

SAMSUNG

GSM TELEPHONE

SGH-E390

SERVICE *Manual*

GSM TELEPHONE



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10. Reference data

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	2Km

2-2. GSM TX power class

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

TX Power control level	DCS1800
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	PCS1900
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

3. Product Function

Main Function

- 1.3M Camera and camcorder
- MP3 player(MP3/AAC/AAC+)
- Phonebook
- Name card
- Multimedia Message Service (MMS)
- E-mail
- Voice recorder
- Bluetooth
- USB
- SyncML
- Web browser
- Java
- Calendar

4. Array course control

4-1. Software Adjustments



Test Jig (GH80-03307A)



Test Cable (GH39-00499A)



RF Test Cable (GH39-00283A)

4-2. Software Downloading

4-2-1. Downloading Binary Files

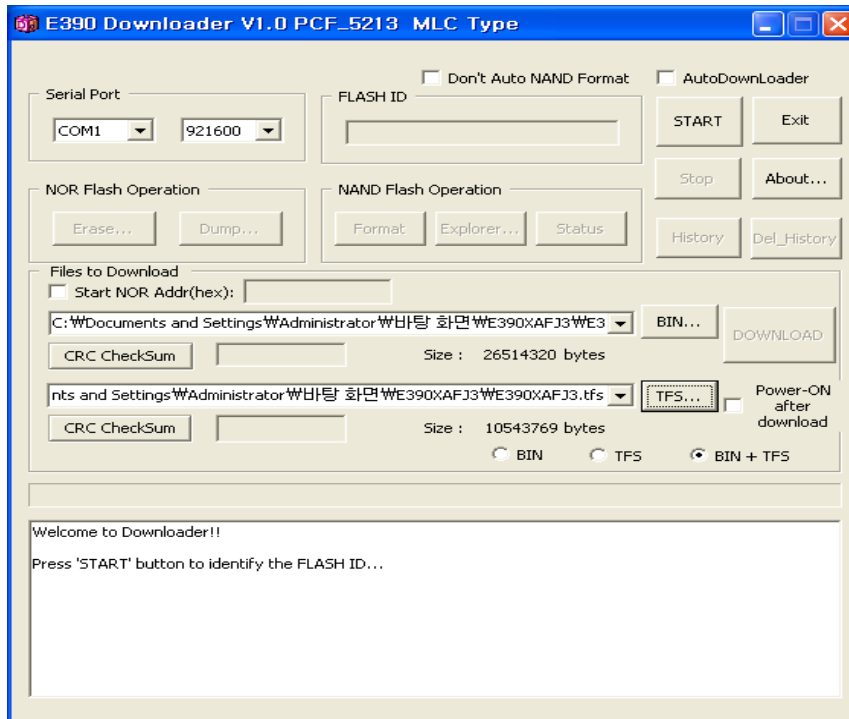
- **Swift Model firmware is composed of 3 files**
 - *.cla : Main source binary.
 - *.tfs : File which includes image,mp3..etc..which are needed for each application
 - *.cfg : File which has information about .tfs File

4-2-2. Pre-requisite for Downloading

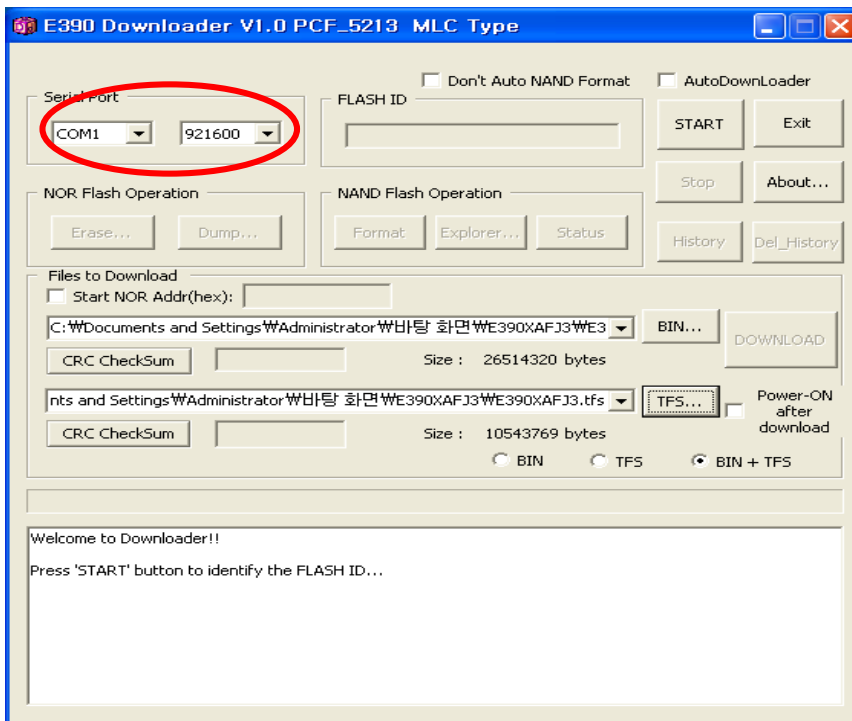
- Downloader (Single or Multi downloader)
- The firmware
- Data Cable

4-2-3. S/W Downloader Program

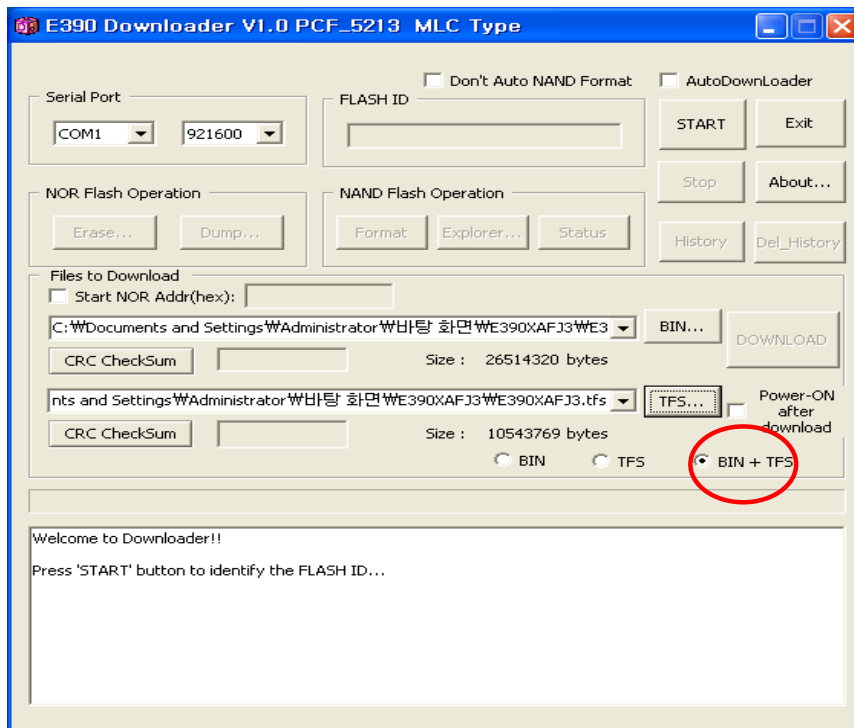
1. Unzip the downloader and firmware files to a folder where you want.
2. Open the downloader



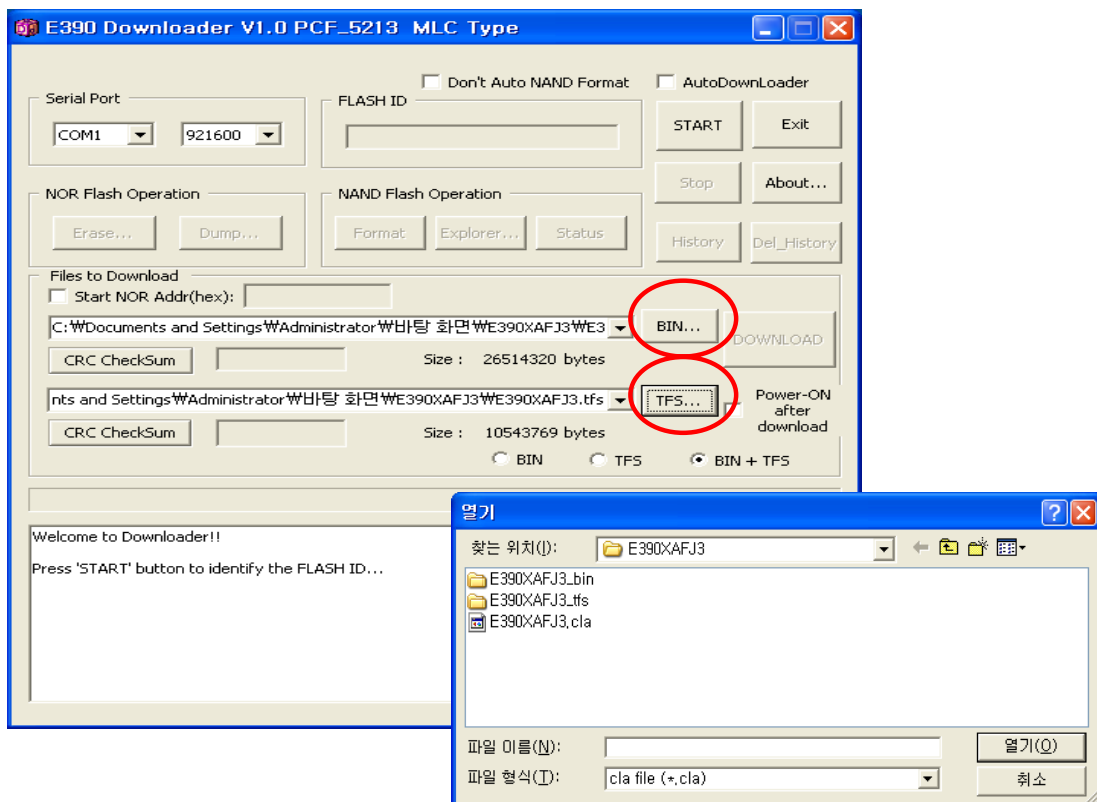
3. Set the serial Port and BAUD rate



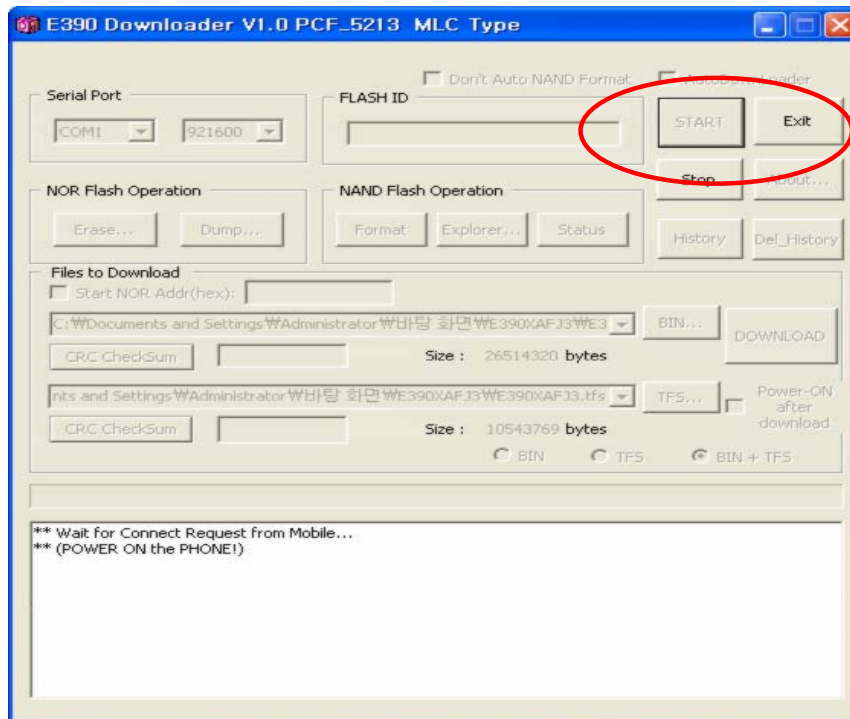
4. Check radio button (Binary only, TFS Only and Binary + TFS).



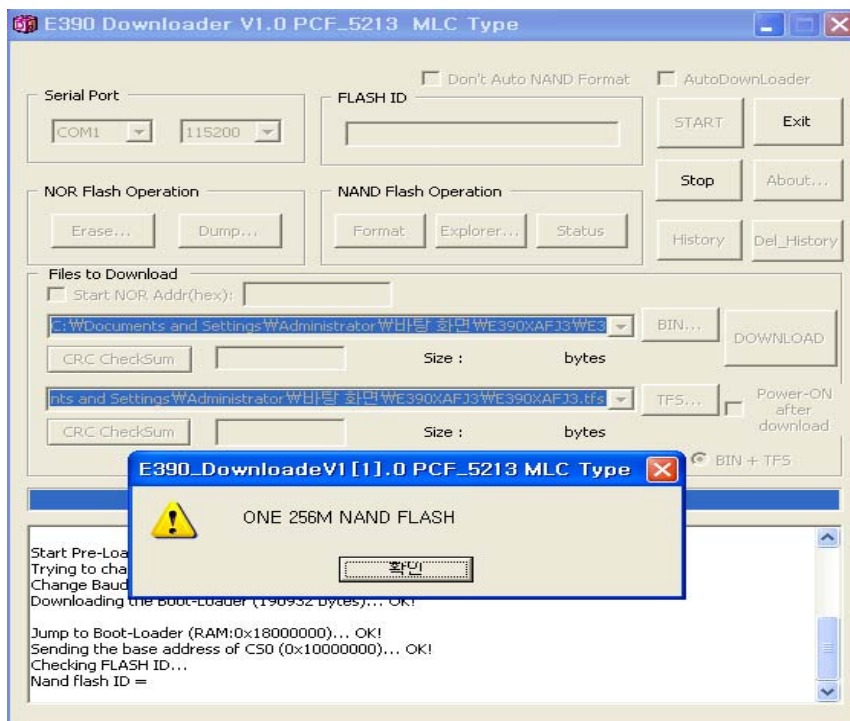
5. Select the binary(and TFS) file(s) that you want to download



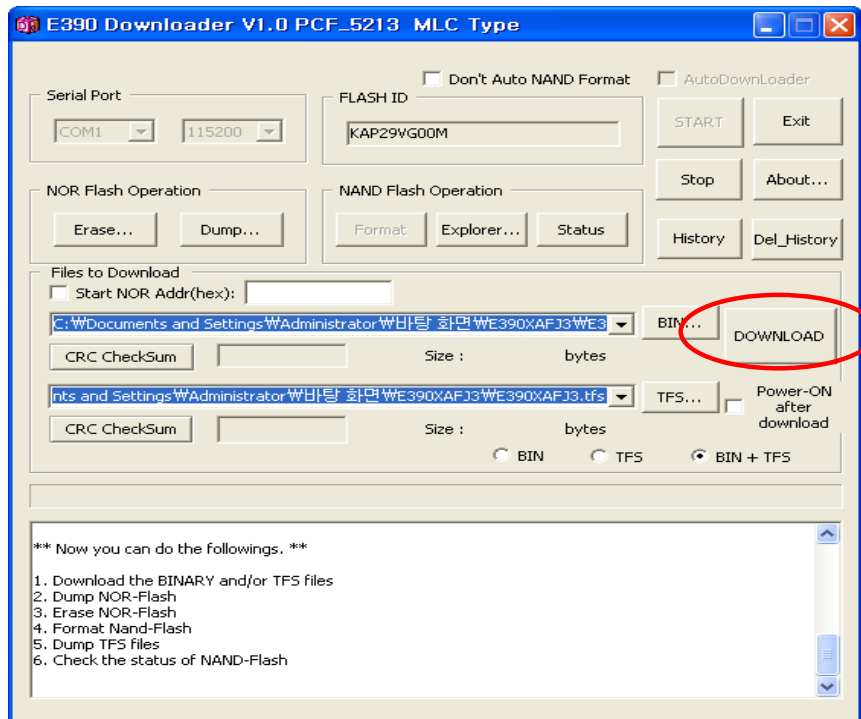
6. Press start button and power on the phone



then the downloader can recognize the flash memory type of the phone

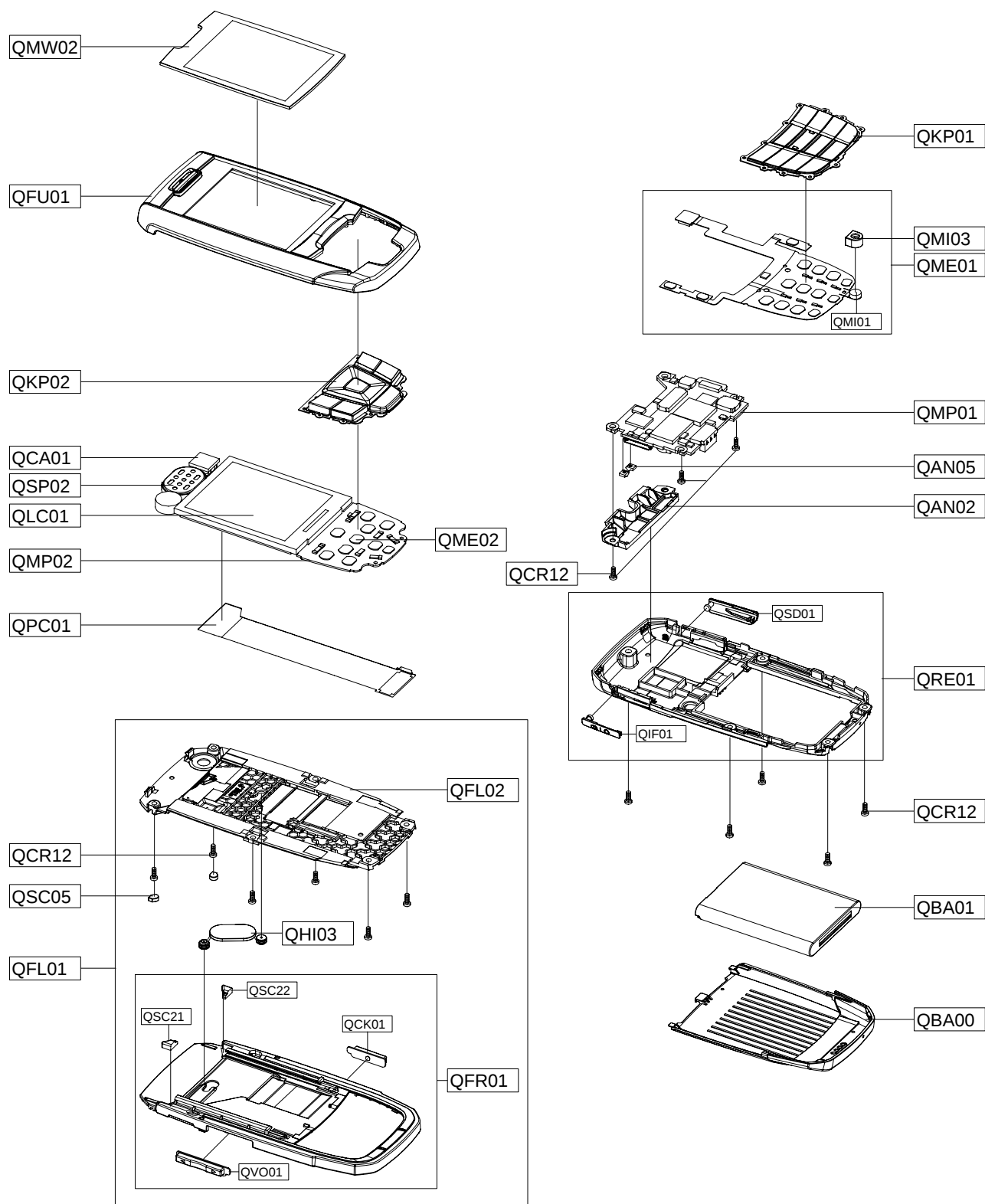


7. After confirming the memory type, press 'DOWNLOAD' button



5. Exploded View/Disassembly&Assembly Instructions

5-1. Cellular phone Exploded View



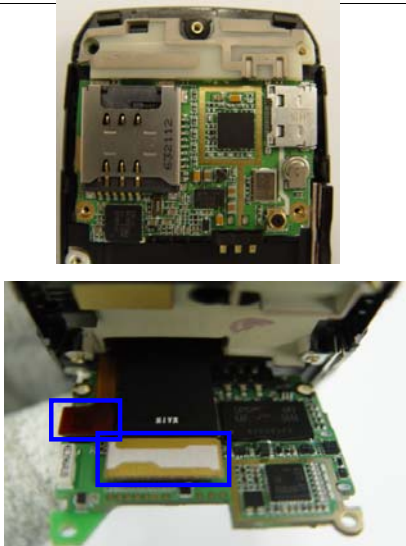
5-2. Cellular phone Parts list

Design LOC			Description	Sec Code
QAN02			INTENNA-SGHE390	GH42-01041A
QAN05			ASSY RUBBER-ANTENNA	GH98-03075A
QBA00			PMO-COVER BATT	GH72-33910A
QBA01			INNER BATTERY PACK-800MAH,BLK,	GH43-02472A
QCA01			UNIT-SGHE390 CAMERA MODULE	GH59-03694A
QCR12			SCREW-MACHINE	6001-001530
QCR12			SCREW-MACHINE	6001-001530
QCR12			SCREW-MACHINE	6001-001530
QFU01			ASSY CASE-UPPER SLIDE	GH98-02121A
QKP01			ASSY KEYPAD-MAIN(XET/BLK)	GH98-02126A
QKP02			ASSY KEYPAD-SUB(XET/BLK)	GH98-02125A
QLC01			LCD-LCD MODULE	GH07-01001A
QME02			UNIT-METAL DOME SUB	GH59-03681A
QMI03			RMO-RUBBER MIC	GH73-07941A
QMP01			PBA MAIN-SGHE390	GH92-03193A
QMP02			PBA SUB-SGHE390	GH92-03199A
QMW02			PCT-COVER WINDOW MAIN	GH72-33917A
QPC01			MEA-SLIDER FPCB KIT	GH97-06896A
QSC05			RMO-RUBBER SCREW CAP LOWER	GH73-07944A
QSP02			UNIT-MODULE SPEAKER	GH59-03695A
QME01			UNIT-KEY PBA	GH59-03642A
	QMI01		AS-MIC SVC	GH81-06085A
QRE01			ASSY CASE-REAR	GH98-02127A
	QIF01		PMO-COVER IF	GH72-33908A
	QSD01		PMO-COVER MICRO SD	GH72-33909A
QFL01			ASSY CASE-FRONT SLIDE LOWER	GH98-02123A
	QFL02		ASSY CASE-SLIDE LOWER	GH98-02122A
	QFR01		ASSY CASE-FRONT	GH98-02124A
		QCK01	PMO-CAMERA KEY	GH72-33903A
		QVO01	PMO-VOLUME KEY	GH72-33904A
		QSC21	ASSY RUBBER-DAMPER L	GH98-03030A
		QSC22	ASSY RUBBER-DAMPER R	GH98-03031A
	QHI03		ASSY HINGE-SLIDE	GH98-03025A

Description	Sec Code
BAG PE	6902-000634
ADAPTOR-SGHE690,BLK,EU,A_TYPE	GH44-01361A
LABEL(P)-IMEI	GH68-01335D
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL USERS-EU ITALIAN	GH68-13015A
LABEL(R)-MAIN(EU)	GH68-13052A
BOX-UNIT(EU)	GH69-04692A
CUSHION-CASE(EU)	GH69-04693A
RMO-RUBBER LCD FPCB	GH73-08865A
RMO-RUBBER DAMPER UPPER R	GH73-08917A
RMO-RUBBER DAMPER UPPER L	GH73-08931A
MPR-TAPE WINDOW MAIN	GH74-27349A
MPR-INSU TAPE	GH74-27357A
MPR-TAPE LCD	GH74-27362A
MPR-TAPE HOT BAR	GH74-27363A
MPR-INSU TAPE CAMERA CONN	GH74-27367A
MPR-VINYL BOHO UPPER	GH74-27887A
MPR-VINYL BOHO SLIDE	GH74-27888A
MPR-VINYL BOHO MAIN WINDOW FIN	GH74-27889A
MPR-TAPE EMI KEYFPCB	GH74-28423A
MPR-TAPE EMI DUAL LCD FPCB	GH74-28537A
MPR-INSU TAPE LCD BACK	GH74-28581A
MPR-SPONGE BATT CONN	GH74-28848A
MPR-INSU TAPE	GH74-29055A
MPR-INSU TAPE KEY FPCB	GH74-29291A
MPR-TAPE LCD FPCB EMI DUAL	GH74-29546A
MPR-TAPE CAMERA FPCB	GH74-29547A
MPR-VINYL BOHO REAR	GH74-29549A
MPR-VINYL BOHO BATT	GH74-29701A
MPR-SPONGE SHIELD CAN	GH74-29753A
MPR-SPONGE FRONT	GH74-29845A
MPR-INSU TAPE	GH74-29901A

5-3. Disassembly and Assembly Instructions

— Disassembly

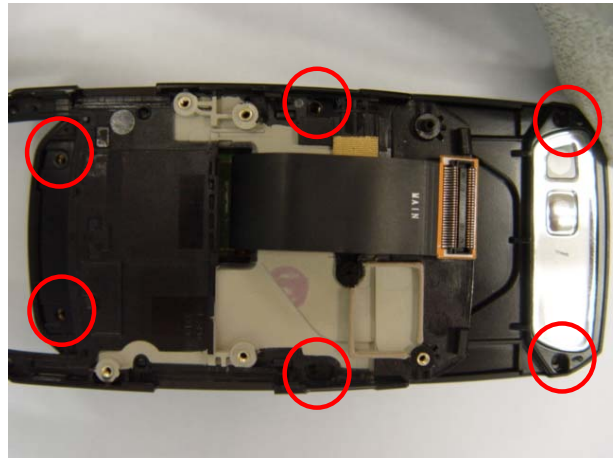
1 	2 
1. Unscrew 5 points of rear case as shown in the picture.	1. Make space between rear cover and front cover using assembly stick. 2. Widen space with hand and separate 2 parts.
3 	4 
1. Loosen a screw these 3 points from the PBA.	1. Disjoint the antenna. 2. Disjoint the LCD connector and key connector.

5



1. Open the slide. (Slide up)
2. Remove the 2 screw caps with tweezers.
3. Remove the shield can and side key.
4. Remove the main keypad.

6



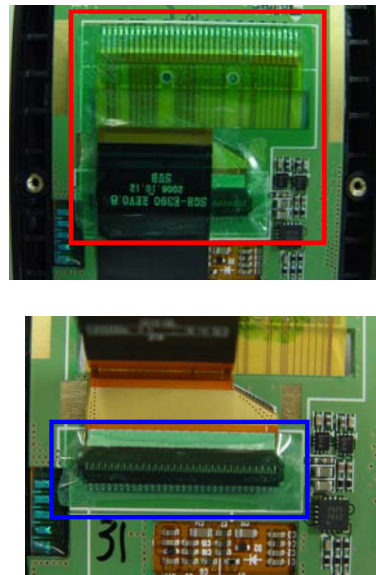
1. Unscrew 6 points of Lower case as shown in the picture

7



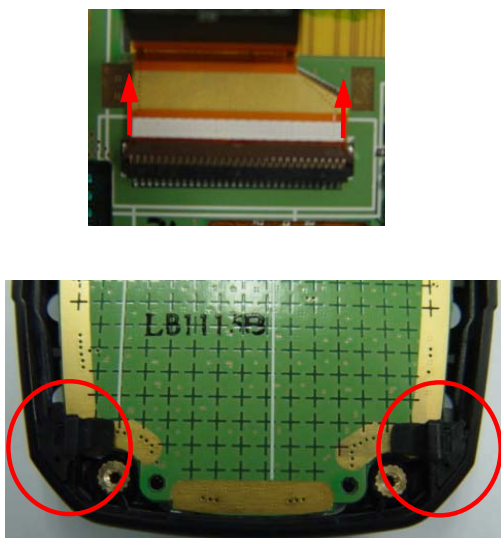
1. The hook of slide lower should be disassembled first.
2. Widen space with hand and separate 2 parts.

8



1. Remove the insulation tape.
2. And separate LCD connector from sub-PBA.

9



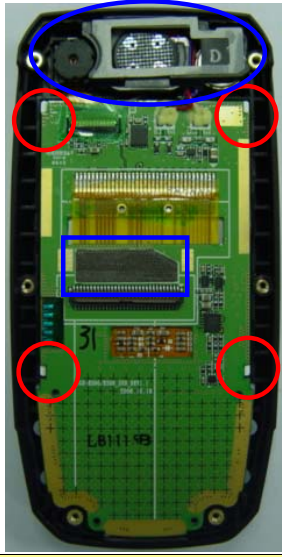
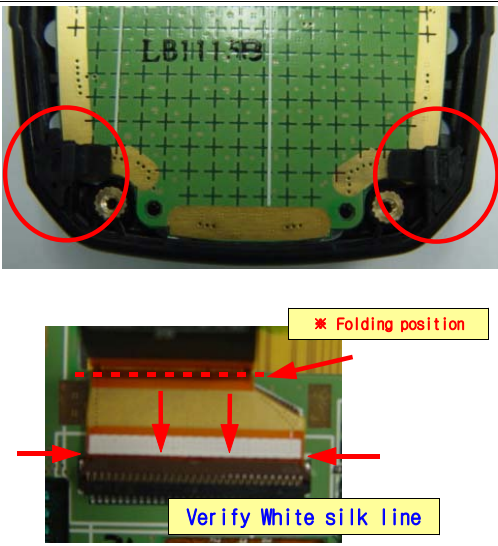
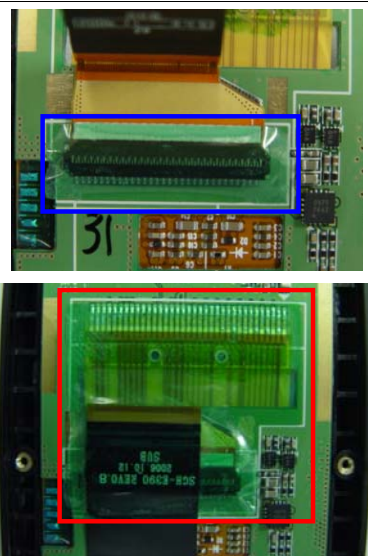
1. Separate LCD connector from sub-PBA
2. Remove the 2 rubbers with tweezers.

10



1. Separate sub-PBA from slide upper after removing the camera and speaker module.
2. Separate LCD module from slide upper using 4 white points.

— Assembly

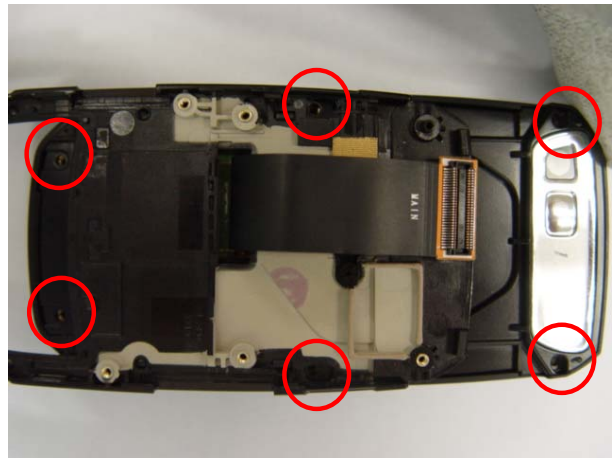
1 	2 
1. Prepare the slide upper and LCD module.	1. At first, attach LCD to main window. 2. Put the camera module and speaker module(blue circle). 3. And put EMI tape on sub-PBA(blue).
3  ※ Folding position Verify White silk line	4 
1. Put the 2 kinds of rubber on rubber hole. 2. At first combine LCD connector to sub-PBA according to the picture.	1. At first put insulation tape on connector. 2. And put insulation tape on connector.(Red) (after folding FPCB)

5



1. Combine slide upper and lower from top side after sliding up.
2. And push the edge side for locking.
3. FPCB should be put into the lower hole.

6



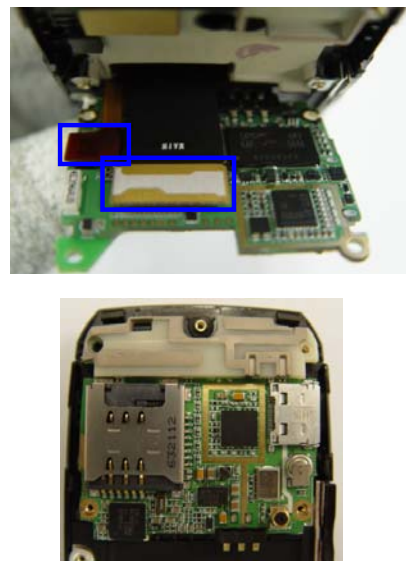
1. Fasten screws at 6 points with driver after sliding up.

7



1. Put the 2 screw caps on screw hole.
2. Put the main keypad on front cover.
3. Put the 2 kind of side key after putting the shield can.

8



1. Combine LCD connector and key connector to main-PBA.
2. Put main-PBA and antenna on front cover.

9



1. Fasten screws at 3 points.

10



1. Put rear cover on Ass'y and lock.
2. Be careful of losing key.

11



1. Fasten screws at 5 points.

6. MAIN Electrical Parts List

Design LOC	Description	SEC Code	STATUS
ANT_GND	NPR-ANT CONTACT	GH71-06013A	SA
ANT101	NPR-ANT CONTACT	GH71-06013A	SA
ANT300	ANTENNA-CHIP	4202-001245	SA
BAT400	BATTERY-LI(2ND)	4302-001181	SA
BTC500	CONNECTOR-BATTERY	3711-006003	SA
C101	C-CER,CHIP	2203-000812	SA
C104	C-CER,CHIP	2203-000278	SA
C107	C-CER,CHIP	2203-005552	SA
C109	C-CER,CHIP	2203-000812	SA
C110	C-CER,CHIP	2203-000254	SA
C112	C-CER,CHIP	2203-000278	SA
C114	C-CER,CHIP	2203-005288	SA
C115	C-CER,CHIP	2203-000278	SA
C116	C-CER,CHIP	2203-000530	SNA
C120	C-CER,CHIP	2203-006562	SA
C121	C-CER,CHIP	2203-006562	SA
C123	C-CER,CHIP	2203-001432	SA
C124	C-CER,CHIP	2203-006048	SA
C125	C-CER,CHIP	2203-000438	SA
C126	C-CER,CHIP	2203-006048	SA
C127	C-CER,CHIP	2203-001432	SA
C128	C-CER,CHIP	2203-000233	SA
C129	C-CER,CHIP	2203-000812	SA
C130	C-CER,CHIP	2203-002709	SA
C131	C-CER,CHIP	2203-001432	SA
C132	C-CER,CHIP	2203-006048	SA
C133	C-CER,CHIP	2203-006048	SA
C134	C-CER,CHIP	2203-006048	SA
C135	C-CER,CHIP	2203-006048	SA
C136	C-CER,CHIP	2203-005968	SA
C201	C-CER,CHIP	2203-006194	SA
C202	C-CER,CHIP	2203-006423	SA
C203	C-CER,CHIP	2203-006423	SA
C204	C-CER,CHIP	2203-005682	SA
C205	C-CER,CHIP	2203-006423	SA
C206	C-CER,CHIP	2203-006423	SA
C207	C-CER,CHIP	2203-006423	SA
C208	C-CER,CHIP	2203-006423	SA
C209	C-CER,CHIP	2203-006423	SA
C210	C-CER,CHIP	2203-006562	SA
C211	C-CER,CHIP	2203-006423	SA
C212	C-CER,CHIP	2203-006048	SA
C214	C-CER,CHIP	2203-005682	SA
C215	C-CER,CHIP	2203-006423	SA
C218	C-CER,CHIP	2203-006423	SA
C220	C-CER,CHIP	2203-006562	SA
C221	C-CER,CHIP	2203-006423	SA
C300	C-CER,CHIP	2203-006423	SA
C301	C-CER,CHIP	2203-006423	SA
C302	C-CER,CHIP	2203-006423	SA
C310	C-CER,CHIP	2203-006562	SA
C311	C-CER,CHIP	2203-006562	SA
C315	C-CER,CHIP	2203-005736	SA

Design LOC	Description	SEC Code	STATUS
C316	C-CER,CHIP	2203-006423	SA
C317	C-CER,CHIP	2203-006423	SA
C318	C-CER,CHIP	2203-006562	SA
C319	C-CER,CHIP	2203-006562	SA
C320	C-CER,CHIP	2203-006423	SA
C326	C-CER,CHIP	2203-000679	SA
C327	C-CER,CHIP	2203-006048	SA
C401	C-CER,CHIP	2203-006562	SA
C402	C-CER,CHIP	2203-006562	SA
C405	C-CER,CHIP	2203-006048	SA
C406	C-CER,CHIP	2203-006257	SA
C407	C-CER,CHIP	2203-000386	SA
C408	C-CER,CHIP	2203-000386	SA
C411	C-CER,CHIP	2203-000812	SA
C413	C-CER,CHIP	2203-006257	SA
C414	C-CER,CHIP	2203-006824	SA
C415	C-CER,CHIP	2203-006257	SA
C416	C-CER,CHIP	2203-006257	SA
C418	C-CER,CHIP	2203-006824	SA
C419	C-CER,CHIP	2203-005482	SA
C421	C-CER,CHIP	2203-000812	SA
C422	C-CER,CHIP	2203-006824	SA
C423	C-CER,CHIP	2203-006824	SA
C424	C-CER,CHIP	2203-006257	SA
C425	C-CER,CHIP	2203-006257	SA
C426	C-CER,CHIP	2203-000233	SA
C427	C-CER,CHIP	2203-006562	SA
C500	C-CER,CHIP	2203-003054	SA
C502	C-CER,CHIP	2203-005482	SA
C503	C-CER,CHIP	2203-000425	SA
C504	C-CER,CHIP	2203-001437	SA
C505	C-CER,CHIP	2203-001259	SA
C508	C-CER,CHIP	2203-000995	SA
C509	C-CER,CHIP	2203-001437	SA
C510	C-CER,CHIP	2203-000425	SA
C511	C-CER,CHIP	2203-006194	SA
C512	C-CER,CHIP	2203-006361	SA
C513	C-CER,CHIP	2203-006361	SA
C514	C-CER,CHIP	2203-003054	SA
C515	C-CER,CHIP	2203-006361	SA
C517	C-CER,CHIP	2203-006048	SA
C518	C-CER,CHIP	2203-006562	SA
C519	C-CER,CHIP	2203-006562	SA
C521	C-CER,CHIP	2203-006562	SA
C603	C-CER,CHIP	2203-006048	SA
C604	C-CER,CHIP	2203-000278	SA
C605	C-CER,CHIP	2203-001153	SA
C606	C-CER,CHIP	2203-006423	SA
C607	C-CER,CHIP	2203-006048	SA
C610	C-CER,CHIP	2203-006048	SA
C611	C-CER,CHIP	2203-006423	SA
C721	C-CER,CHIP	2203-005682	SA
C722	C-CER,CHIP	2203-005682	SA

Design LOC	Description	SEC Code	STATUS
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C726	C-CER,CHIP	2203-005682	SA
C727	C-CER,CHIP	2203-005682	SA
C728	C-CER,CHIP	2203-005682	SA
C729	C-CER,CHIP	2203-005682	SA
C730	C-CER,CHIP	2203-005682	SA
C731	C-CER,CHIP	2203-005682	SA
C732	C-CER,CHIP	2203-005682	SA
C733	C-CER,CHIP	2203-005682	SA
C734	C-CER,CHIP	2203-005682	SA
C735	C-CER,CHIP	2203-005682	SA
C736	C-CER,CHIP	2203-005682	SA
C737	C-CER,CHIP	2203-005682	SA
C738	C-CER,CHIP	2203-005682	SA
C739	C-CER,CHIP	2203-005682	SA
C740	C-CER,CHIP	2203-005682	SA
C741	C-CER,CHIP	2203-005682	SA
C742	C-CER,CHIP	2203-005682	SA
C744	C-CER,CHIP	2203-005682	SA
C745	C-CER,CHIP	2203-005682	SA
C805	C-CER,CHIP	2203-006423	SA
C806	C-CER,CHIP	2203-006708	SA
C807	C-CER,CHIP	2203-006423	SA
C820	C-CER,CHIP	2203-006562	SA
C821	C-CER,CHIP	2203-000254	SA
C822	C-CER,CHIP	2203-000254	SA
C823	C-CER,CHIP	2203-006091	SA
C824	C-CER,CHIP	2203-006091	SA
C825	C-CER,CHIP	2203-006562	SA
C826	C-CER,CHIP	2203-006824	SA
C827	C-CER,CHIP	2203-006824	SA
C828	C-CER,CHIP	2203-006048	SA
C829	C-CER,CHIP	2203-000438	SA
C830	C-CER,CHIP	2203-000438	SA
C831	C-CER,CHIP	2203-006562	SA
C841	C-CER,CHIP	2203-006562	SA
C842	C-CER,CHIP	2203-006361	SA
C843	C-CER,CHIP	2203-006048	SA
C844	C-CER,CHIP	2203-006260	SA
C845	C-CER,CHIP	2203-006048	SA
C851	C-CER,CHIP	2203-006562	SA
C852	C-CER,CHIP	2203-006838	SA
C861	C-CER,CHIP	2203-006562	SA
C862	C-CER,CHIP	2203-006562	SA
C863	C-CER,CHIP	2203-006562	SA
C864	C-CER,CHIP	2203-006562	SA
CN400	CONNECTOR-CARD EDGE	3709-001453	SA
D501	DIODE-SWITCHING	0401-001141	SA
D603	DIODE-SWITCHING	0401-001141	SA
EAR500	SOCKET-INTERFACE	3710-002442	SA
F100	DUPLEXER-FEM	2911-000050	SA

Design LOC	Description	SEC Code	STATUS
F101	FILTER-EMI SMD	2901-001254	SA
F500	FILTER-EMI SMD	2901-001316	SA
HCD700	HEADER-BOARD TO BOARD	3711-005367	SA
HCD701	HEADER-BOARD TO BOARD	3711-005345	SA
L100	INDUCTOR-SMD	2703-002201	SA
L103	INDUCTOR-SMD	2703-002208	SA
L104	INDUCTOR-SMD	2703-002268	SA
L105	INDUCTOR-SMD	2703-002208	SA
L106	INDUCTOR-SMD	2703-002198	SA
L107	INDUCTOR-SMD	2703-002198	SA
L108	INDUCTOR-SMD	2703-002367	SA
L109	INDUCTOR-SMD	2703-002199	SA
L110	INDUCTOR-SMD	2703-002198	SA
L111	INDUCTOR-SMD	2703-002199	SA
L112	INDUCTOR-SMD	2703-002365	SA
L113	INDUCTOR-SMD	2703-002268	SA
L114	INDUCTOR-SMD	2703-002199	SA
L115	INDUCTOR-SMD	2703-002268	SA
L116	INDUCTOR-SMD	2703-002170	SA
L117	INDUCTOR-SMD	2703-002199	SA
L118	INDUCTOR-SMD	2703-002369	SA
L119	INDUCTOR-SMD	2703-002369	SA
L201	BEAD-SMD	3301-001729	SA
L501	INDUCTOR-SMD	2703-002204	SA
L505	INDUCTOR-SMD	2703-002962	SA
L801	BEAD-SMD	3301-001729	SA
L821	BEAD-SMD	3301-001729	SA
L822	BEAD-SMD	3301-001729	SA
L827	INDUCTOR-SMD	2703-002199	SA
L828	INDUCTOR-SMD	2703-002199	SA
L842	INDUCTOR-SMD	2703-002231	SA
L843	INDUCTOR-SMD	2703-002231	SA
LED881	LED	0601-002278	SA
LED882	LED	0601-002278	SA
LED883	LED	0601-002278	SA
LED884	LED	0601-002278	SA
LED885	LED	0601-002278	SA
LED886	LED	0601-002278	SA
OSC100	OSCILLATOR-VCTCXO	2809-001303	SA
OSC400	CRYSTAL-SMD	2801-004339	SA
R100	R-CHIP	2007-000140	SA
R101	R-CHIP	2007-000140	SA
R103	R-CHIP	2007-001284	SA
R104	R-CHIP	2007-000172	SA
R105	R-CHIP	2007-001316	SA
R106	R-CHIP	2007-000140	SA
R107	R-CHIP	2007-000171	SA
R108	R-CHIP	2007-000171	SA
R201	R-CHIP	2007-008516	SA
R203	R-CHIP	2007-000162	SA
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R219	R-CHIP	2007-008052	SA

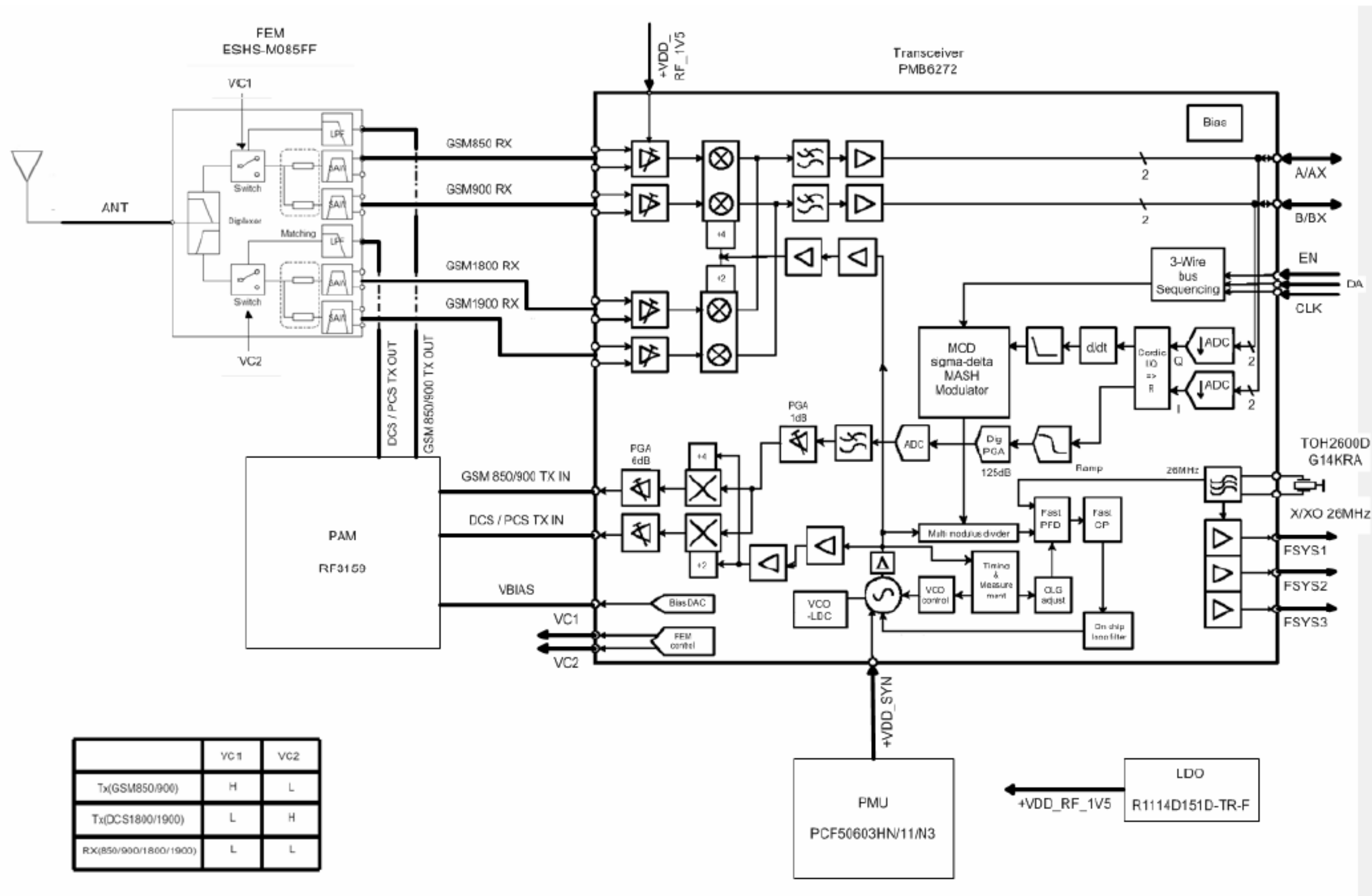
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R300	R-CHIP	2007-008055	SA
R301	R-CHIP	2007-008055	SA
R311	R-CHIP	2007-000141	SA
R312	R-CHIP	2007-000141	SA
R313	R-CHIP	2007-007590	SA
R314	R-CHIP	2007-001303	SA
R315	R-CHIP	2007-009081	SNA
R316	R-CHIP	2007-008542	SA
R317	R-CHIP	2007-008542	SA
R318	R-CHIP	2007-008542	SA
R319	R-CHIP	2007-000170	SA
R320	R-CHIP	2007-000171	SA
R321	R-CHIP	2007-000171	SA
R323	R-CHIP	2007-008542	SA
R401	R-CHIP	2007-007100	SA
R404	R-CHIP	2007-008055	SA
R405	R-CHIP	2007-002796	SA
R407	R-CHIP	2007-008055	SA
R408	R-CHIP	2007-008419	SA
R409	R-CHIP	2007-008055	SA
R410	R-CHIP	2007-009168	SA
R411	R-CHIP	2007-008055	SA
R412	R-CHIP	2007-008486	SA
R500	R-CHIP	2007-008516	SA
R501	R-CHIP	2007-007334	SA
R502	R-CHIP	2007-008800	SA
R503	R-CHIP	2007-008055	SA
R504	R-CHIP	2007-009170	SA
R505	R-CHIP	2007-008486	SA
R507	R-CHIP	2007-008055	SA
R508	R-CHIP	2007-009084	SA
R509	R-CHIP	2007-000171	SA
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R514	R-CHIP	2007-007798	SA
R515	R-CHIP	2007-009084	SA
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R517	R-CHIP	2007-009157	SA
R518	R-CHIP	2007-008483	SA
R519	R-CHIP	2007-007529	SA
R520	R-CHIP	2007-007538	SA
R521	R-CHIP	2007-008590	SNA
R522	R-CHIP	2007-007318	SA
R523	R-CHIP	2007-007766	SA
R600	R-CHIP	2007-000242	SA
R601	R-CHIP	2007-000171	SA

Design LOC	Description	SEC Code	STATUS
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R603	R-CHIP	2007-000242	SA
R604	R-CHIP	2007-002796	SA
R605	R-CHIP	2007-000162	SA
R710	R-CHIP	2007-009157	SA
R801	R-CHIP	2007-000171	SA
R802	R-CHIP	2007-000171	SA
R803	R-CHIP	2007-000171	SA
R821	R-CHIP	2007-000982	SA
R822	R-CHIP	2007-000982	SA
R823	R-CHIP	2007-000982	SA
R824	R-CHIP	2007-000982	SA
R825	R-CHIP	2007-000170	SA
R826	R-CHIP	2007-000170	SA
R830	R-CHIP	2007-007142	SA
R841	R-CHIP	2007-007107	SA
R851	R-CHIP	2007-000162	SA
R862	R-CHIP	2007-007107	SA
R863	R-CHIP	2007-000171	SA
R881	R-CHIP	2007-002970	SA
R882	R-CHIP	2007-002970	SA
R883	R-CHIP	2007-002970	SA
R884	R-CHIP	2007-002970	SA
R885	R-CHIP	2007-002970	SA
R886	R-CHIP	2007-002970	SA
RFS100	CONNECTOR-COAXIAL	3705-001358	SA
SLC800	CONNECTOR-FPC/FFC/PIC	3708-002194	SA
SLC801	CONNECTOR-FPC/FFC/PIC	3708-002192	SA
TA108	C-TA,CHIP	2404-001474	SA
TA400	C-TA,CHIP	2404-001381	SA
TA515	C-TA,CHIP	2404-001374	SA
TA516	C-TA,CHIP	2404-001380	SA
TA600	C-TA,CHIP	2404-001281	SA
U100	IC-POWER AMP	1201-002423	SA
U101	IC-POSIFIXED REG.	1203-003767	SA
U102	IC-TRANSCEIVER	1205-003057	SA
U300	IC ASIC-SGHE490	GH13-00044A	SA
U302	BLUETOOTH MODULE	4709-001426	SA
U303	IC-CMOS LOGIC	0801-003022	SA
U304	IC-CMOS LOGIC	0801-002237	SA
U306	IC-POSIFIXED REG.	1203-003767	SA
U400	IC-POWER SUPERVISOR	1203-003882	SA
U402	IC-POSIFIXED REG.	1203-003737	SA
U403	IC-CMOS LOGIC	0801-002237	SA
U501	FILTER-EMI/ESD	2901-001322	SA
U502	TR-DIGITAL	0504-001151	SA
U505	IC-DC/DC CONVERTER	1203-004273	SA
U601	IC-ANALOG MULTIPLEX	1001-001428	SA
U602	IC-ANALOG MULTIPLEX	1001-001428	SA
U821	IC-AUDIO AMP	1201-002240	SA
U822	IC-ANALOG MULTIPLEX	1001-001428	SA
U823	IC-ANALOG MULTIPLEX	1001-001428	SA
U841	IC-POSIFIXED REG.	1203-003737	SA

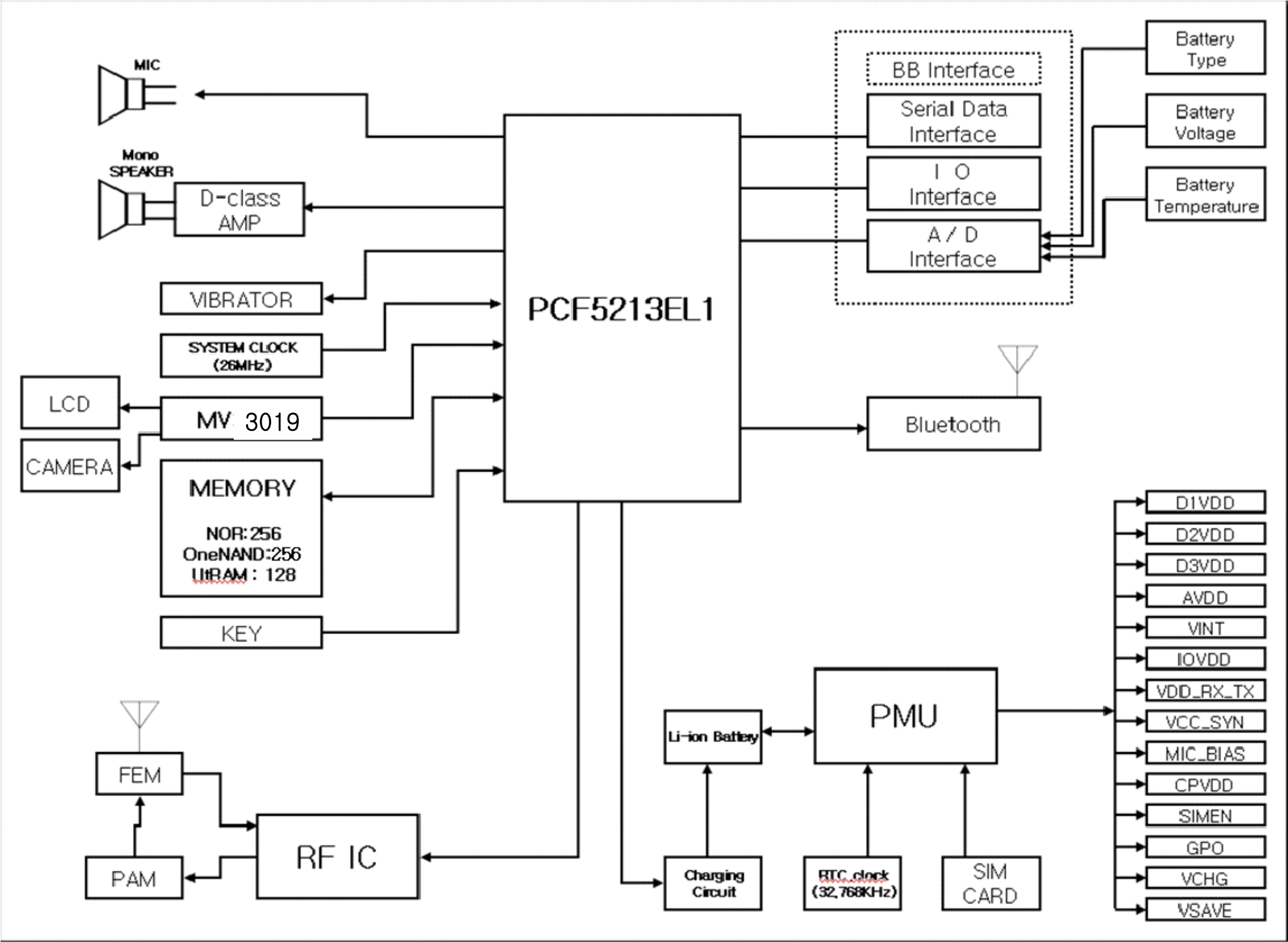
Design LOC	Description	SEC Code	STATUS
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U861	IC-DC/DC CONVERTER	1203-003708	SA
U862	BEAD-SMD	3301-001729	SA
UCP200	IC-COMM. CONTROLLER	1205-002757	SA
UME300	IC-MCP	1108-000080	SA
V500	THERMISTOR-NTC	1404-001221	SA
VR400	VARISTOR	1405-001082	SA
VR401	VARISTOR	1405-001138	SA
VR402	VARISTOR	1405-001138	SA
VR403	VARISTOR	1405-001138	SA
VR404	VARISTOR	1405-001138	SA
VR405	VARISTOR	1405-001138	SA
VR406	VARISTOR	1405-001138	SA
VR407	VARISTOR	1405-001138	SA
VR501	VARISTOR	1405-001082	SA
VR502	VARISTOR	1405-001082	SA
VR851	VARISTOR	1405-001082	SA
VR852	VARISTOR	1405-001082	SA
VR853	VARISTOR	1405-001082	SA
VR854	VARISTOR	1405-001082	SA
VR855	VARISTOR	1405-001082	SA
VR856	VARISTOR	1405-001082	SA
VR857	VARISTOR	1405-001082	SA
VR858	VARISTOR	1405-001082	SA
ZD500	DIODE-TVS	0406-001237	SNA
ZD501	DIODE-ZENER	0403-001547	SA
ZD505	DIODE-ZENER	0403-001427	SA
ZD821	DIODE-TVS	0406-001201	SA
ZD822	DIODE-TVS	0406-001201	SA
ZD841	DIODE-SWITCHING	0401-001141	SA

7. Block Diagrams

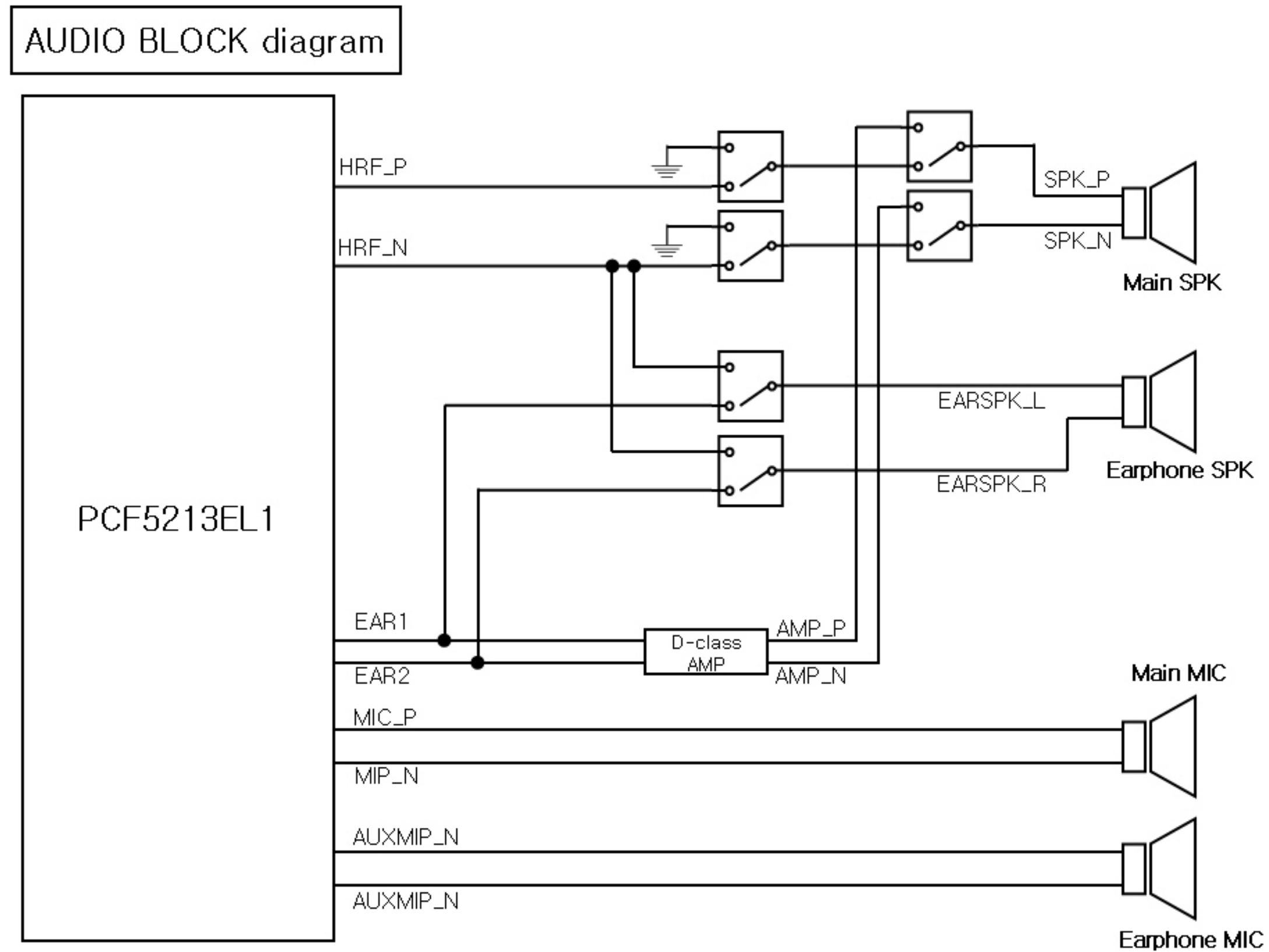
7-1. RF Solution Block Diagram



7-2. Base Band Solution Block Diagram

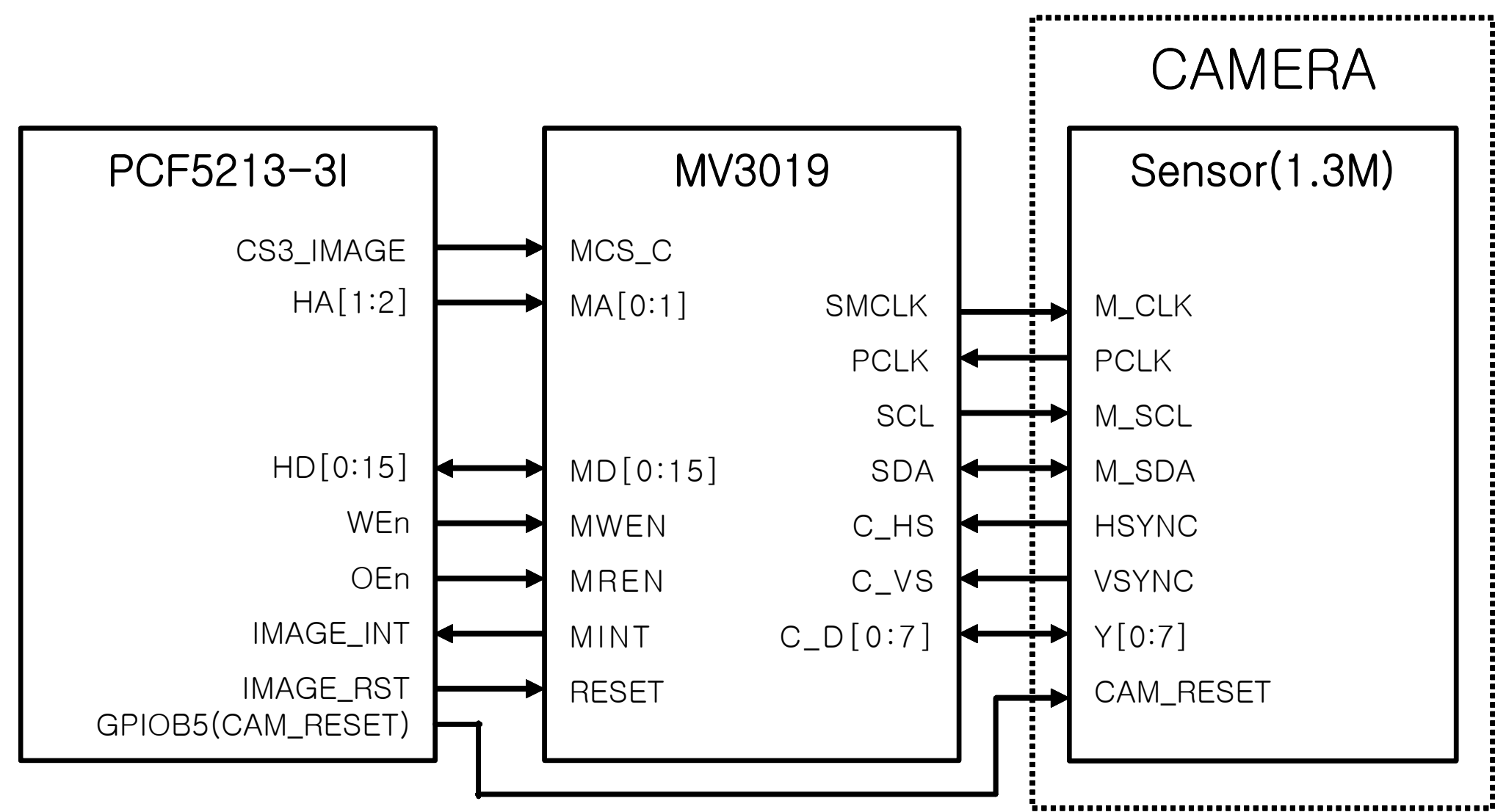


7-3. AUDIO BLOCK Diagram



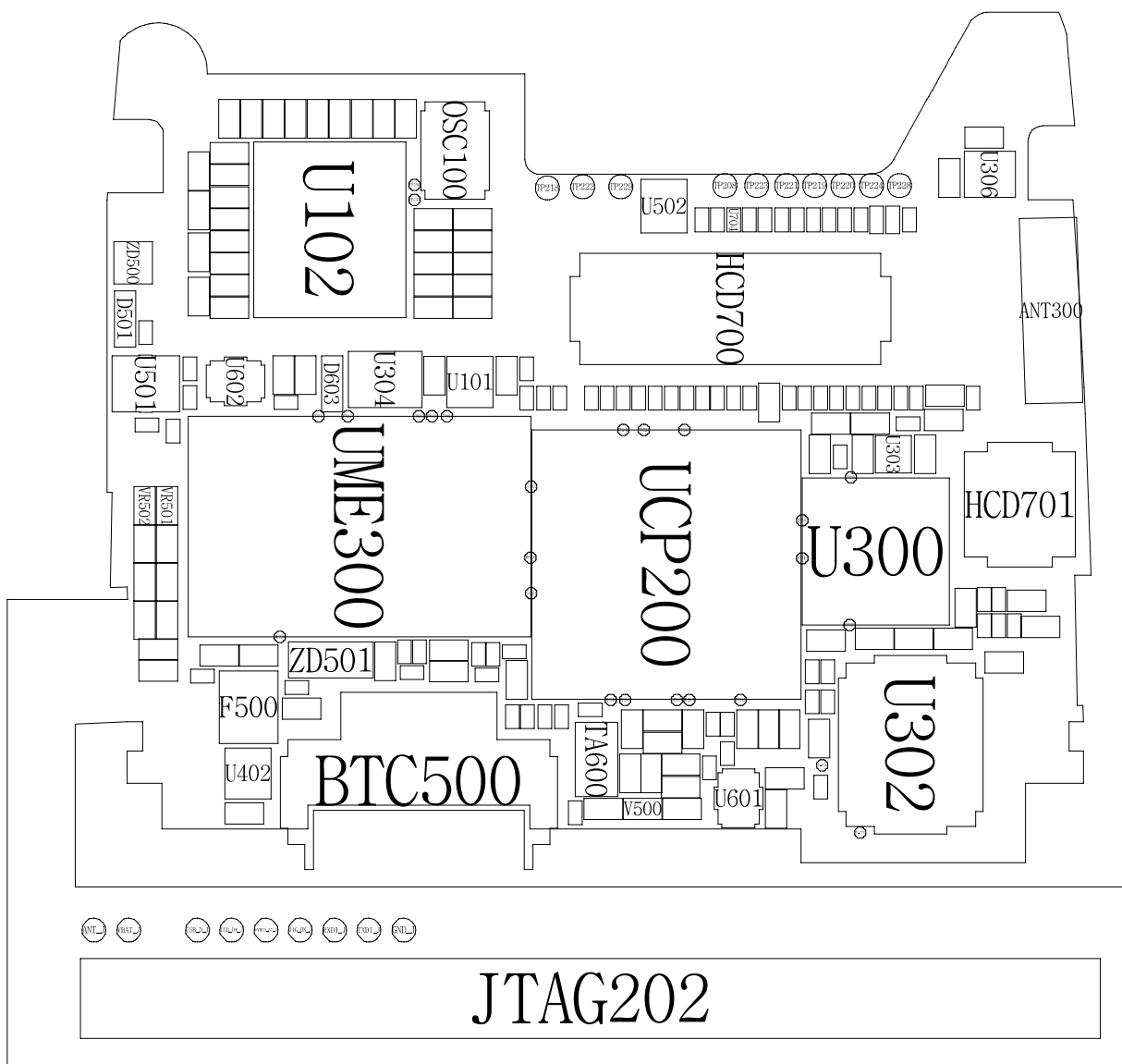
7-4. CAMERA BLOCK Diagram

CAMERA Block diagram



8. PCB Diagrams

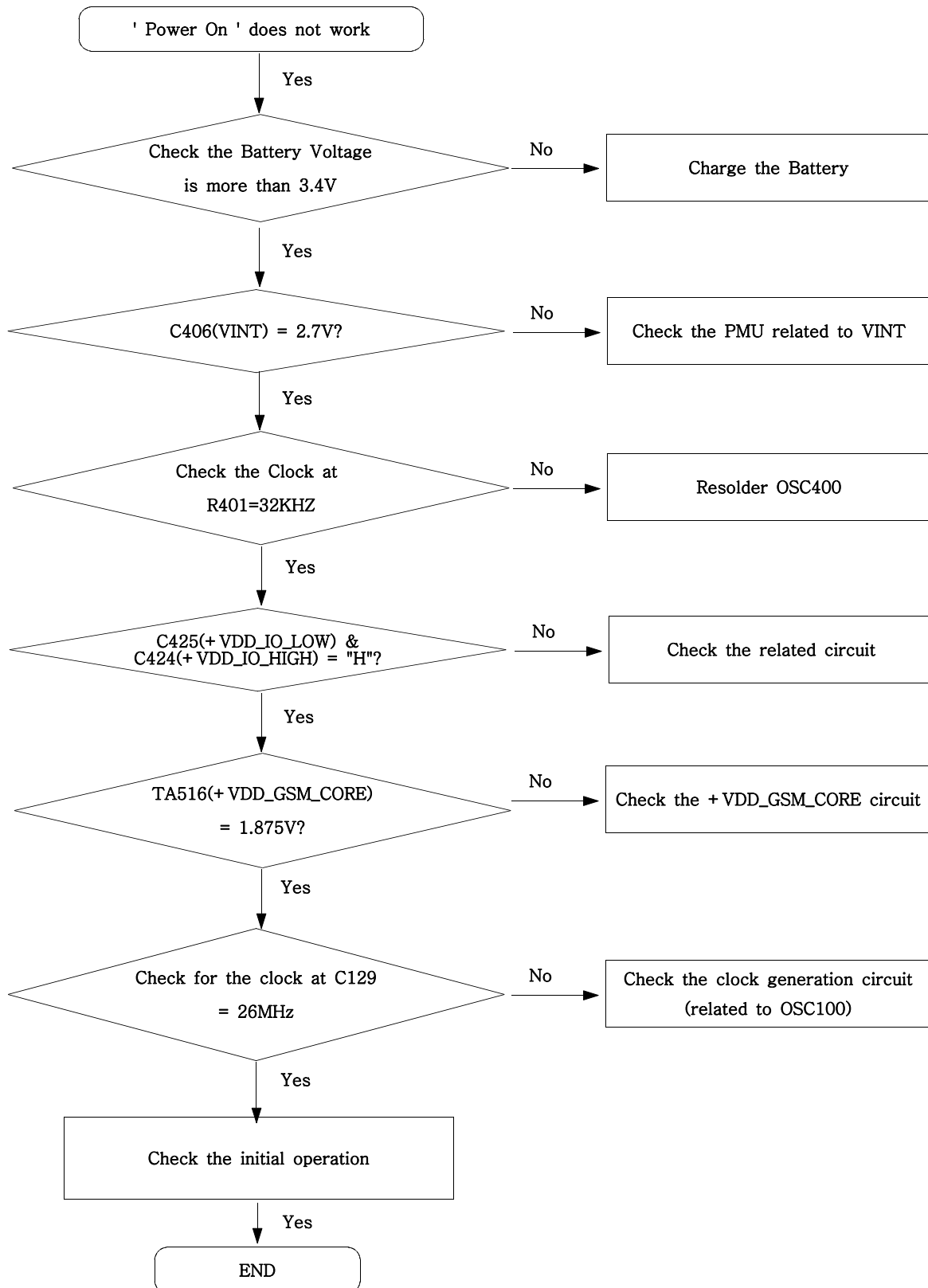
Top



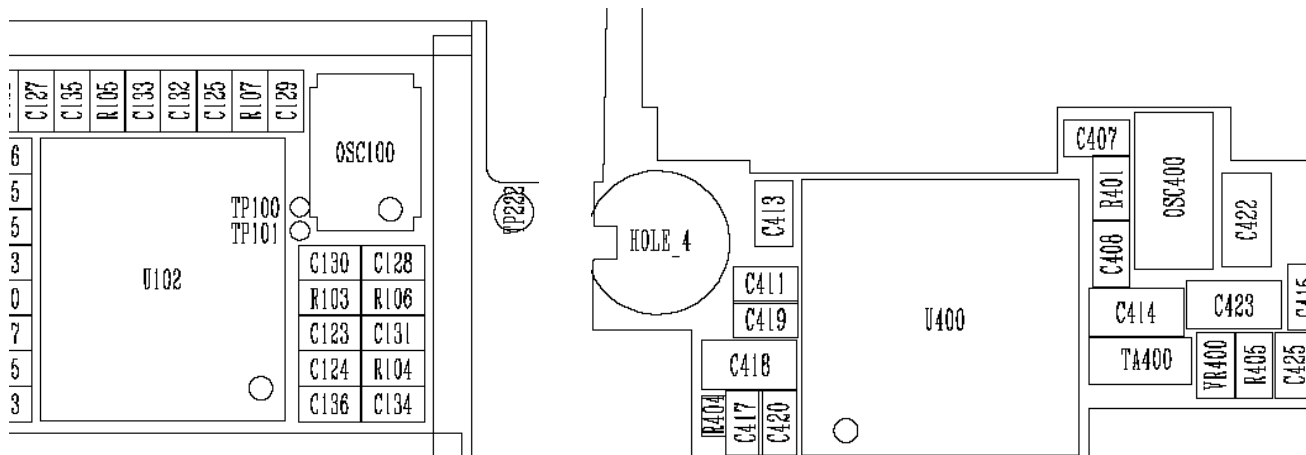
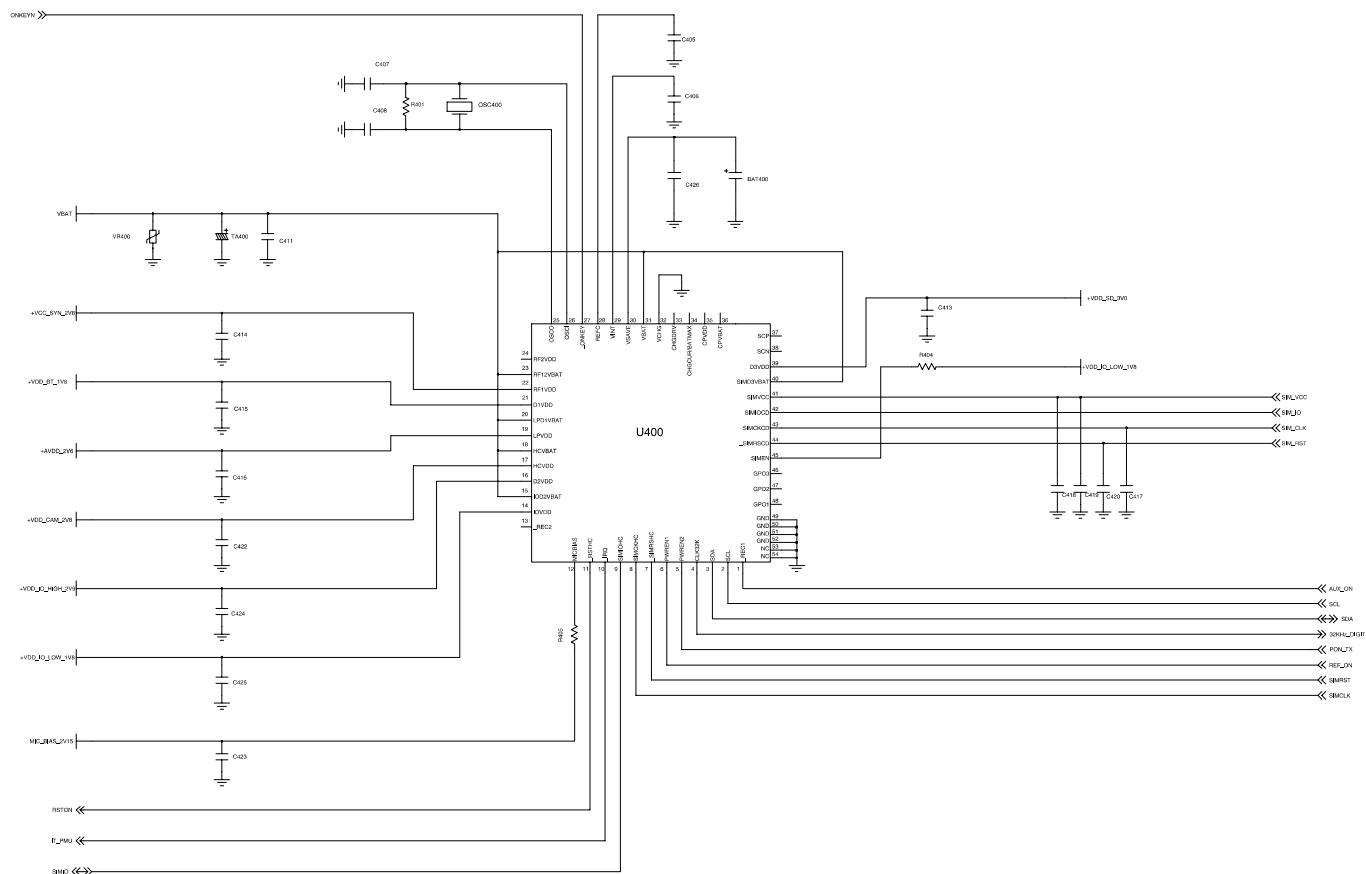


9. Flow Chart of Troubleshooting

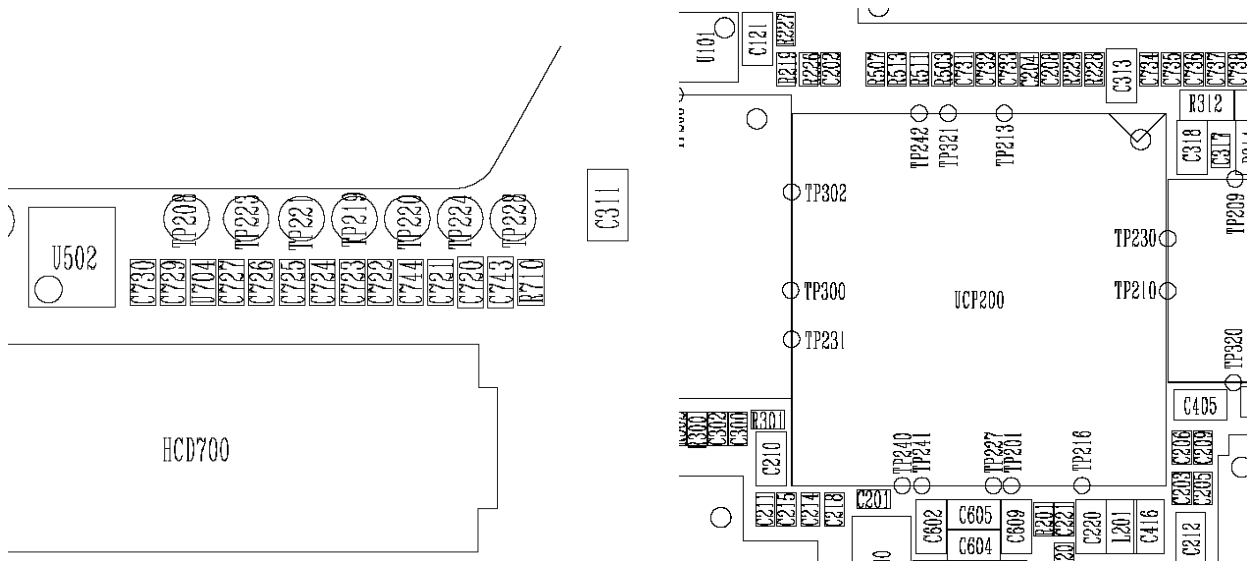
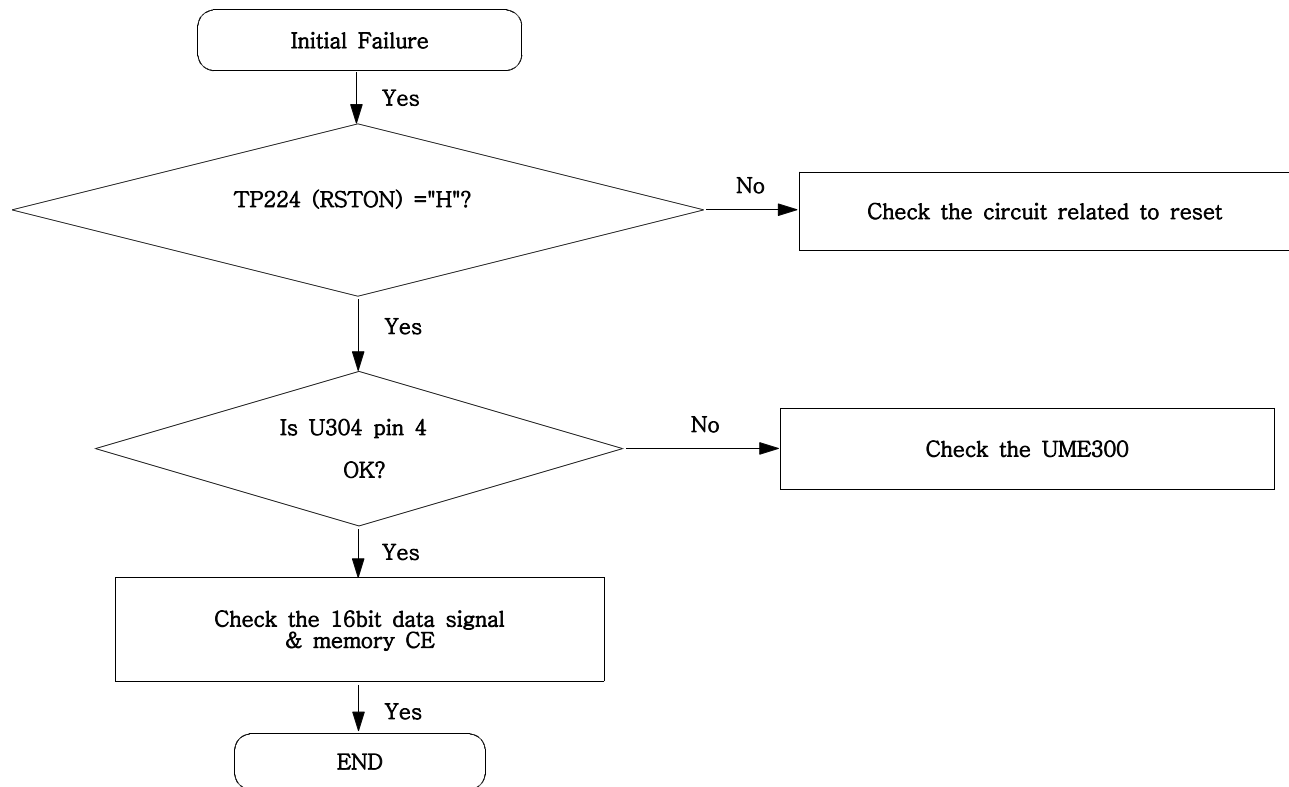
9-1. Power On

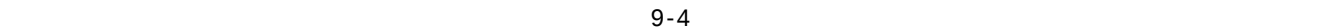


Flow Chart of Troubleshooting

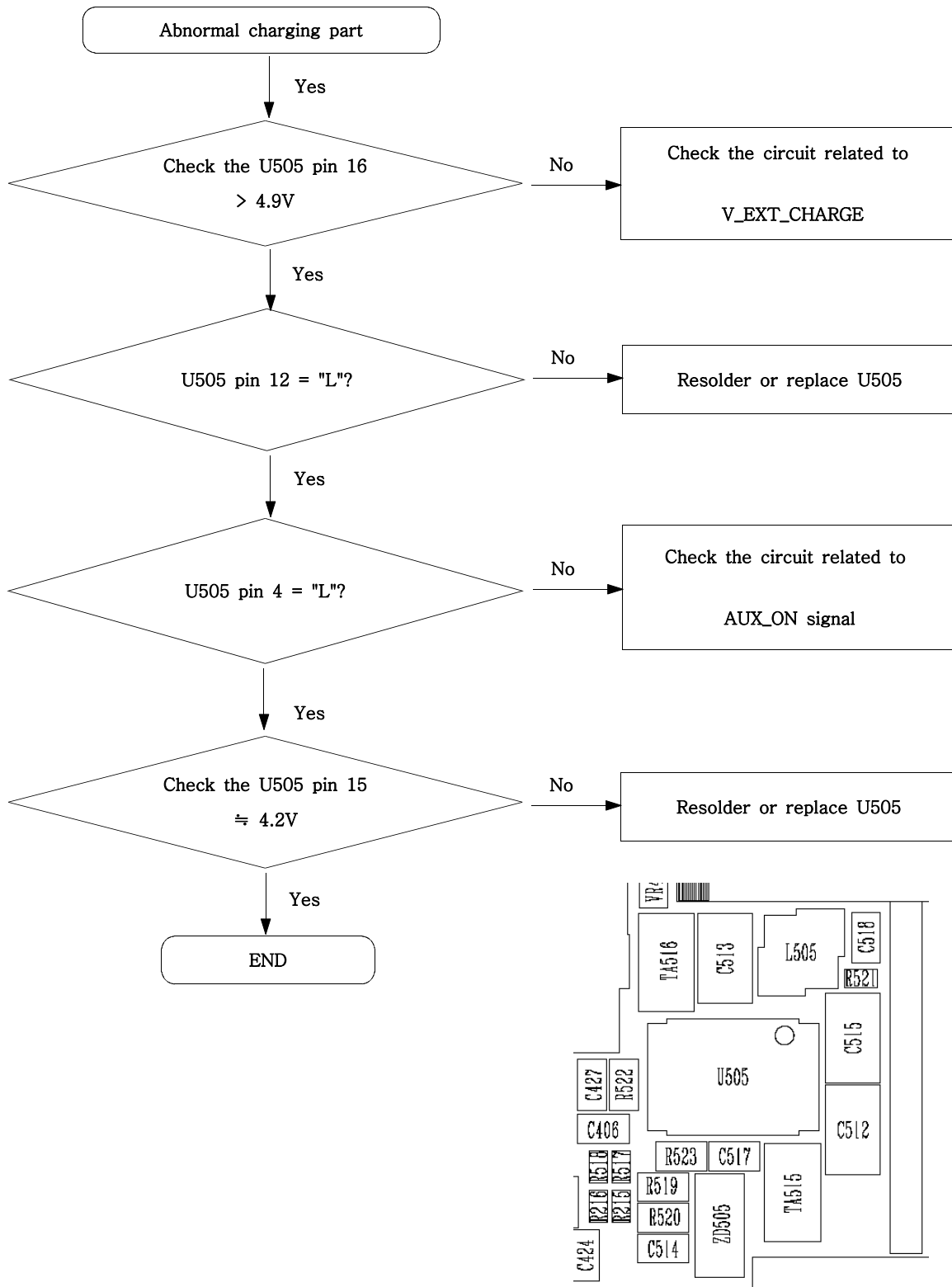


9-2. Initial

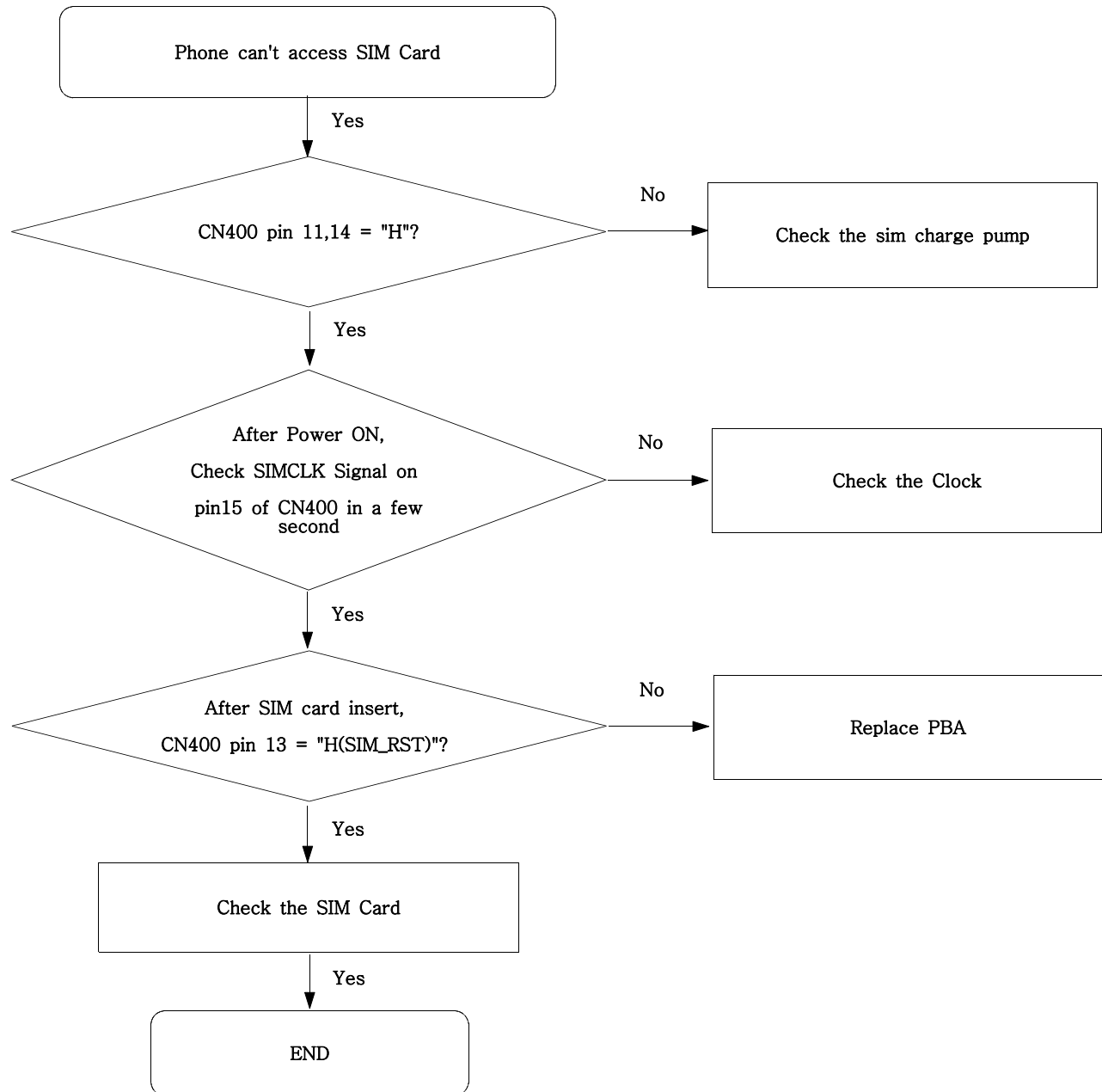


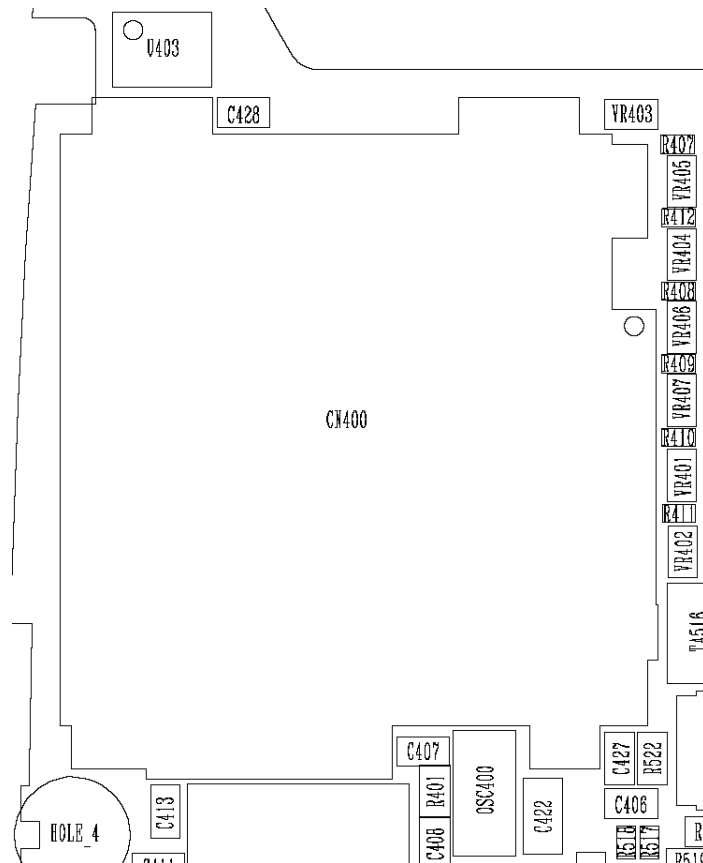
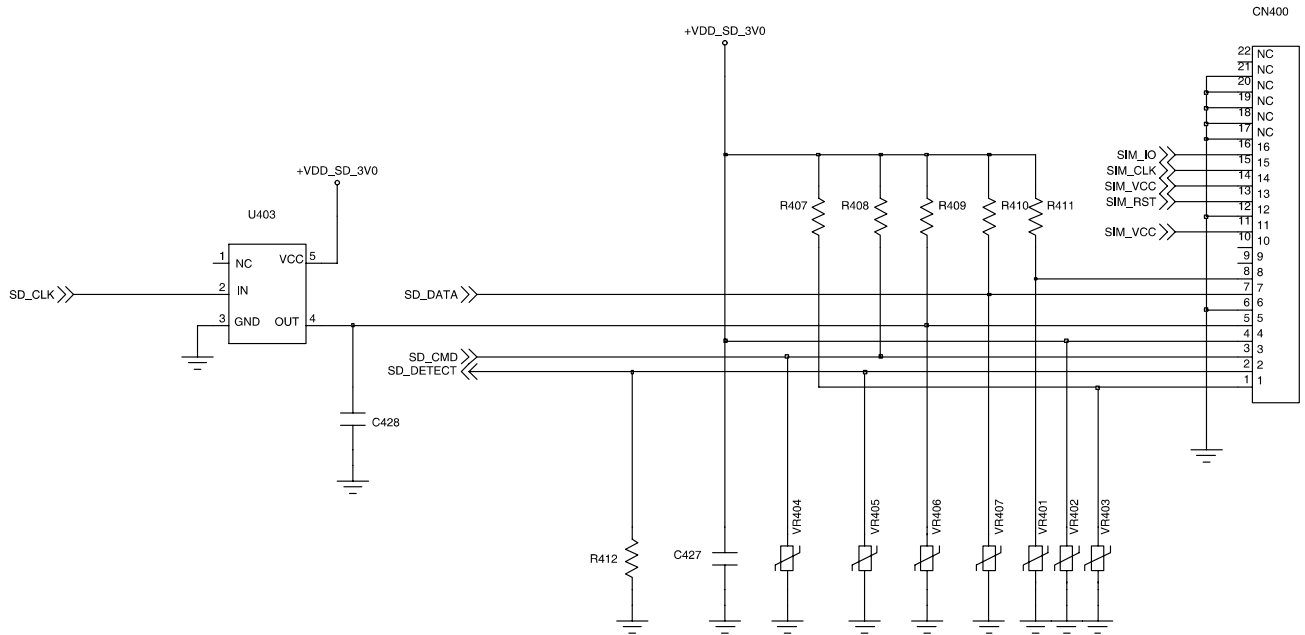


9-3. Charging Part

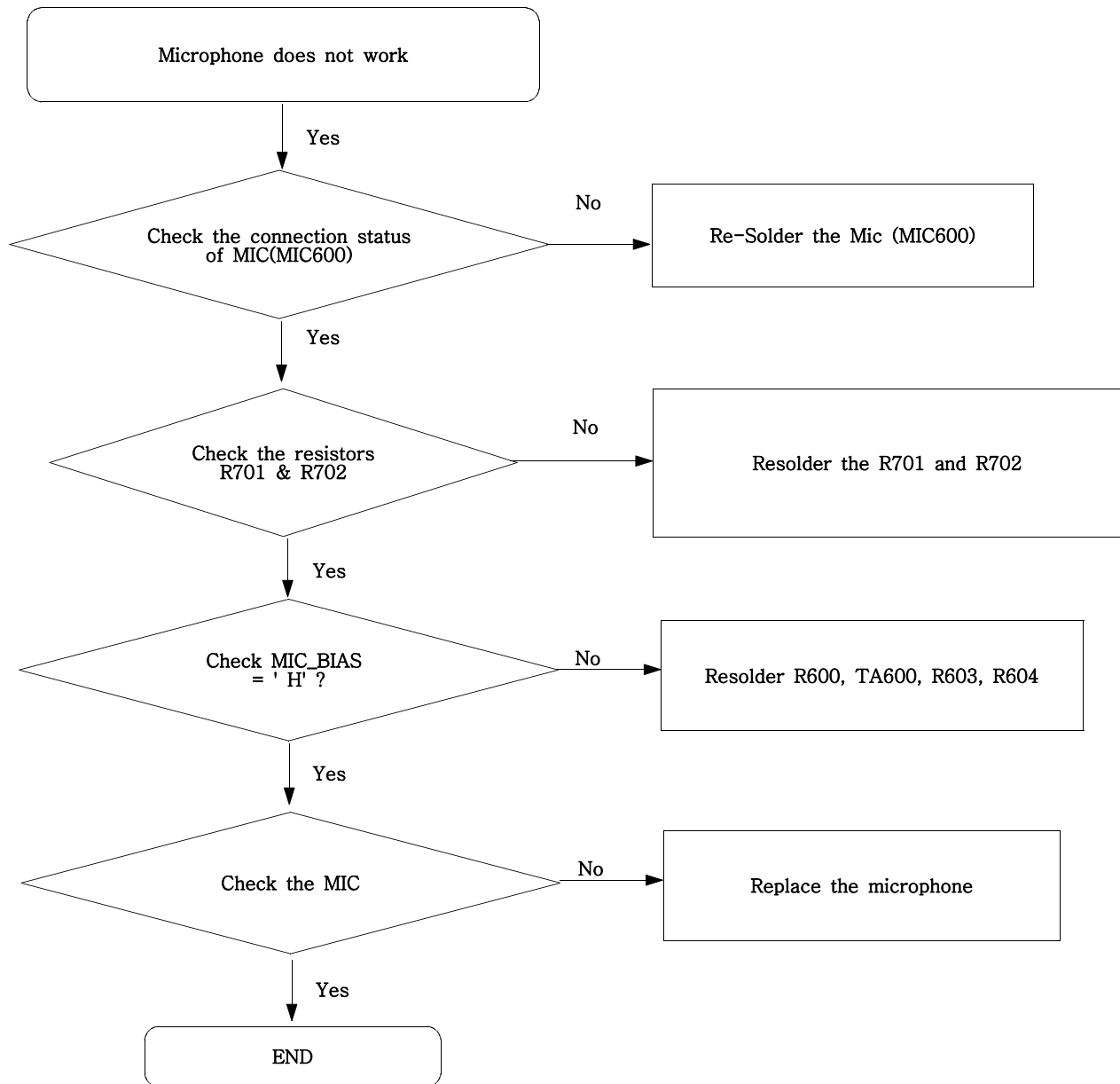


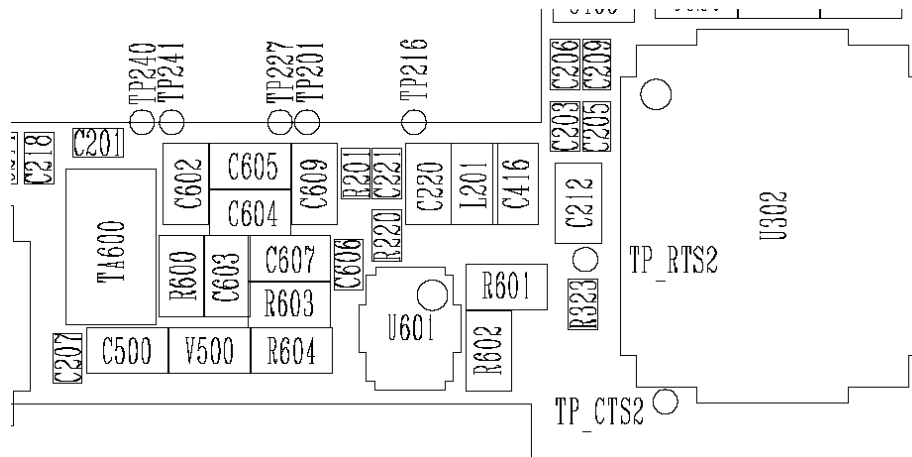
9-4. Sim Part



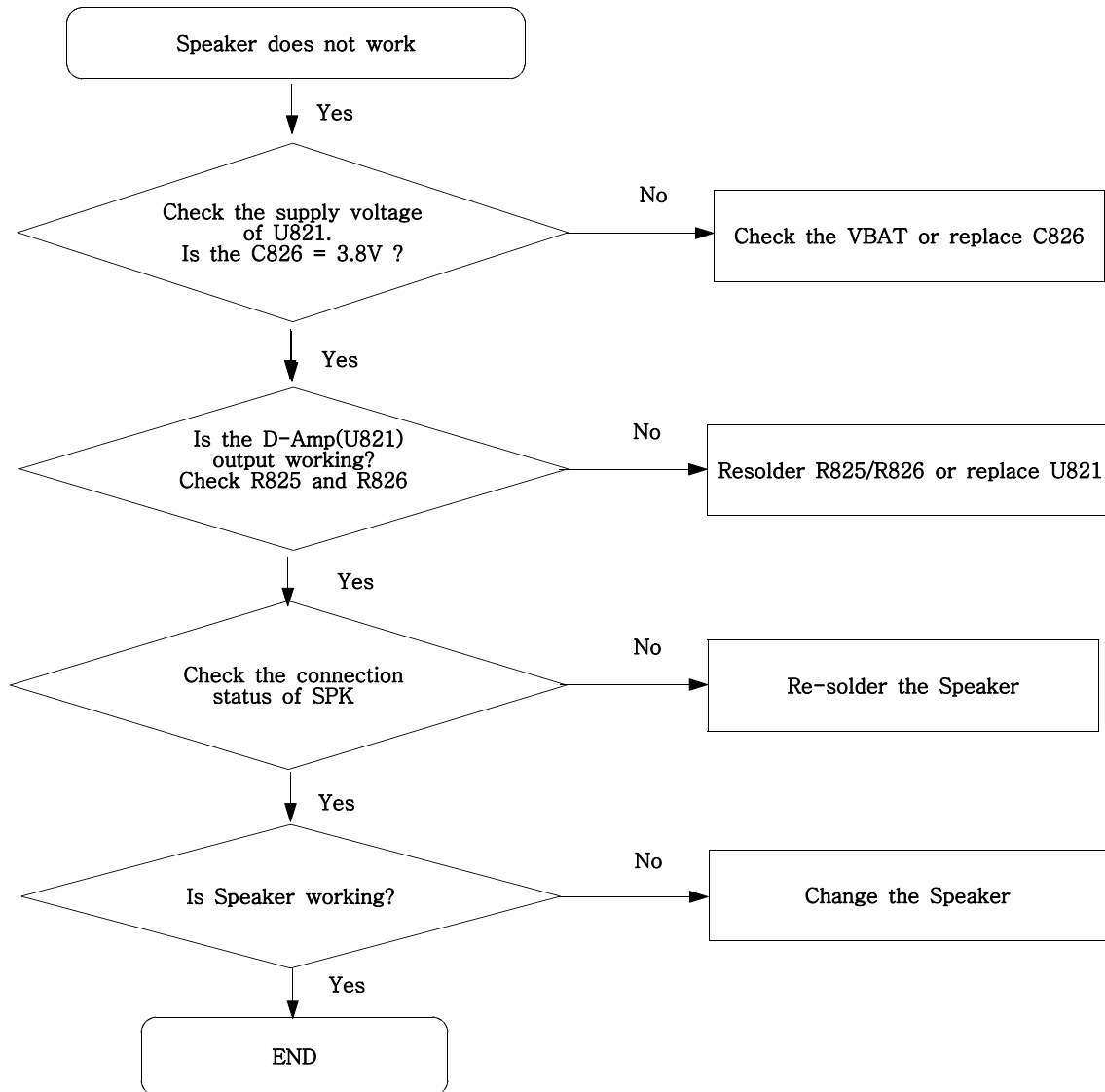


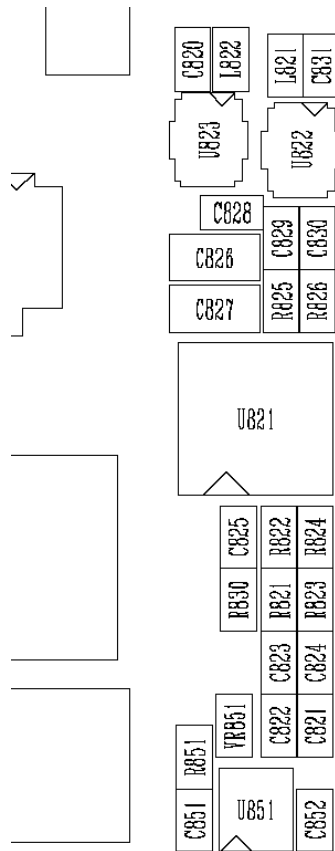
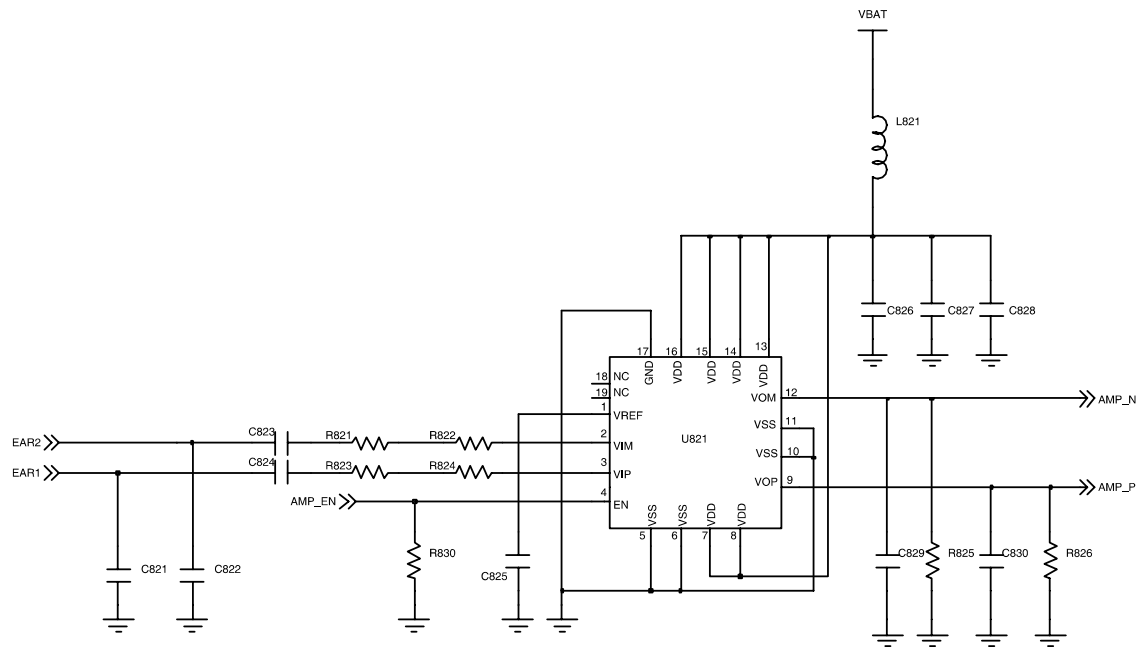
9-5. Microphone Part



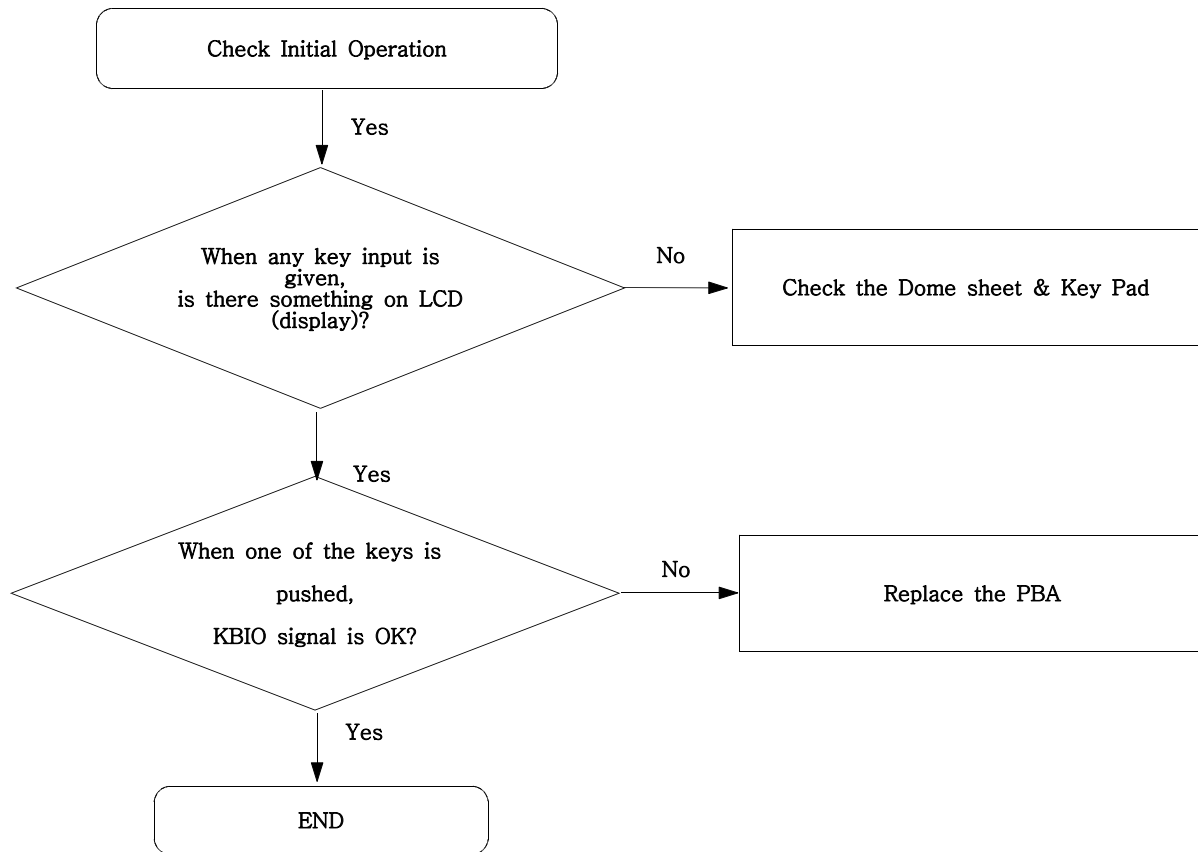


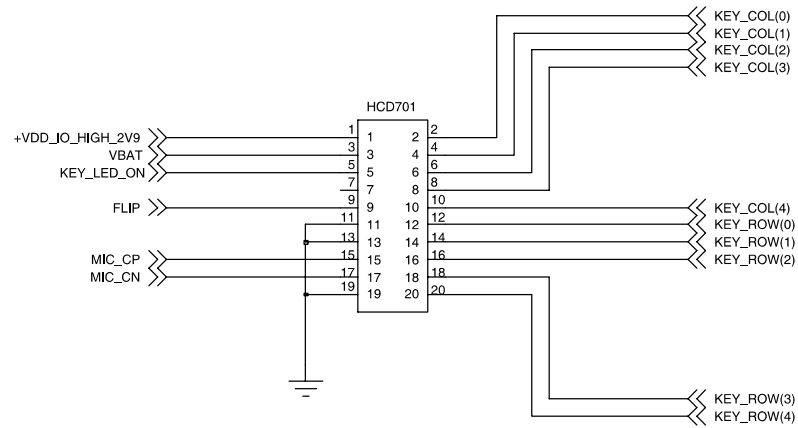
9-6. Speaker Part



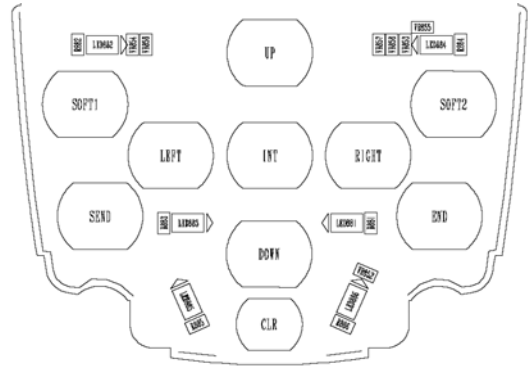
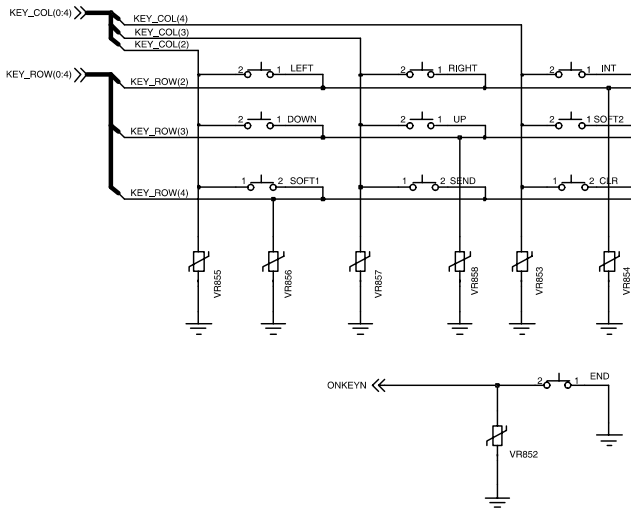


9-7. Key Data Input

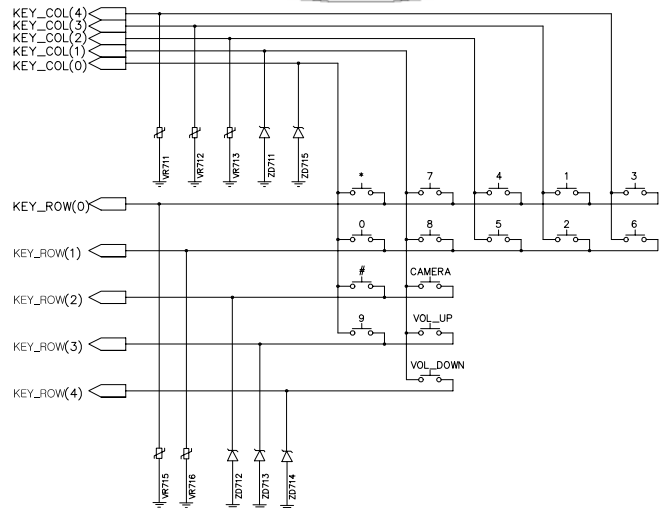




KEY_CONNECTOR

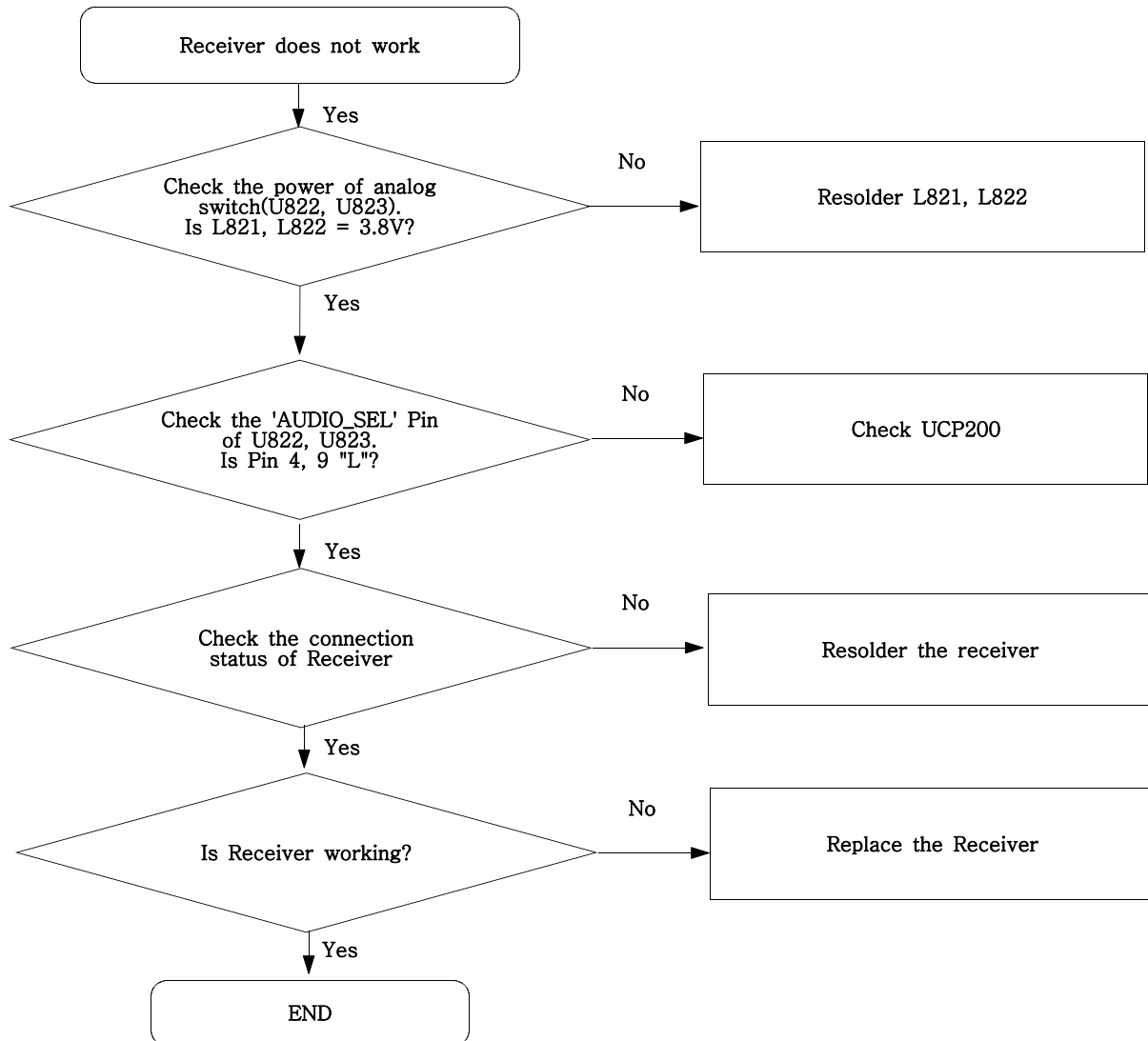


SLIDE KEY MAP

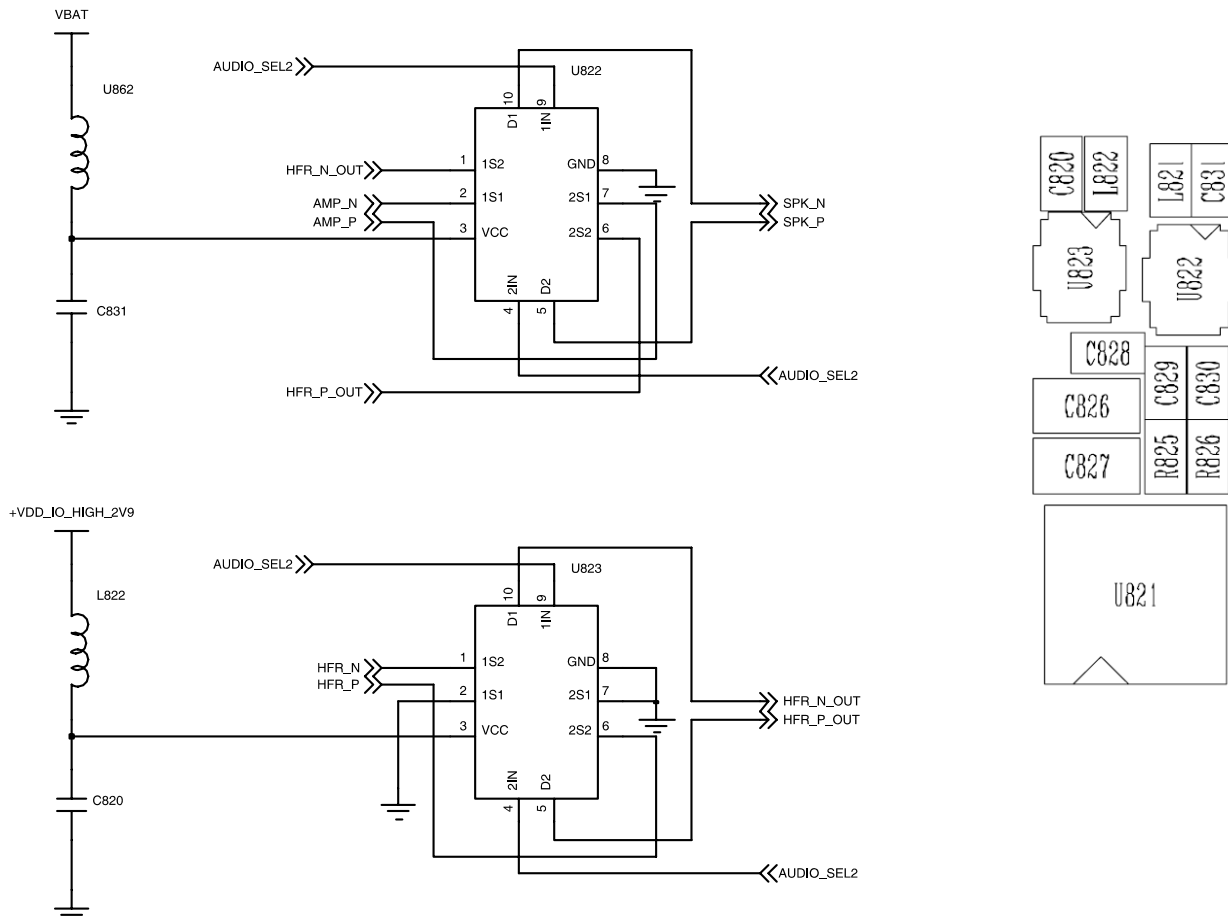
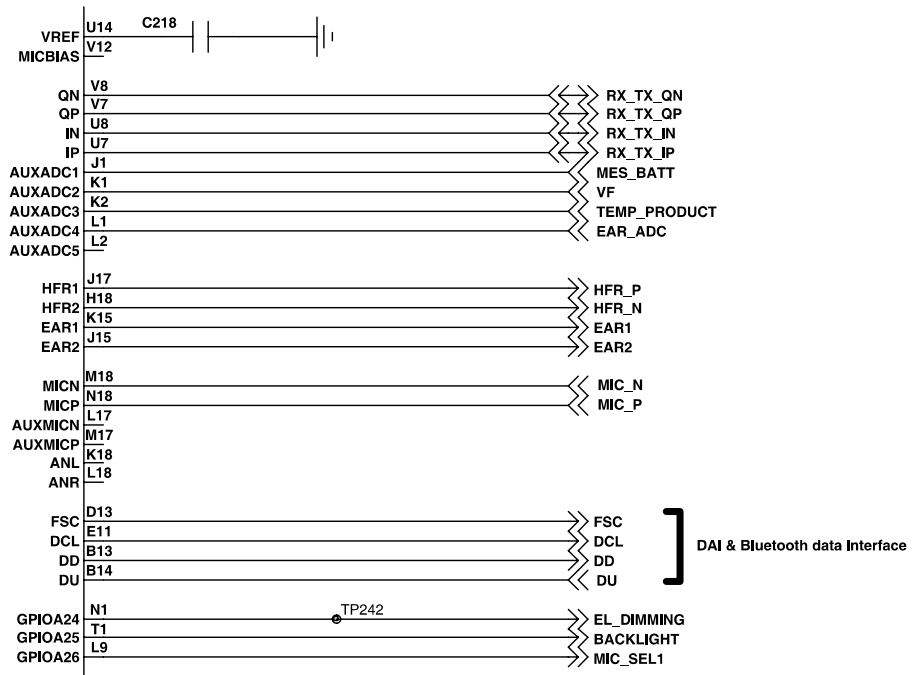


MAIN_KEY_MAP

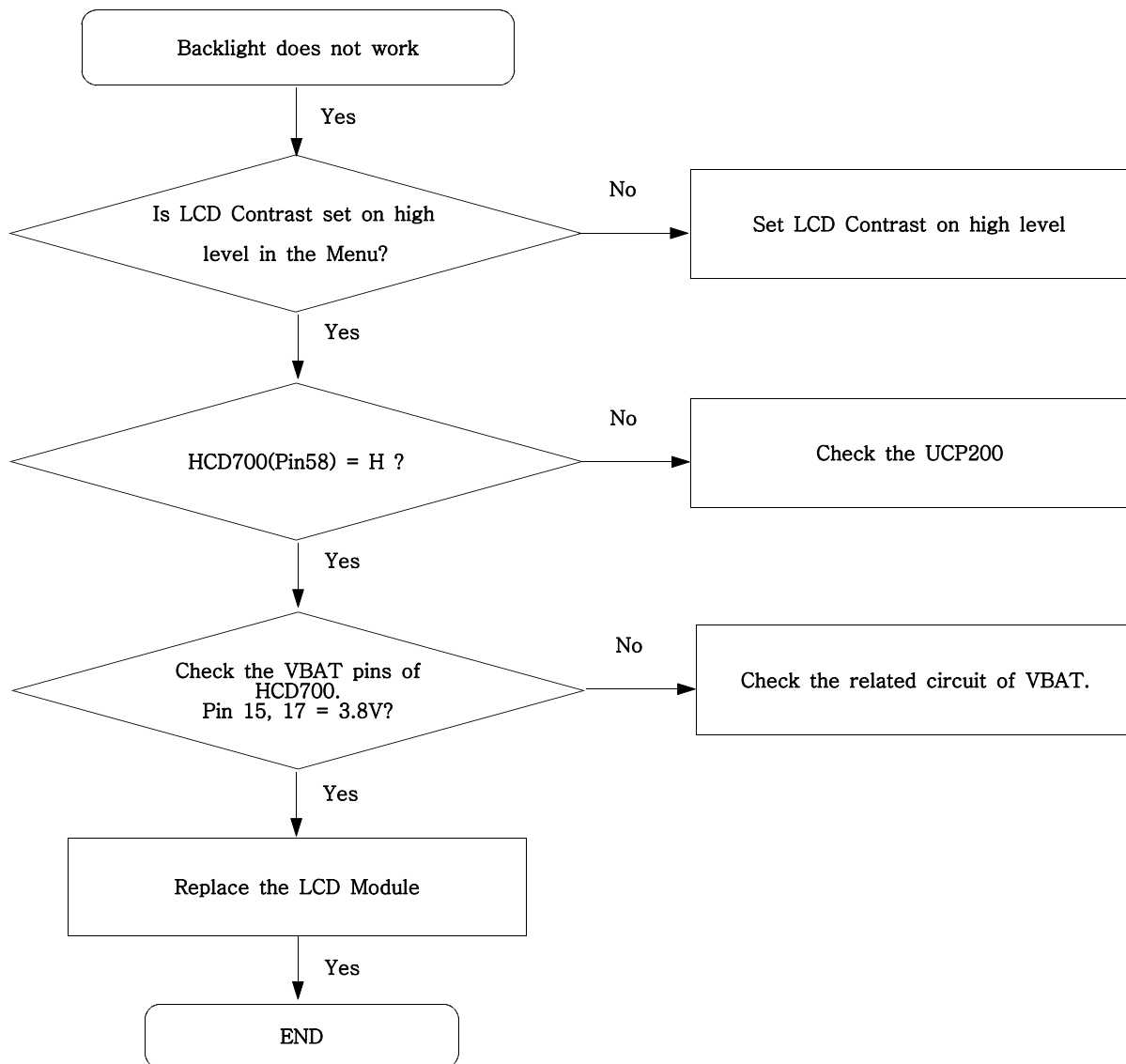
9-8. Receiver Part

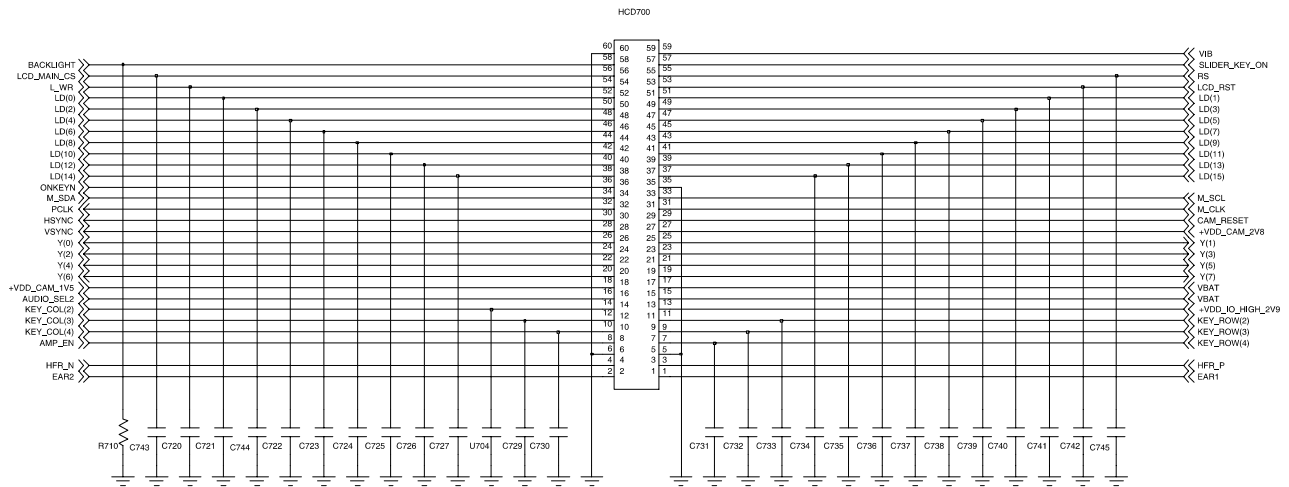


UCP200

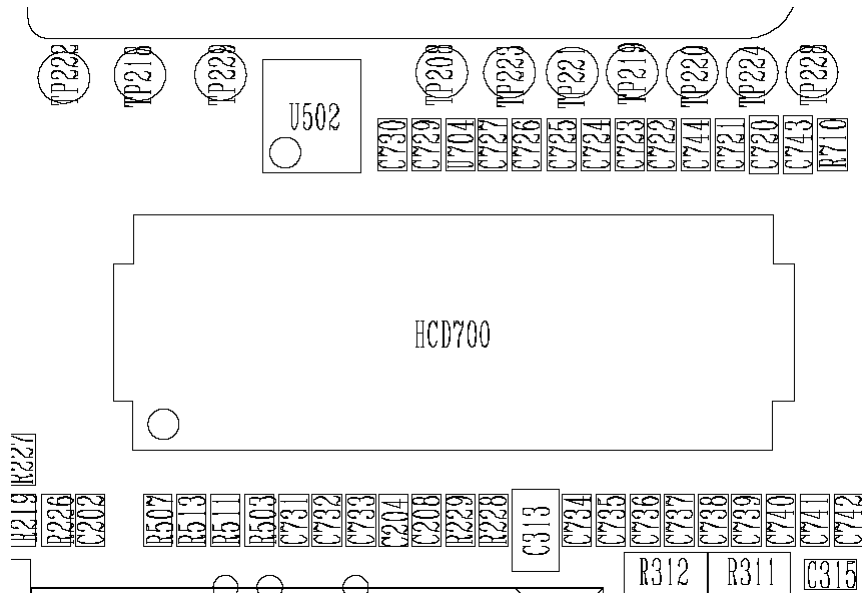


9-9. Back Light (for LCD)

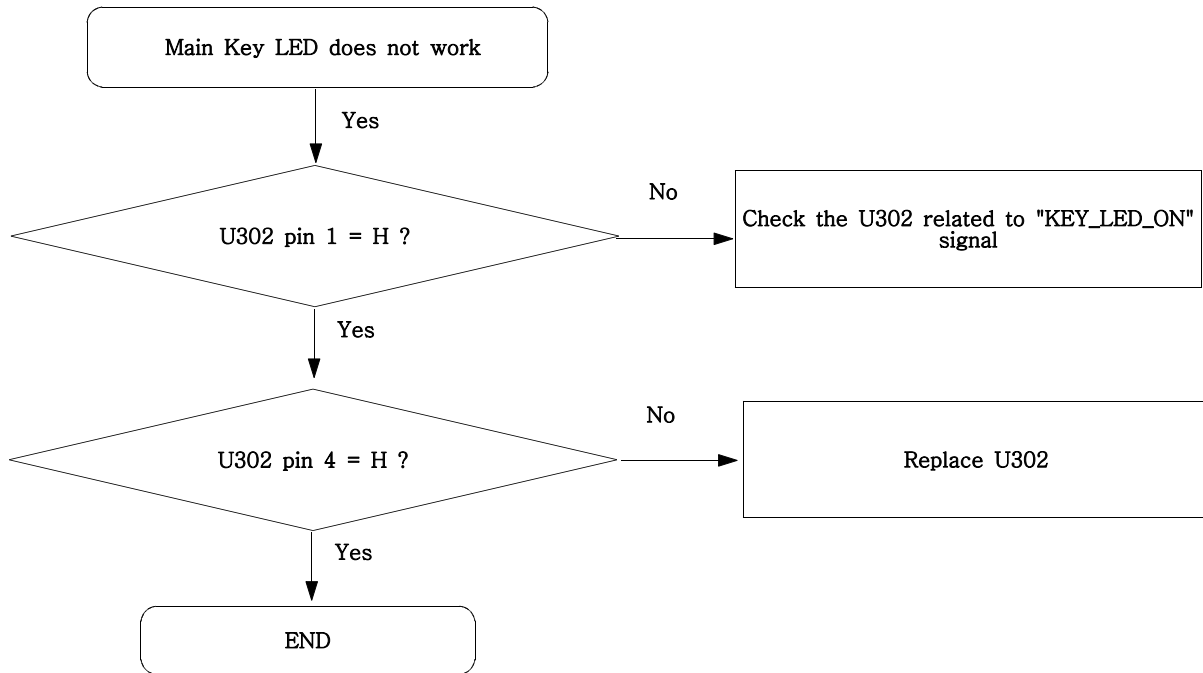


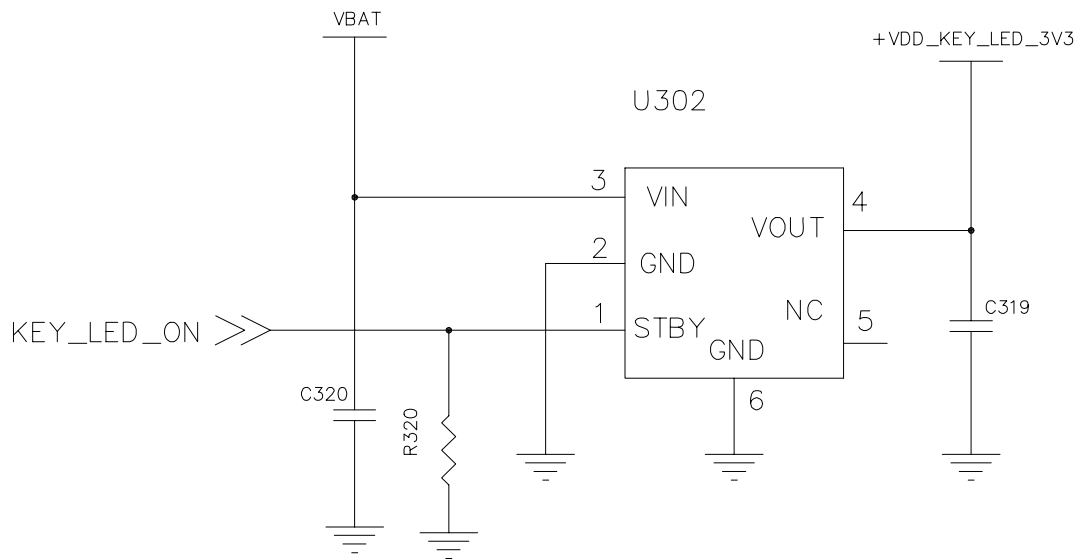


LCD_CONNECTOR

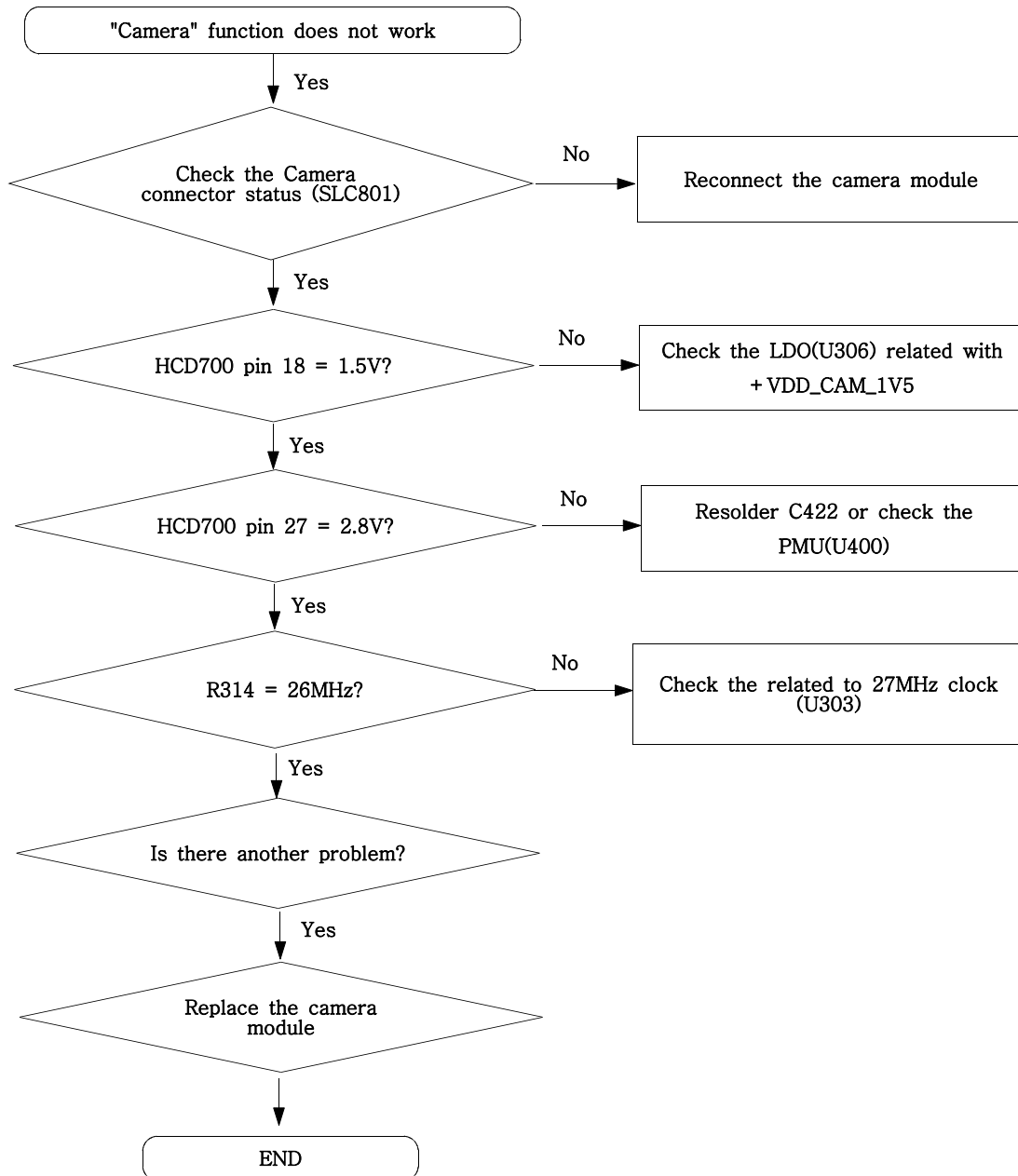


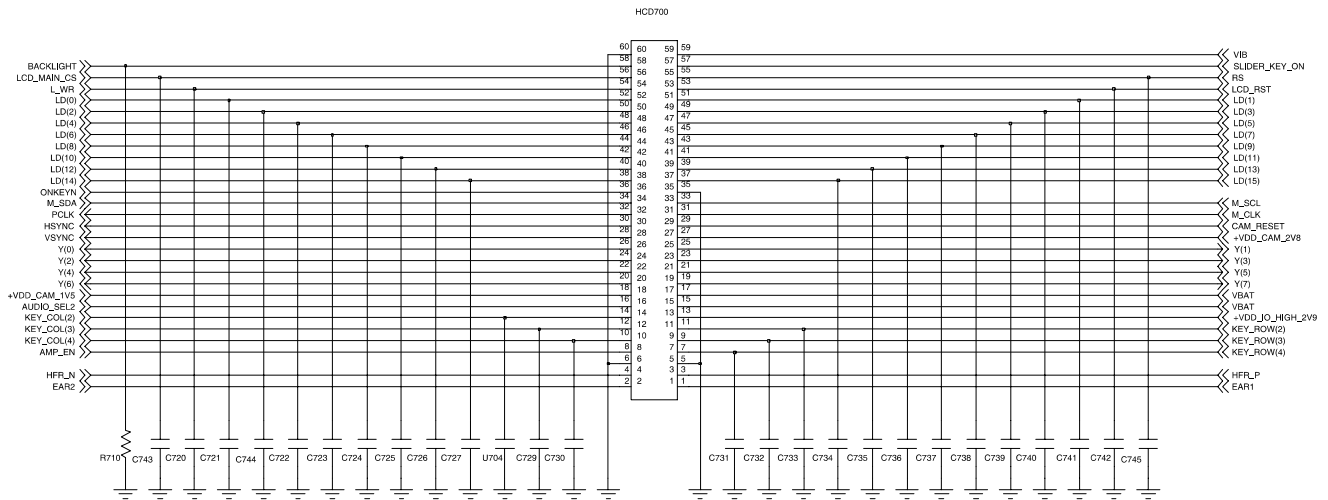
9-10. Key Back Light

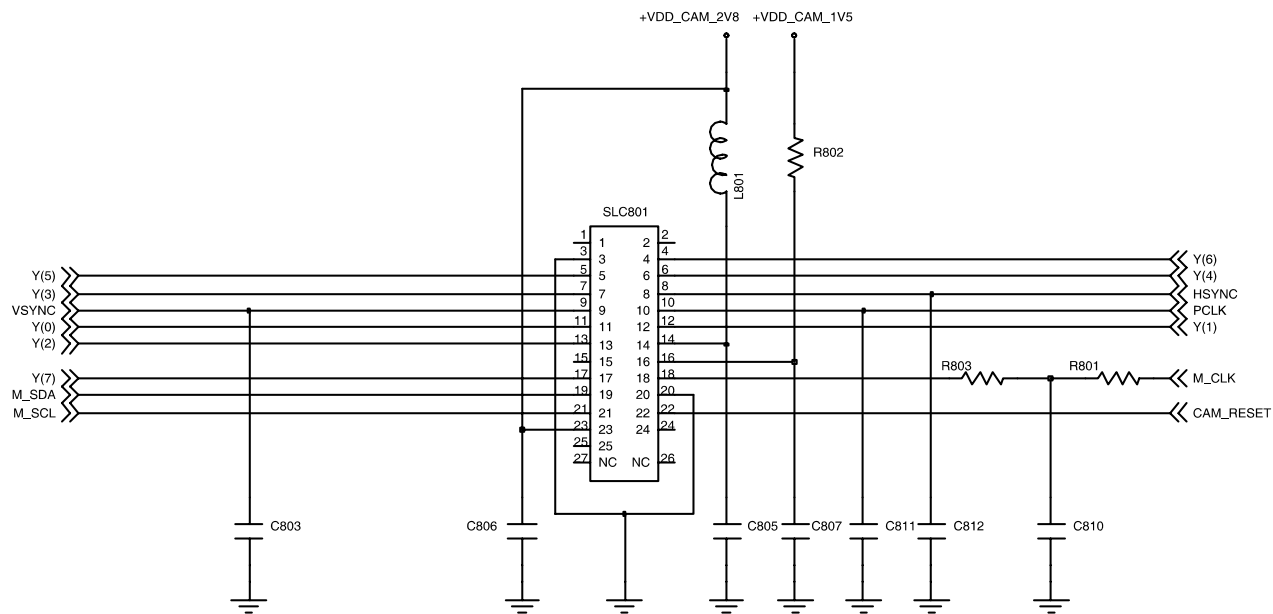




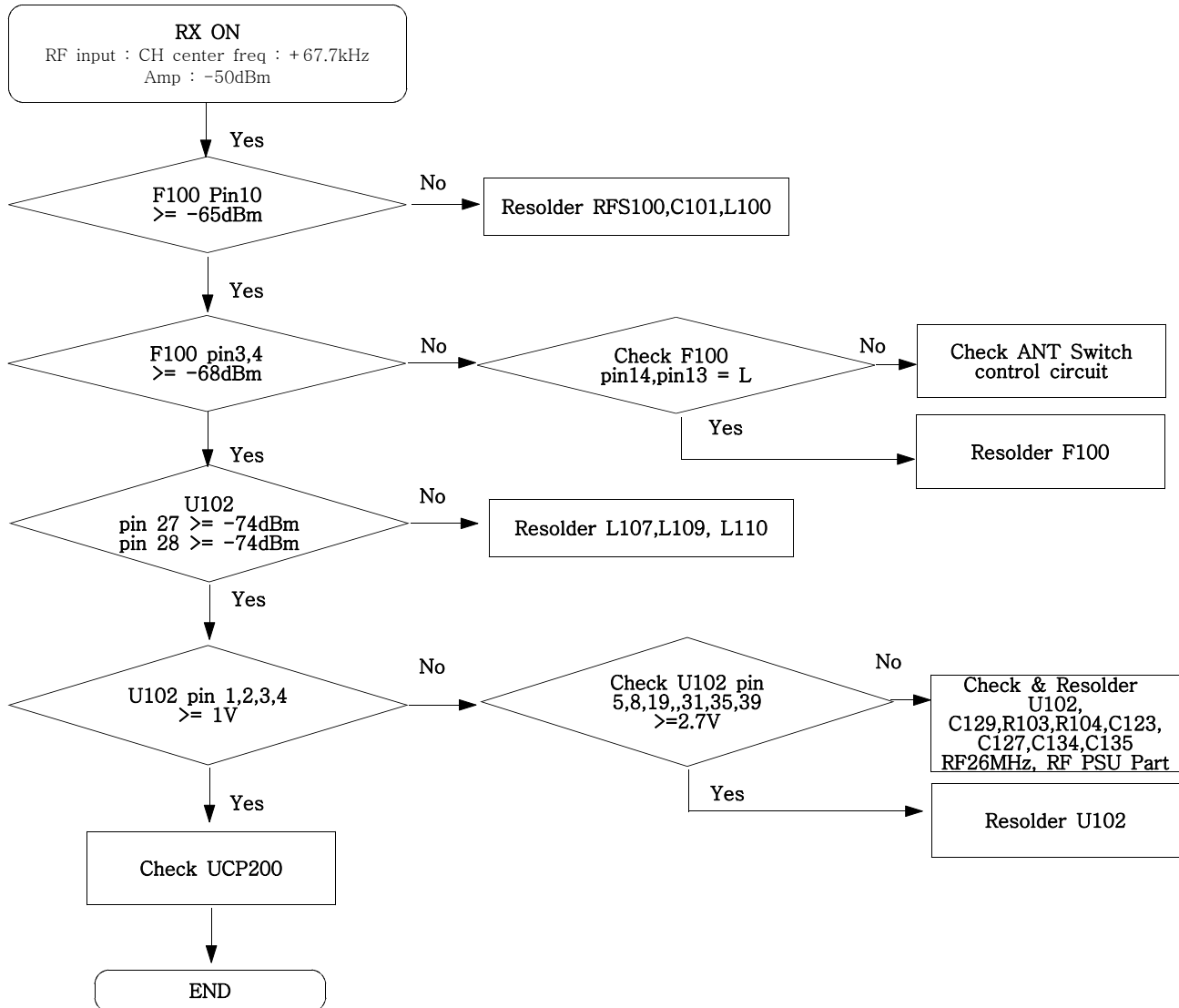
9-11. Camera part



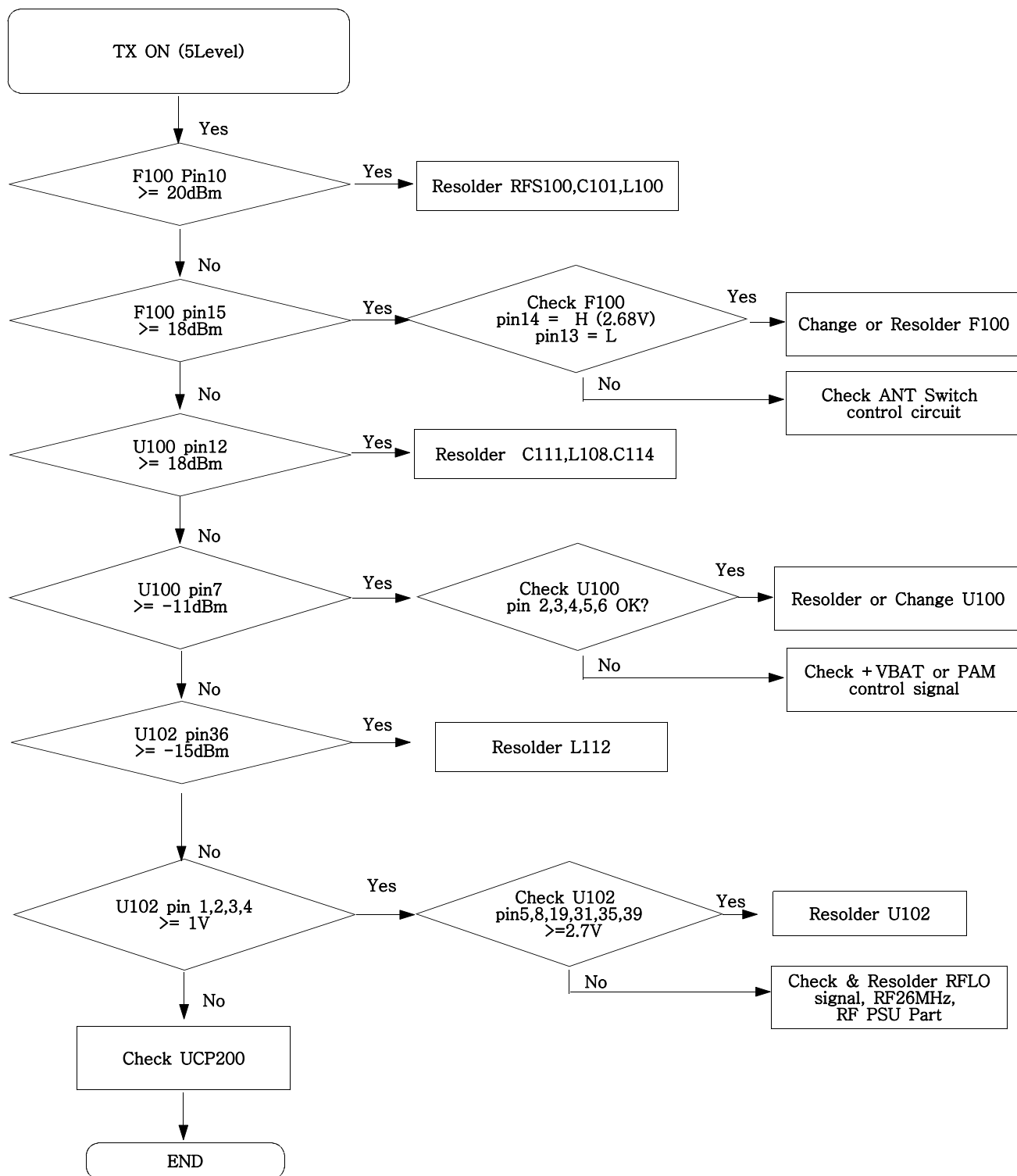




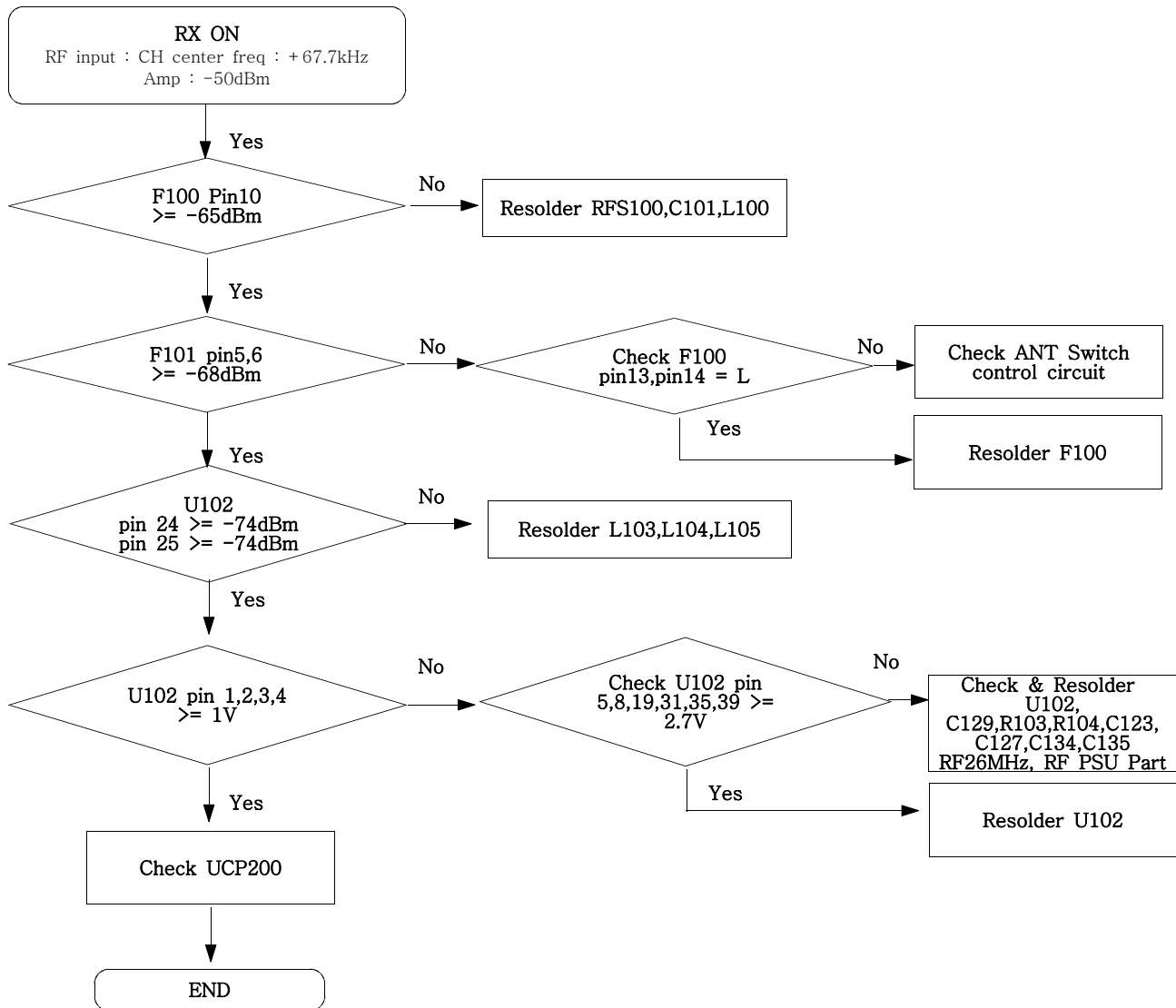
9-12. GSM900 Receiver



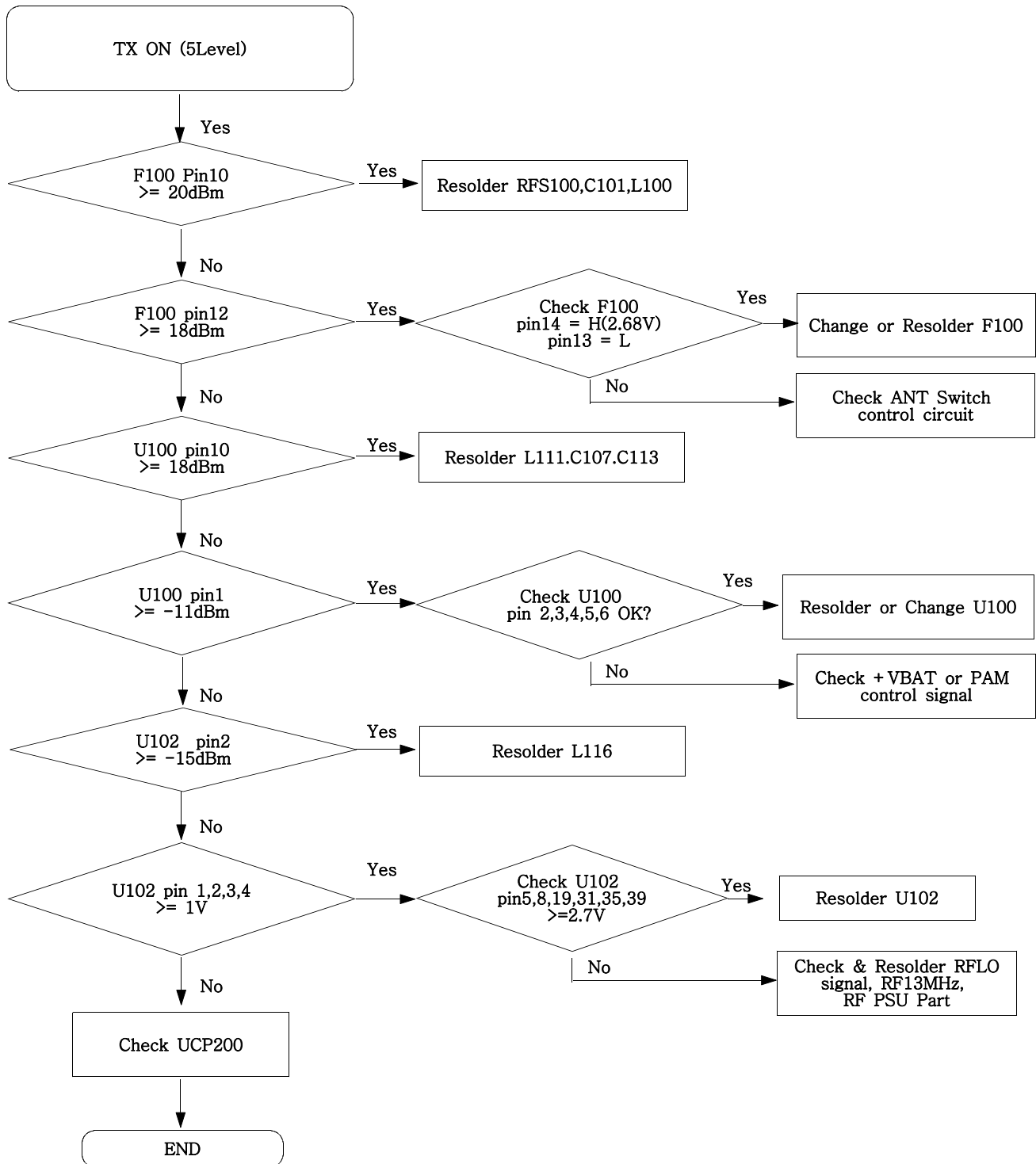
9-13. GSM900 Transmitter



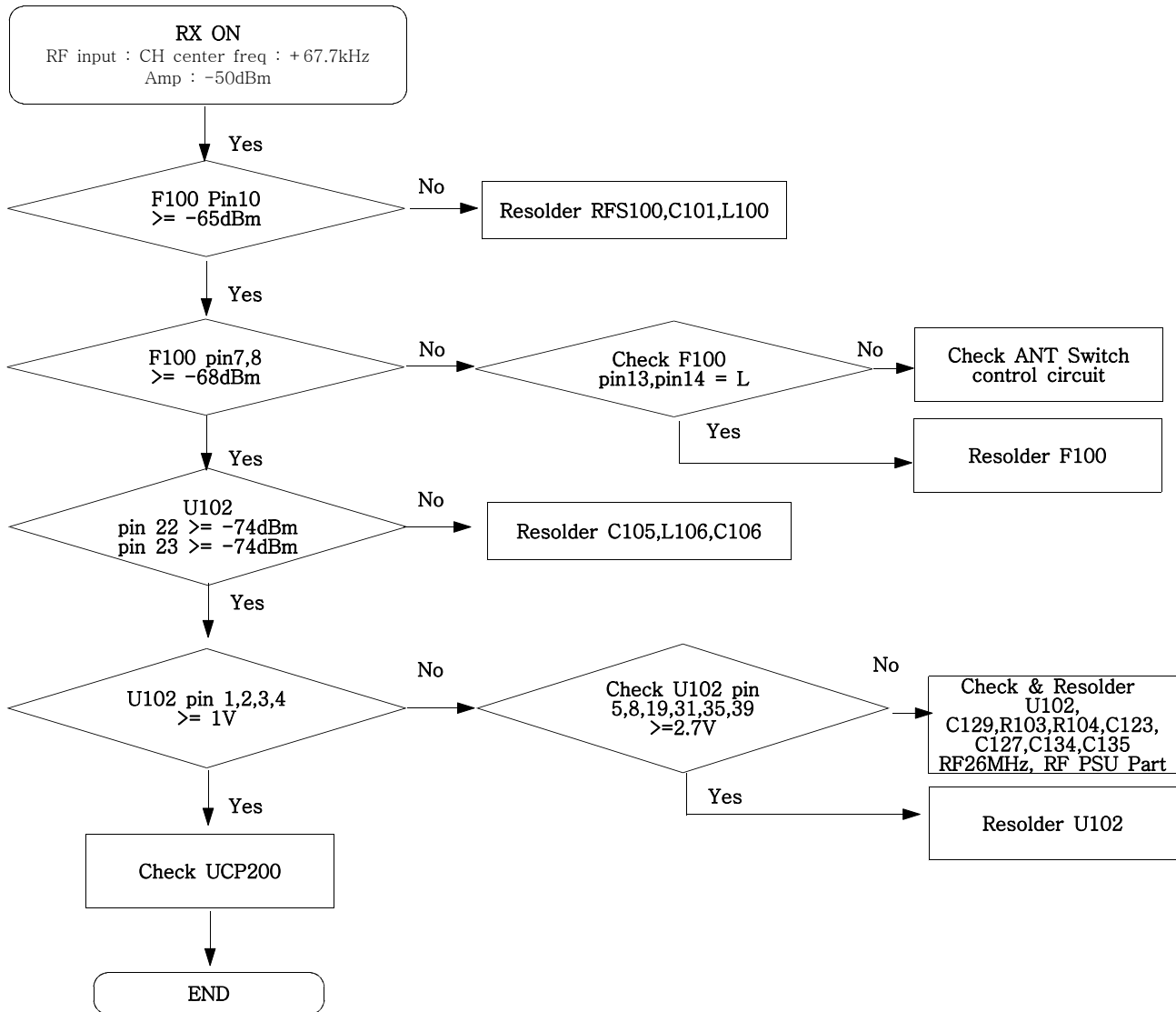
9-14. DCS Receiver



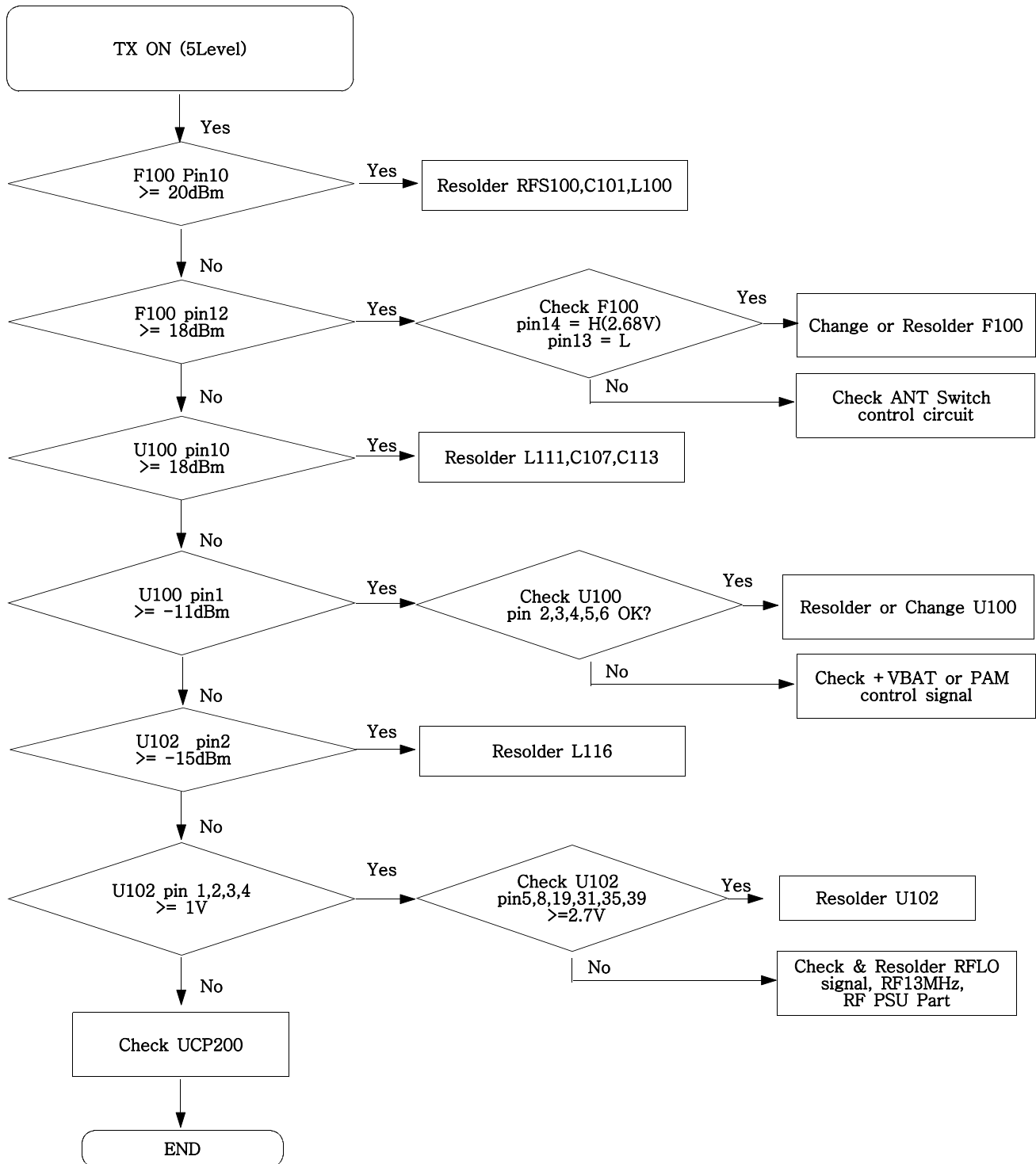
9-15. DCS Transmitter



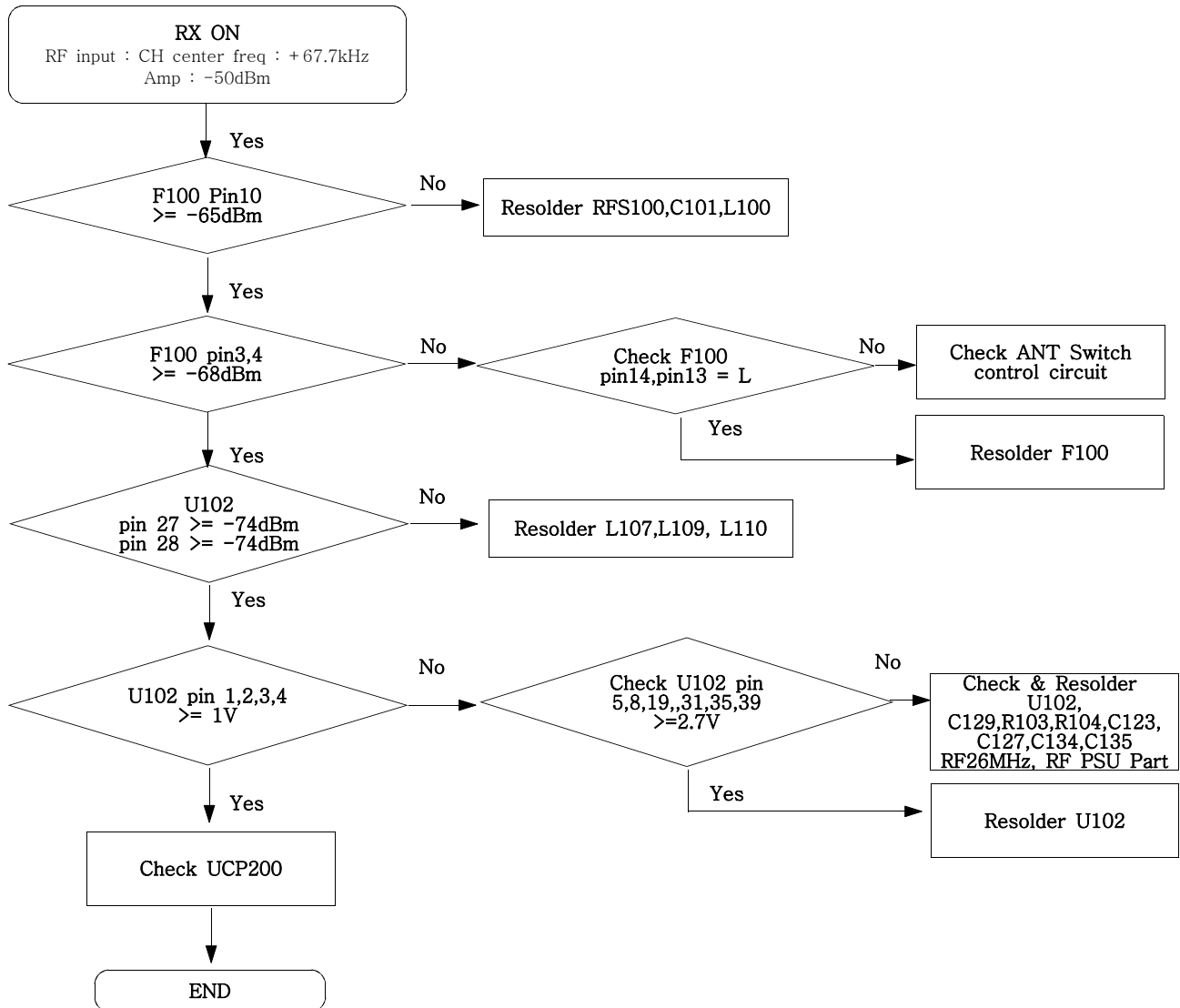
9-16. PCS Receiver



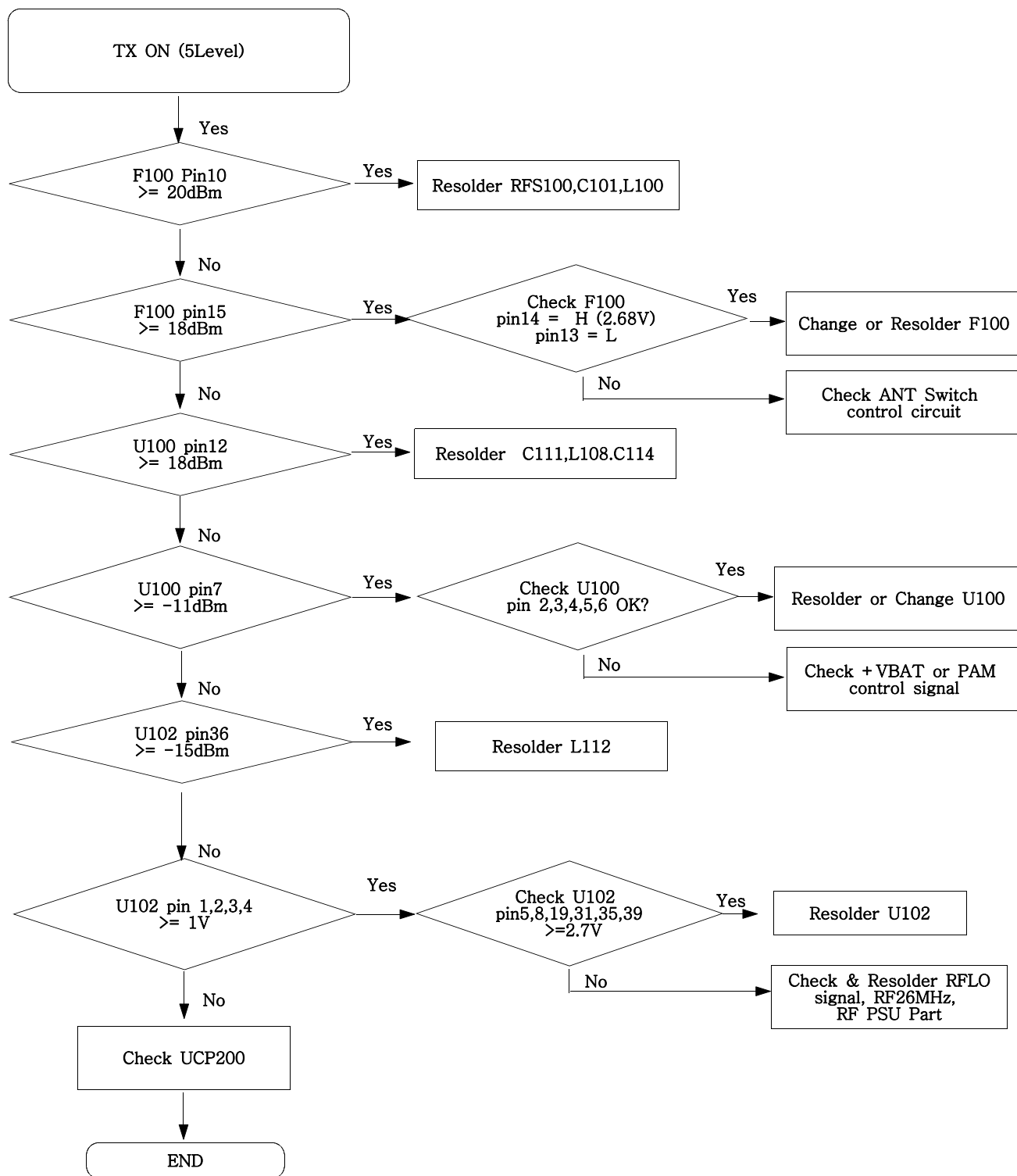
9-17. PCS Transmitter

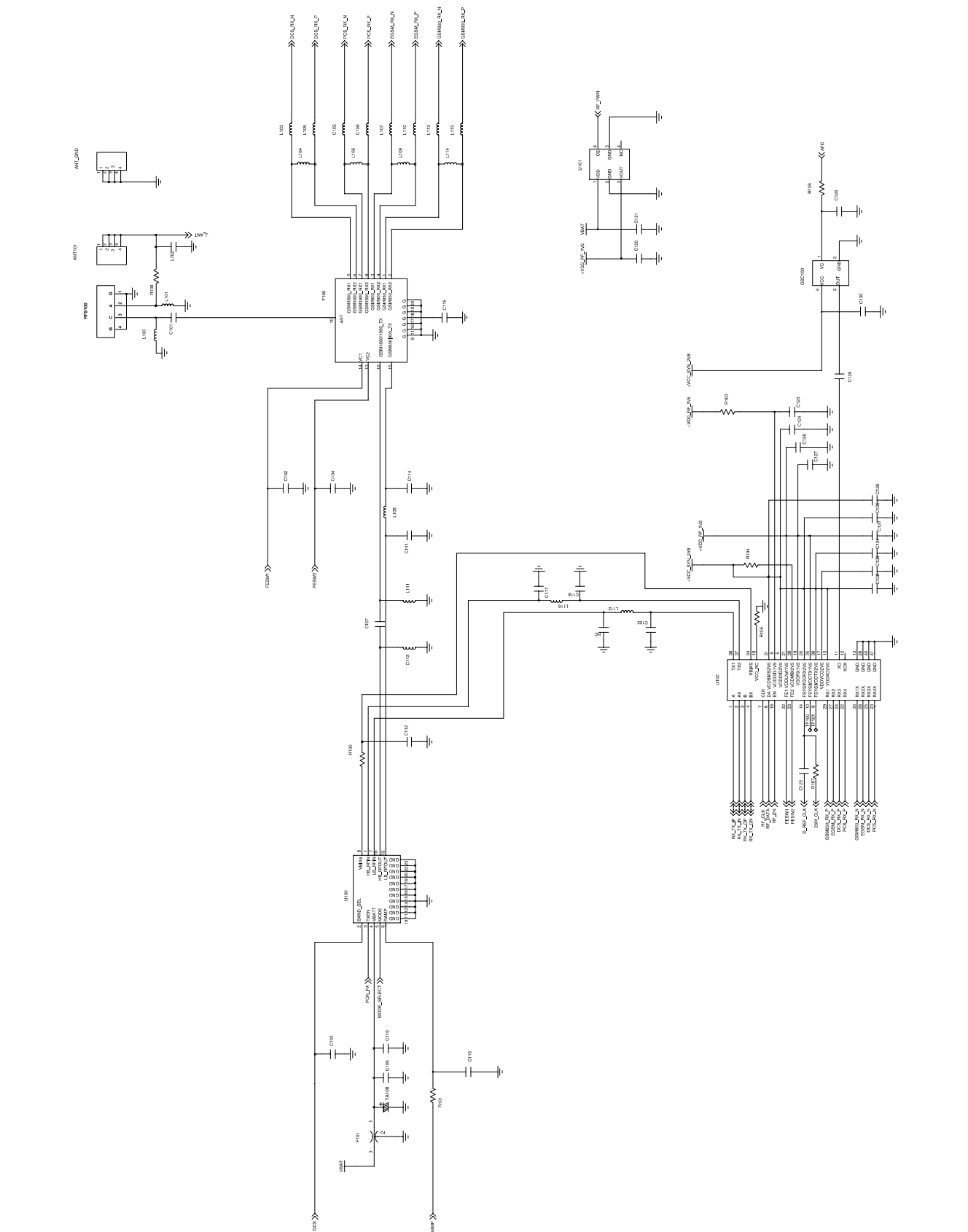


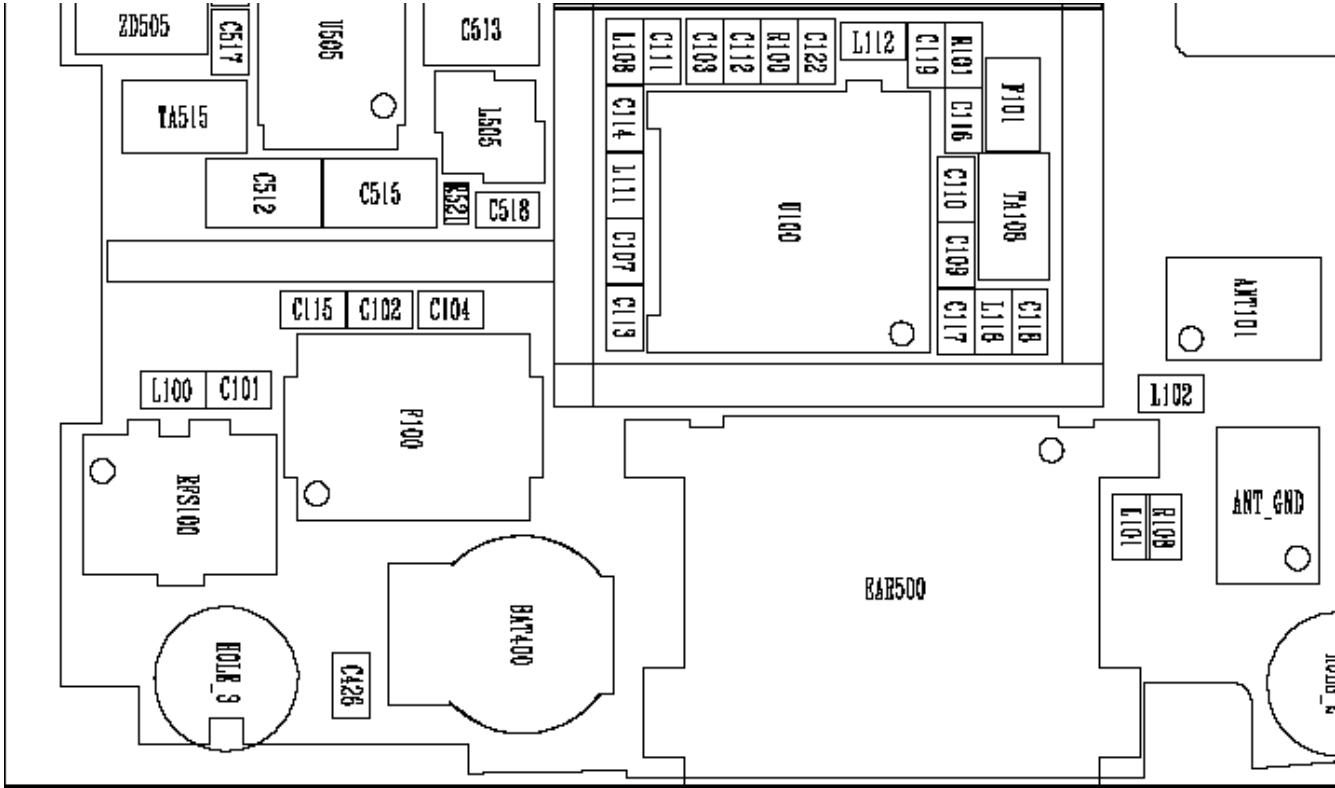
9-18. GSM850 Receiver



9-19. GSM900 Transmitter







10. Reference data

Reference Abbreviate

- AAC : Advanced Audio Coding
- ADC : Analog to Digital Converter
- AMR : Adaptive Multi-rate Codec, Narrow and Wide Band
- ARM : Advanced Risc Machines
- BAI : Baseband and Audio Interface
- BB : BaseBand
- BGA : Ball Grid Array
- DAC : Digital to Analog Converter
- DAI : **Digital Audio Interface**
- DSP : Digital Signal Processor (Saturn)
- EDGE : Enhanced Data Rates for GSM Evolution
- EEPROM : Electrically Erasable Programmable Read Only Memory
- EGPRS : Enhanced GPRS
- ETM : Embedded Trace Macrocell
- ETSI : European Telecommunications Standards Institute
- FM : Frequency Modulation
- FPGA : Field Programmable Gate Array
- FR : Full Rate
- FTA : Full Type Approval (GSM specification)
- GPIO : General Purpose Input Output
- GPRS : General Packet Radio Service
- GSM : Global System for Mobile communication
- I2C : Inter IC Control bus; I2C-bus design unit
- I2S : Inter IC Sound bus
- IC : Integrated Circuit
- JTAG : Joint Test Action Group
- KBS : Keyboard Scanner
- LCD : Liquid Crystal Display
- MCP : Multi Chip Package
- MICBIAS : Microphone Bias
- MMC : Multi Media Card
- MMI : Man Machine Interface
- MP3 : MPEG Audio Layer 3
- MPEG : Motion Picture Expert Group

- **PCM** : Pulse Code Modulation
- **PDCU** : Power-Down Control Unit
- **PIO** : Parallel IO unit
- **PLL** : Phase Locked Loop
- **RAM** : Random Access Memory
- **ROM** : Read Only Memory
- **SRAM** : Static Random Access Memory
- **SW** : Software
- **TDMA** : Time Division Multiple Access
- **UART** : Universal Asynchronous Receiver Transmitter
- **UMTS** : Universal Mobile Telecommunication System
- **USB** : Universal Serial Bus
- **USIM** : UMTS SIM

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