FERRITE BEAD	3301-001534
L111,L114,L115,L117	INDUCTOR - SMD	2703-001229
L116,L119,L121,L123	INDUCTOR - SMD	2703-002176
L118,L204	INDUCTOR - SMD	2703-002268
L120	INDUCTOR - SMD	2703-002199
L128	INDUCTOR - SMD	2703-002369
L201	INDUCTOR - SMD	2703-002198
L202	INDUCTOR - SMD	2703-002205
L203	INDUCTOR - SMD	2703-002267
L205	INDUCTOR - SMD	2703-001750
L206,L209,L210	CORE - FERRITE BEAD	3301-001729
L207,L208,L211	INDUCTOR - SMD	2703-002368
L501,L502	INDUCTOR - SMD	2703-002782

Design LOC	Description	SEC CODE
L601,L602	CORE - FERRITE BEAD	3301 - 001630
L603,L604	CORE - FERRITE BEAD	3301 - 001756
L702,L703,L704,L705	CORE - FERRITE BEAD	3301 - 001534
L706,L707	CORE - FERRITE BEAD	3301 - 001534
L712	INDUCTOR - SMD	2703 - 001178
LED400	PHOTO - IRDA	0604 - 001261
MIS201	ISOLATOR	4709 - 001370
OSC101	OSCILLATOR - VCO	2806 - 001360
OSC200	OSCILLATOR - VCTCXO	2809 - 001280
OSC201	OSCILLATOR - VCO	2806 - 001361
OSC501	CRYSTAL - UNIT	2801 - 004339
Q400	TR - DIGITAL	0504 - 000168
R100,R207	R - CHIP	2007 - 007491
R101,R126,R127,R130	R - CHIP	2007 - 000138
R102,R312	R - CHIP	2007 - 000140
R105,R108,R110,R203	R - CHIP	2007 - 007318
R106,R112,R212	R - CHIP	2007 - 000172
R107,R633	R - CHIP	2007 - 007316
R111	R - CHIP	2007 - 000145
R114,R128,R129	R - CHIP	2007 - 001217
R115,R116	R - CHIP	2007 - 001291
R117,R123	R - CHIP	2007 - 001301
R118,R119,R120,R121	R - CHIP	2007 - 001307
R122,R420,R421,R422	R - CHIP	2007 - 001305
R124	R - CHIP	2007 - 000147
R125,R330,R520,R720	R - CHIP	2007 - 007142
R131,R213,R214,R303	R - CHIP	2007 - 000171
R200,R206,R208,R315	R - CHIP	2007 - 007314
R201	R - CHIP	2007 - 000173
R202,R210,R211	R - CHIP	2007 - 000138
R204	R - CHIP	2007 - 000141
R209,R505	R - CHIP	2007 - 001298
R216	R - CHIP	2007 - 007001
R217	R - CHIP	2007 - 000146
R307,R309,R324,R336	R - CHIP	2007 - 008542
R310	R - CHIP	2007 - 007135
R313	R - CHIP	2007 - 000137

Design LOC	Description	SEC CODE
R314,R602,R603,R614	R - CHIP	2007 - 007318
R327,R332	R - CHIP	2007 - 000148
R328,R331,R620	R - CHIP	2007 - 001339
R339,R521,R650	R - CHIP	2007 - 000566
R341,R342	R - CHIP	2007 - 008588
R344,R408,R657	R - CHIP	2007 - 008542
R345,R346,R347,R348	R - CHIP	2007 - 007014
R349	R - CHIP	2007 - 007014
R350,R351	R - CHIP	2007 - 003001
R400,R404,R405,R406	R - CHIP	2007 - 000171
R403,R419	R - CHIP	2007 - 000162
R410,R503	R - CHIP	2007 - 008516
R411,R412,R700	R - CHIP	2007 - 008055
R414,R448,R507	R - CHIP	2007 - 000171
R413,R511,R617	R - CHIP	2007 - 007107
R415	R - CHIP	2007 - 001313
R418	R - CHIP	2007 - 001311
R423	R - CHIP	2007 - 001305
R500,R501	R - CHIP	2007 - 003015
R504	R - CHIP	2007 - 008483
R506	R - CHIP	2007 - 007468
R508	R - CHIP	2007 - 000151
R510,R514,R515,R516	R - CHIP	2007 - 000171
R517,R518,R519,R631	R - CHIP	2007 - 000171
R604,R605,R610,R612	R - CHIP	2007 - 007137
R615	R - CHIP	2007 - 007318
R616,R618	R - CHIP	2007 - 007334
R623,R625	R - CHIP	2007 - 007311
R634,R638,R642,R651	R - CHIP	2007 - 000171
R643	R - CHIP	2007 - 000159
R644,R645	R - CHIP	2007 - 000775
R646,R647	R - CHIP	2007 - 007529
R652,R653,R659,R710	R - CHIP	2007 - 000171
R702,R705,R706	R - CHIP	2007 - 008542
R701,R703	R - CHIP	2007 - 008419
R704	R - CHIP	2007 - 008045
R709	R - CHIP	2007 - 007139

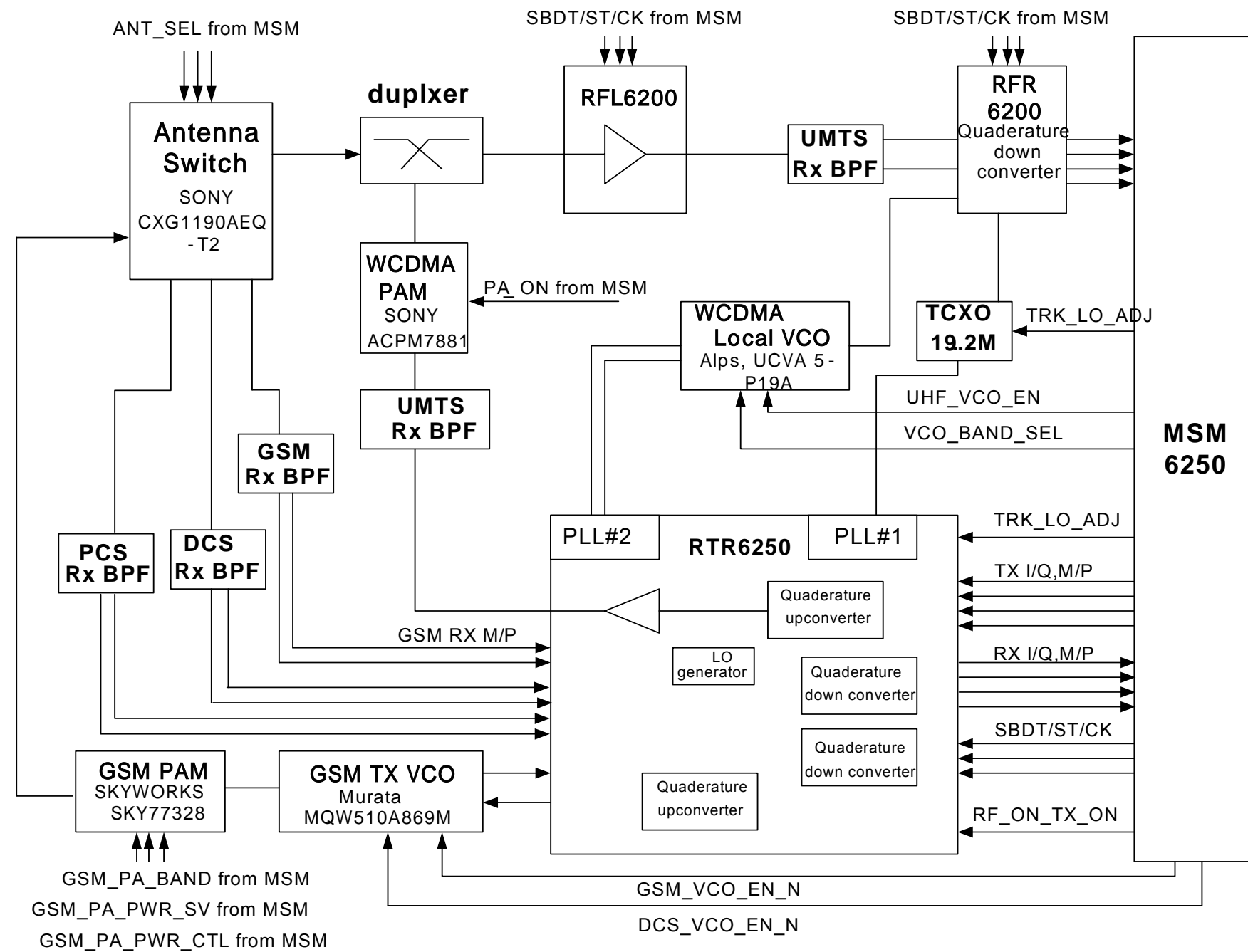
Design LOC	Description	SEC CODE
R711,R712,R713,R714	R-CHIP	2007-000171
R715,R716,R717,R718	R-CHIP	2007-000171
R719,R721	R-CHIP	2007-000171
R722	R-CHIP	2007-007193
TH300	THERMISTOR	1404-001196
U101	IC-TRANSCEIVER	1205-002645
U102	IC-POWER AMP	1201-002218
U103	IC-SWITCH	1205-002724
U200	IC-RF AMP	1201-001984
U201	IC-POWER AMP	1201-002219
U203	IC-RECEIVER	1205-002297
U300,U402,U502	IC-SWITCH	1205-002568
U301	IC-MODEM	1205-002527
U302,U503	IC-POSI.FIXED REG.	1203-003105
U400	IC-MCP	1108-000005
U401,U603	IC-ANALOG SWITCH	1001-001231
U403	IC-CMOS LOGIC	0801-002345
U405,U604,U608,U613	IC-ANALOG SWITCH	1001-001296
U407	FILTER-EMI SMD	2901-001283
U408	BLUETOOTH MODULE	4709-001363
U409	IC-POWER	1203-003728
U410	FET-SILICON	0505-001889
U500	IC-POWER SUPERVISOR	1203-003335
U501	IC-POSI.FIXED REG.	1203-002236
U601	IC-VOLTAGE COMP.	1202-001036
U605	IC-ANALOG MULTIPLEX	1001-001306
U607	IC-MELODY	1204-002138
U609	IC-AUDIO AMP	1201-002195
U610	IC-AUDIO AMP	1201-002240
U615	FILTER-EMI SMD	2901-001294
X300	RESONATOR-CERAMIC	2802-001182
ZD406	DIODE-ZENER	0403-001387
ZD500,ZD707	DIODE-TVS	0406-001200
ZD600,ZD601,ZD709	DIODE-TVS	0406-001197
ZD710,ZD712,ZD717	DIODE-TVS	0406-001197
ZD718,ZD719	DIODE-TVS	0406-001197
ZD720	DIODE-ZENER	0403-001427

Electrical Parts List

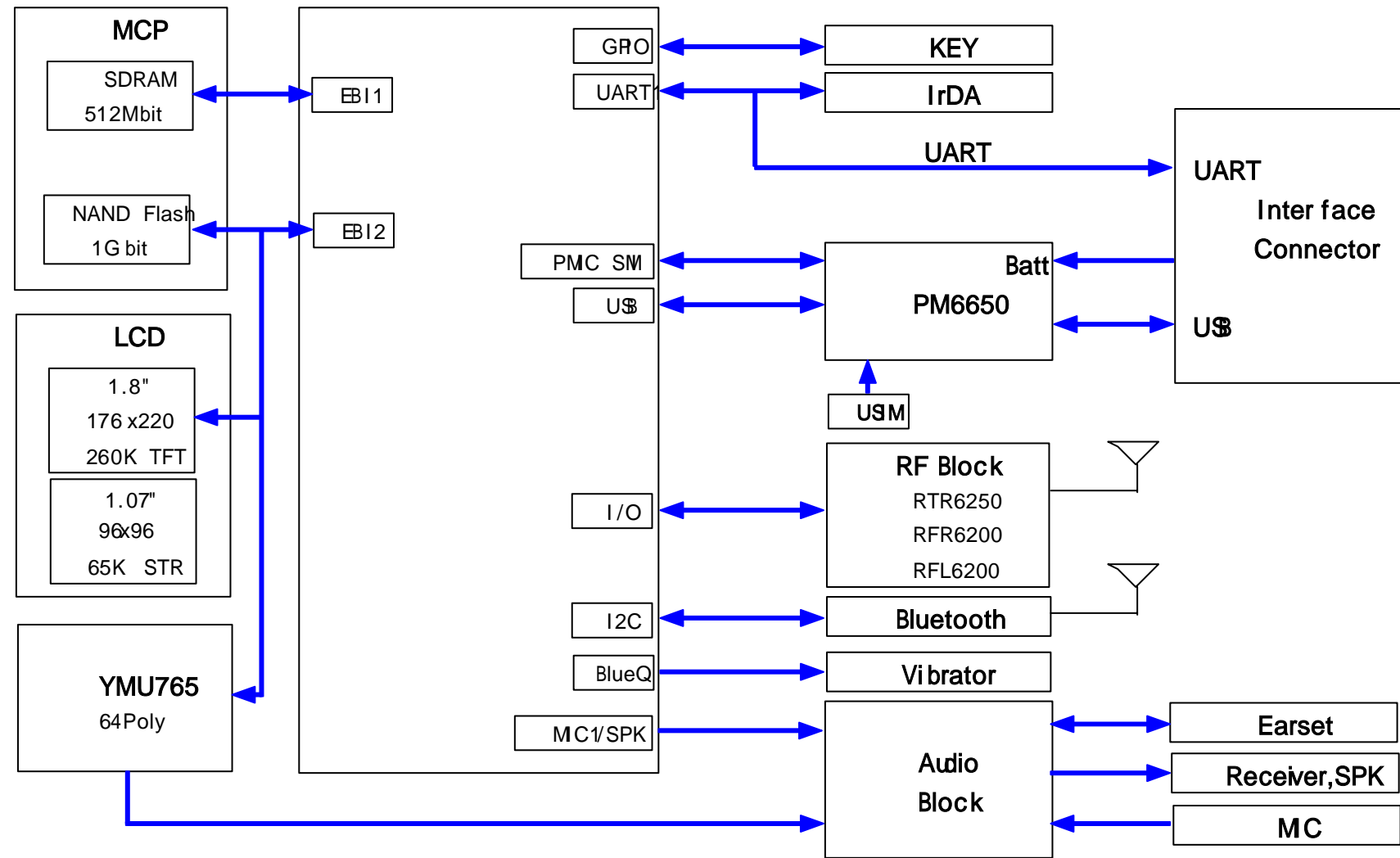
Design LOC	Description	SEC CODE
ZD721	DIODE - ZENER	0403-001411

5. Block Diagrams

5-1. RF Solution Block Diagram



5-2. Base Band Solution Block Diagram

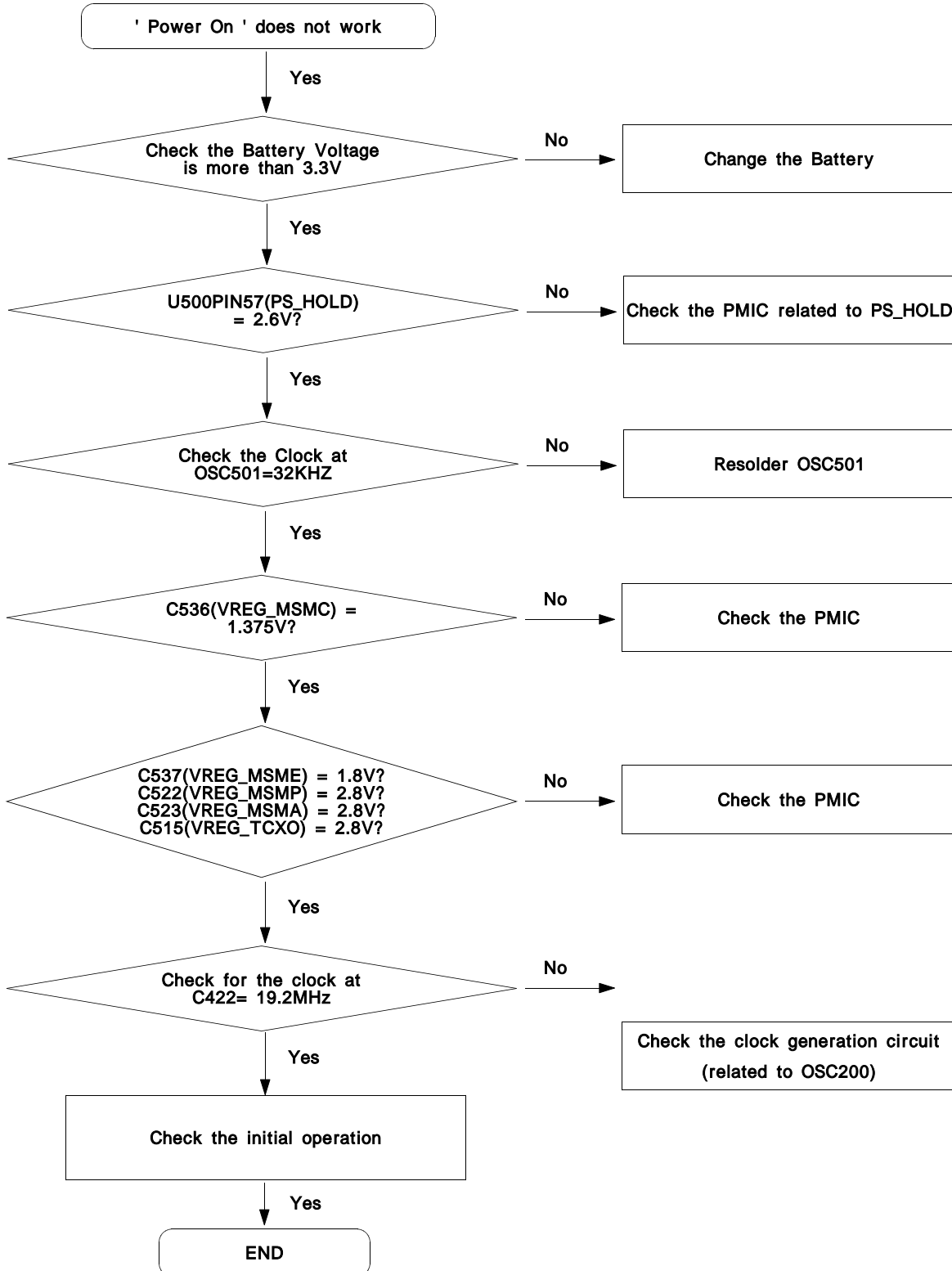


6-2. PCB Bottom Diagram

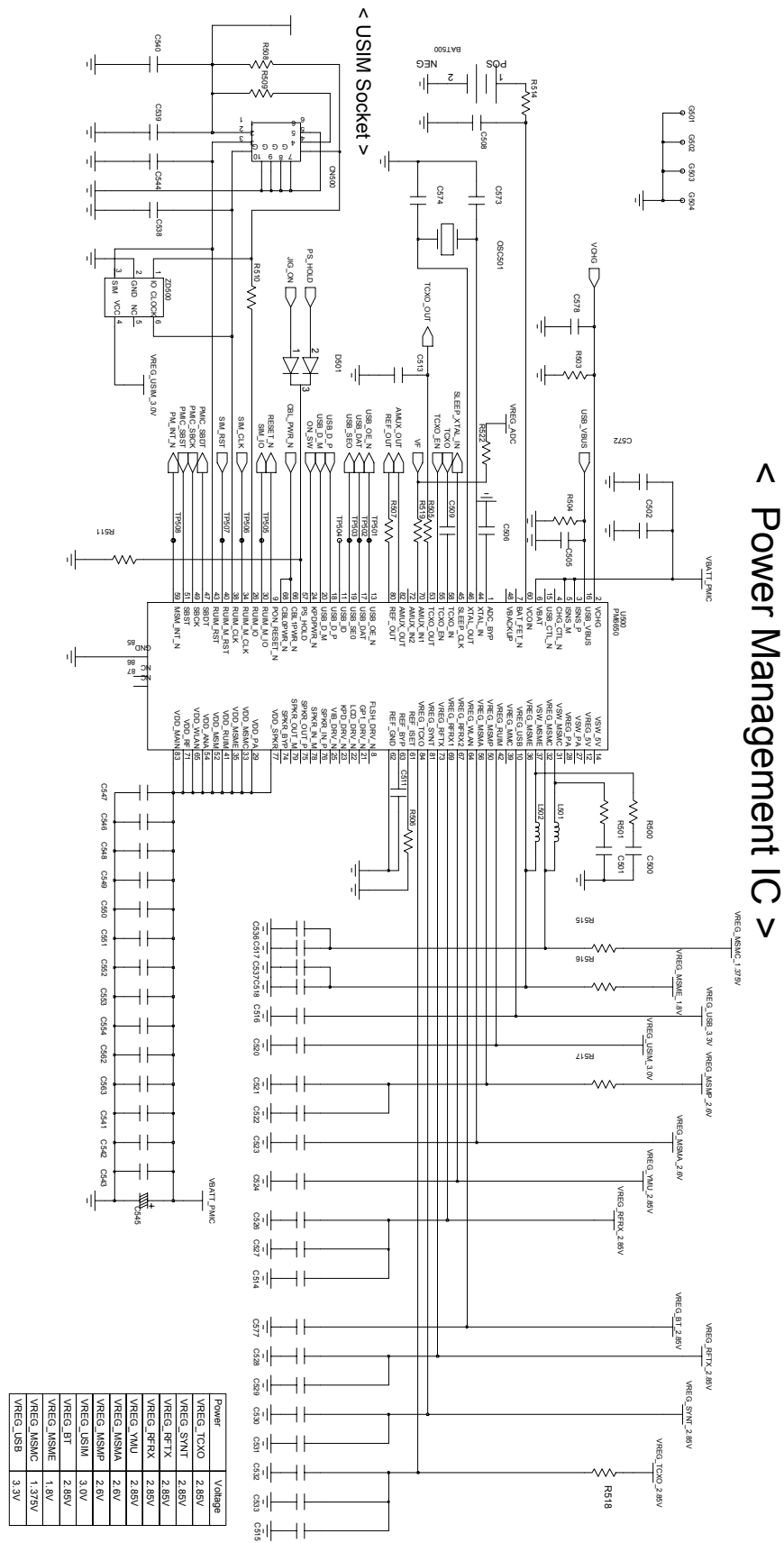


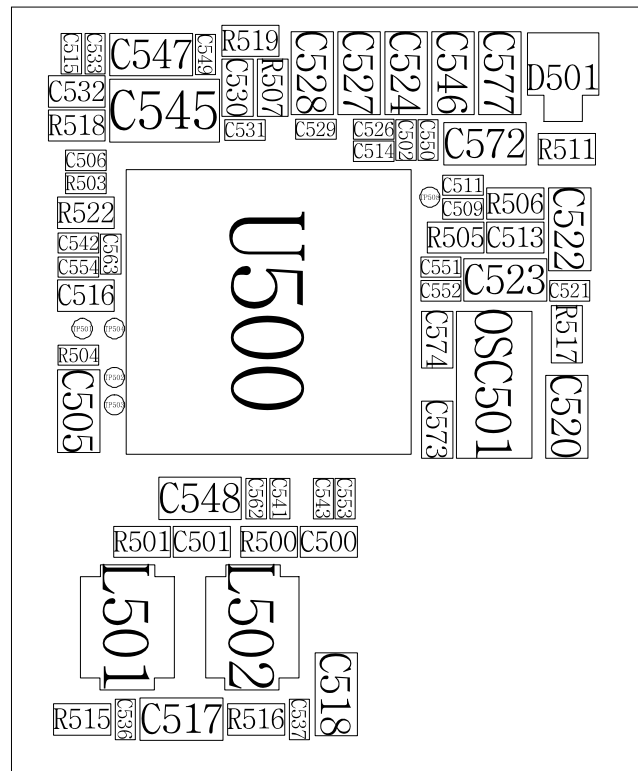
7. Flow Chart of Troubleshooting

7-1. Power On

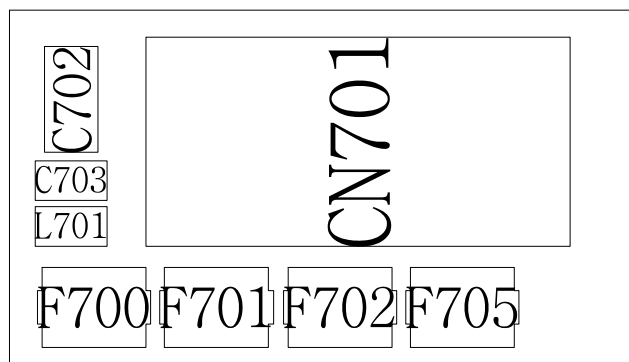
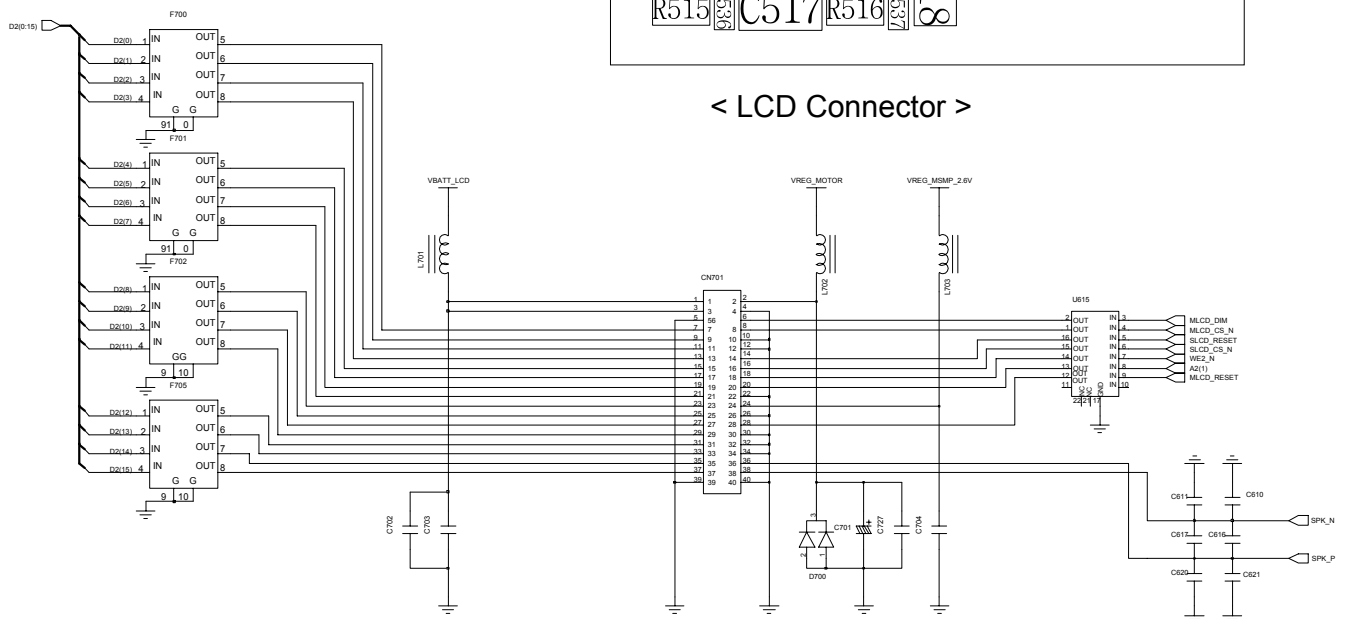


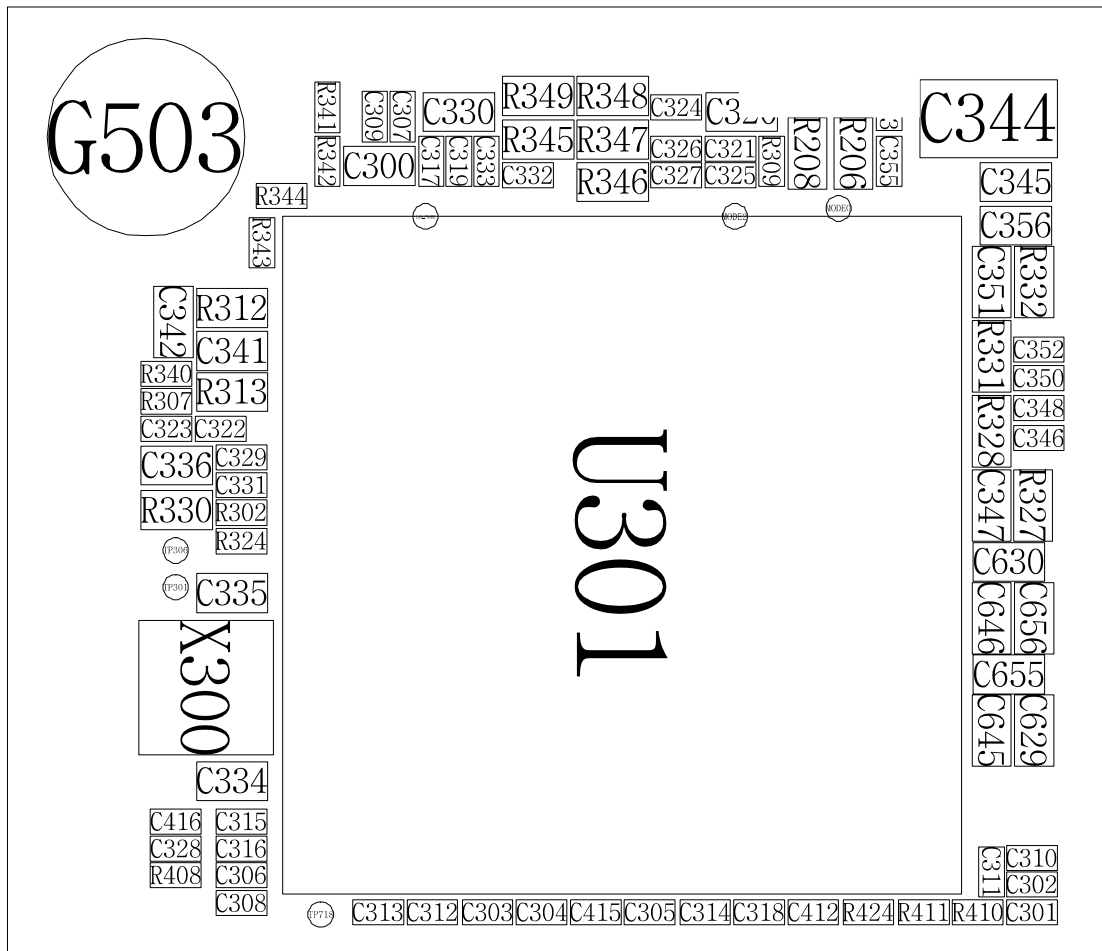
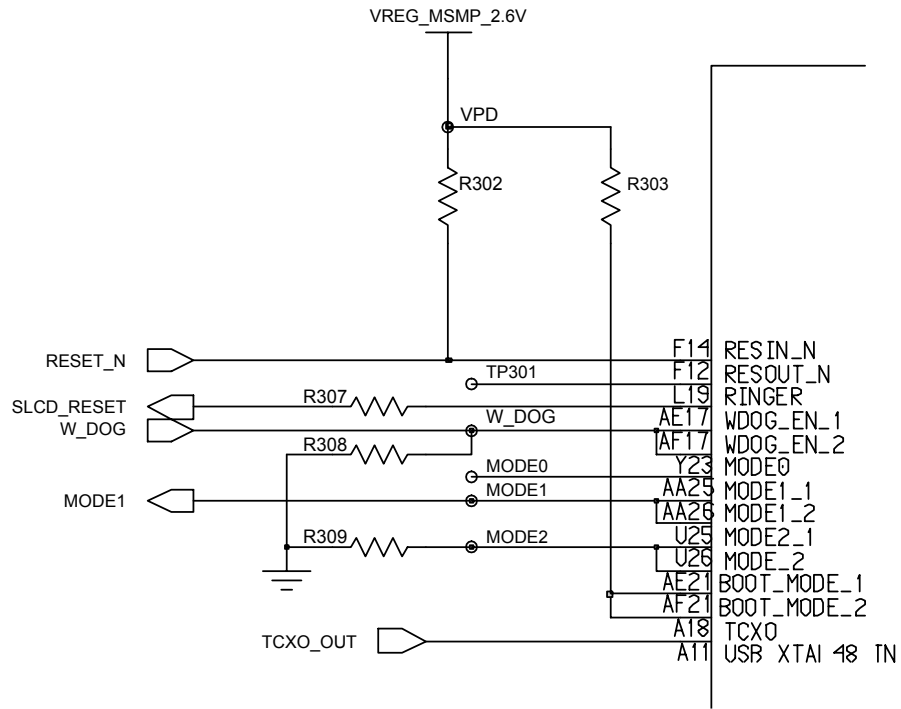
Power On



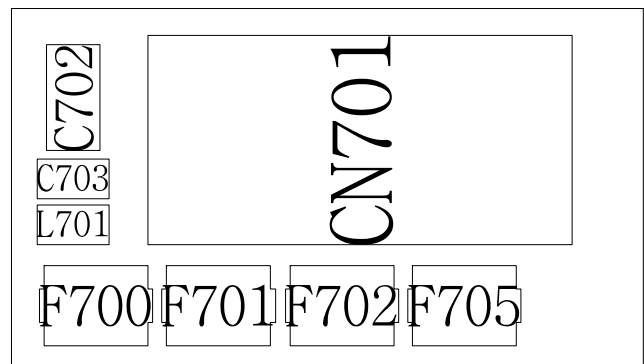
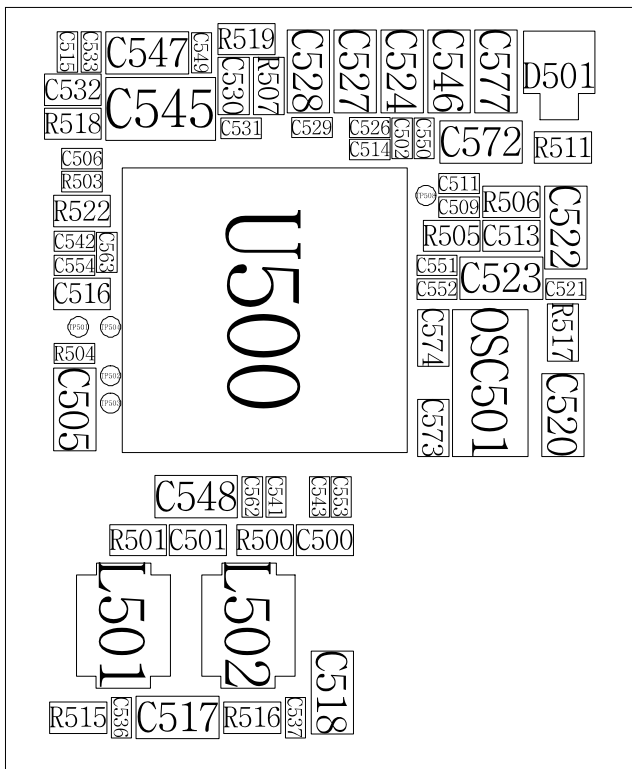
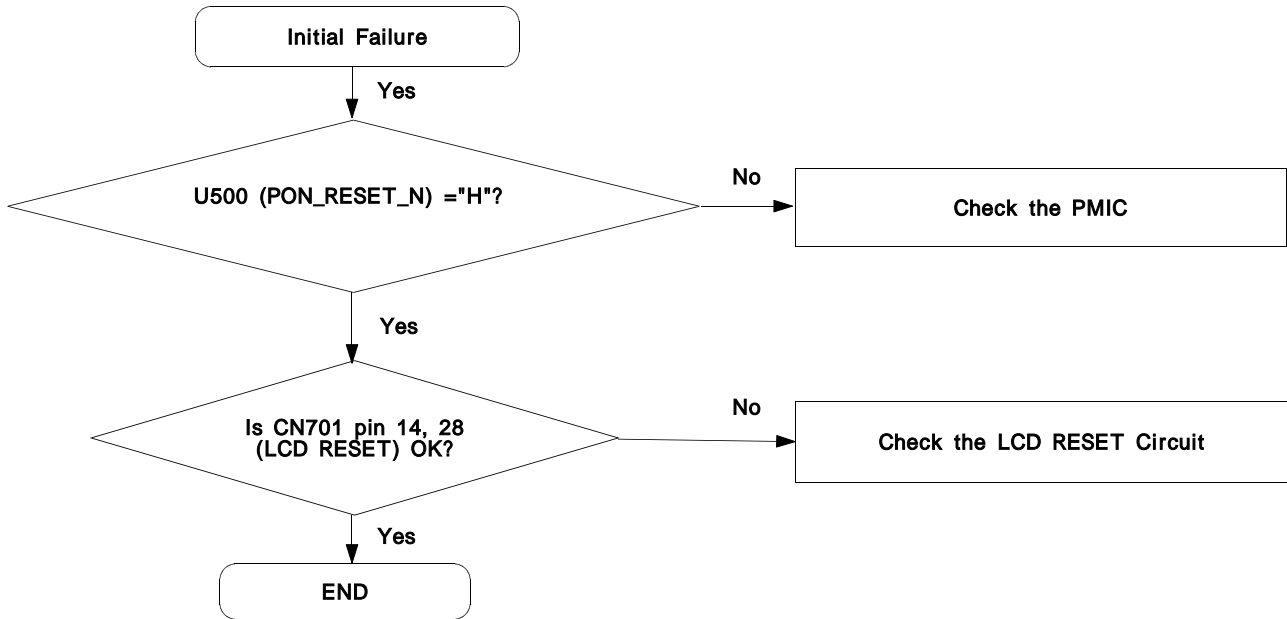


< LCD Connector >

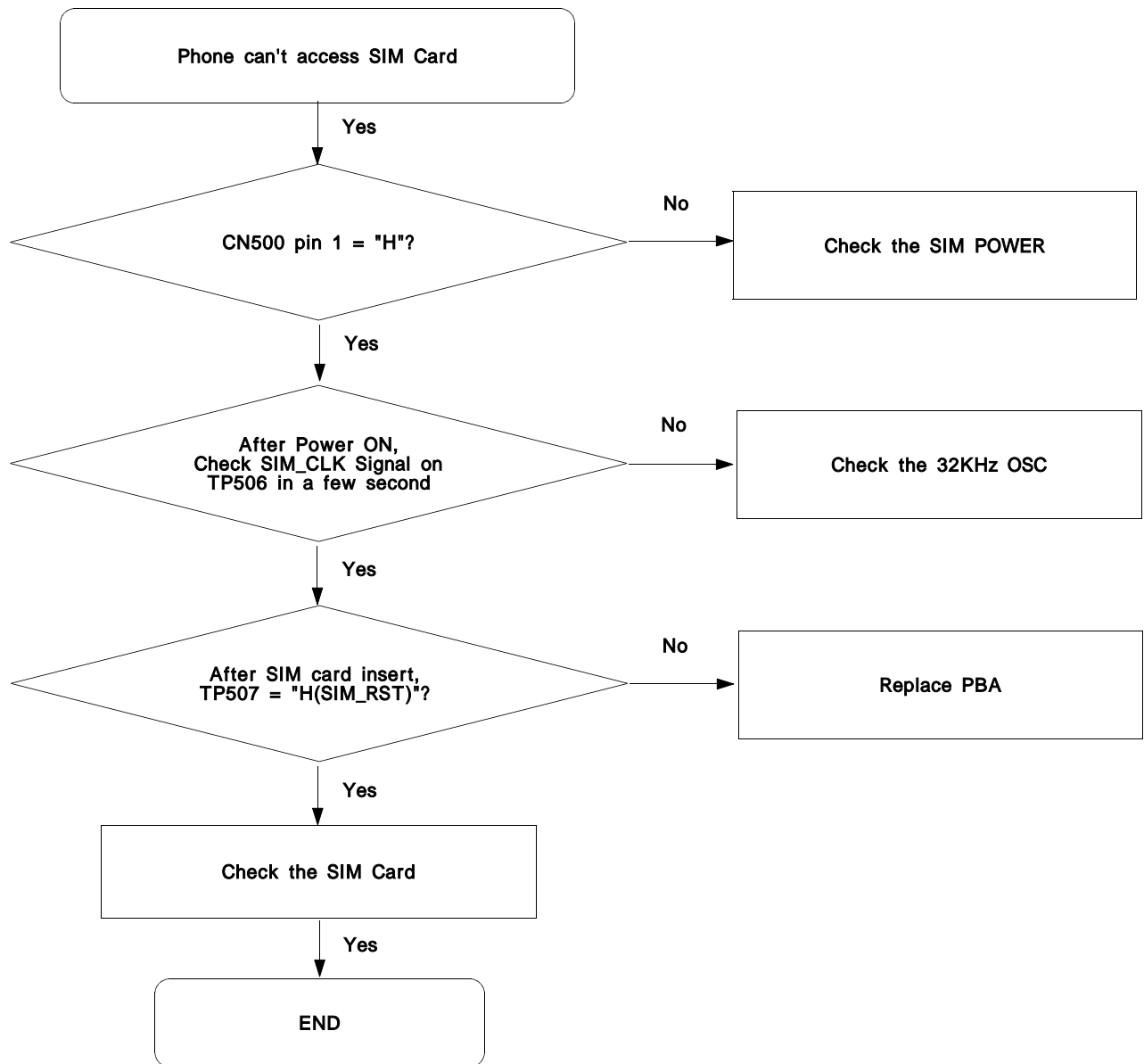




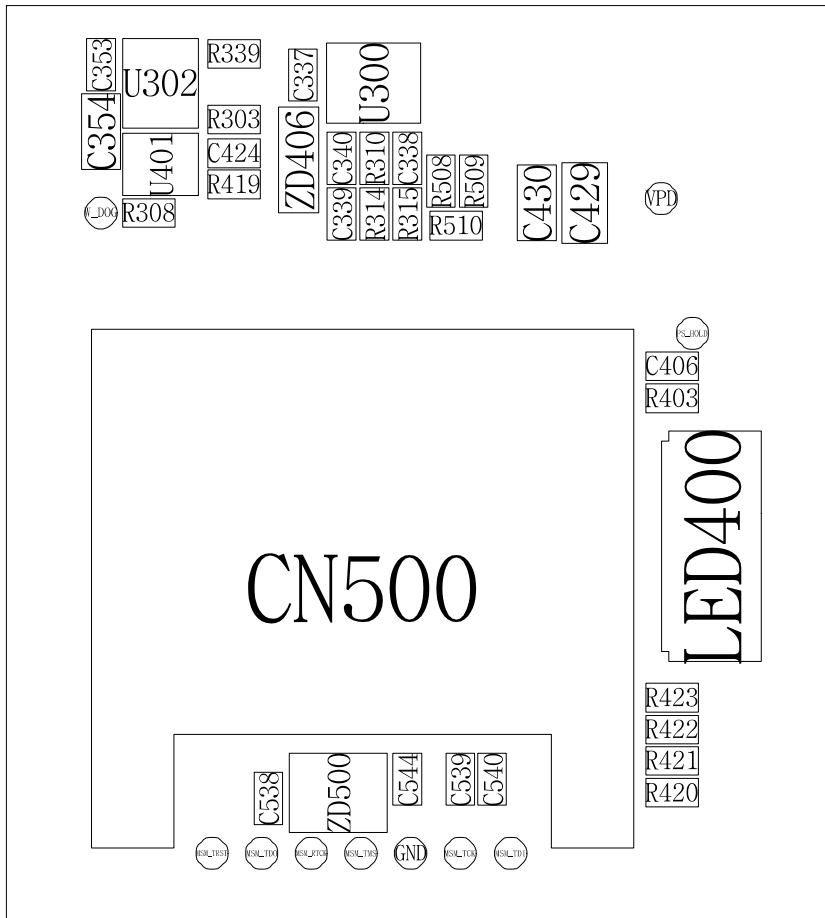
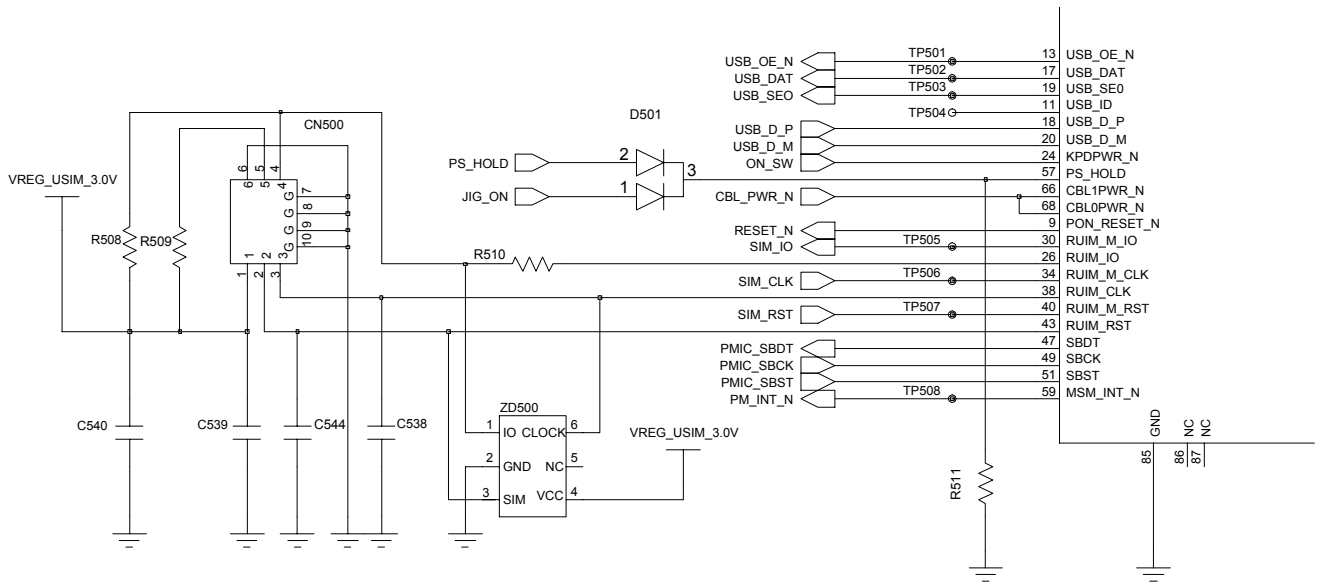
7-2. Initial



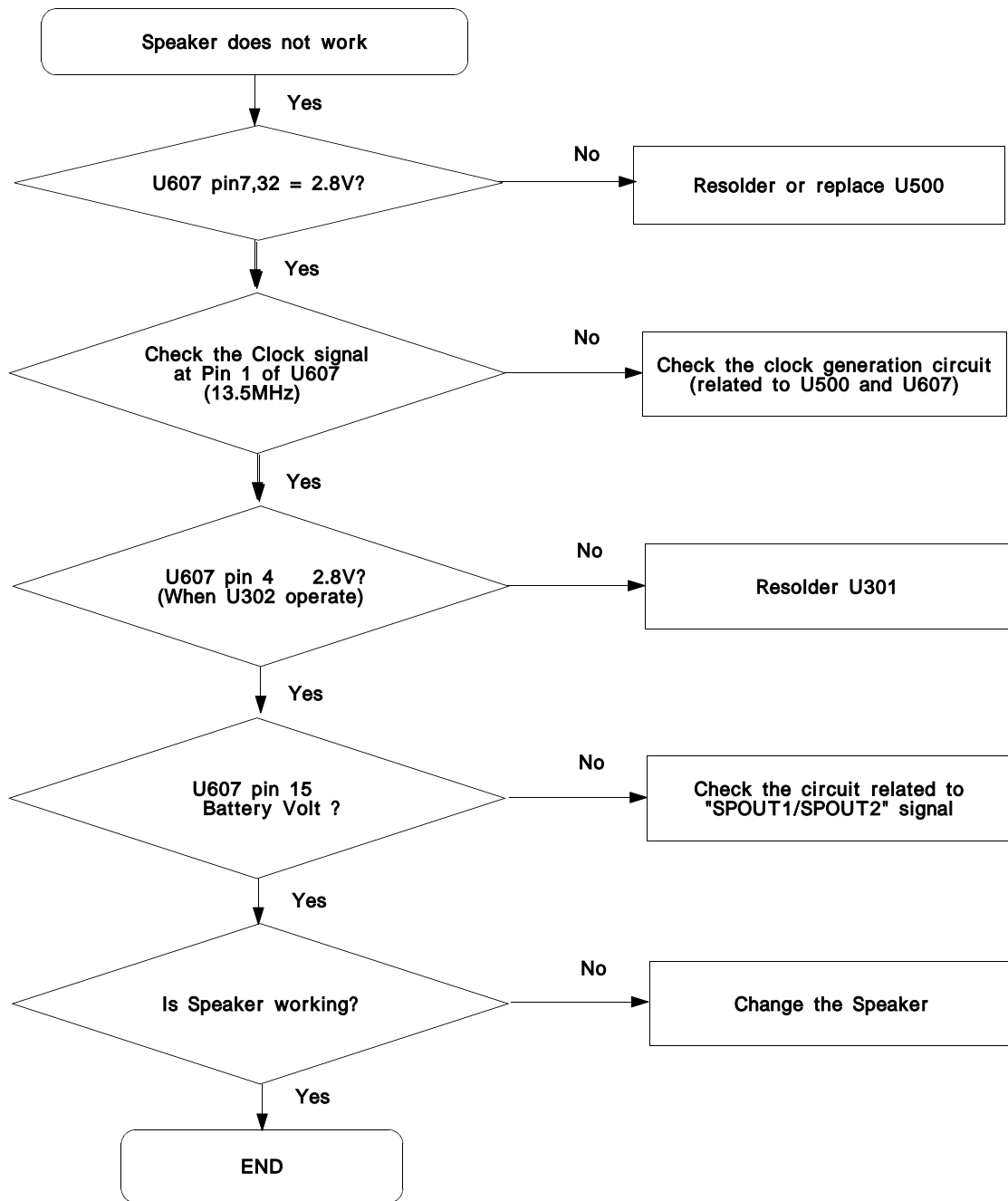
7-3. Sim Part



SIM

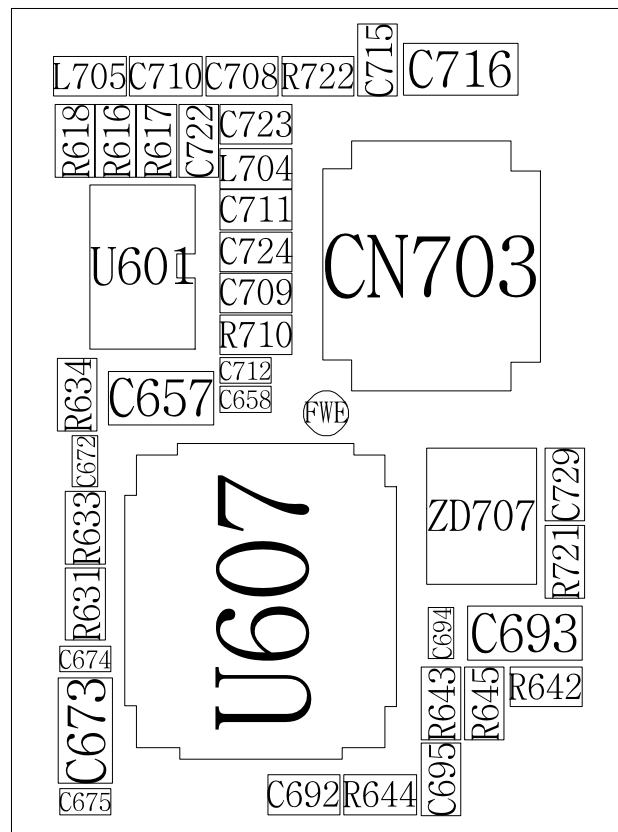
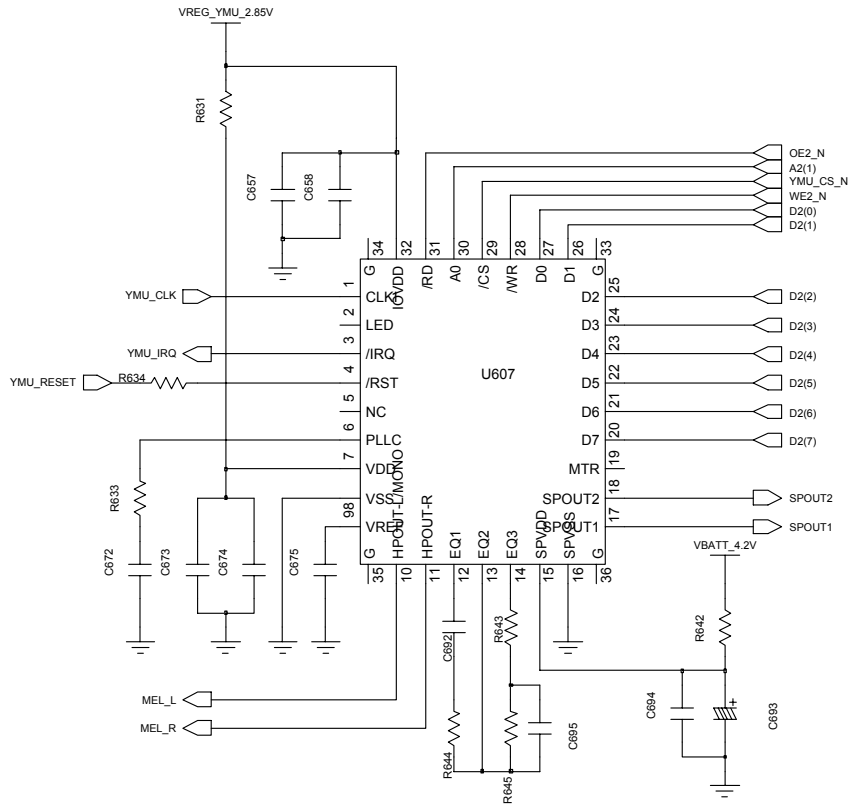


7-4. Speaker Part(Melody)

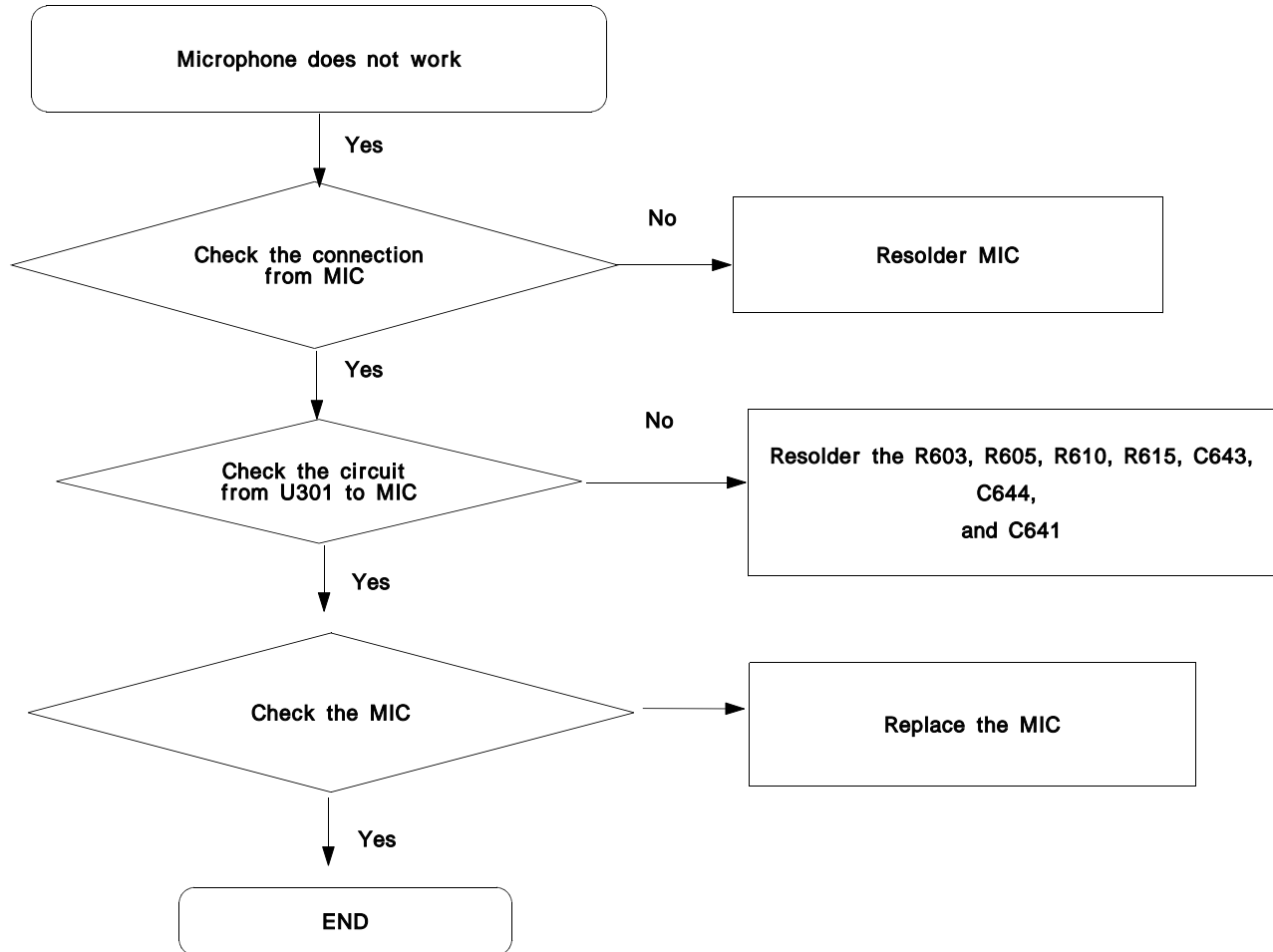


Speaker

< Melody IC >

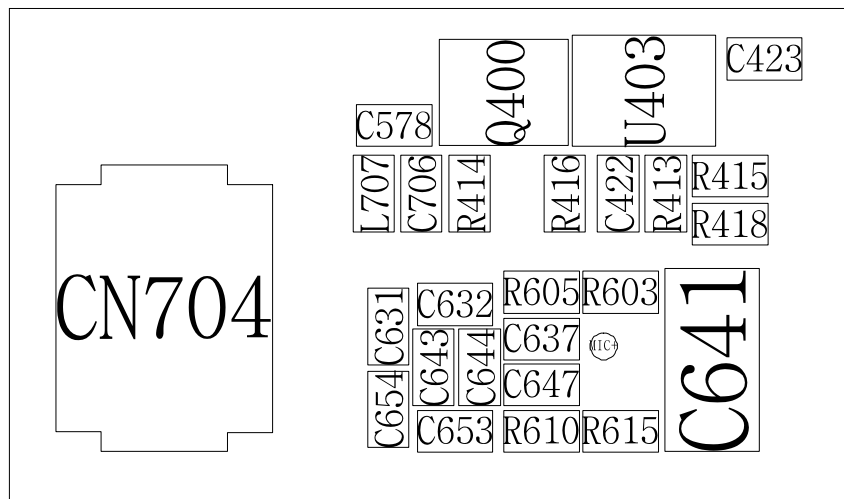
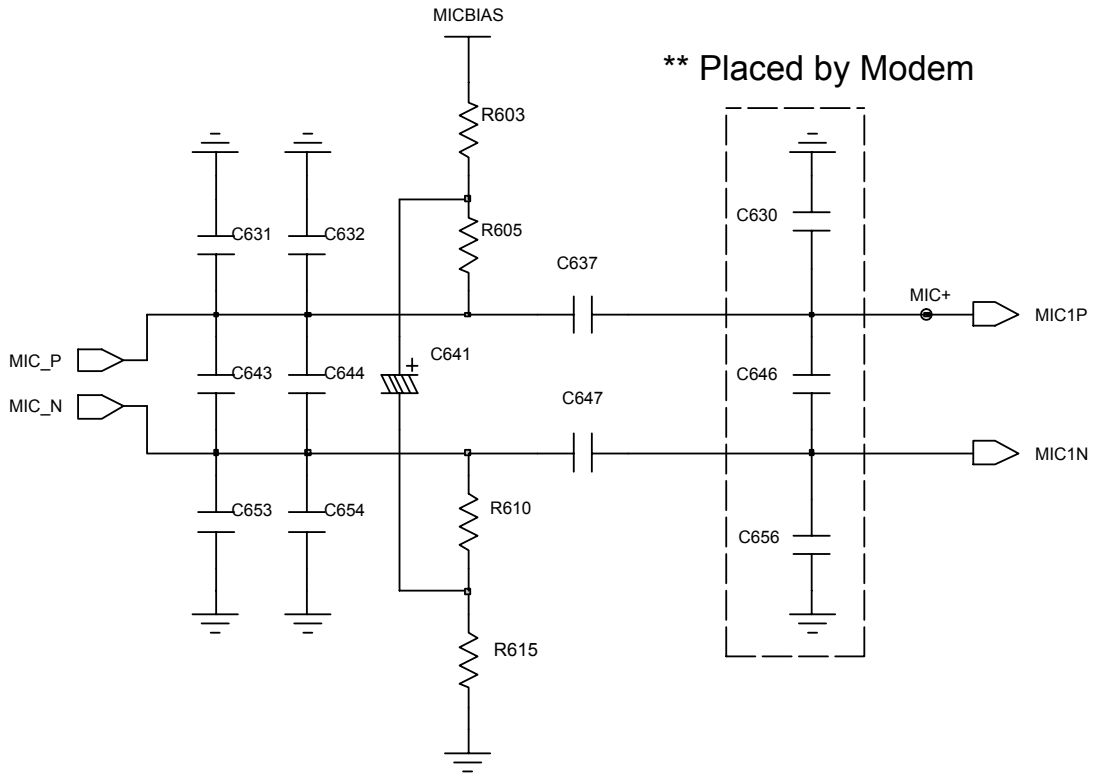


7-5. Microphone Part

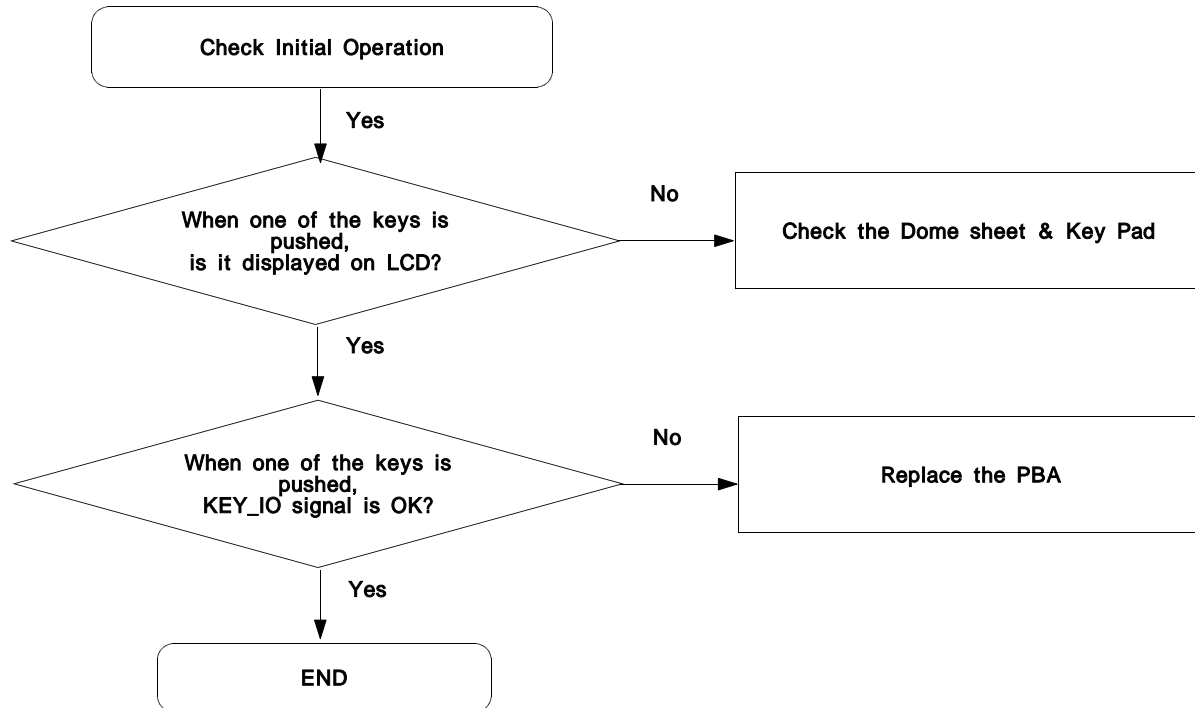


Microphone

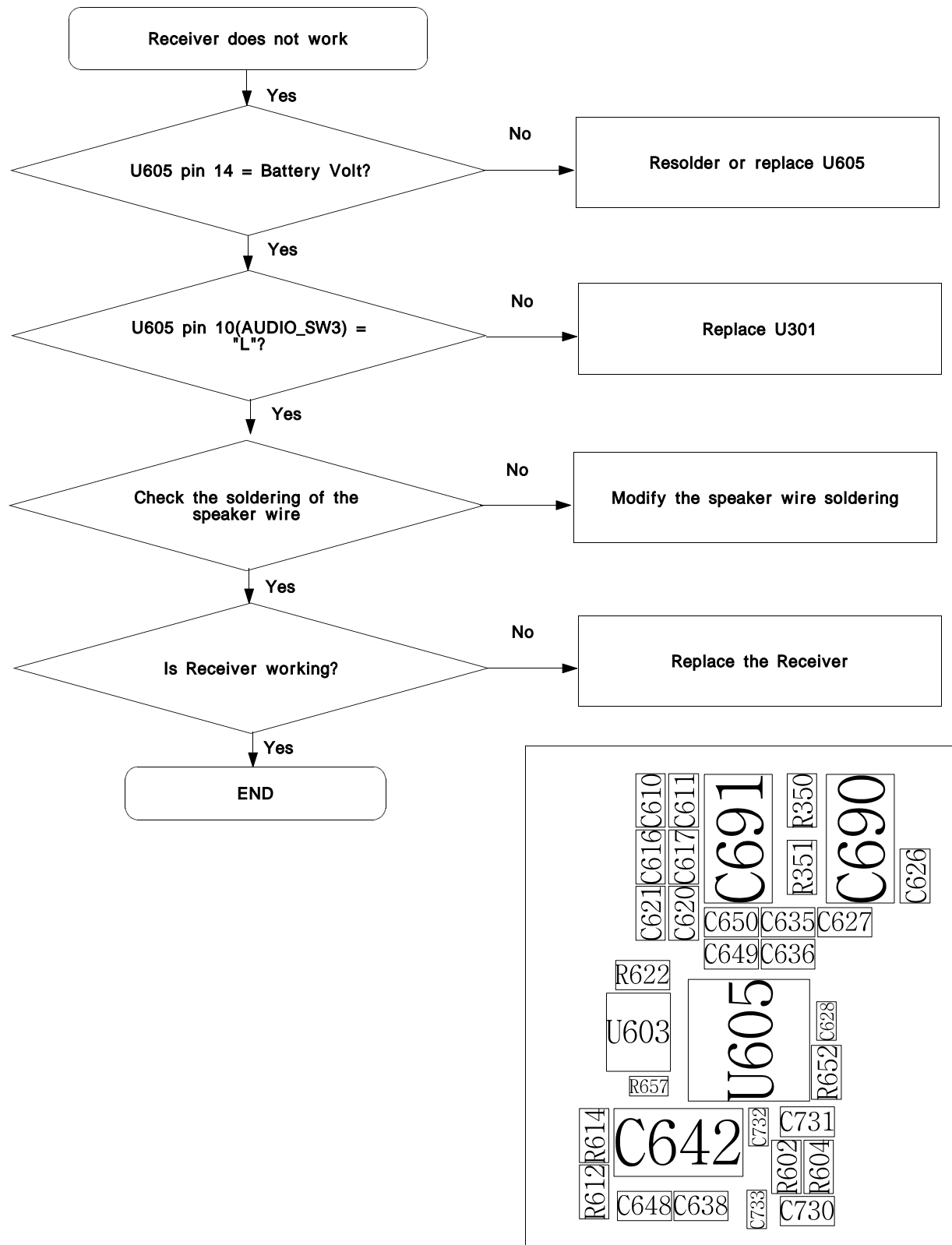
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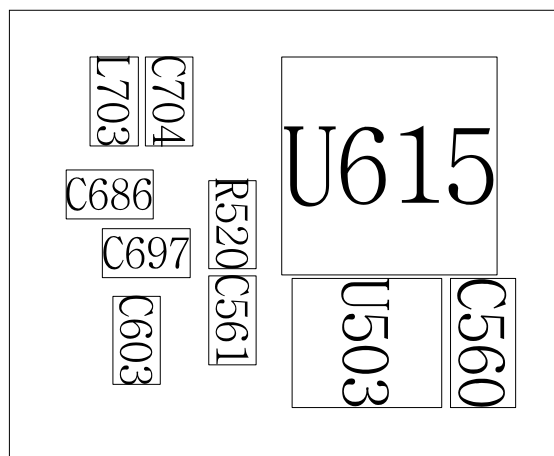
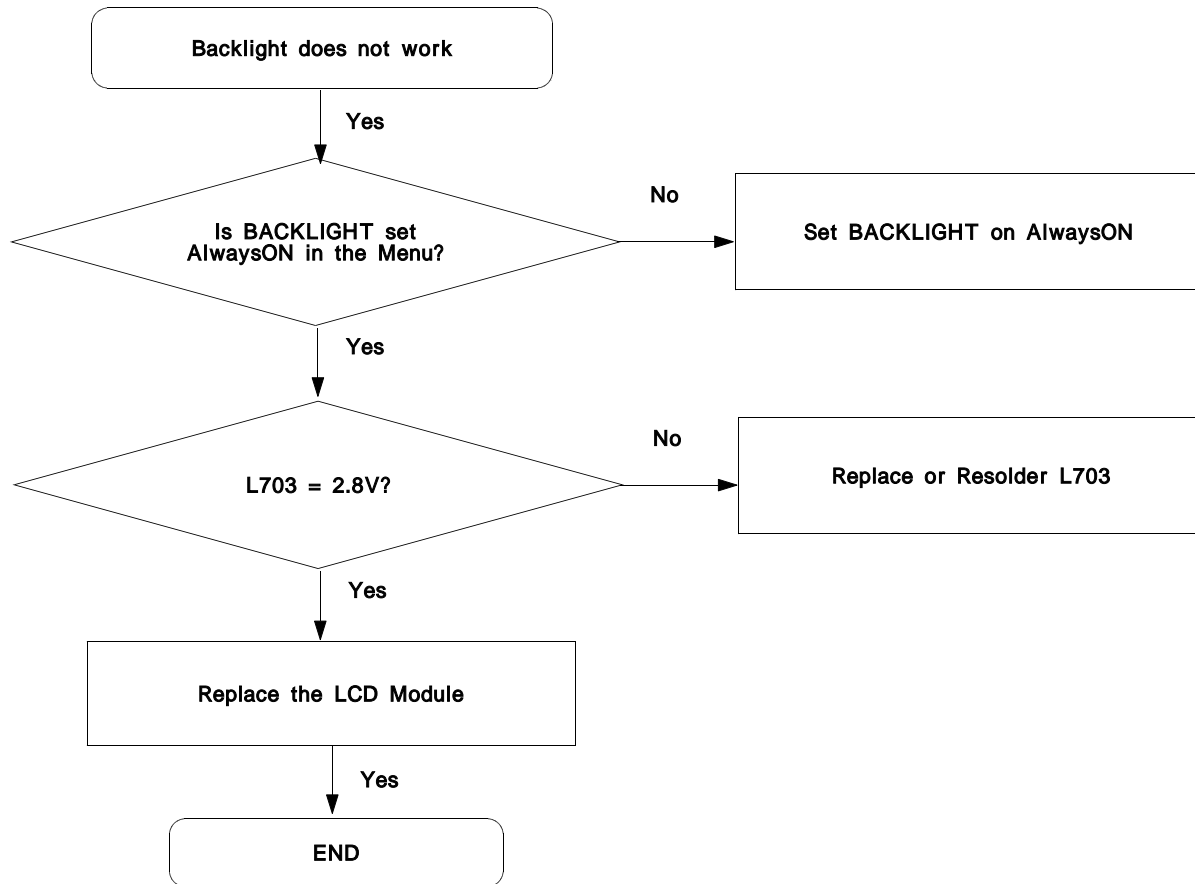
7-6. Key Data Input



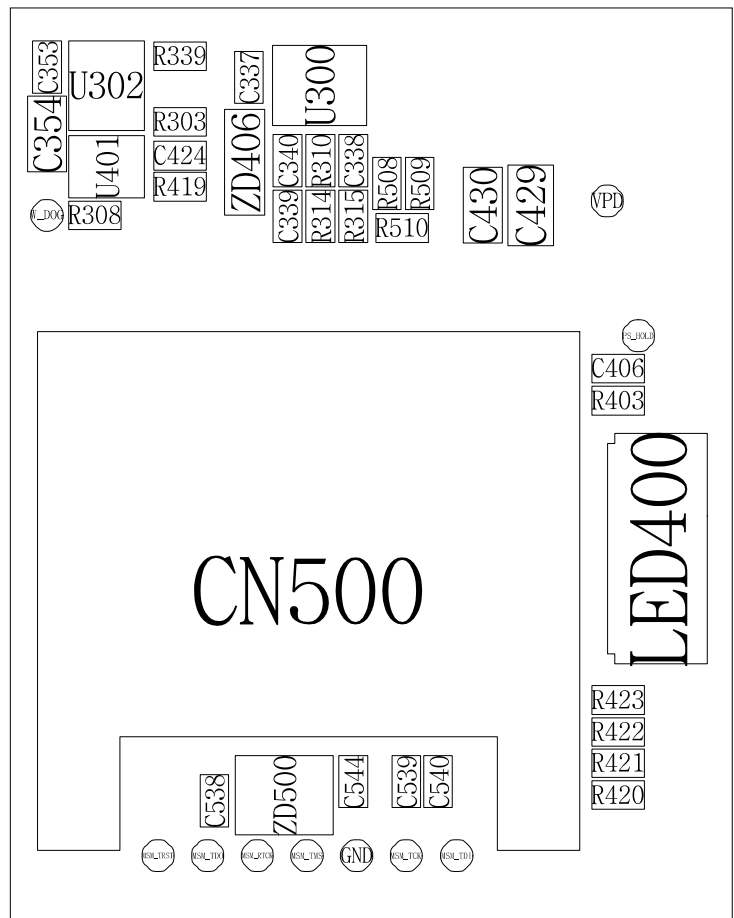
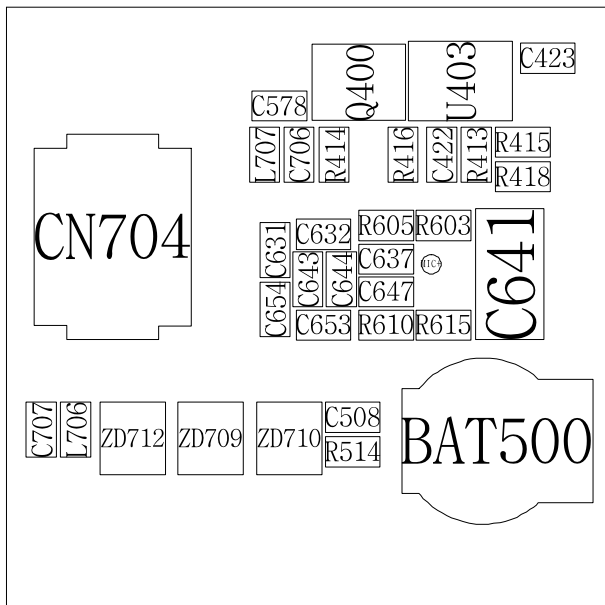
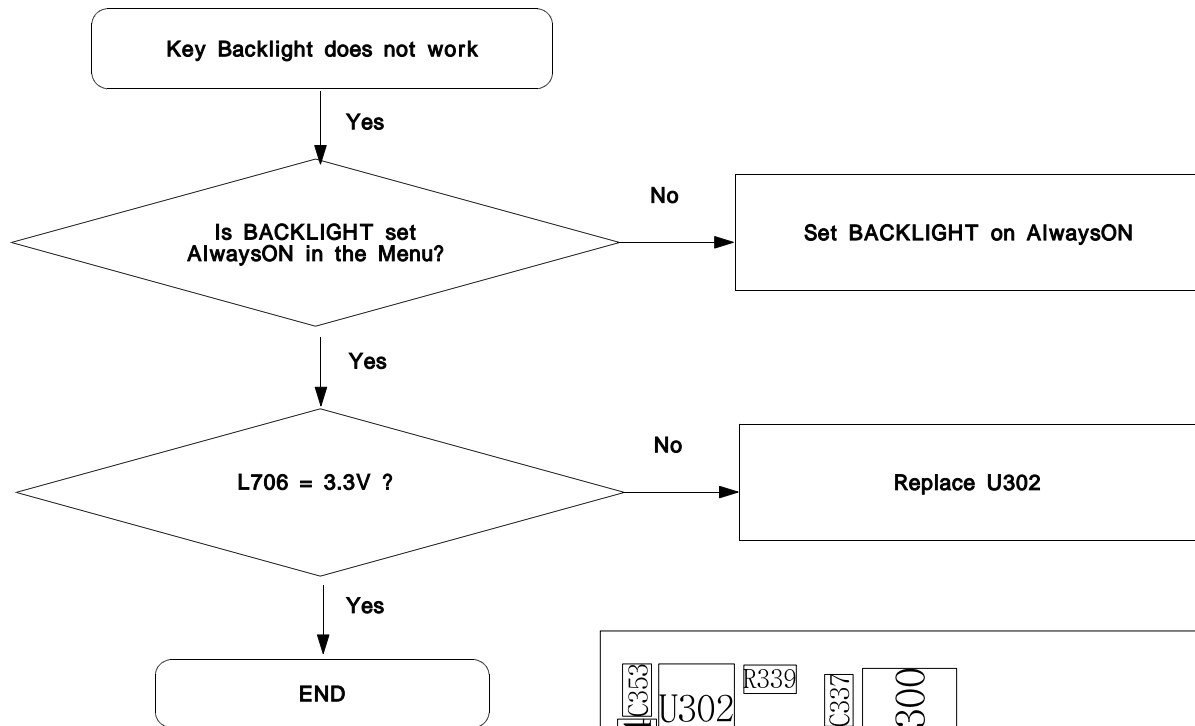
7-7. Receiver Part



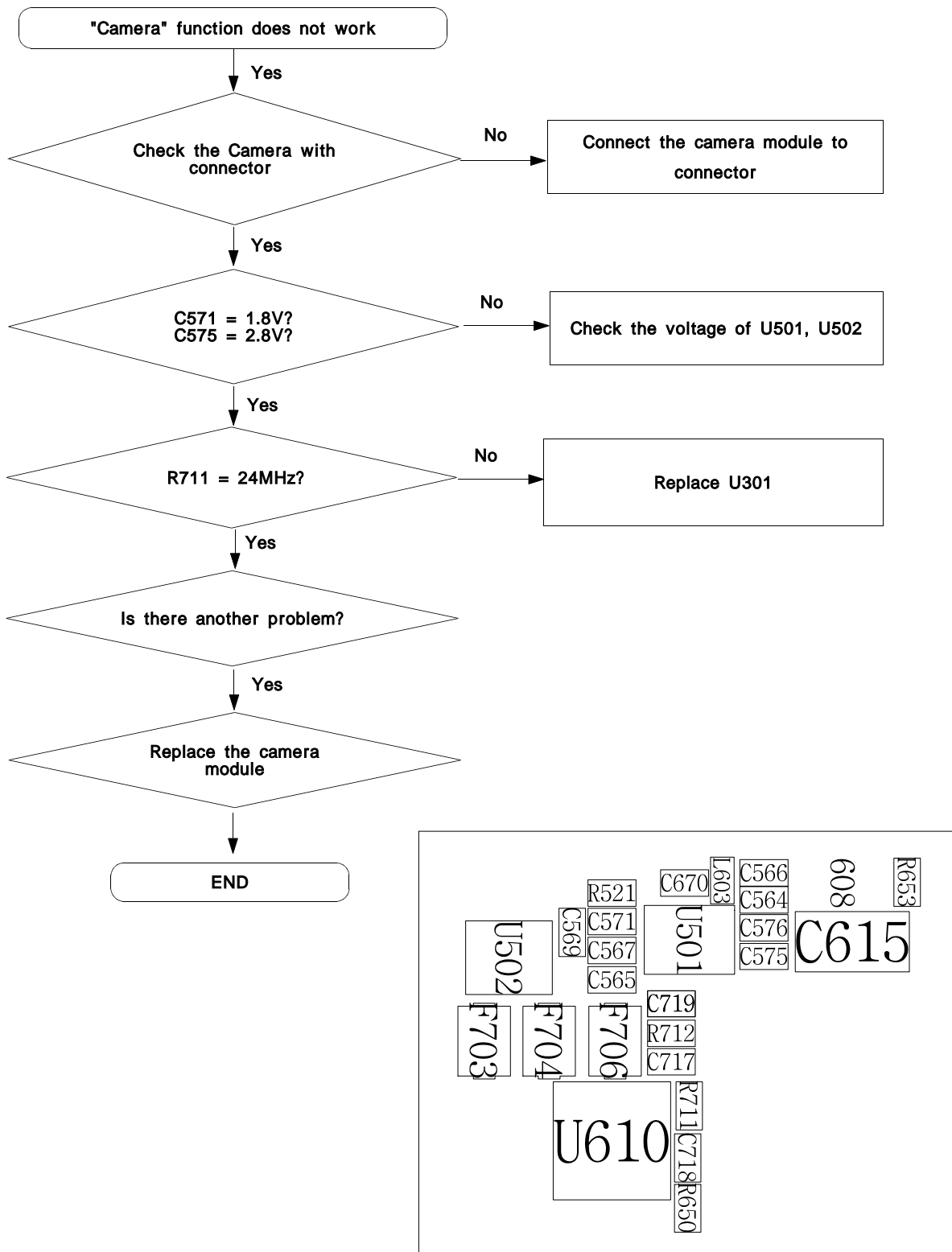
7-8. Back Light (for Color Main LCD)



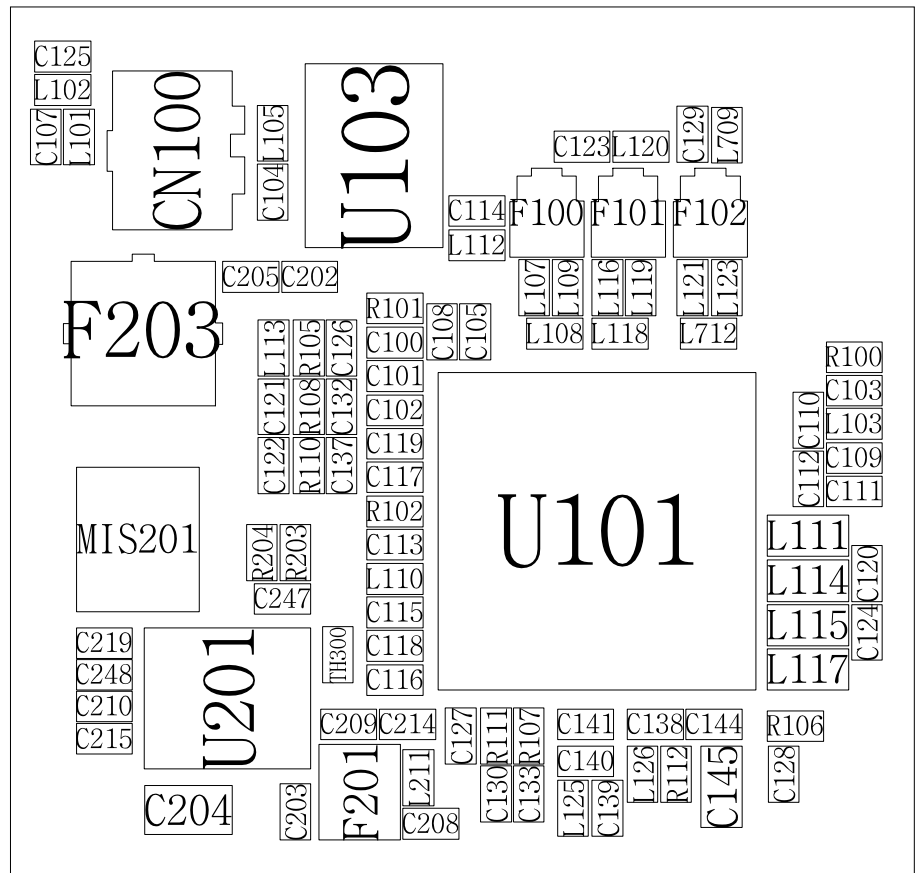
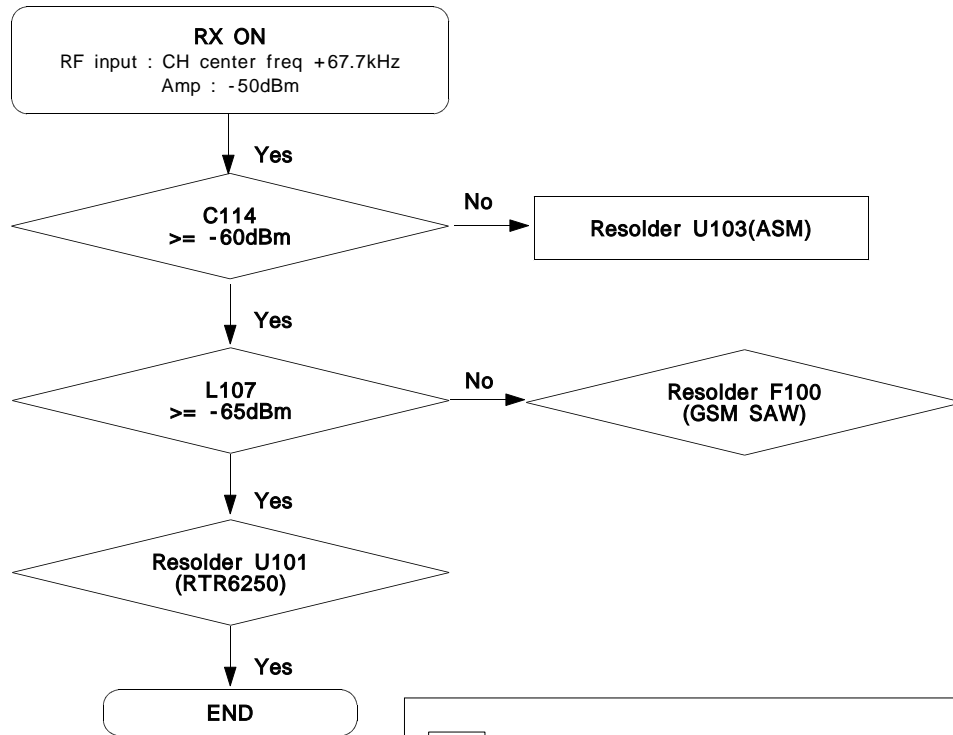
7-9. Key Back Light



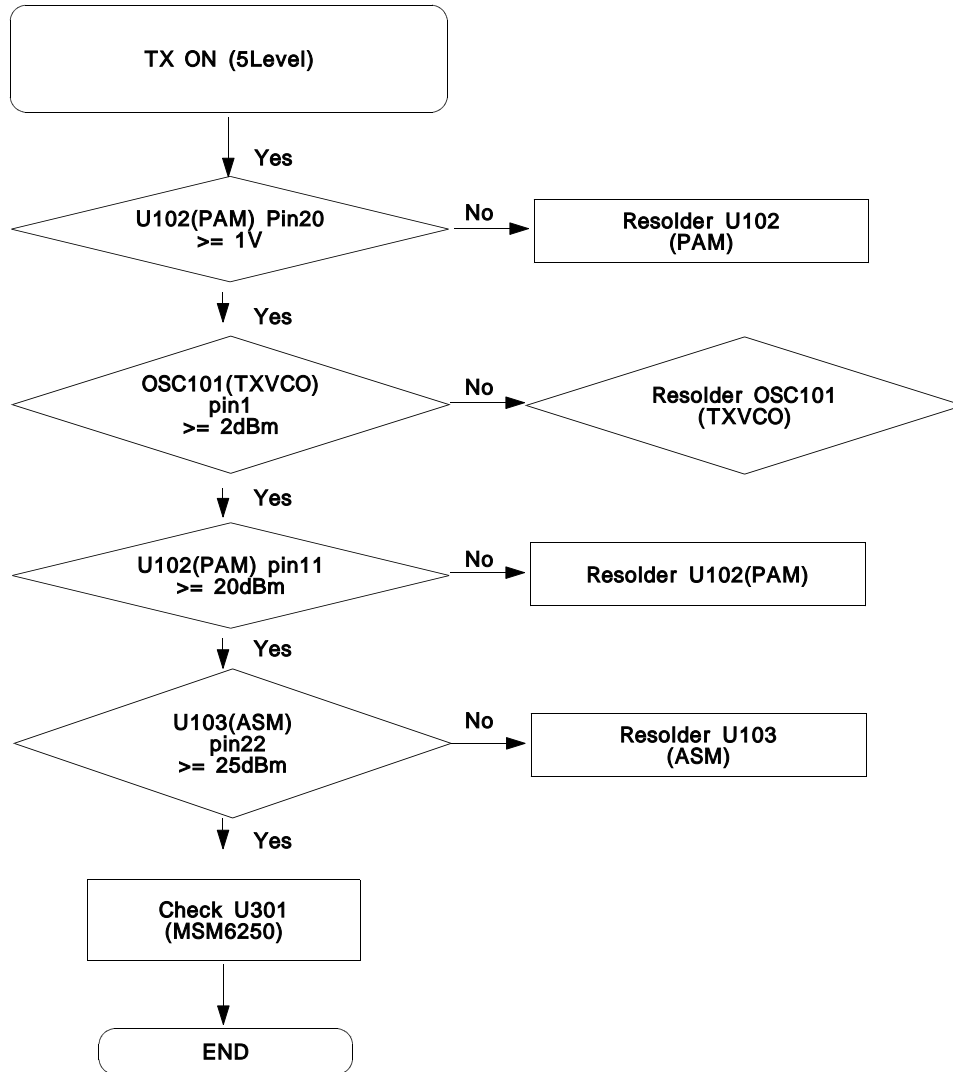
7-10. Camera part



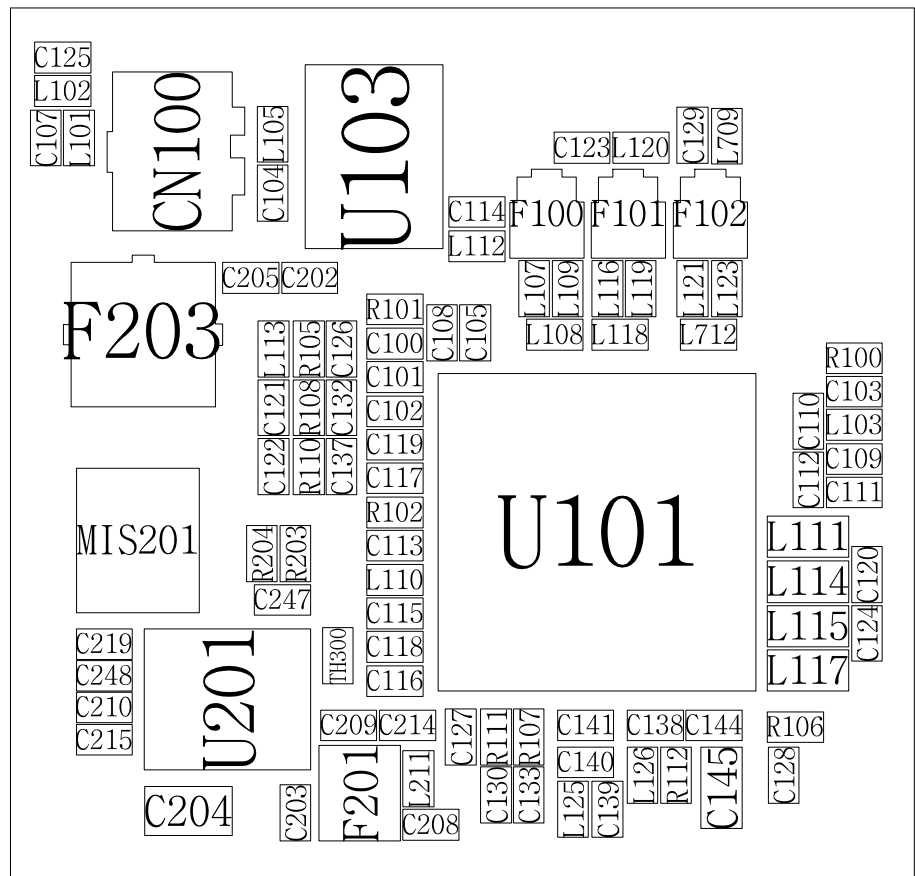
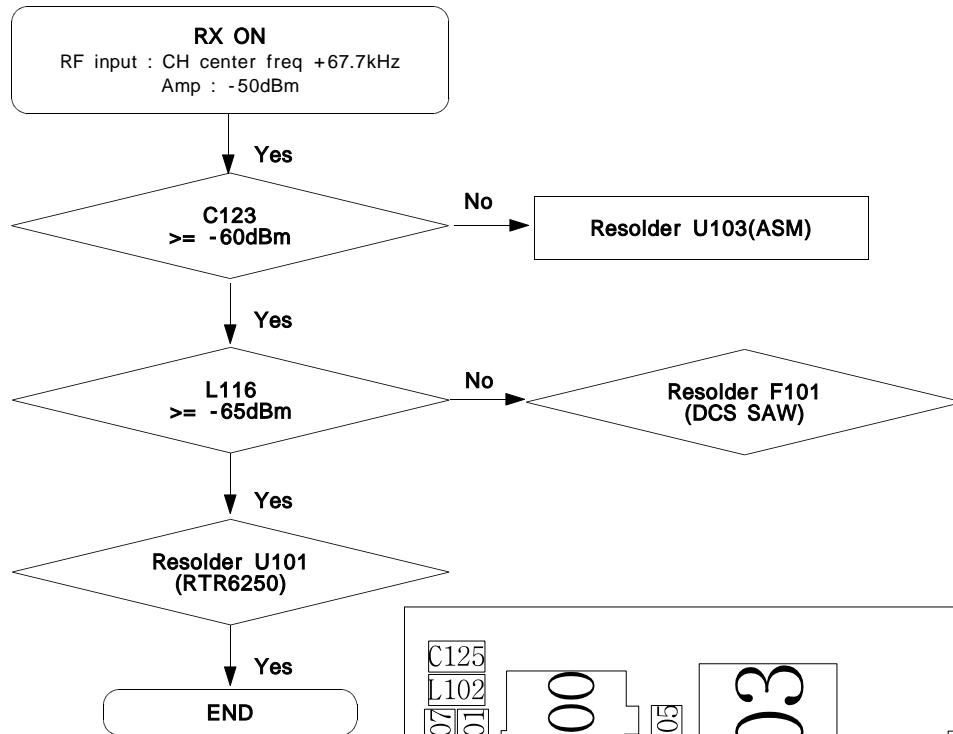
7-11. GSM Receiver



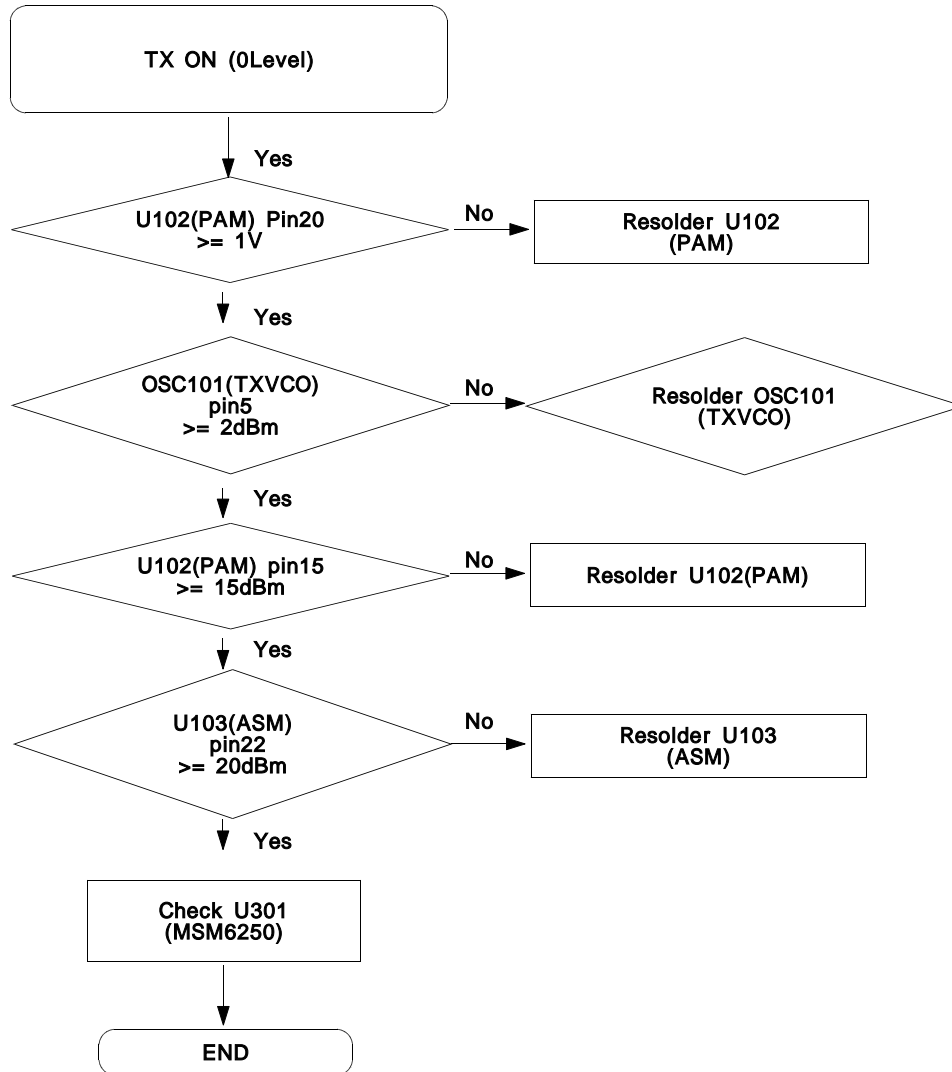
7-12. GSM Transmitter

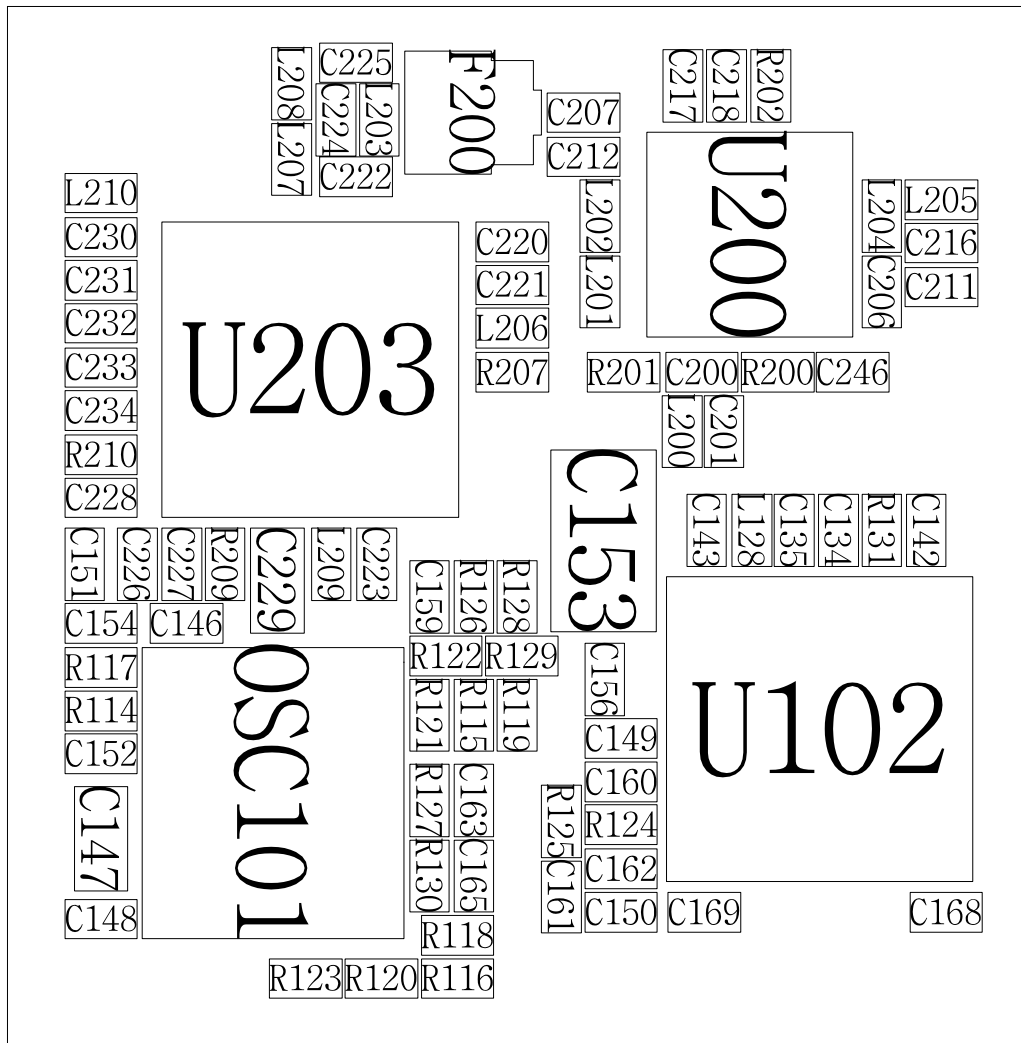


7-13. DCS Receiver

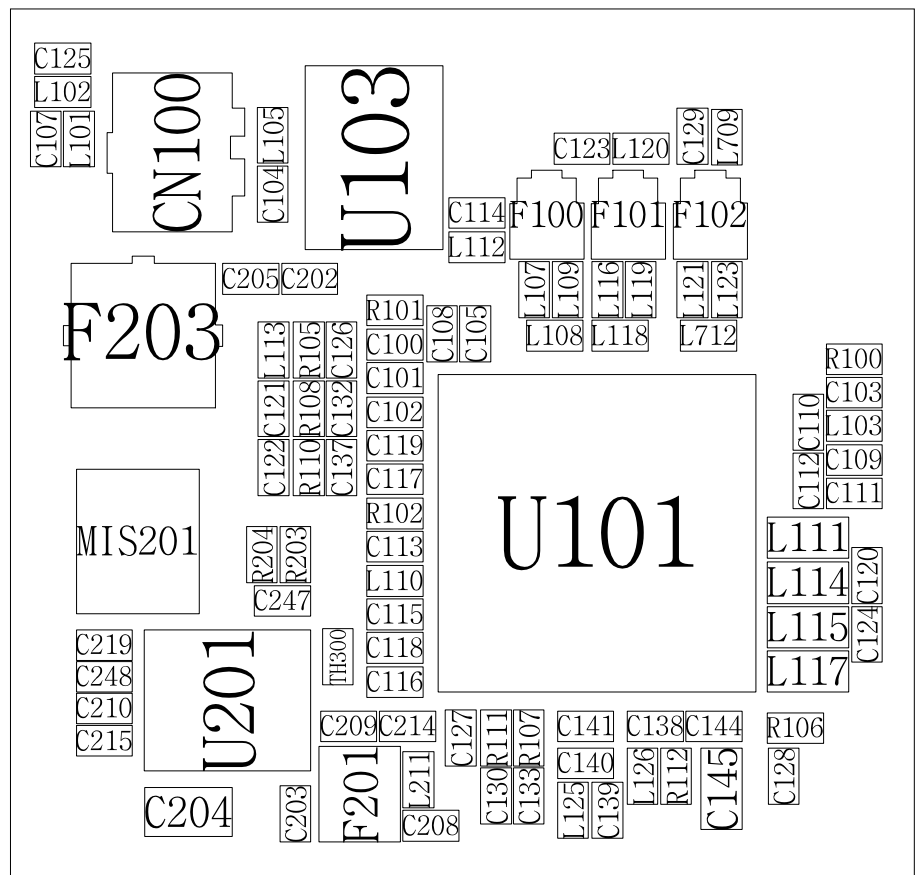
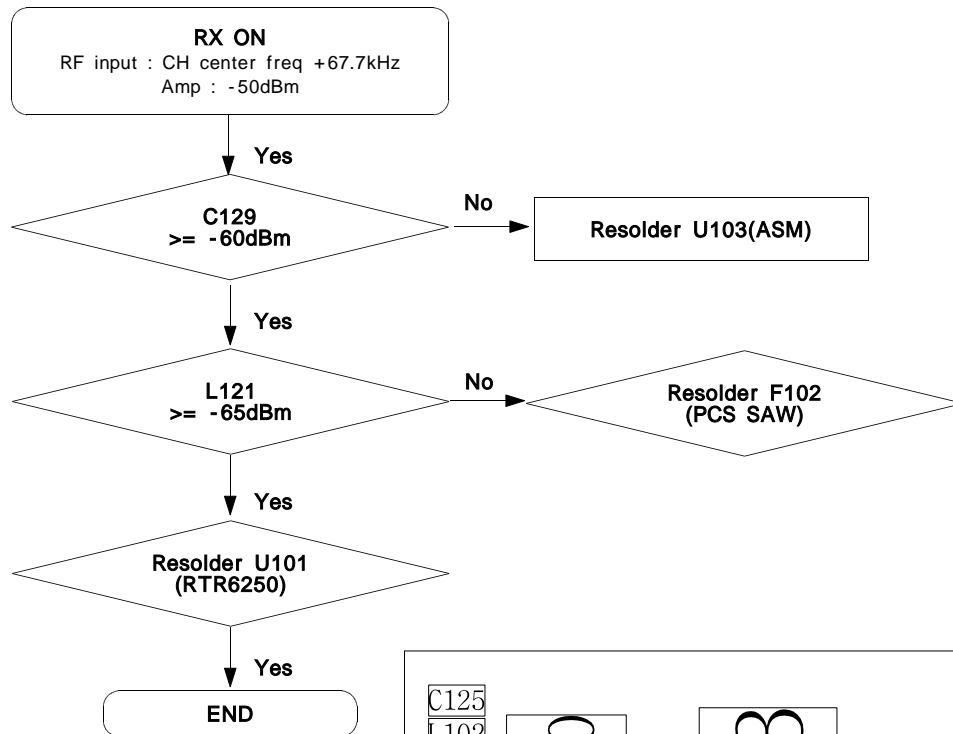


7-14. DCS Transmitter

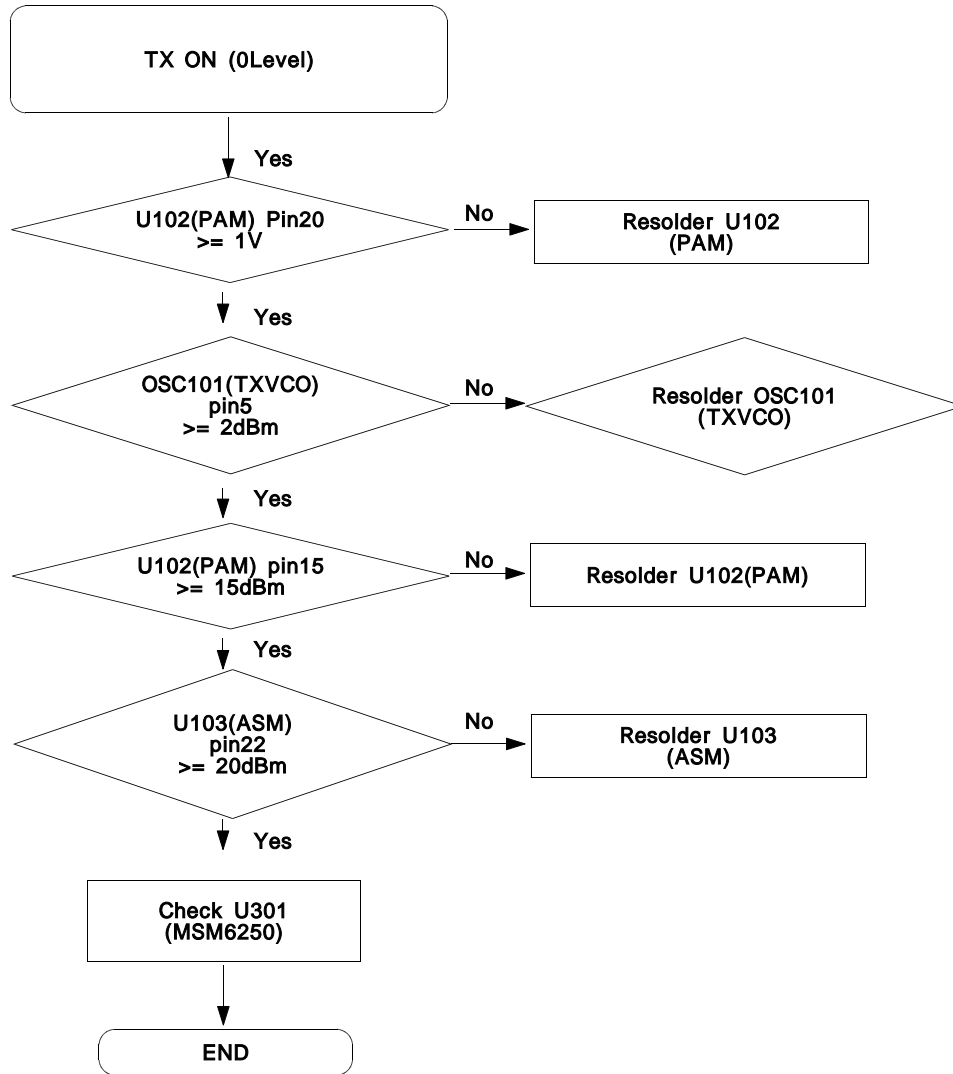


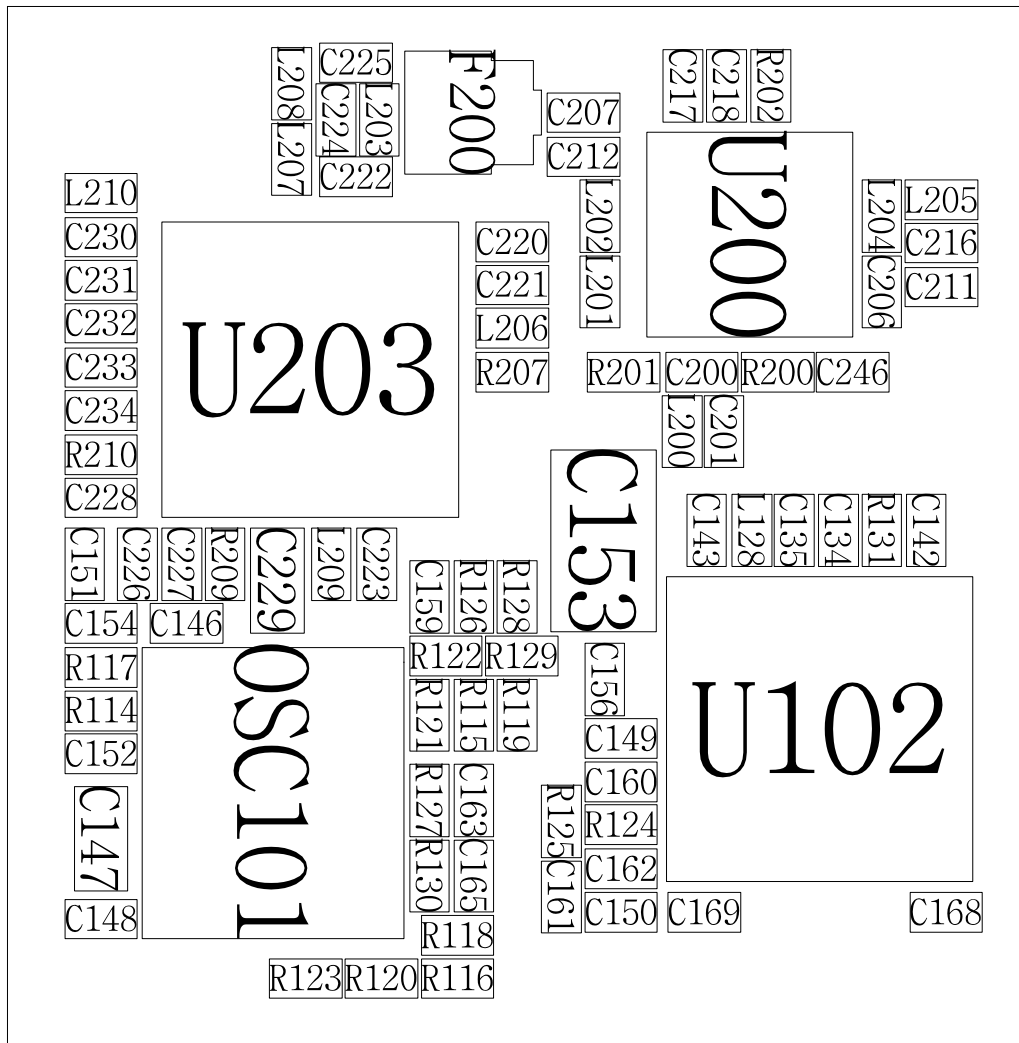


7-15. PCS Receiver

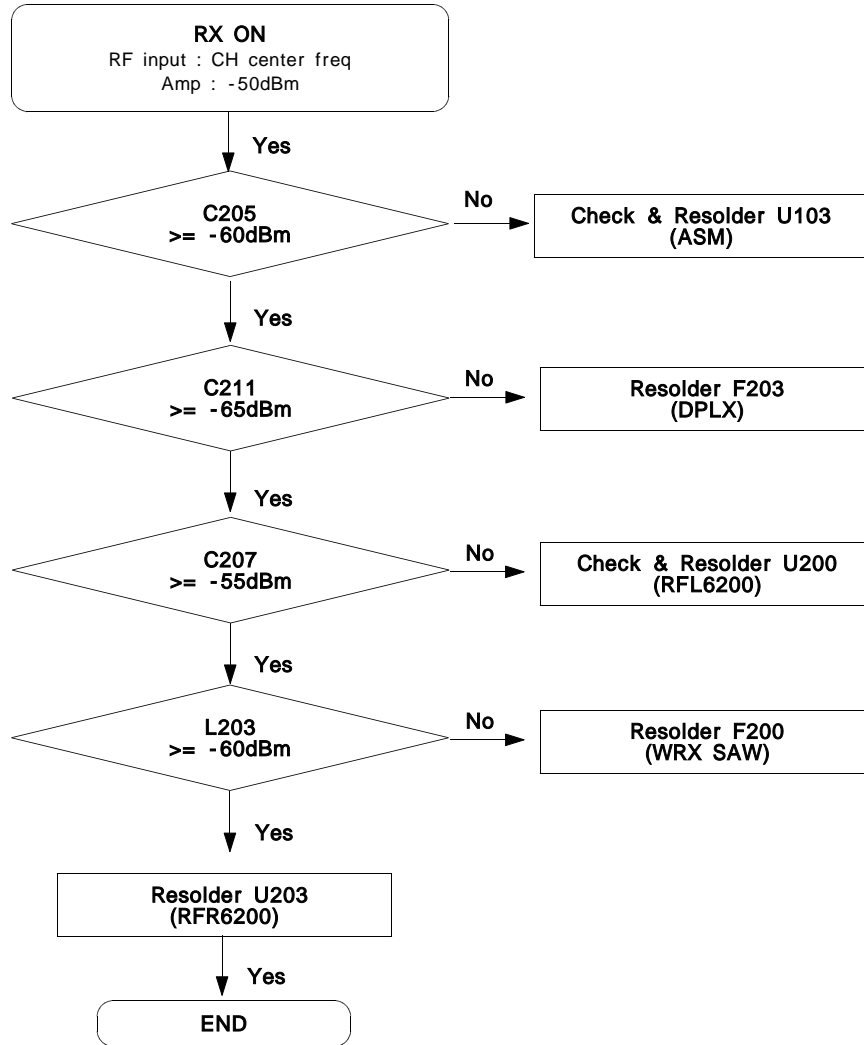


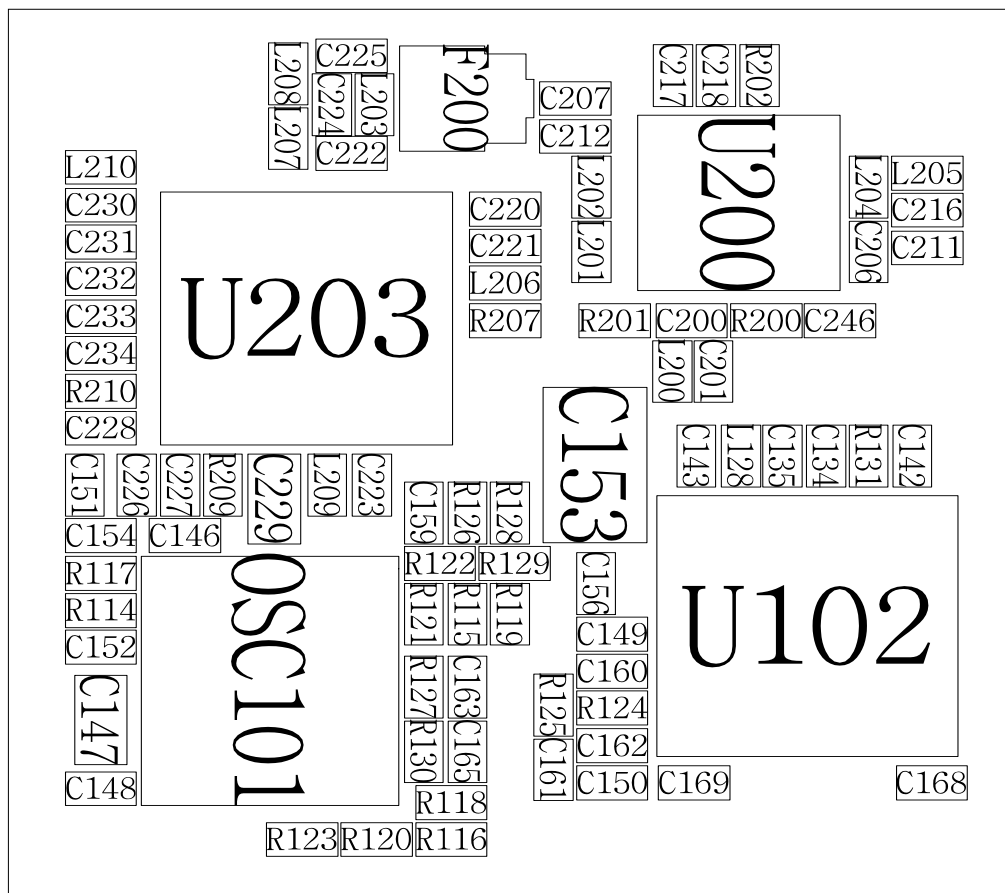
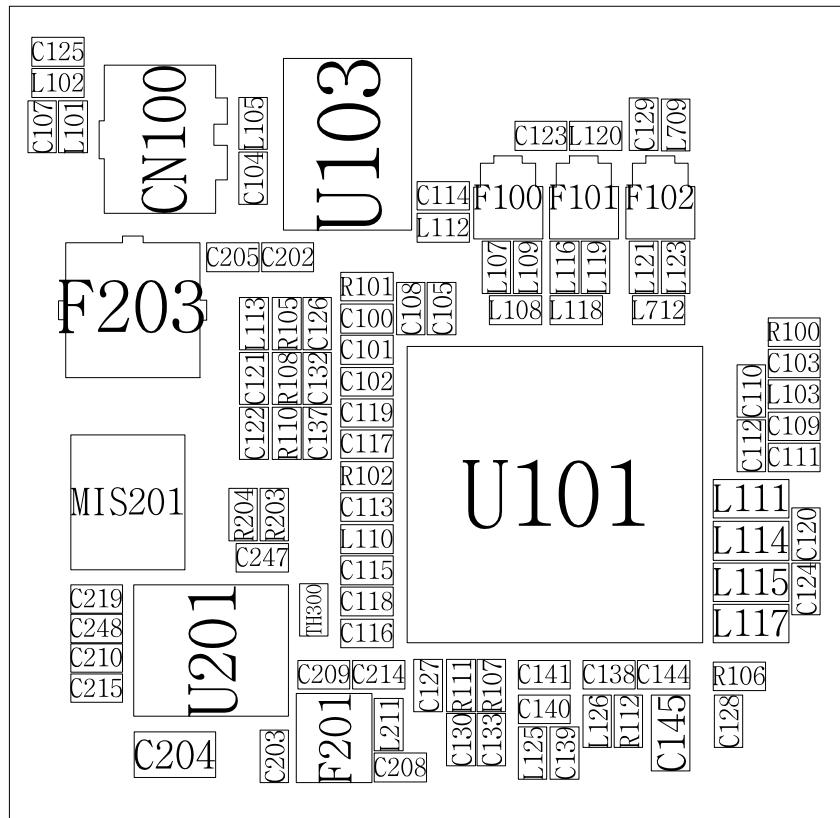
7-16. PCS Transmitter



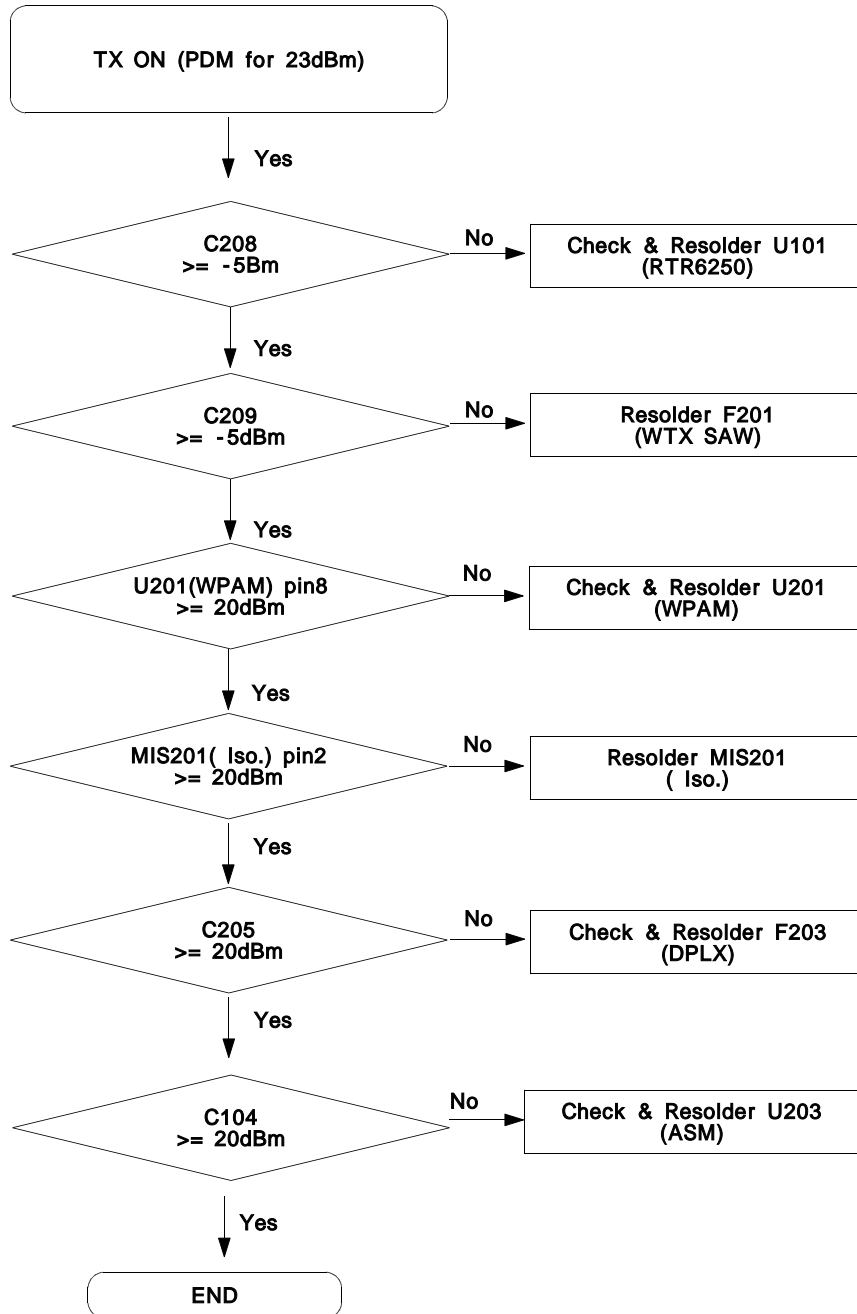


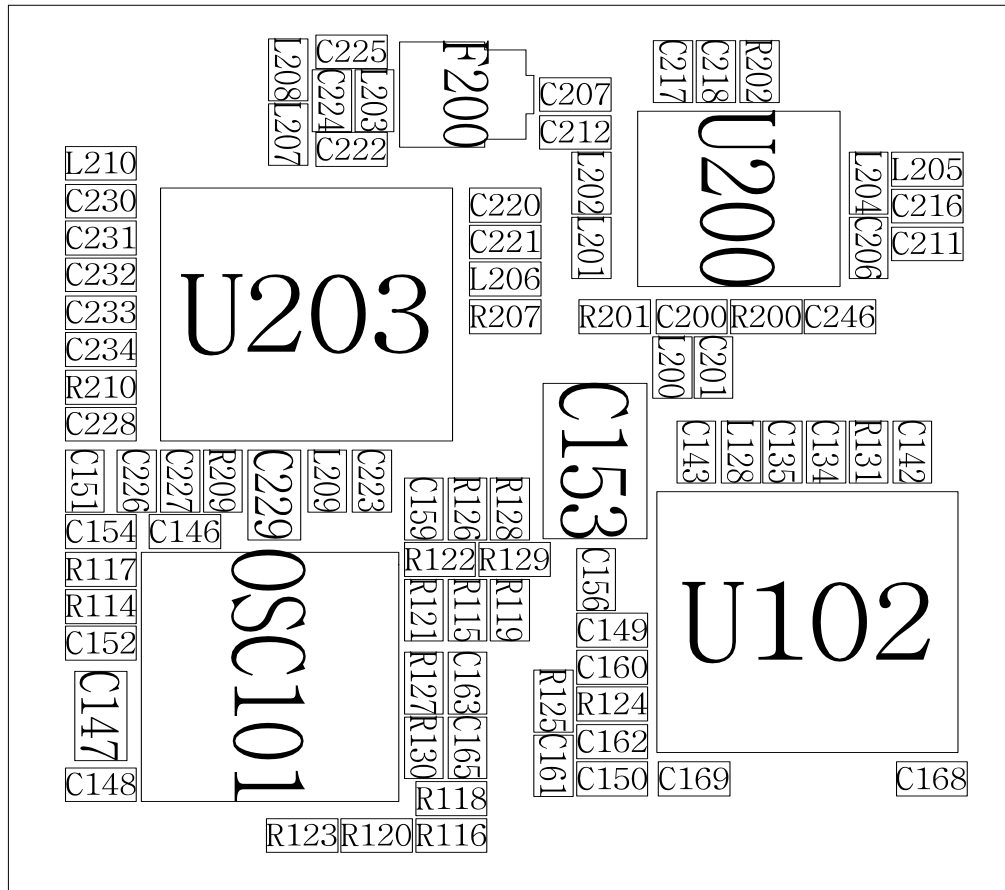
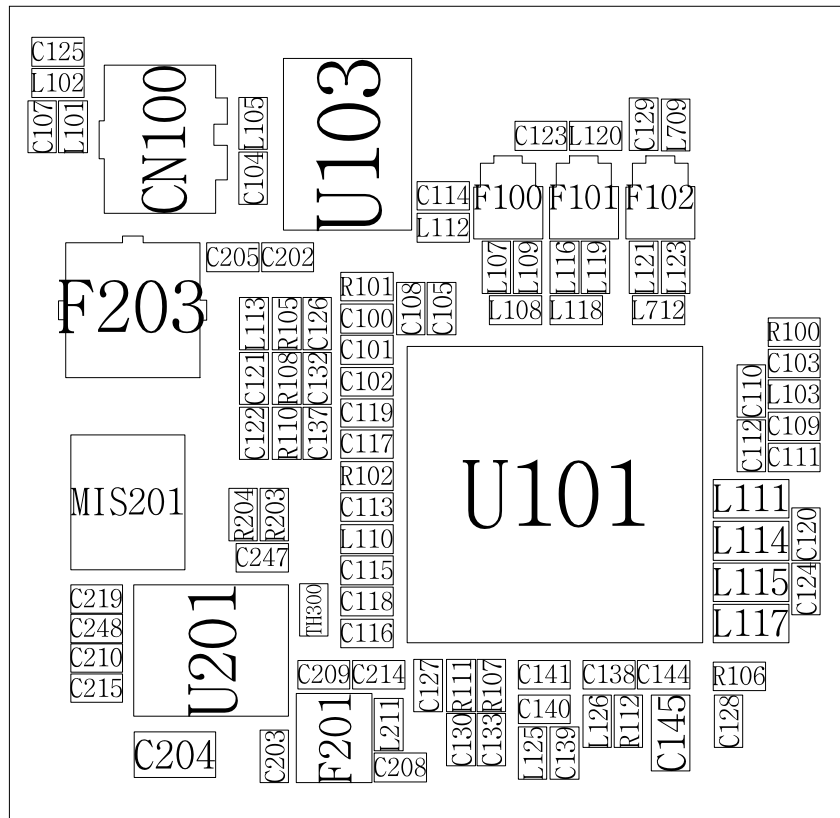
7-17. WCDMA Receiver





7-18. WCDMA Transmitter





Transmitter

< GSM >

