

SAMSUNG

GSM TELEPHONE SGH-E590

SERVICE *Manual*

GSM TELEPHONE



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**SAMSUNG
ELECTRONICS**



GSPN (Global Service Partner Network)

Country	Web Site
North America	service.samsungportal.com
Latin America	latin.samsungportal.com
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1. Safety Precautions

1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.
Take specially care of tuning or test,
because specipicty of cellular phone is sensitive for surrounding interference(RF noise).
- Be careful to use a kind of magnetic object or tool,
because performance of parts is damaged by the influence of magnetic force.
- Surely use a standard screwdriver when you disassemble this product,
otherwise screw will be worn away.
- Use a thicken twisted wire when you measure level.
A thicken twisted wire has low resistance, therefore error of measurement is few.
- Repair after separate Test Pack and Set because for short danger (for example an
overcurrent and furious flames of parts etc) when you repair board in condition of
connecting Test Pack and tuning on.
- Take specially care of soldering, because Land of PCB is small and weak in heat.
- Surely tune on/off while using AC power plug, because a repair of battery charger is
dangerous when tuning ON/OFF PBA and Connector after disassembling charger.
- Don't use as you pleases after change other material than replacement registered on SEC System.
Otherwise engineer in charge isn't charged with problem that you don't keep this rules.

1-2. ESD(Electrostatically Sensitive Devices) Precaution

Several semiconductor may be damaged easily by static electricity. Such parts are called by ESD (Electrostatically Sensitive Devices), for example IC,BGA chip etc. Read Precaution below.

You can prevent from ESD damage by static electricity.

- Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.
- Use earthed soldering steel when you connect or disconnect ESD.
- Use soldering removing tool to break static electricity. , otherwise ESD will be damaged by static electricity.
- Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power,they are prevented from static electricity.
- You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board.

2. Specification

2-1. GSM General Specification

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

2-2. GSM TX power class

TX Power control level	GSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
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

2-3. GSM EDGE TX power class

TX Power control level	GSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
8	27±3 dBm	2	26 -4/+3 dBm	2	26 -4/+3 dBm
9	25±3 dBm	3	24±3 dBm	3	24±3 dBm
10	23±3 dBm	4	22±3 dBm	4	22±3 dBm
11	21±3 dBm	5	20±3 dBm	5	20±3 dBm
12	19±3 dBm	6	18±3 dBm	6	18±3 dBm
13	17±3 dBm	7	16±3 dBm	7	16±3 dBm
14	15±3 dBm	8	12±3 dBm	8	12±3 dBm
15	13±3 dBm	9	10±3 dBm	9	10±3 dBm
16	11±5 dBm	10	14±3 dBm	10	14±3 dBm
17	9±5 dBm	11	12±4 dBm	11	12±4 dBm
18	7±5 dBm	12	10±4 dBm	12	10±4 dBm
19	5±5 dBm	13	8±4dBm	13	8±4dBm
		14	6±4 dBm	14	6±4 dBm
		15	4±4 dBm	15	4±4 dBm

3. Operation Instruction and Installation

Main Function

- 2 Megapixel Camera/AF
- 262K Color TFT QCIF Screen (220x220)
- Video Recording & Messaging
- Music Player(MP3/AAC/AAC+)
- Bluetooth Woreless Technology
- Multimedia Message Service (MMS)
- External Memory
- E-mail
- Voice recorder
- Java / WAP2.0
- Tri-band(900/1800/1900MHz)

4. Array course control

4-1. Software Adjustments

Test Jig (GH80-03306A)



Test Cable (GH39-00499A)



Serial Cable(CSA LL64151-A)



Power Supply Cable



4-2. Software Downloading

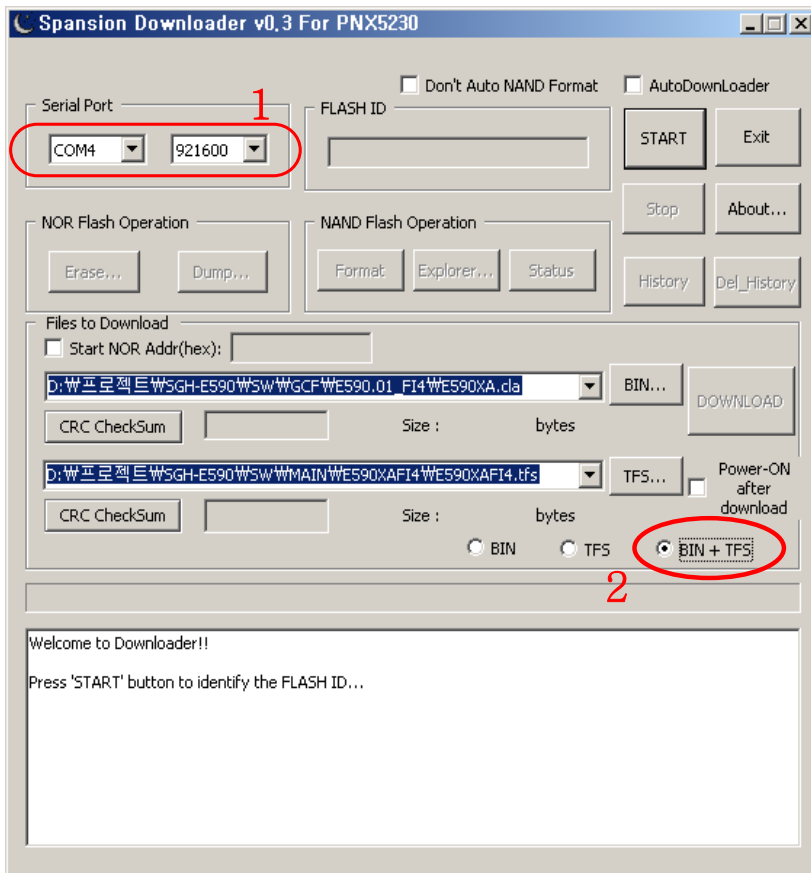
4-2-1. Pre-requisite for Downloading

- Downloader Program([Spansion Downloader v0.3 For PN5230.exe](#))
- E590 Mobile Phone
- Data Cable
- Binary file, TFS file

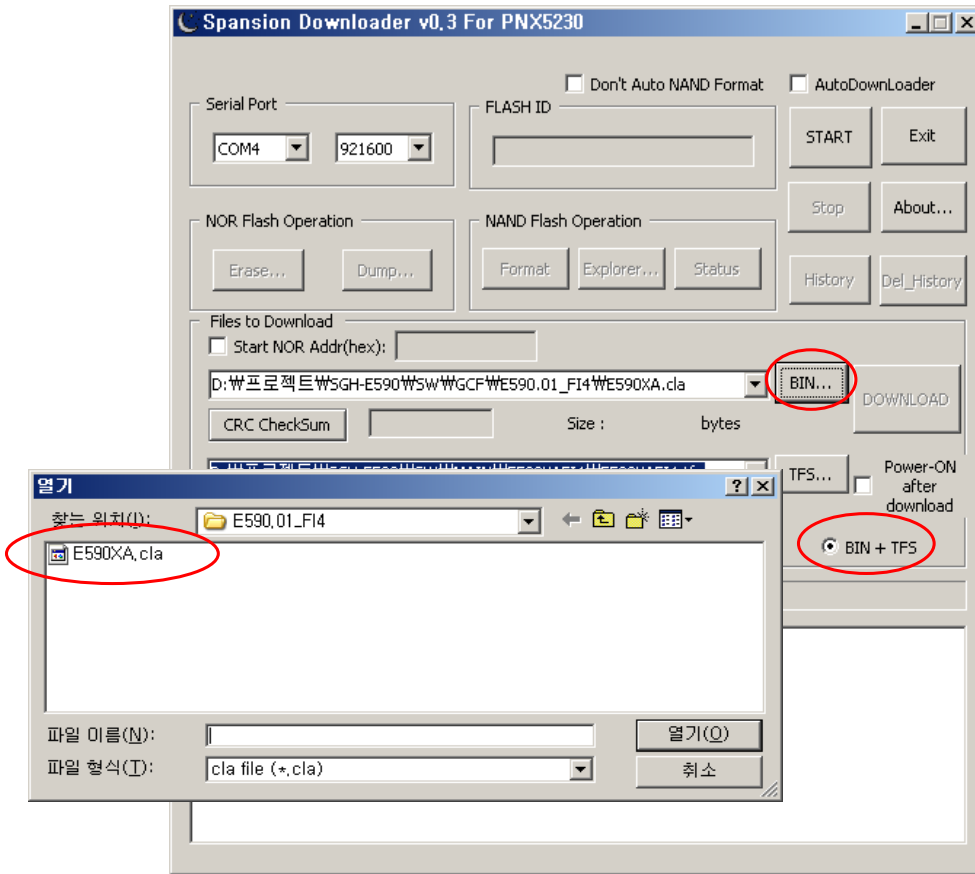
4-2-2. S/W Downloader Program

■ Load the binary download program by executing the “[Spansion Downloader v0.3 For PN5230.exe](#)”

1. Select the connected serial port and the rate of speed
2. Select the check box, the mode you want to download.
 - if the binary file wanted, check only 'BIN'
 - if the tfs file wanted, check only 'TFS'
 - if all the files wanted, check 'BIN+TFS'

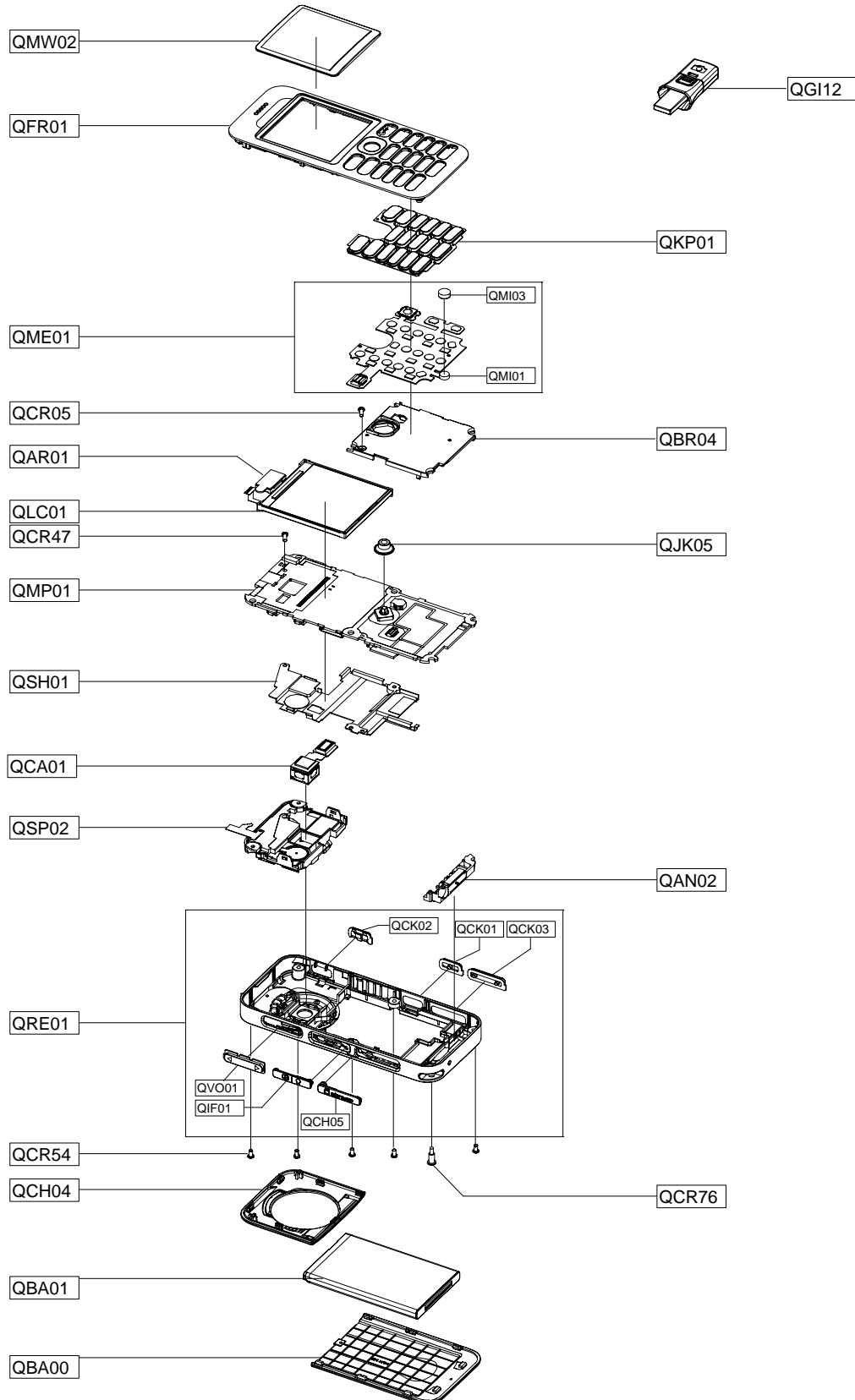


3. Select the file(s) what you want to download



5. Exploded View/Disassembly&Assembly Instructions

5-1. Cellular phone Exploded View




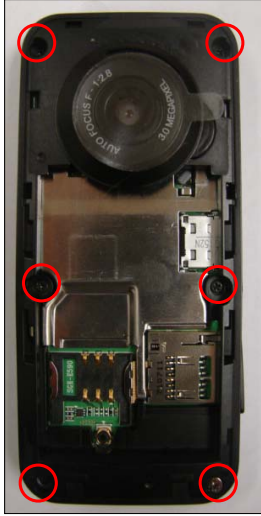

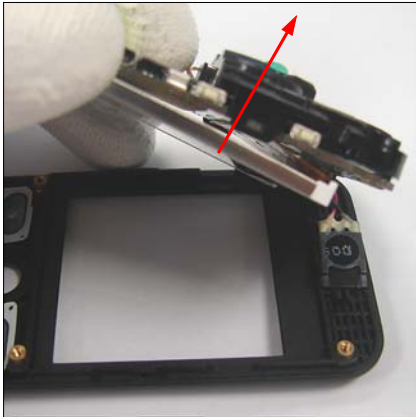
5-2. Cellular phone Parts list

Design LOC	Description	SEC CODE
QAN02	INTENNA-SGHE590	GH42-01061A
QAR01	AUDIO-RECEIVER	3009-001249
QBA00	PMO-COVER BATTERY	GH72-36223A
QBA01	INNER BATTERY PACK-800MAH,BLK,	GH43-02644A
QBR04	ASSY BRACKET-KEY	GH98-04880A
QCA01	CAMERA MODULE	GH59-03882A
QCH04	PMO-COVER CAMERA	GH72-38178A
QCH05	PMO-COVER T FLASH	GH72-36197A
QCK01	ASSY KEY-CAMERA	GH98-04001A
QCK02	ASSY KEY-MODE	GH98-04002A
QCK03	ASSY KEY-ZOOM	GH98-04003A
QCR05	SCREW-MACHINE	6001-001478
QCR47	SCREW-MACHINE	6001-001695
QCR54	SCREW-MACHINE	6001-001645
QCR76	SCREW-SPECIAL	6009-001525
QFR01	ASSY CASE-FRONT	GH98-03185A
QGI12	ASSY ACCE-BAGFOD	GH98-05701A
QIF01	PMO-COVER IF	GH72-36196A
QJK01	PMO KEY-JOG	GH72-43189A
QKP01	ASSY KEYPAD-(SER/BLK)	GH98-05189A
QLC01	LCD-LCD MODULE	GH07-01063A
QME01	KEY FPCB-MAIN KEY PBA	GH59-03881A
QMI01	AS-SGHE590 MICROPHONE	GH81-06679A
QMI03	AS-SCHF679 MIC RUBBER	GH81-06599A
QMP01	PBA MAIN-SGHE590	GH92-03377A
QMW02	PMO-MAIN WINDOW MOLD	GH72-36226A
QRE01	ASSY CASE-REAR	GH98-03184A
QSH01	ASSY COVER-SHIELD CAN	GH98-03998A
QSP02	MODULE SPEAKER	GH59-03923A
QVO01	ASSY KEY-VOLUME	GH98-03999A

Description	SEC CODE
CBF INTERFACE-DATA LINK CABLE	GH39-00444A
ADAPTOR-SGHE690,BLK,EU,A_TYPE	GH44-01361A
SPONGE-MOTOR	GH74-33388A
SPONGE	GH74-33389A
LABEL(R)-WATER SOAK	GH68-09361A
TAPE GASK	GH74-33672A
TAPE GASK	GH74-33673A
TAPE-CAMERA KEY	GH74-33957A
TAPE GASK	GH74-33958A
MPR-VINYL BOHOMAIN WINDOW 2	GH74-30616A
SPONGE	GH74-33128A
SPONGE	GH74-34145A
LABEL(P)-UNIT SEAL	GH68-00518B
LABEL(R)-MAIN(EU)	GH68-14087A
BOX-UNIT(EU)	GH69-05133A
S/W CD-SGHE590 PC LINK CD	GH46-00411A
MANUAL USERS-EU ENGLISH	GH68-14202A
MANUAL USERS-EU RUSSIAN	GH68-14203A
EARPHONE-SGHU600,HEADSET,BLK,A	GH59-04446A
VINYL-BOHO MAIN WINDOW	GH74-33923A

5-3. Disassembly and Assembly Instructions

5-3-1. Disassembly

<p>1</p> <p>1) Disassemble the CAMERA COVER from the REAR using a disassembly stick.</p> 	<p>2</p> <p>1) Unscrew the REAR at the 6 points.</p> 
<p>1) Be careful not to make scratch. 2) Please remove the Camera cover locker first.</p>	
<p>3</p> <p>1) Disassemble the REAR.</p> 	<p>4</p> <p>1) Detach the RECEIVER from the FRONT. 2) Disassemble the PBA ASS'Y from the FRONT.</p> 
<p>1) Be careful not to make scratch and molding damage! 2) Please remove the REAR locker first.</p> <p>1) Be careful not to damage Receiver. 2) Be careful not to make scratch and molding damage!</p>	

5

1) Detach the JOG KEY from the PBA ASS'Y.



- 1) Be careful not to damage LCD.
- 2) Be careful not to make scratch and molding damage!

6

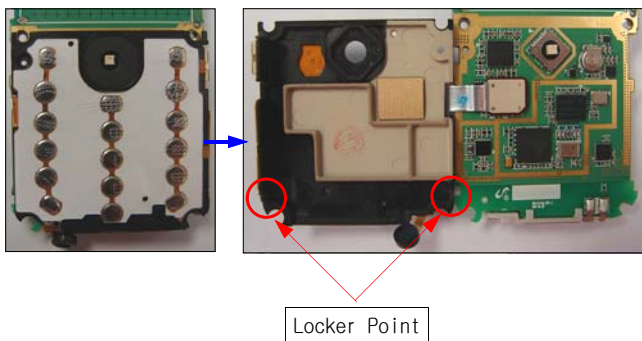
1) Unscrew the PBA ASS'Y at the 2 points.



- 1) Be careful not to damage LCD.
- 2) Be careful not to make scratch and molding damage!

7

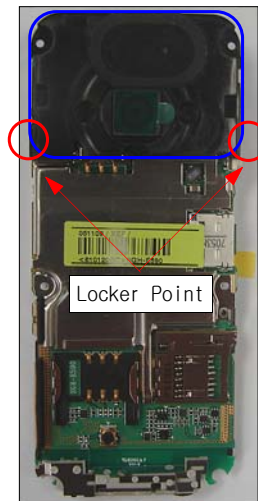
1) Disassemble the KEY BRACKET from the PBA ASS'Y.



- 1) Please remove the key bracket locker first.
- 2) Be careful not to damage locker.

8

1) Disassemble the SPEAKER MODULE from the PBA ASS'Y.



- 1) Please remove speaker module locker first.
- 2) Be careful not to make scratch and molding damage!

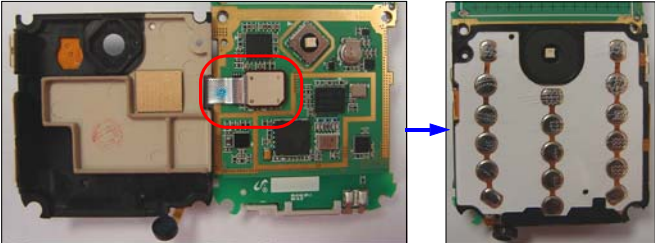

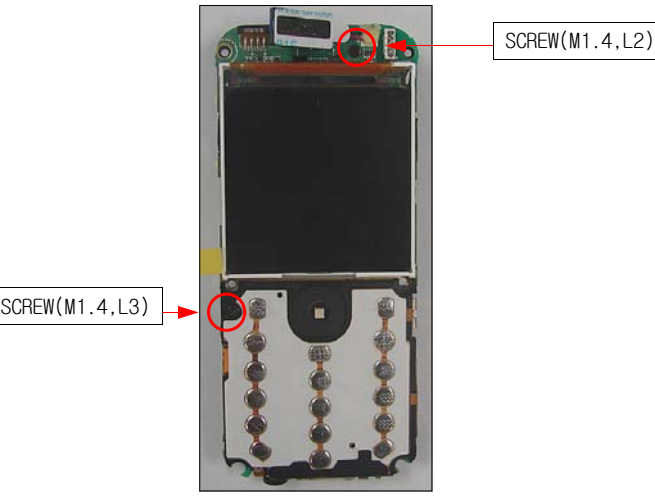
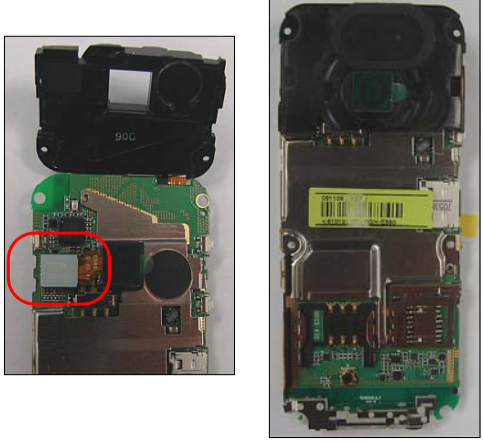
9

1) Detach the SHIELD CAN from the PBA ASS'Y.



- 1) Be careful not to damage PBA ASS'Y.
- 2) Be careful not to make scratch and molding damage!

5-3-2. Assembly

<p>1</p> <p>1) Joint CON to CON KEY FPCB with the PBA ASS'Y.</p> 	<p>2</p> <p>1) Insert the MIC into the INTENNA.</p> 
<p>1) Be careful not to make scratch and molding damage!</p>	<p>1) Be careful not to make scratch and molding damage! 2) Be careful not to damage the MIC F-PCB.</p>
<p>3</p> <p>1) Assemble SHIELD CAN with PBA ASS'Y. 1) Screw the PBA ASS'Y at 2 point.</p> 	<p>4</p> <p>1) Joint CON to CON CAMERA FPCB with the PBA ASS'Y. 2) Assemble SPEAKER MODULE with PBA ASS'Y.</p> 
<p>1) Check the SCREW SIZE. (M1.4,L2 and M1.4,L3) 2) Be careful not to make scratch and molding damage! 3) USE TORQUE : 0.9 ~ 1.1 Kgf.cm</p>	<p>1) Please remove speaker module locker first. 2) Be careful not to make scratch and molding damage!</p>

5

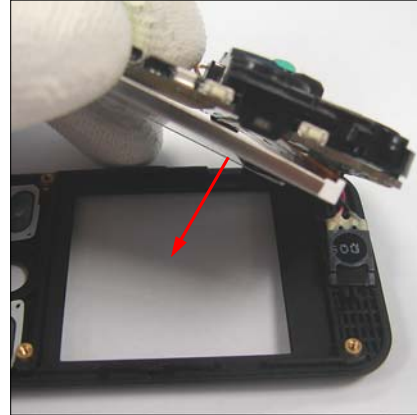
1) Attach the JOG KEY on the KEY BRACKET.



1) Be careful not to make scratch and molding damage!

6

1) Insert the KEYPAD into FRONT.
2) Attach the RECEIVER on the FRONT.
3) Assemble PBA ASS'Y with FRONT.



1) Be careful not to make scratch and molding damage!

7

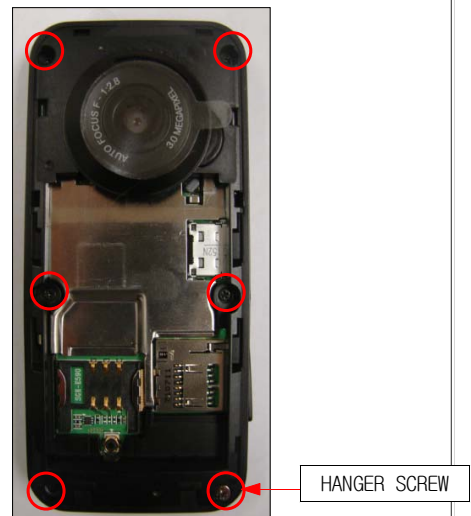
1) Assemble FRONT with REAR.



1) Be careful not to make scratch and molding damage.
2) Be careful not to damage LCD F-PCB.

8

1) Screw the REAR at the 6 points.



1) Check the SCREW SIZE.(HANGER SCREW and M1.4,L5)
2) Be careful not to make scratch and molding damage.
3) USE TORQUE : 0.9 ~ 1.1 Kgf.cm

9

1) Assemble CAMERA COVER with SET.



1) Be careful not to make scratch and molding damage!

6. MAIN Electrical Parts List

Design LOC	Description	SEC Code	STATUS
ANT500	ANTENNA-CHIP	4202-001255	SA
C100	C-CER,CHIP	2203-000233	SA
C101	C-CER,CHIP	2203-000233	SA
C102	C-CER,CHIP	2203-005281	SA
C103	C-CER,CHIP	2203-005281	SA
C104	C-TA,CHIP	2404-001474	SA
C105	C-CER,CHIP	2203-005288	SA
C106	C-CER,CHIP	2203-000628	SA
C107	C-CER,CHIP	2203-006562	SA
C108	C-CER,CHIP	2203-005288	SA
C109	C-CER,CHIP	2203-000812	SA
C110	C-CER,CHIP	2203-000812	SA
C111	C-CER,CHIP	2203-005288	SA
C112	C-CER,CHIP	2203-000278	SA
C113	C-CER,CHIP	2203-000233	SA
C114	C-CER,CHIP	2203-005288	SA
C116	C-CER,CHIP	2203-005552	SA
C117	C-CER,CHIP	2203-000233	SA
C118	C-CER,CHIP	2203-001437	SA
C120	C-CER,CHIP	2203-002668	SA
C121	C-CER,CHIP	2203-000278	SA
C122	C-CER,CHIP	2203-000233	SA
C123	C-CER,CHIP	2203-000812	SA
C124	C-CER,CHIP	2203-006048	SA
C125	C-CER,CHIP	2203-000714	SA
C126	C-CER,CHIP	2203-005061	SA
C127	C-CER,CHIP	2203-002709	SA
C129	C-CER,CHIP	2203-000438	SA
C200	C-CER,CHIP	2203-005482	SA
C201	C-CER,CHIP	2203-000812	SA
C202	C-CER,CHIP	2203-005482	SA
C203	C-CER,CHIP	2203-005482	SA
C204	C-CER,CHIP	2203-005482	SA
C205	C-CER,CHIP	2203-005482	SA
C206	C-CER,CHIP	2203-005482	SA
C207	C-CER,CHIP	2203-005482	SA
C208	C-CER,CHIP	2203-005482	SA
C209	C-CER,CHIP	2203-000812	SA
C210	C-CER,CHIP	2203-005482	SA
C211	C-CER,CHIP	2203-000254	SA
C212	C-CER,CHIP	2203-005482	SA
C213	C-CER,CHIP	2203-005482	SA
C214	C-CER,CHIP	2203-000425	SA
C215	C-CER,CHIP	2203-006562	SA
C216	C-CER,CHIP	2203-000425	SA
C300	C-CER,CHIP	2203-006562	SA
C301	C-CER,CHIP	2203-006562	SA
C302	C-CER,CHIP	2203-005482	SA
C303	C-CER,CHIP	2203-006399	SA
C304	C-CER,CHIP	2203-006048	SA
C305	C-CER,CHIP	2203-006048	SA
C306	C-CER,CHIP	2203-006399	SA
C307	C-CER,CHIP	2203-006562	SA

Design LOC	Description	SEC Code	STATUS
C308	C-CER,CHIP	2203-006562	SA
C309	C-CER,CHIP	2203-006562	SA
C310	C-CER,CHIP	2203-005482	SA
C311	C-CER,CHIP	2203-005482	SA
C312	C-CER,CHIP	2203-000330	SA
C313	C-CER,CHIP	2203-000330	SA
C400	C-TA,CHIP	2404-001381	SA
C401	C-CER,CHIP	2203-006562	SA
C402	C-CER,CHIP	2203-006562	SA
C403	C-CER,CHIP	2203-006399	SA
C404	C-CER,CHIP	2203-006257	SA
C405	C-CER,CHIP	2203-006208	SA
C406	C-CER,CHIP	2203-006257	SA
C407	C-CER,CHIP	2203-006890	SA
C408	C-CER,CHIP	2203-006257	SA
C409	C-CER,CHIP	2203-006208	SA
C410	C-CER,CHIP	2203-006257	SA
C411	C-CER,CHIP	2203-006562	SA
C412	C-CER,CHIP	2203-006399	SA
C413	C-CER,CHIP	2203-006208	SA
C414	C-CER,CHIP	2203-006257	SA
C415	C-CER,CHIP	2203-006257	SA
C416	C-CER,CHIP	2203-000233	SA
C417	BATTERY-LI(2ND)	4302-001181	SA
C418	C-CER,CHIP	2203-000386	SA
C419	C-CER,CHIP	2203-000386	SA
C420	C-CER,CHIP	2203-006348	SA
C421	C-CER,CHIP	2203-006562	SA
C422	C-CER,CHIP	2203-005482	SA
C426	C-CER,CHIP	2203-006257	SA
C427	C-CER,CHIP	2203-006324	SA
C428	C-CER,CHIP	2203-005482	SA
C429	C-CER,CHIP	2203-006208	SA
C430	C-CER,CHIP	2203-006361	SA
C431	C-CER,CHIP	2203-000425	SA
C432	C-CER,CHIP	2203-006399	SA
C433	C-CER,CHIP	2203-006474	SA
C500	C-CER,CHIP	2203-006562	SA
C501	C-CER,CHIP	2203-006562	SA
C502	C-CER,CHIP	2203-006838	SA
C503	C-CER,CHIP	2203-005482	SA
C504	C-CER,CHIP	2203-006562	SA
C505	C-CER,CHIP	2203-005482	SA
C506	INDUCTOR-SMD	2703-002365	SA
C507	C-CER,CHIP	2203-005482	SA
C508	C-CER,CHIP	2203-000254	SA
C509	C-CER,CHIP	2203-006562	SA
C510	C-CER,CHIP	2203-005482	SA
C511	C-CER,CHIP	2203-006838	SA
C512	C-CER,CHIP	2203-006048	SA
C513	C-CER,CHIP	2203-000278	SA
C514	C-CER,CHIP	2203-000359	SA
C515	C-CER,CHIP	2203-000438	SA

Design LOC	Description	SEC Code	STATUS
C516	C-CER,CHIP	2203-000679	SA
C517	C-CER,CHIP	2203-000995	SA
C518	C-CER,CHIP	2203-006842	SA
C519	C-CER,CHIP	2203-006562	SA
C520	C-CER,CHIP	2203-006562	SA
C600	C-TA,CHIP	2404-001381	SA
C602	C-CER,CHIP	2203-001437	SA
C603	C-CER,CHIP	2203-001259	SA
C604	C-CER,CHIP	2203-000995	SA
C605	C-CER,CHIP	2203-001437	SA
C607	C-CER,CHIP	2203-000254	SA
C608	C-CER,CHIP	2203-003054	SA
C609	C-CER,CHIP	2203-003054	SA
C610	C-CER,CHIP	2203-006562	SA
C611	C-CER,CHIP	2203-006562	SA
C612	C-TA,CHIP	2404-001430	SA
C613	C-CER,CHIP	2203-000812	SA
C614	C-CER,CHIP	2203-005482	SA
C615	C-CER,CHIP	2203-000278	SA
C616	C-CER,CHIP	2203-006048	SA
C617	C-CER,CHIP	2203-006890	SA
C618	C-CER,CHIP	2203-000550	SA
C621	C-CER,CHIP	2203-000812	SA
C622	C-CER,CHIP	2203-000812	SA
C701	C-CER,CHIP	2203-006562	SA
C702	C-CER,CHIP	2203-006562	SA
C703	C-CER,CHIP	2203-000278	SA
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C706	C-CER,CHIP	2203-006562	SA
C707	C-CER,CHIP	2203-006562	SA
C708	C-CER,CHIP	2203-006562	SA
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C713	C-CER,CHIP	2203-006562	SA
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C716	C-CER,CHIP	2203-000812	SA
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C722	C-CER,CHIP	2203-006824	SA
C723	C-CER,CHIP	2203-005482	SA
C724	C-CER,CHIP	2203-000812	SA
C725	C-CER,CHIP	2203-000812	SA
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Design LOC	Description	SEC Code	STATUS
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C735	C-CER,CHIP	2203-000812	SA
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C805	C-CER,CHIP	2203-005993	SA
C806	C-CER,CHIP	2203-006562	SA
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C808	C-CER,CHIP	2203-006562	SA
C809	C-CER,CHIP	2203-005482	SA
C810	C-CER,CHIP	2203-005482	SA
C811	C-TA,CHIP	2404-001396	SA
C812	C-TA,CHIP	2404-001396	SA
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C816	C-CER,CHIP	2203-006562	SA
C817	C-CER,CHIP	2203-000812	SA
C818	C-CER,CHIP	2203-006562	SA
C819	C-CER,CHIP	2203-000233	SA
C820	C-CER,CHIP	2203-000233	SA
C821	C-CER,CHIP	2203-000812	SA
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C825	C-CER,CHIP	2203-005482	SA
C826	C-CER,CHIP	2203-006562	SA
C827	C-CER,CHIP	2203-006562	SA
C828	C-CER,CHIP	2203-005482	SA
C829	C-CER,CHIP	2203-005482	SA
C830	C-TA,CHIP	2404-001414	SA
C831	C-TA,CHIP	2404-001225	SA
C833	C-CER,CHIP	2203-005482	SA
C834	C-CER,CHIP	2203-005482	SA
C835	C-CER,CHIP	2203-000278	SA
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CN400	CONNECTOR-CARD EDGE	3709-001400	SA
CN401	CONNECTOR-CARD EDGE	3709-001393	SA
CN600	SOCKET-INTERFACE	3710-002442	SA
CN601	HEADER-BATTERY	3711-006137	SA
CN700	HEADER-BOARD TO BOARD	3711-005659	SA
CN701	HEADER-BOARD TO BOARD	3711-005605	SA
D400	DIODE-TVS	0406-001200	SA
D600	DIODE-TVS	0406-001231	SA
D601	DIODE-TVS	0406-001231	SA
D602	DIODE-TVS	0406-001231	SA
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D605	DIODE-TVS	0406-001210	SA
D606	DIODE-ARRAY	0407-001002	SA
D607	DIODE-TVS	0406-001254	SA
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D701	DIODE-TVS	0406-001208	SA
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D703	DIODE-TVS	0406-001231	SA
D704	DIODE-TVS	0406-001208	SA
D705	DIODE-TVS	0406-001231	SA
D706	DIODE-TVS	0406-001231	SA
D707	DIODE-TVS	0406-001231	SA
D708	DIODE-TVS	0406-001231	SA
D709	DIODE-TVS	0406-001231	SA
F100	DUPLEXER-FEM	2911-000072	SA
F500	FILTER-LC	2909-001279	SA
F501	FILTER-EMI SMD	2901-001315	SA
F600	FILTER-EMI/ESD	2901-001376	SA
JOG700	SWITCH-TACT	3404-001302	SA
L104	INDUCTOR-SMD	2703-002314	SA
L105	INDUCTOR-SMD	2703-002608	SA
L106	INDUCTOR-SMD	2703-002558	SA
L107	INDUCTOR-SMD	2703-002267	SA
L108	INDUCTOR-SMD	2703-002608	SA
L109	INDUCTOR-SMD	2703-002369	SA
L400	INDUCTOR-SMD	2703-002829	SA
L401	BEAD-SMD	3301-001120	SA
L500	BEAD-SMD	3301-001534	SA
L501	BEAD-SMD	3301-001659	SA
L502	INDUCTOR-SMD	2703-002368	SA
L503	INDUCTOR-SMD	2703-001752	SA
L504	INDUCTOR-SMD	2703-001673	SA
L600	BEAD-SMD	3301-001438	SA
L601	BEAD-SMD	3301-001438	SA
L602	BEAD-SMD	3301-001812	SA
L603	BEAD-SMD	3301-001812	SA
L700	BEAD-SMD	3301-001438	SA
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L805	BEAD-SMD	3301-001438	SA
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OSC300	CRYSTAL-SMD	2801-004285	SA
OSC400	CRYSTAL-SMD	2801-003856	SA
Q400	FET-SILICON	0505-002111	SA
Q500	TR-DIGITAL	0504-001151	SA
R100	R-CHIP	2007-000171	SA
R102	R-CHIP	2007-000171	SA
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R104	R-CHIP	2007-001313	SA
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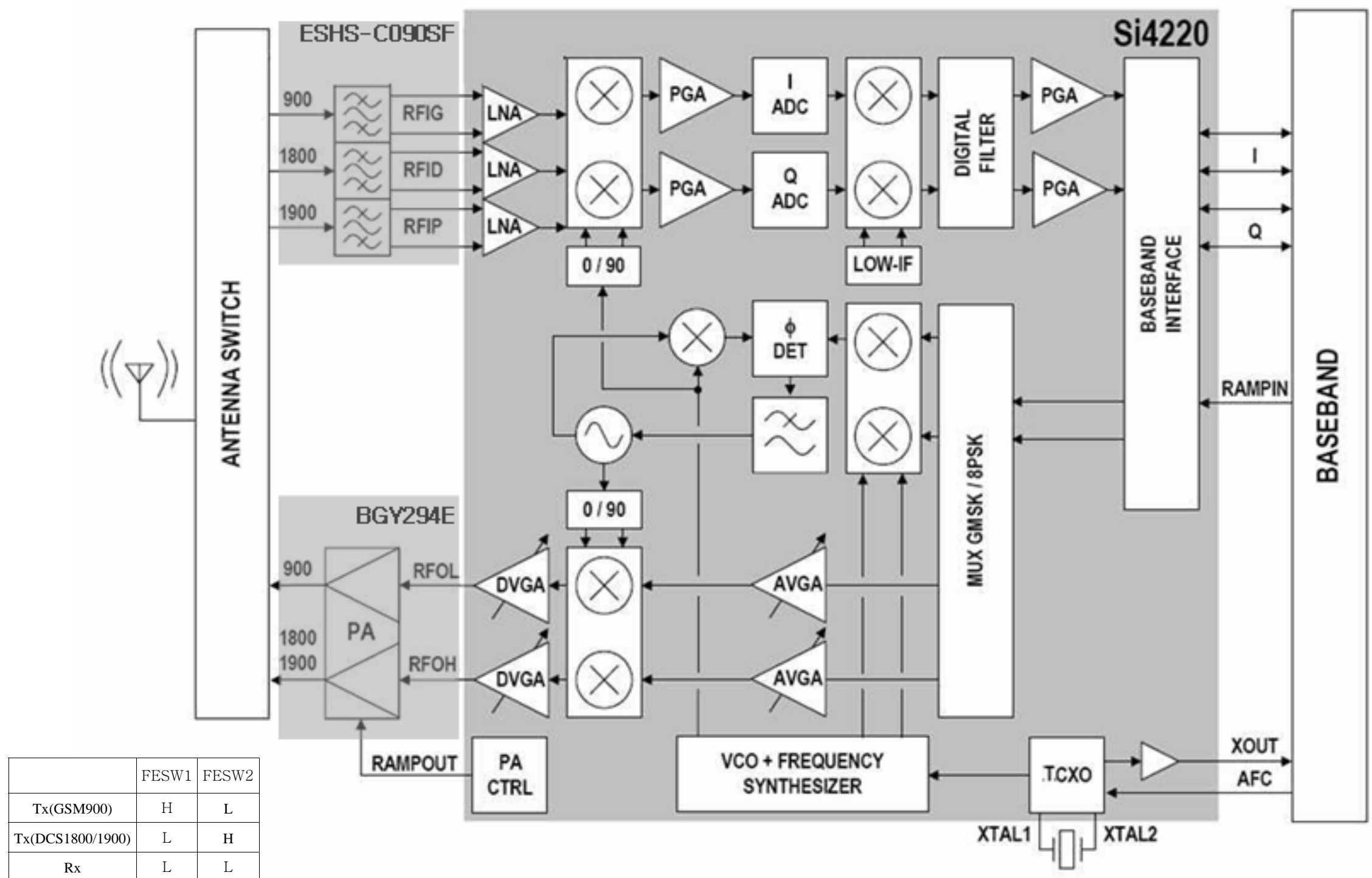
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R204	R-CHIP	2007-000140	SA
R205	R-CHIP	2007-000148	SA
R206	R-CHIP	2007-001319	SA
R207	R-CHIP	2007-001319	SA
R208	R-CHIP	2007-000148	SA
R300	R-CHIP	2007-000171	SA
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R314	R-CHIP	2007-000162	SA
R315	R-CHIP	2007-000141	SA
R316	R-CHIP	2007-000141	SA
R317	R-CHIP	2007-000171	SA
R318	R-CHIP	2007-000171	SA
R319	R-CHIP	2007-000162	SA
R400	R-CHIP	2007-000162	SA
R401	R-CHIP	2007-000162	SA
R402	R-CHIP	2007-000171	SA
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R410	R-CHIP	2007-000758	SA
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R413	R-CHIP	2007-000162	SA
R414	R-CHIP	2007-000159	SA
R415	R-CHIP	2007-000162	SA
R416	R-CHIP	2007-000166	SA
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R502	R-CHIP	2007-000148	SA
R503	R-CHIP	2007-001333	SA
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Design LOC	Description	SEC Code	STATUS
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R513	R-CHIP	2007-000170	SA
R514	R-CHIP	2007-000170	SA
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R602	R-CHIP	2007-001339	SA
R603	R-CHIP	2007-007142	SA
R604	R-CHIP	2007-007334	SA
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R608	R-CHIP	2007-007107	SA
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R610	R-CHIP	2007-008354	SA
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R701	R-CHIP	2007-001333	SA
R702	R-CHIP	2007-000162	SA
R703	R-CHIP	2007-000148	SA
R705	R-CHIP	2007-000171	SA
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R809	R-CHIP	2007-007528	SA
R810	R-CHIP	2007-000171	SA
R811	R-CHIP	2007-000148	SA
R812	R-CHIP	2007-007318	SA
R813	R-CHIP	2007-007528	SA
R814	R-CHIP	2007-002796	SA
R815	R-CHIP	2007-000162	SA
R816	R-CHIP	2007-000162	SA
TAC700	SWITCH-TACT	3404-001303	SA
TAC701	SWITCH-TACT	3404-001303	SA
TAC702	SWITCH-TACT	3404-001303	SA
U100	IC-POWER AMP	1201-002556	SA
U101	IC-TRANSCEIVER	1205-003093	SA
U200	IC-COMM. CONTROLLER	1205-003082	SA
U300	IC-POSI.FIXED REG.	1203-004135	SA
U301	IC-MCP	1108-000112	SA
U302	IC-CODEC	1205-003210	SA
U303	IC-CMOS LOGIC	0801-003022	SA
U400	IC-MULTI REG.	1203-004340	SA
U401	IC-POSI.FIXED REG.	1203-003737	SA

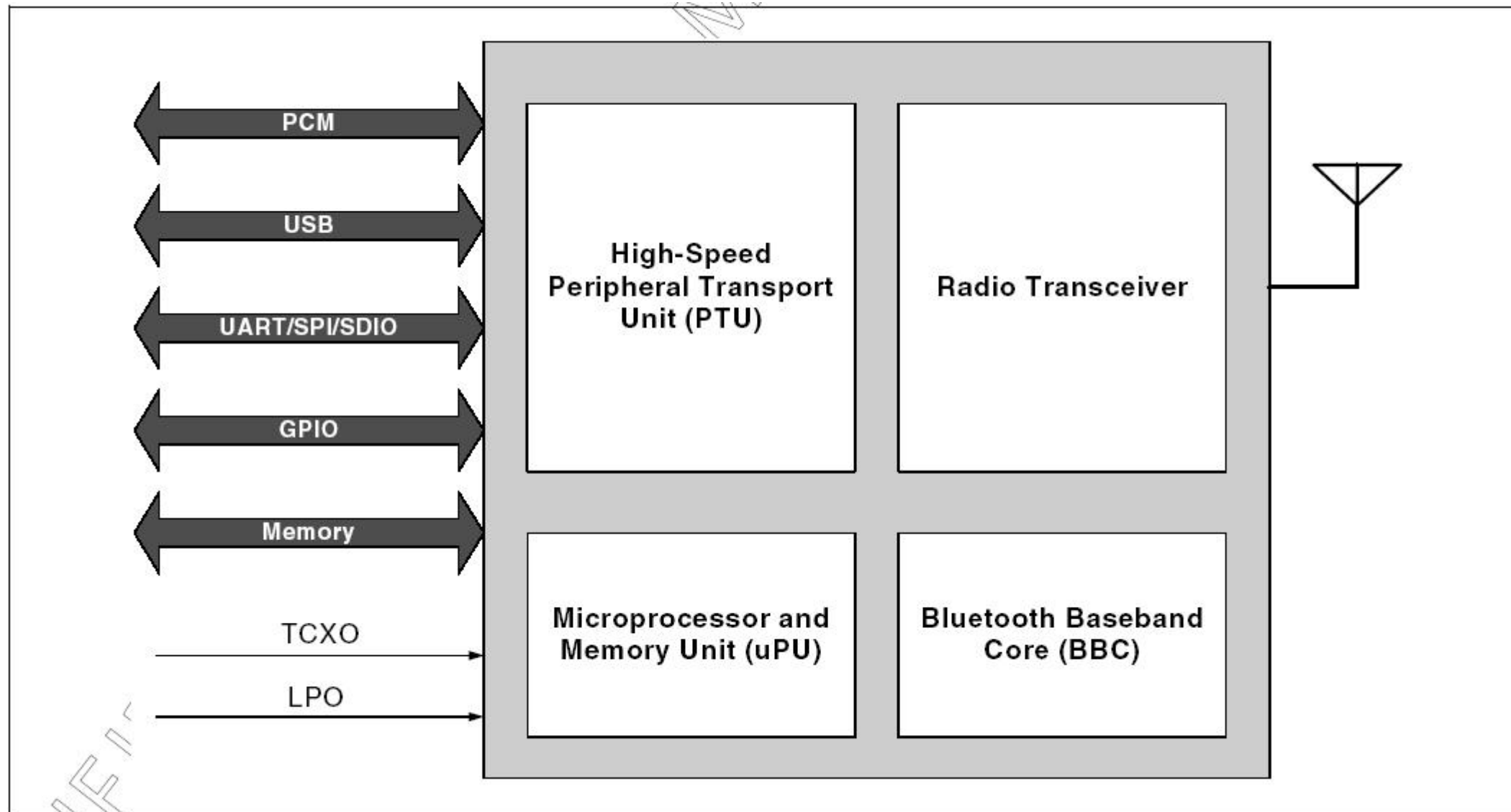
Design LOC	Description	SEC Code	STATUS
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U500	IC-POSI.FIXED REG.	1203-003688	SA
U501	IC-DEMODULATOR	1204-002688	SA
U502	IC-CMOS LOGIC	0801-003012	SA
U503	IC-TRANSCEIVER	1205-002942	SA
U504	IC-POSI.FIXED REG.	1203-003737	SA
U600	IC-POSI.FIXED REG.	1203-003815	SA
U700	IC-DC/DC CONVERTER	1203-003708	SA
U701	IC-POSI.FIXED REG.	1203-003737	SA
U702	IC-ANALOG SWITCH	1001-001394	SA
U800	IC-POSI.FIXED REG.	1203-003737	SA
U801	IC-AUDIO AMP	1201-002511	SA
U802	IC-CODEC	1205-003214	SA
U803	IC-ANALOG MULTIPLEX	1001-001349	SA
V1	VARISTOR	1405-001177	SA
V2	VARISTOR	1405-001177	SA
V3	VARISTOR	1405-001177	SA
V4	VARISTOR	1405-001177	SA
V5	VARISTOR	1405-001177	SA
VR600	THERMISTOR-NTC	1404-001221	SA
VR700	VARISTOR	1405-001082	SA
ZD600	DIODE-ZENER	0403-001547	SA

7. Block Diagrams

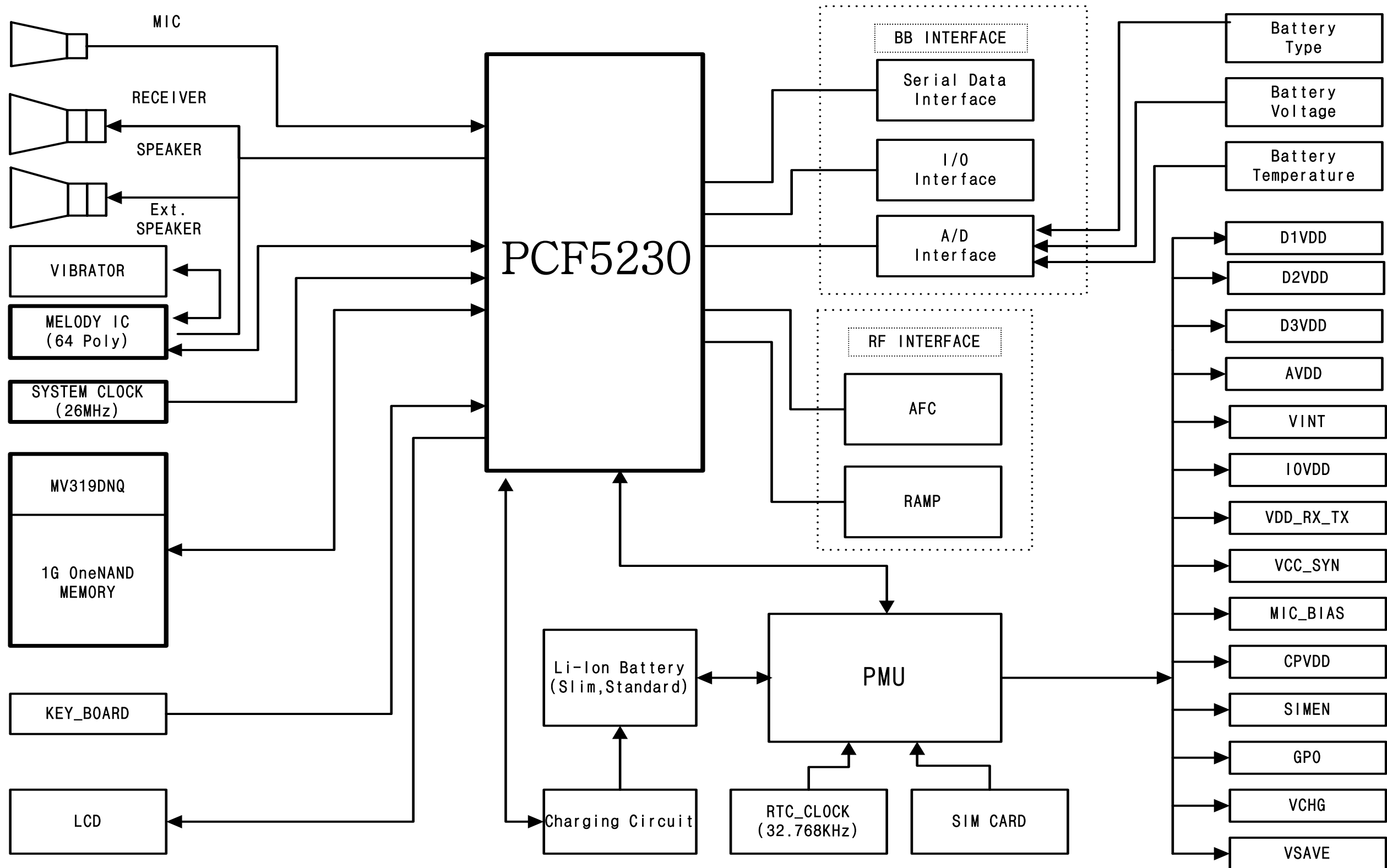
7-1. RF Solution Block Diagram



7-2. BT Solution Block Diagram

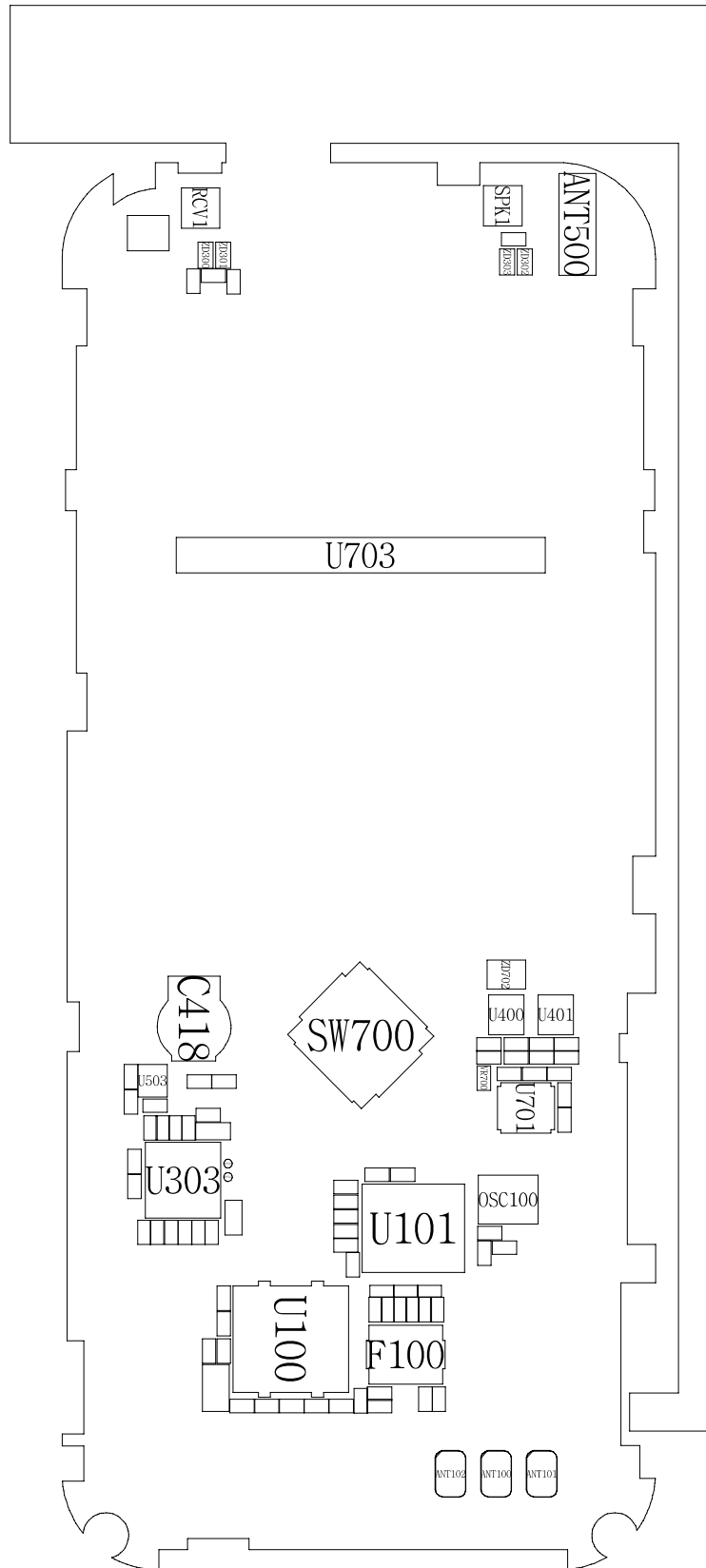


7-3. Base Band Solution Block Diagram

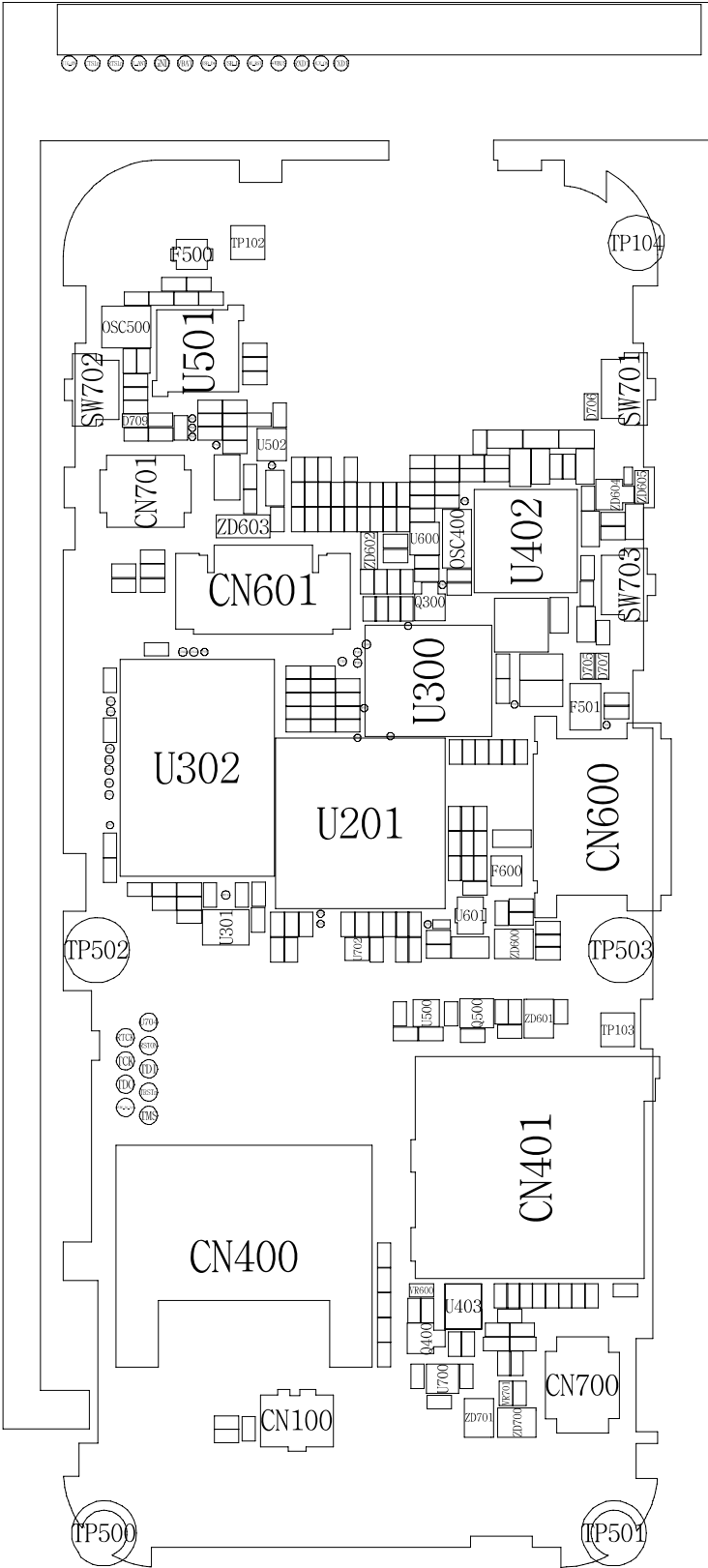


8. PCB Diagrams

Top

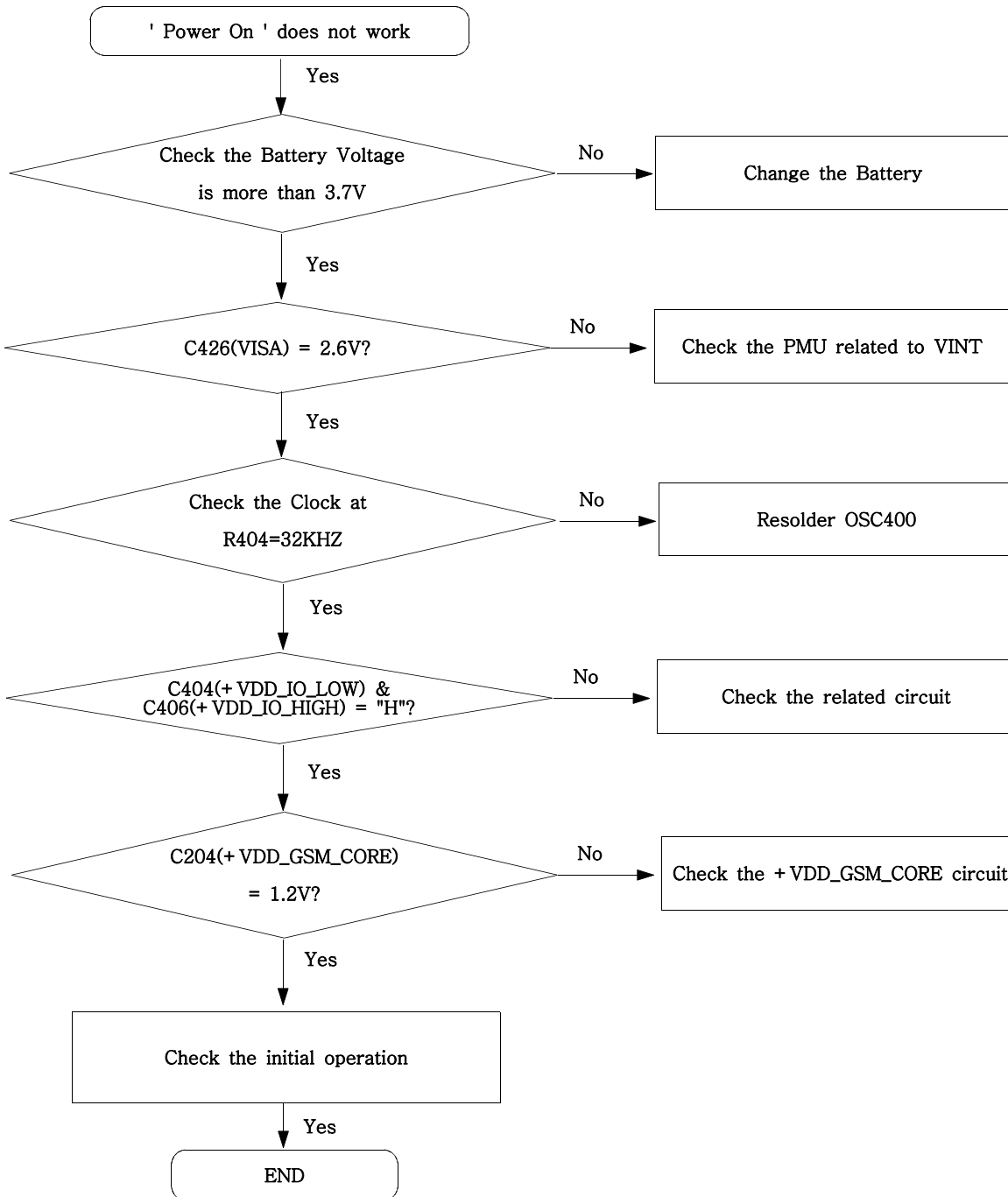


Bottom

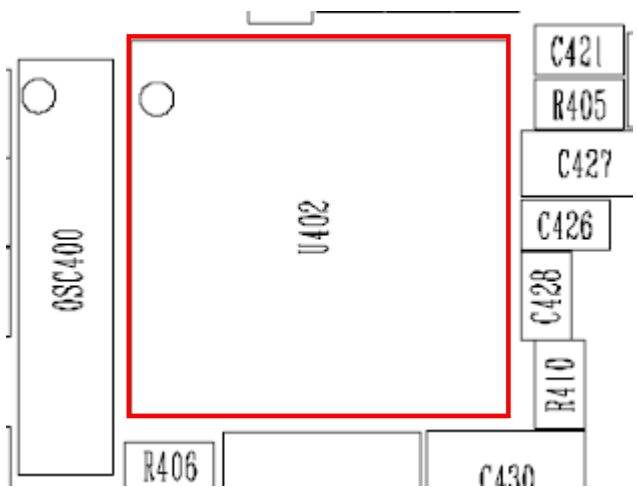
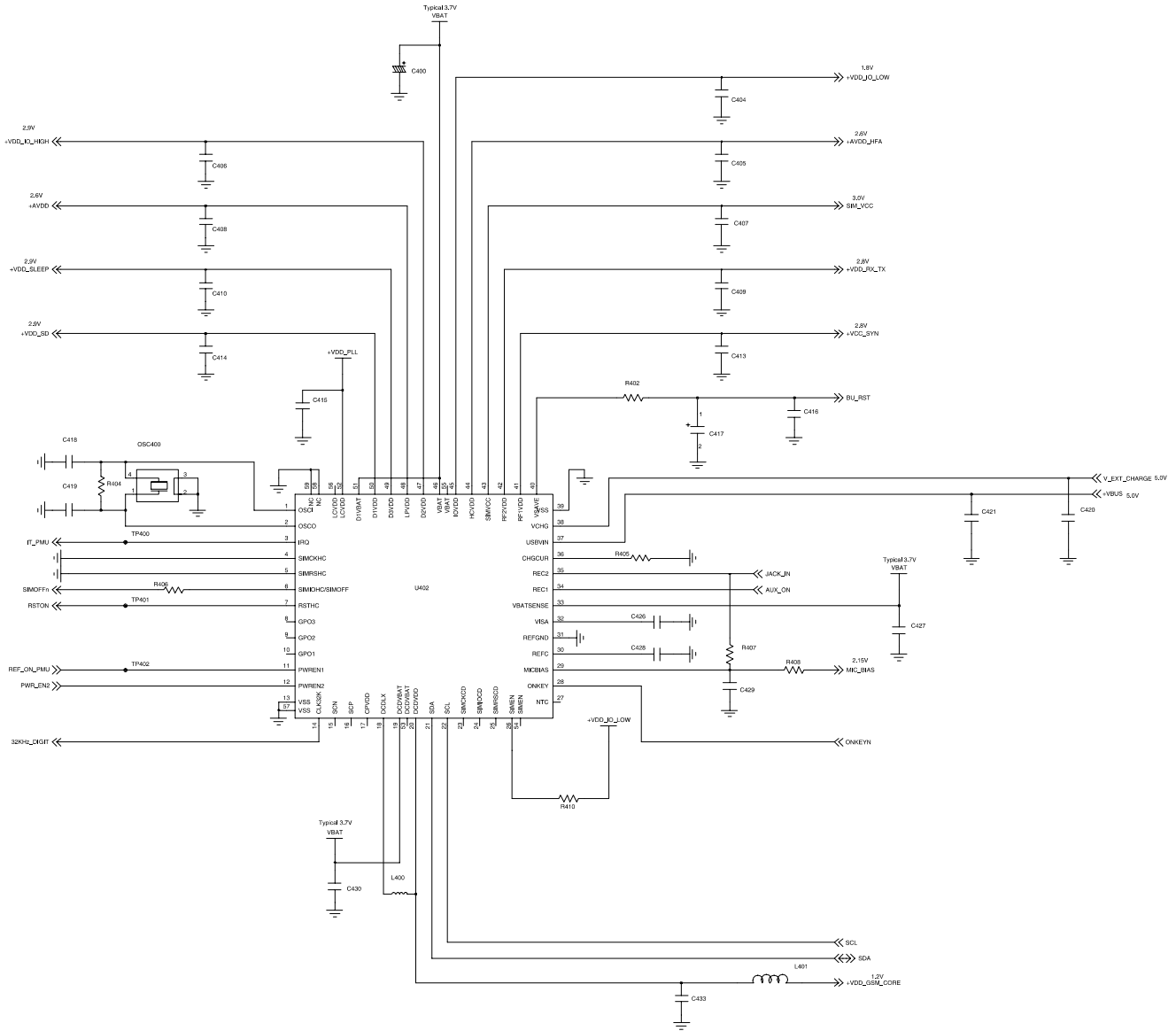


9. Flow Chart of Troubleshooting

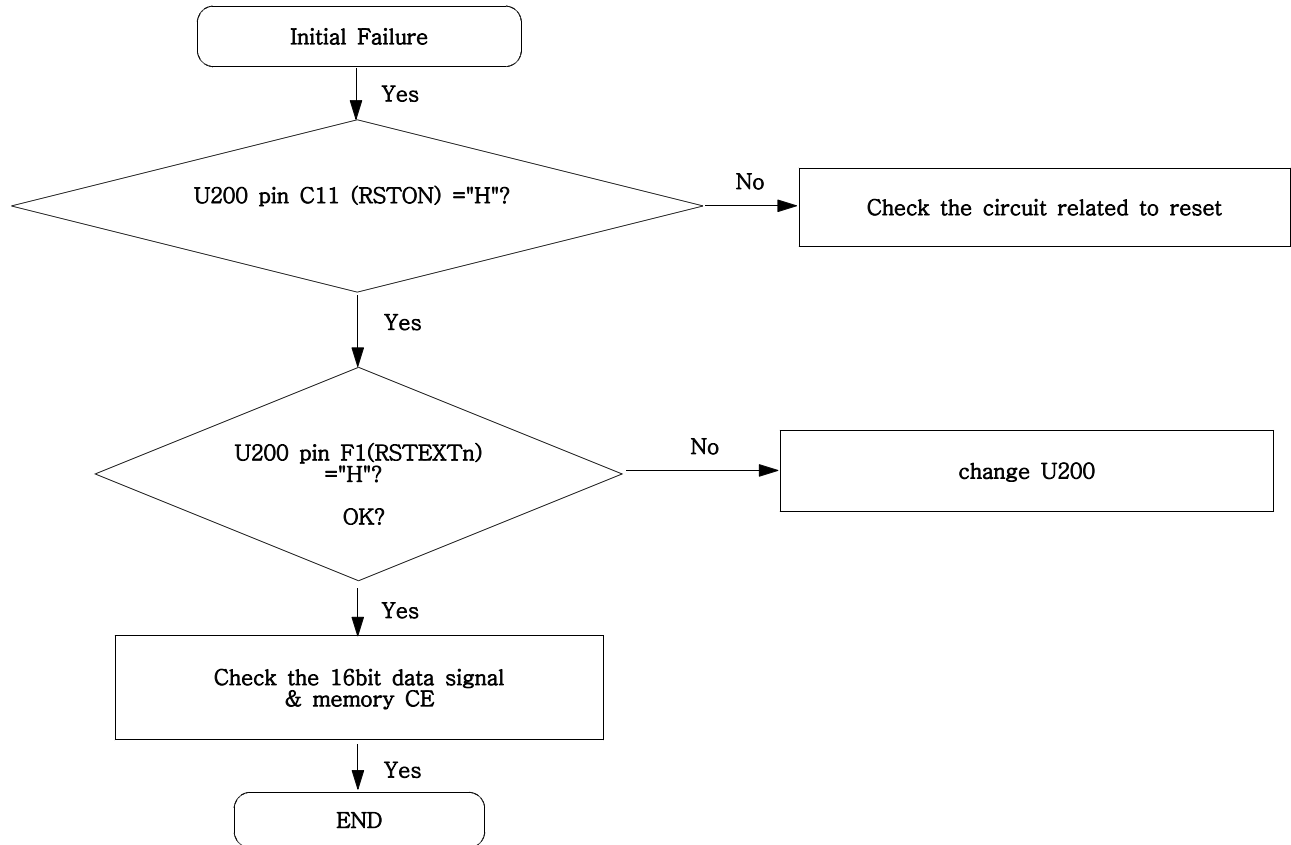
9-1. Power On



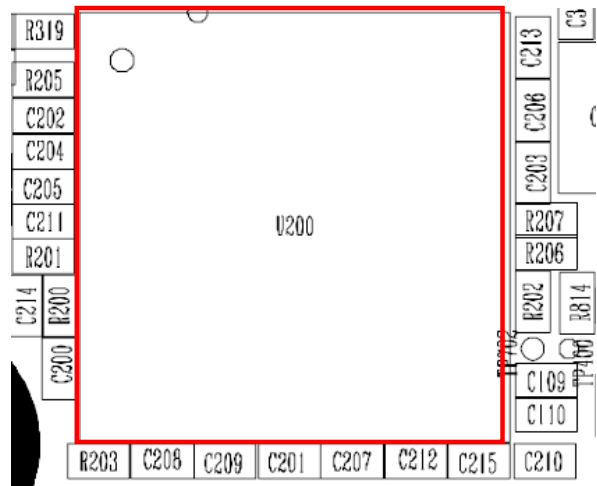
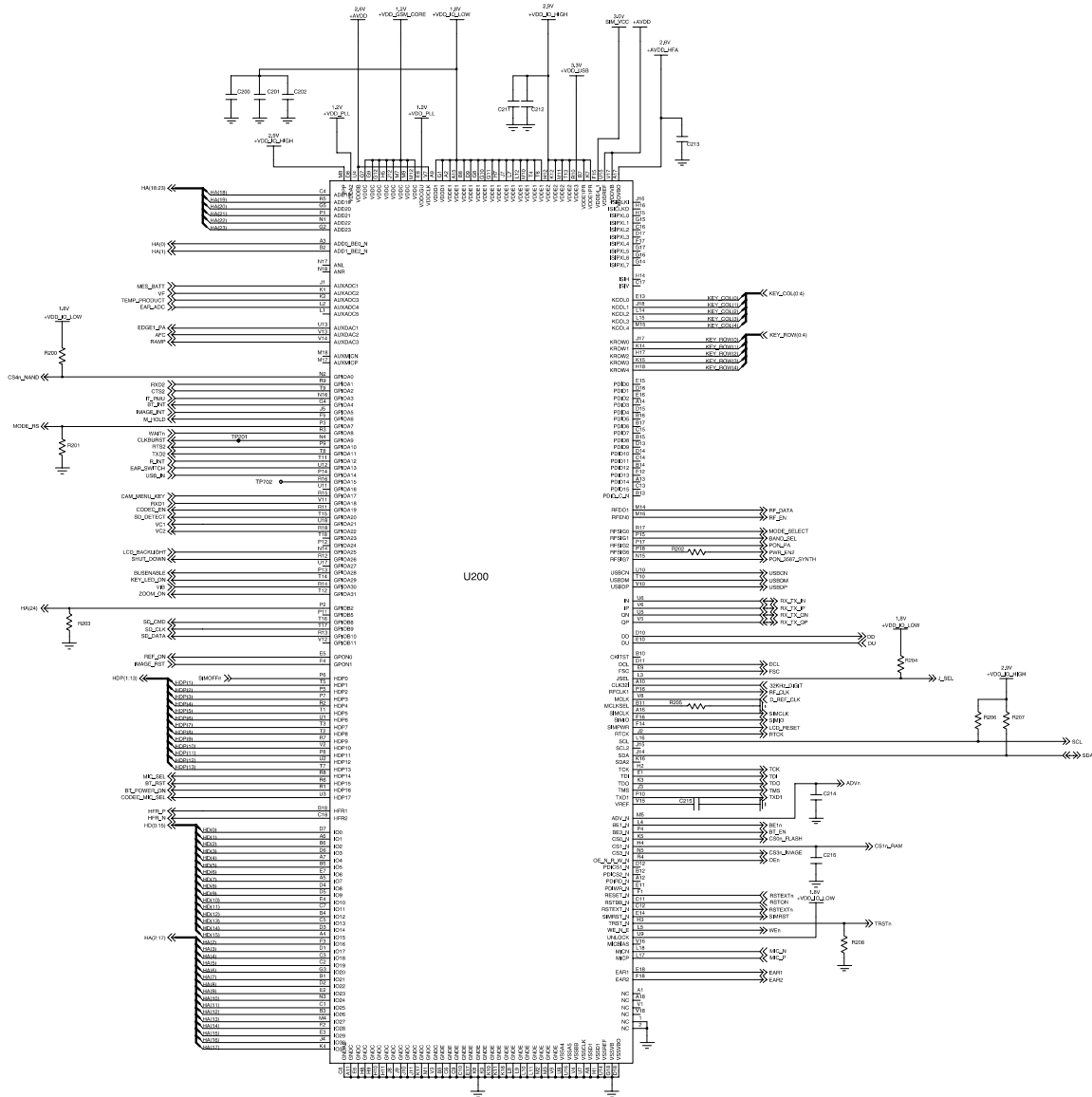
Flow Chart of Troubleshooting



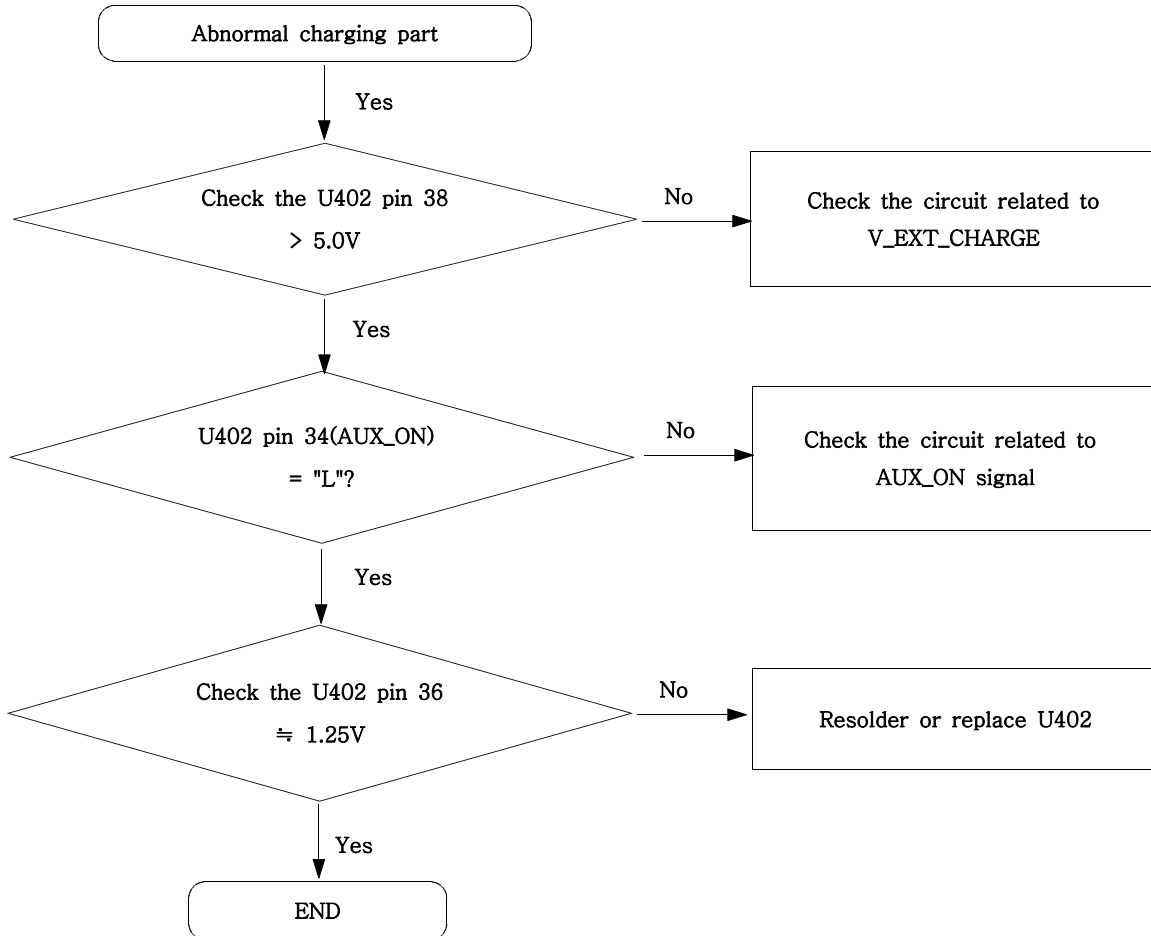
9-2. Initial

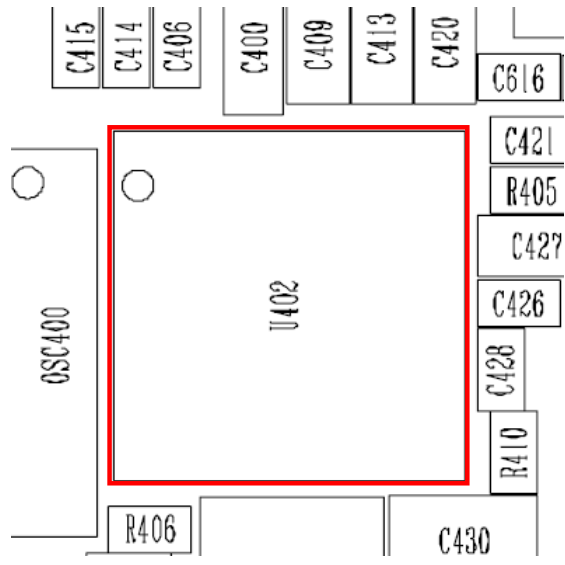
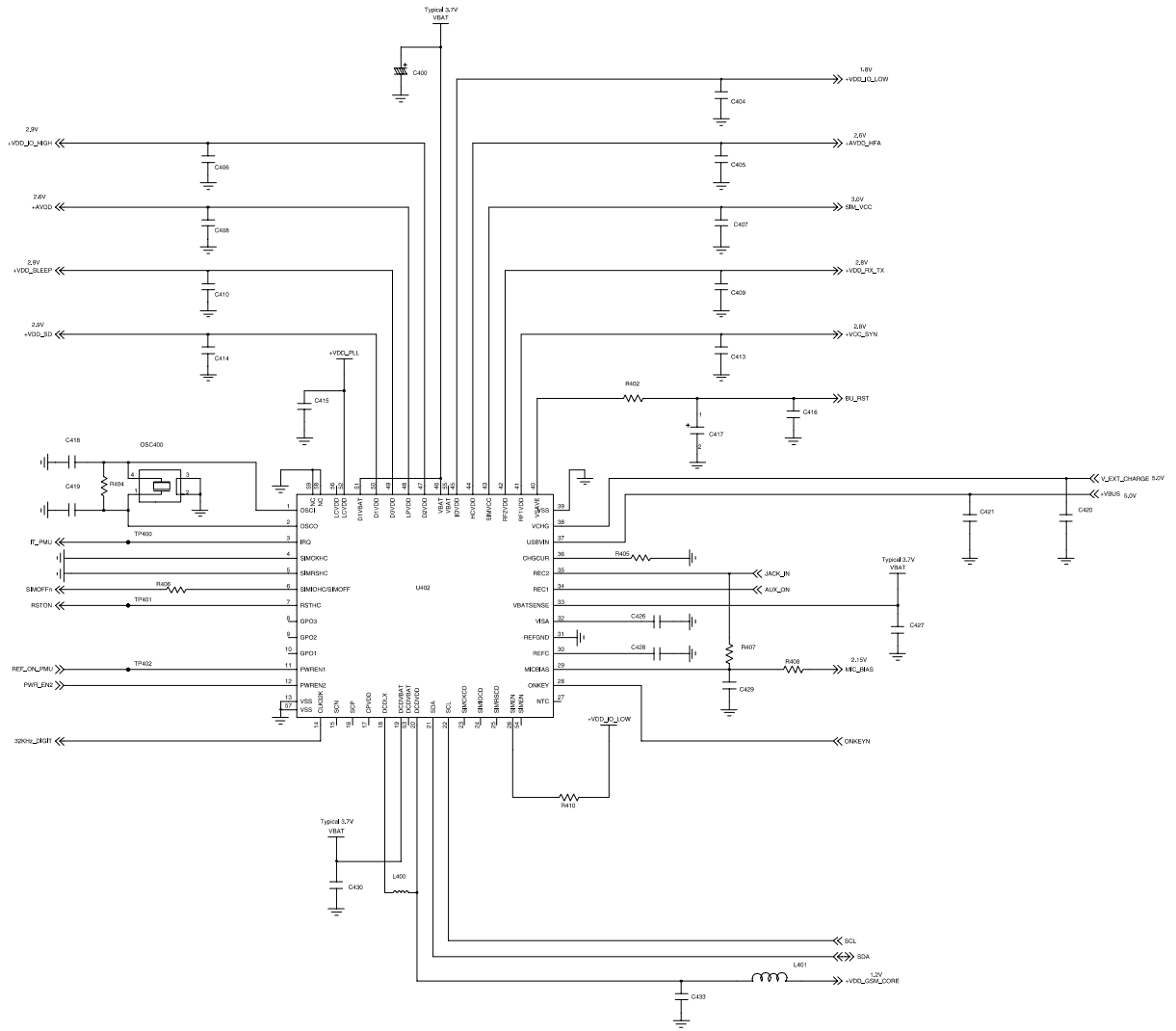


Flow Chart of Troubleshooting

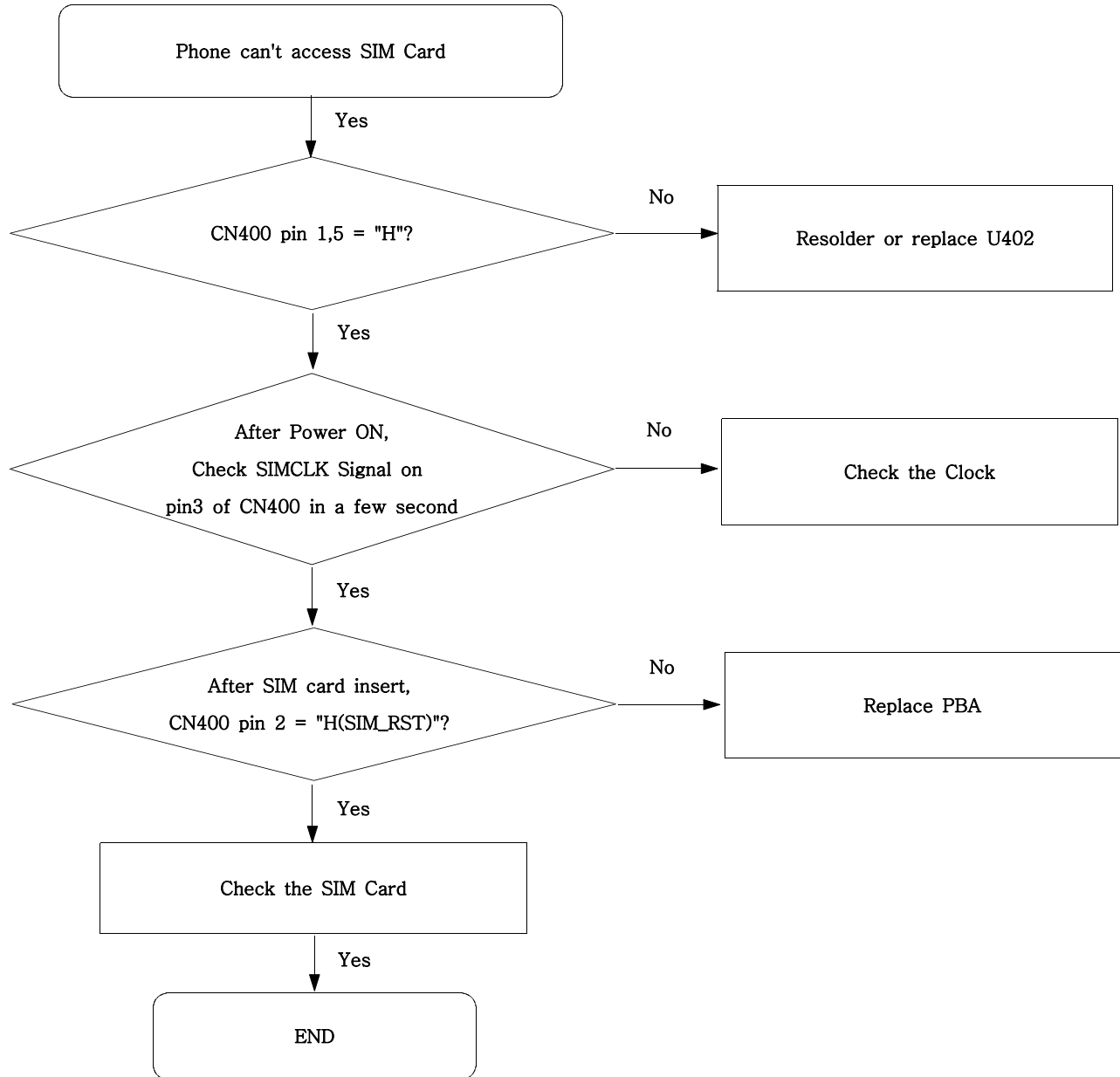


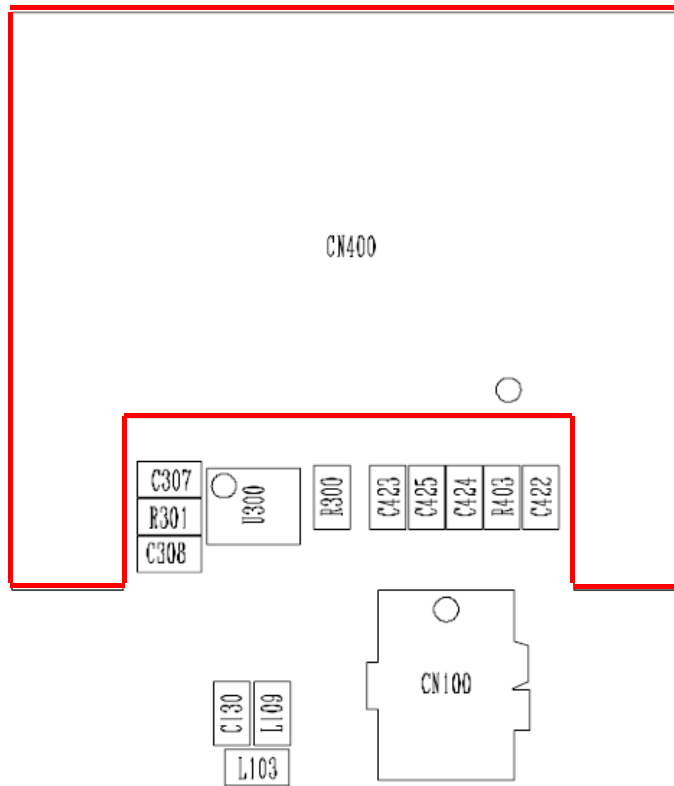
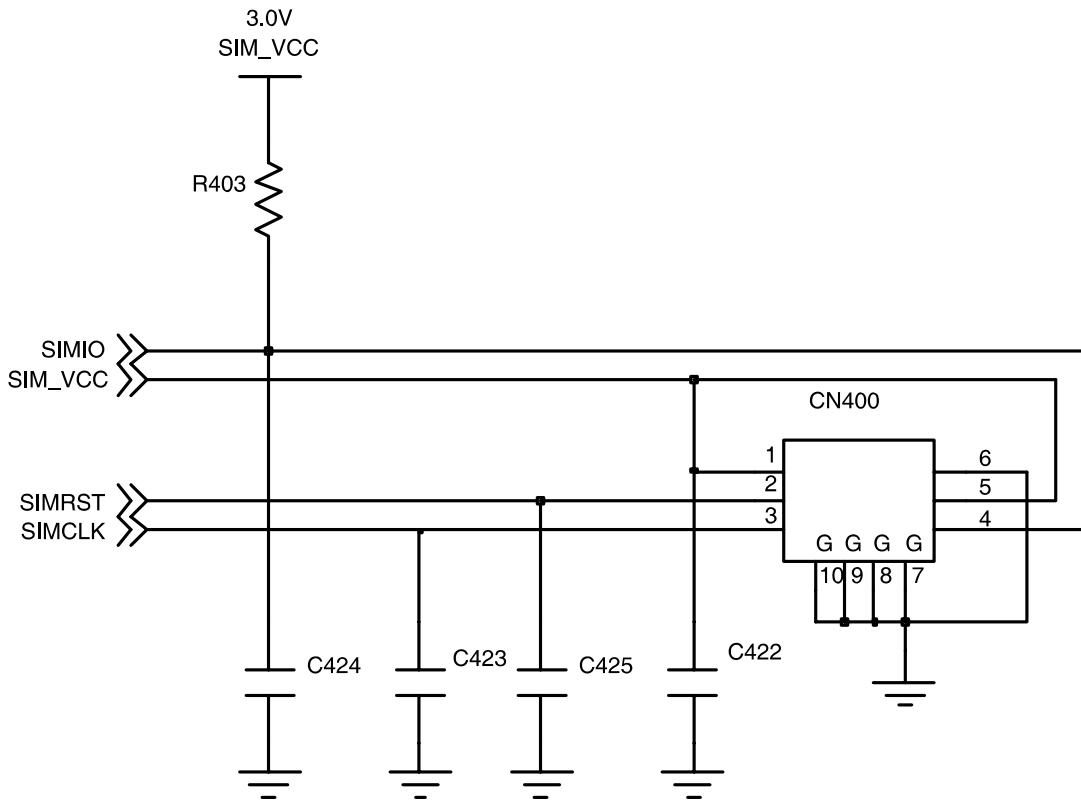
9-3. Charging Part



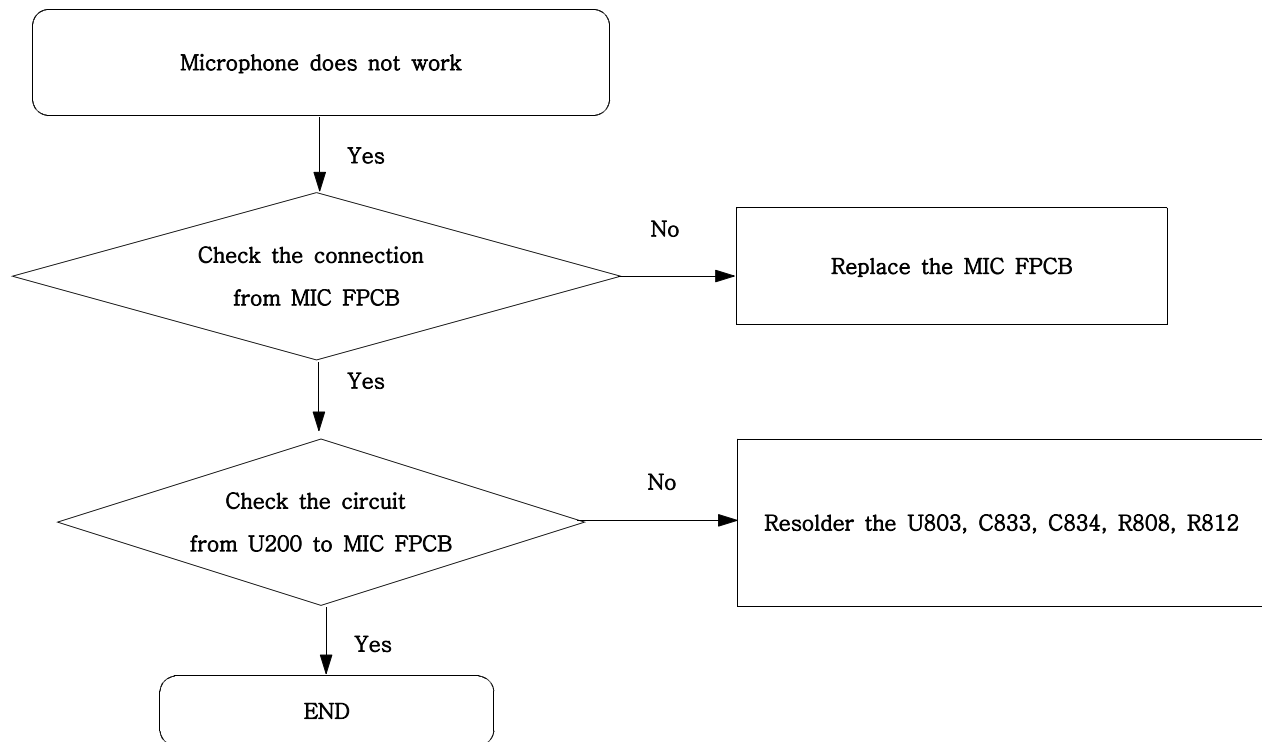


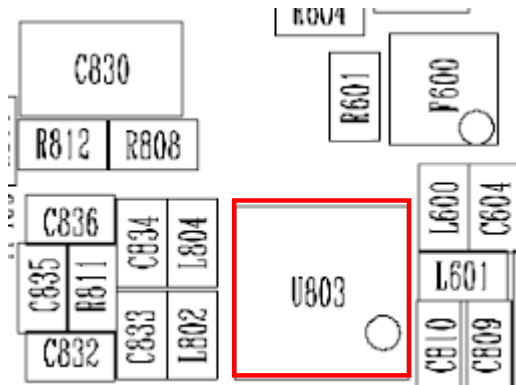
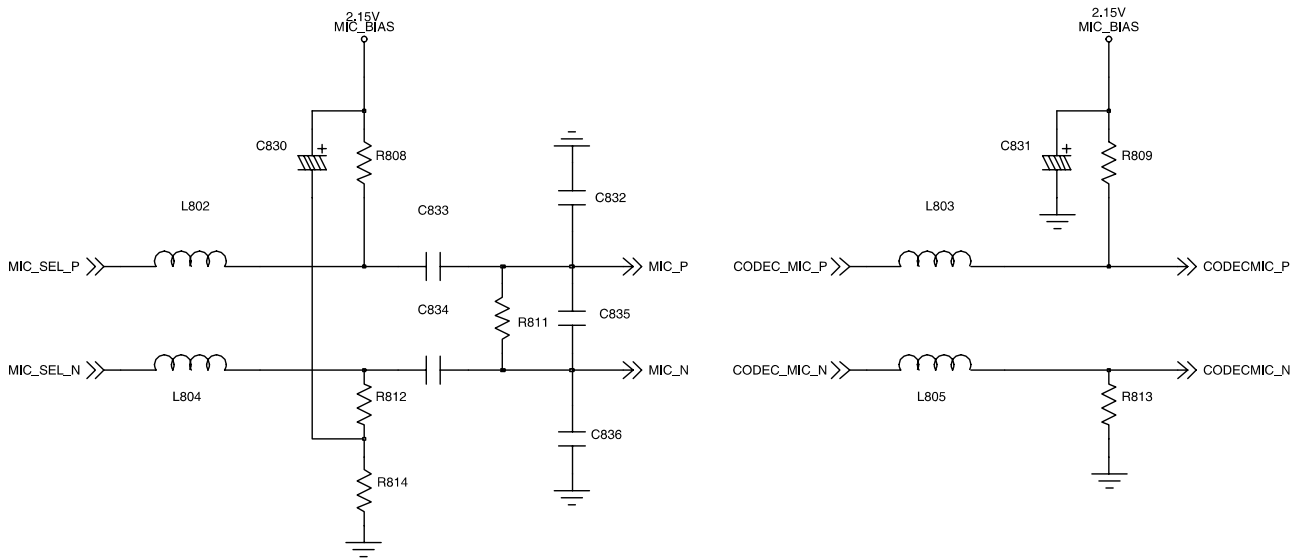
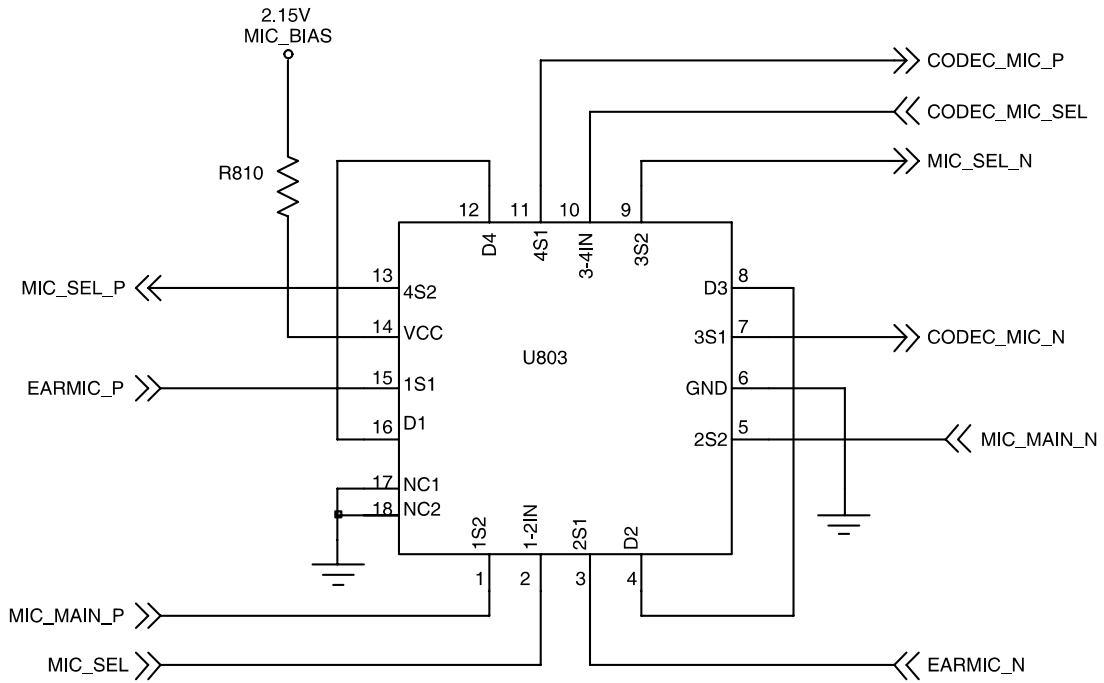
9-4. Sim Part



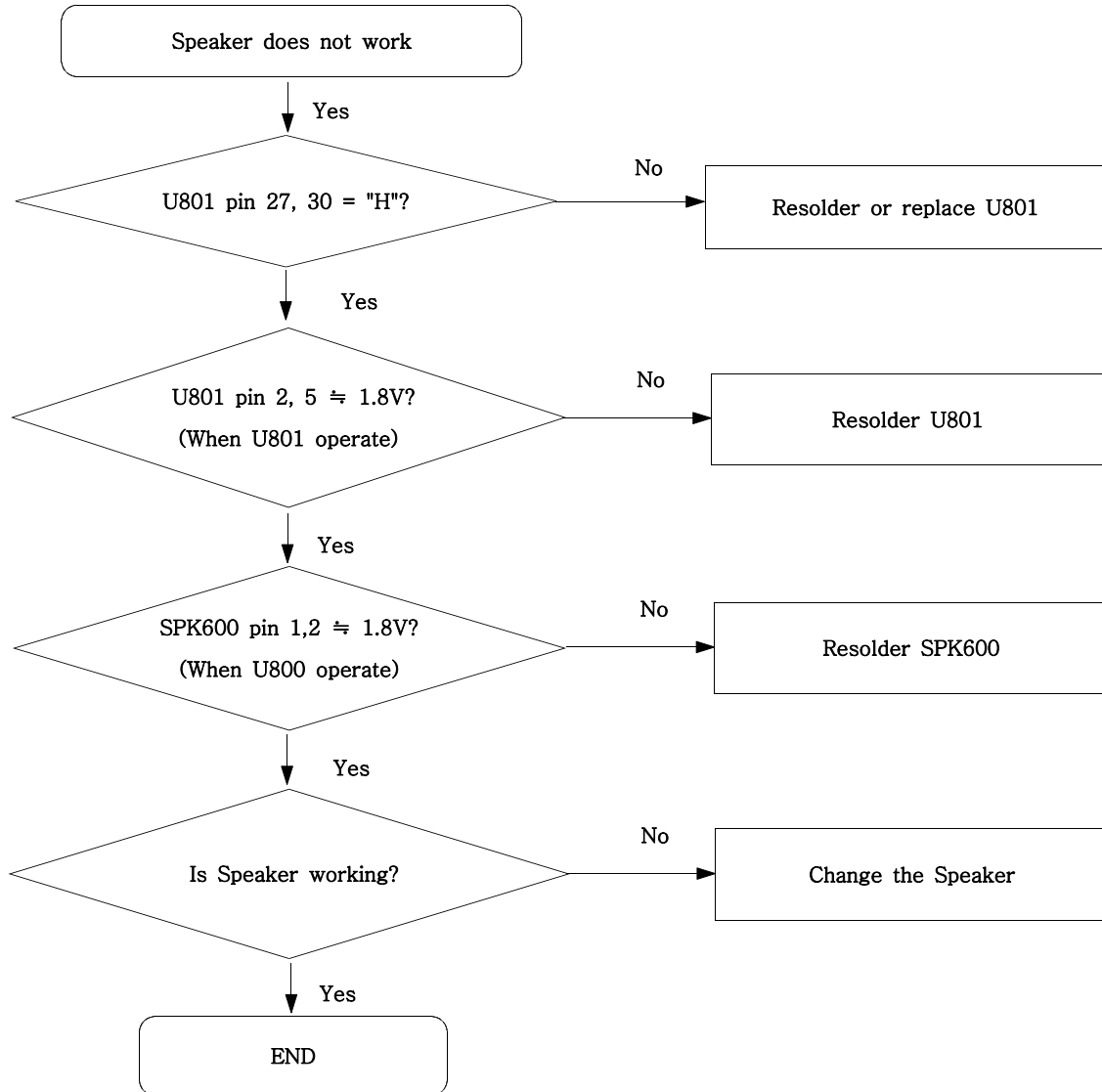


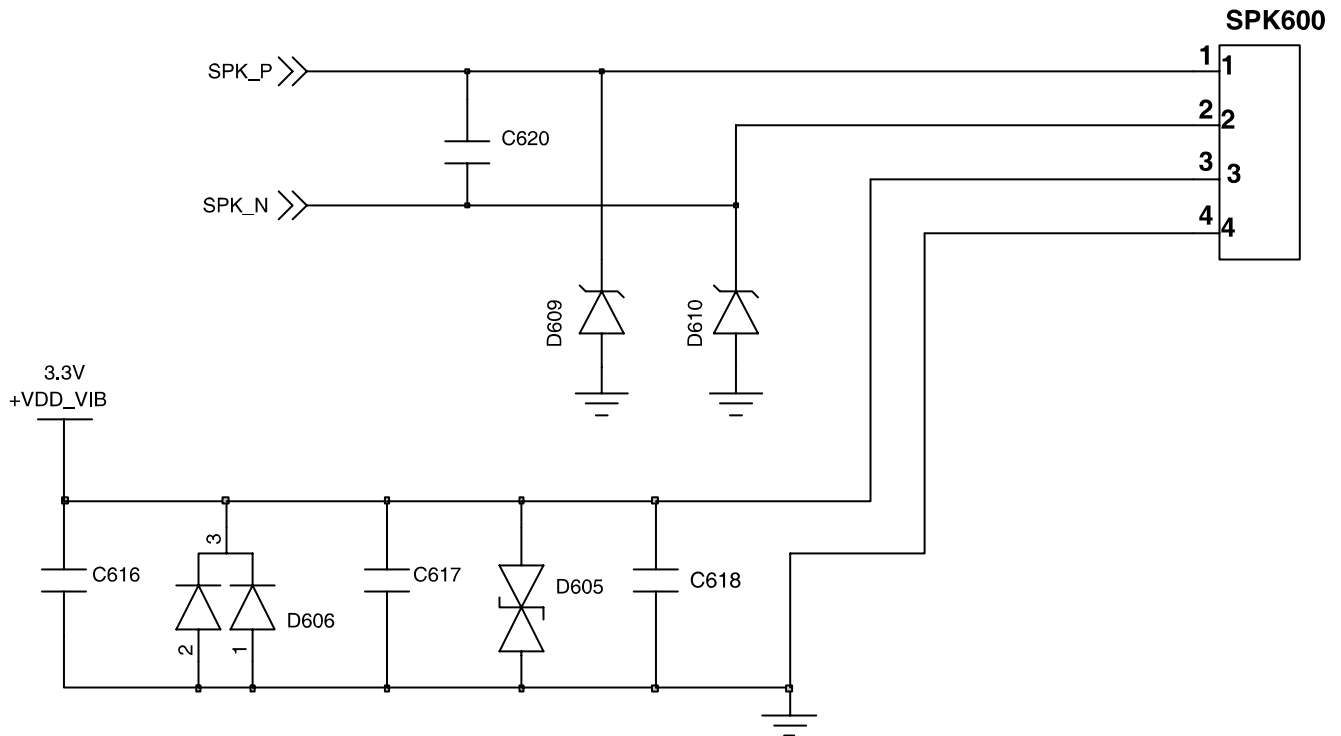
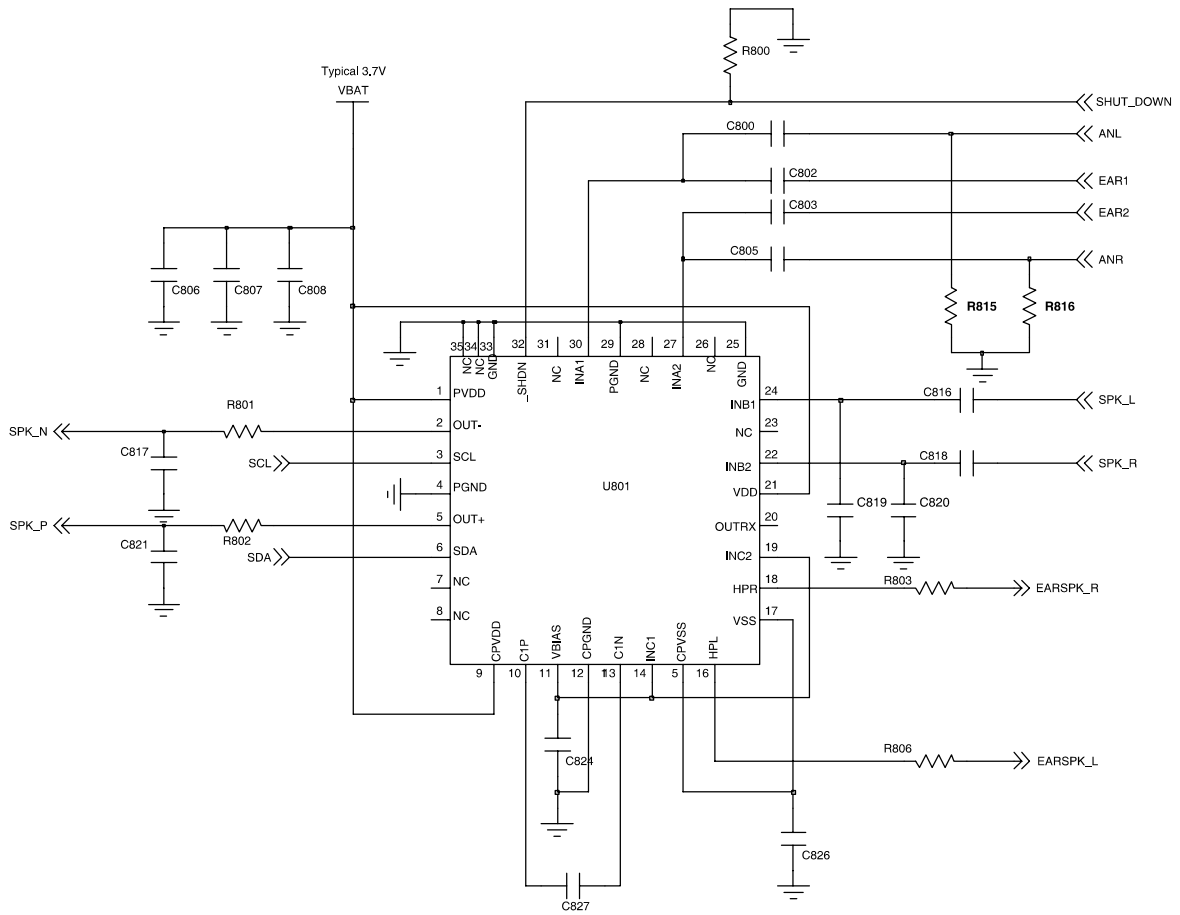
9-5. Microphone Part

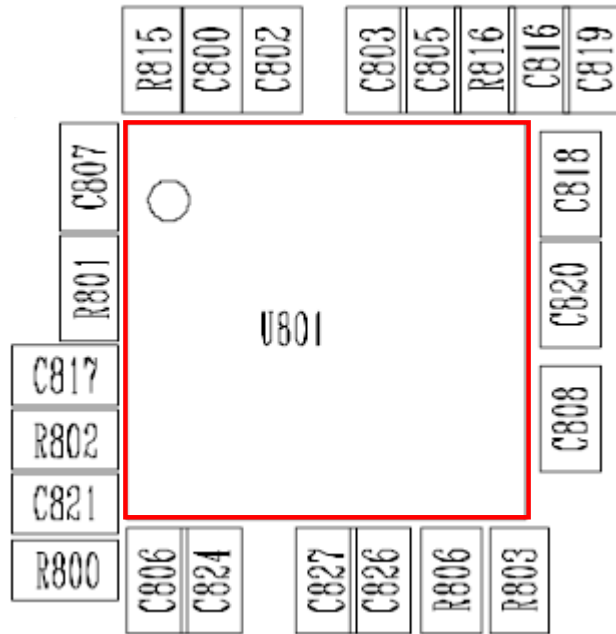




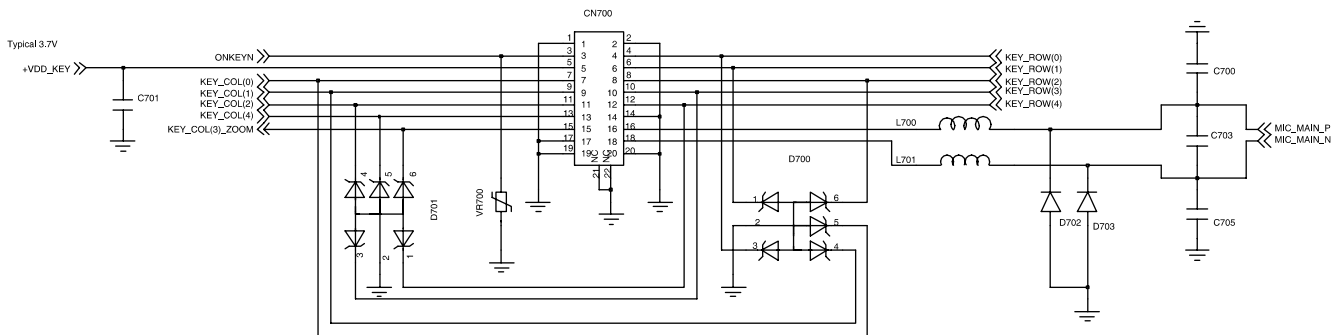
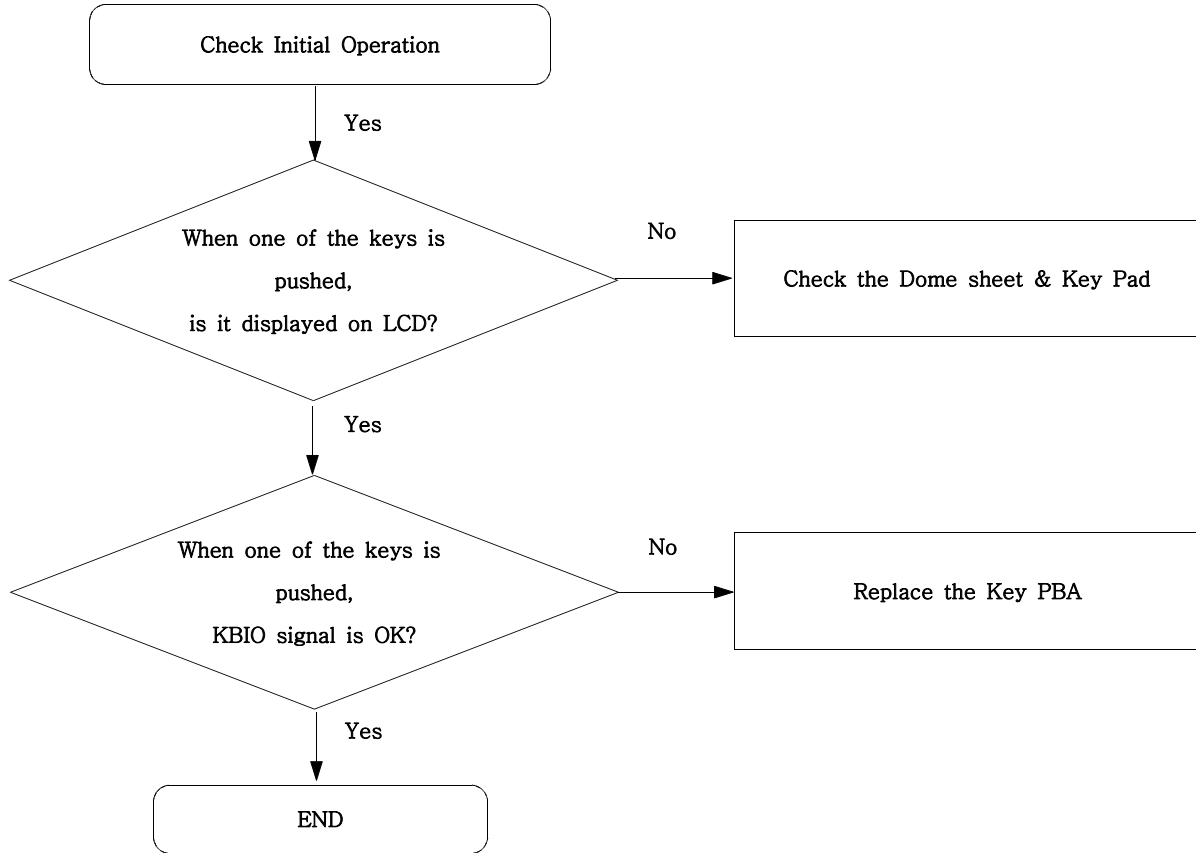
9-6. Speaker Part(Melody)



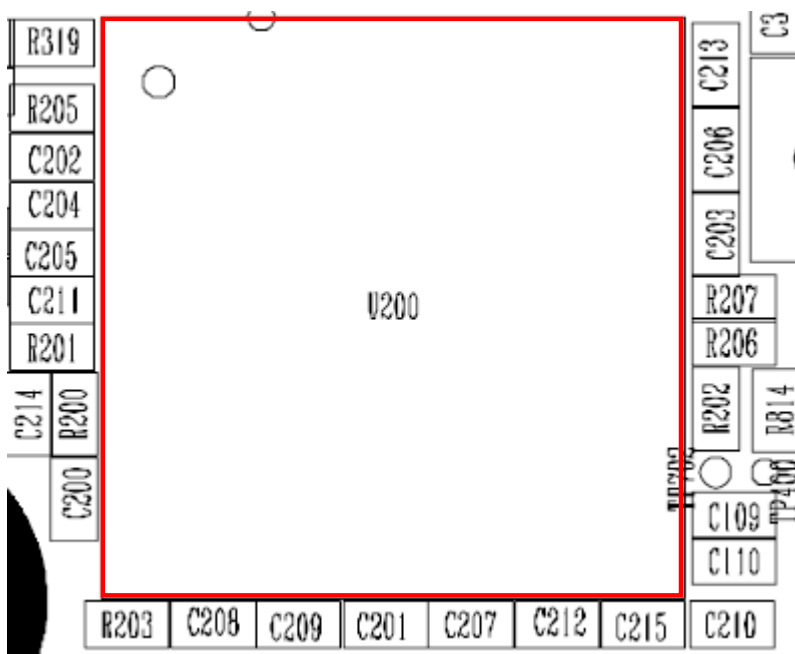
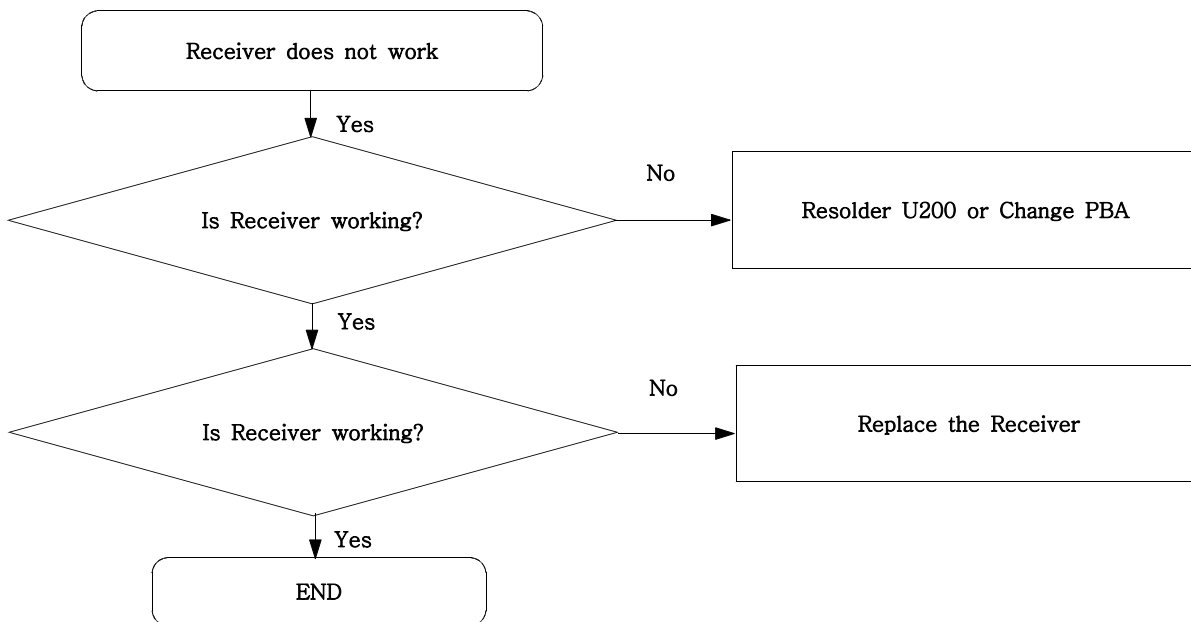




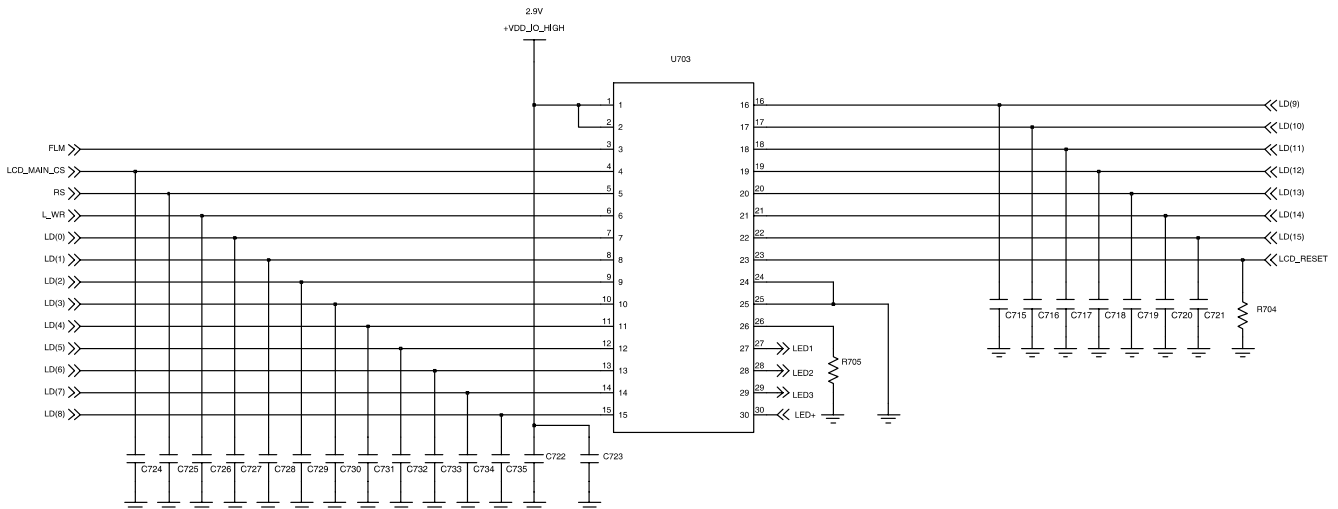
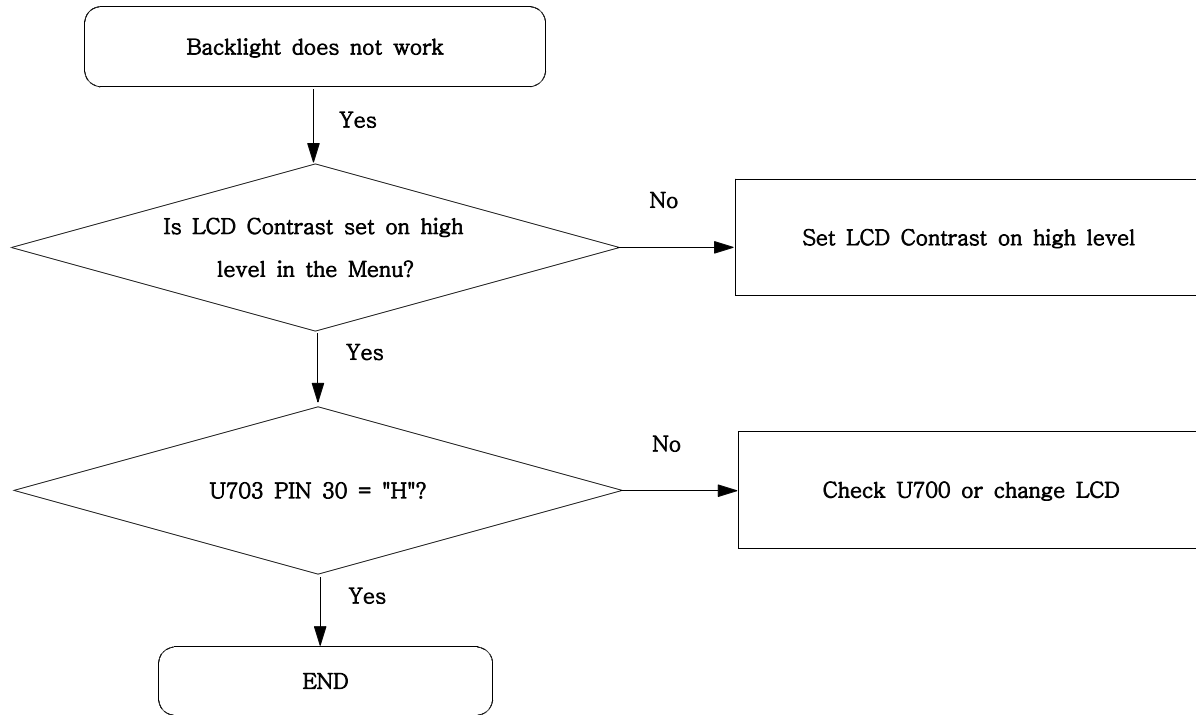
9-7. Key Data Input

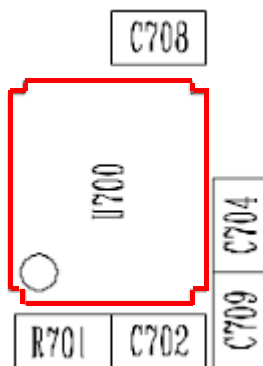
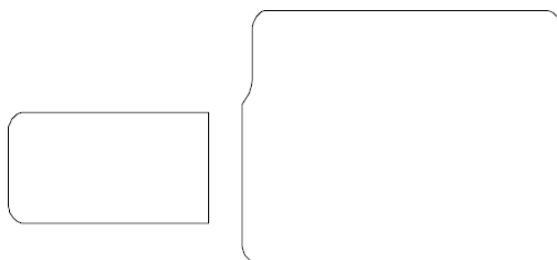
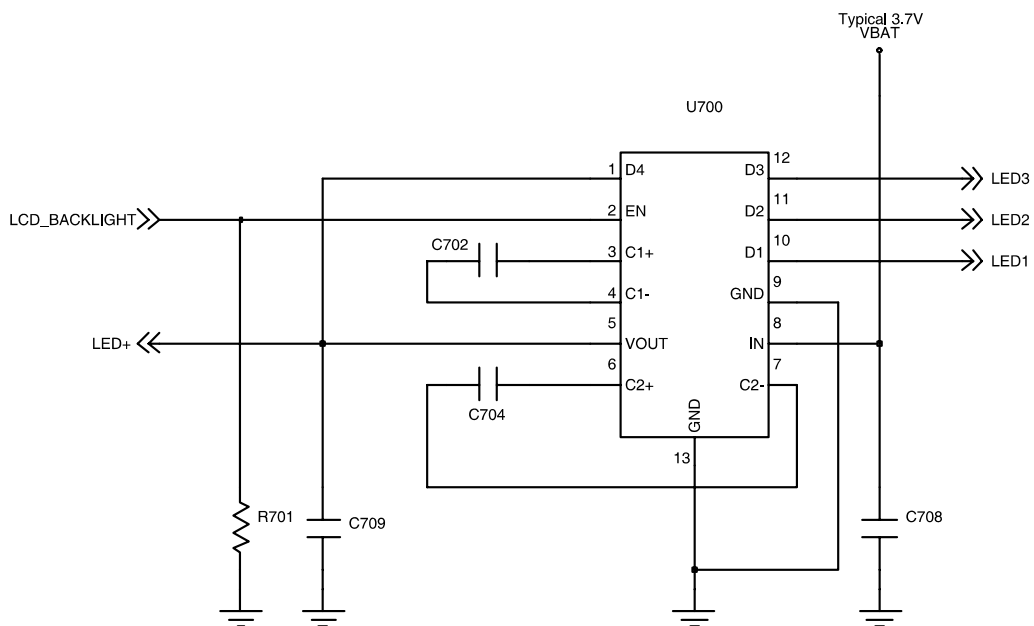


9-8. Receiver Part

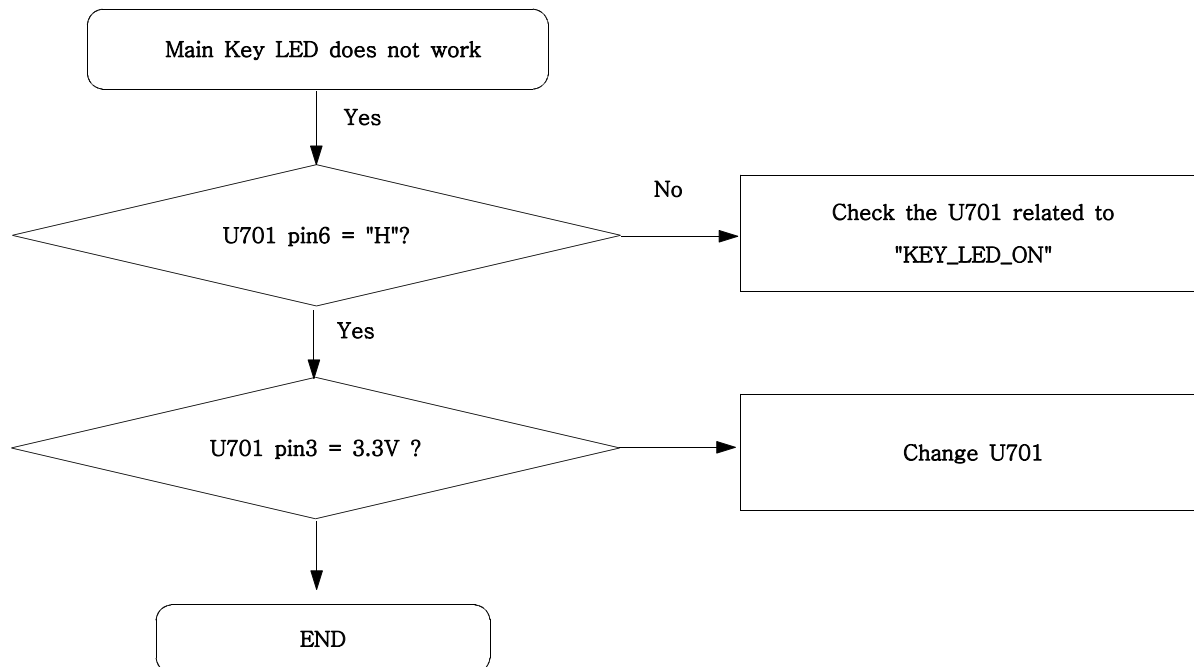


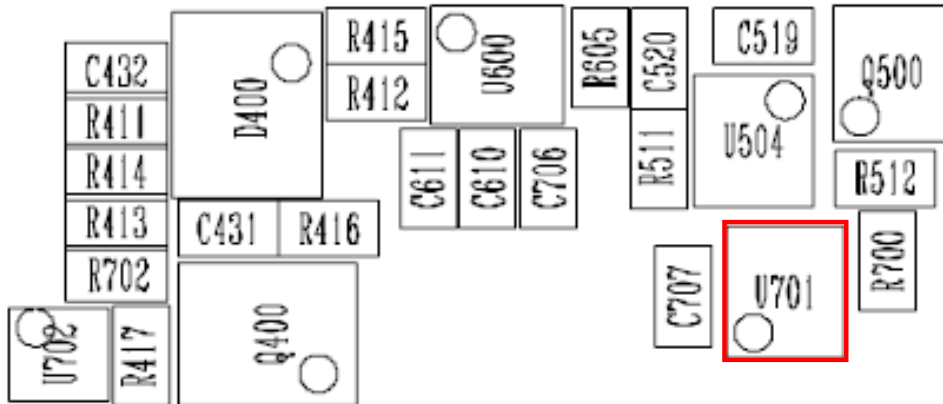
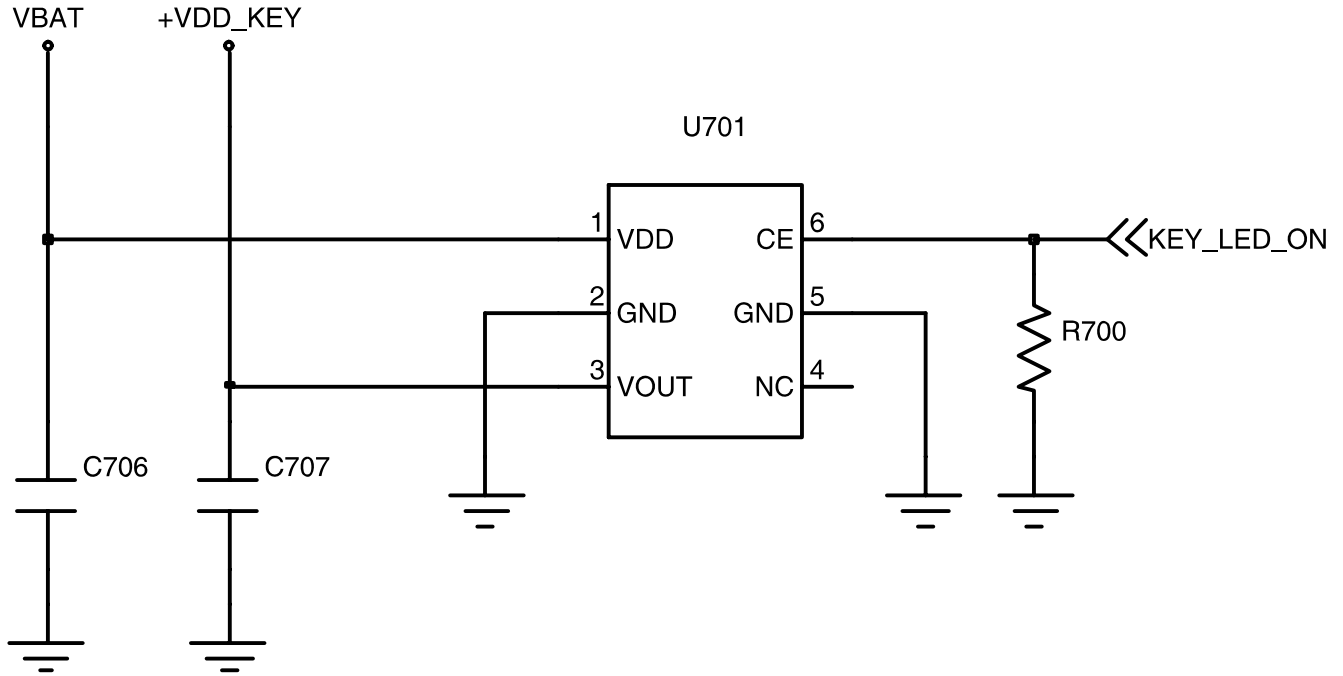
9-9. Back Light (for Color Main LCD)



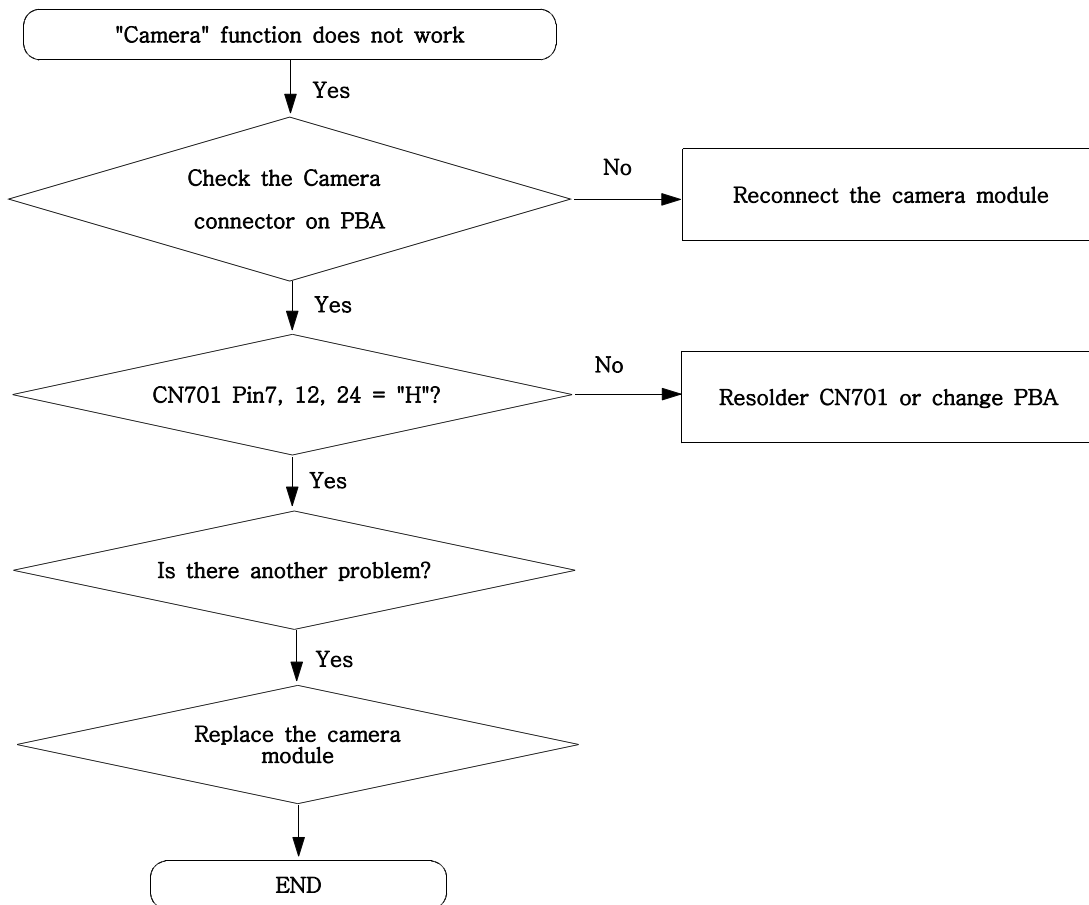


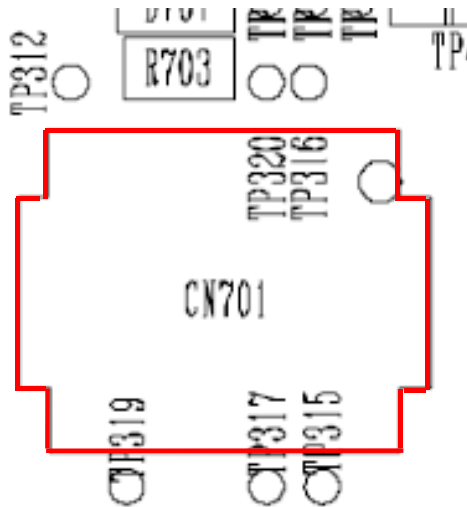
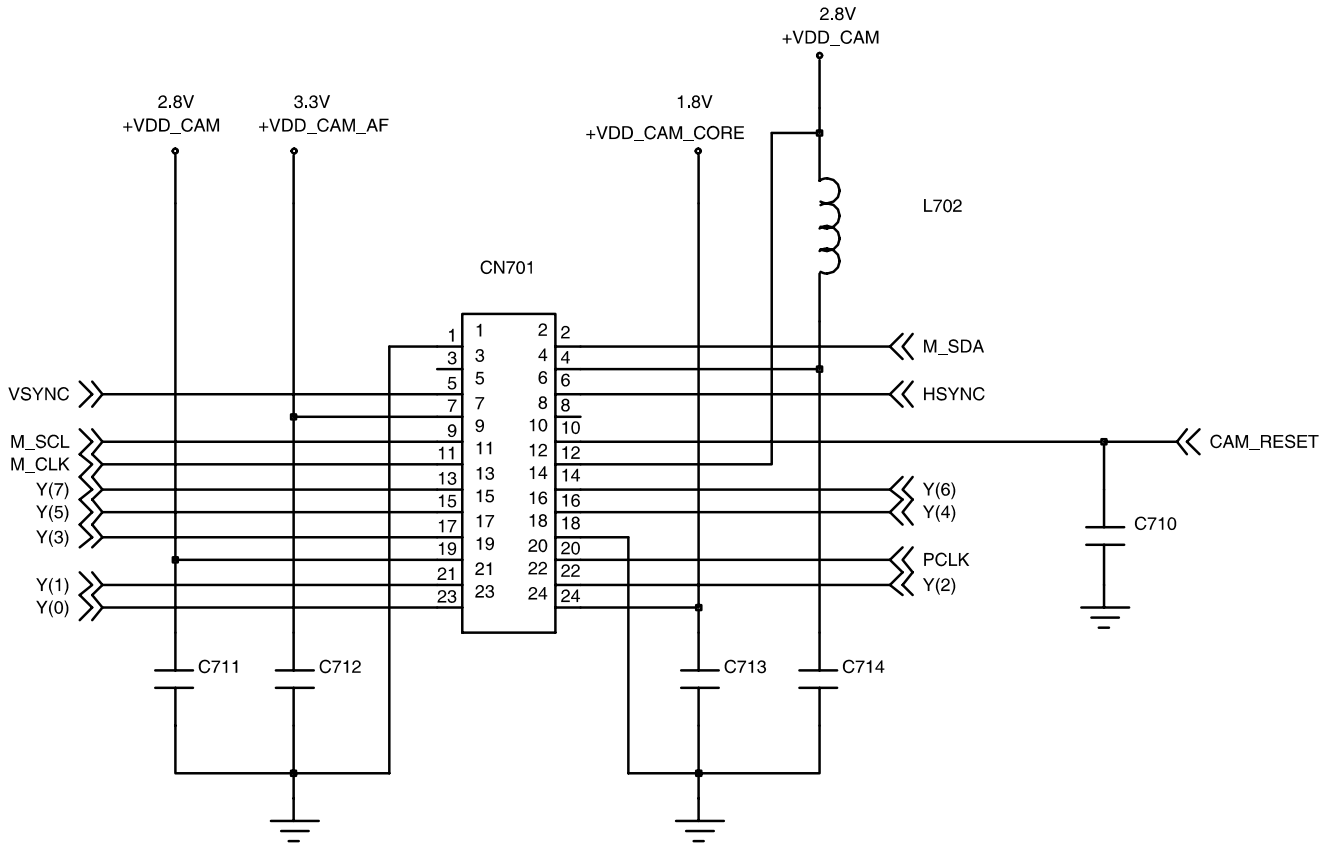
9-10. Key Back Light



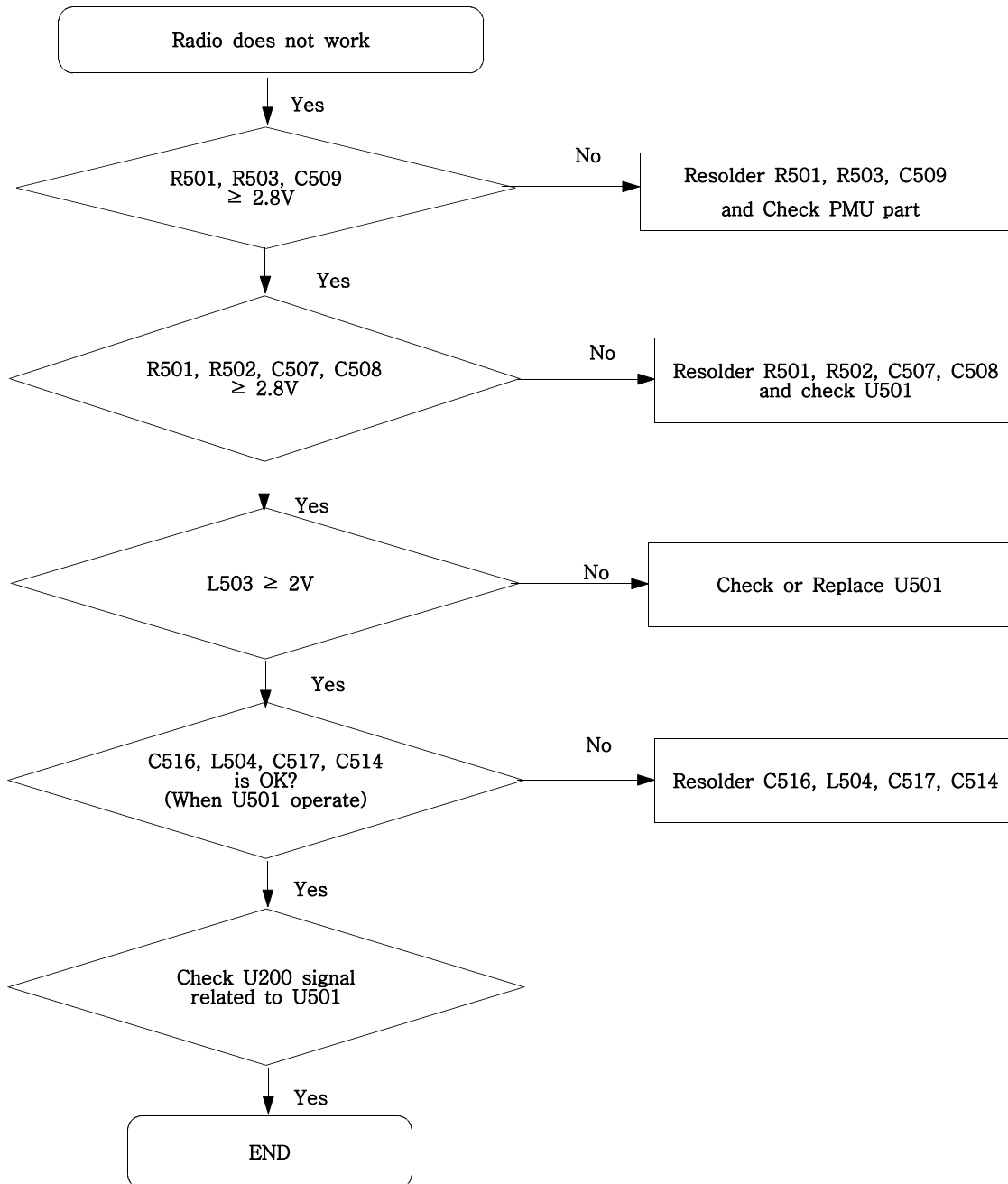


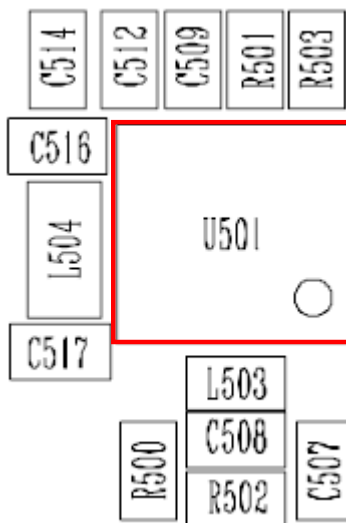
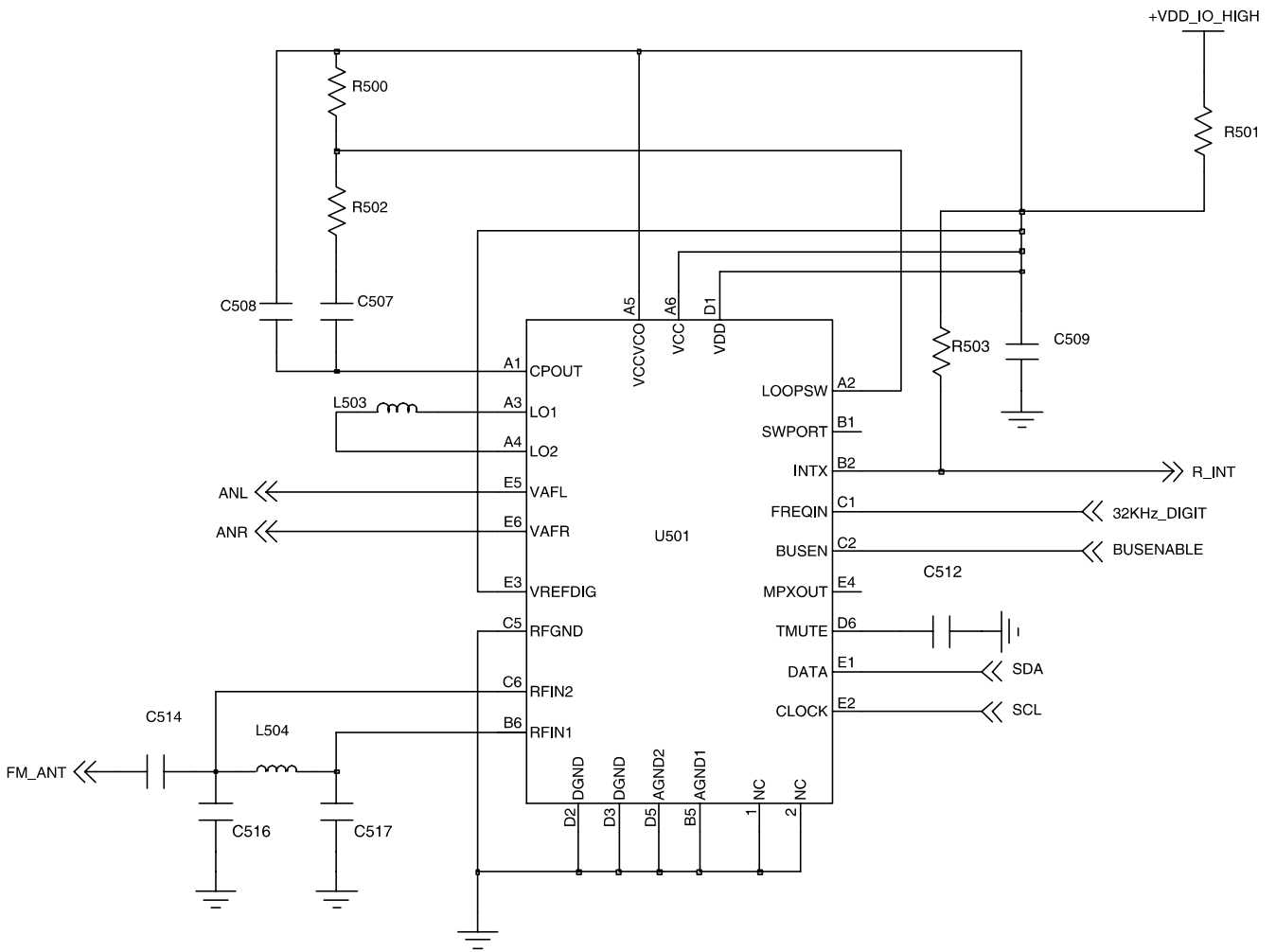
9-11. Camera part



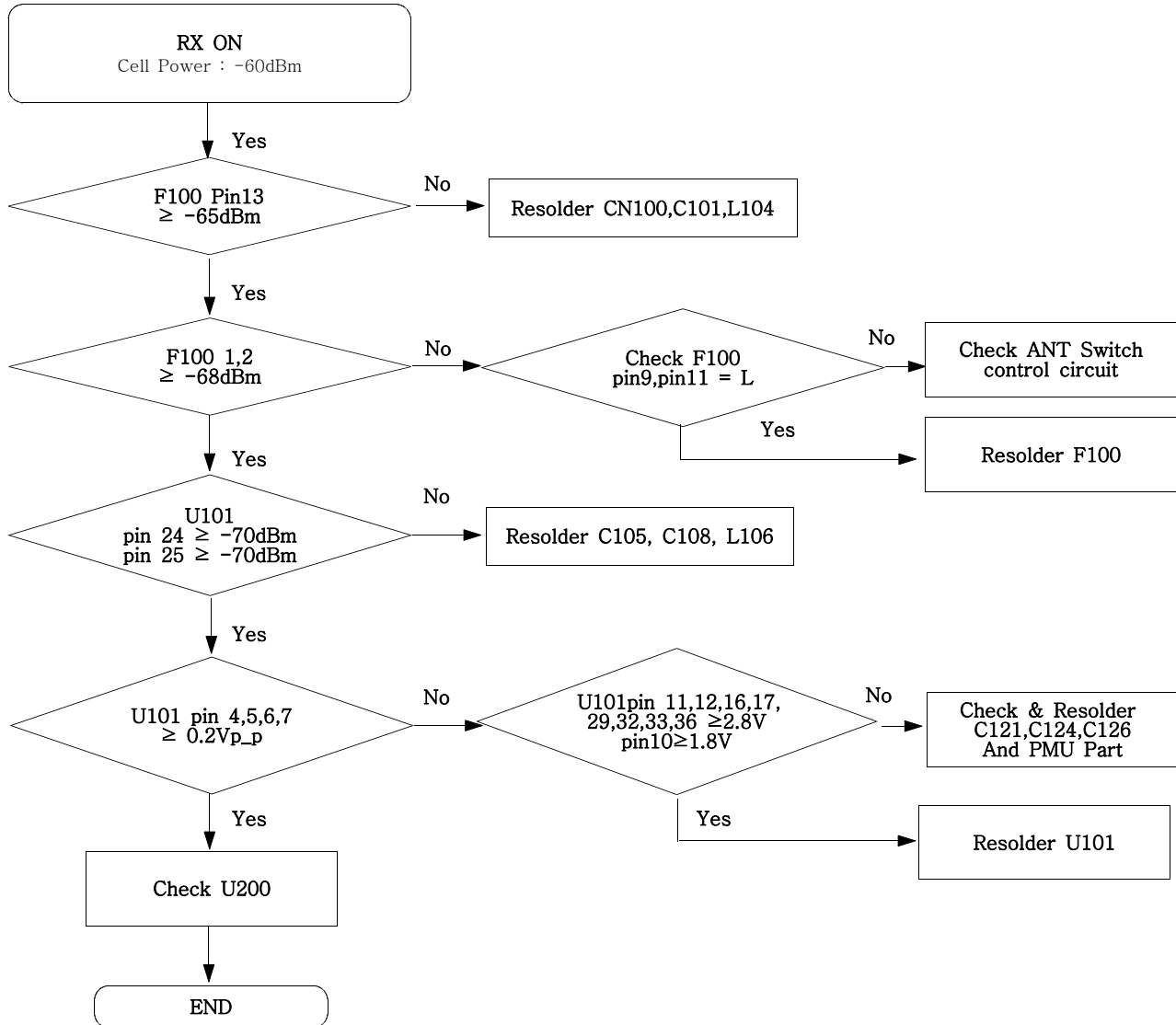


9-12. Radio part

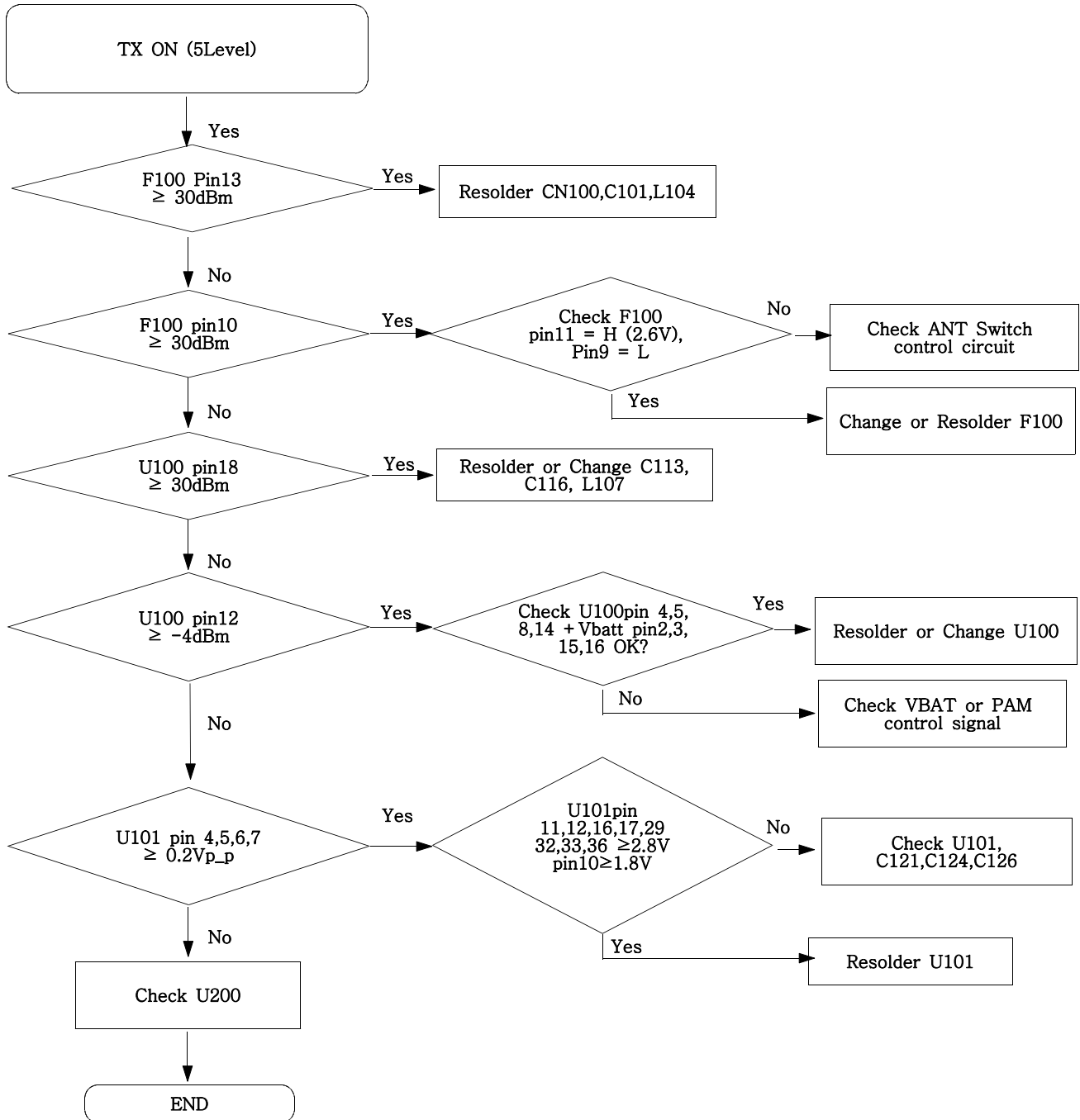




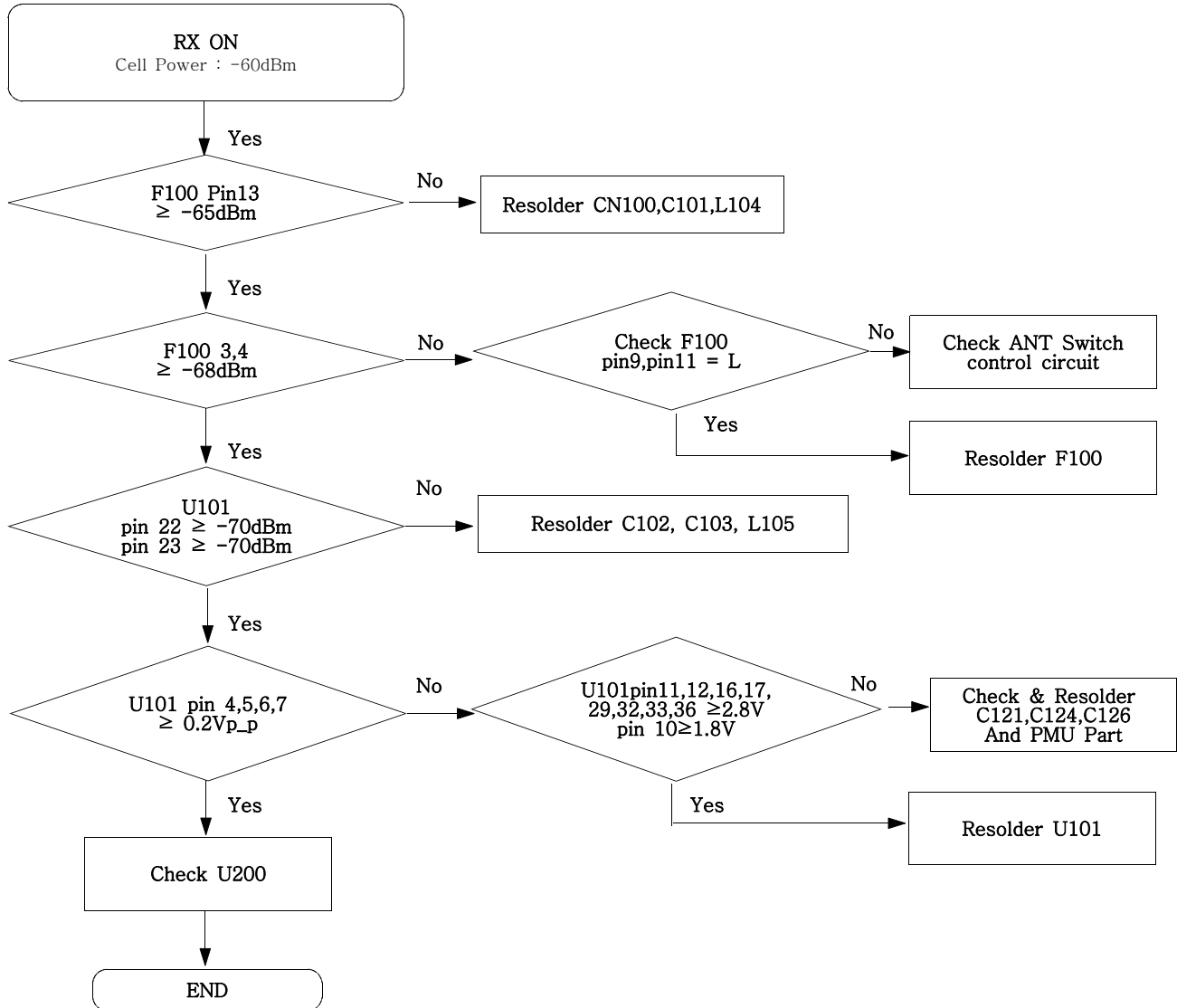
9-13. GSM Receiver



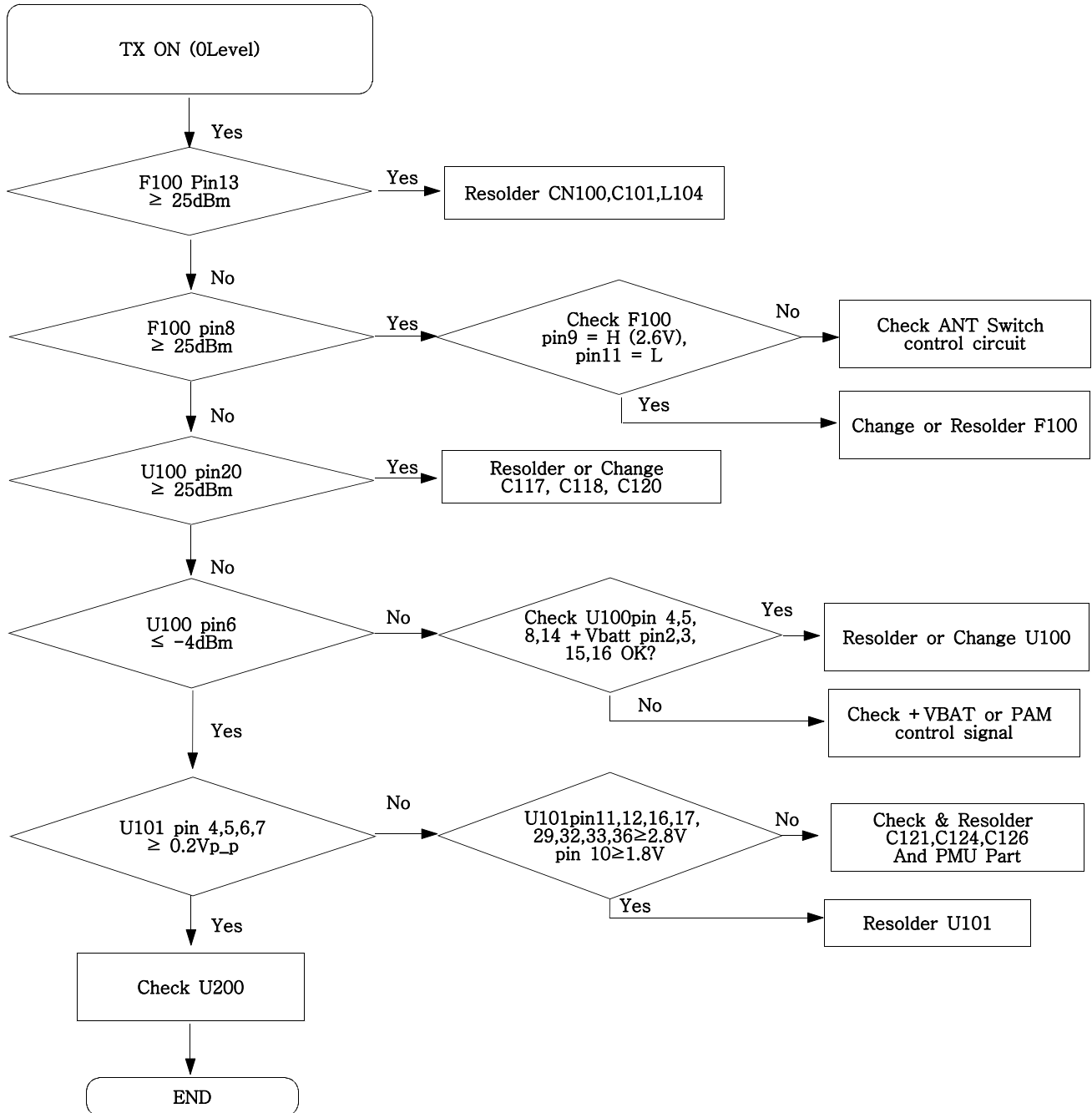
9-14. GSM Transmitter



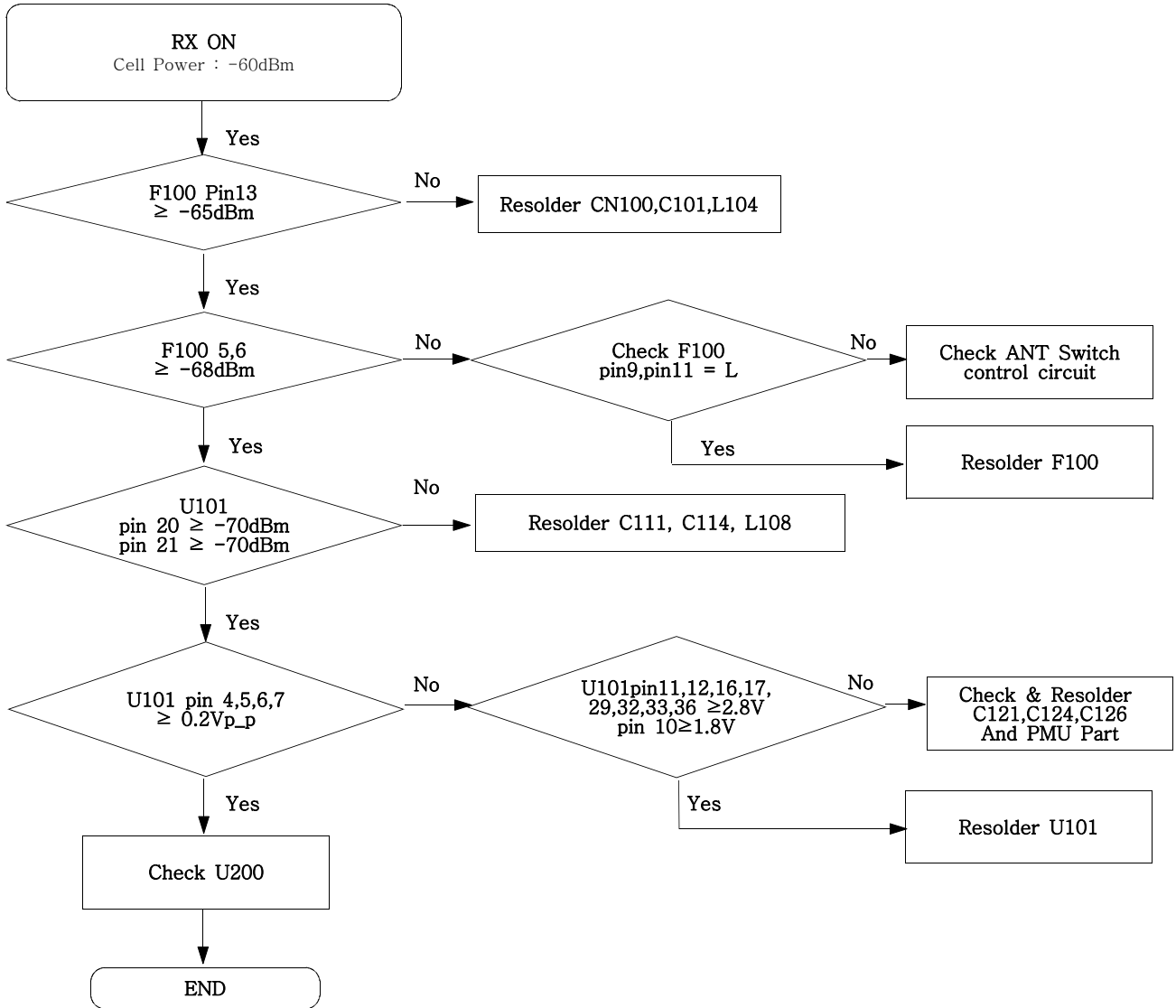
9-15. DCS Receiver



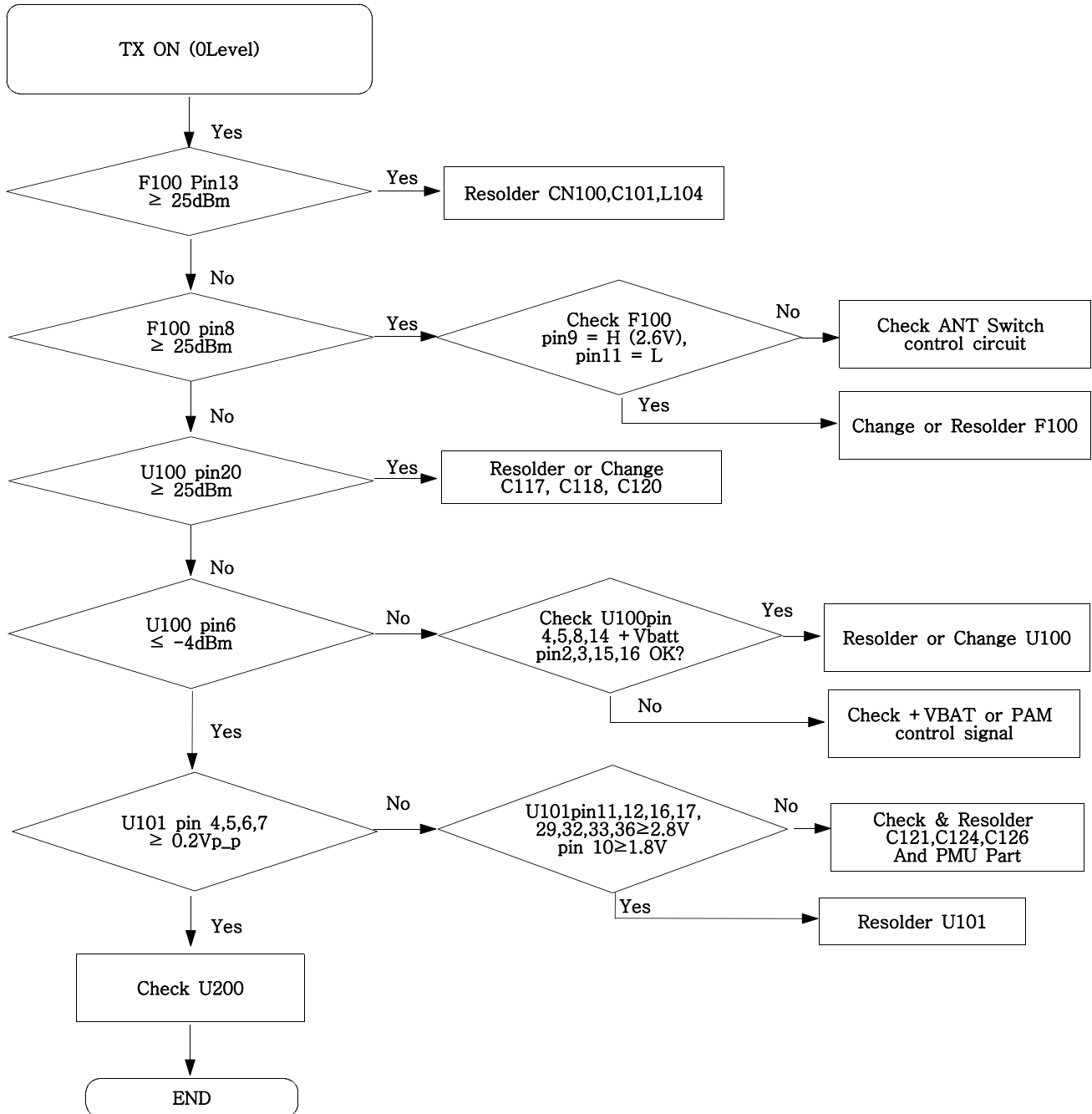
9-16. DCS Transmitter

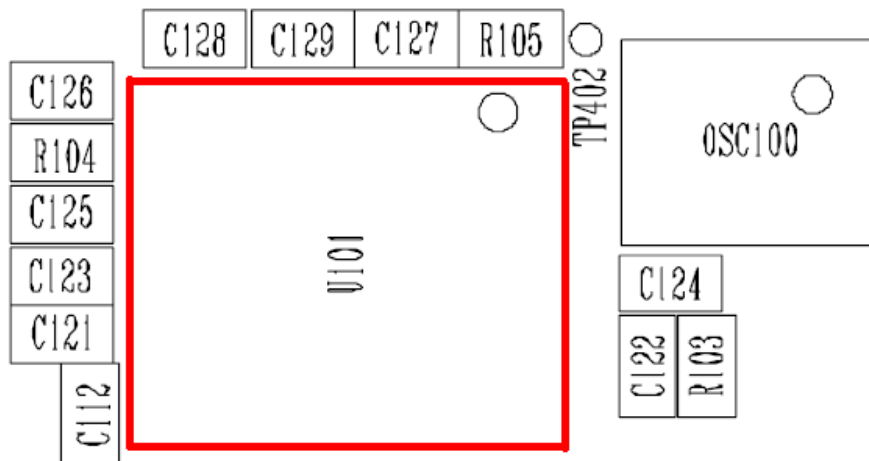
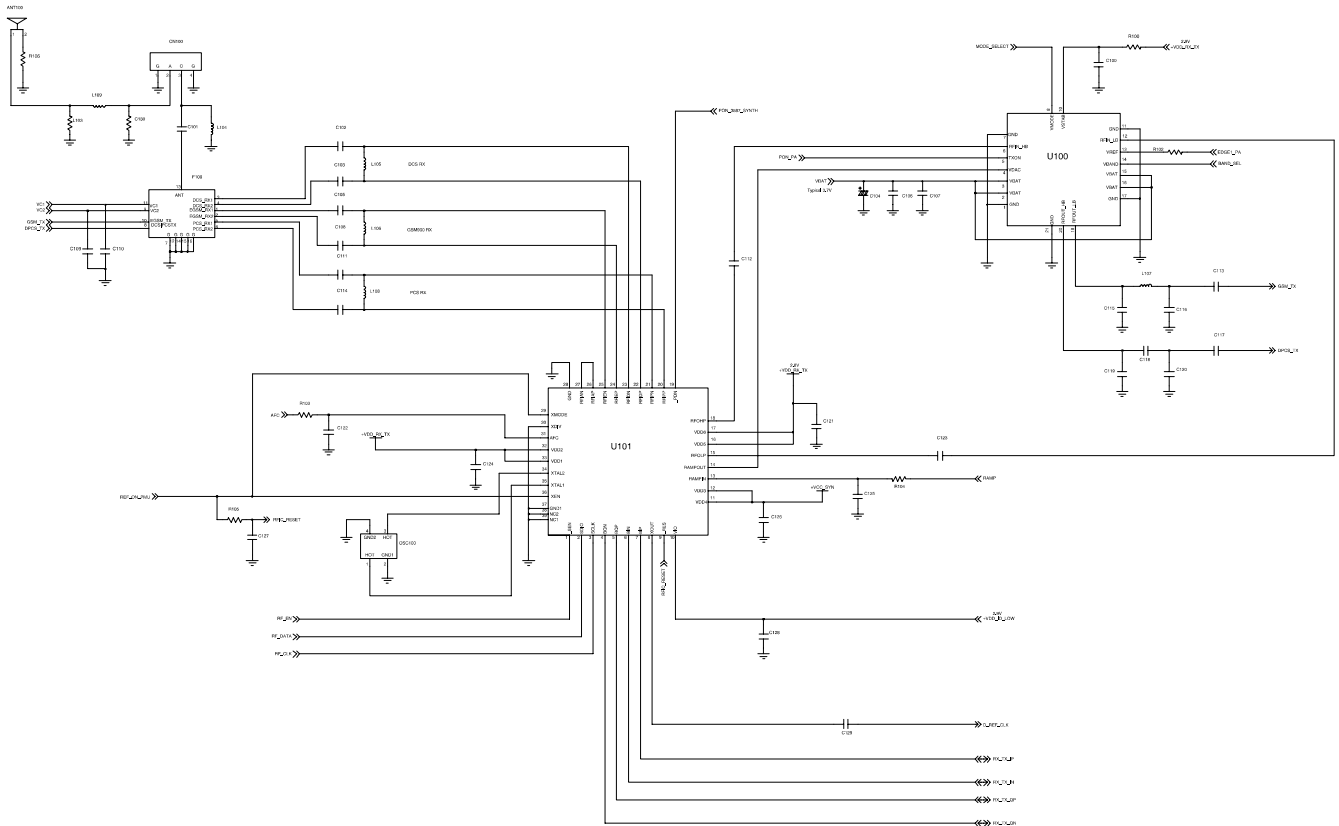


9-17. PCS Receiver

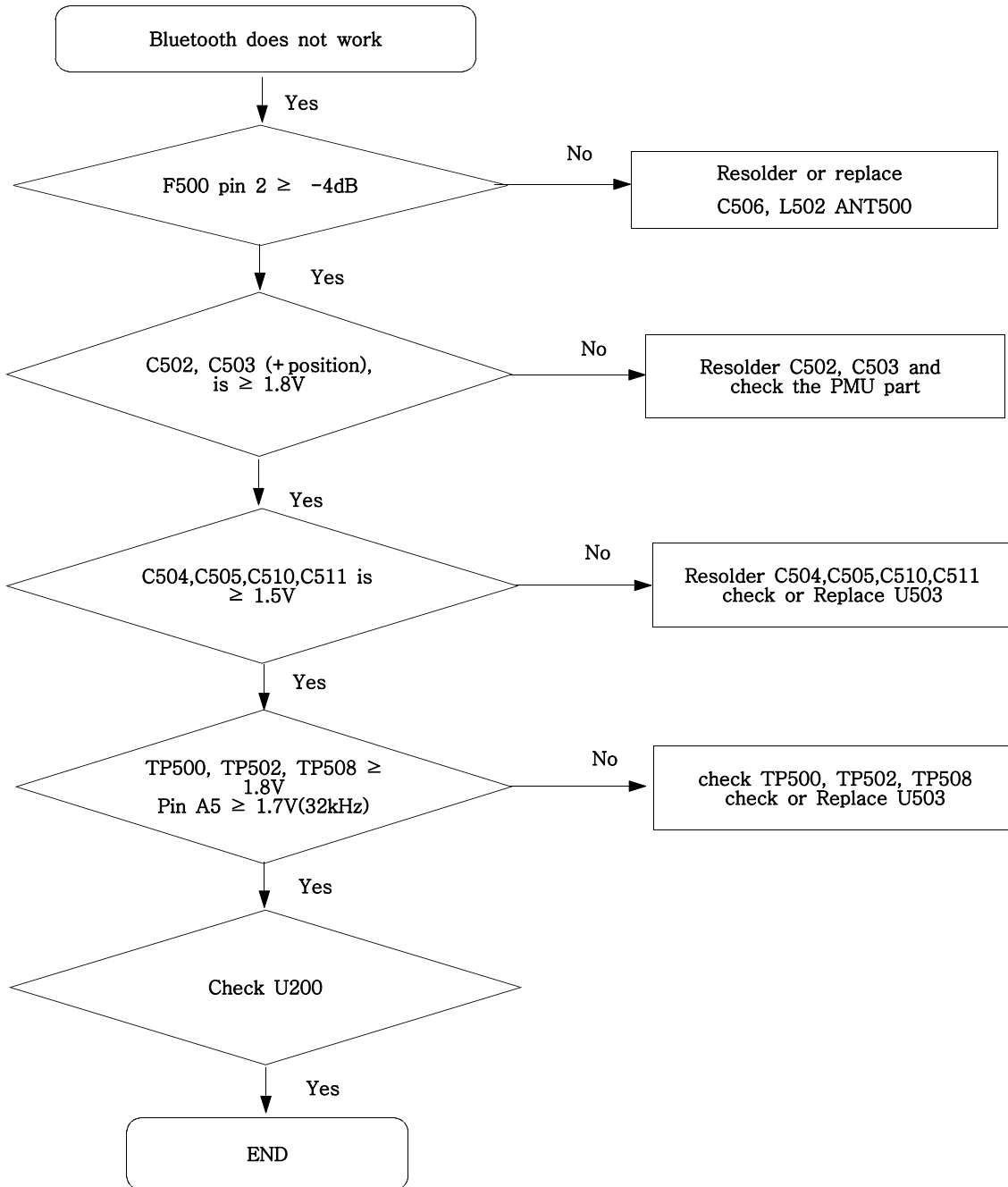


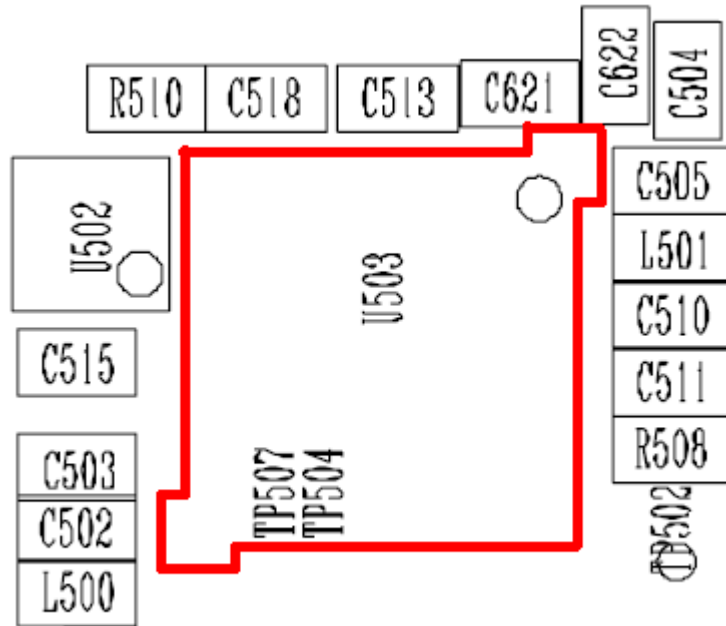
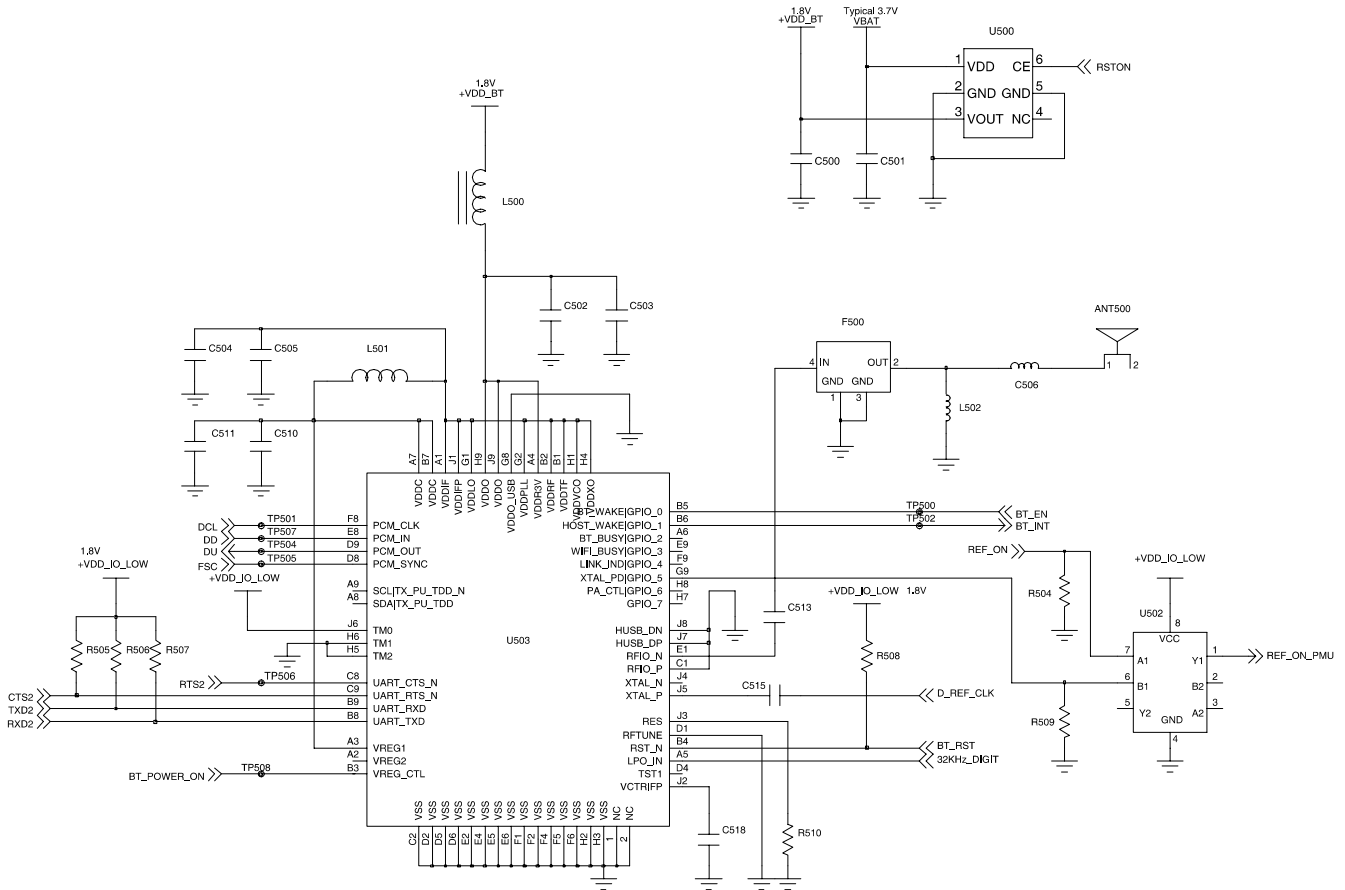
9-18. PCS Transmitter





9-19. Bluetooth part





10. Reference data

Reference Abbreviate

- **AAC**: Advanced Audio Coding.
- **AVC** : Advanced Video Coding.
- **BER** : Bit Error Rate
- **BPSK**: Binary Phase Shift Keying
- **CA** : Conditional Access
- **CDM** : Code Division Multiplexing
- **C/I** : Carrier to Interference
- **DMB** : Digital Multimedia Broadcasting
- **EN** : European Standard
- **ES** : Elementary Stream
- **ETSI**: European Telecommunications Standards Institute
- **MPEG**: Moving Picture Experts Group
- **PN** : Pseudo-random Noise
- **PS** : Pilot Symbol
- **QPSK**: Quadrature Phase Shift Keying
- **RS** : Reed-Solomon
- **SI** : Service Information
- **TDM** : Time Division Multiplexing
- **TS** : Transport Stream

