SAMSUNG

GSM TELEPHONE

SGH-E420

SERVICE Manual

GSM TELEPHONE

CONTENTS

1. Safety Precautions
2. Specification
3. Product Function
4. Array course control
5. Exploded View/Disassembly and Assembly Instructions
6. MAIN Electrical Parts List
7. Block Diagrams
8. PCB Diagrams
9. Flow Chart of Troubleshooting
10. Reference data

CONTENTS

1. Safety Precautions

1-1. Repair Precaution.....1-1

1-2. ESD(Electrostatically Sensitive Devices) Precaution.....1-2

2. Specification

2-1. GSM General Specification.....2-1

2-2. GSM Tx Power Class.....2-2

3. Product Function

4. Array course control

4-1. Software Adjustments.....4-1

4-2. Software Downloading.....4-2

5. Exploded View/Disassembly & Assembly Instructions

5-1. Cellular phone Exploded View.....5-1

5-2. Cellular phone Parts list.....5-2

5-3. Disassembly & Assembly Instructions.....5-4

6. MAIN Electrical Parts List

7. Block Diagrams

8. PCB Diagrams

CONTENTS

9. Flow Chart of Troubleshooting

9-1. Pown on.....9-1
9-2. Initial.....9-3
9-3. Charging Part.....9-6
9-4. SIM Part.....9-8
9-5. Microphone Part.....9-10
9-6. Speaker Part.....9-12
9-7. Key Data Input.....9-14
9-8. Receiver Part.....9-15
9-9. LCD Part.....9-16
9-10. Key Back Light.....9-18
9-11. Camera Part.....9-19
9-12. GSM Receiver.....9-21
9-13. GSM Transmitter.....9-22
9-14. DCS Receiver.....9-23
9-15. DCS Transmitter.....9-24
9-16. PCS Receiver.....9-25
9-17. PCS Transmitter.....9-23

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.

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

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.

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

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	-

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

2-2. GSM Tx Power Class

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

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

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

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

3. Product Function

Main Function

-VGA Camera

-65536 Color OLED Main Screen (128×160)
65536 Color OLED Sub Screen (96×96)

-SMS/EMS/MMS Message Service

-WAP Http support

-J2ME JAVA (MIDP 2.0/CLDC 1.1)

-Speaker phone

-40 Poly Melody

-vCard, vCalendar

-E-mail Client

-Tri-band(900/1800/1900MHz)

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

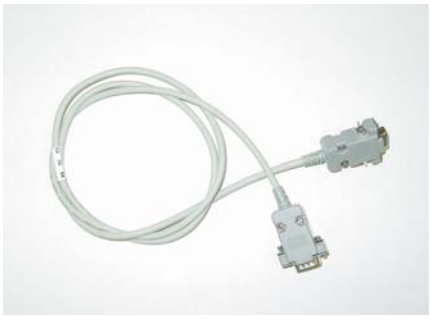
4. Array course control

4-1. Software Adjustments

Test Jig (GH80-01909A)

Test Cable (SGH-E420 VER2)

Serial Cable(CSA LL64151-A)



Power Supply Cable

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

4-2. Software Downloading

4-2-1. Pre-requsite for Downloading

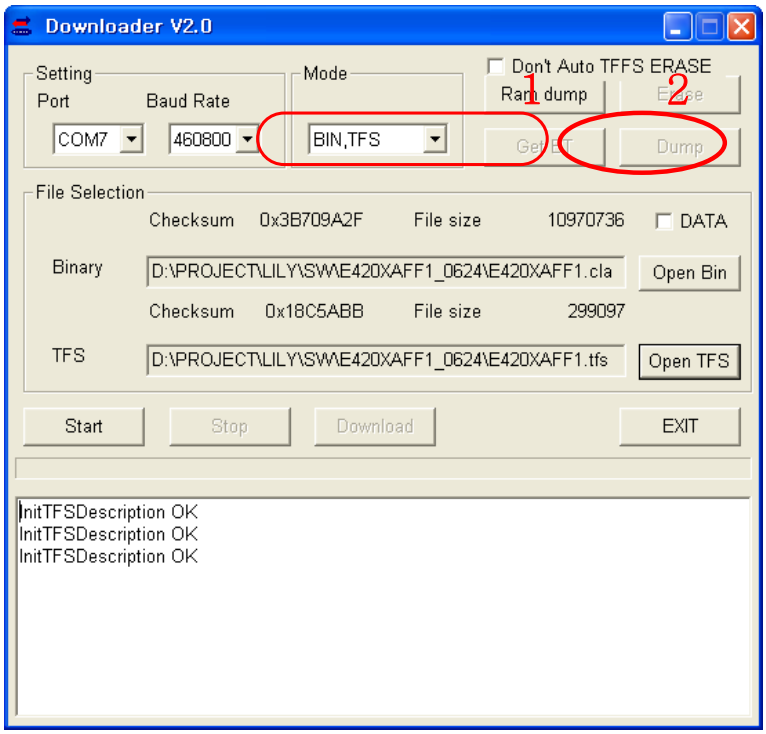
- Downloader Program(**Lily Downloader 2.0.exe**)
- E420 Mobile Phone
- Data Cable
- Binary file, TFS file

4-2-2. S/W Downloader Program

■ Load the binary download program by executing the "**Lily Downloader 2.0.exe**"

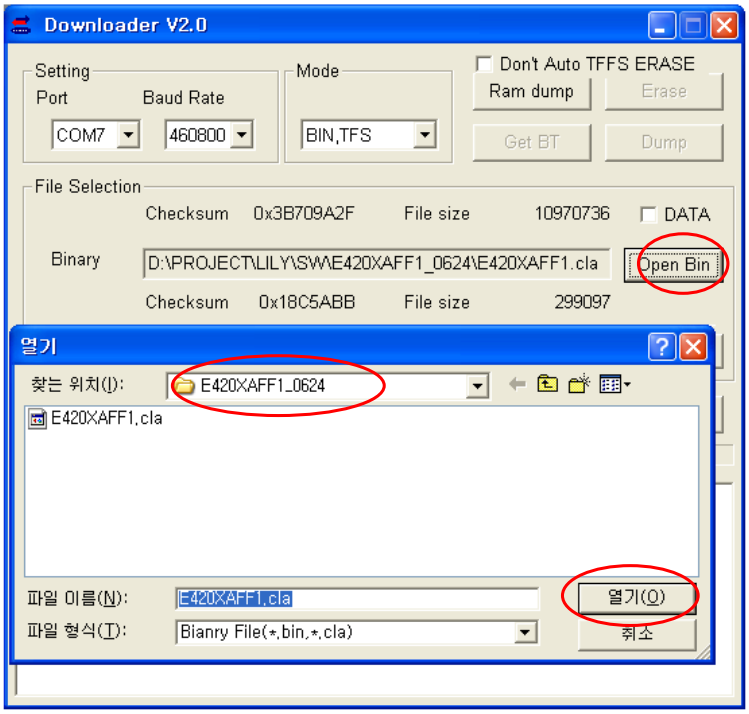
1. Select the connected serial port and the rate of speed

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'



SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

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

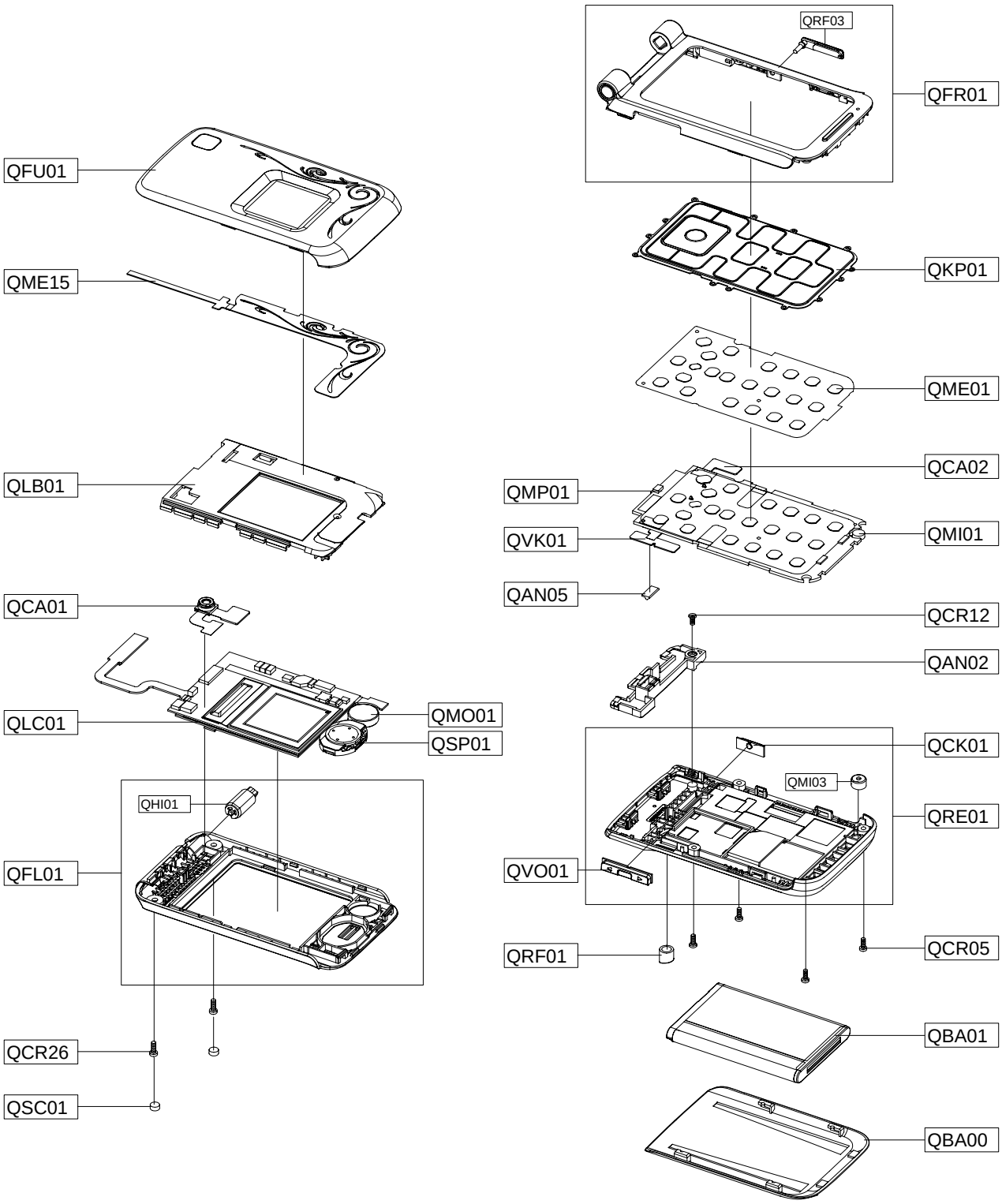


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

5. Exploded View / Disassembly&Assembly Instructions

5-1. Cellular phone Exploded View



SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

5-2. Cellular phone Parts list

Design LOC		Description	Sec Code
QAN02		INTENNA-SGHE420	GH42-01018A
QAN05		ASSY MEC-INTENNA CONTACT	GH75-08168A
QBA00		PMO-COVER BATTERY	GH72-33285A
QBA01		INNER BATTERY PACK-750MAH,BLK,	GH43-02483A
QCA01		UNIT-CAMERA MODULE	GH59-03566A
QCA02		UNIT-CAMERA KEY	GH59-03606A
QCK01		PMO-CAMERA KEY	GH72-33287A
QCR05		SCREW-MACHINE	6001-001478
QCR12		SCREW-MACHINE	6001-001530
QCR26		SCREW-MACHINE	6001-001850
QFU01		ASSY CASE-FOLDER UPPER	GH98-01842A
QKP01		ASSY KEYPAD-(SER/UWA)	GH98-02645A
QLB01		ASSY BRACKET-LCD	GH98-01846A
QME01		UNIT-METAL DOME	GH59-03605A
QME15		ELA ETC-EL SHEET(PNK)	GH96-02356A
QMI01		MICROPHONE-ASSY-SGHE420	GH30-00311A
QMO01		MOTOR DC-SGHE420	GH31-00198C
QMP01		PBA MAIN-SGHE420	GH92-03133A
QRF01		RMO-COVER RF	GH73-08169A
QSC01		RMO-COVER SCREW	GH73-08170A
QSP01		SPEAKER	3001-002064
QVK01		UNIT-VOLUME KEY	GH59-03595A
QVO01		PMO-VOLUME KEY	GH72-33286A
QFR01		ASSY CASE-FRONT	GH98-01844A
	QRF03	PMO-COVER EAR	GH72-33281A
QFL01		ASSY CASE-FOLDER LOWER	GH98-01843A
	QHI01	ASSY MEC-HINGE(CAN TYPE)	GH75-04662A
QLC01		LCD-M/S SGH-E420	GH07-01014A
	QMW01	AS-LCD WINDOW SVC	GH81-06126A
QRE01		ASSY CASE-REAR	GH98-01845A
	QMI03	RMO-RUBBER MIC	GH73-08187A

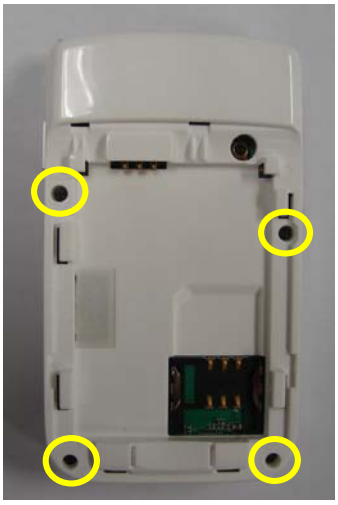
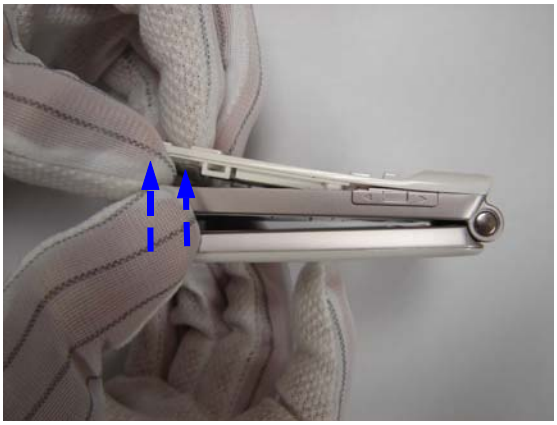
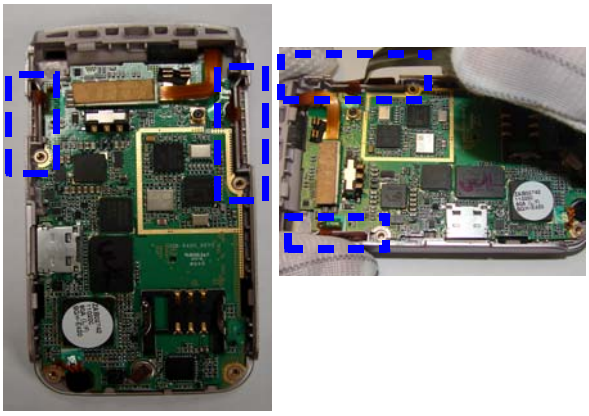
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Description	Sec Code
BAG PE	6902-000634
ADAPTOR-SGHE690,SIL,EU,A_TYPE	GH44-01361B
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL-SFC	GH68-04336A
LABEL(P)-BARCODE RUSSIA	GH68-08494A
MANUAL USERS-EU RUSSIAN	GH68-12319A
LABEL(R)-MAIN(SER)	GH68-12806A
BOX-UNIT(SER)	GH69-04579A
CUSHION-CASE(EU)	GH69-04581A
MPR-INSU TAPE	GH74-18047A
MPR-TAPE MIC	GH74-25834A
MPR-GASKET LCD CONN	GH74-25836A
MPR-VINYL BOHO F/LOWER	GH74-26366A
MPR-VINYL BOHO F/UPPER 2DN	GH74-26368A
MPR-TAPE,9.1X3.1XT0.06,3M1361	GH74-26419A
MPR-INSULATION TAPE,11.2X7.5XT	GH74-26425A
MPR-INSU TAPE EL CONN	GH74-27032A
MPR-TAPE MAIN LCD	GH74-27500A
MPR-SPONGE LCD	GH74-27688A
MPR-INSU TAPE	GH74-28027A
MPR-VINYL BOHO MAIN	GH74-29305A
MPR-VINYL BOHO REAR BATT	GH74-29981A
AS-MAIN LCD SVC	GH81-05969A
AS-SUB LCD SVC	GH81-05970A
AS-LCD PCB SVC	GH81-05971A
AS-WINDOW TAPE SVC	GH81-06097A

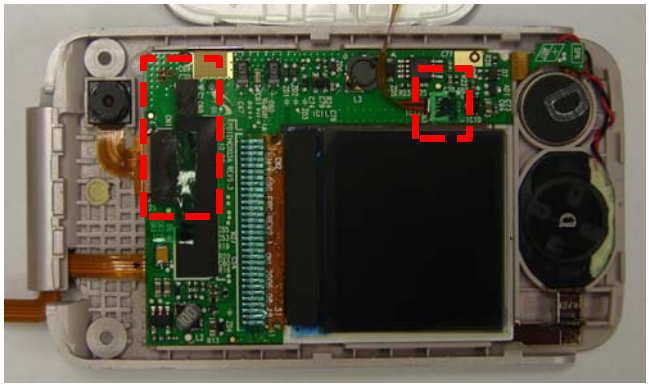
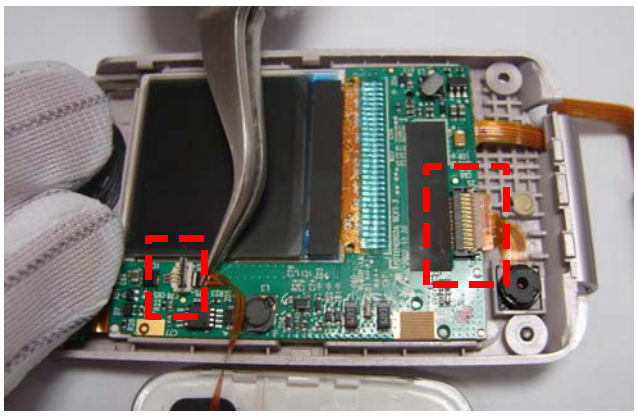
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

5-3. Disassembly and Assembly Instructions

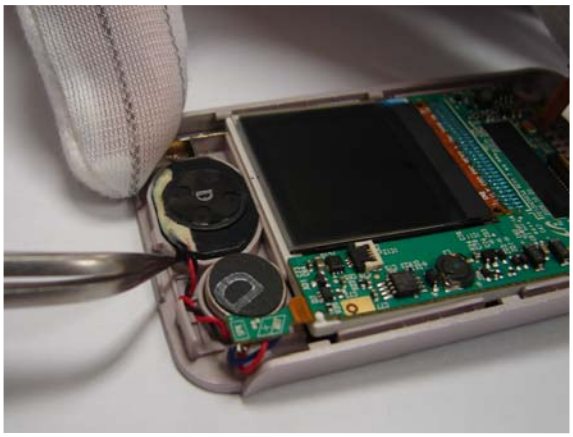
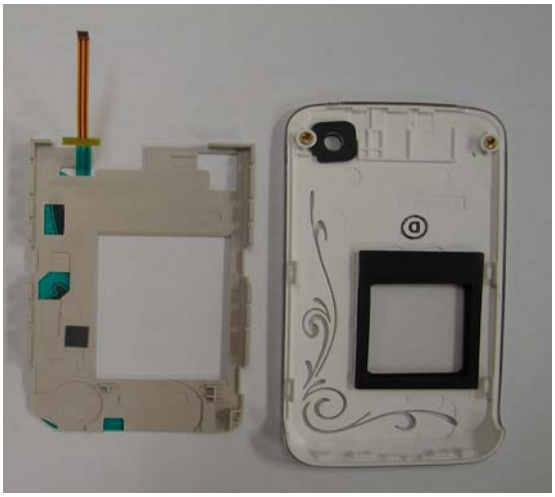
– Disassembly

1 1) Unscrew the REAR at the four points. 	2 1) Break both side hooks in rear and disassemble the rear from front like the figure. 
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 2)Disassemble the VOL KEY and CAMERA KEY FPCB from the FRONT ASS'Y using a pincette. 3) Disassemble the PBA from the FRONT ASS'Y. 4) Disassemble the Keypad. 	4 1) remove the dust prevention tape. 2) Push in the Hinge using the stick and disassemble the Front.
1) When LCD CONNECTOR FPCB and VOLUME KEY FPCB are separated from the front , Be careful not to damage!	1) Be careful not to make scratch and molding damage! 2) Be careful not to be torn the dust prevention tape. 3) Be careful not to damage LCD FPCB!

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

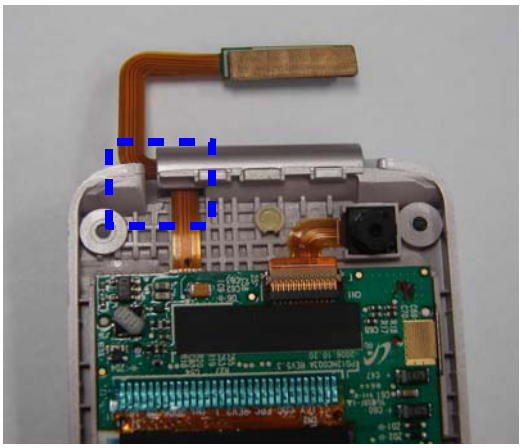
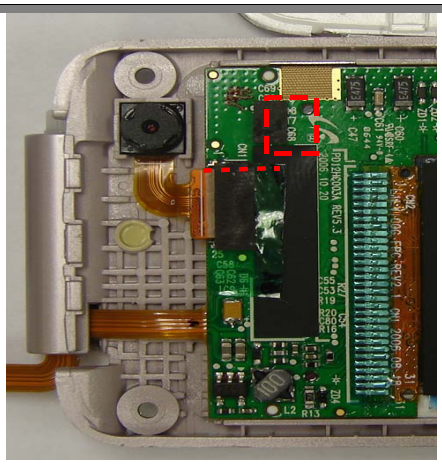
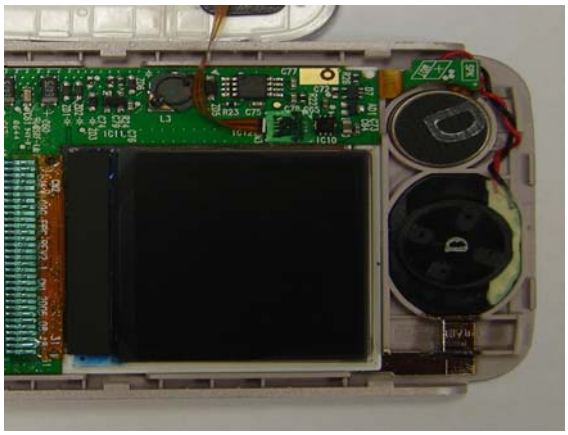
5 1) Remove screw caps. 2) Unscrew the FOLDER Upper. 	6 1) Be separated Folder upper from folder lower using the stick.
1) Be careful not to make scratch and molding damage! 2) Be careful not to damage LCD FPCB!	1) Be careful not to make scratch and molding damage!
7 1) Remove the cusion tape on the camera connector and some parts using a pincette. 2) Remove the insulation tapes on the camera connector and EL sheet connector. 	8 1) Disassemble the EL sheet FPCB and camera FPCB fron the connector using a pincette. 
1) Be careful not to damage camera FPCB and EL sheet FPCB.	1) Be careful not to damage camera FPCB and EL sheet FPCB.

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

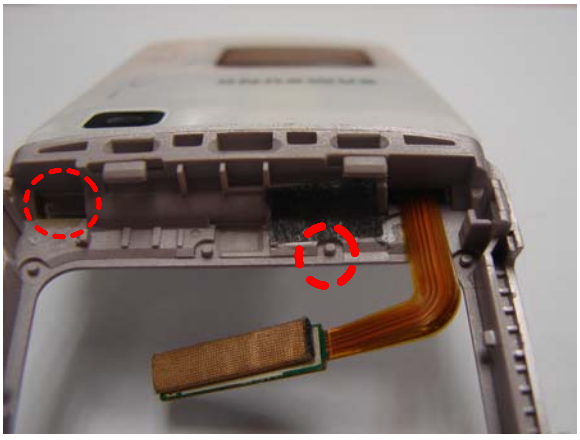
9 1) Disassemble the speaker pushing a pincette in a groove. 2) Disassemble the motor in the same way 	10 1) Disassemble LCD module from Folder lower
1) Be careful not to damage the speaker and a motor wire.	1) Be careful when you disassemble because the LCD module was fixed by the tape. 2) Be careful not to damage the LCD FPCB when disassemble
11 1) Disassemble the UPPER and the LCD braket 	
1) Be careful not to make scratch and molding damage!	

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

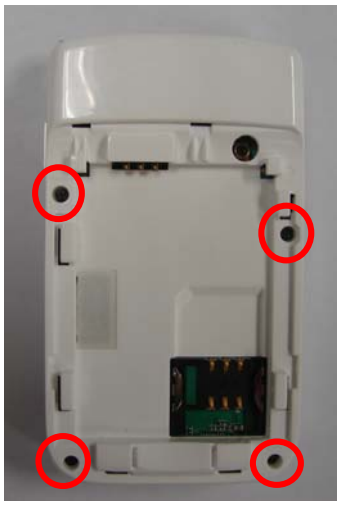
– Assembly

1 1) Insert the Camera FPCB to CONNECTOR 2) Insert the camera into FOLDER LOWER before LCD moudle inserting. 3) Insert the LCD CONNECTOR FPCB to HINGE 	2 1) Insert the Moter into Lower 2) Twist the Speker Wire three times 3) Insert the Speker into Lower
1) When inserting the FPCB and when in order, be careful not to damage not the FPCB. 2) When inserting the camera module, be careful not to damage not the FPCB.	1)When inserting the motor and the speaker, it pays attention in WIRE control.
3 1) To a base line, attach the insulation TAPE and cushion TAPE on camera CONNECTOR top. 2) Attach the EL Sheet damage prevention cushion TAPE like the figure. 	4 1) Using the pincette, insert The EL SHEET FPCB in the CONNECTOR. 2) Attach the fixation insulation TAPE above the connector. 
1) When attaching the TAPE, be careful not to damage camera FPCB at pincette.	1) When inserting the FPCB, be careful not to damage the FPCB. 2) When attaching an insulation TAPE, be careful not to cover the LCD.

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

5 1) Assemble the UPPER and LOWER 	6 1) Screw up the two points 2) Insert the SCREW CAP
1) Be careful not to make scratch and molding damage!	1) Use 1.2 ± 0.2 Kgf.cm!
7 1) When assembling the Folder Assy and the Front, pass the LCD CONNECTOR in first and assemble the HINGE. 2) Attach the dust prevention TAPE like the photograph. 	8 1) Insert the KEYPAD.
1) Be careful not to damage the LCD CONNECTOR FPCB . 2) When attaching the dust prevention TAPE, be careful not to cover the keypad groove.	1) Be careful not to insert keypad into FRONT incorrectly!

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9 1) Insertin the PBA, arrives the PBA in the HOOKER lower part which is visible in the lower part picture. 2) Insert the VOL KEY and CAMERA KEY FPCB 3) Insert LCD CONNECTOR correctly 	10 1) Insert the Camera Key and Volume Key 2) Assembling the REAR, assemble from lower part portion. 3) With the lower part picture press the top region and assemble it. 1 2
1) When inserting the PBA, be careful not to break and the HOOK to break, or nine, in order not to break, it pays attention to the PBA 2)When contracting the LCD CONNECTOR, in order for the sound to be born "tightly", it contracts with thumb.	1) Be careful not to damage LCD CONNECTOR FPCB!
11 1)Screw up the REAR at 4 Points. 	
1) Be careful not to make scratch and molding damage!	

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

6. MAIN Electrical Parts List

Design LOC	Description	SEC Code	STATUS
ANT200	NPR-ANTENNA CONTACT	GH71-05666A	SA
ANT201	NPR-ANTENNA CONTACT	GH71-05666A	SA
BAT500	BATTERY-LI(2ND)	4302-001130	SA
BTC600	HEADER-BATTERY	3711-006219	SA
C100	C-CER,CHIP	2203-005482	SA
C101	C-CER,CHIP	2203-000233	SA
C102	C-CER,CHIP	2203-000233	SA
C103	C-CER,CHIP	2203-005138	SA
C104	C-CER,CHIP	2203-005482	SA
C105	C-CER,CHIP	2203-002525	SA
C106	C-CER,CHIP	2203-000838	SA
C107	C-CER,CHIP	2203-006961	SA
C108	C-CER,CHIP	2203-005482	SA
C109	C-CER,CHIP	2203-005057	SA
C110	C-CER,CHIP	2203-005057	SA
C111	C-CER,CHIP	2203-005482	SA
C112	C-CER,CHIP	2203-000254	SA
C113	C-CER,CHIP	2203-005481	SA
C114	C-CER,CHIP	2203-005480	SA
C115	C-CER,CHIP	2203-000233	SA
C116	C-CER,CHIP	2203-000233	SA
C117	C-CER,CHIP	2203-006562	SA
C118	C-CER,CHIP	2203-000438	SA
C119	C-CER,CHIP	2203-005482	SA
C120	C-CER,CHIP	2203-005057	SA
C121	C-CER,CHIP	2203-000254	SA
C122	C-CER,CHIP	2203-006562	SA
C123	C-CER,CHIP	2203-000585	SA
C124	C-CER,CHIP	2203-000585	SA
C125	C-CER,CHIP	2203-000233	SA
C126	C-CER,CHIP	2203-000609	SA
C127	C-CER,CHIP	2203-000585	SA
C128	C-CER,CHIP	2203-000679	SA
C129	C-CER,CHIP	2203-000585	SA
C130	C-CER,CHIP	2203-000679	SA
C131	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	2404-001474	SA
C205	C-CER,CHIP	2203-005482	SA
C206	C-CER,CHIP	2203-006190	SA
C207	C-CER,CHIP	2203-006190	SA
C208	C-CER,CHIP	2203-005234	SA
C209	C-CER,CHIP	2203-000812	SA
C210	C-CER,CHIP	2203-001385	SA
C212	C-CER,CHIP	2203-000233	SA
C213	C-CER,CHIP	2203-000233	SA
C219	INDUCTOR-SMD	2703-002208	SA
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

SAMSUNG Proprietary-Contents may change without notice

This Document can not be used without Samsung's authorization

Design LOC	Description	SEC Code	STATUS
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
C312	C-CER,CHIP	2203-000679	SA
C314	C-CER,CHIP	2203-005482	SA
C317	C-CER,CHIP	2203-005482	SA
C319	C-CER,CHIP	2203-000679	SA
C320	C-CER,CHIP	2203-000679	SA
C321	C-CER,CHIP	2203-000679	SA
C322	C-CER,CHIP	2203-000679	SA
C323	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	2203-006825	SA
C503	C-CER,CHIP	2203-005482	SA
C504	C-CER,CHIP	2203-005482	SA
C505	C-CER,CHIP	2203-005482	SA
C506	C-CER,CHIP	2203-006208	SA
C507	C-CER,CHIP	2203-005395	SA
C508	C-CER,CHIP	2203-000386	SA
C509	C-TA,CHIP	2404-001225	SA
C510	C-CER,CHIP	2203-005482	SA
C511	C-CER,CHIP	2203-000627	SNA
C512	C-CER,CHIP	2203-006257	SA
C513	C-CER,CHIP	2203-000189	SA
C514	C-CER,CHIP	2203-000627	SNA
C515	C-CER,CHIP	2203-006208	SA
C516	C-CER,CHIP	2203-000885	SA
C517	C-CER,CHIP	2203-006208	SA
C518	C-CER,CHIP	2203-006208	SA
C519	C-CER,CHIP	2203-006824	SA
C520	C-TA,CHIP	2404-001225	SA
C521	C-TA,CHIP	2404-001225	SA
C522	C-CER,CHIP	2203-005482	SA
C523	C-CER,CHIP	2203-005482	SA
C524	C-CER,CHIP	2203-005482	SA
C525	C-CER,CHIP	2203-006208	SA
C526	C-CER,CHIP	2203-005061	SA
C527	C-CER,CHIP	2203-002443	SA

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Design LOC	Description	SEC Code	STATUS
C529	C-CER,CHIP	2203-006562	SA
C530	C-CER,CHIP	2203-006348	SA
C531	C-CER,CHIP	2203-006208	SA
C532	C-CER,CHIP	2203-006208	SA
C533	C-CER,CHIP	2203-006208	SA
C534	C-CER,CHIP	2203-006208	SA
C535	C-CER,CHIP	2203-000679	SA
C538	C-CER,CHIP	2203-006348	SA
C540	C-CER,CHIP	2203-006562	SA
C541	C-CER,CHIP	2203-006257	SA
C542	C-TA,CHIP	2404-001381	SA
C600	C-CER,CHIP	2203-005061	SA
C602	C-CER,CHIP	2203-000854	SA
C603	C-CER,CHIP	2203-005061	SA
C604	C-TA,CHIP	2404-001377	SA
C605	C-CER,CHIP	2203-000679	SA
C606	C-CER,CHIP	2203-005061	SA
C607	C-CER,CHIP	2203-000386	SA
C609	C-CER,CHIP	2203-000812	SA
C610	C-CER,CHIP	2203-005061	SA
C611	C-CER,CHIP	2203-000679	SA
C612	C-CER,CHIP	2203-000425	SA
C615	C-CER,CHIP	2203-000425	SA
C616	C-CER,CHIP	2203-006562	SA
C617	C-CER,CHIP	2203-005482	SA
C620	C-CER,CHIP	2203-005061	SA
C700	C-CER,CHIP	2203-000812	SA
C701	C-CER,CHIP	2203-005683	SA
C702	C-CER,CHIP	2203-005683	SA
C703	C-CER,CHIP	2203-005683	SA
C704	C-CER,CHIP	2203-005683	SA
C705	C-CER,CHIP	2203-005683	SA
C706	C-CER,CHIP	2203-005683	SA
C707	C-CER,CHIP	2203-005683	SA
C708	C-CER,CHIP	2203-005683	SA
C709	C-CER,CHIP	2203-000812	SA
C710	C-CER,CHIP	2203-005683	SA
C711	C-CER,CHIP	2203-005683	SA
C712	C-CER,CHIP	2203-005683	SA
C713	C-CER,CHIP	2203-005683	SA
C714	C-CER,CHIP	2203-005683	SA
C715	C-CER,CHIP	2203-005683	SA
C716	C-CER,CHIP	2203-000278	SA
C717	C-CER,CHIP	2203-005482	SA
C718	C-CER,CHIP	2203-005482	SA
C719	C-CER,CHIP	2203-000812	SA
C720	C-CER,CHIP	2203-000812	SA
C800	C-CER,CHIP	2203-000854	SA
C801	C-CER,CHIP	2203-006562	SA
C802	C-CER,CHIP	2203-000233	SA
C803	C-CER,CHIP	2203-000679	SA
C804	C-CER,CHIP	2203-005482	SA
C805	C-CER,CHIP	2203-005482	SA

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Design LOC	Description	SEC Code	STATUS
C806	C-CER,CHIP	2203-005482	SA
C807	C-CER,CHIP	2203-000438	SA
C808	C-CER,CHIP	2203-000725	SA
C809	C-CER,CHIP	2203-000812	SA
C810	C-CER,CHIP	2203-000812	SA
C811	C-CER,CHIP	2203-006260	SA
C812	C-TA,CHIP	2404-001381	SA
C813	C-CER,CHIP	2203-005482	SA
C814	C-CER,CHIP	2203-001221	SA
C815	C-CER,CHIP	2203-006048	SA
D600	DIODE-SCHOTTKY	0404-001172	SA
D610	DIODE-TVS	0406-001231	SA
D611	DIODE-TVS	0406-001231	SA
D612	DIODE-TVS	0406-001231	SA
D800	DIODE-TVS	0406-001231	SA
D801	DIODE-TVS	0406-001231	SA
D802	DIODE-TVS	0406-001231	SA
D803	DIODE-TVS	0406-001231	SA
D804	DIODE-TVS	0406-001231	SA
D805	DIODE-TVS	0406-001235	SA
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
IFC600	SOCKET-INTERFACE	3710-002442	SA
L100	INDUCTOR-SMD	2703-002201	SA
L101	INDUCTOR-SMD	2703-002176	SA
L103	INDUCTOR-SMD	2703-002176	SA
L105	INDUCTOR-SMD	2703-002208	SA
L106	INDUCTOR-SMD	2703-002208	SA
L107	INDUCTOR-SMD	2703-002208	SA
L108	INDUCTOR-SMD	2703-002208	SA
L201	R-CHIP	2007-000171	SA
L208	INDUCTOR-SMD	2703-002313	SA
L210	R-CHIP	2007-000171	SA
L213	INDUCTOR-SMD	2703-002176	SA
L216	C-CER,CHIP	2203-005158	SA
L500	BEAD-SMD	3301-001105	SA
L501	BEAD-SMD	3301-001729	SA
L600	BEAD-SMD	3301-001438	SA
L601	BEAD-SMD	3301-001438	SA
L602	BEAD-SMD	3301-001438	SA
L603	BEAD-SMD	3301-001438	SA
LED1	LED	0601-002268	SA
LED2	LED	0601-002268	SA
MODULE200	DUPLEXER-FEM	2911-000044	SA
OSC100	OSCILLATOR-VCO	2806-001329	SA
OSC101	OSCILLATOR-VCTCXO	2809-001307	SA
Q800	FET-SILICON	0505-002088	SA
R100	R-CHIP	2007-007148	SA
R101	R-CHIP	2007-000141	SA

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Design LOC	Description	SEC Code	STATUS
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
R111	R-CHIP	2007-000138	SA
R112	R-CHIP	2007-000138	SA
R113	R-CHIP	2007-000982	SA
R114	R-CHIP	2007-000982	SA
R115	R-CHIP	2007-000982	SA
R201	R-CHIP	2007-000171	SA
R202	R-CHIP	2007-000145	SA
R204	R-CHIP	2007-000171	SA
R205	R-CHIP	2007-000171	SA
R206	R-CHIP	2007-000171	SA
R207	R-CHIP	2007-000162	SA
R208	R-CHIP	2007-000162	SA
R210	R-CHIP	2007-000171	SA
R212	INDUCTOR-SMD	2703-002208	SA
R300	R-CHIP	2007-000174	SA
R301	R-CHIP	2007-000171	SA
R302	R-CHIP	2007-000162	SA
R306	R-CHIP	2007-007107	SA
R307	R-CHIP	2007-000162	SA
R308	R-CHIP	2007-000162	SA
R312	R-CHIP	2007-000171	SA
R313	R-CHIP	2007-000141	SA
R314	R-CHIP	2007-000141	SA
R315	R-CHIP	2007-000162	SA
R316	R-CHIP	2007-000143	SA
R318	R-CHIP	2007-007107	SA
R319	R-CHIP	2007-007142	SA
R320	R-CHIP	2007-007142	SA
R323	R-CHIP	2007-000171	SA
R400	R-CHIP	2007-000162	SA
R401	R-CHIP	2007-000162	SA
R403	R-CHIP	2007-000162	SA
R404	R-CHIP	2007-000162	SA
R405	R-CHIP	2007-000162	SA
R406	R-CHIP	2007-000162	SA
R407	R-CHIP	2007-000162	SA
R408	R-CHIP	2007-000162	SA
R409	R-CHIP	2007-000171	SA
R410	R-CHIP	2007-000171	SA
R411	R-CHIP	2007-000171	SA
R412	R-CHIP	2007-000171	SA
R413	R-CHIP	2007-007141	SA
R500	R-CHIP	2007-000148	SA
R501	R-CHIP	2007-007573	SA

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Design LOC	Description	SEC Code	STATUS
R502	R-CHIP	2007-007334	SA
R503	R-CHIP	2007-000162	SA
R504	R-CHIP	2007-007100	SA
R505	R-CHIP	2007-000162	SA
R508	R-CHIP	2007-000171	SA
R509	R-CHIP	2007-000157	SA
R510	R-CHIP	2007-001292	SA
R511	R-CHIP	2007-001292	SA
R512	R-CHIP	2007-000171	SA
R513	R-CHIP	2007-000162	SA
R514	R-CHIP	2007-007489	SA
R515	R-CHIP	2007-007311	SA
R602	R-CHIP	2007-000148	SA
R603	R-CHIP	2007-000171	SA
R605	R-CHIP	2007-000140	SA
R606	R-CHIP	2007-000140	SA
R607	R-CHIP	2007-002796	SA
R608	R-CHIP	2007-002796	SA
R609	R-CHIP	2007-000140	SA
R610	R-CHIP	2007-000140	SA
R612	R-CHIP	2007-000148	SA
R614	R-CHIP	2007-008531	SA
R615	R-CHIP	2007-008531	SA
R616	R-CHIP	2007-007306	SA
R617	R-CHIP	2007-007306	SA
R618	R-CHIP	2007-007107	SA
R620	R-CHIP	2007-000162	SA
R621	R-CHIP	2007-000171	SA
R622	R-CHIP	2007-000171	SA
R623	R-CHIP	2007-000168	SA
R624	R-CHIP	2007-001339	SA
R625	R-CHIP	2007-000171	SA
R626	R-CHIP	2007-001339	SA
R627	R-CHIP	2007-001339	SA
R628	R-CHIP	2007-008531	SA
R629	R-CHIP	2007-000171	SA
R630	R-CHIP	2007-008531	SA
R631	R-CHIP	2007-007573	SA
R632	R-CHIP	2007-007529	SA
R633	R-CHIP	2007-007107	SA
R634	R-CHIP	2007-000166	SA
R710	R-CHIP	2007-000143	SA
R711	R-CHIP	2007-000143	SA
R712	R-CHIP	2007-000171	SA
R713	R-CHIP	2007-000171	SA
R800	R-CHIP	2007-000138	SA
R801	R-CHIP	2007-000138	SA
R802	R-CHIP	2007-000138	SA
R803	R-CHIP	2007-000171	SA
R804	R-CHIP	2007-000171	SA
R805	R-CHIP	2007-000162	SA
R806	R-CHIP	2007-001303	SA
R807	R-CHIP	2007-007013	SA

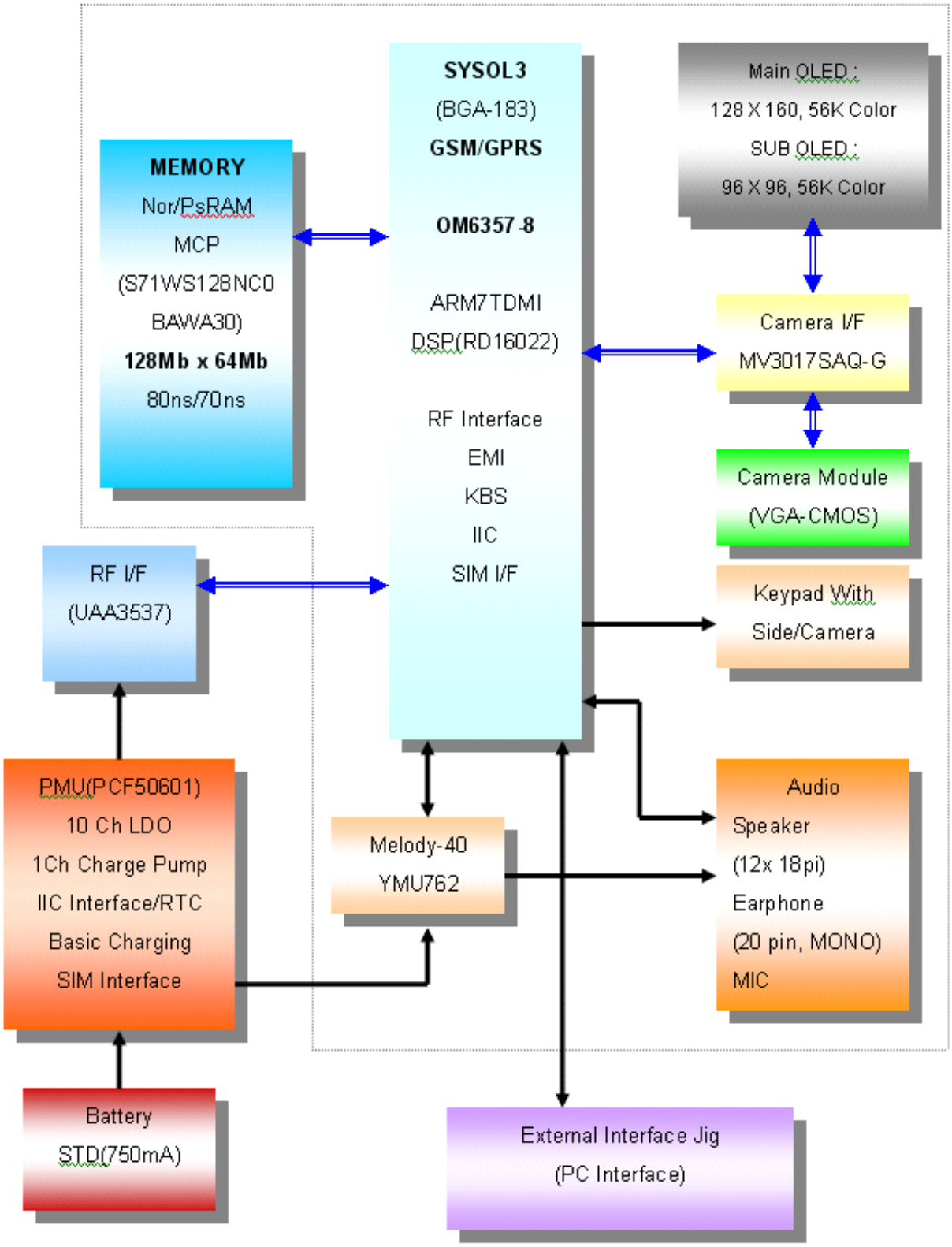
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Design LOC	Description	SEC Code	STATUS
R808	R-CHIP	2007-003013	SA
R809	R-CHIP	2007-007308	SA
R810	R-CHIP	2007-007014	SA
R811	R-CHIP	2007-000831	SA
R812	R-CHIP	2007-000171	SA
R813	R-CHIP	2007-001325	SA
R814	R-CHIP	2007-000171	SA
R815	R-CHIP	2007-000172	SA
R816	R-CHIP	2007-000172	SA
R817	R-CHIP	2007-001339	SA
RFS201	CONNECTOR-COAXIAL	3705-001358	SA
SIM500	CONNECTOR-CARD EDGE	3709-001400	SA
SOC700	HEADER-BOARD TO BOARD	3711-005918	SA
SW500	IC-HALL EFFECT S/W	1009-001018	SA
TH300	THERMISTOR-NTC	1404-001221	SA
U100	IC-TRANSCEIVER	1205-002327	SA
U200	IC-POWER AMP	1201-002218	SA
U401	IC ASIC-SGHX670	GH13-00036A	SA
U402	FET-SILICON	0505-001923	SA
U403	FET-SILICON	0505-002088	SA
U500	IC-CONTROLLER	1205-002350	SA
U503	IC-POSI.FIXED REG.	1203-003787	SA
U505	IC-BATTERY	1203-003663	SA
U600	IC-ANALOG MULTIPLEX	1001-001345	SA
U601	IC-ANALOG SWITCH	1001-001362	SA
U602	IC-VOLTAGE COMP.	1202-001068	SA
U603	FILTER-EMI/ESD	2901-001349	SA
U605	TR-DIGITAL	0504-001100	SA
U800	IC-MELODY	1204-002690	SA
U801	IC-CMOS LOGIC	0801-003025	SA
UCP300	IC-COMM. CONTROLLER	1205-003065	SA
UME400	IC-MCP	1108-000059	SA
V700	DIODE-TVS	0406-001235	SA
V701	DIODE-TVS	0406-001235	SA
V702	DIODE-TVS	0406-001235	SA
V703	DIODE-TVS	0406-001235	SA
V704	DIODE-TVS	0406-001235	SA
V705	DIODE-TVS	0406-001235	SA
V706	DIODE-TVS	0406-001235	SA
V707	DIODE-TVS	0406-001235	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
ZD603	DIODE-ZENER	0403-001547	SA
ZD604	DIODE-TVS	0406-001201	SA

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

7. Block Diagrams

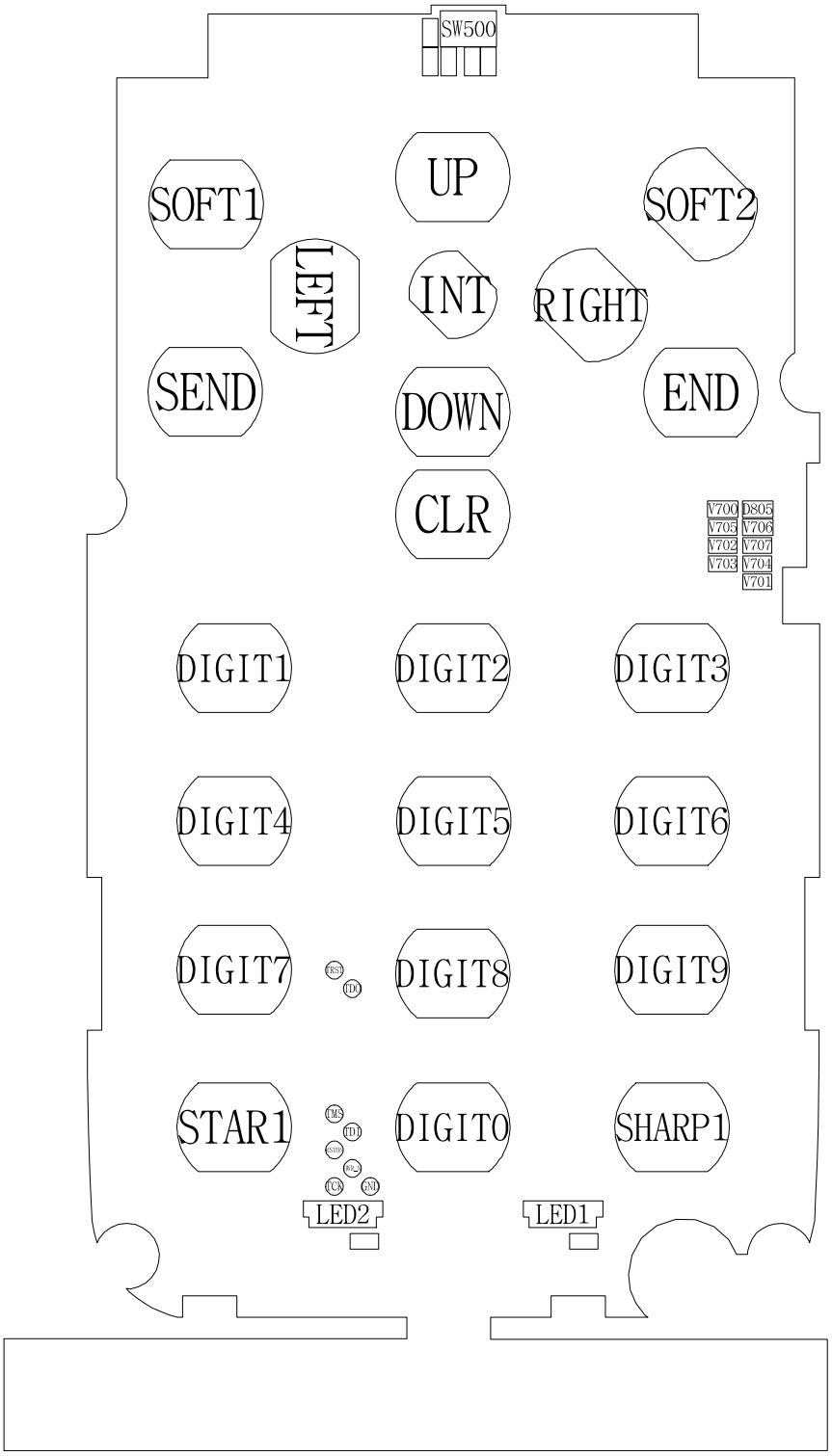


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

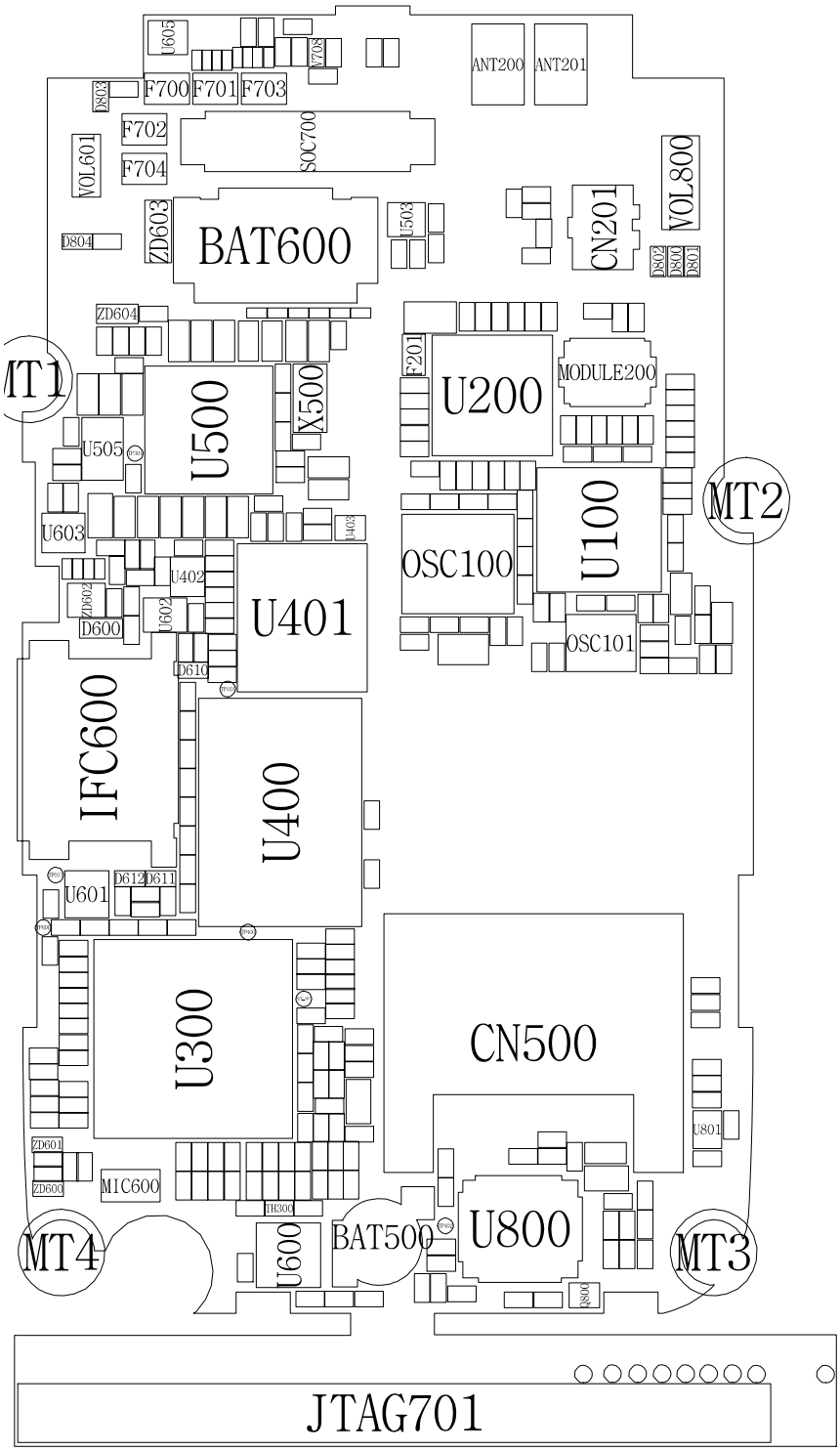
8. PCB Diagrams

Top



SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

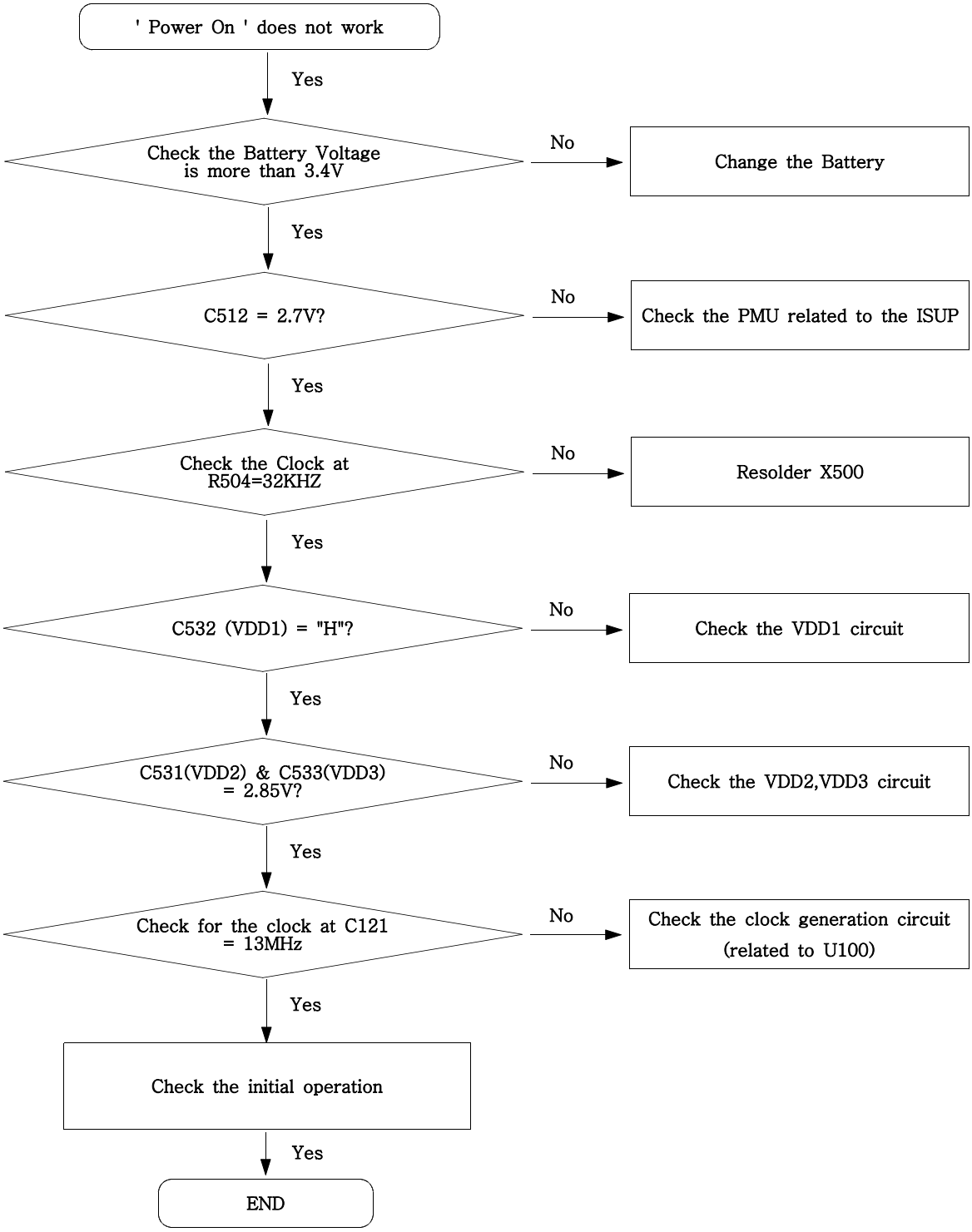
Bottom



SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

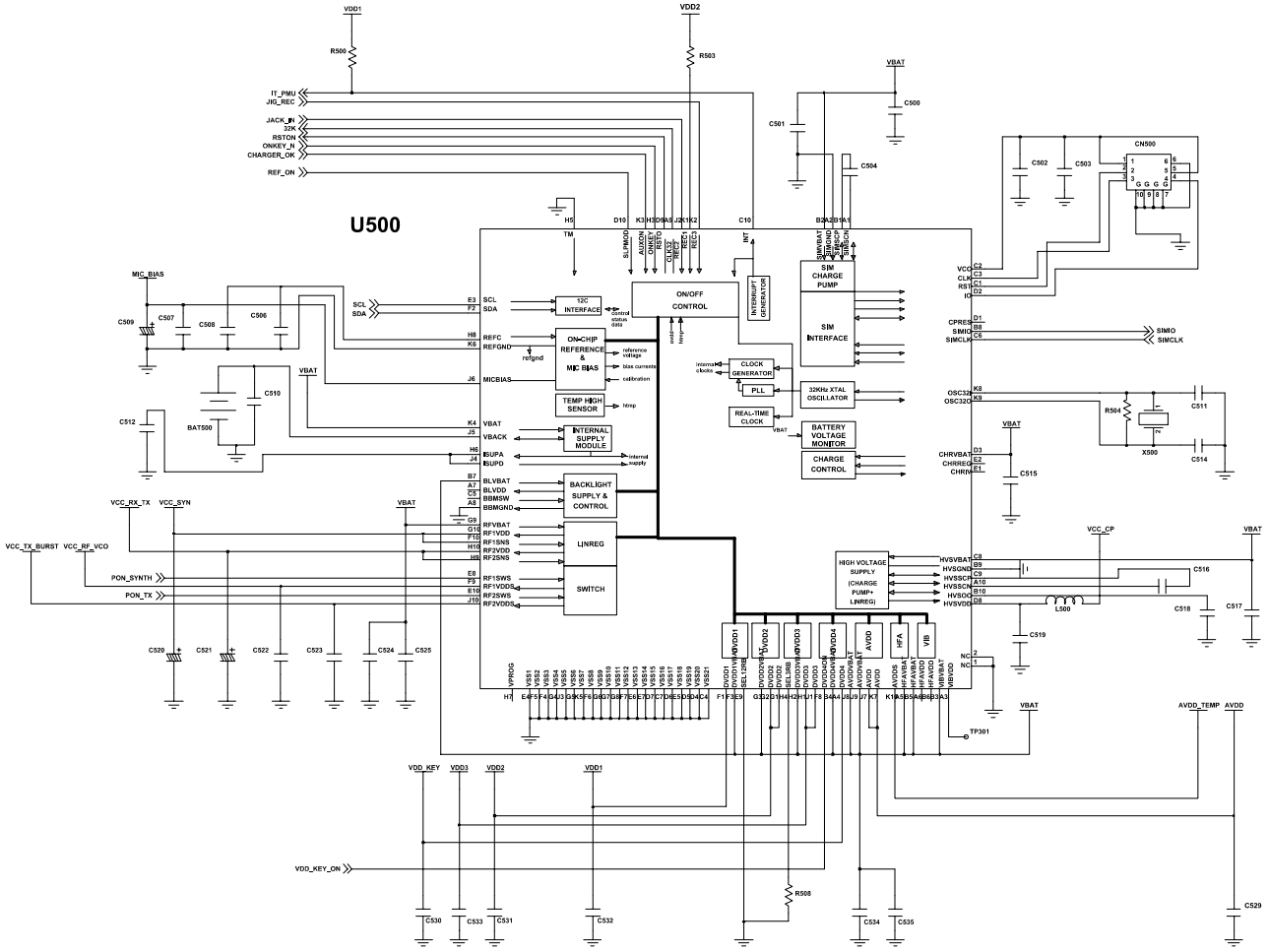
9. Flow Chart of Troubleshooting

9-1. Power On

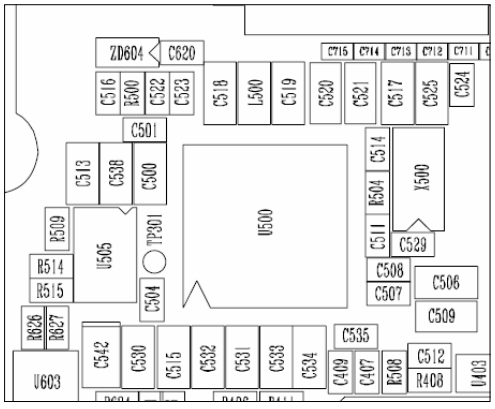


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Power On

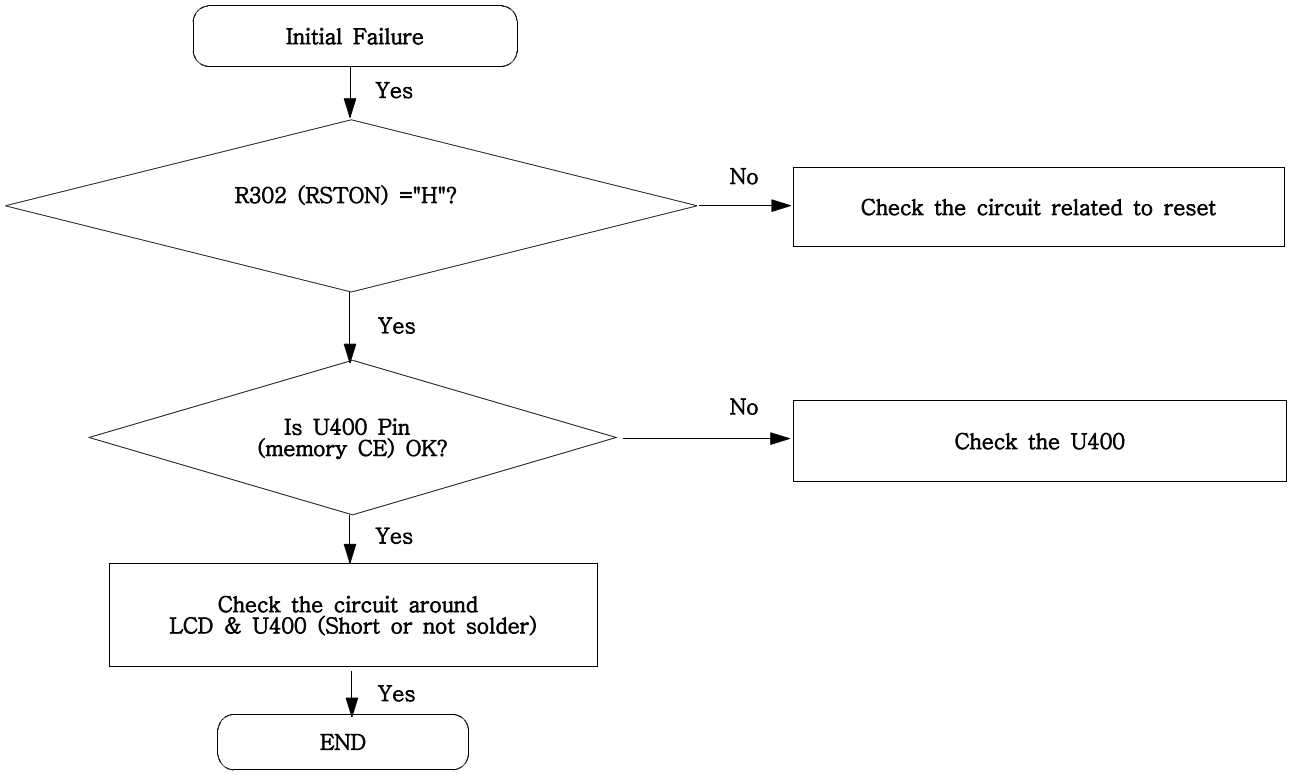


POWER MANAGERMENT UNIT(PMU IC)



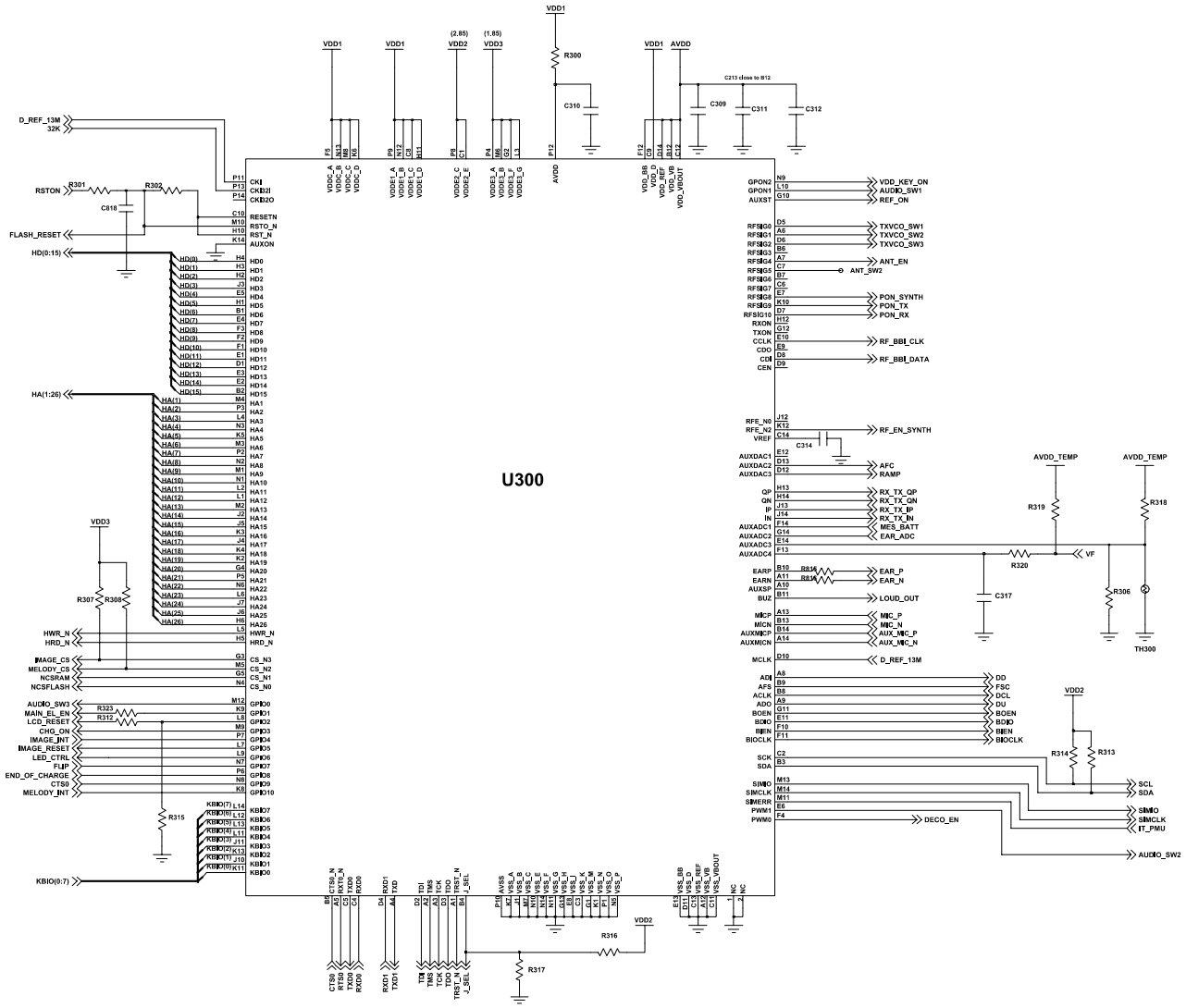
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-2. Initial

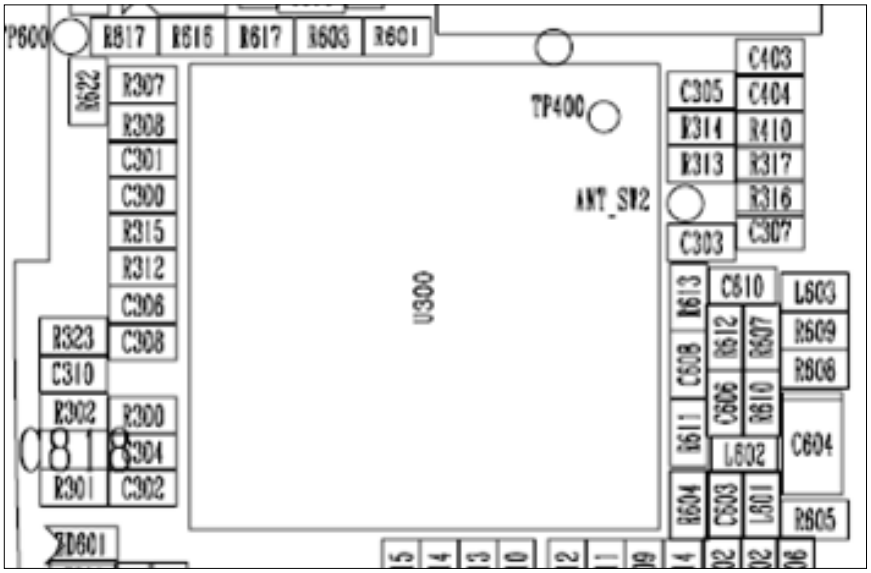


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Initial

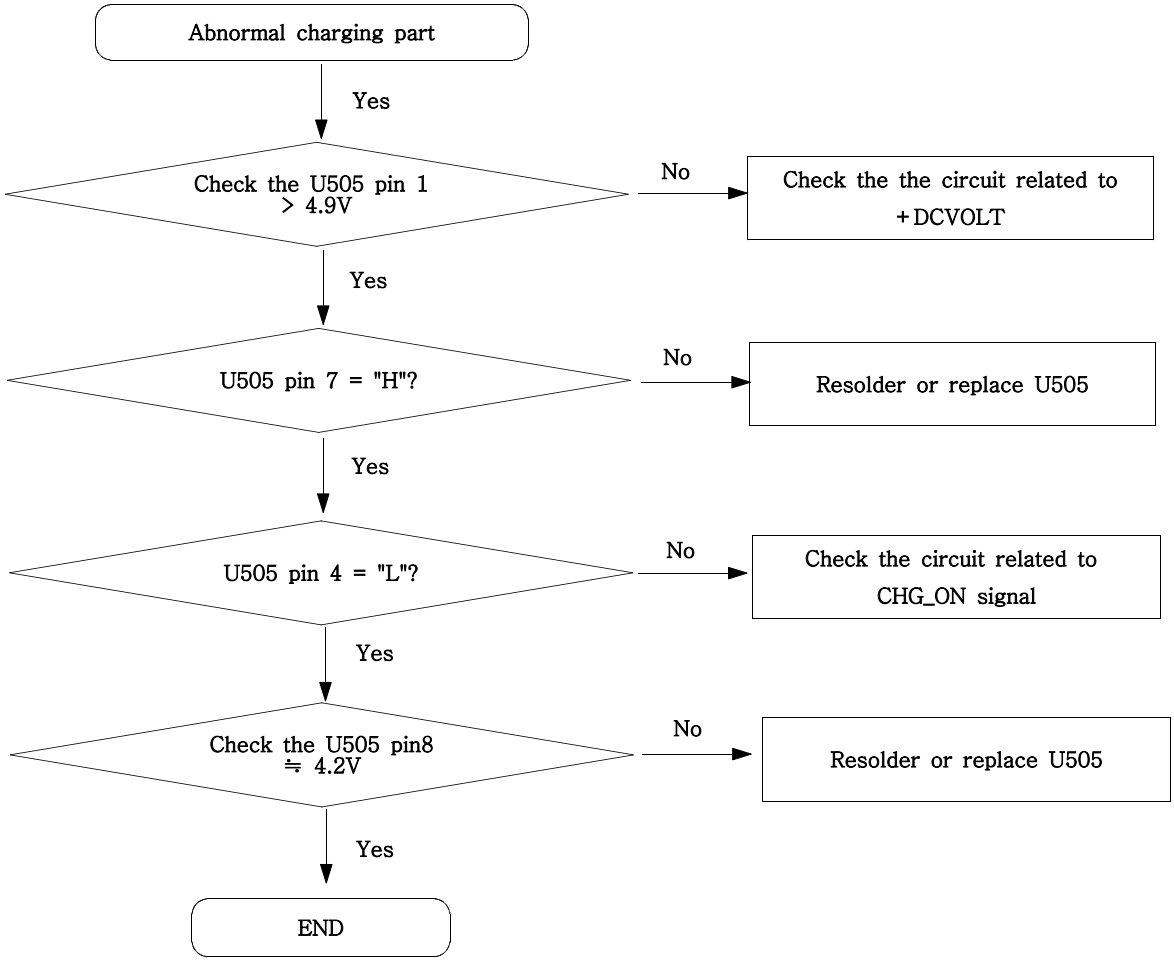


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization



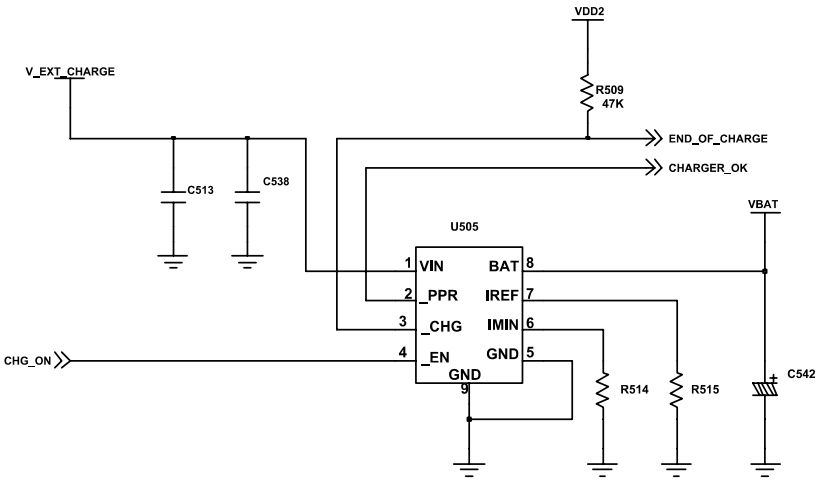
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-3. Charging Part

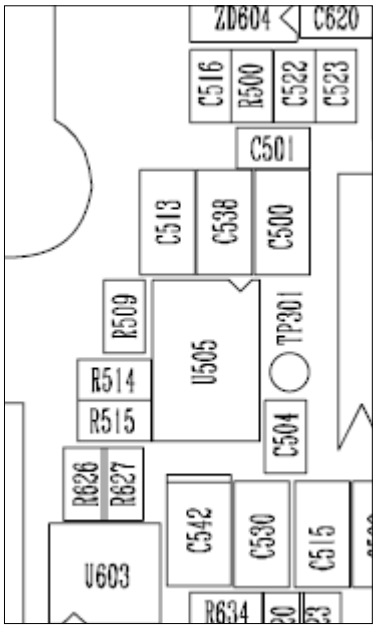


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Charging

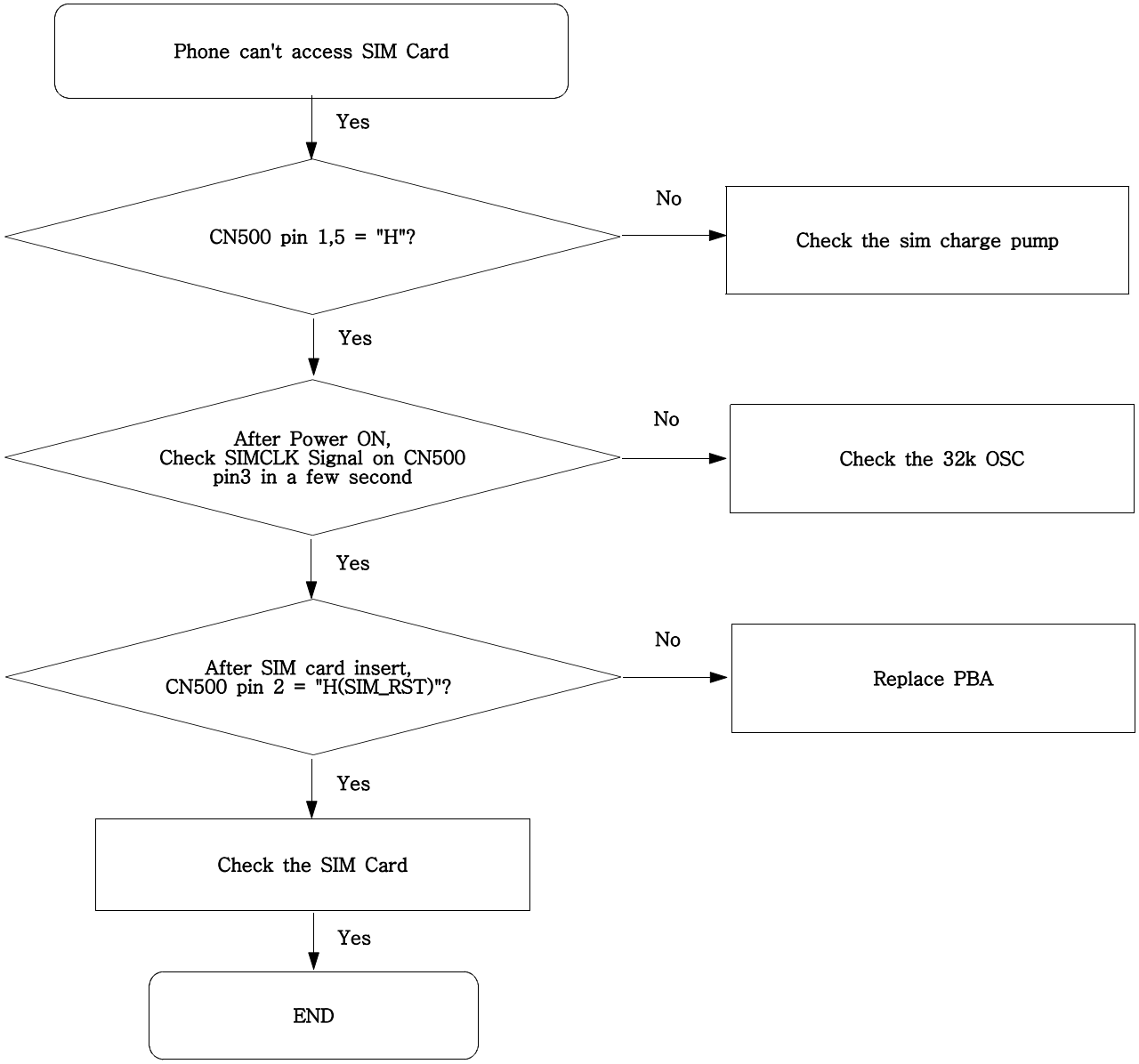


CHARGER IC

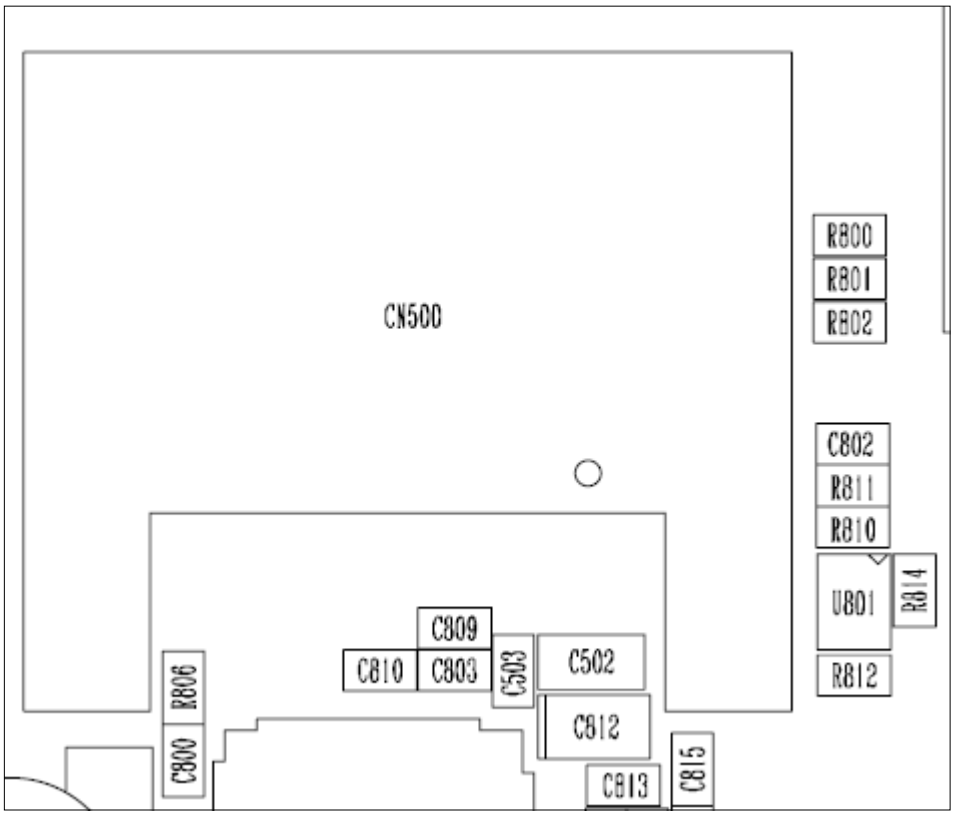


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-4. Sim Part

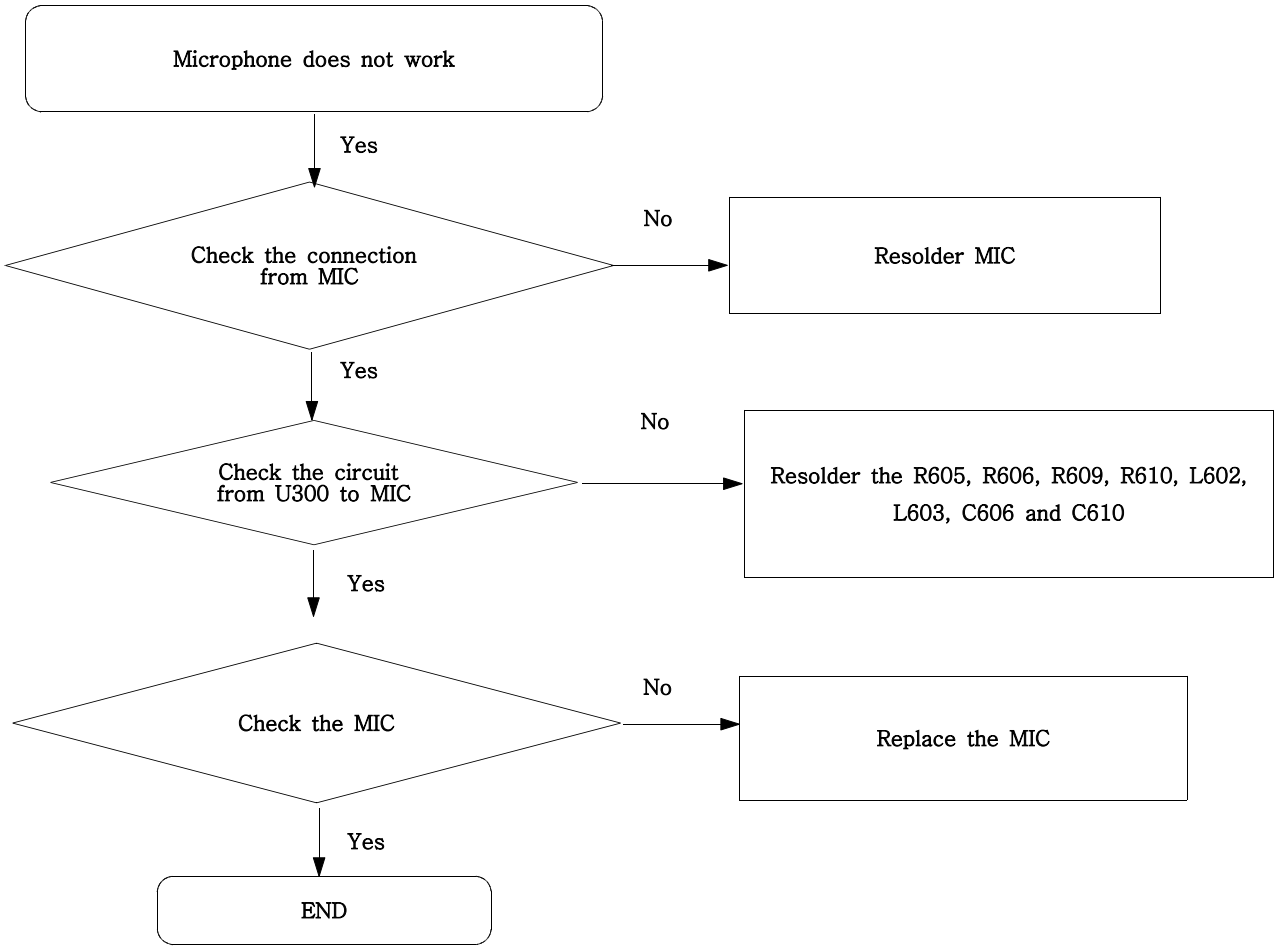


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization



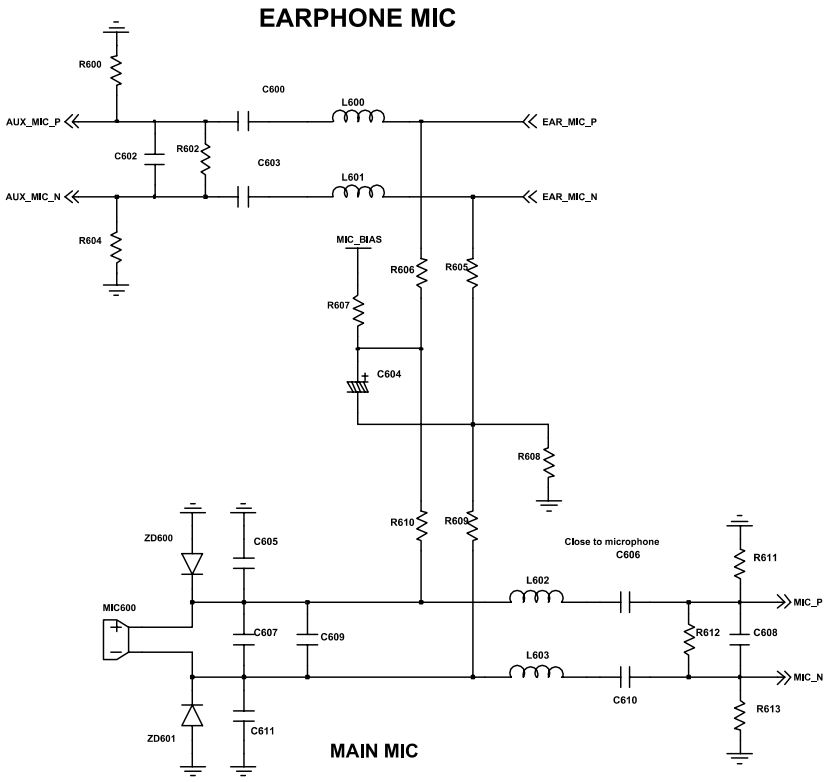
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-5. Microphone Part



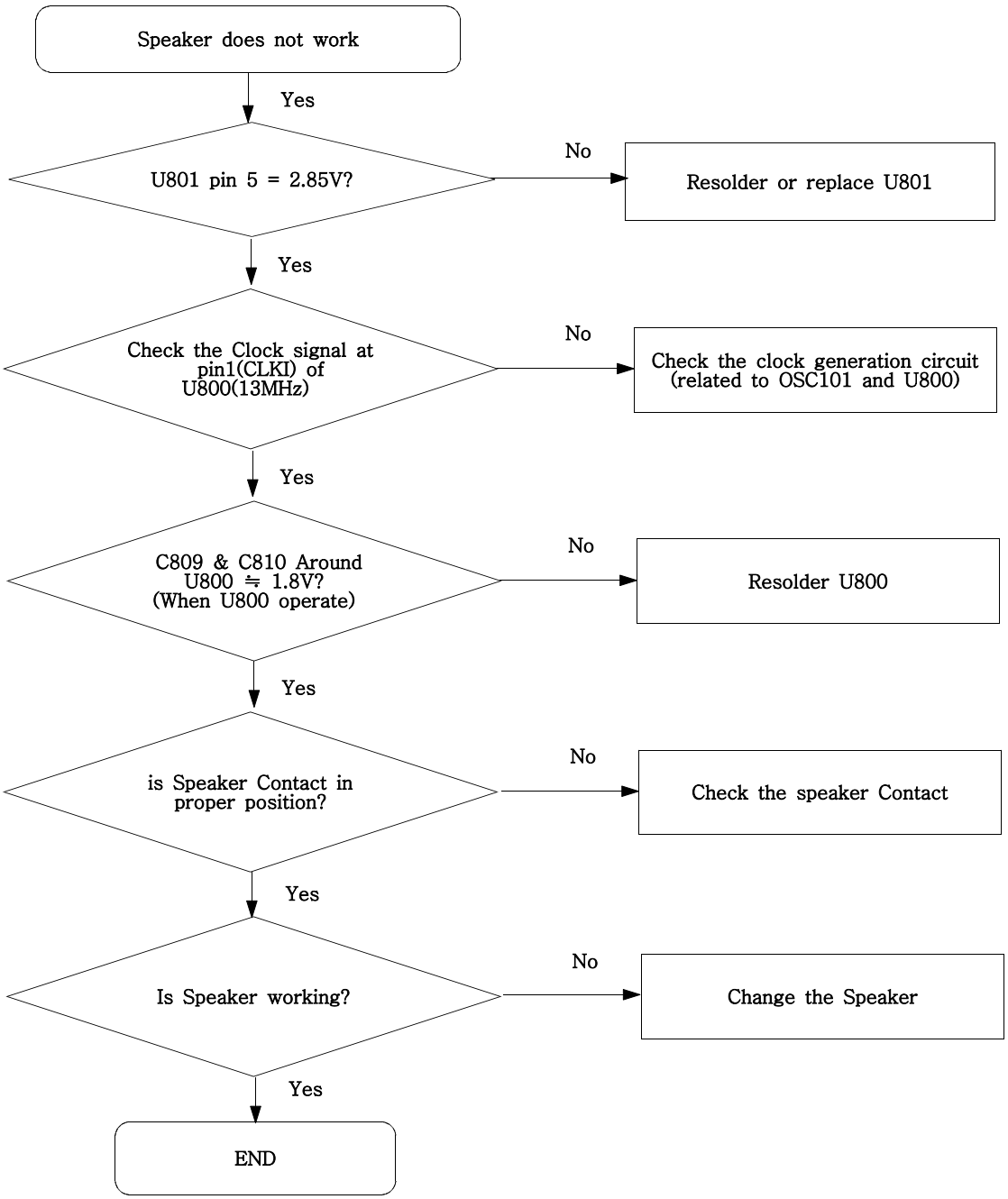
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Microphone



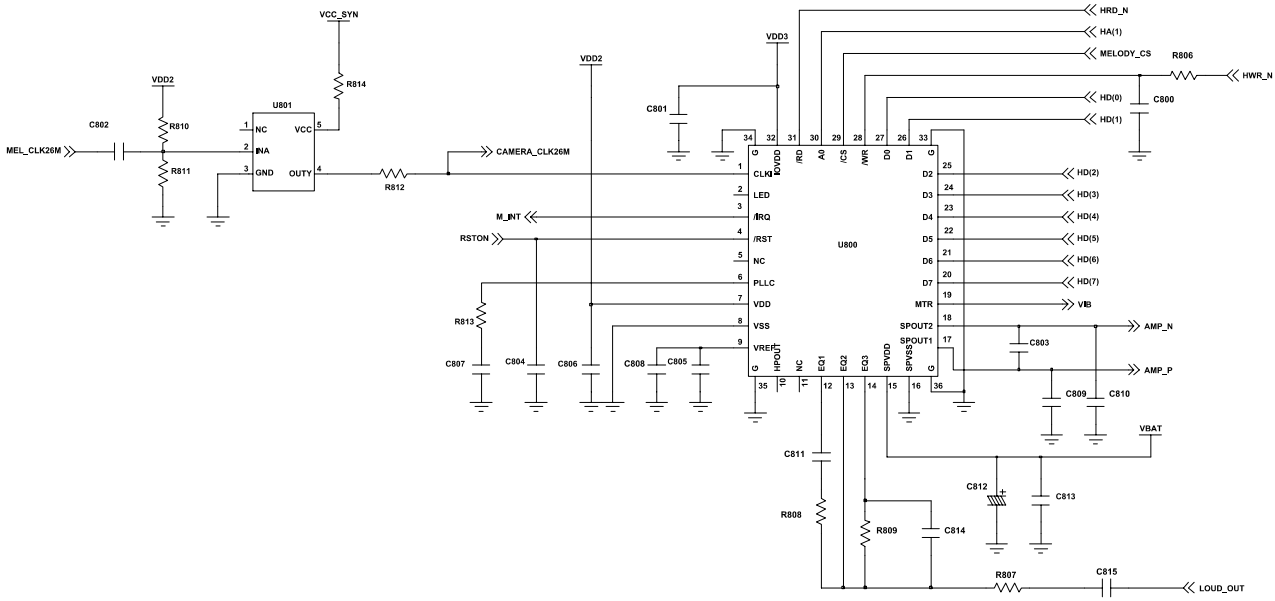
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-6. Speaker Part(Melody)

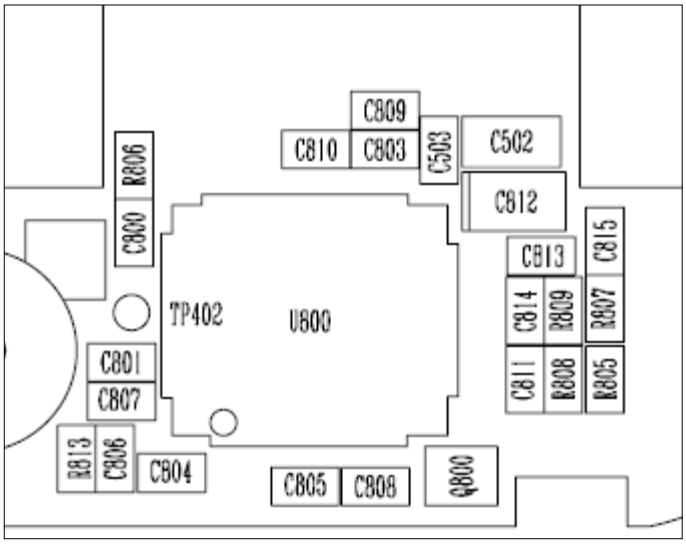


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

Speaker

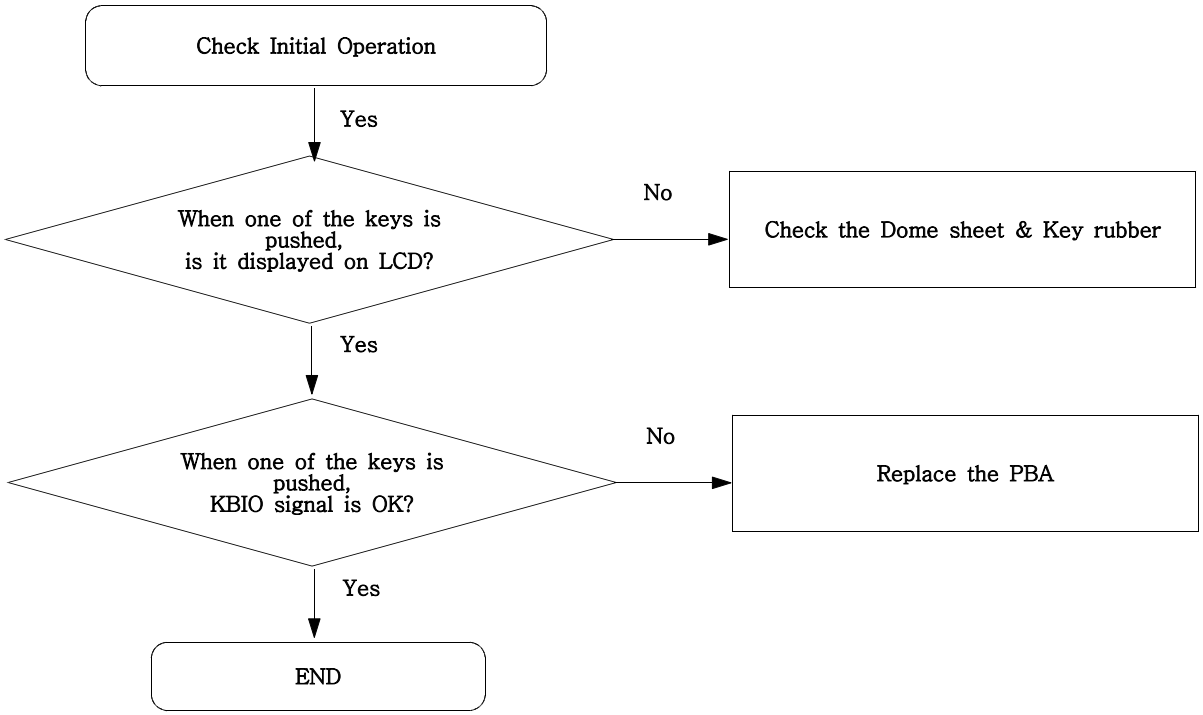


MELODY IC



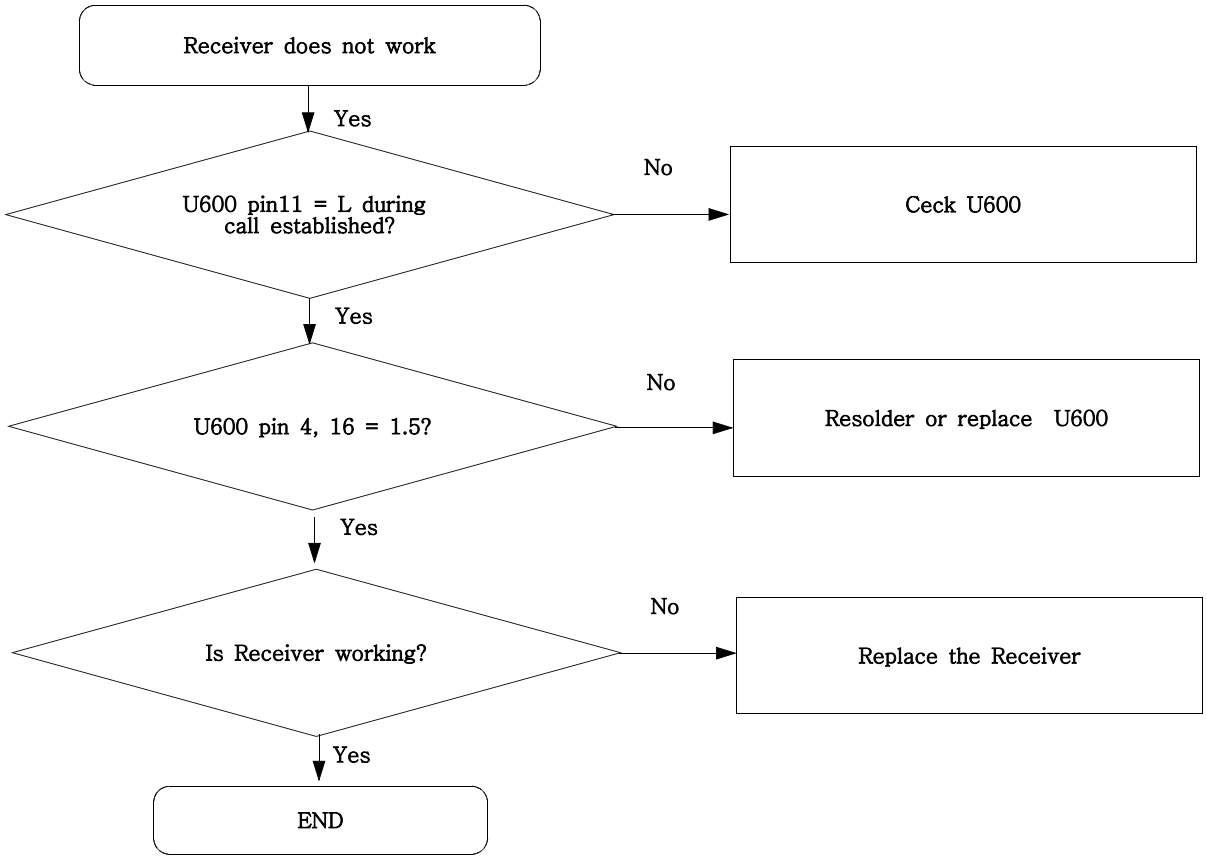
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-7. Key Data Input



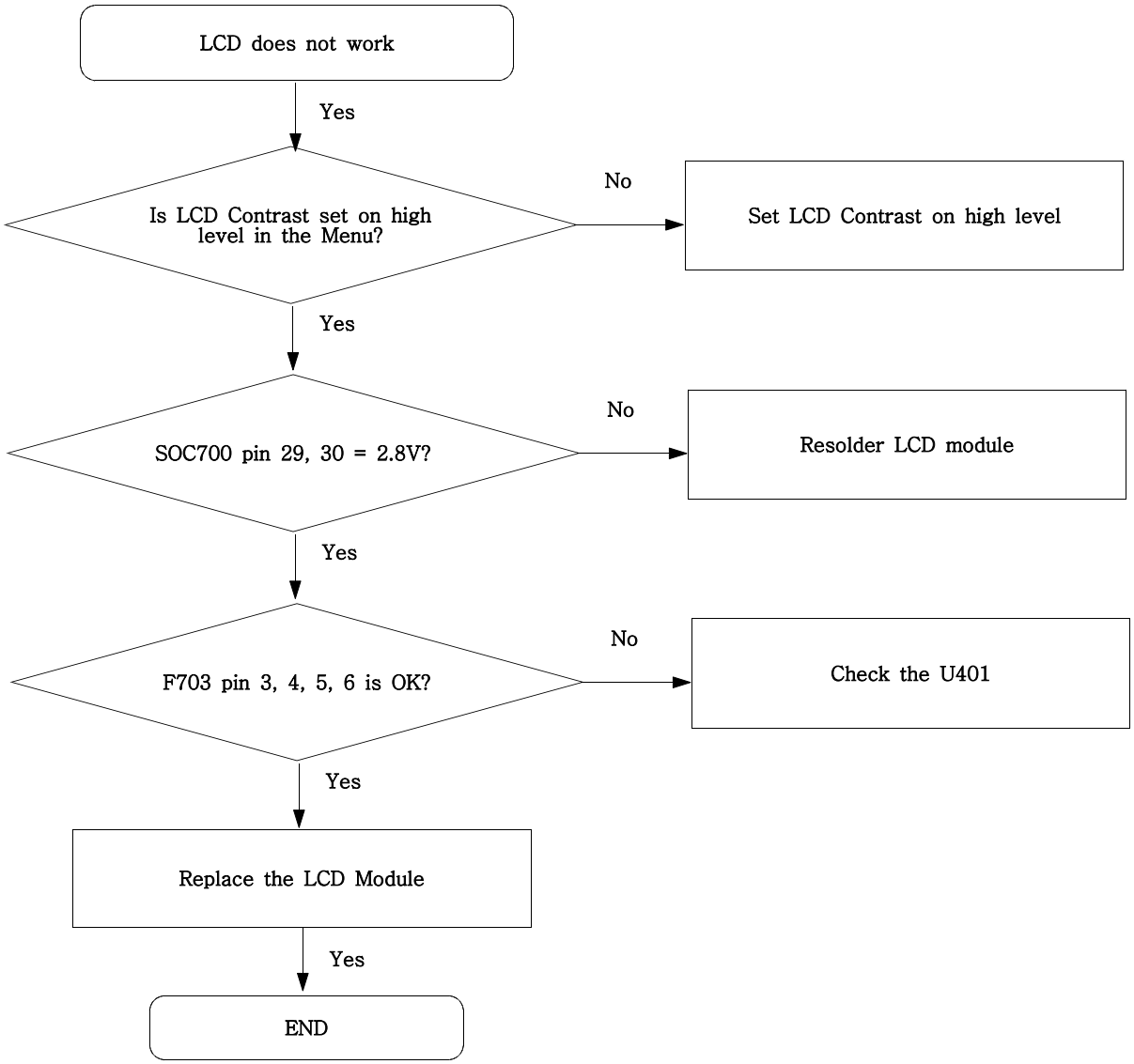
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-8. Receiver Part

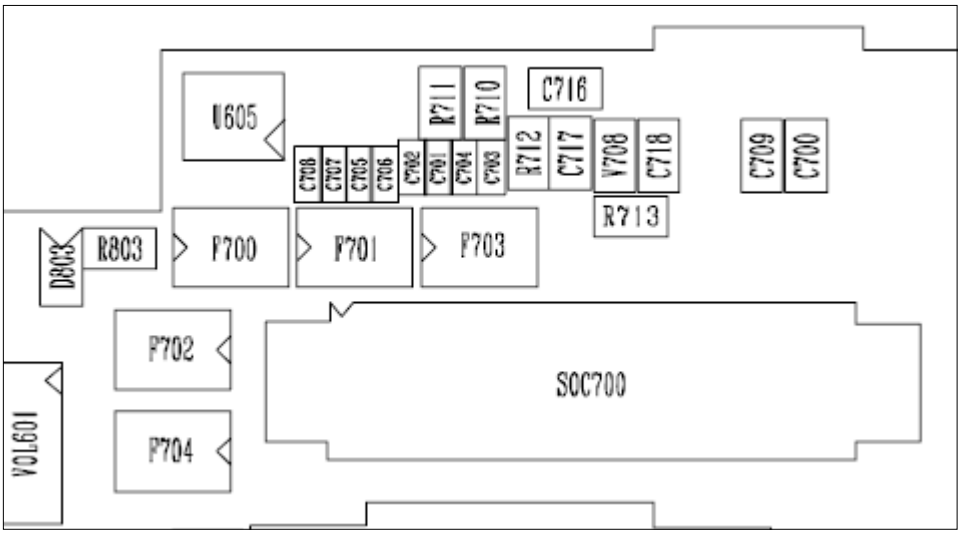


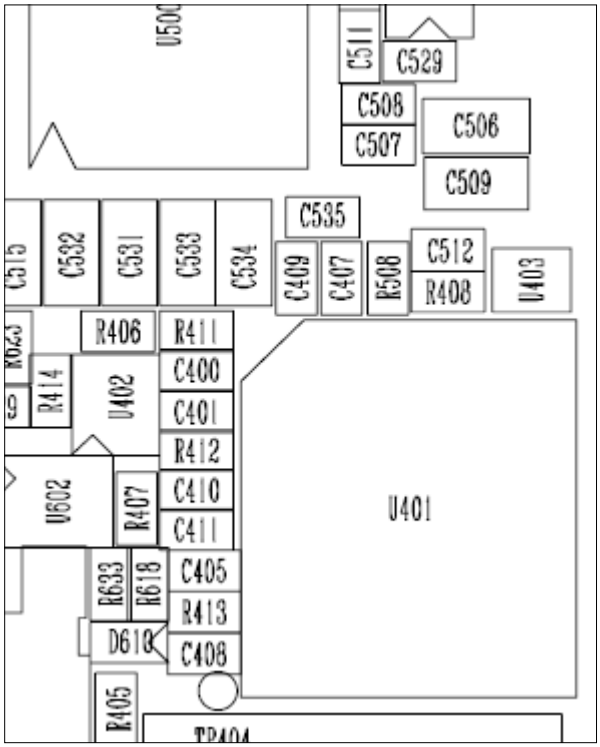
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-9. LCD Part (for Color Main)



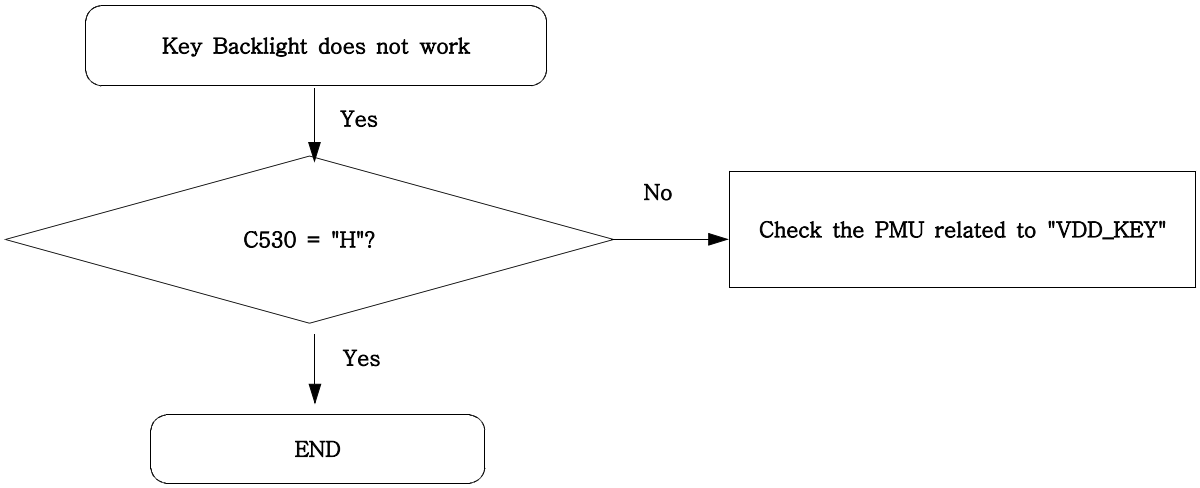
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

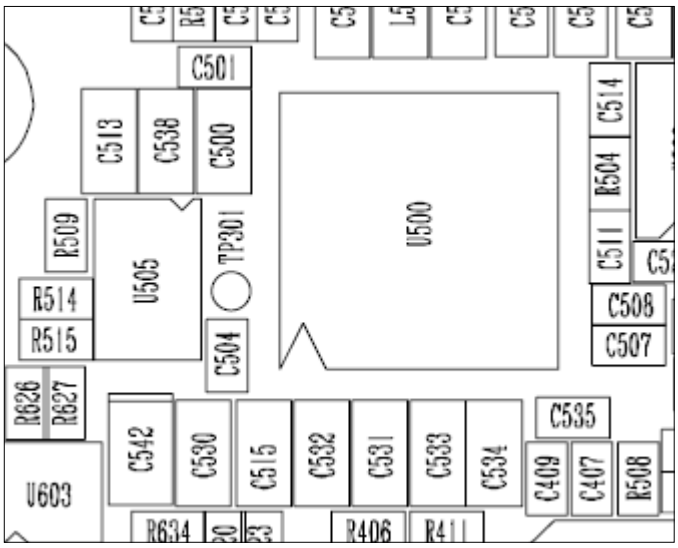




SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

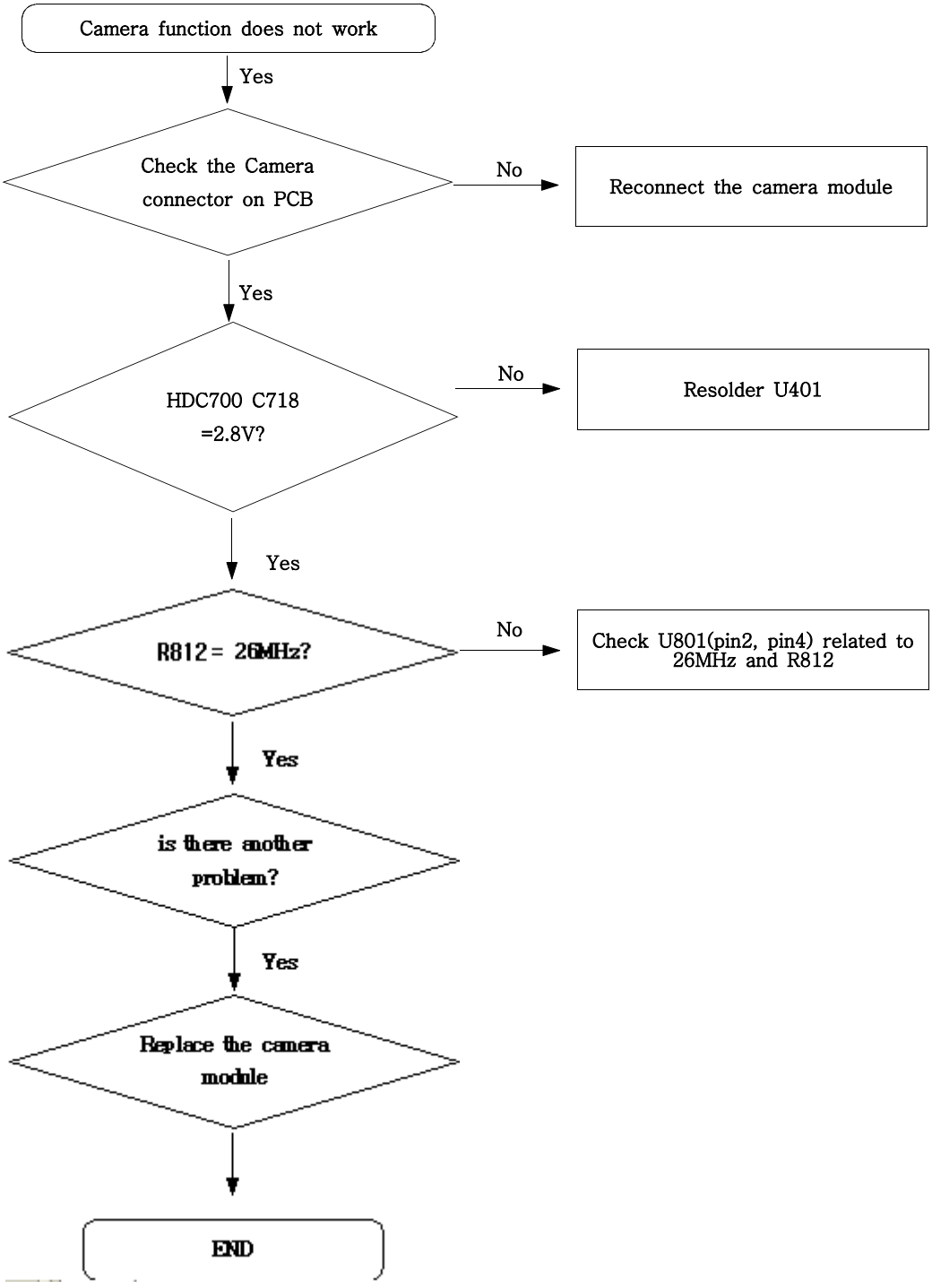
9-10. Key Back Light



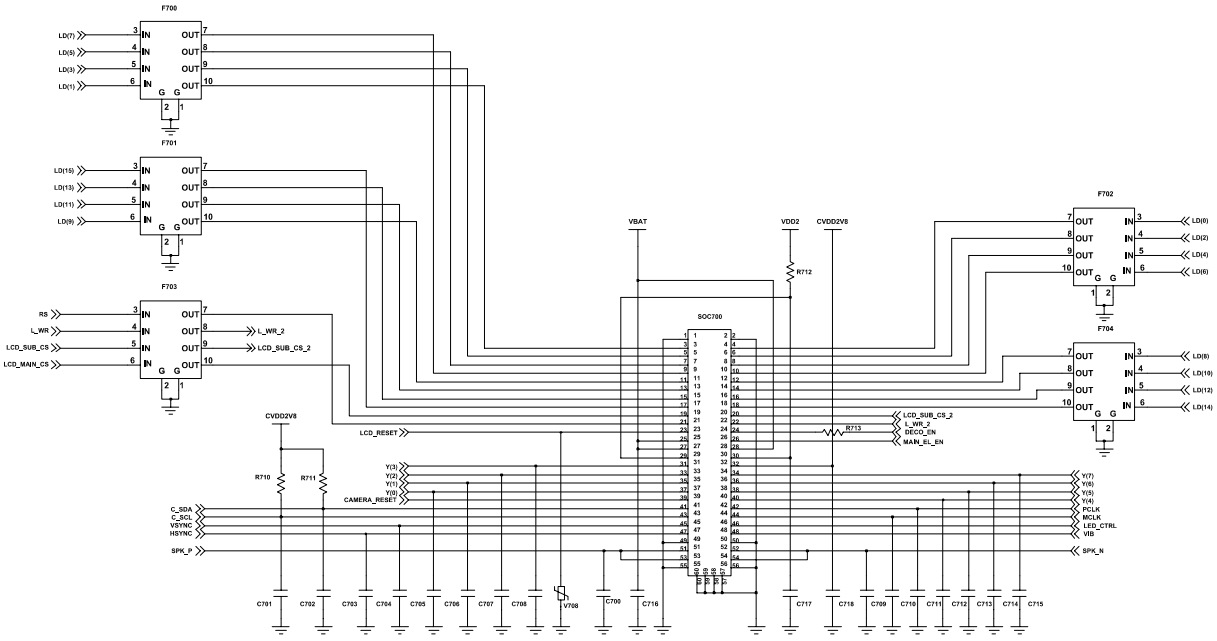


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

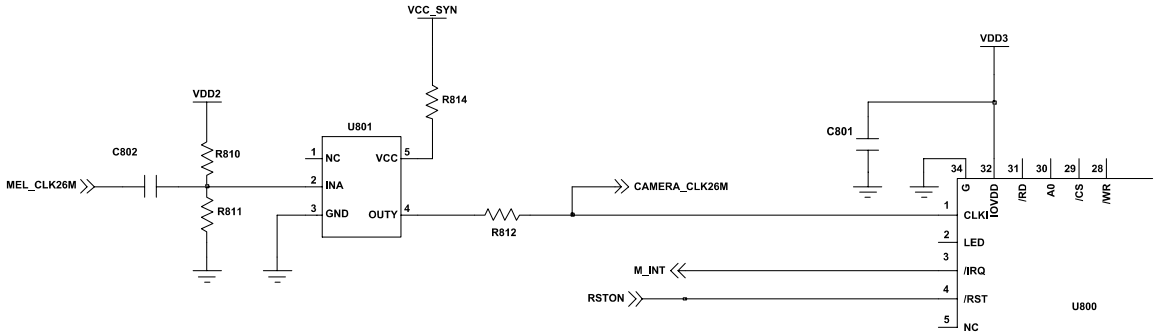
9-11. Camera part

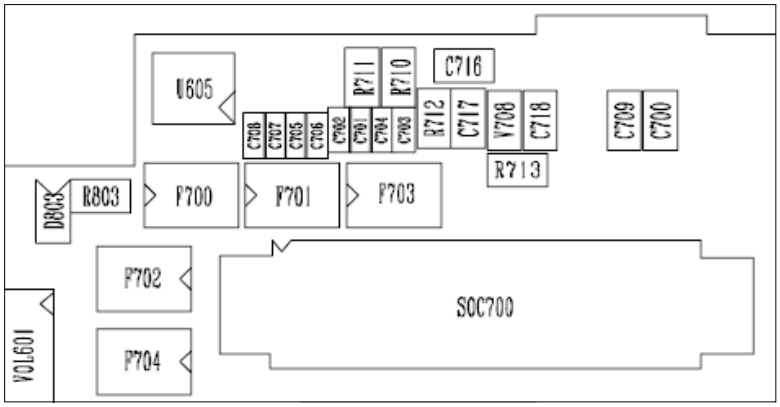


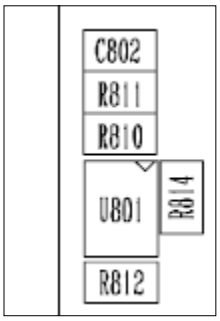
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization



LCD CONNECTOR

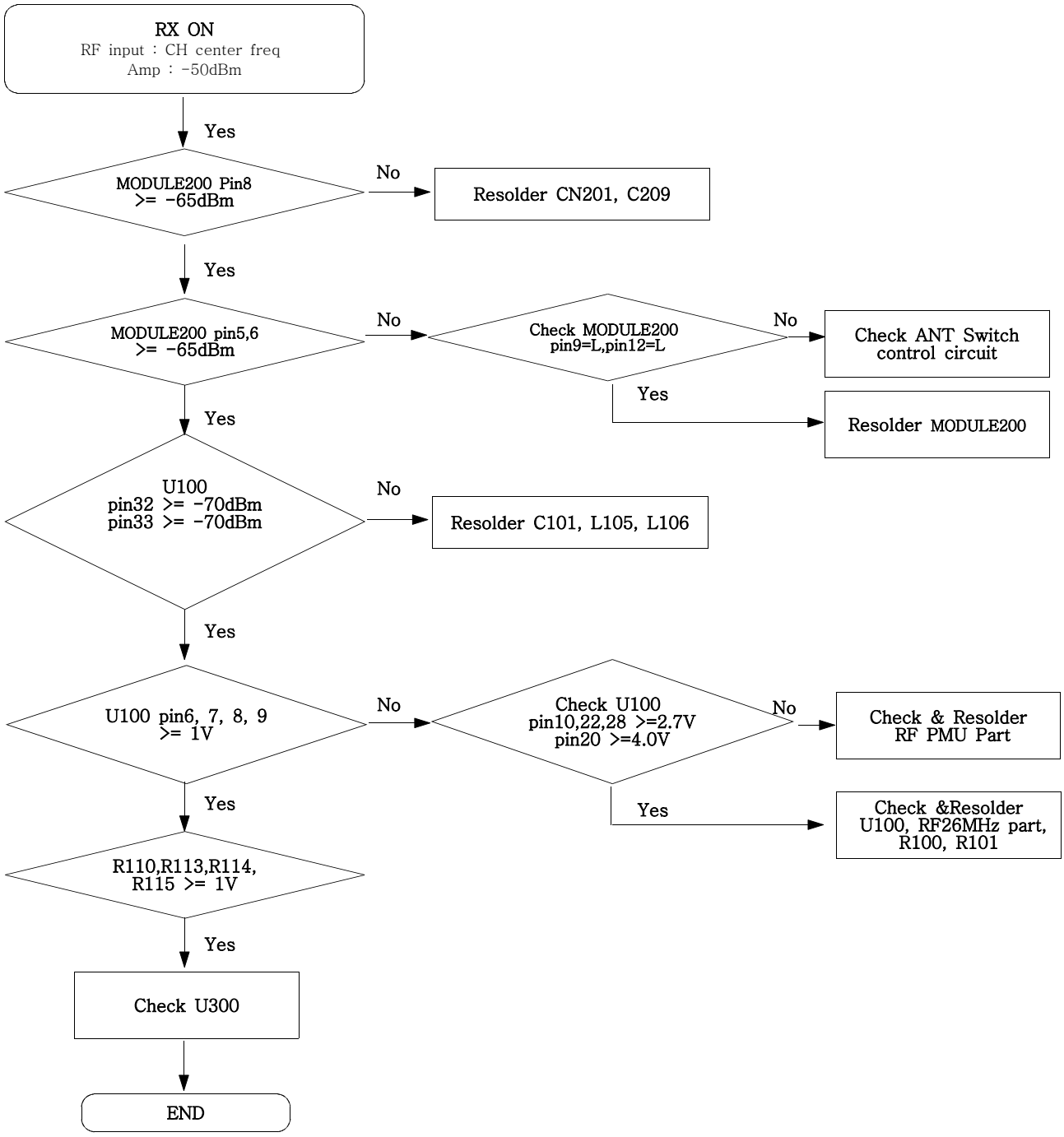






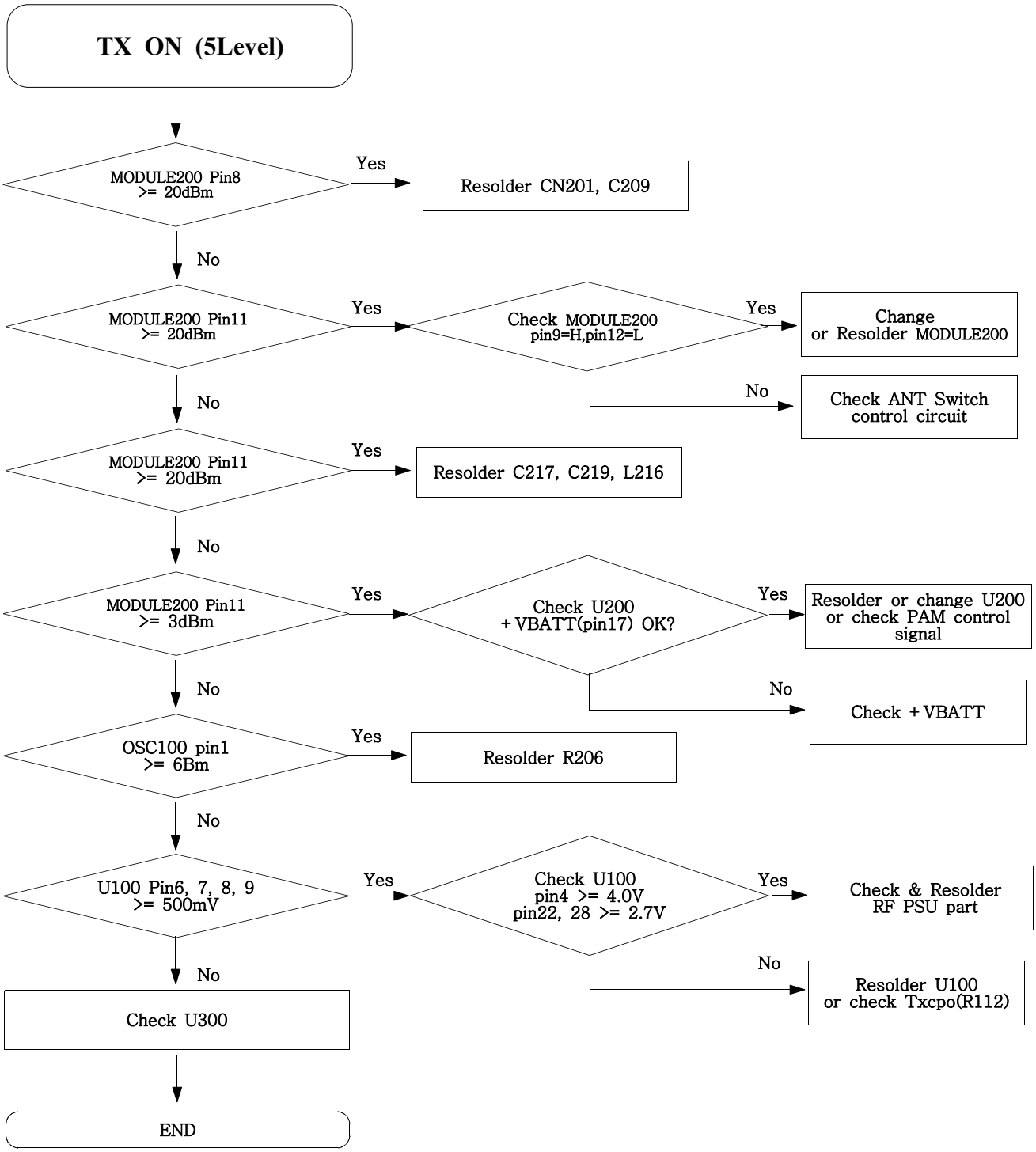
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-12. GSM Receiver



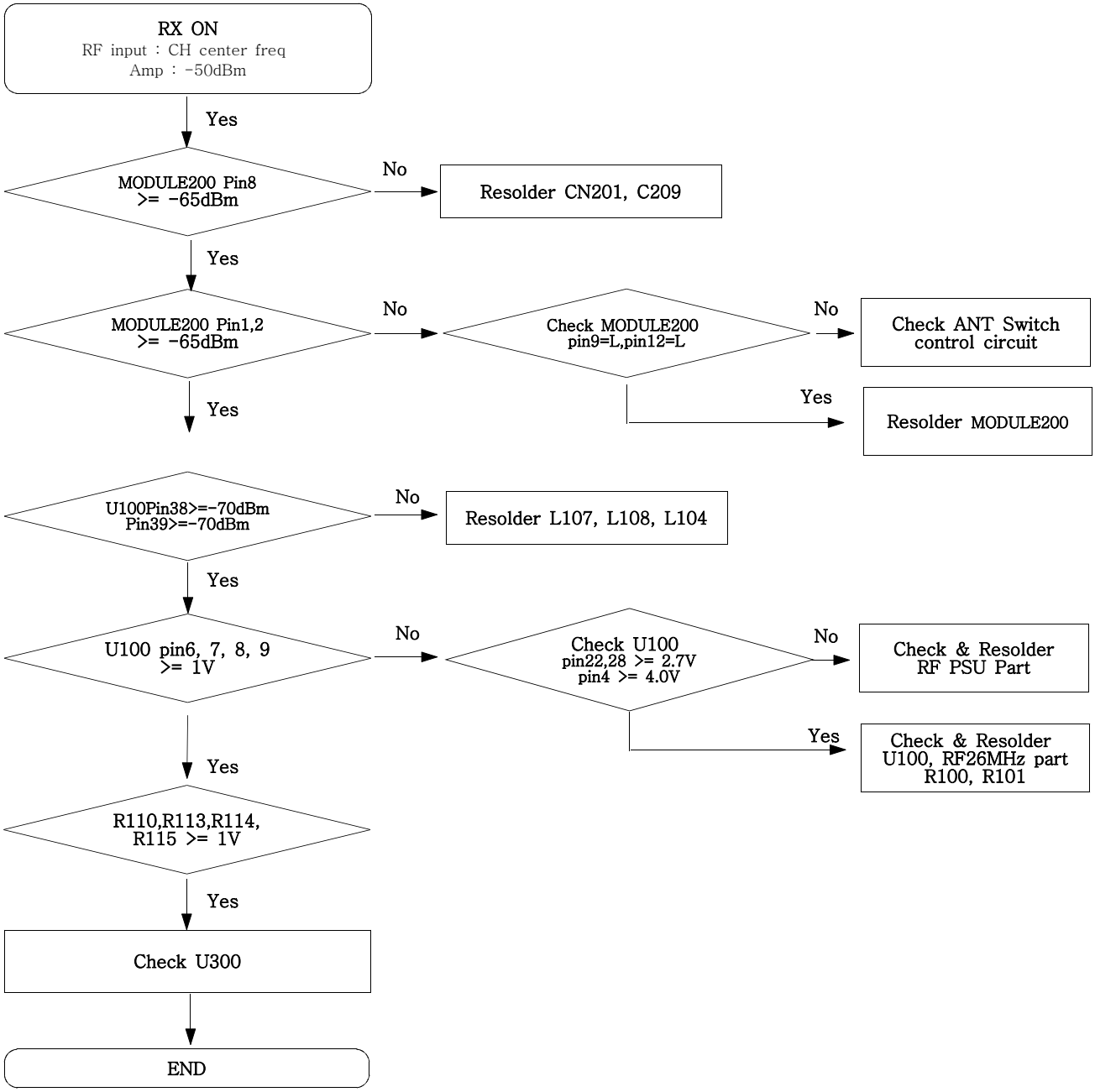
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-13. GSM Transmitter



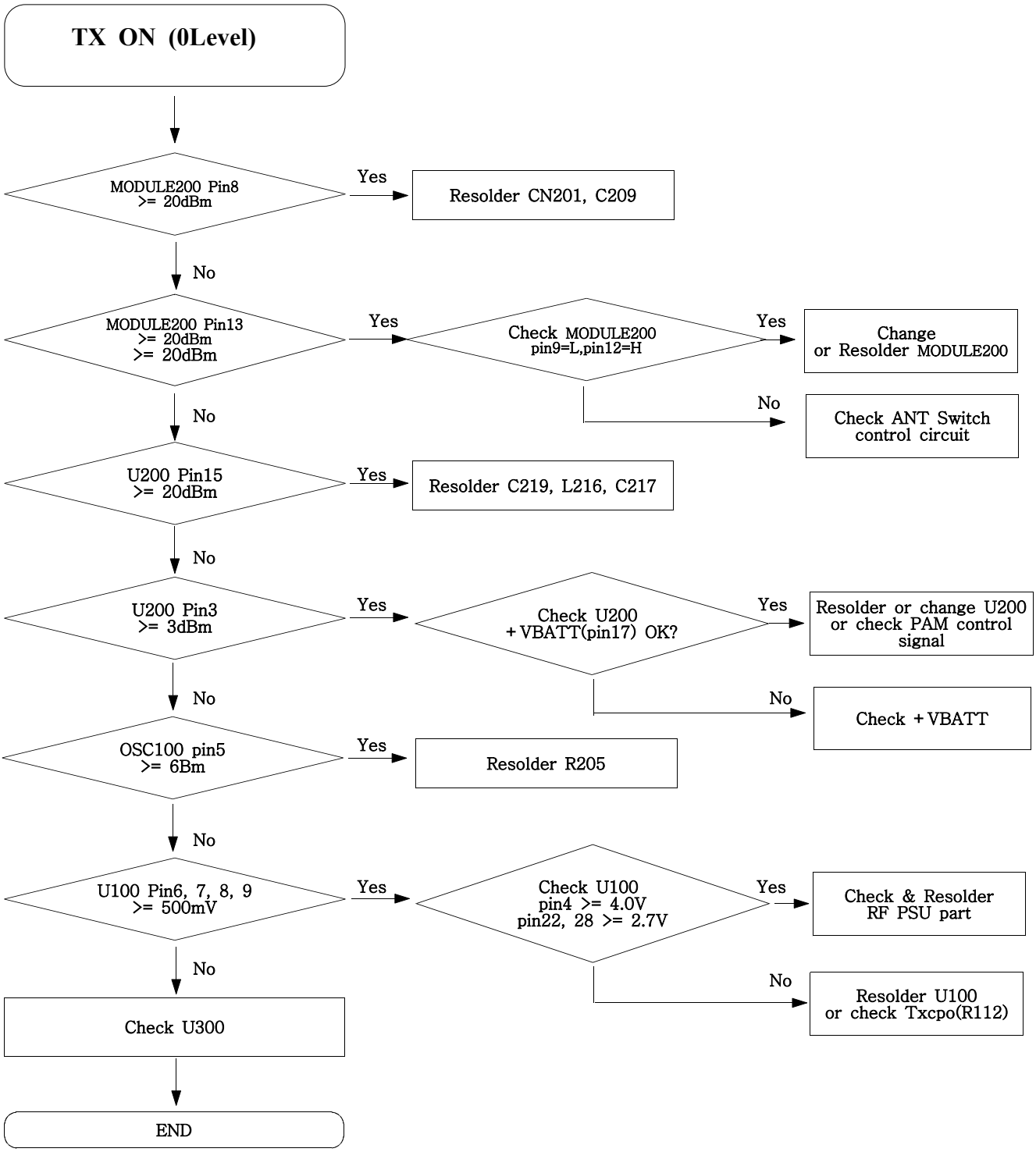
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-14. DCS Receiver



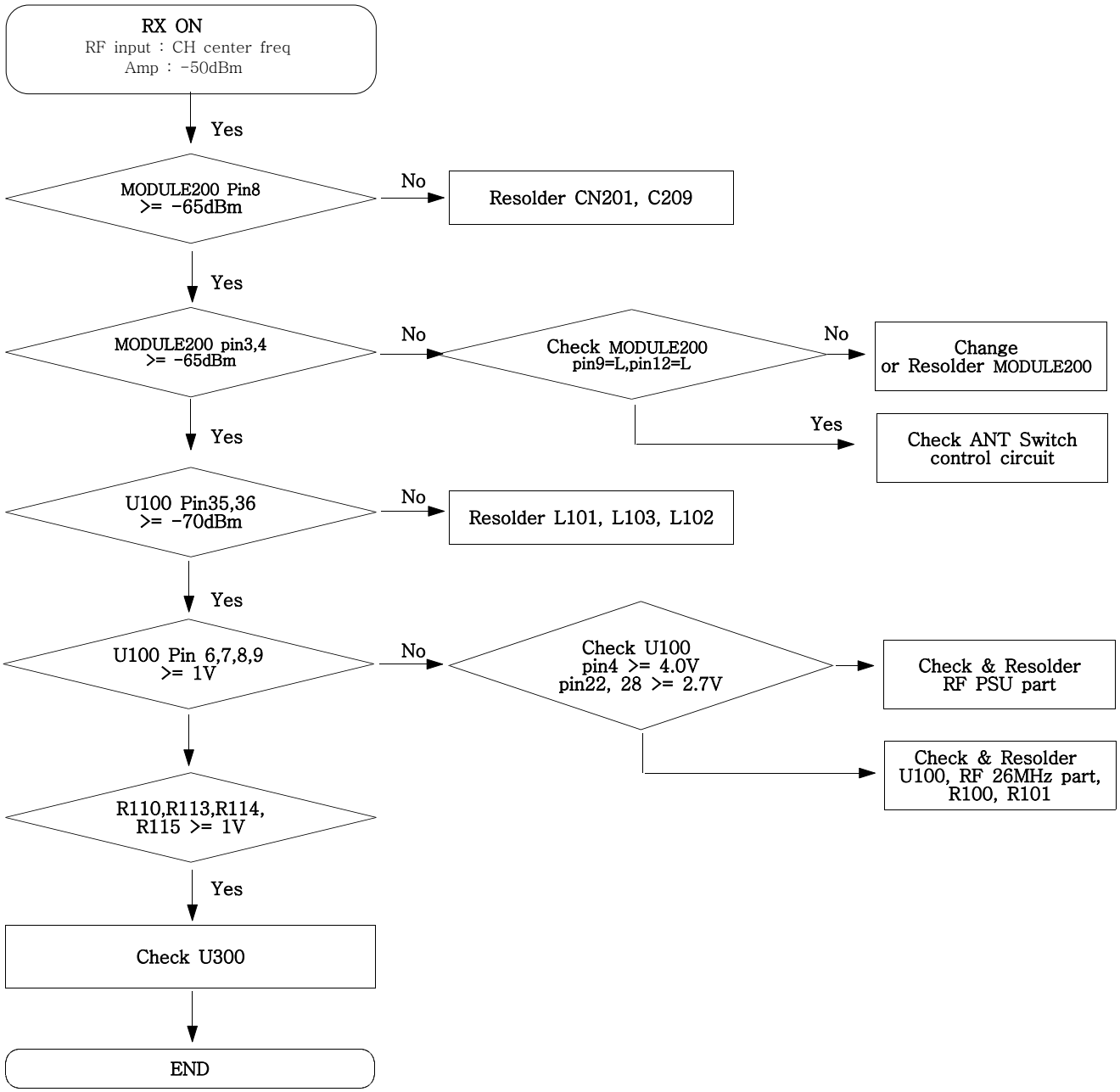
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-15. DCS Transmitter



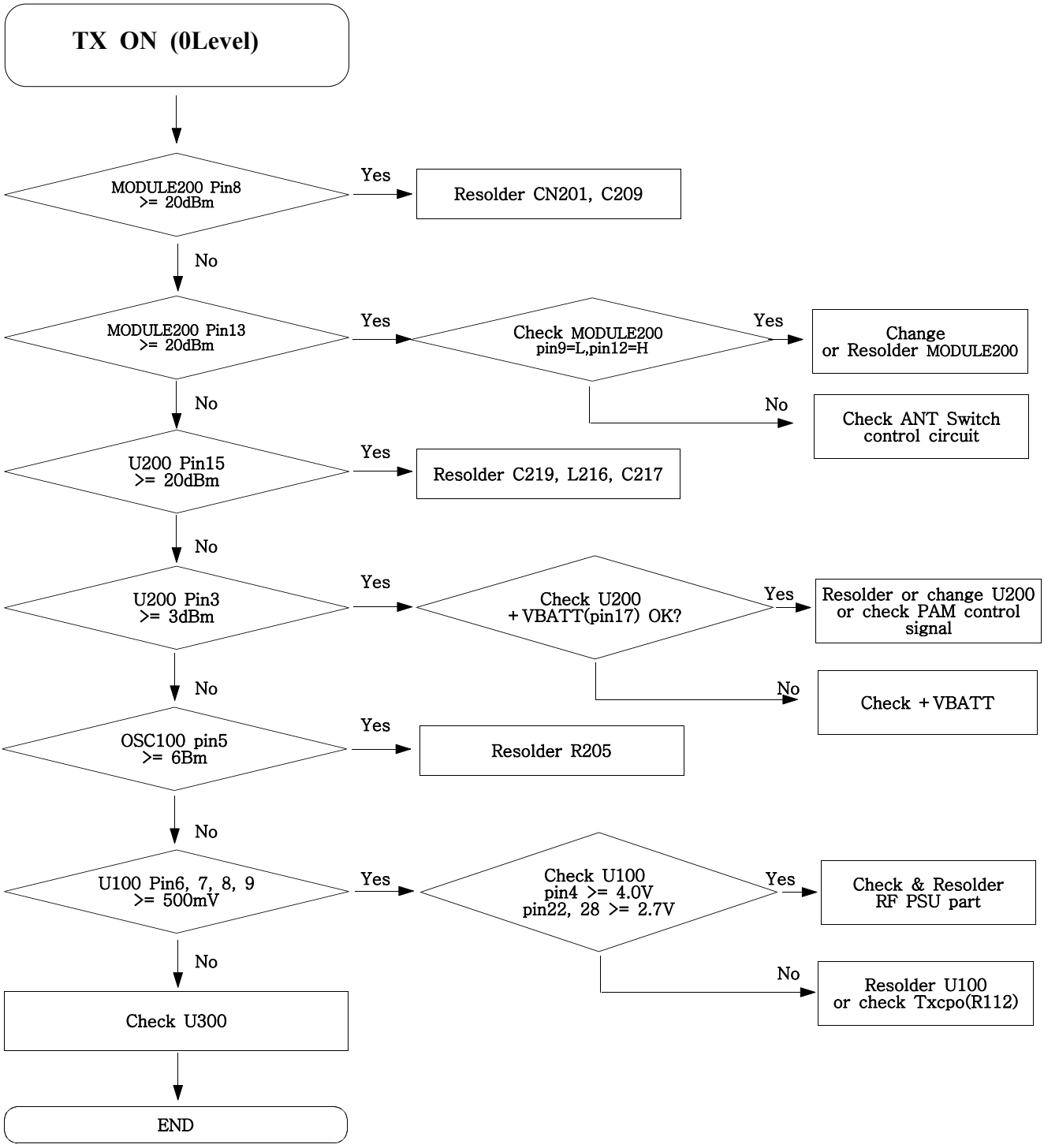
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

9-16. PCS Receiver

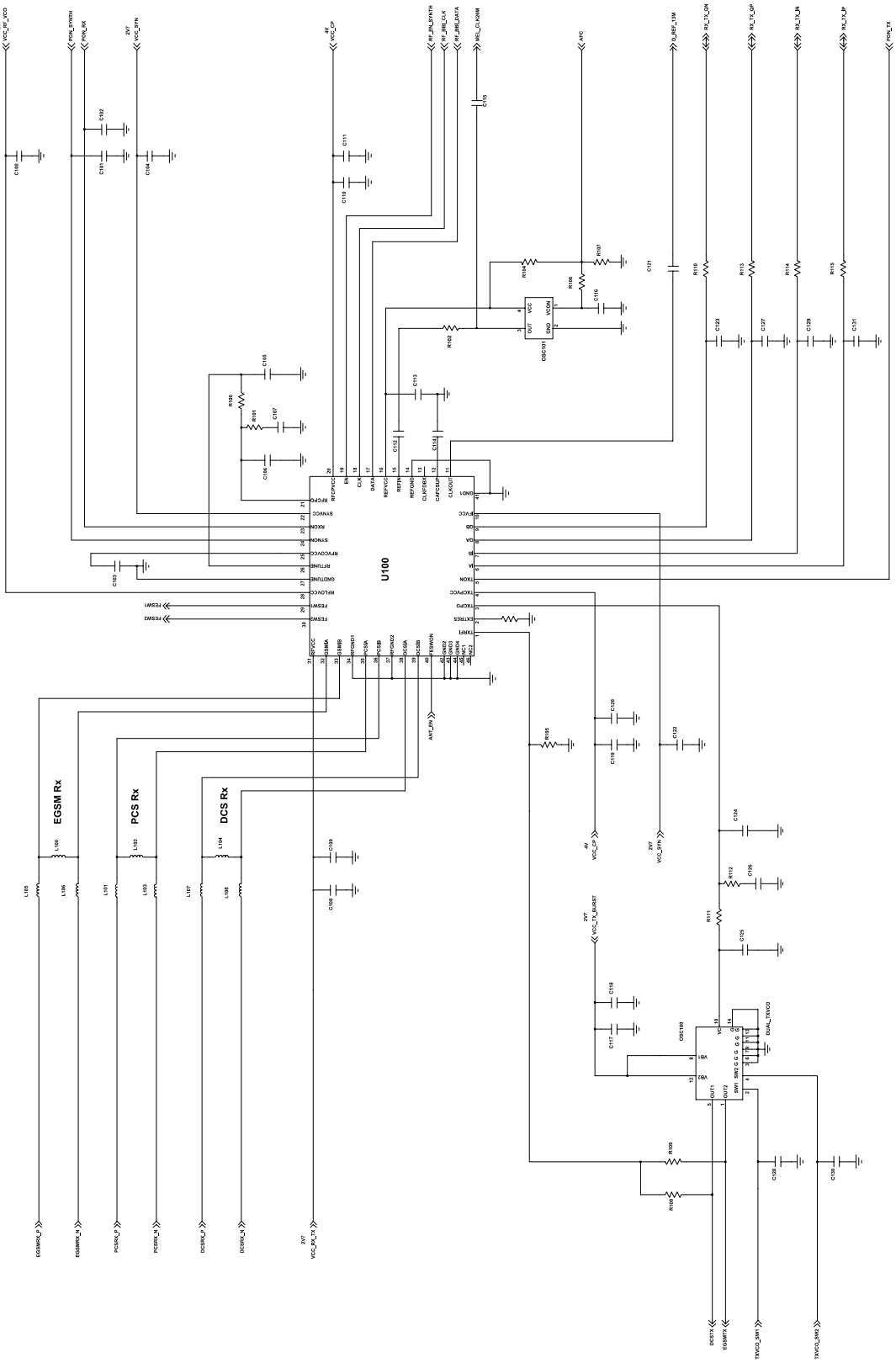


SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

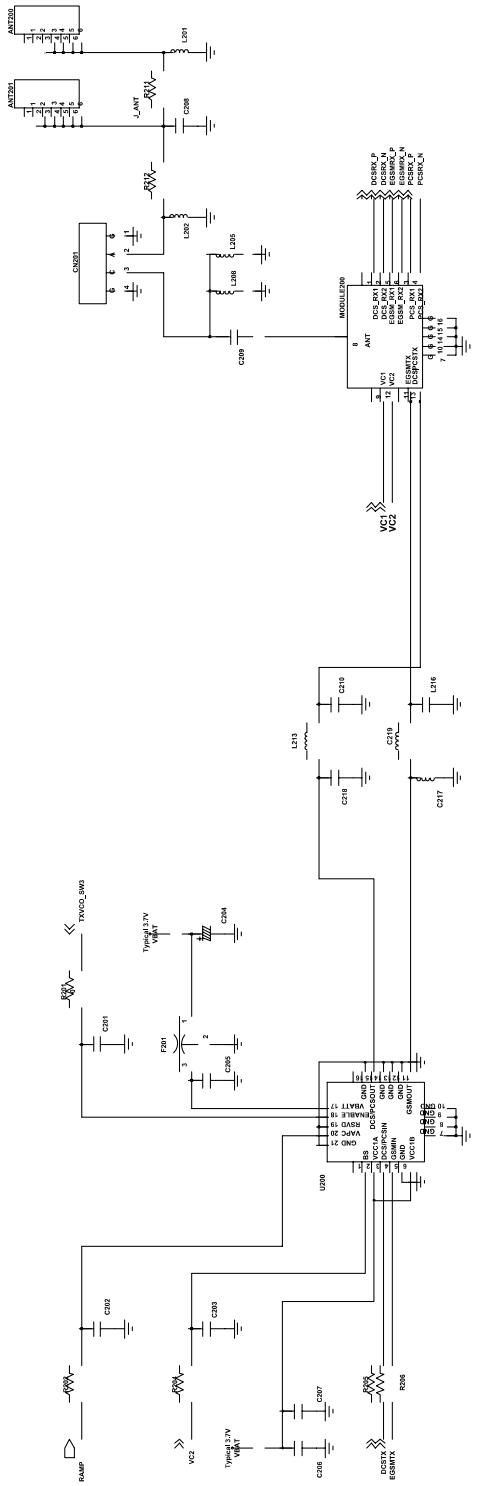
9-17. PCS Transmitter



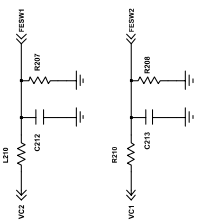
SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization



SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

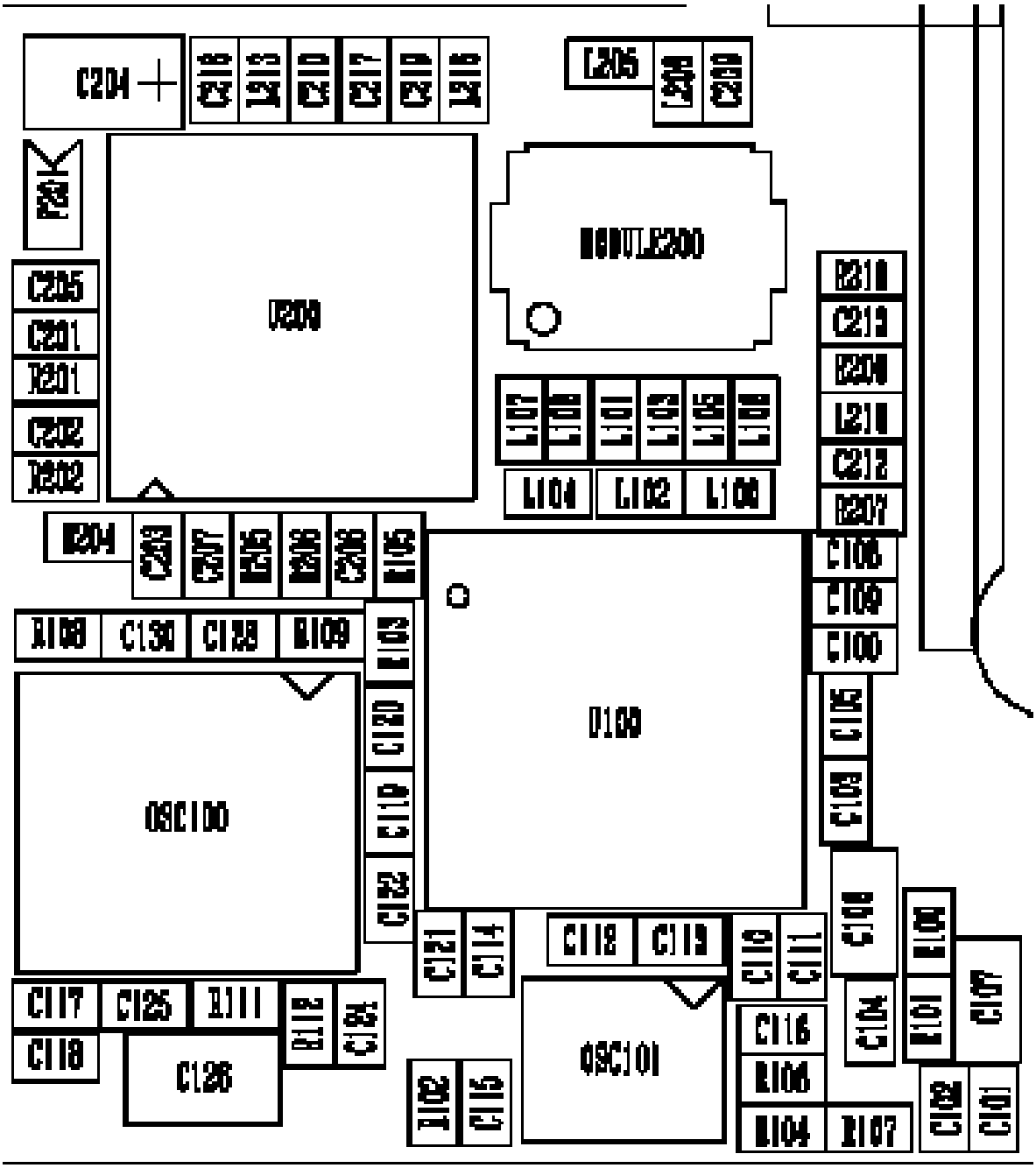


	VC1	VC2	VC3
Tx(GSM900)	H	L	L
Tx(DCS1800/1900)	L	H	L
RX(GSM900)	L	L	L
Rx(DCS1800)	L	L	L
Rx(PCS1900)	L	L	H



Antenna S/W Control Circuit

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization



SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

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

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG Proprietary-Contents may change without notice
This Document can not be used without Samsung's authorization

SAMSUNG ELECTRONICS

This Service Manual is a property of Samsung Electronics Co.,Ltd.
Any unauthorized use of Manual can be punished under applicable
International and/or domestic law.

©Samsung Electronics Co.,Ltd.

2006. 12 Rev.1.0

www.s-manuals.com