

SAMSUNG

GSM TELEPHONE

SGH-X656

SERVICE *Manual*

GSM TELEPHONE



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**SAMSUNG
ELECTRONICS**



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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 manetic 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

	GSM850 Phase 1	DCS1800 Phase 1	PC1900 Phase 1
Freq. Band[MHz] Uplink/Downlink	824~849 869~894	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	128~251	512~885	512~810
Tx/Rx spacing	45MHz	95MHz	80MHz
Mod. Bit rate/ Bit Period	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
Modulation	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm
Power Class	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-100dBm	-100dBm
TDMA Mux	8	8	8
Cell Radius	35Km	2Km	2Km

2-2. GSM TX power class

TX Power control level	GSM850	TX Power control level	DCS1800	TX Power control level	PCS1900
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

3. Product Function

Main Function

- Camera
- Phonebook
- Multimedia Message Service (MMS)
- Voice recorder
- WAP browser
- Java
- Calendar
- Voice Mail
- FM Radio

4. Array course control



Test Jig (GH80-01909A)



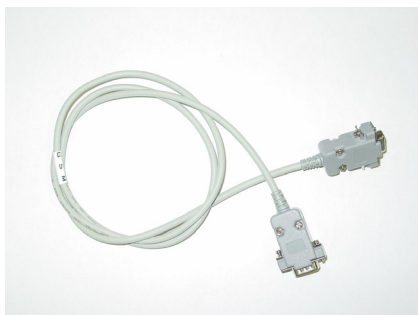
RF Test Cable
(GH39-00283A)



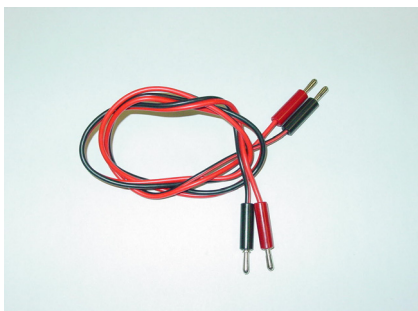
Test Cable
(GH39-00217A)



DATA CABLE
(GH39-00219A)



Serial Cable



Power Supply Cable



TA
(GH44-00643A)

Software Downloading

4-1. Downloading Binary Files

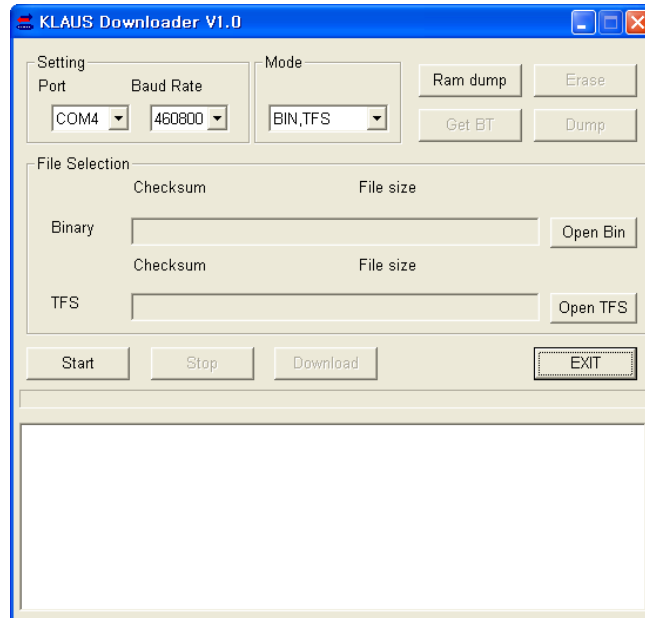
- Two files for downloading SGH-X656.
 - X656XXYY.cla : Main source binary code.
 - X656XXYY.tfs : Application code.

4-2. Pre-requisite for Downloading

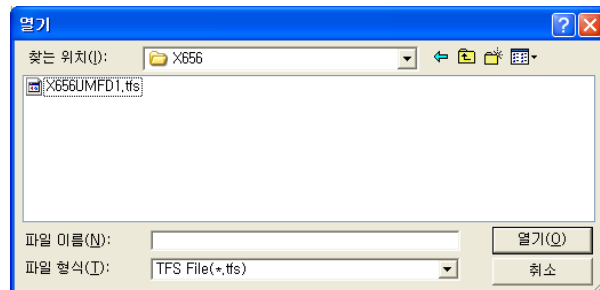
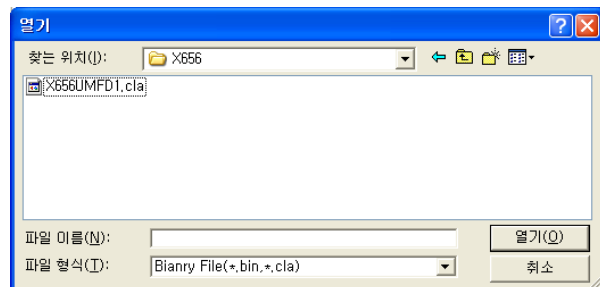
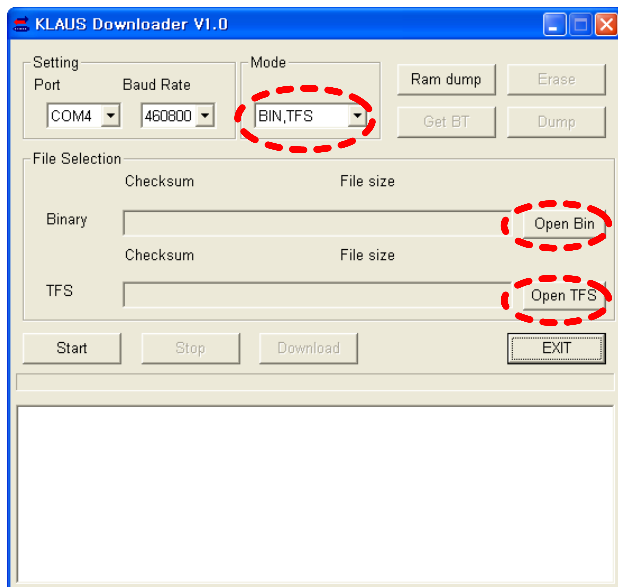
- Downloader Program([KLAUS_Downloader_V1.0](#))
- X656 Mobile Phone
- Data Cable
- Binary files
- Application files

4-3. S/W Downloader Program

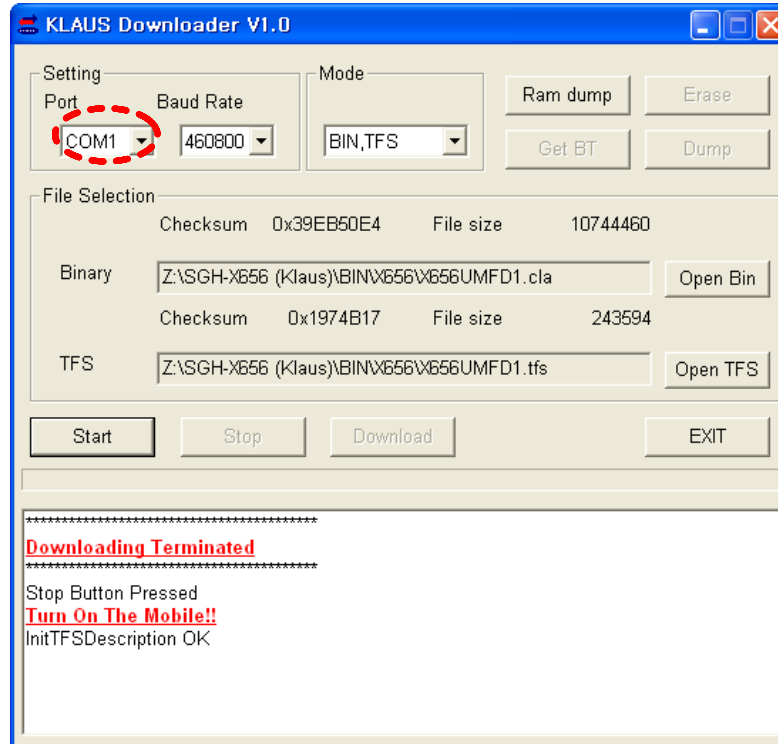
1. Load the binary download program by executing the "[KLAUS_Downloader_V1.0.exe](#)"



2. Select the "**BIN+TFS**" and
 - Click the "**BIN...**" and select X656XXYY.cla file
 - Click the "**TFS...**" and select X656XXYY.tfs file

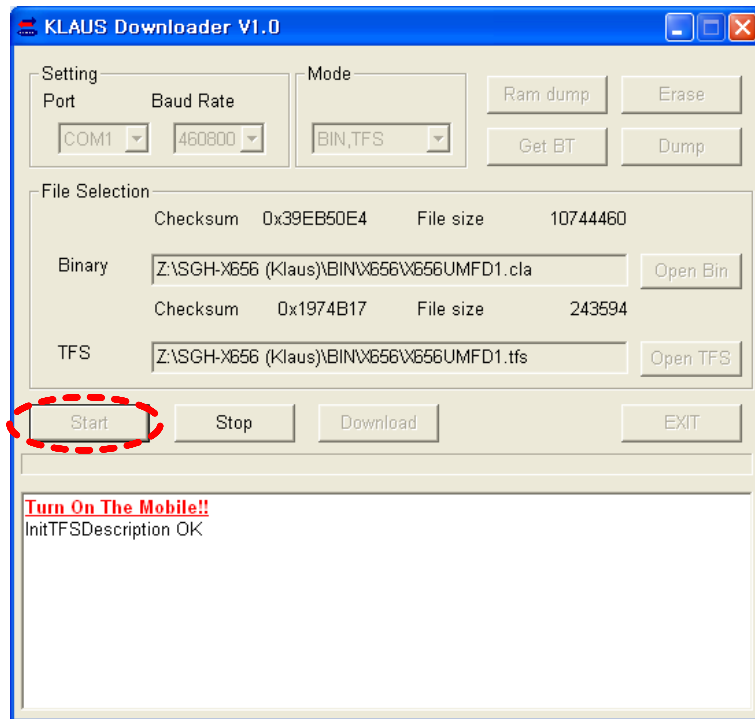


3. Select the **Serial Port** when the download cable is connected

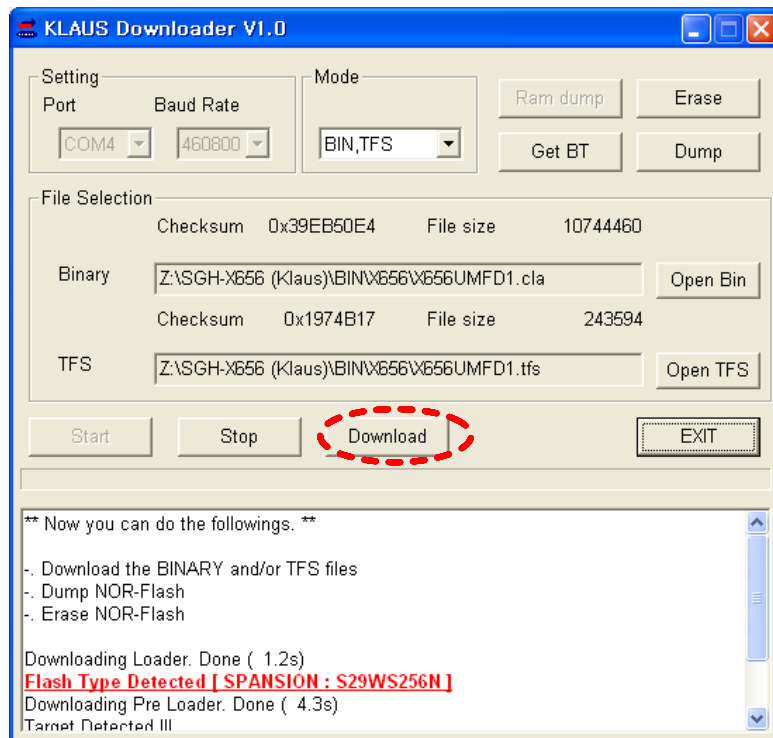


Up to 51 ports are supported. Additionally you can select the maximum transfer speed OptiFlash will use to communicate with the phone. However, [KLAUS_Downloader_V1.0](#) will use a slower speed if either the PC's or the phone's serial hardware is incapable of handling the selected speed

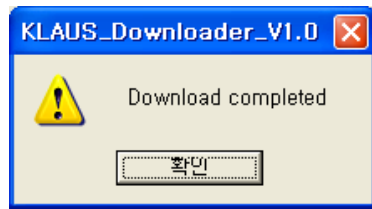
4. Select the **"START"** and Power on the Phone



5. Click **"DOWNLOAD"** and then start Downloading.



6. When downloading is finished successfully, there is a "Download completed" message.



7. After finishing downloading, Certain memory resets should be done to guarantee the normal performance.♪

8. Confirm the downloaded version name and etc. :♪

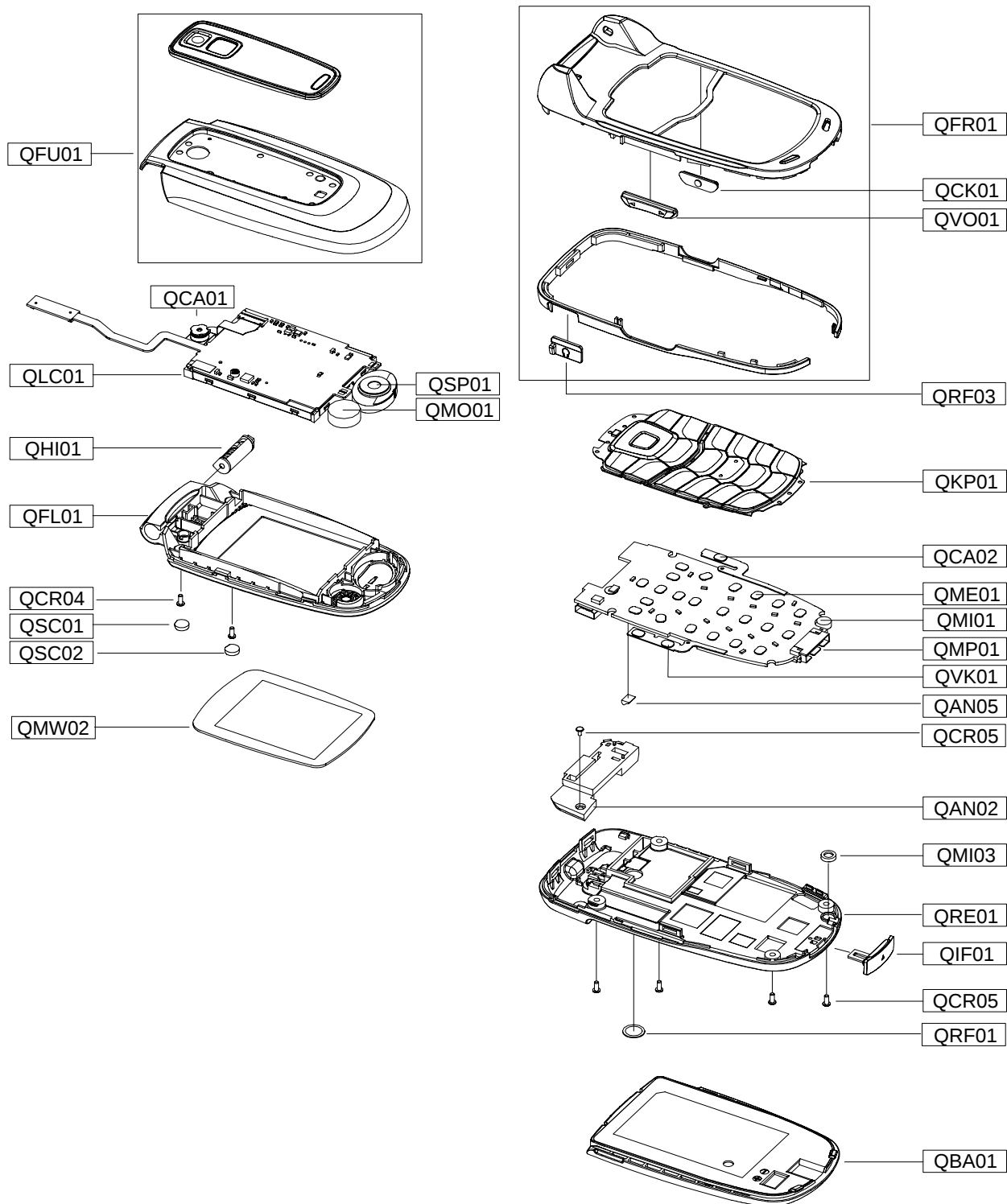
***#5002*8376263#**♪

Full Reset : ♪

***2767*3855#**

5. Exploded View / Disassembly and Assembly Instructions

5-1. Cellular phone Exploded View



5-2. Cellular phone Parts list

QAN02	INTENNA-SGHX656	GH42-00811A
QAN05	ASSY MEC-ANT RUBBER	GH75-08511A
QBA01	BATTERY-800MAH, CLD/SIL,SPA, M	GH43-02410A
QCA01	UNIT-CAMERA	GH59-02886A
QCA02	UNIT-CAMERA KEY	GH59-02952A
QCK01	PMO-CAMERA KEY	GH72-28086A
QCR04	SCREW-MACHINE	6001-001479
QCR05	SCREW-MACHINE	6001-001478
QCR05	SCREW-MACHINE	6001-001478
QFL01	MEC-CASE FOLDER LOWER	GH75-09281B
QFR01	MEC-CASE FRONT	GH75-09279B
QFU01	MEC-CASE FOLDER UPPER	GH75-09280B
QHI01	ASSY MEC-HINGE ASSY	GH75-04334B
QIF01	PMO-COVER IF	GH72-28083B
QKP01	ASSY-KEY-KEYPAD(EU/SIL)	GH98-01033B
QLC01	LCD-M/S SGHX656	GH07-00996A
QME01	UNIT-METAL DOME	GH59-02953A
QMI01	MICROPHONE-ASSY-SGHX650	GH30-00257A
QMI03	RMO-RUBBER MIC	GH73-06509A
QMO01	MOTOR DC-SGHX670	GH31-00154E
QMP01	A/S MATERIAL ASSY-PBA MAIN	GH82-01899A
QMW02	PCT-COVER MAIN WINDOW	GH72-29280B
QRE01	MEC-CASE REAR	GH75-09282B
QRF01	MPR-TAPE RF CAP	GH74-21182B
QRF03	PMO-COVER EAR	GH72-28082B
QSC01	ASSY-COVER-SCREW CAP	GH98-00708B
QSC02	ASSY-COVER-SCREW CAP R	GH98-00981B
QSP01	SPEAKER	3001-001935
QVK01	UNIT-VOLUME KEY	GH59-02951A
QVO01	PMO-VOLUME KEY	GH72-28085A

ADAPTOR-SGHE715 TA(JAPAN)	GH44-00643A
UNIT-EARPHONE(SIL)	GH59-02472B
LABEL(P)-WATER SOAK	GH68-02026A
MPR-CUSHION BOARD LIGHT	GH74-21170A
MPR-TAPE HALL IC	GH74-23639A
MPR-TAPE DOME SHEET	GH74-23640A
MPR-SPONGE FRONT L	GH74-24941A
MPR-SPONGE FRONT R	GH74-24942A
MPR-TAPE LCD CONN	GH74-25180A
SPRING ETC-BATT LOCKER	GH61-00120A
RMO-CUSHION RUBBER CON FPCB	GH73-07327A
MPR-BOHO VINYL LCD CONN	GH74-15350A
MPR-CUSHION FPCB HOLE	GH74-21180A
MPR-VINYL BOHO LCD WIN	GH74-21195A
MPR-TAPE VIBRATOR	GH74-24474A
MPR-EMI TAPE LCD BOTTOM	GH74-24302A
MPR-TAPE LCD	GH74-24286A
MANUAL USERS-LTA ENGILSH	GH68-10745A
MANUAL USERS-LTA SPANISH	GH68-10746A
BAG PE	6902-000634
LABEL(R)-MAIN(LTN)	GH68-09823A
LABEL(P)-MIAMI	GH68-12219A
CUSHION-CASE(EU)	GH69-03673A
BOX(P)-UNIT(LTN)	GH69-03840A

5-3. Disassembly and Assembly Instructions

- Disassembly

1

- 1) Unscrew the REAR at the four points.
- 2) Disassemble the IF COVER
- 3) Disassemble the EAR COVER



2

- 1) Disassemble the Rear from the bottom side to the upper side.

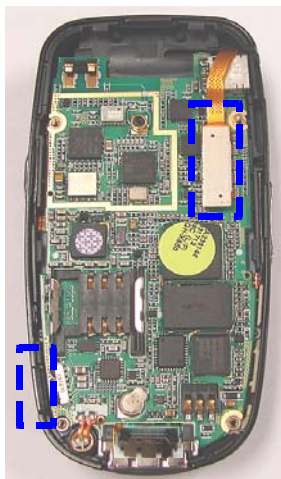


1) Be careful not to make scratch and molding damage!

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

3

- 1) Disassemble the LCD CONNECTOR/IRDA WINDOW
- 2) Disassemble the PBA from the FRONT ASS'Y
- 3) Remove the FRONT TAPE
- 4) Disassemble the Keypad.



4



- 1) Push the hinge between Folder Upper and lower, And Disassemble Front from Folder.

1) When PBA is separated from LCD Connector, Be careful not to damage!
2) Be careful not to damage LCD FPCB!

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

5

- 1) Remove screw caps.
- 2) Unscrew the FOLDER Upper.



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

6

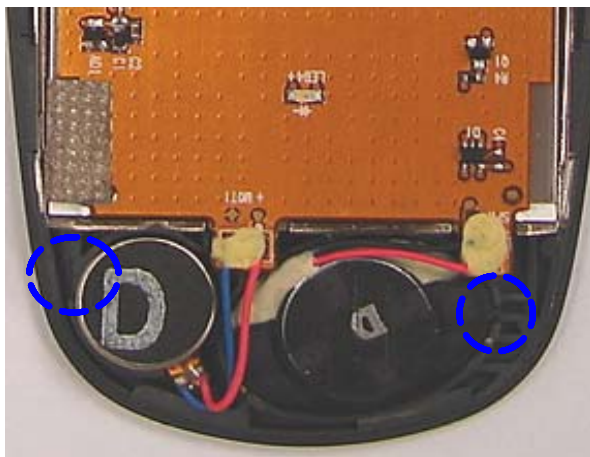
- 1) By using an assembly stick, Disassemble Folder Upper from Folder lower (Right and Left are the same process)



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

7

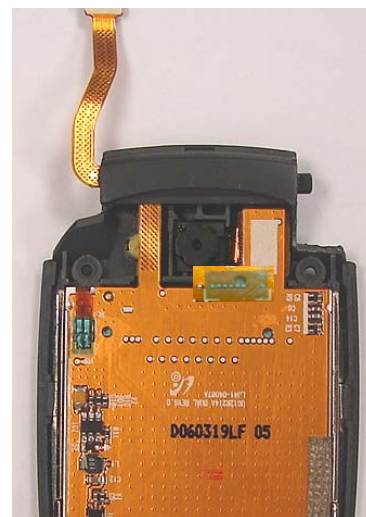
- 1) Disassemble the MOTOR and the SPEAKER from FOLDER LOWER by using a pincette.



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

8

- 1) Disassemble the Camera module and the LCD FPCB when LCD module is disjointed.

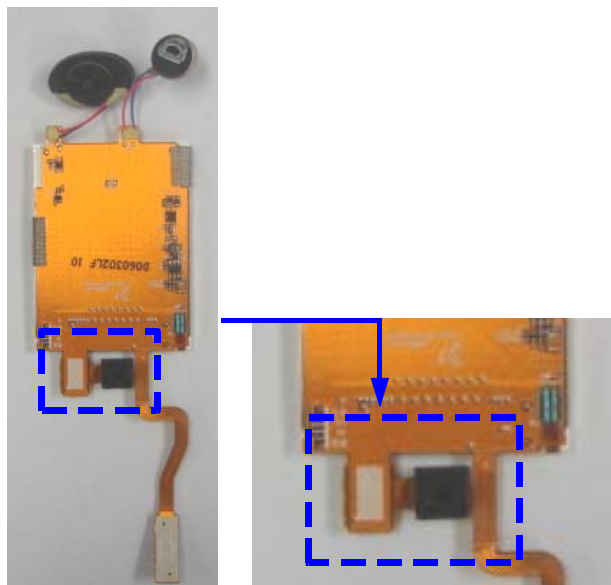


- 1) Be careful not to damage the LCD FPCB and the Camera module.

- Assembly

1

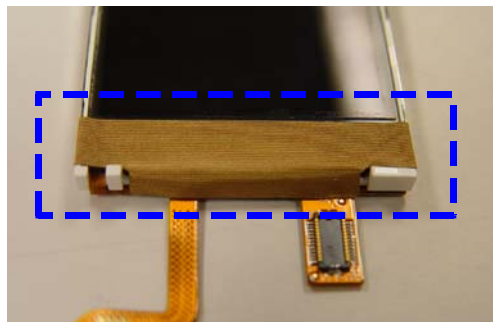
1) Connect Camera module to LCD.



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

2

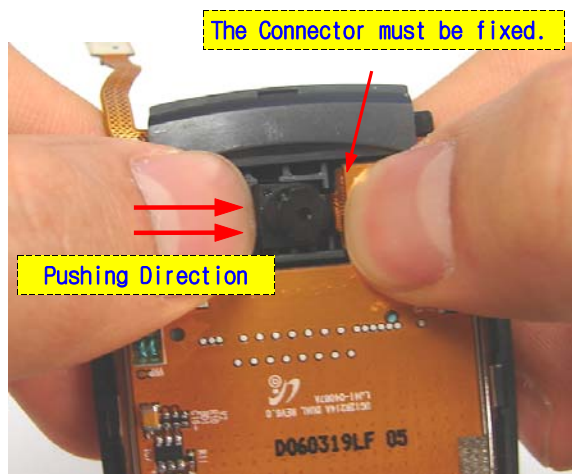
1) Attach The EMI TAPE.



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

3

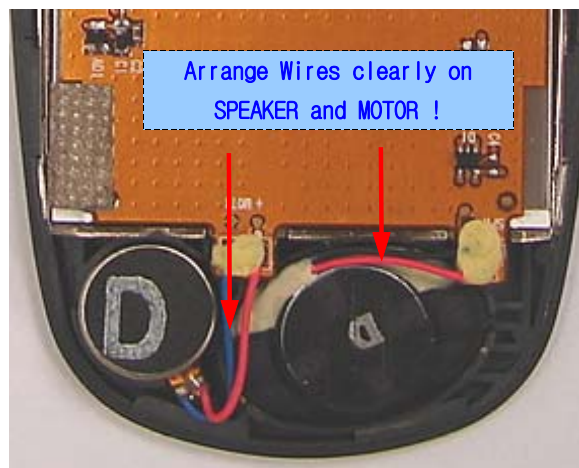
1) Insert FPCB into FOLDER LOWER.
2) Insert Camera module[Pushing right direction as the above picture is shown] when the Connector is fixed.



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

4

1) Insert FPCB into FOLDER LOWER.



1) When inserted FPCB, Arrange Wires clearly as above picture is shown.

5

- 1) Assemble FOLDER UPPER with FOLDER LOWER following the orders as above picture is shown.
- 2) Screw up the FOLDER UPPER at the above two points.(M1.4xL4)



- 1) Be careful not to make scratch and molding damage!
- 2) Use 1.2 ± 0.2 Kgf.cm!

6

- 1) Attach Screw rubber caps on the screws by using a pincette.



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

7

- 1) Insert LCD FPCB[which is connected to FOLDER] into the bottom of FRONT Hinge.
- 2) The FOLDER's projection inserts the FRONT'S hole when Projection is pushed
- 3) Assemble FOLDER with FRONT



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

8

- 1) Attach FRONT Protection TAPE as a above picture is shown.

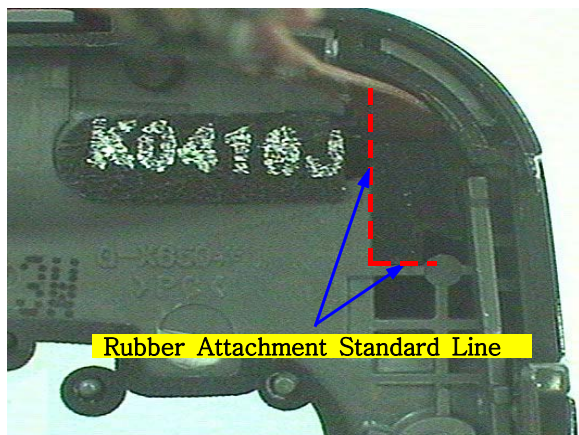
Attach FRONT
Protection TAPE!



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

9

1) Attach the Rubber following Red Line as the above picture is shown.



1) Be careful not to damage LCD FPCB!

10

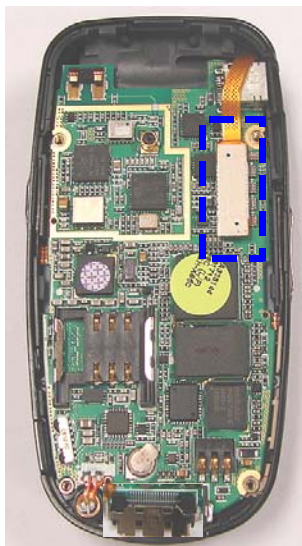
1) Insert the KEYPAD.



1) Be careful not to insert keypad into FRONT incorrectly! [Put KEYPAD Holes into FRONT Projection correctly!]

11

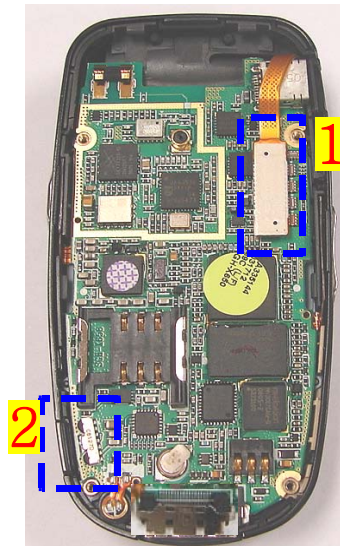
1) Insert PBA into FRONT.
2) Connect LCD FPCB to PBA CONNECTOR.



1) Be careful not to damage LCD FPCB!
2) Be careful not to damage PBA

12

1) Insert EAR COVER at Above 1 Point.
2) Insert IRDA WINDOW at Above 2 Point.



1) Be careful not to insert PBA into FRONT incorrectly!

13

1) Assemble the rear from 1 direction to 2 direction as the above picture is shown.



- 1) Be careful not to make scratch and molding damage!
- 2) Be careful not to miss EAR COVER and IRDA WINDOW when it is assembled!

14

1) Screw up the REAR at 4 Points.
[M1.4* L4]
2) Insert IF COVER.



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

6. MAIN Electrical Parts List

Ddsign LOC	Discription	SEC Code	STATUS
ANT200	NPR-ANTENNA CONTACT	GH71-05744A	SA
ANT201	NPR-ANTENNA CONTACT	GH71-05744A	SA
BAT500	BATTERY-LI(2ND)	4302-001130	SA
BAT600	HEADER-BATTERY	3711-005897	SA
C100	C-CER,CHIP	2203-005482	SA
C103	C-CER,CHIP	2203-000233	SA
C104	C-CER,CHIP	2203-000233	SA
C105	C-CER,CHIP	2203-005138	SA
C106	C-CER,CHIP	2203-005482	SA
C109	C-CER,CHIP	2203-002525	SA
C110	C-CER,CHIP	2203-000838	SA
C111	C-CER,CHIP	2203-006961	SA
C112	C-CER,CHIP	2203-005482	SA
C113	C-CER,CHIP	2203-005057	SA
C114	C-CER,CHIP	2203-005057	SA
C115	C-CER,CHIP	2203-005482	SA
C116	C-CER,CHIP	2203-000254	SA
C117	C-CER,CHIP	2203-005481	SA
C118	C-CER,CHIP	2203-005480	SA
C119	C-CER,CHIP	2203-000233	SA
C120	C-CER,CHIP	2203-000233	SA
C121	C-CER,CHIP	2203-006562	SA
C122	C-CER,CHIP	2203-000438	SA
C123	C-CER,CHIP	2203-005482	SA
C124	C-CER,CHIP	2203-005057	SA
C125	C-CER,CHIP	2203-000233	SA
C126	C-CER,CHIP	2203-006562	SA
C128	C-CER,CHIP	2203-000585	SA
C129	INDUCTOR-SMD	2703-002170	SA
C130	C-CER,CHIP	2203-000609	SA
C132	C-CER,CHIP	2203-000679	SA
C134	C-CER,CHIP	2203-000679	SA
C135	C-CER,CHIP	2203-000585	SA
C136	C-CER,CHIP	2203-000585	SA
C137	C-CER,CHIP	2203-000585	SA
C138	C-CER,CHIP	2203-000585	SA
C201	C-CER,CHIP	2203-005482	SA
C202	C-CER,CHIP	2203-000311	SA
C203	C-CER,CHIP	2203-000585	SA
C204	C-TA,CHIP	2404-001411	SA
C205	C-CER,CHIP	2203-005482	SA
C206	C-CER,CHIP	2203-006190	SA
C207	C-CER,CHIP	2203-006190	SA
C209	C-CER,CHIP	2203-000812	SA
C210	C-CER,CHIP	2203-002668	SA
C212	C-CER,CHIP	2203-000233	SA
C213	C-CER,CHIP	2203-000233	SA
C214	C-CER,CHIP	2203-000278	SA
C217	C-CER,CHIP	2203-005281	SA

Ddsign LOC	Discription	SEC Code	STATUS
C300	C-CER,CHIP	2203-005061	SA
C301	C-CER,CHIP	2203-005061	SA
C302	C-CER,CHIP	2203-005061	SA
C303	C-CER,CHIP	2203-005061	SA
C304	C-CER,CHIP	2203-000254	SA
C305	C-CER,CHIP	2203-005061	SA
C306	C-CER,CHIP	2203-005061	SA
C307	C-CER,CHIP	2203-000254	SA
C308	C-CER,CHIP	2203-000254	SA
C309	C-CER,CHIP	2203-005482	SA
C310	C-CER,CHIP	2203-005482	SA
C311	C-CER,CHIP	2203-000854	SA
C313	C-CER,CHIP	2203-005482	SA
C314	C-CER,CHIP	2203-005482	SA
C315	C-CER,CHIP	2203-006562	SA
C316	C-CER,CHIP	2203-006562	SA
C317	C-CER,CHIP	2203-000679	SA
C400	C-CER,CHIP	2203-006562	SA
C401	C-CER,CHIP	2203-005061	SA
C403	C-CER,CHIP	2203-005061	SA
C404	C-CER,CHIP	2203-005061	SA
C405	C-CER,CHIP	2203-000643	SA
C407	C-CER,CHIP	2203-005482	SA
C409	C-CER,CHIP	2203-006562	SA
C410	C-CER,CHIP	2203-006562	SA
C411	C-CER,CHIP	2203-005061	SA
C500	C-CER,CHIP	2203-006208	SA
C501	C-CER,CHIP	2203-005482	SA
C502	C-CER,CHIP	2203-006208	SA
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C514	C-CER,CHIP	2203-005482	SA
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C522	C-CER,CHIP	2203-006208	SA

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C531	C-CER,CHIP	2203-005061	SA
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C818	C-CER,CHIP	2203-000233	SA
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C829	C-CER,CHIP	2203-005482	SA
C833	C-CER,CHIP	2203-000254	SA
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C835	C-CER,CHIP	2203-000854	SA
CN201	CONNECTOR-COAXIAL	3705-001358	SA
CN500	CONNECTOR-CARD EDGE	3709-001229	SA
CN600	CONNECTOR-INTERFACE	3710-001994	SA
CN601	JACK-PHONE	3722-002082	SA
D400	DIODE-TVS	0406-001231	SA
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F201	FILTER-EMI SMD	2901-001254	SA
F700	FILTER-EMI SMD	2901-001286	SA
F701	FILTER-EMI SMD	2901-001286	SA
F702	FILTER-EMI SMD	2901-001286	SA
F703	FILTER-EMI SMD	2901-001286	SA
F704	FILTER-EMI SMD	2901-001286	SA
HDC700	HEADER-BOARD TO BOARD	3711-005918	SA
L100	INDUCTOR-SMD	2703-002200	SA
L101	INDUCTOR-SMD	2703-002176	SA
L103	INDUCTOR-SMD	2703-002176	SA
L105	C-CER,CHIP	2203-000854	SA
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L107	INDUCTOR-SMD	2703-002208	SA
L108	INDUCTOR-SMD	2703-002208	SA
L208	INDUCTOR-SMD	2703-002313	SA
L210	R-CHIP	2007-000171	SA
L212	INDUCTOR-SMD	2703-001723	SA
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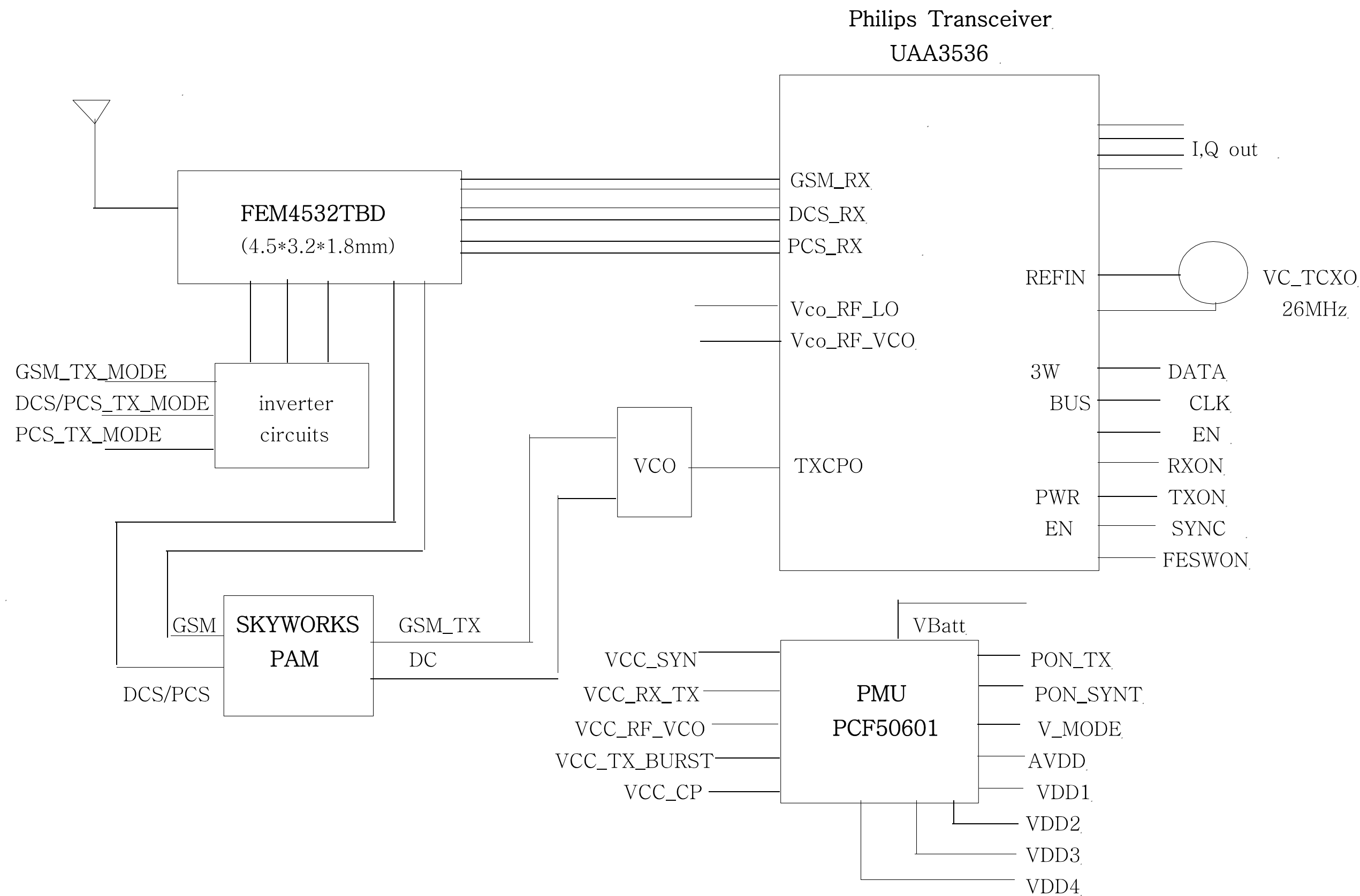
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OSC101	OSCILLATOR-VCTCXO	2809-001281	SA
Q200	TR-DIGITAL	0504-001151	SA
Q400	FET-SILICON	0505-002088	SA
R100	R-CHIP	2007-007148	SA
R101	R-CHIP	2007-000141	SA
R102	R-CHIP	2007-000171	SA
R103	R-CHIP	2007-007311	SA
R104	R-CHIP	2007-000566	SA
R105	R-CHIP	2007-000174	SA
R106	R-CHIP	2007-000148	SA
R107	R-CHIP	2007-000566	SA
R108	R-CHIP	2007-001305	SA
R109	R-CHIP	2007-003030	SA
R110	R-CHIP	2007-000982	SA
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R211	R-CHIP	2007-000171	SA
R212	R-CHIP	2007-000171	SA
R300	R-CHIP	2007-000174	SA
R301	R-CHIP	2007-000171	SA
R302	R-CHIP	2007-000162	SA
R303	R-CHIP	2007-007107	SA
R304	R-CHIP	2007-000159	SA
R305	R-CHIP	2007-007142	SA
R306	R-CHIP	2007-007107	SA
R307	R-CHIP	2007-000162	SA
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R309	R-CHIP	2007-007001	SA
R310	R-CHIP	2007-000141	SA
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R321	R-CHIP	2007-000143	SA
R322	R-CHIP	2007-000171	SA
R323	R-CHIP	2007-000162	SA
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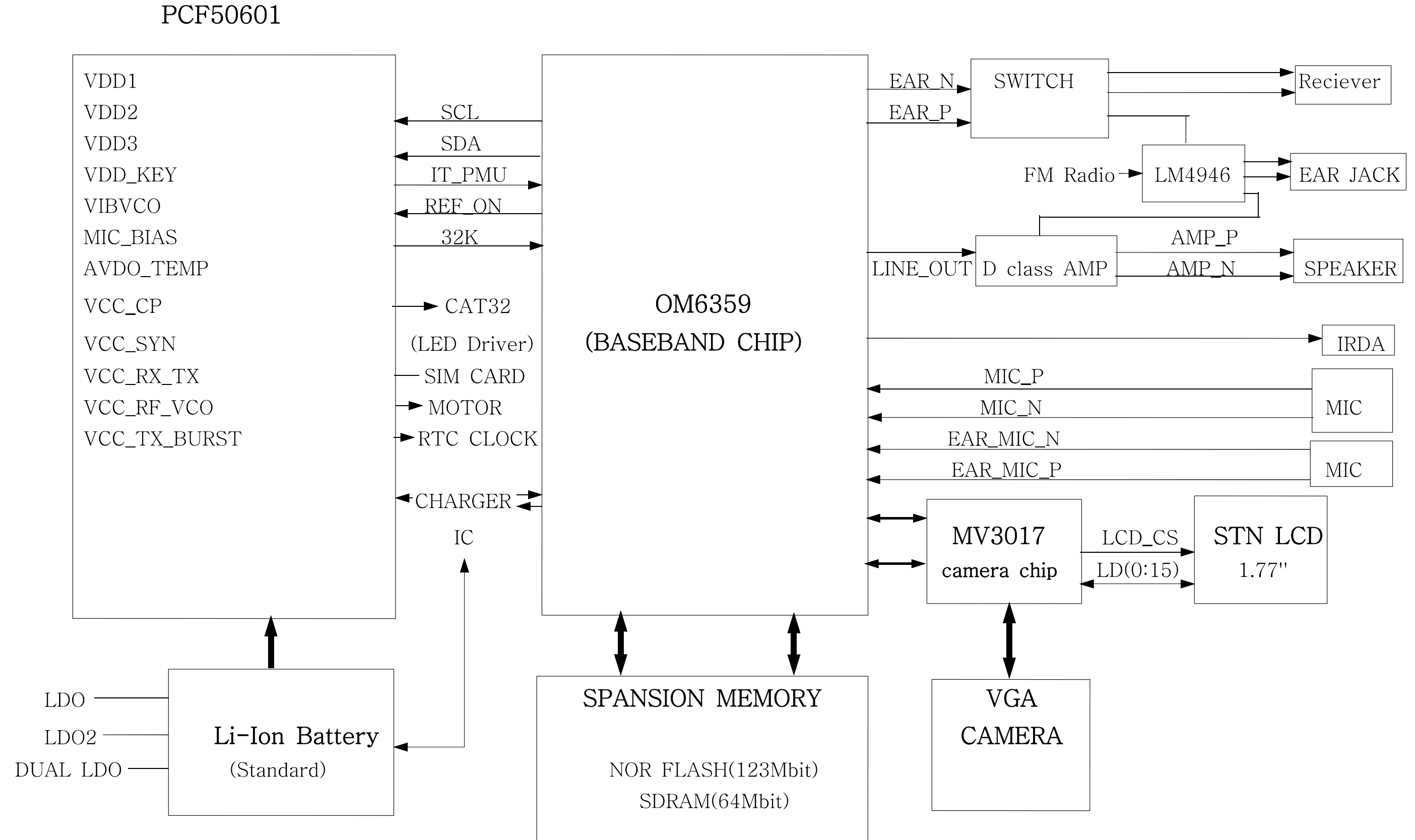
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R505	R-CHIP	2007-000151	SA
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R622	R-CHIP	2007-007009	SA
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R637	R-CHIP	2007-007107	SA
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R703	R-CHIP	2007-007317	SA
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R823	R-CHIP	2007-007014	SA
R824	R-CHIP	2007-000172	SA
R825	R-CHIP	2007-000172	SA
R826	R-CHIP	2007-001303	SA
SW500	IC-HALL EFFECT S/W	1009-001018	SA
TH300	THERMISTOR-NTC	1404-001221	SA
U100	IC-TRANSCIEVER	1205-002327	SA
U200	IC-POWER AMP	1201-002218	SA
U201	DUPLEXER-FEM	2911-000040	SA
U300	IC-COMM. CONTROLLER	1205-002607	SA
U400	IC-MCP	1108-000059	SA
U401	IC ASIC-SGHX670	GH13-00036A	SA

Ddsign LOC	Discription	SEC Code	STATUS
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U500	IC-CONTROLLER	1205-002350	SA
U503	IC-POSI.FIXED REG.	1203-003787	SA
U504	PHOTO-IRDA	0604-001306	SA
U505	IC-BATTERY	1203-003663	SA
U600	IC-VOLTAGE COMP.	1202-001068	SA
U601	IC-ANALOG SWITCH	1001-001359	SA
U603	FILTER-EMI/ESD	2901-001246	SA
U605	TR-DIGITAL	0504-001100	SA
U800	IC-MELODY	1204-002161	SA
U801	IC-CMOS LOGIC	0801-003025	SA
U802	IC-TUNER	1204-002641	SA
U803	IC-AUDIO AMP	1201-002356	SA
U804	IC-CMOS LOGIC	0801-003025	SA
U805	FET-SILICON	0505-001923	SA
U808	C-CER,CHIP	2203-000233	SA
U809	C-CER,CHIP	2203-000233	SA
V700	VARISTOR	1405-001082	SA
V701	VARISTOR	1405-001082	SA
V702	VARISTOR	1405-001082	SA
V703	DIODE-TVS	0406-001231	SA
V704	DIODE-TVS	0406-001231	SA
V705	VARISTOR	1405-001082	SA
V706	VARISTOR	1405-001082	SA
V707	DIODE-TVS	0406-001231	SA
V708	VARISTOR	1405-001082	SA
X500	CRYSTAL-SMD	2801-004373	SA
ZD600	DIODE-TVS	0406-001231	SA
ZD601	DIODE-TVS	0406-001231	SA
ZD602	DIODE-TVS	0406-001197	SA
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ZD604	DIODE-TVS	0406-001150	SA

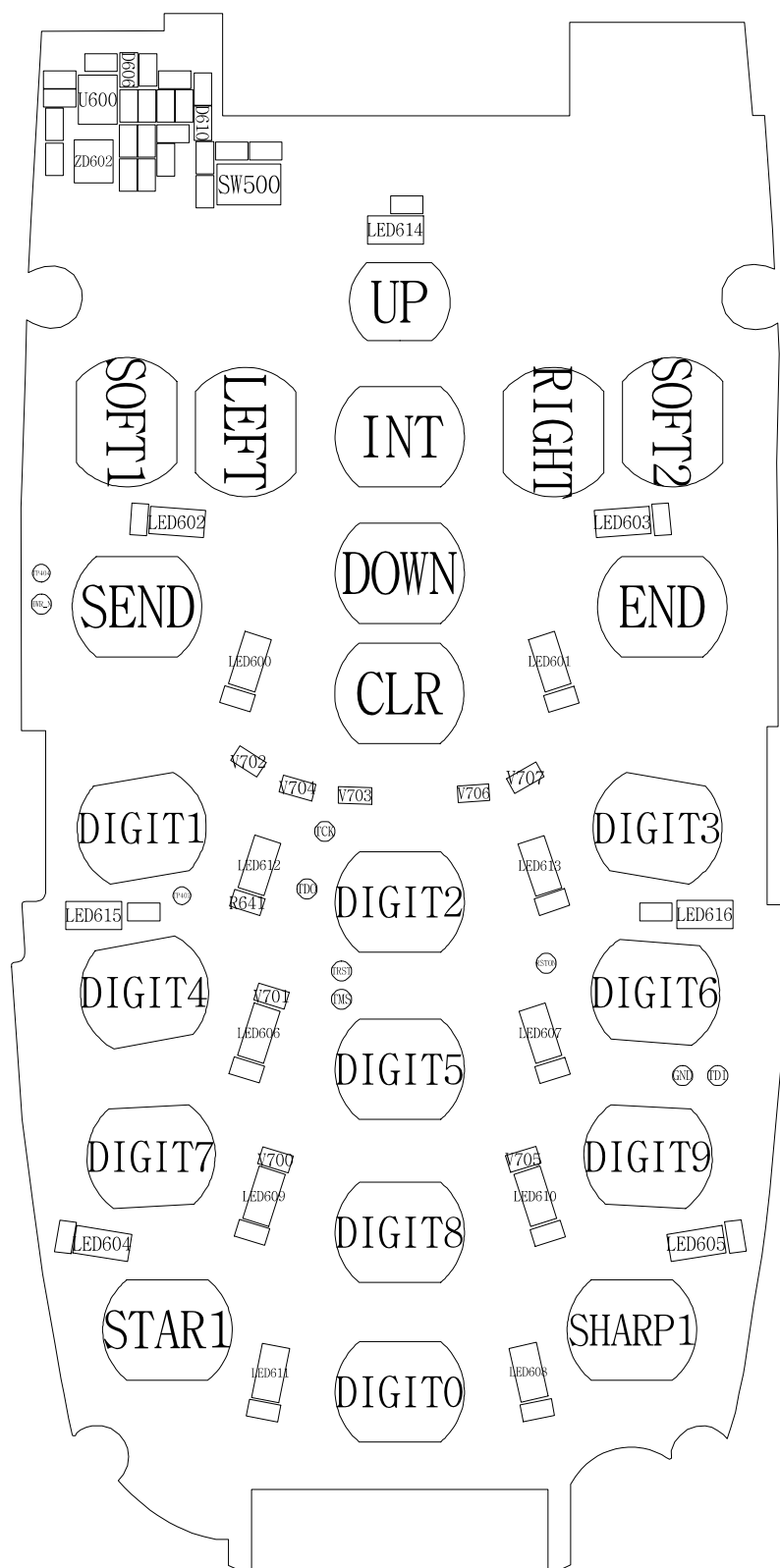
7. Block Diagrams





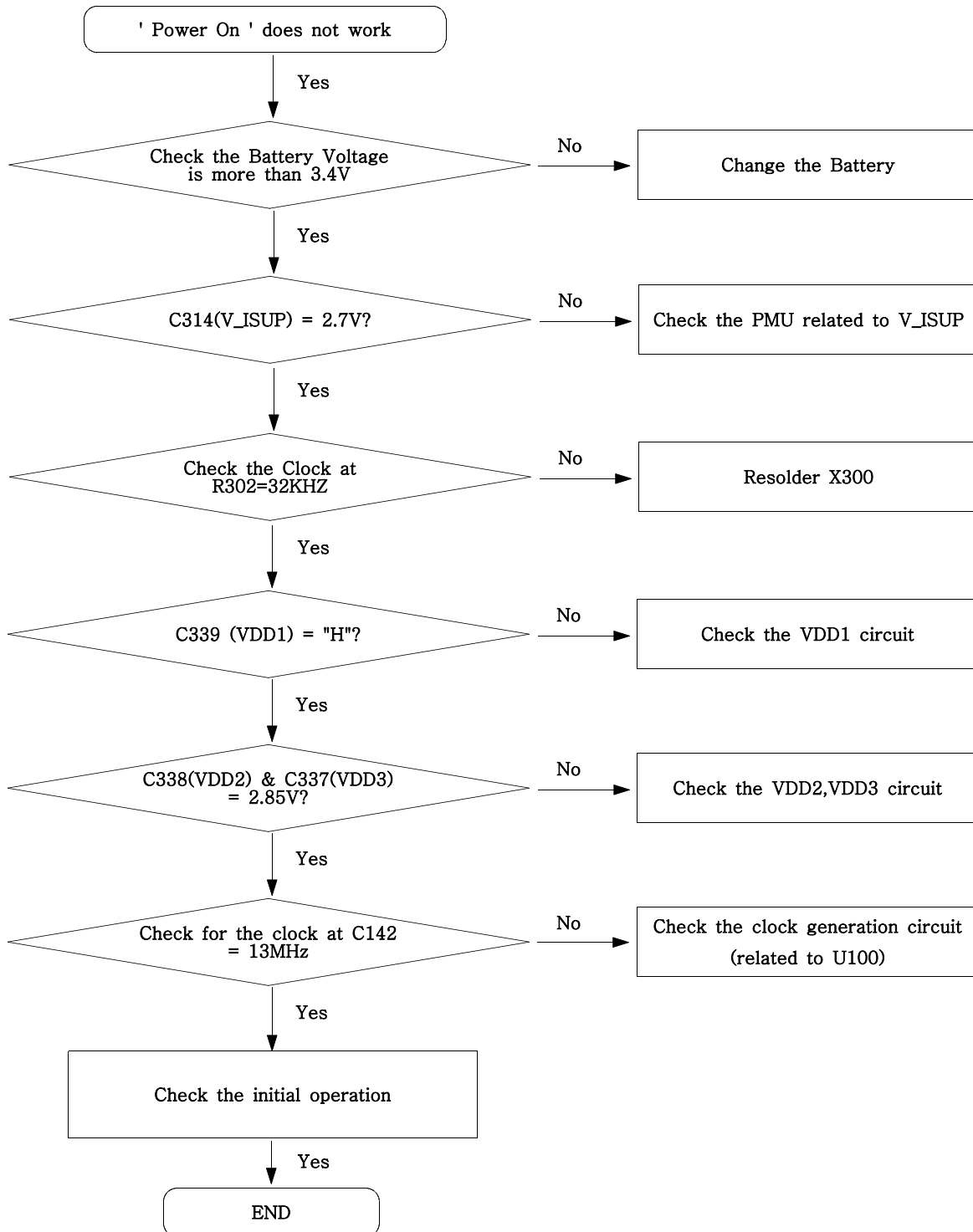
8. PCB Diagrams



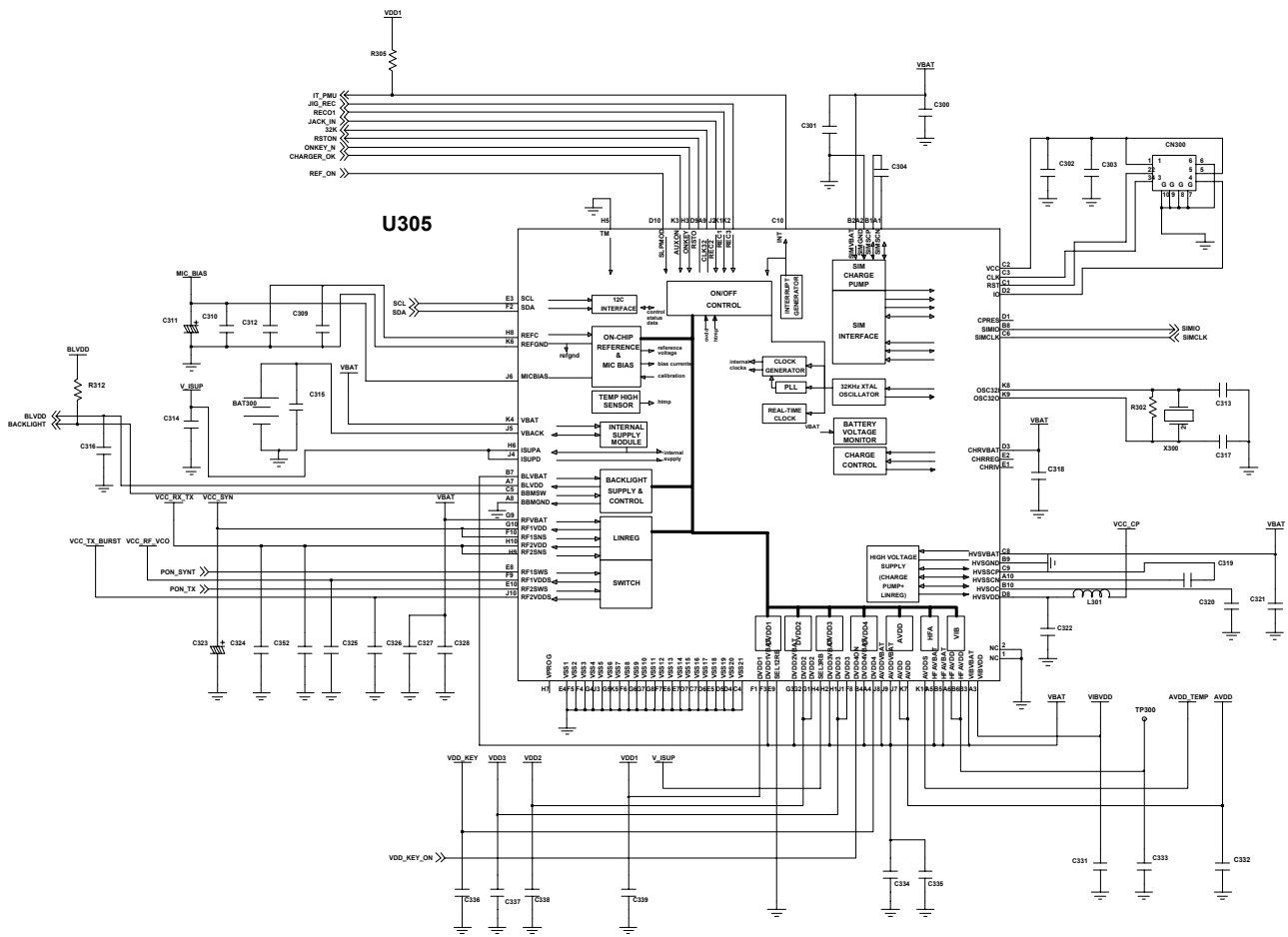


9. Flow Chart of Troubleshooting

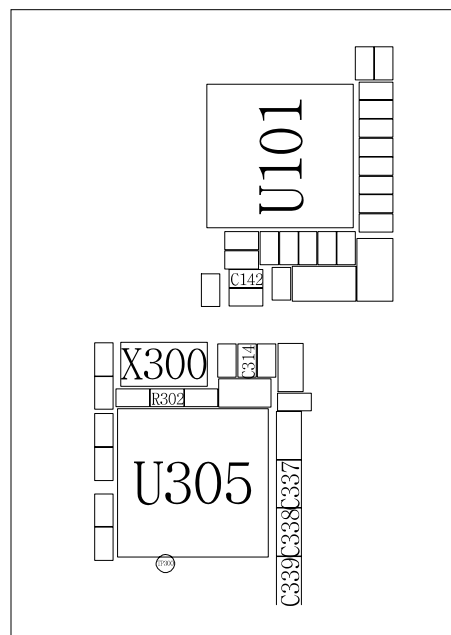
9-1. Power On



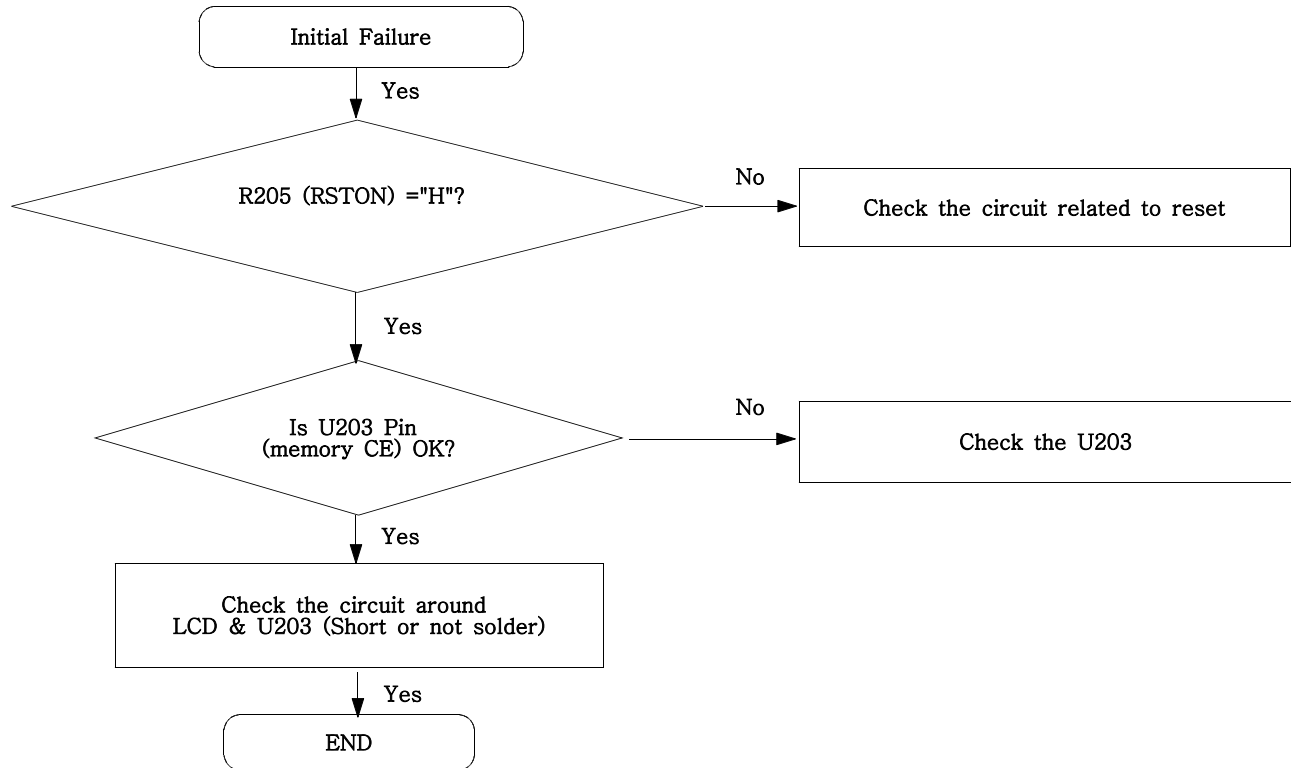
Power On



POWER MANAGEMENT UNIT(PMU IC)

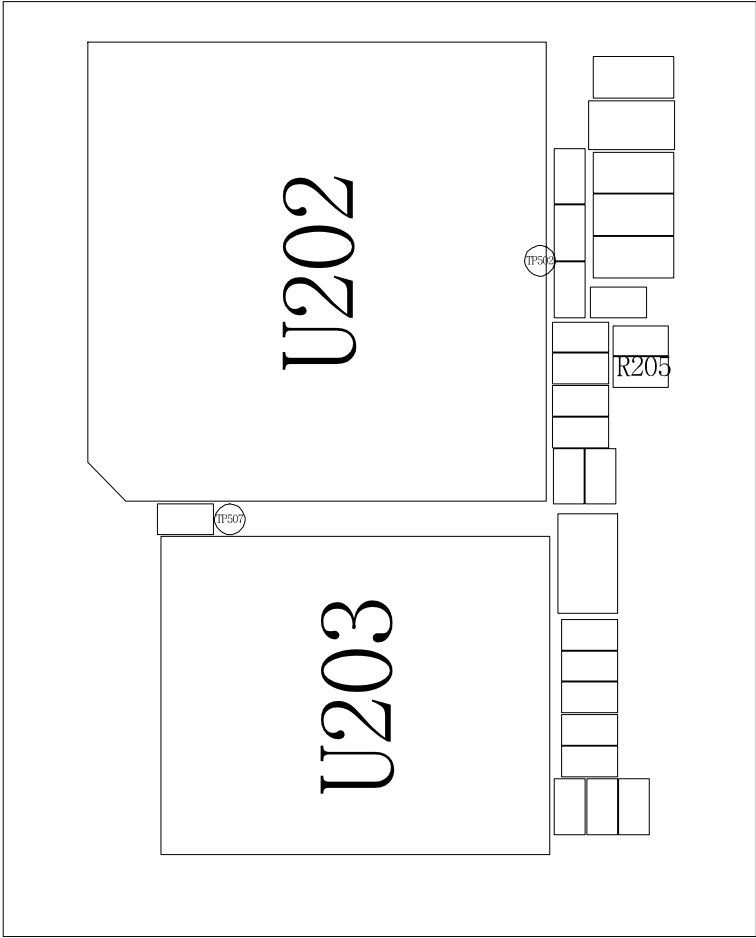


9-2. Initial

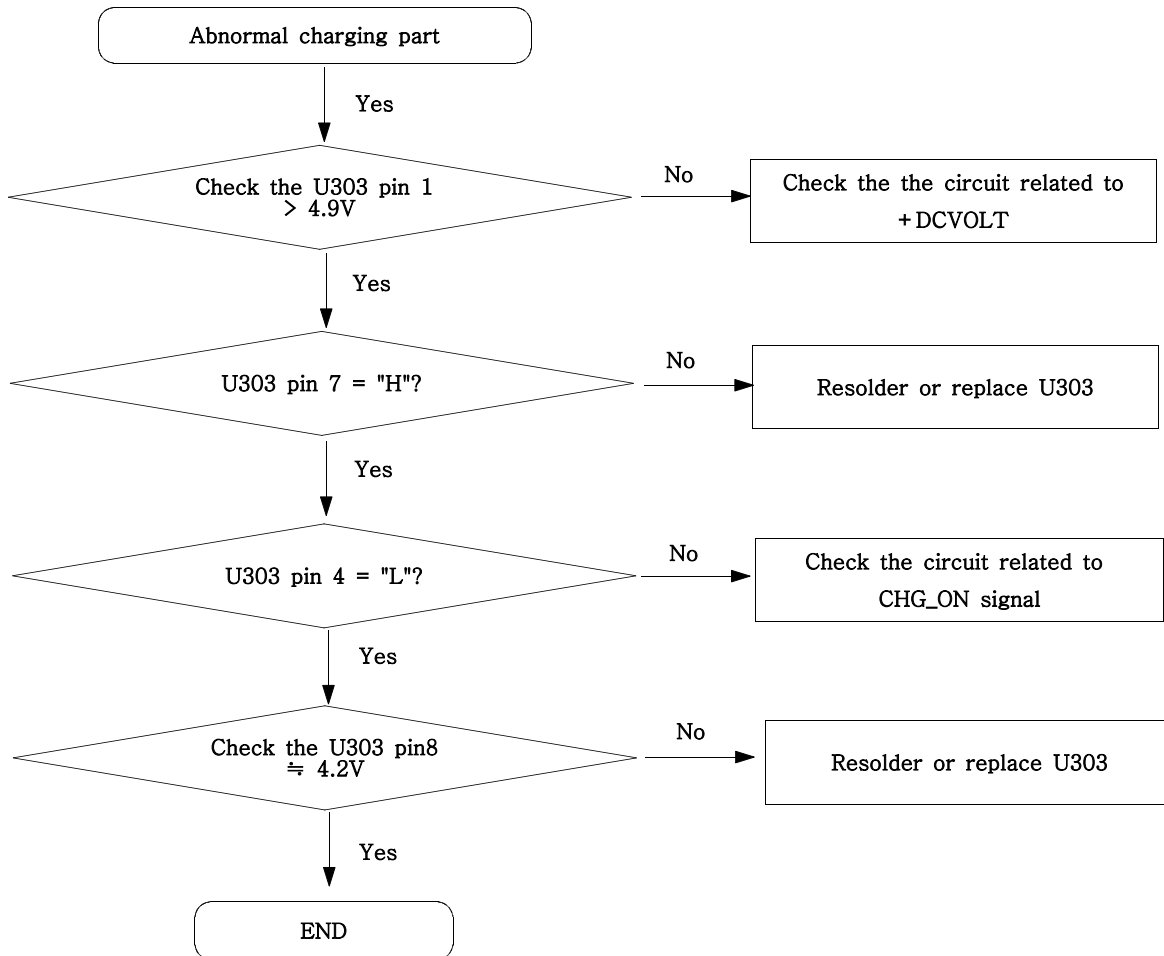


Initial

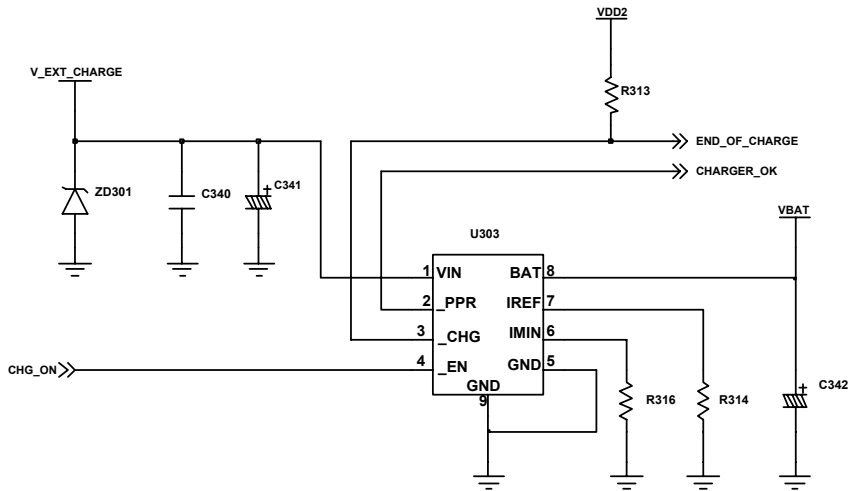




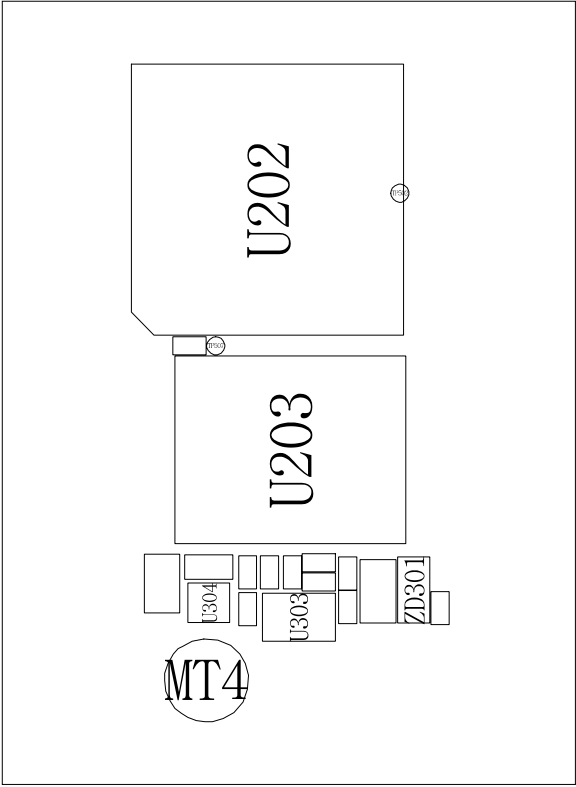
9-3. Charging Part



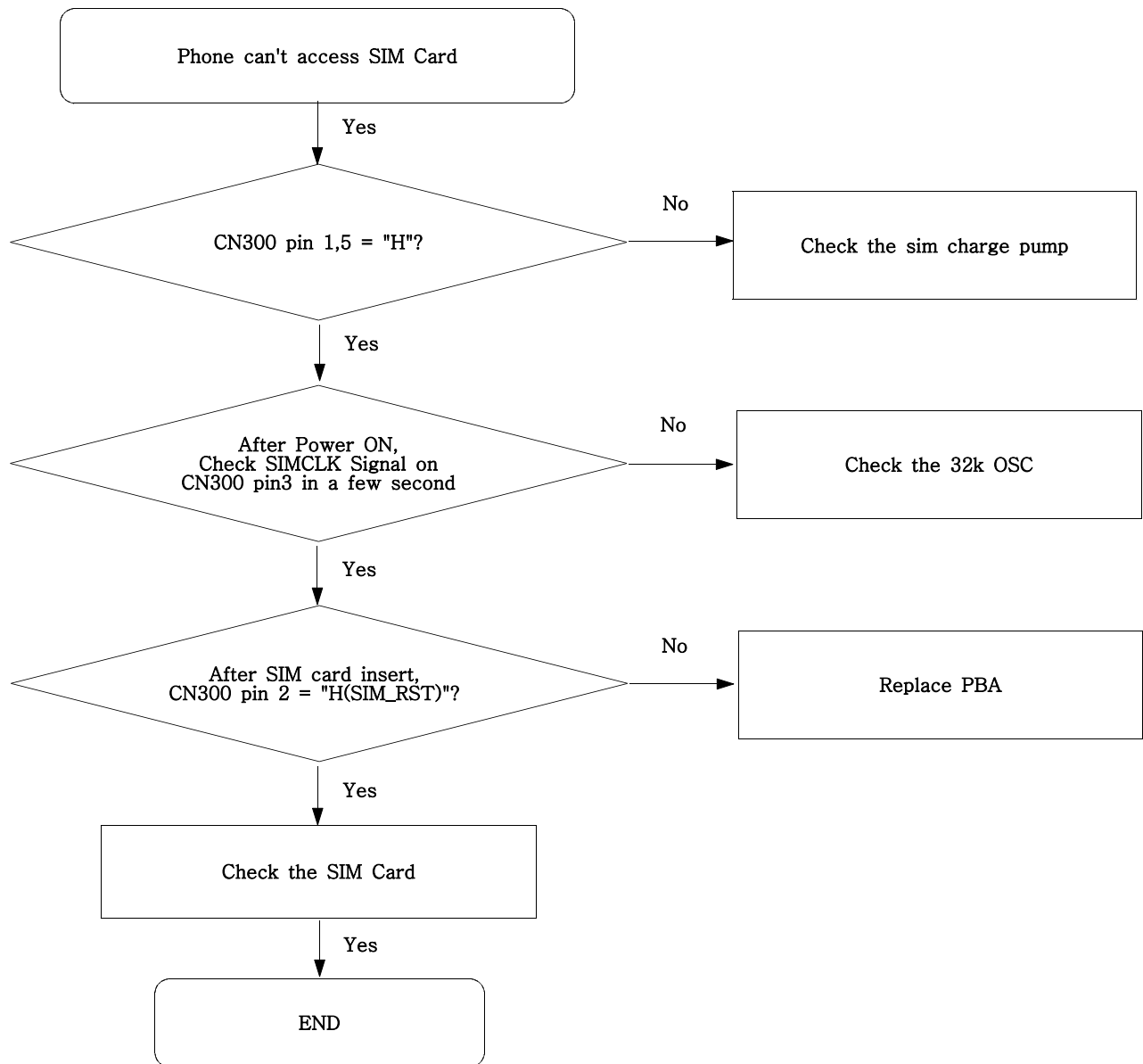
Charging

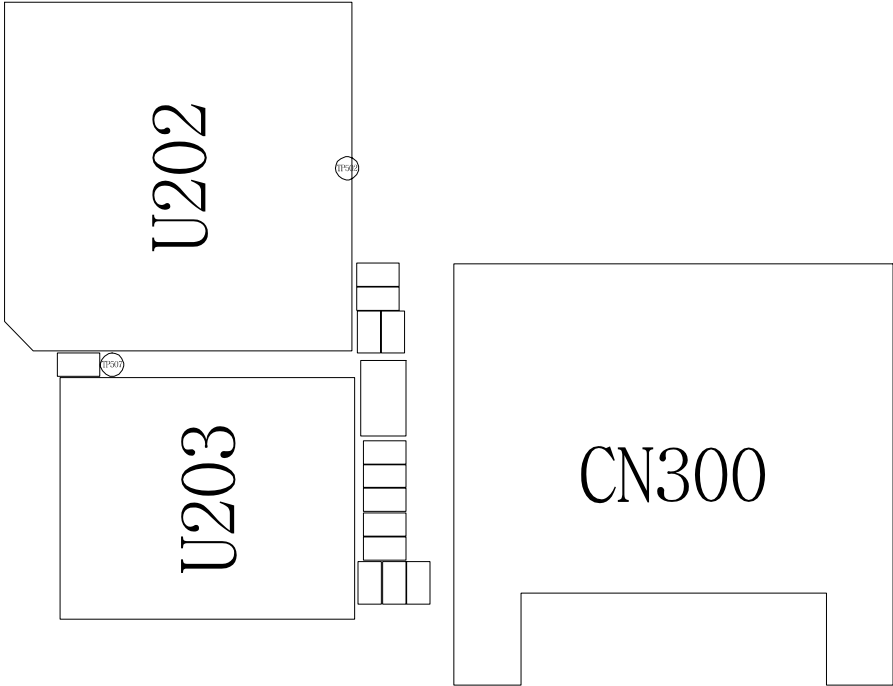


CHARGER IC

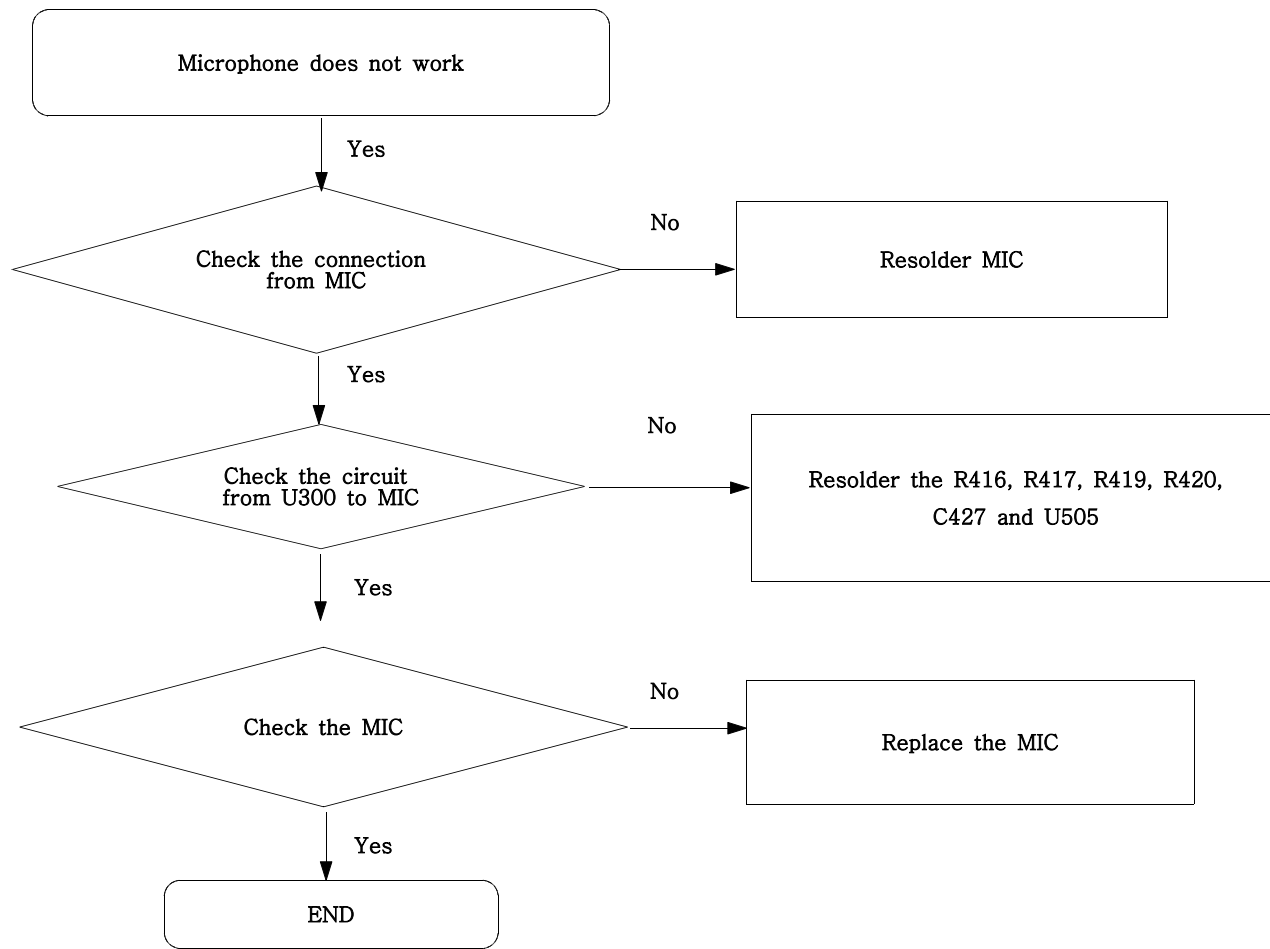


9-4. Sim Part

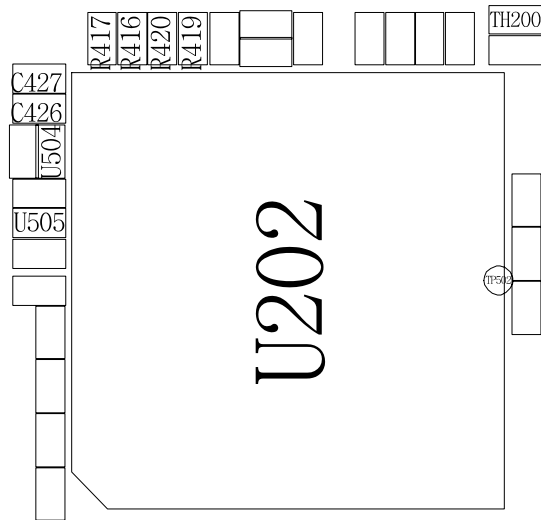
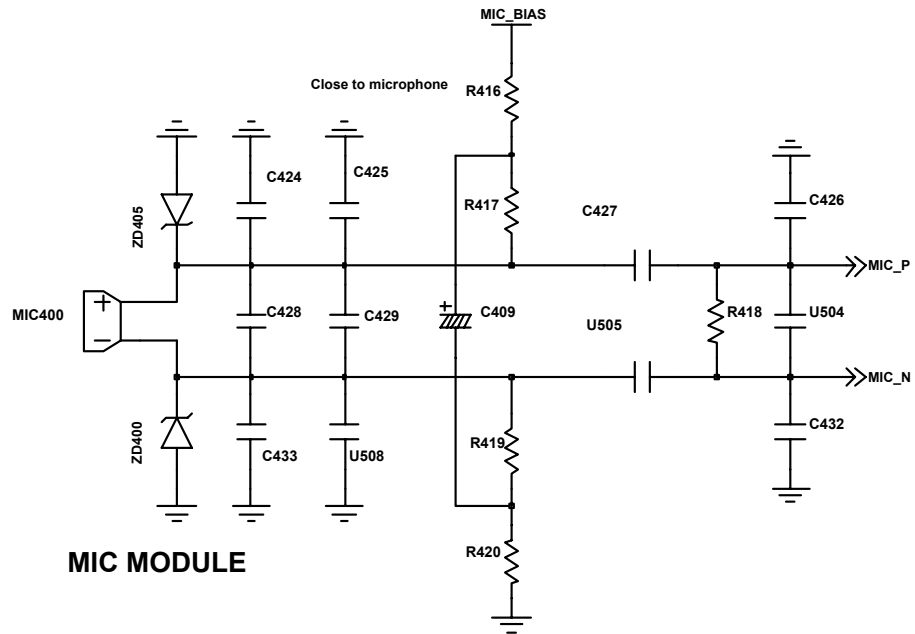




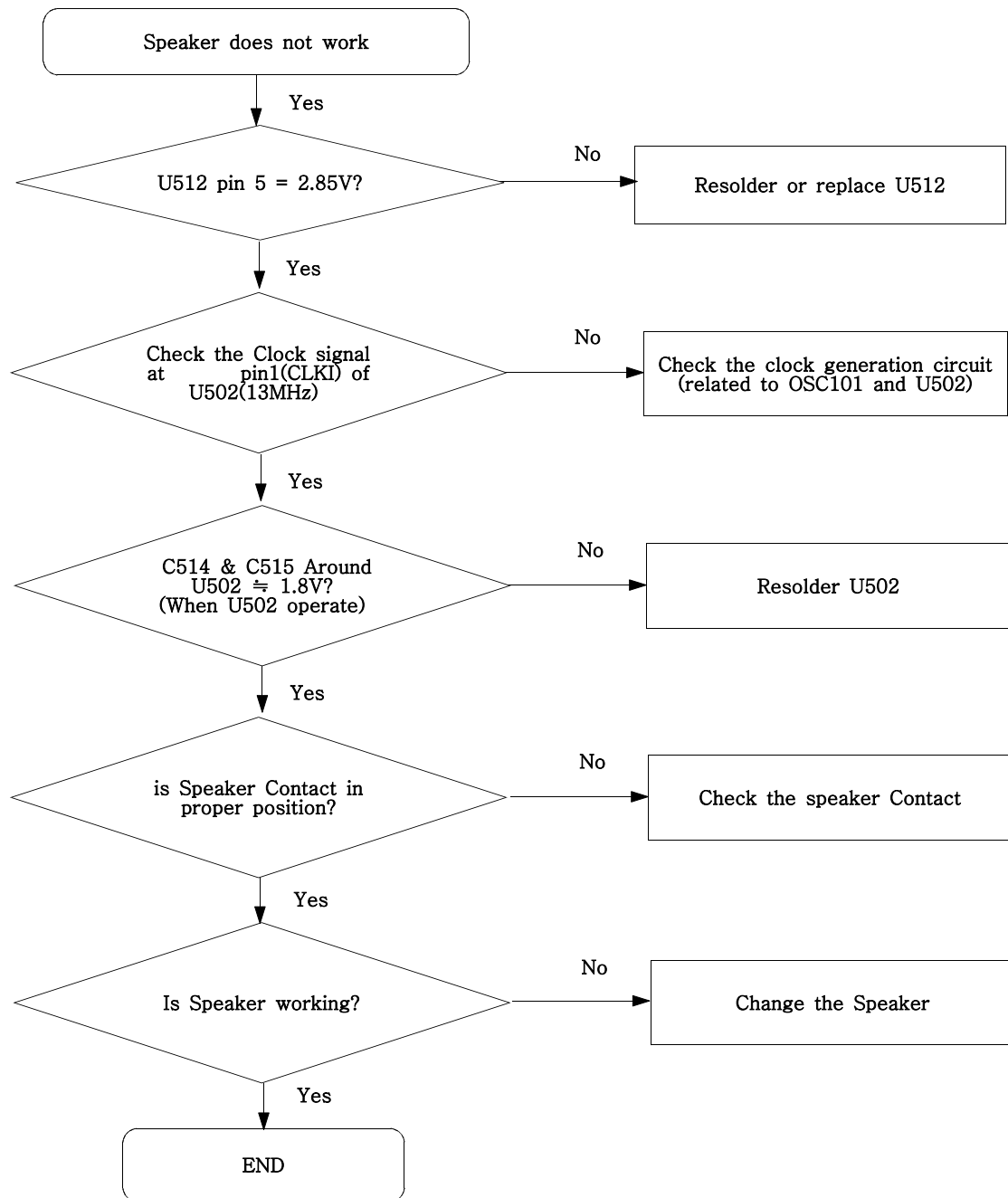
9-5. Microphone Part



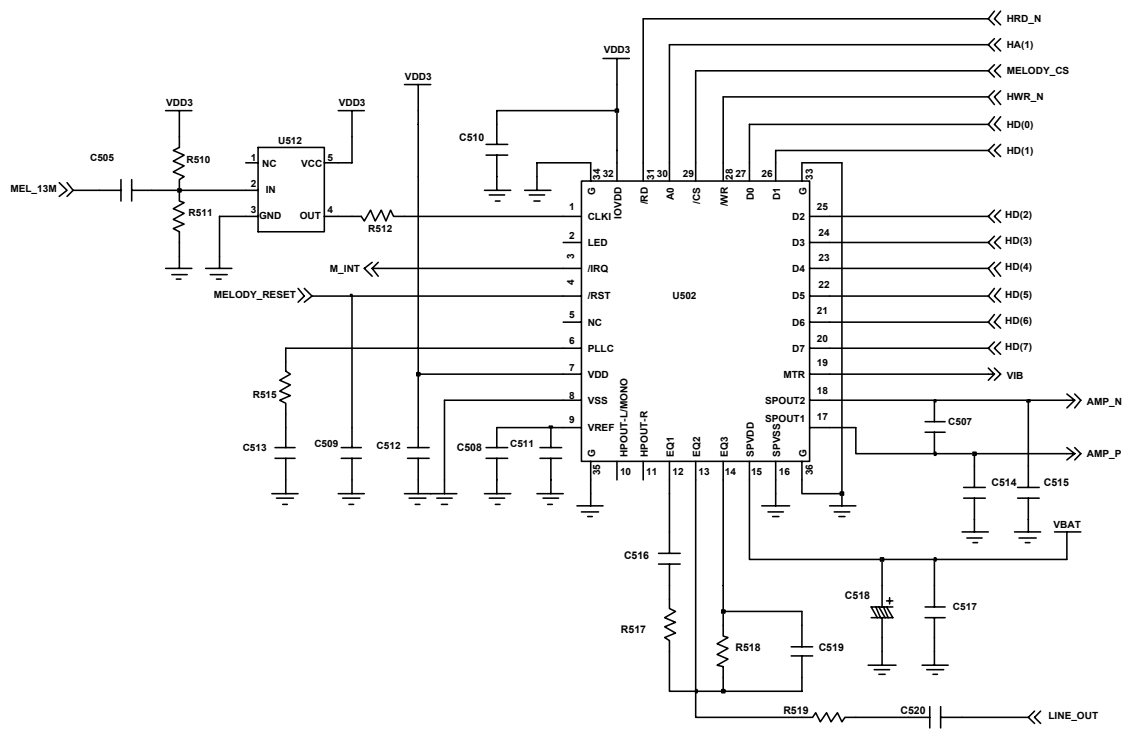
Microphone



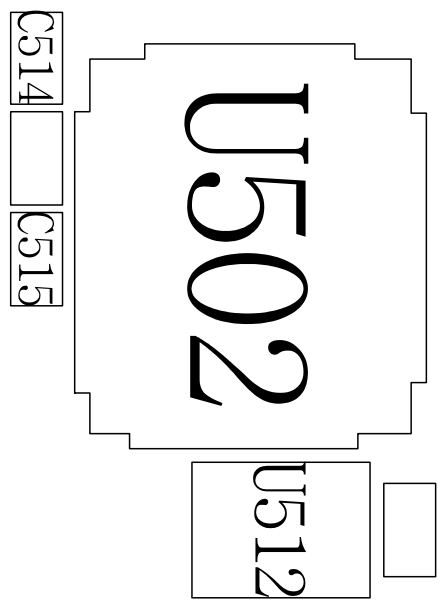
9-6. Speaker Part(Melody)



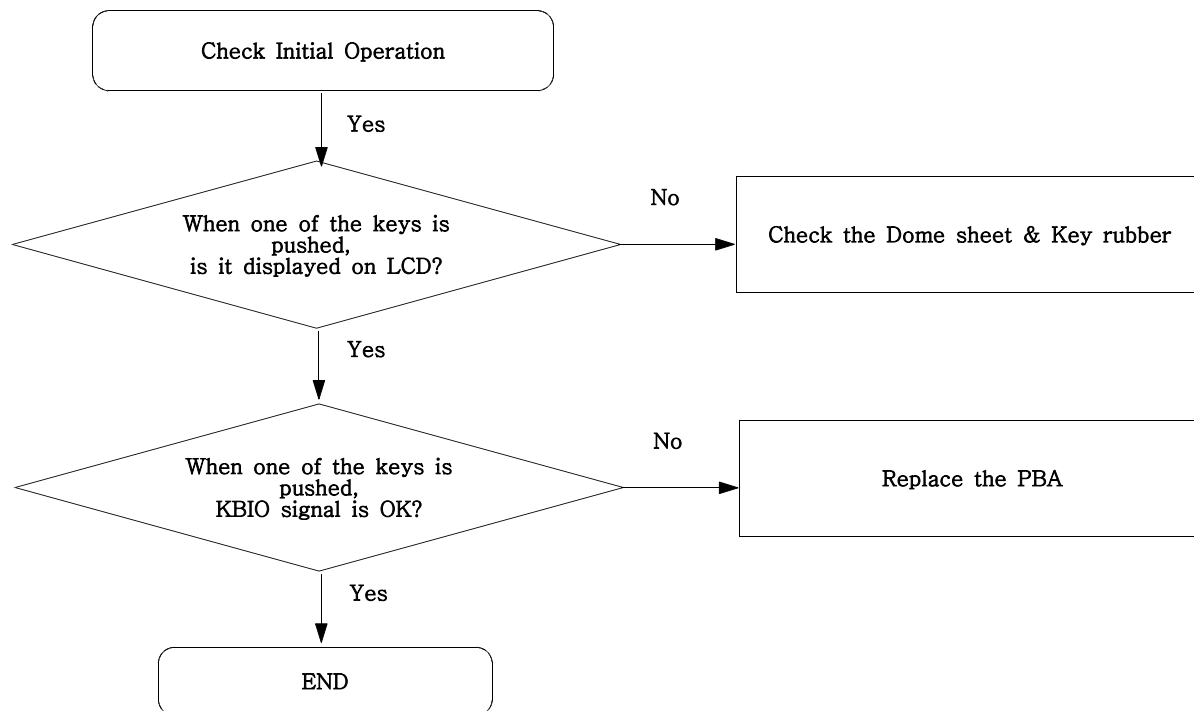
Speaker



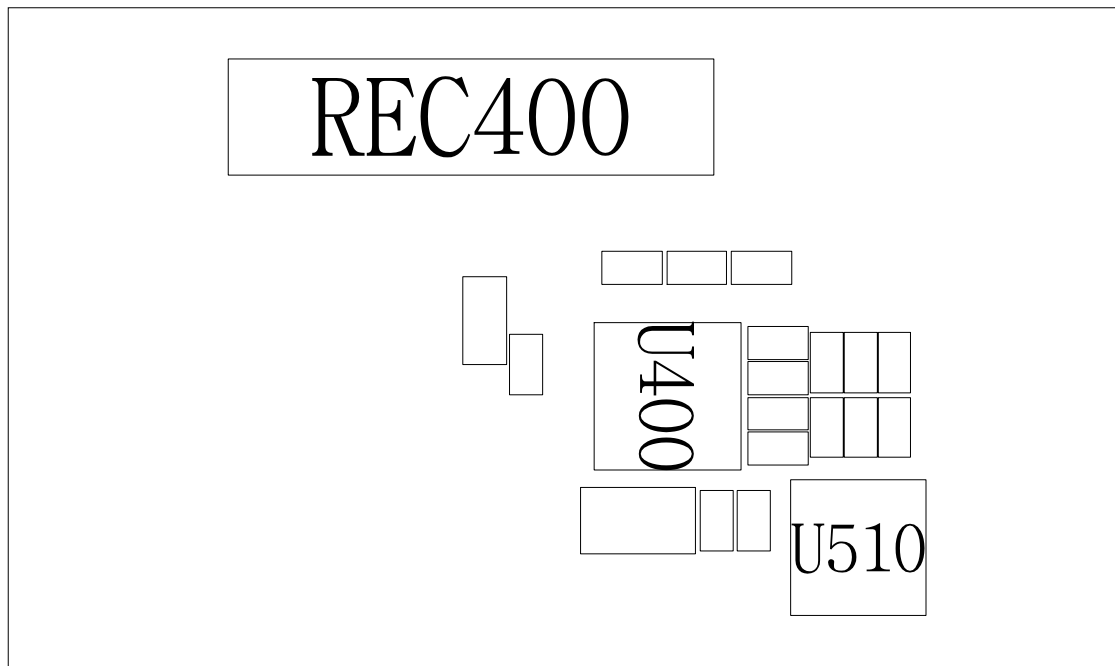
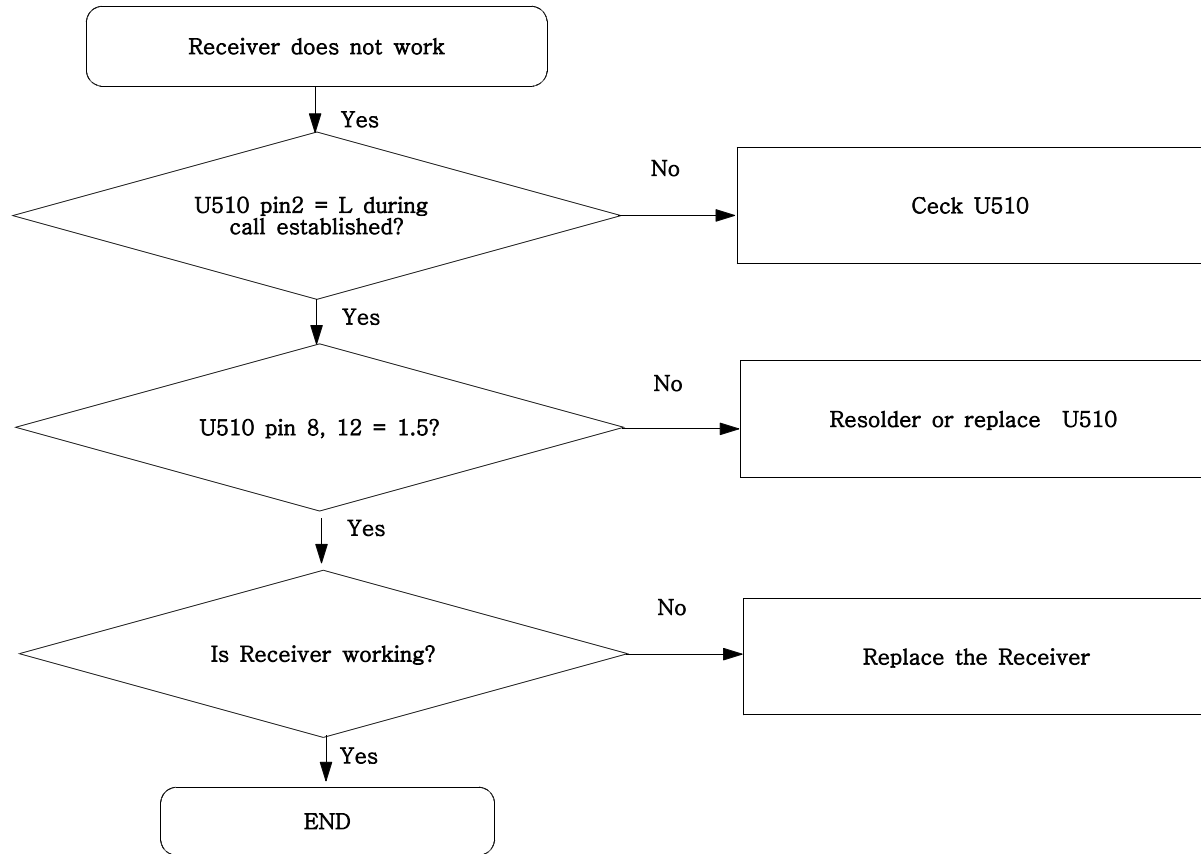
MELODY IC



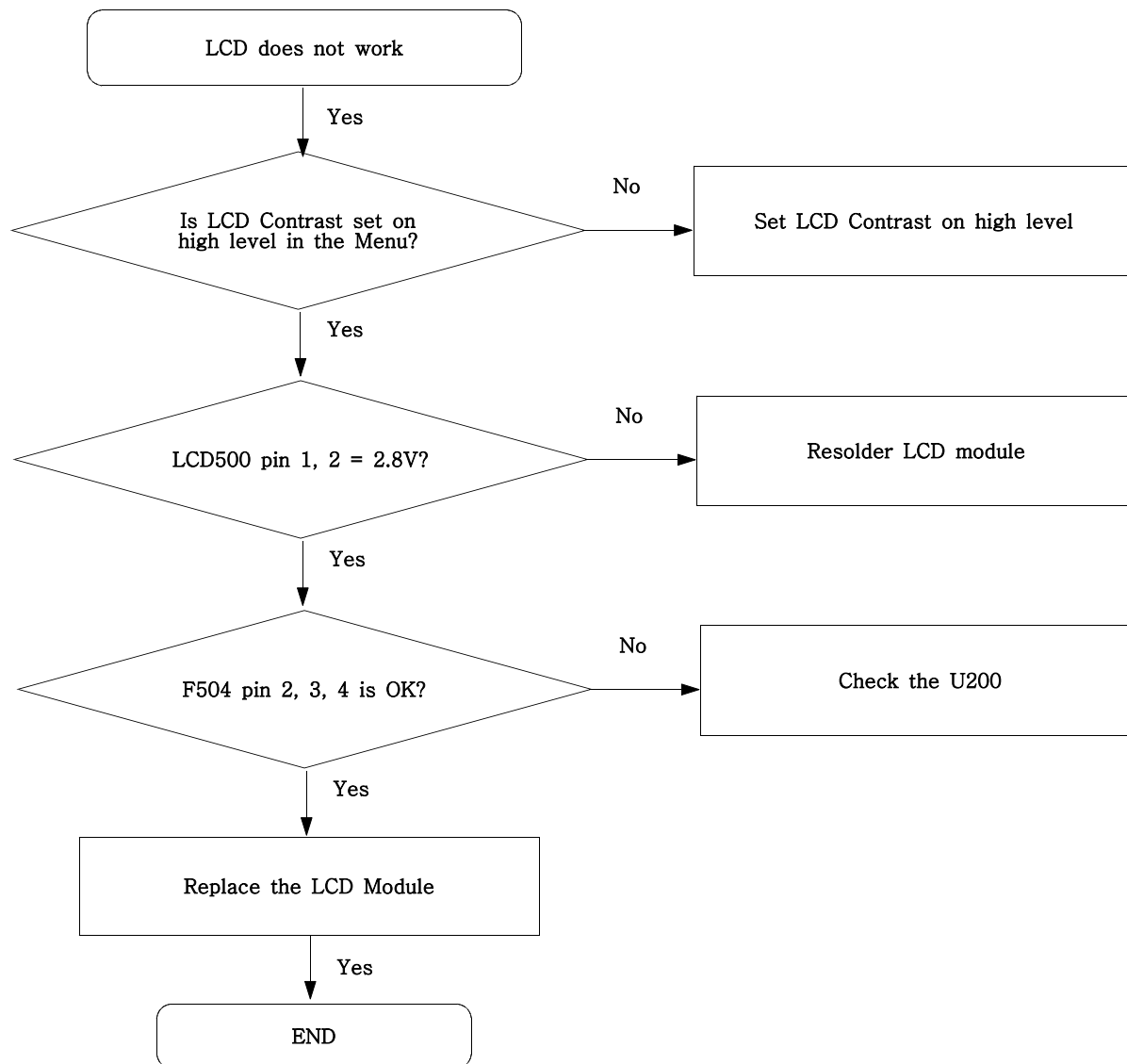
9-7. Key Data Input

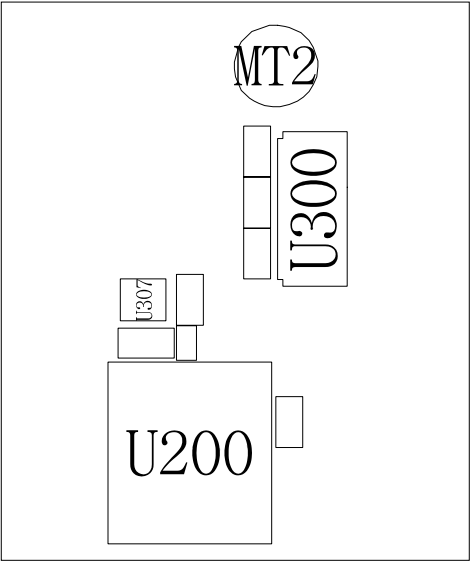
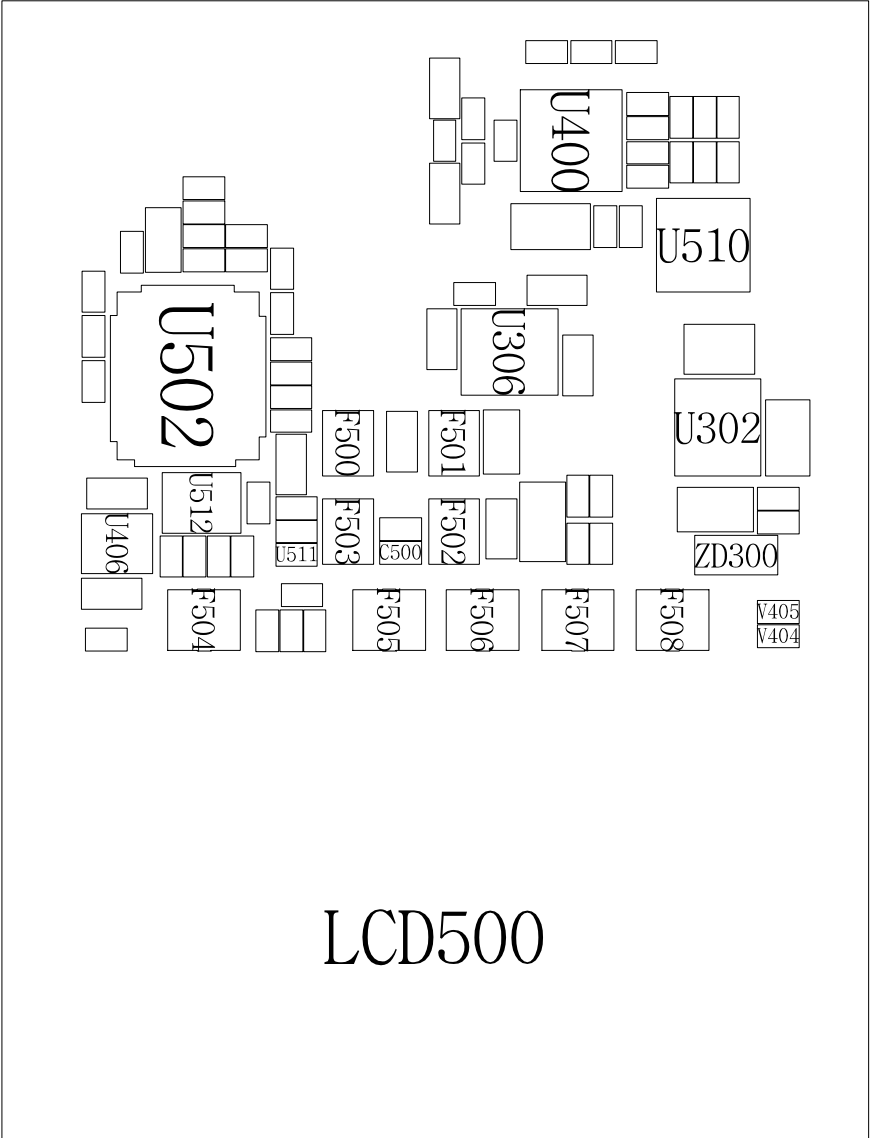


9-8. Receiver Part

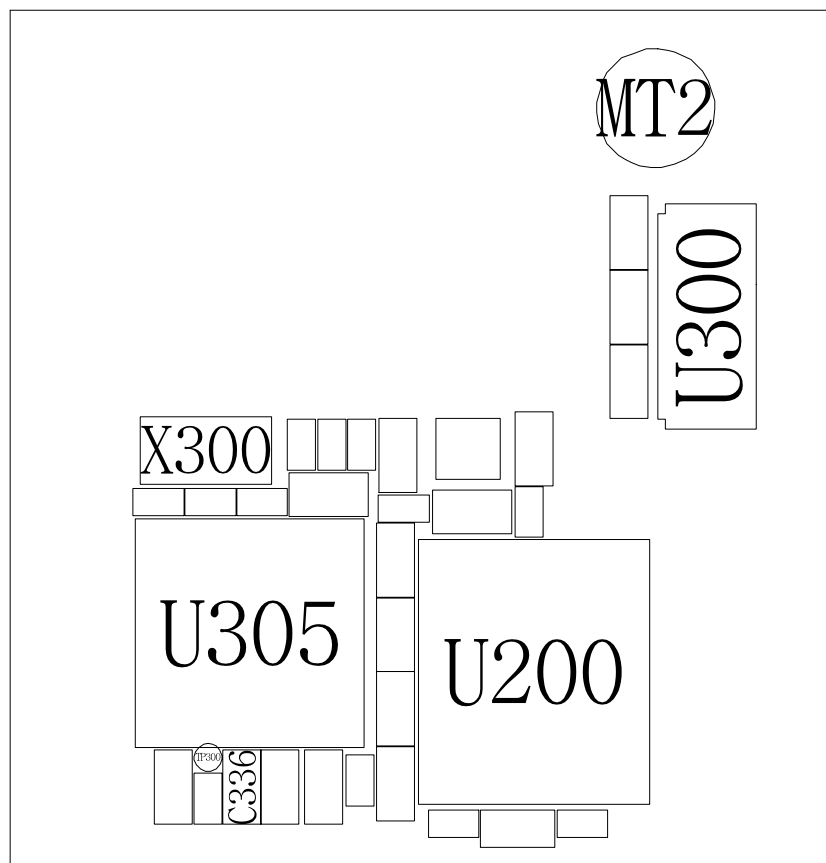
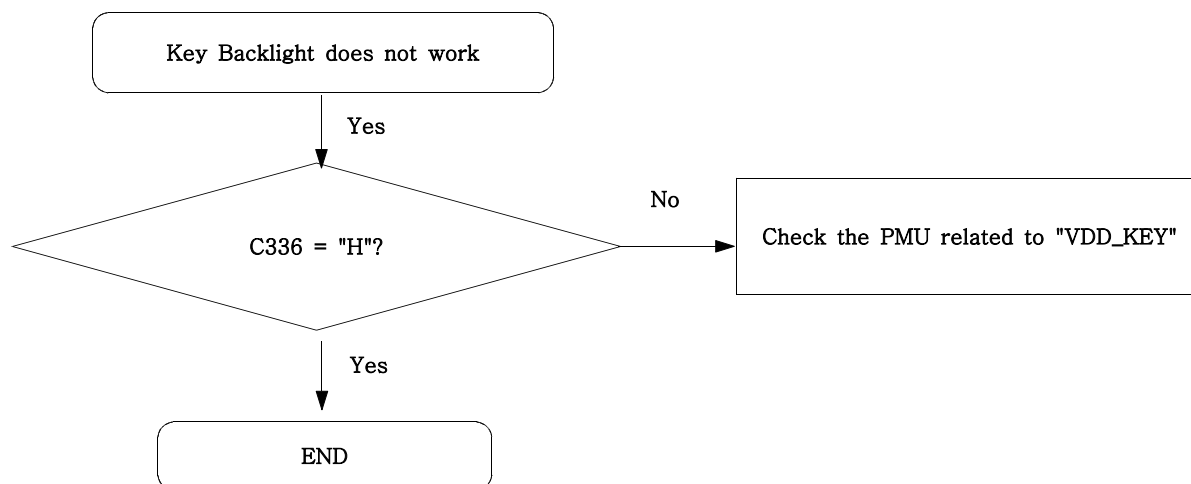


9-9. LCD Part (for Color Main)

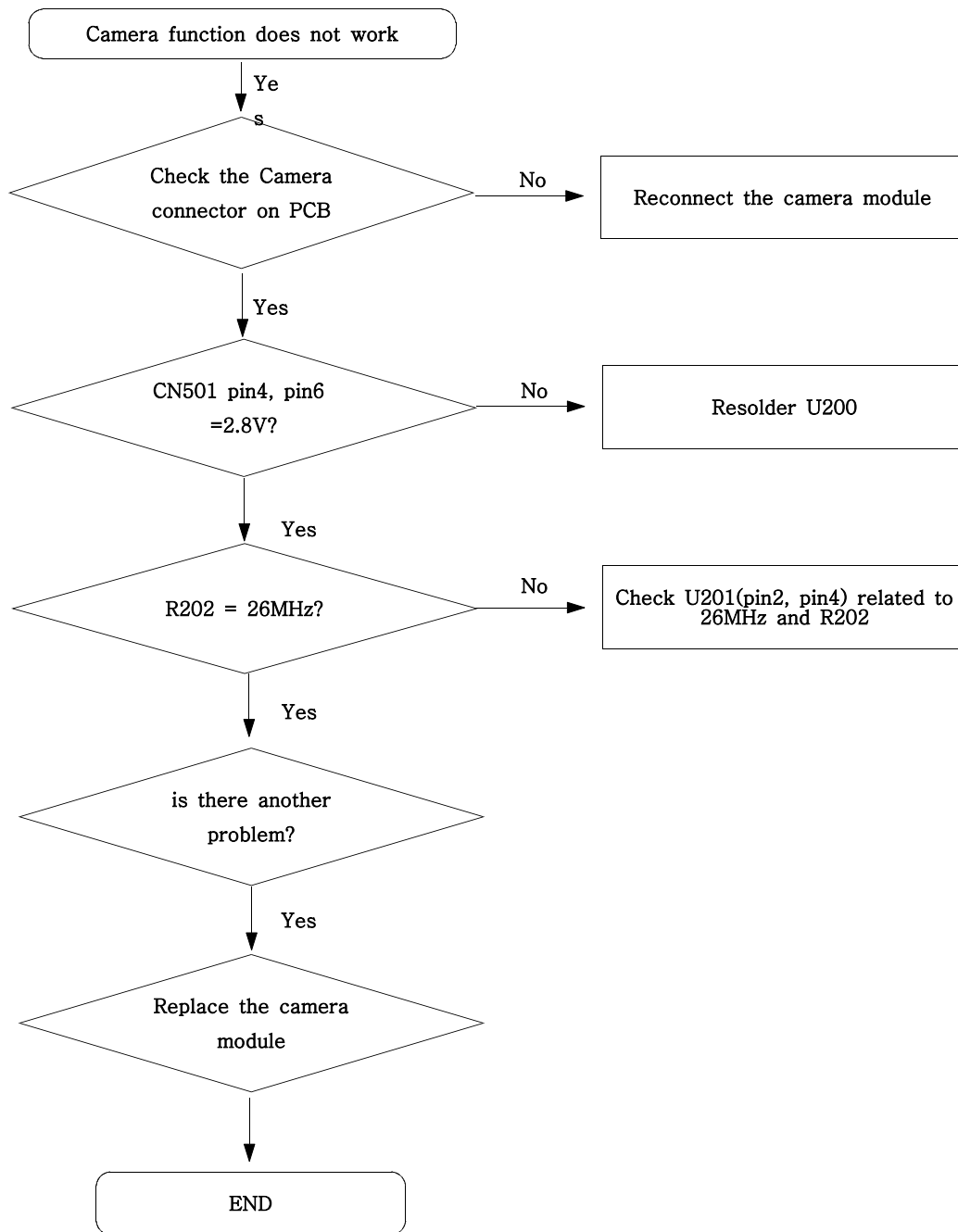


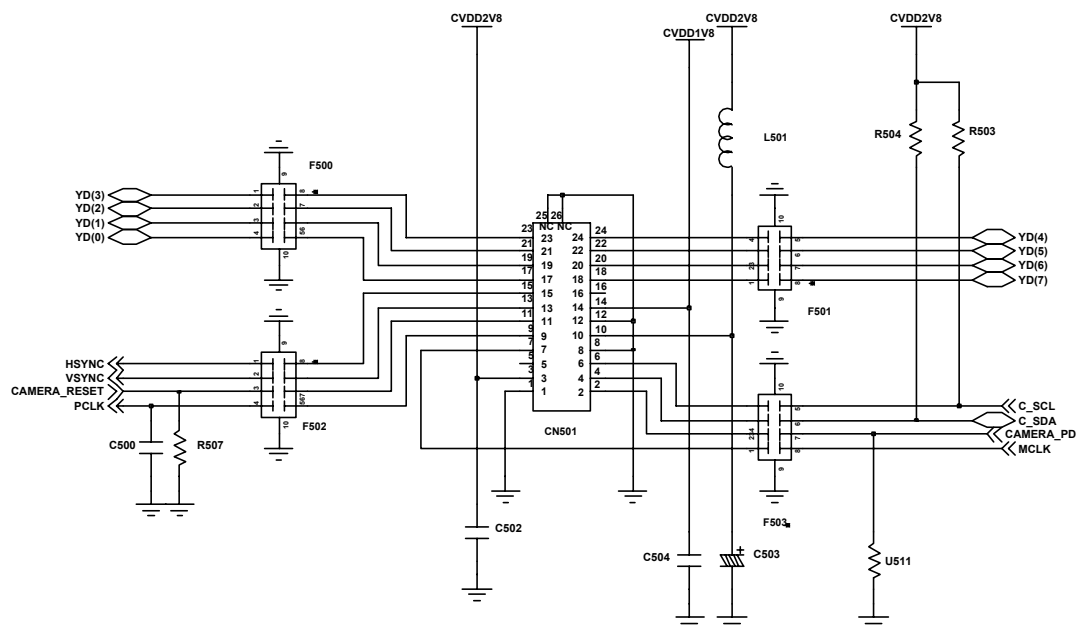


9-10. Key Back Light

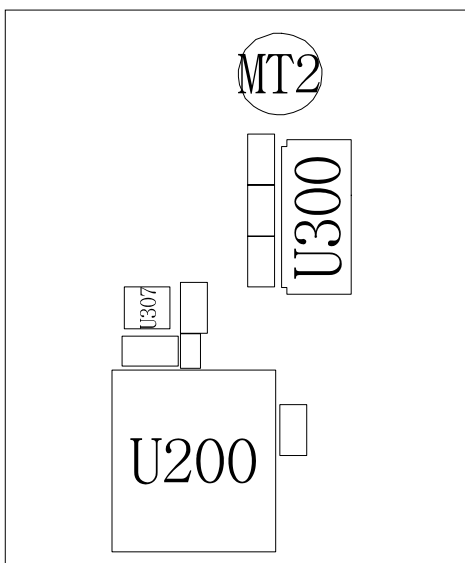
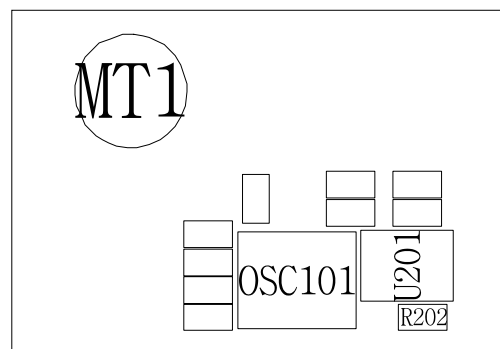
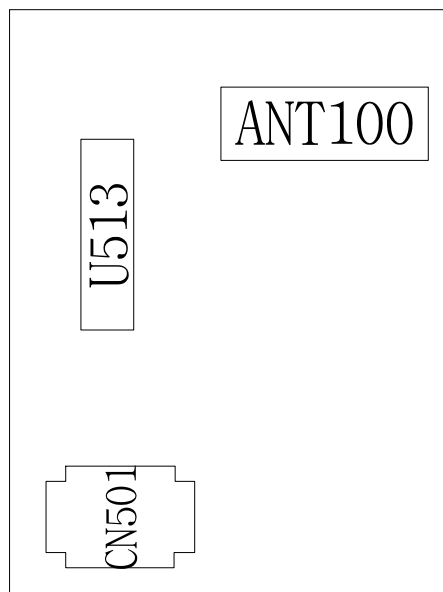


9-11. Camera part

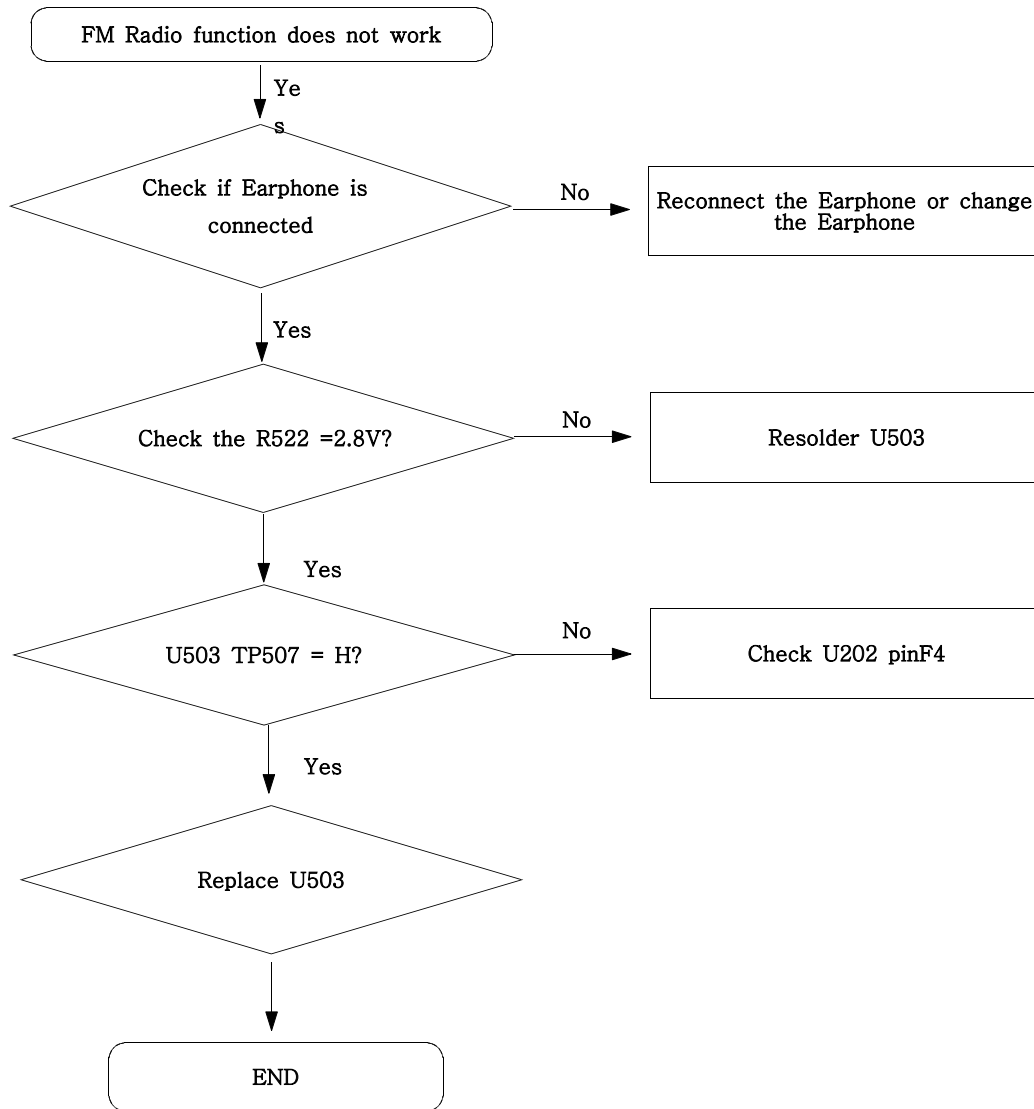




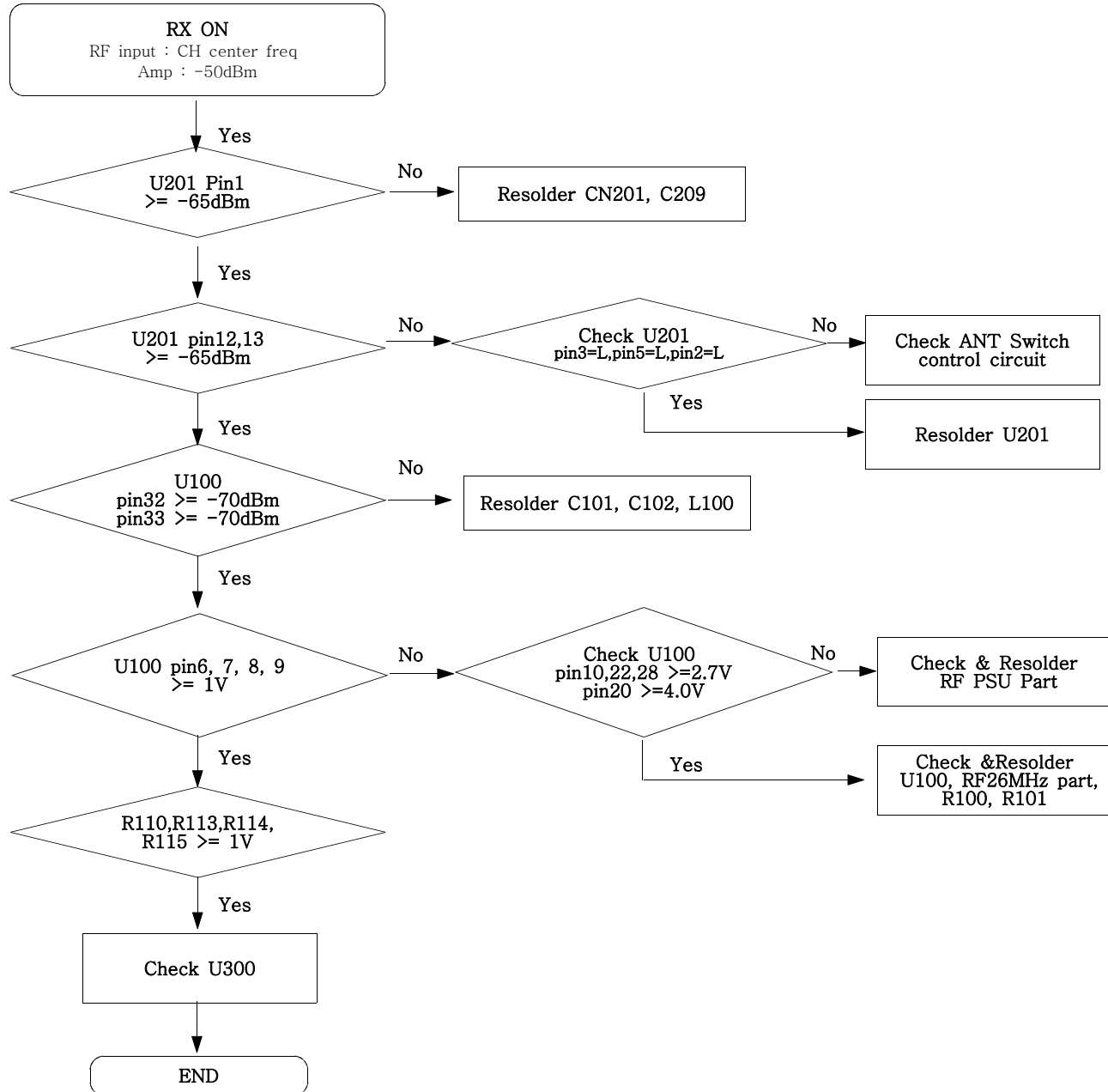
SEMCO CAMERA(AU60E)



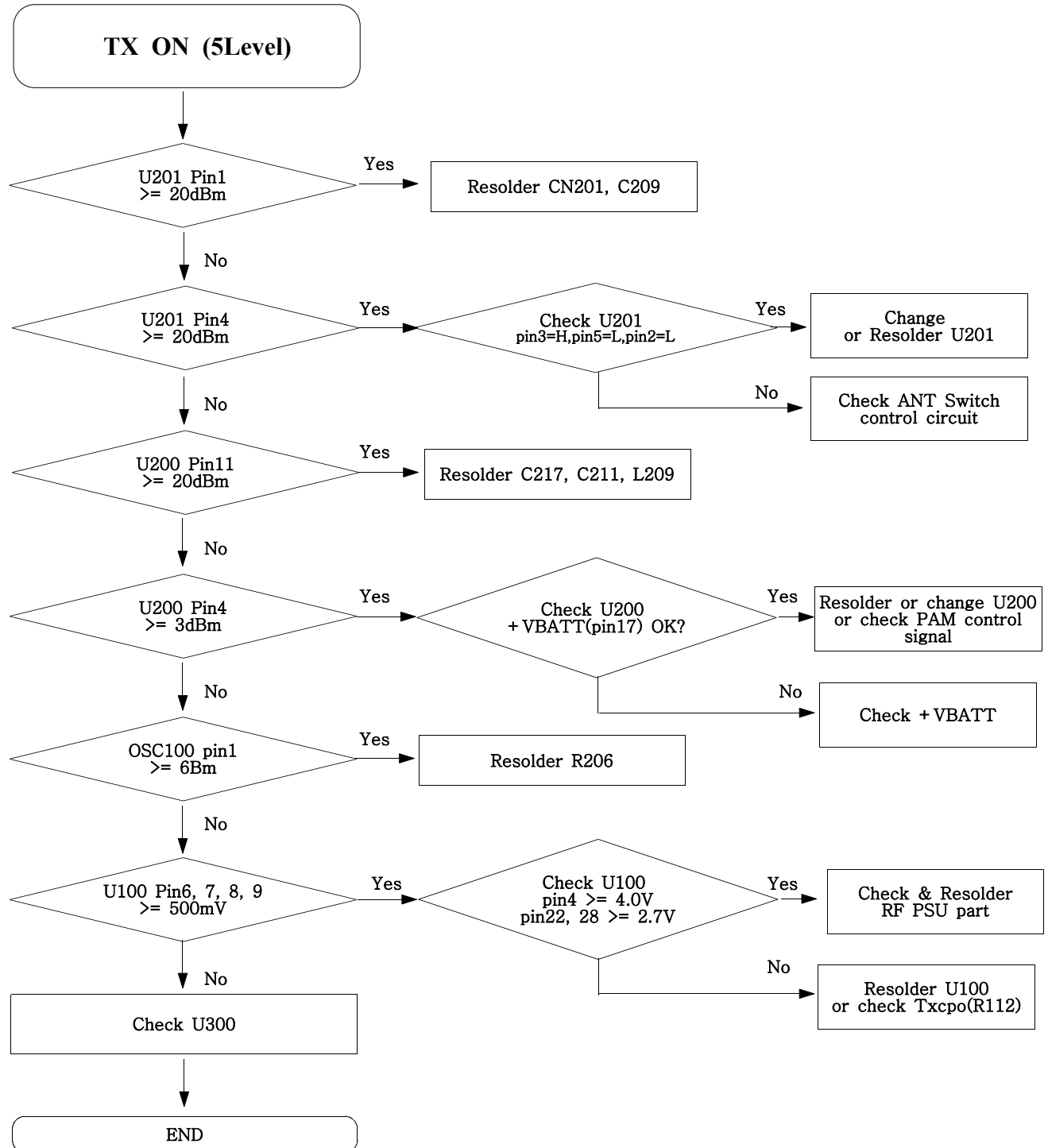
9-12. FM Radio part



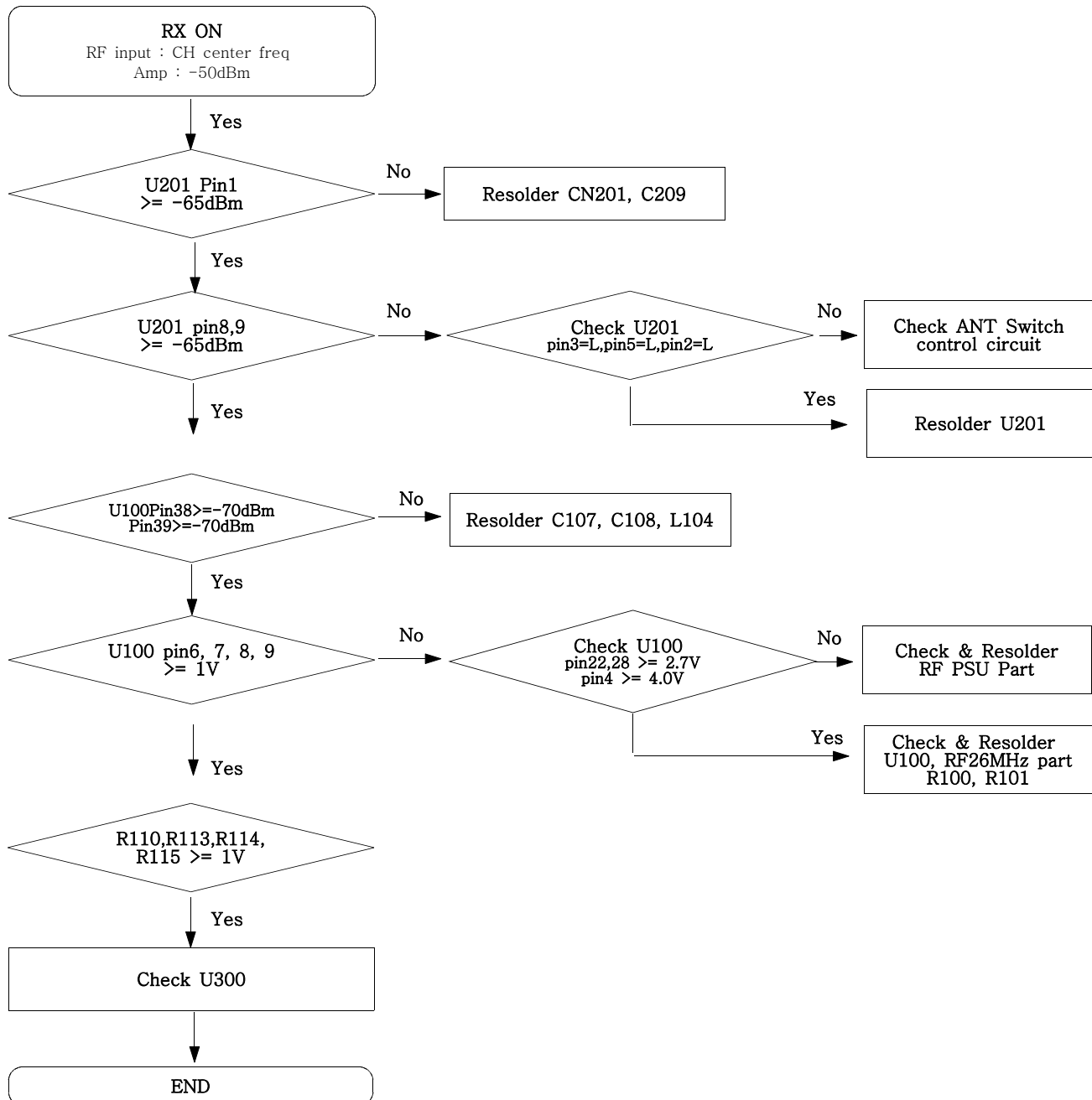
9-13. GSM Receiver



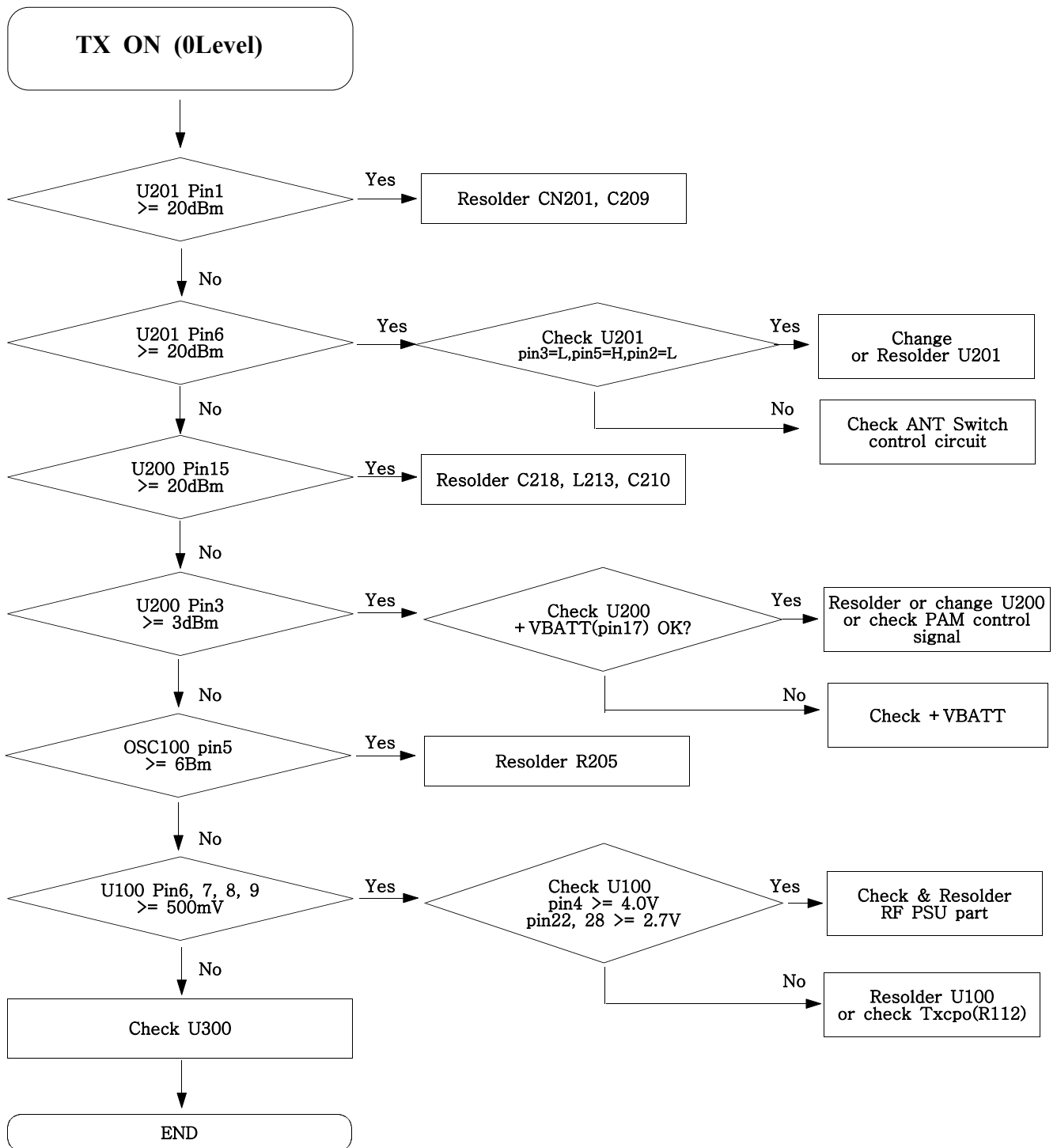
9-14. GSM Transmitter



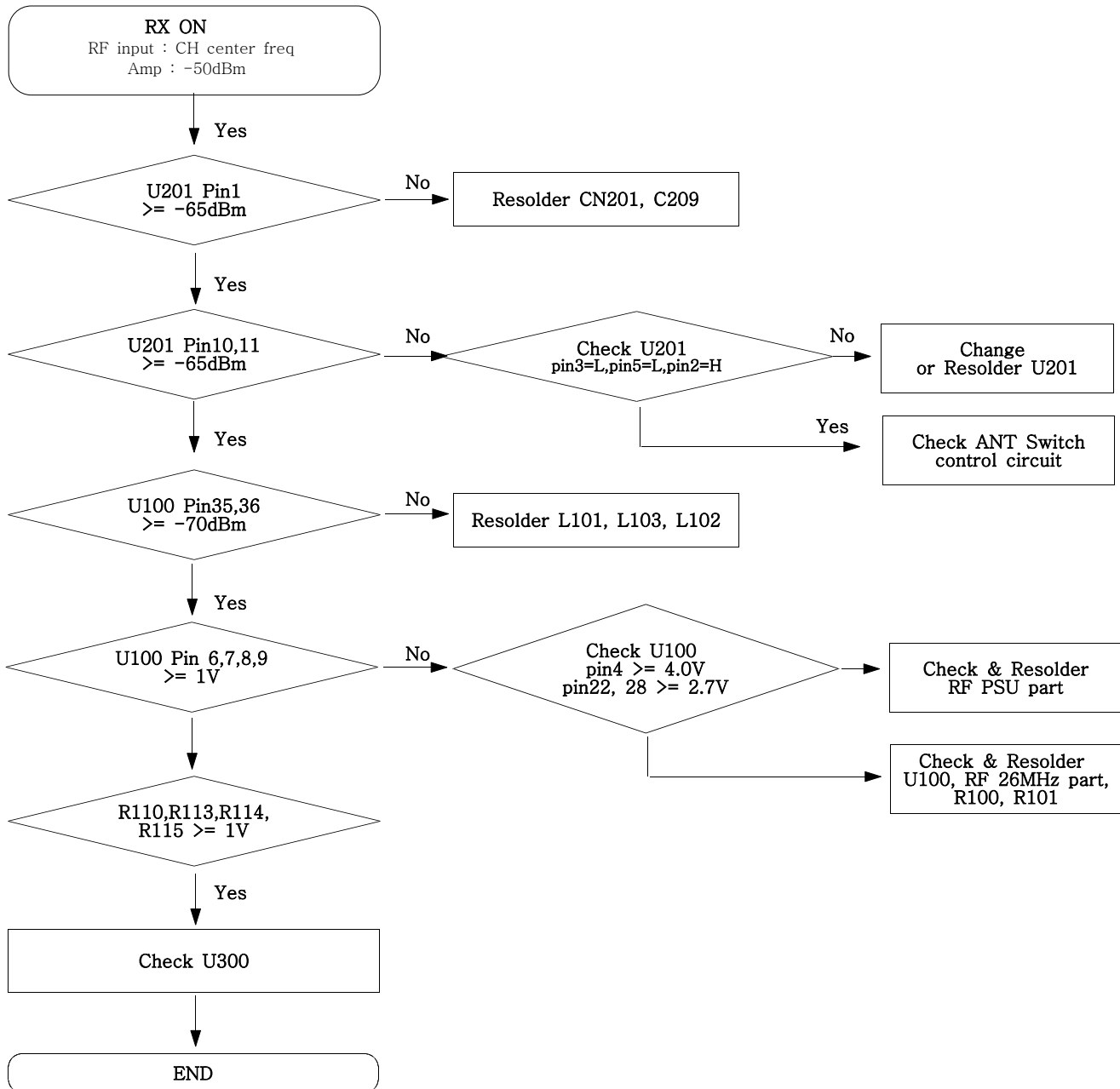
9-15. DCS Receiver



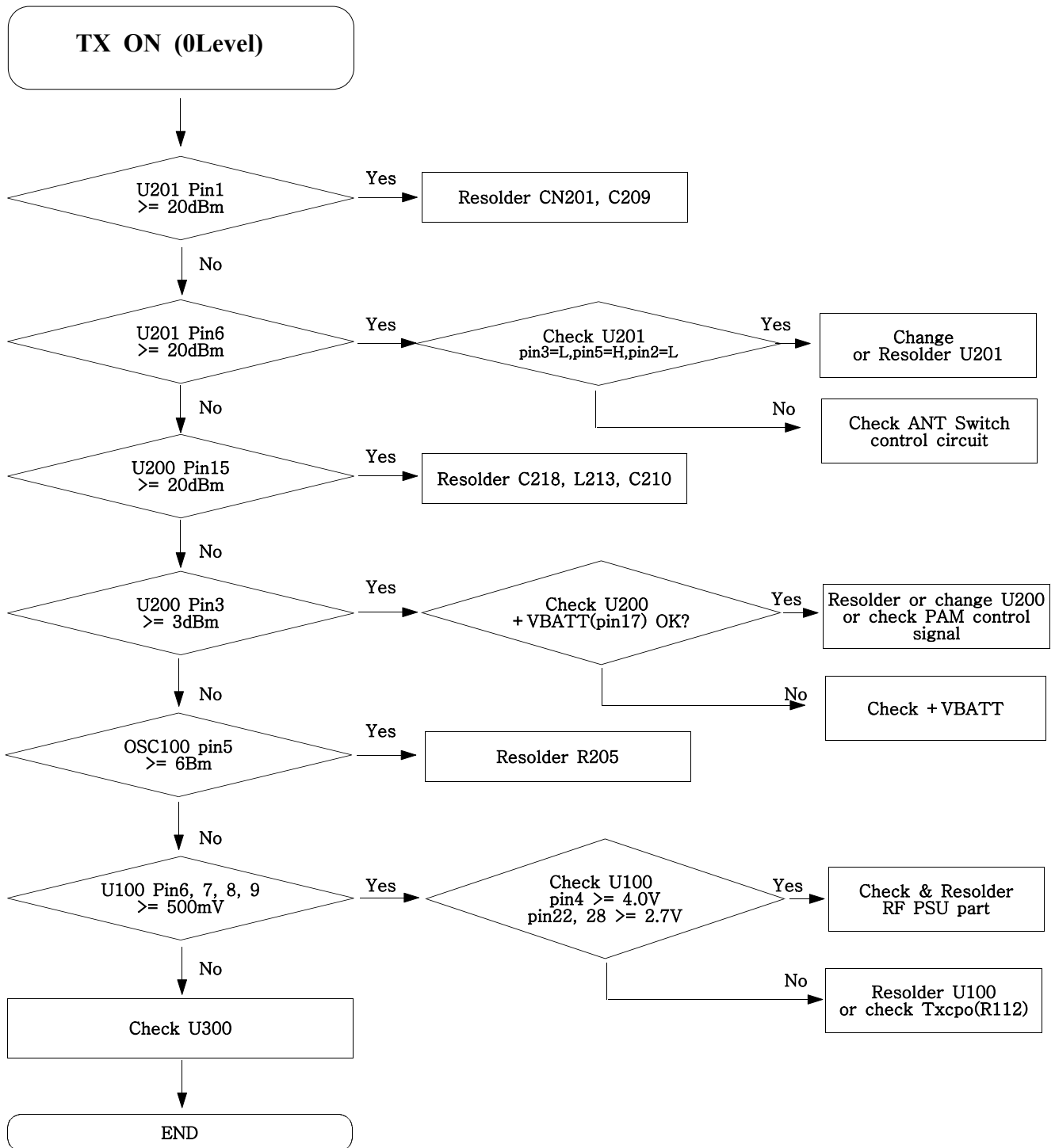
9-16. DCS Transmitter

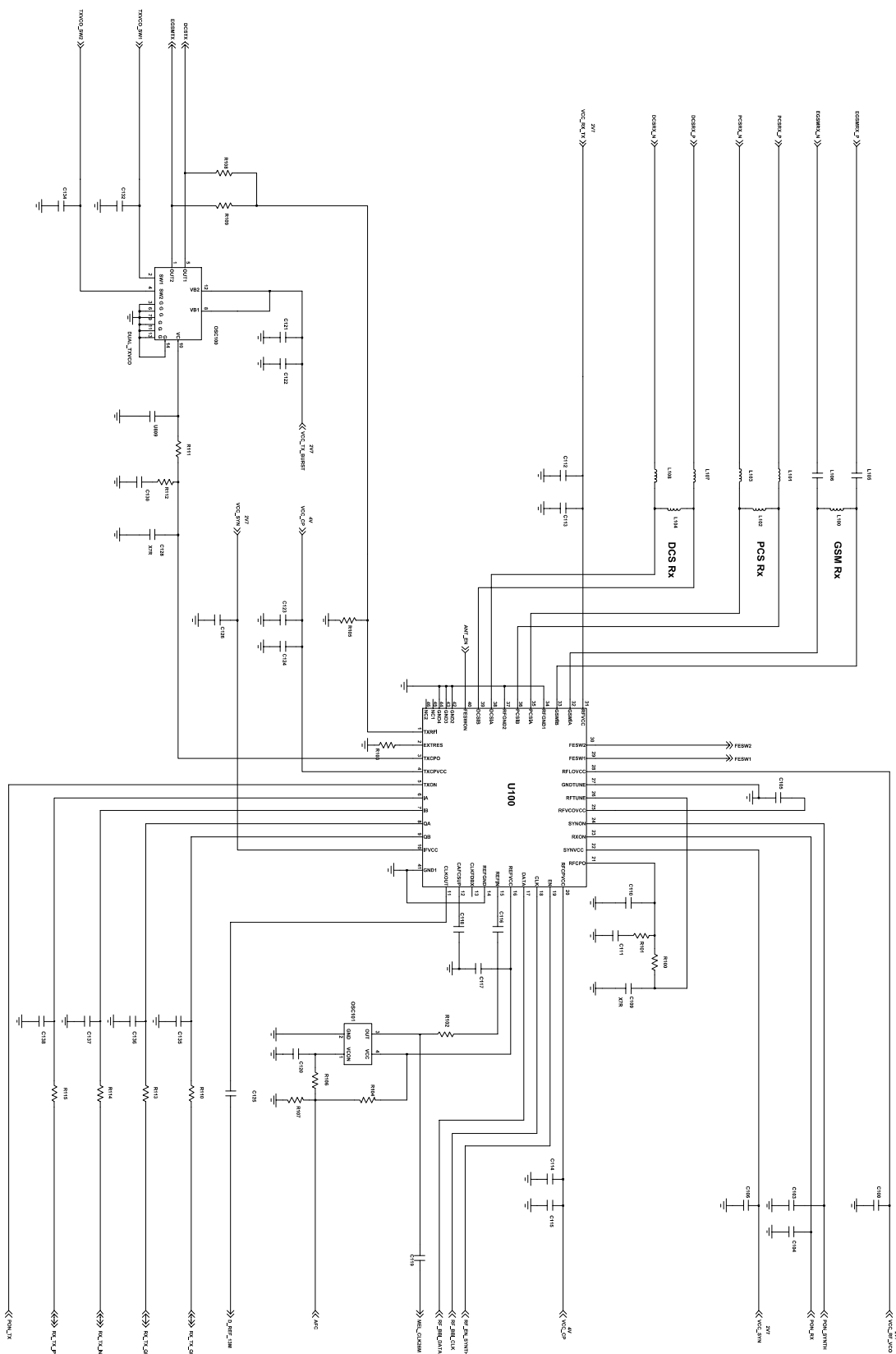


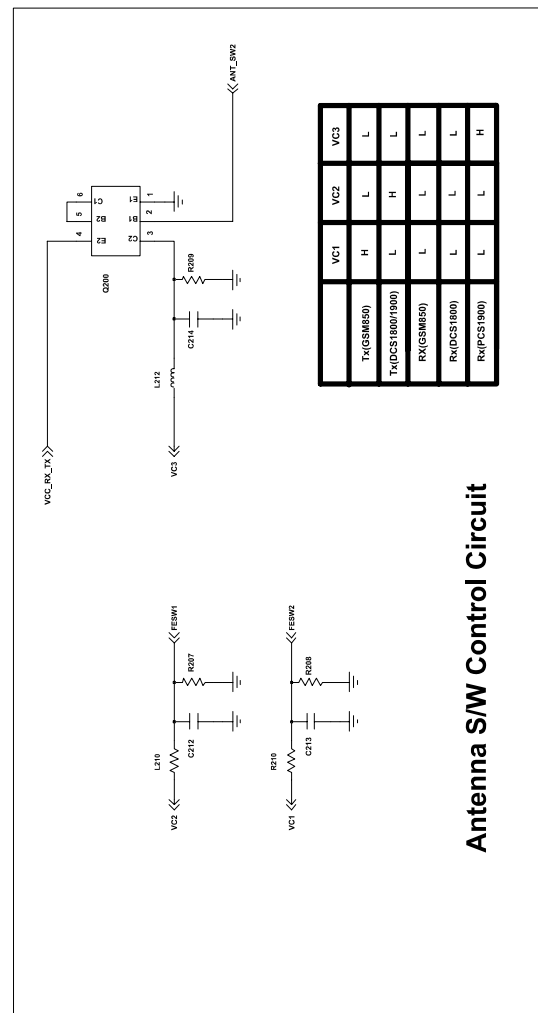
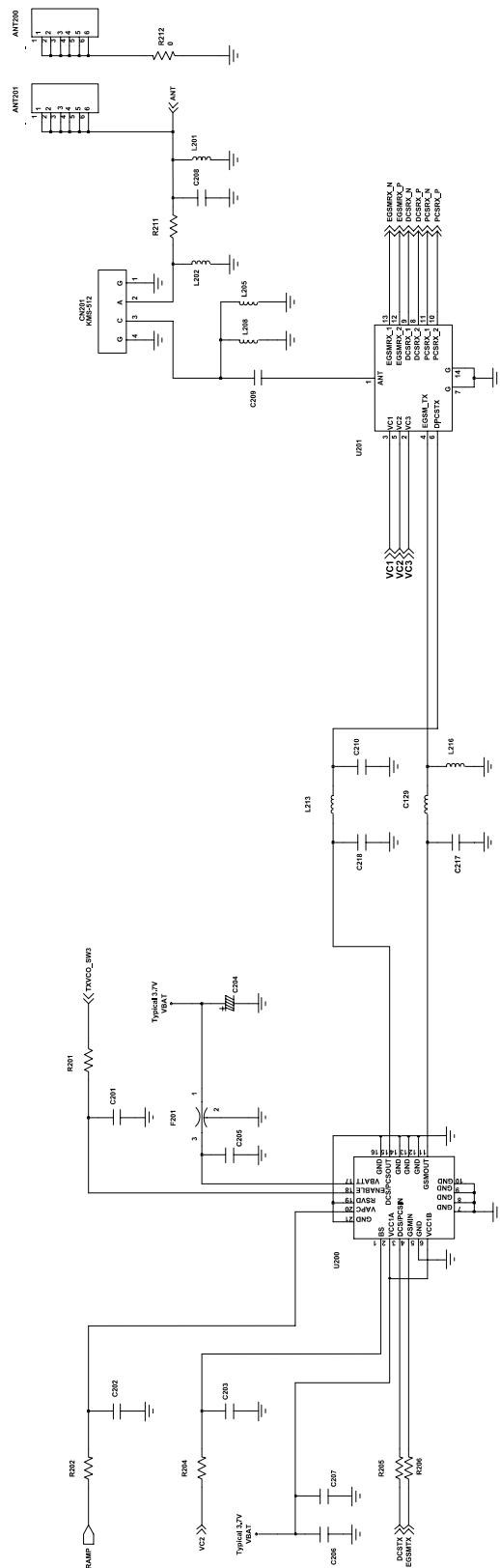
9-17. PCS Receiver

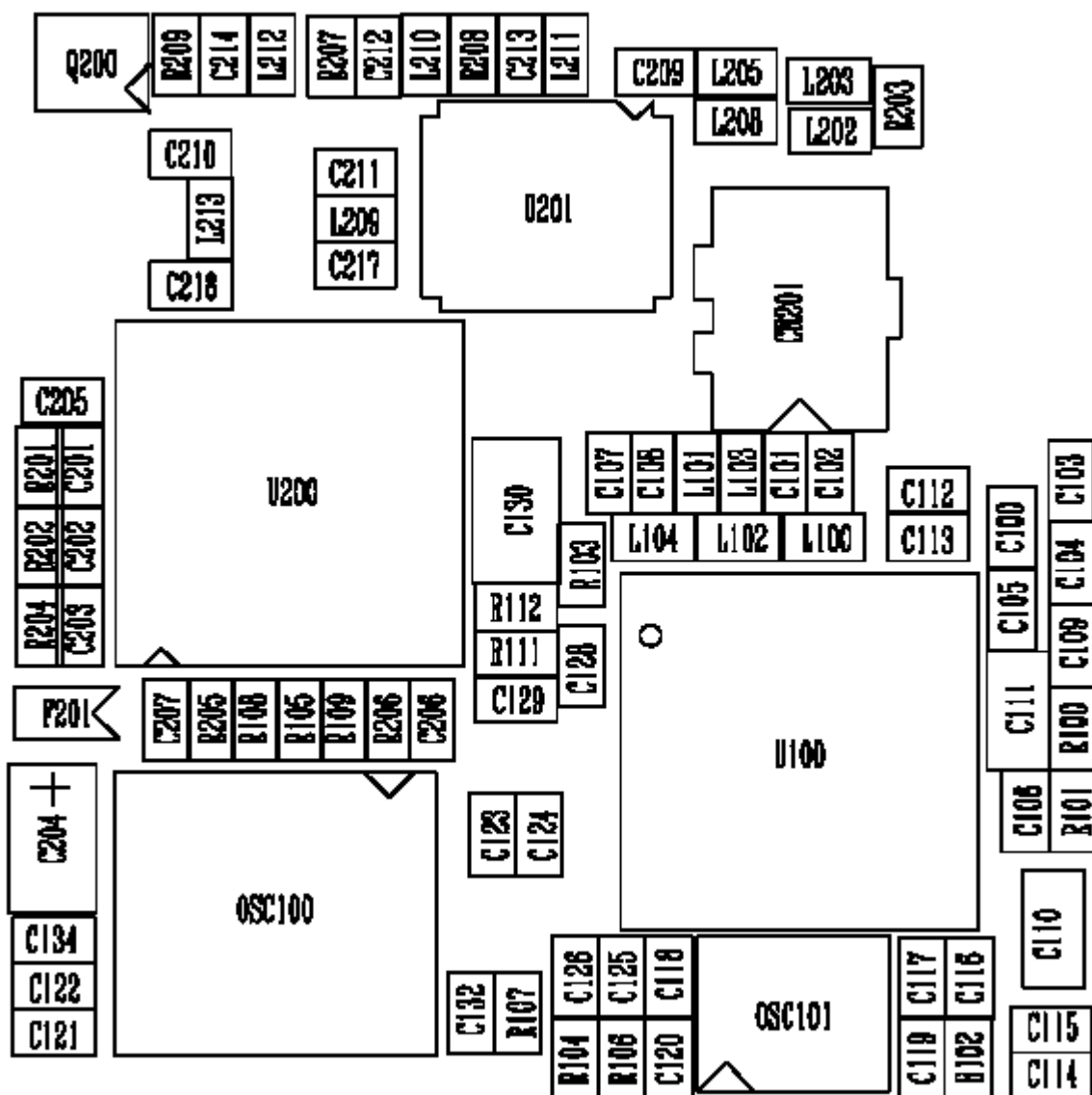


9-18. PCS Transmitter









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

