

**SAMSUNG**

# GSM TELEPHONE

## SGH-X150

# **SERVICE** *Manual*

### GSM TELEPHONE



### CONTENTS

1. Specification
2. Flow Chart of Troubleshooting
3. Exploded Views and Parts List
4. Electrical Parts List
5. PCB Diagrams
6. Block Diagrams

**SAMSUNG  
ELECTRONICS**



---

# 1. SGH-X150 Specification

---

## 1-1. GSM General Specification

	GSM900 Phase 1	EGSM 900 Phase 2	DCS1800 Phase 1
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	880~915 925~960	1710~1785 1805~1880
ARFCN range	1~124	0~124 & 975~1023	512~885
Tx/Rx spacing	45MHz	45MHz	95MHz
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~13dBm	33dBm~5dBm	30dBm~0dBm
Power Class	5pcl ~ 15pcl	5pcl ~ 19pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-102dBm	-100dBm
TDMA Mux	8	8	8
Cell Radius	35Km	35Km	2Km

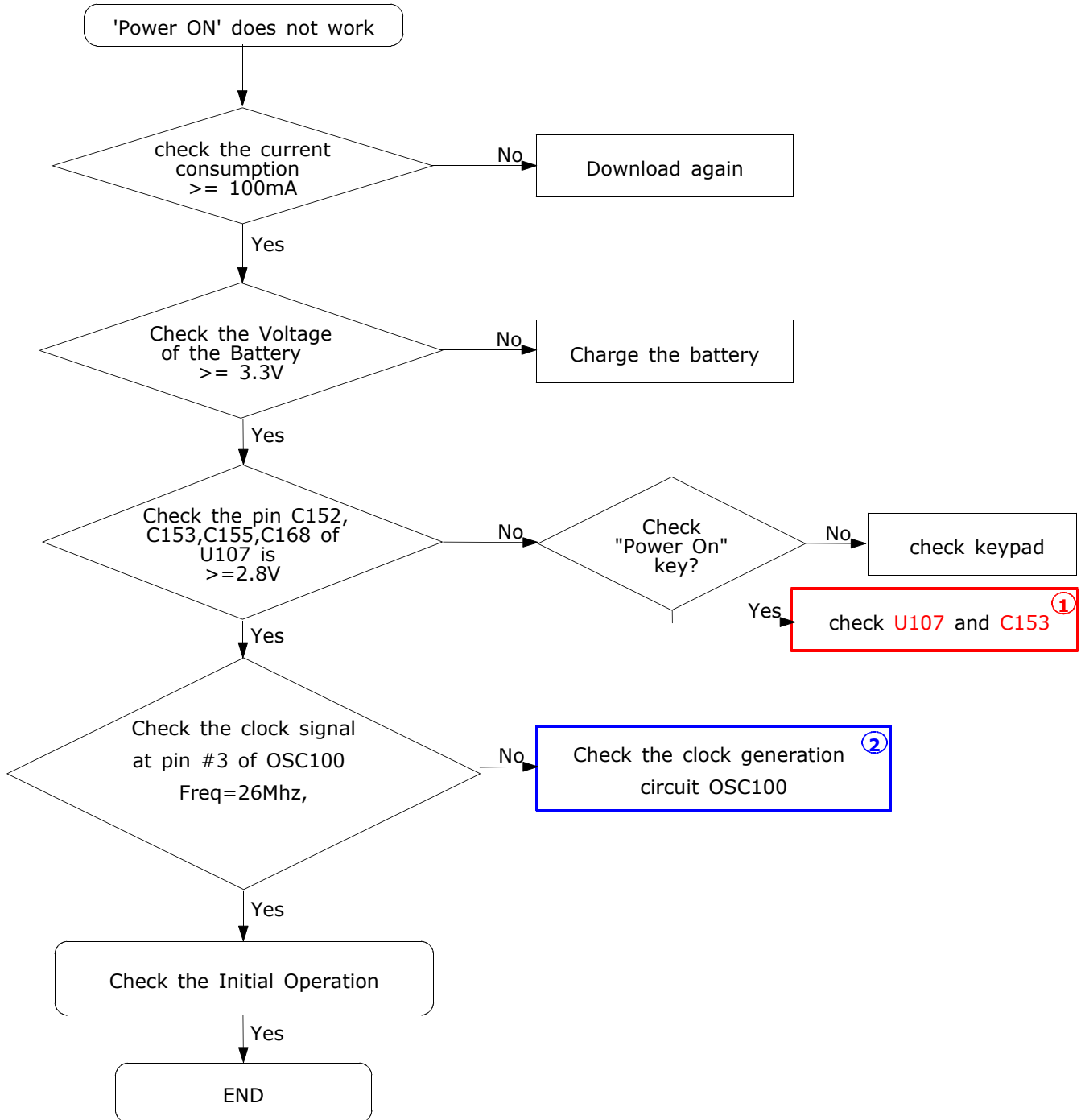
## 1-2. GSM Tx Power Class

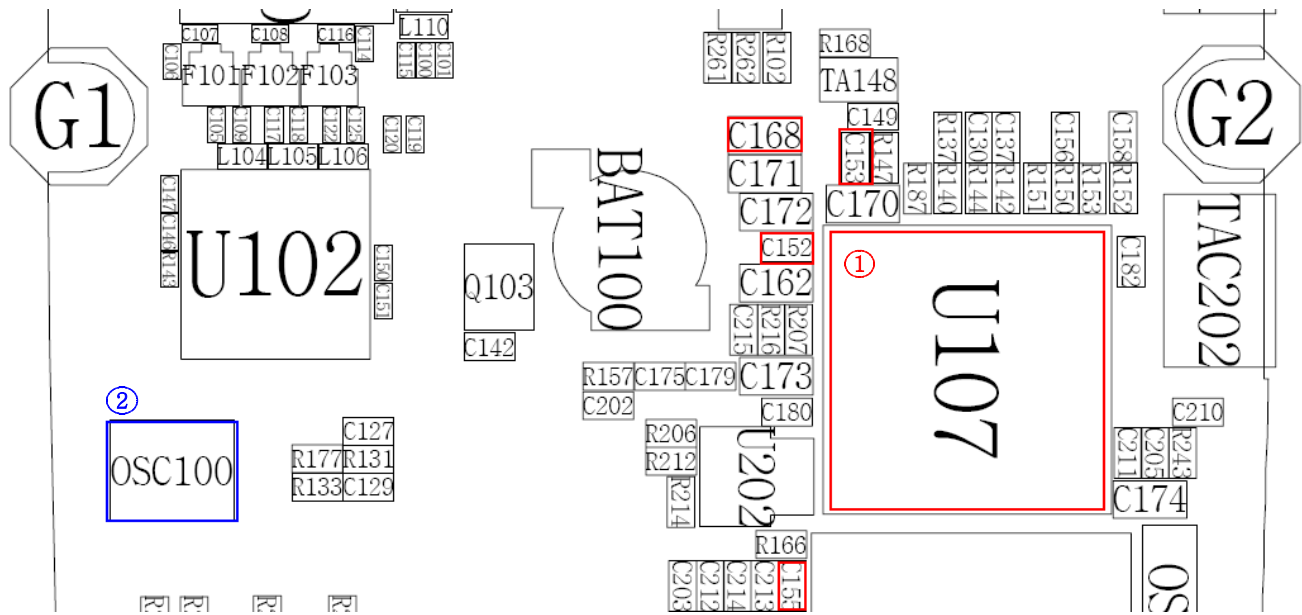
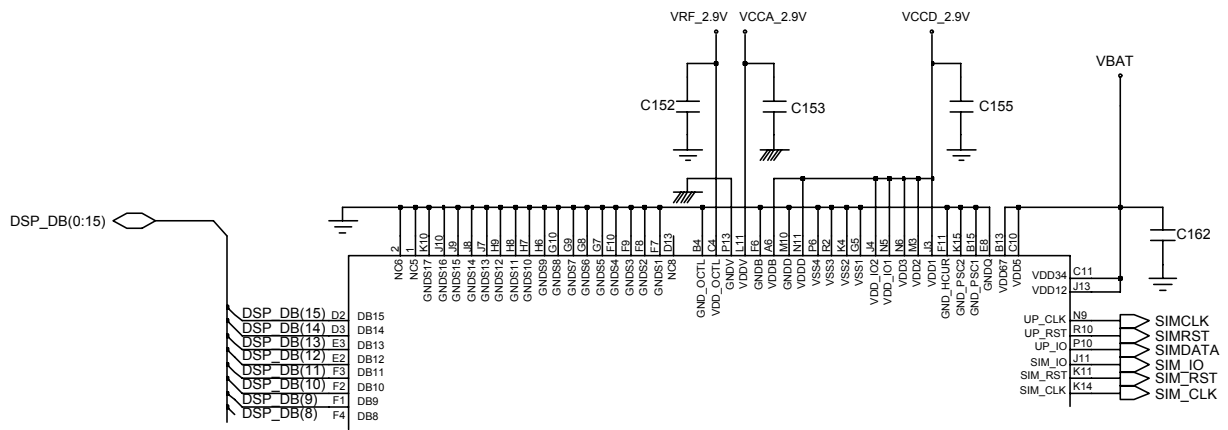
<b>TX Power control level</b>	<b>GSM900</b>	<b>TX Power control level</b>	<b>DCS1800</b>
5	33±2 dBm	0	30±3 dBm
6	31±2 dBm	1	28±3 dBm
7	29±2 dBm	2	26±3 dBm
8	27±2 dBm	3	24±3 dBm
9	25±2 dBm	4	22±3 dBm
10	23±2 dBm	5	20±3 dBm
11	21±2 dBm	6	18±3 dBm
12	19±2 dBm	7	16±3 dBm
13	17±2 dBm	8	14±3 dBm
14	15±2 dBm	9	12±4 dBm
15	13±2 dBm	10	10±4 dBm
16	11±3 dBm	11	8±4dBm
17	9±3dBm	12	6±4 dBm
18	7±3 dBm	13	4±4 dBm
19	5±3 dBm	14	2±5 dBm
		15	0±5 dBm

## 2. SGH-X150 Flow Chart of Troubleshooting

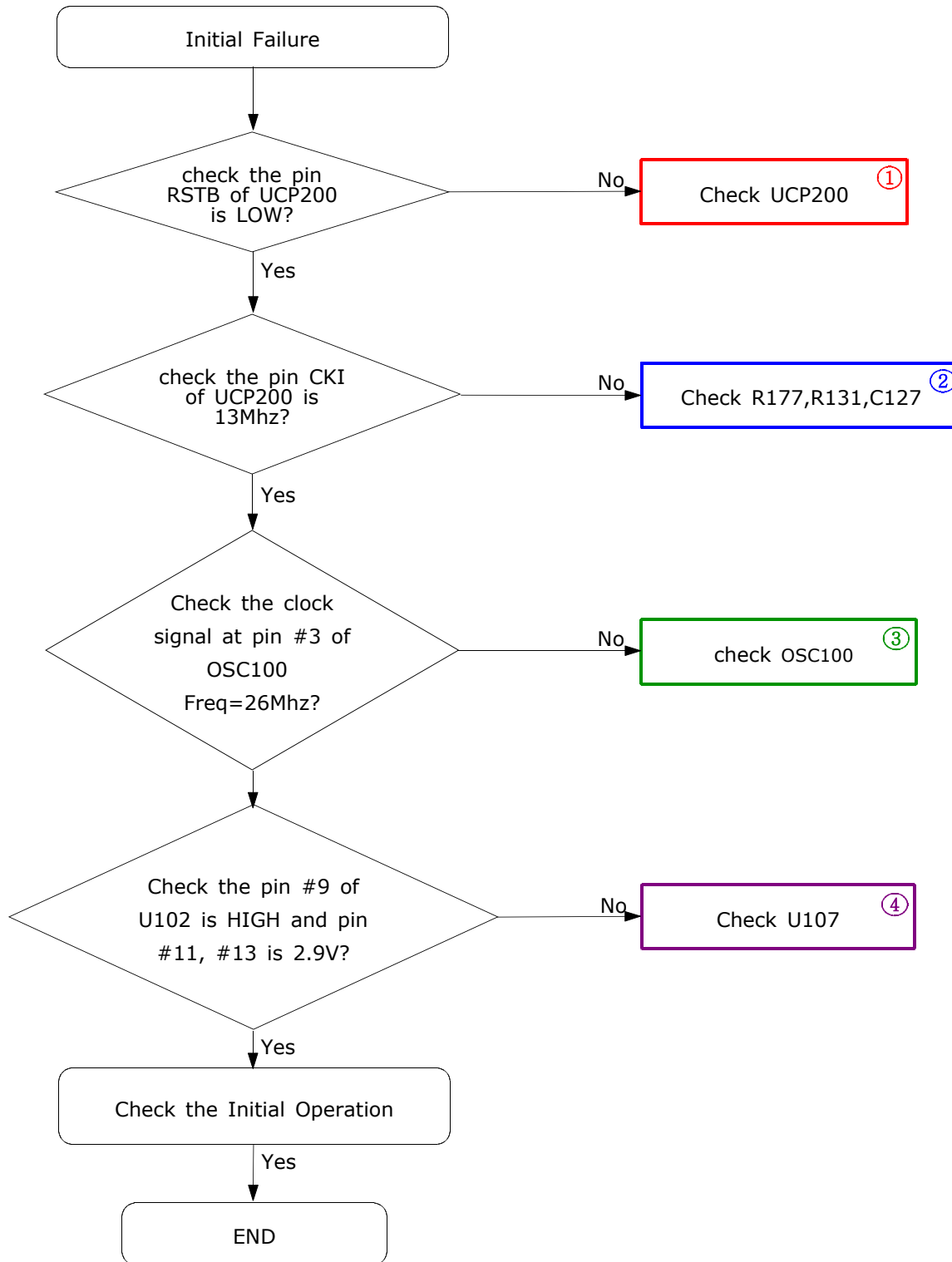
### 2-1. BASEBAND

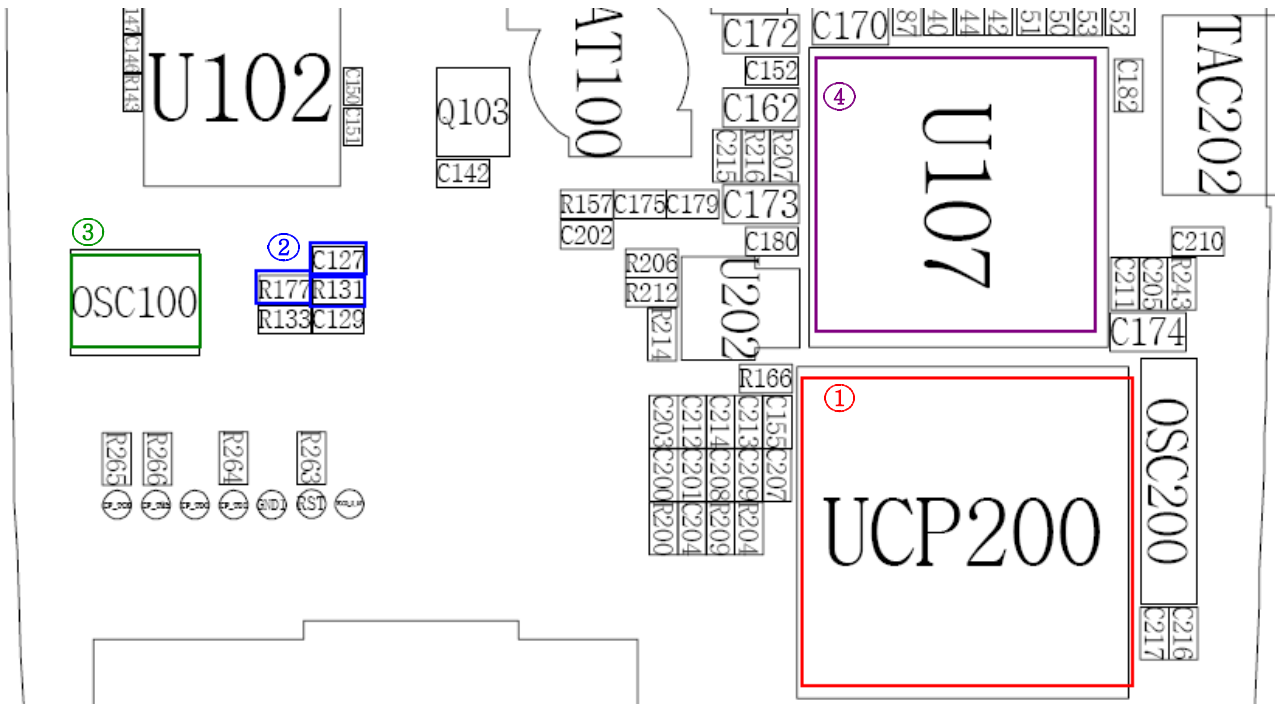
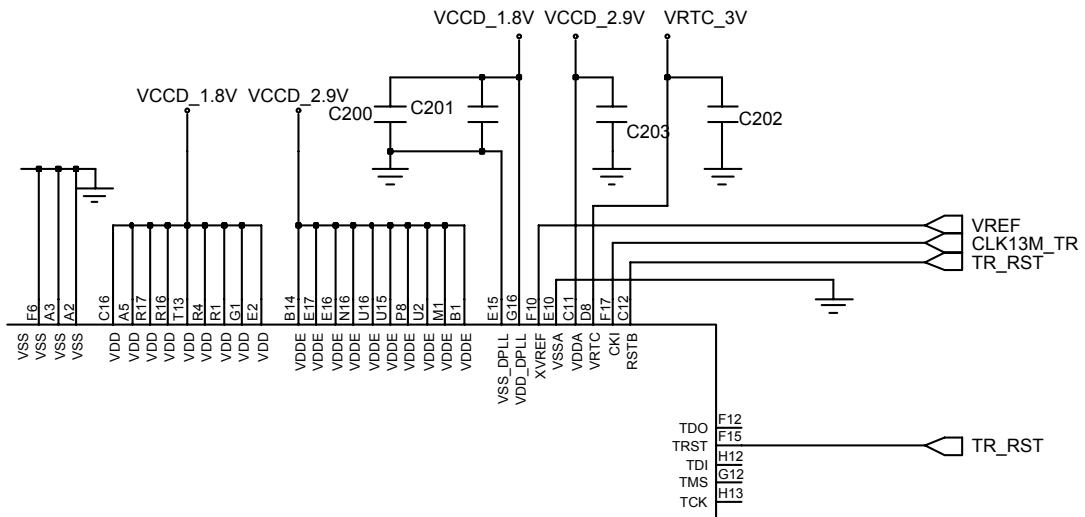
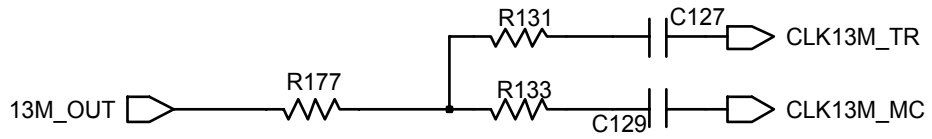
#### 2-1-1. Power ON





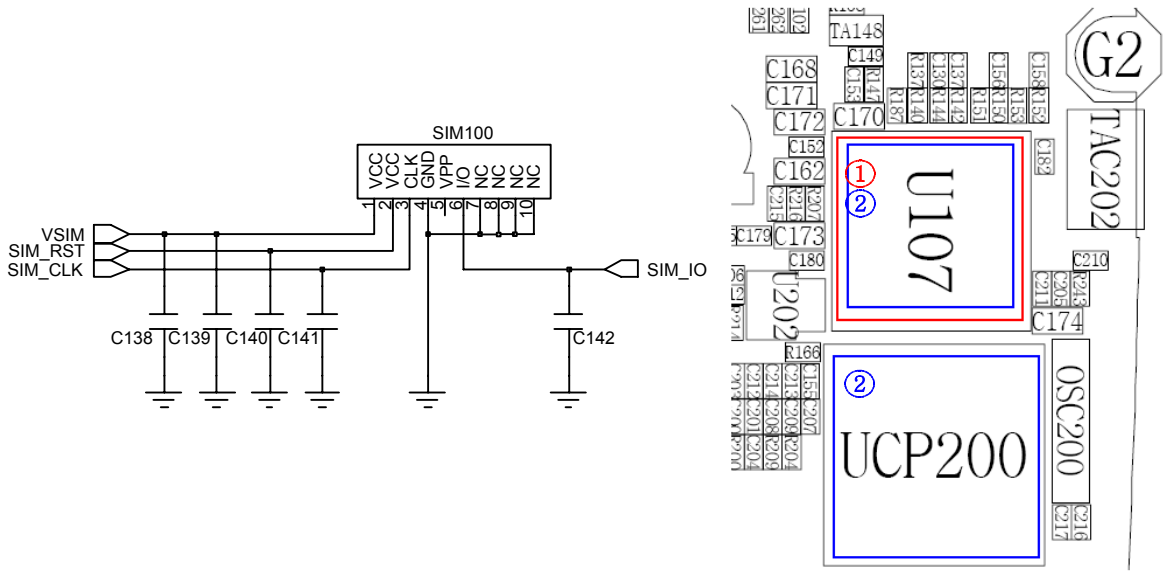
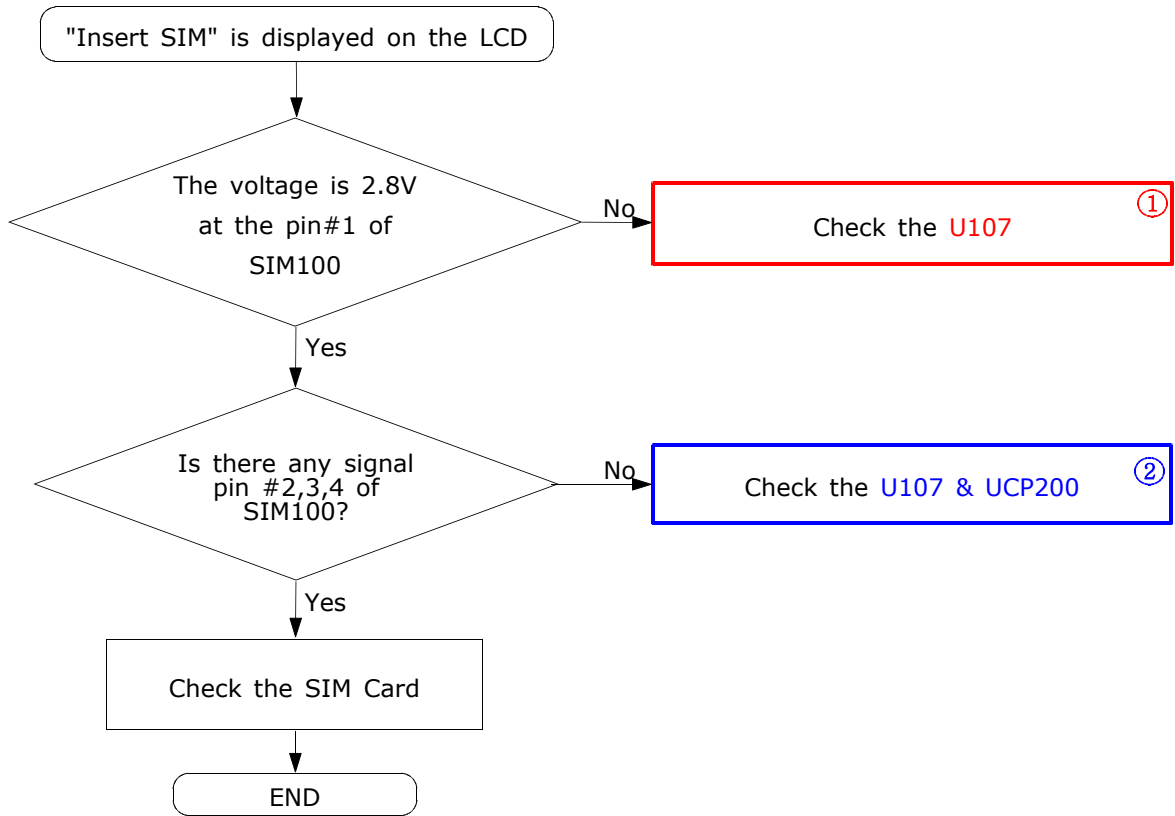
### 2-1-2. Initial





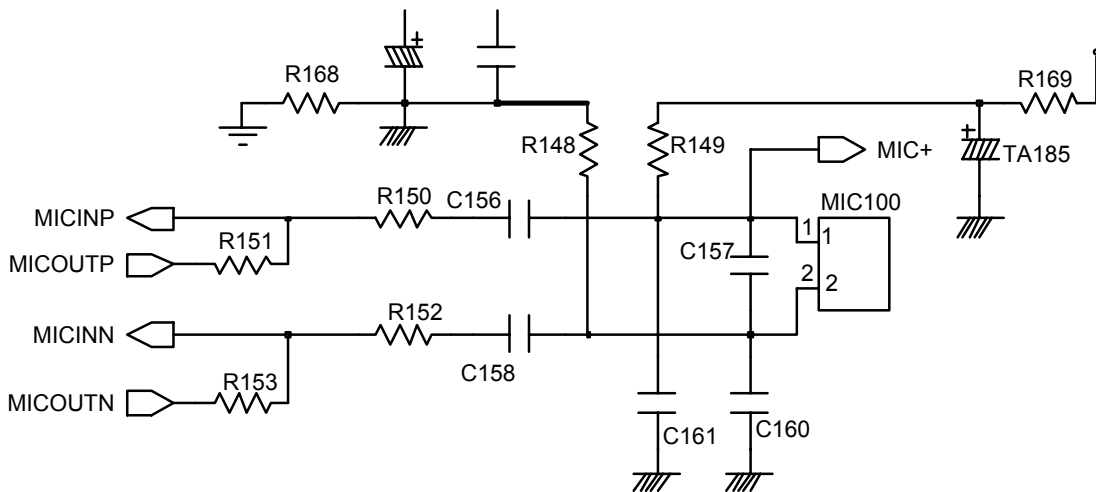
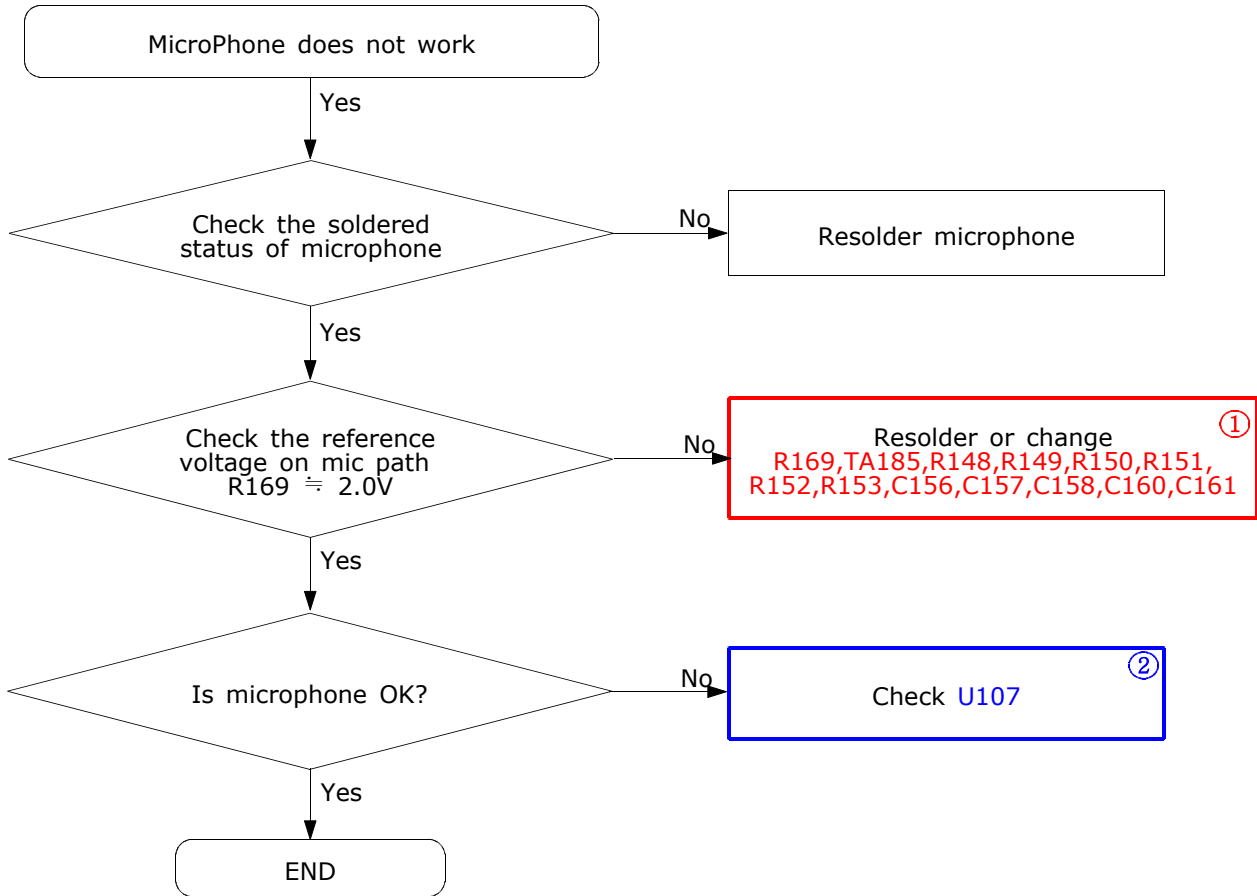


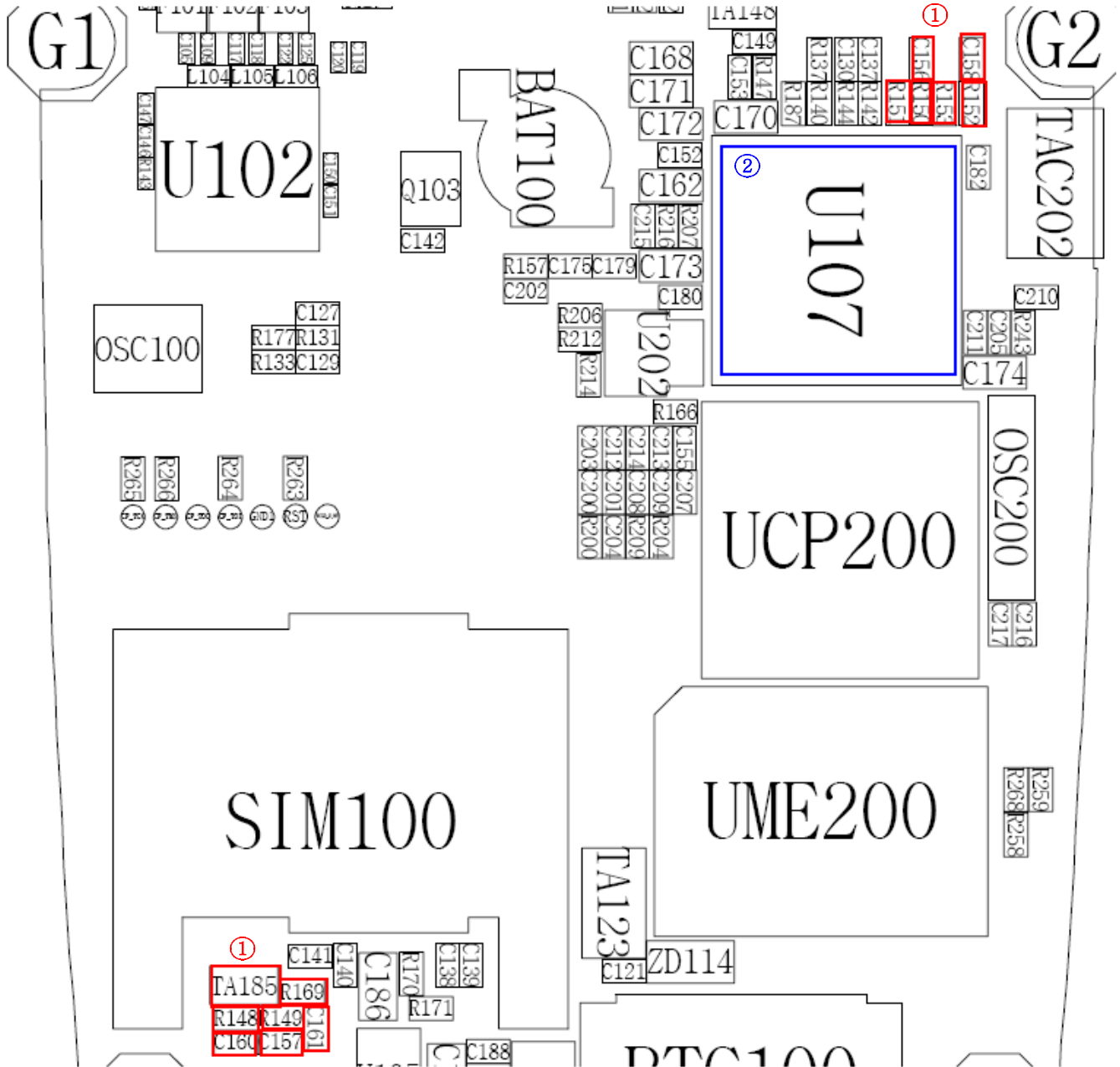
### 2-1-3. Sim Part



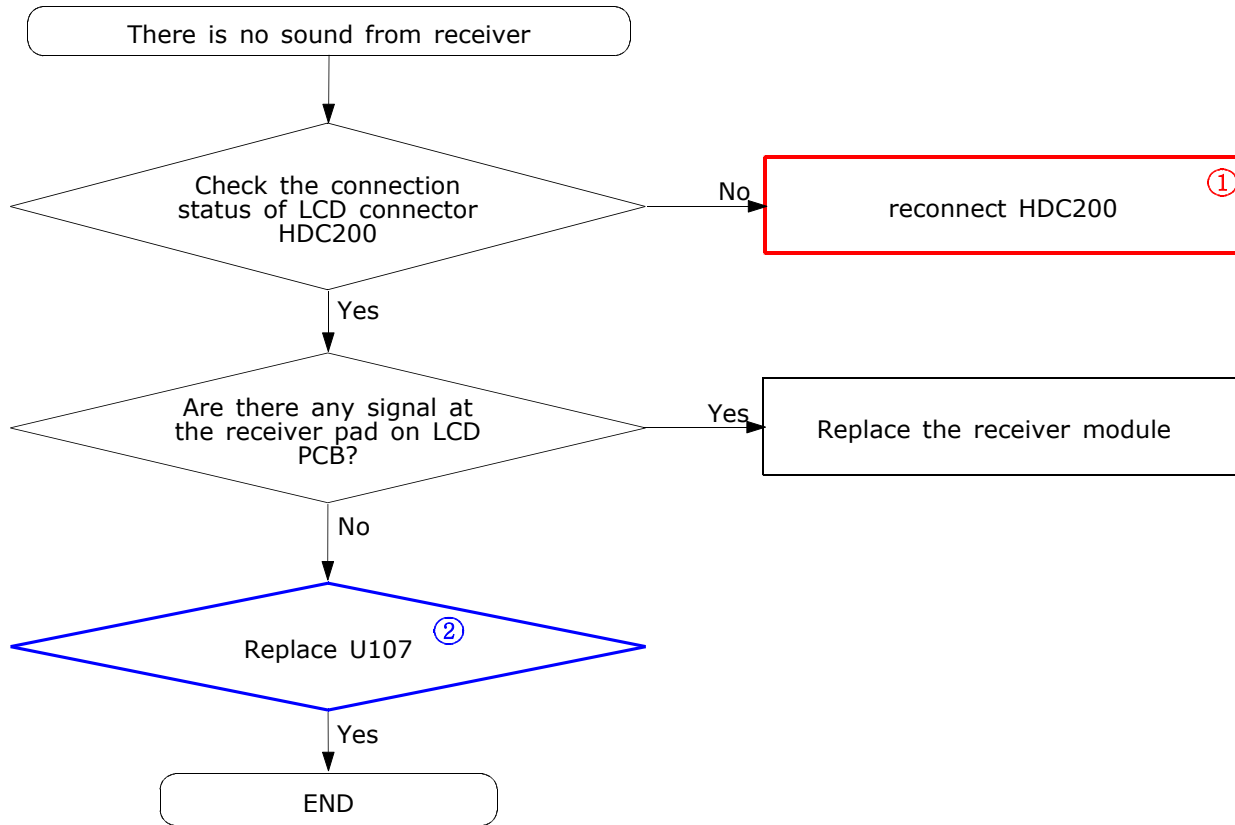
### 2-1-4. Microphone Part

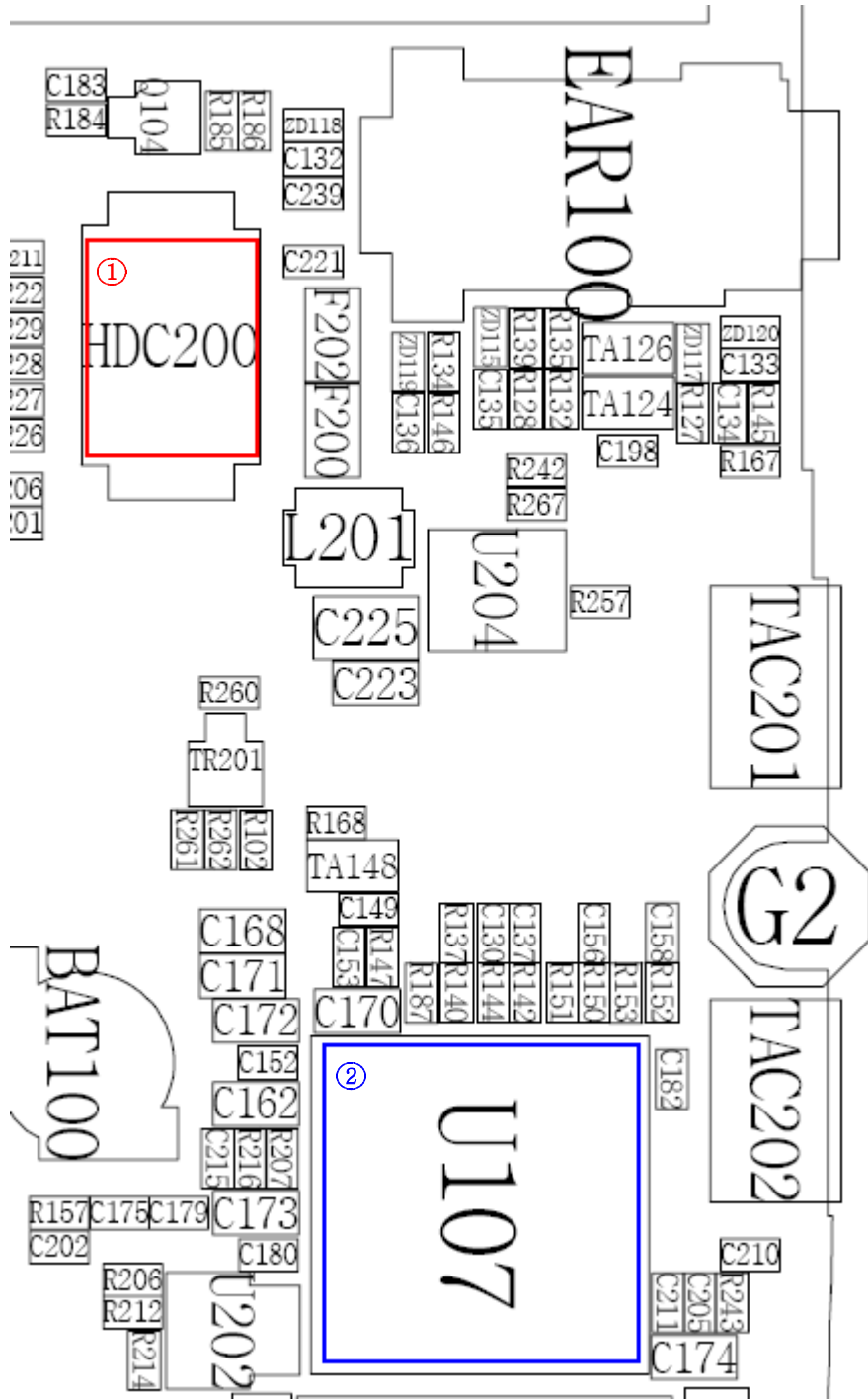
\* Call with Sim before testing.



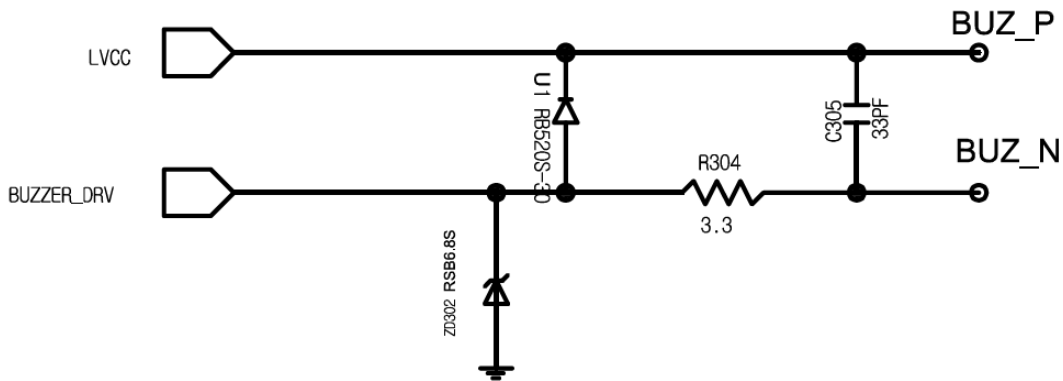
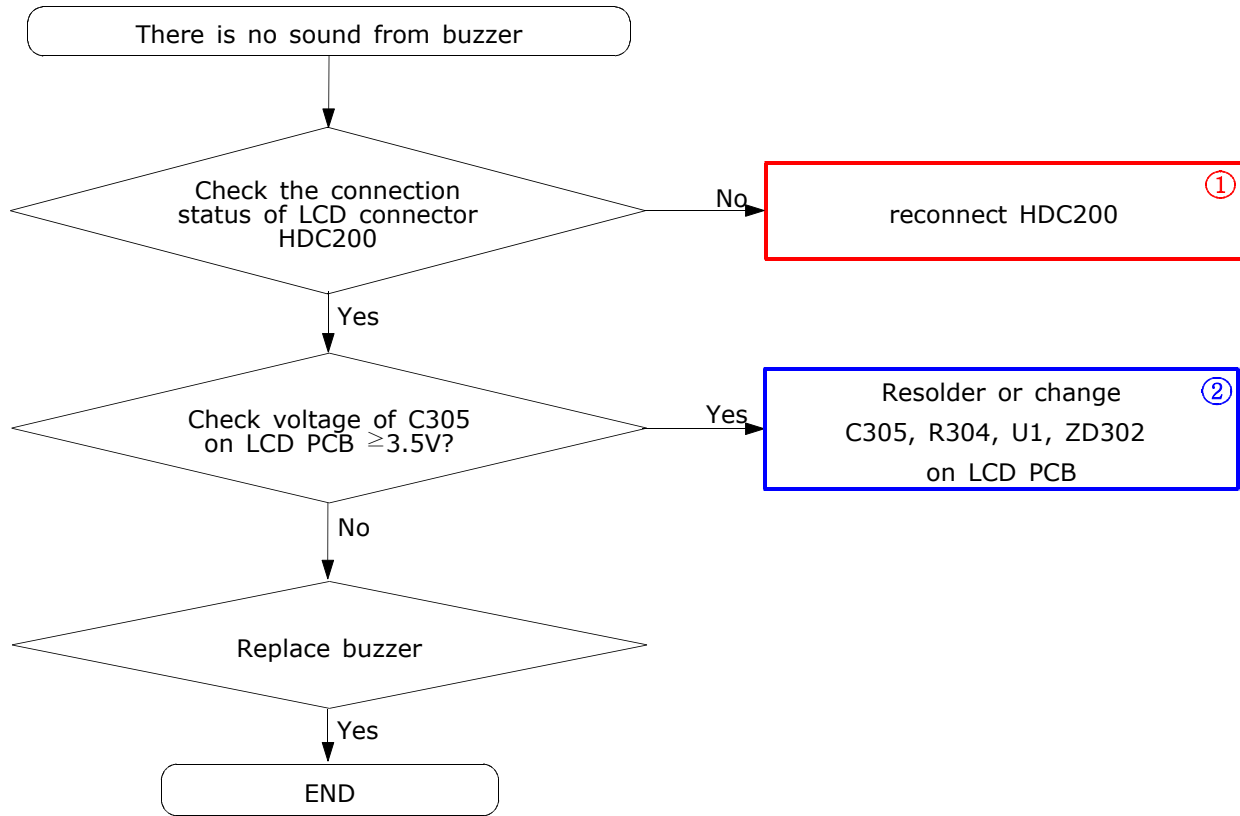


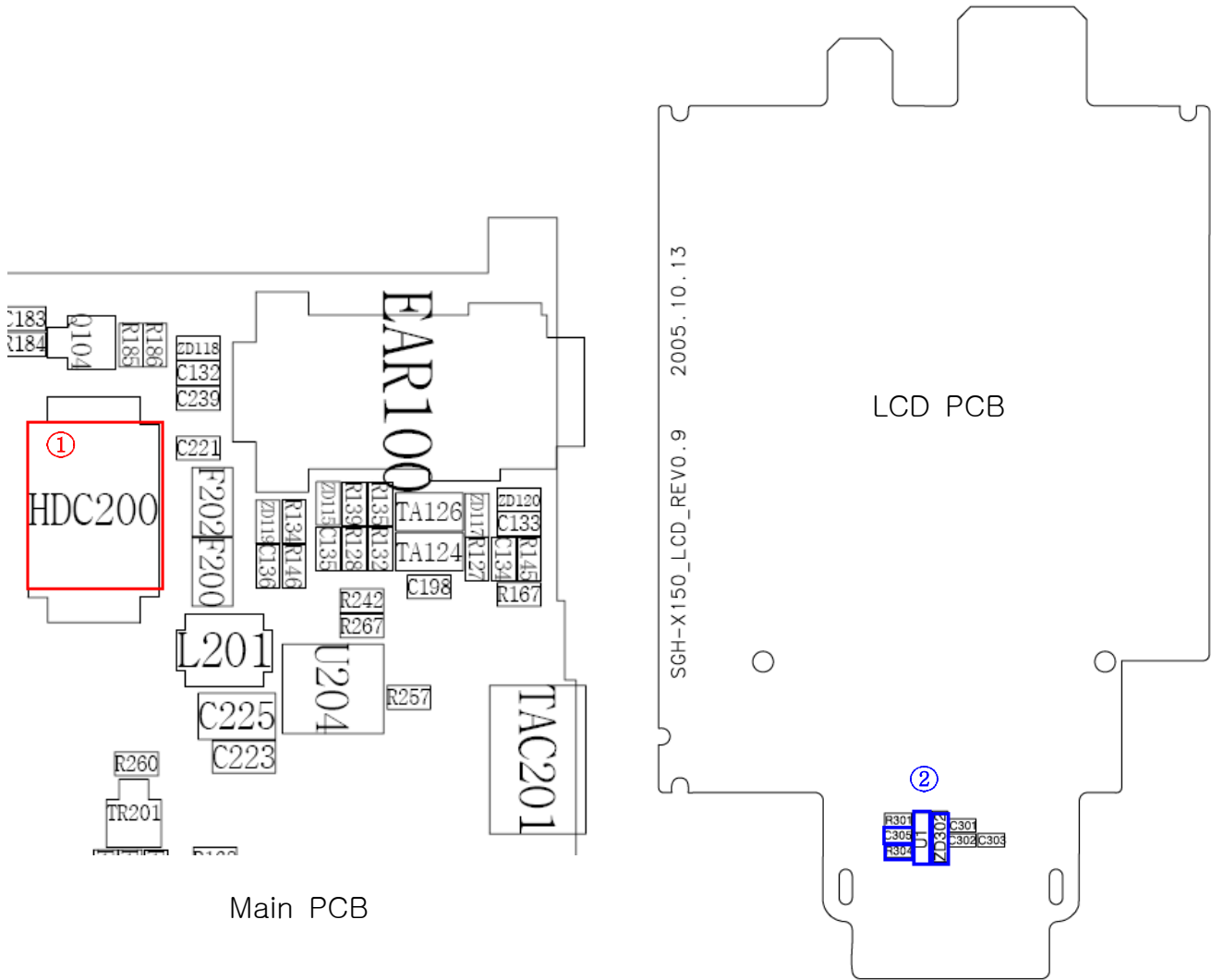
### 2-1-5. Receiver Part



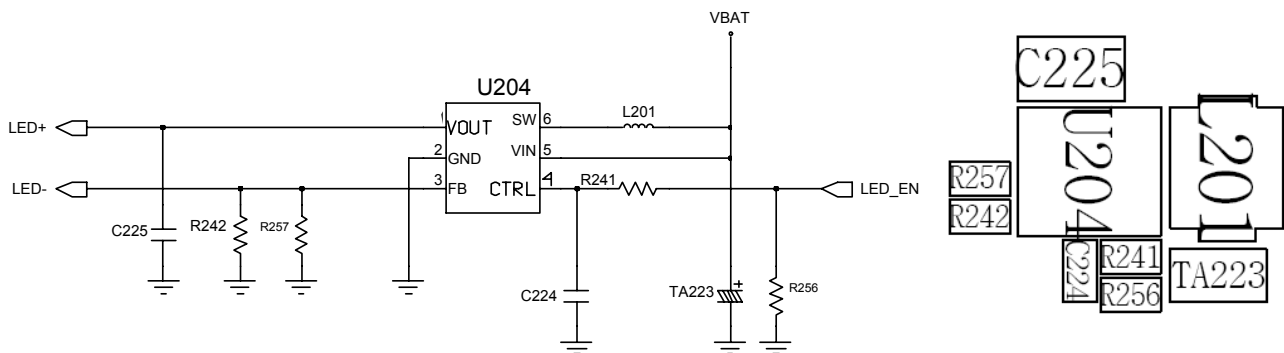
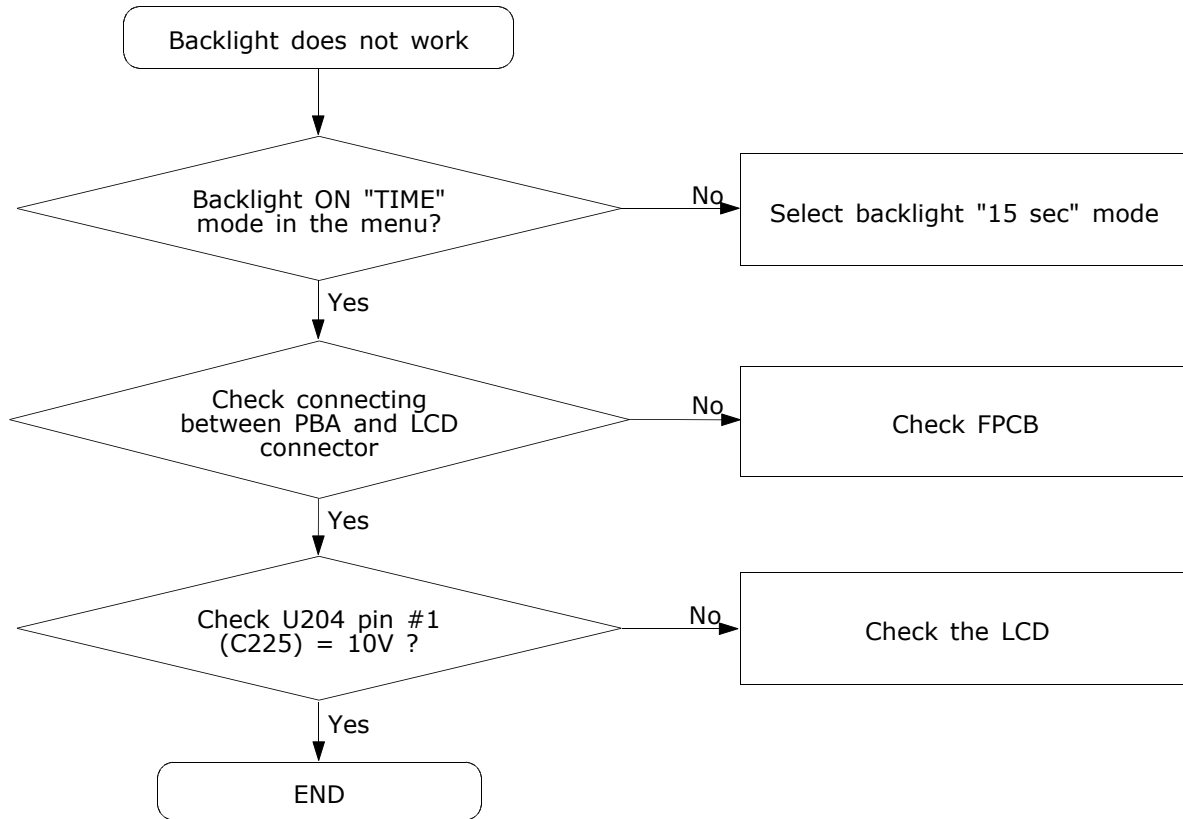


### 2-1-6. Buzzer Part





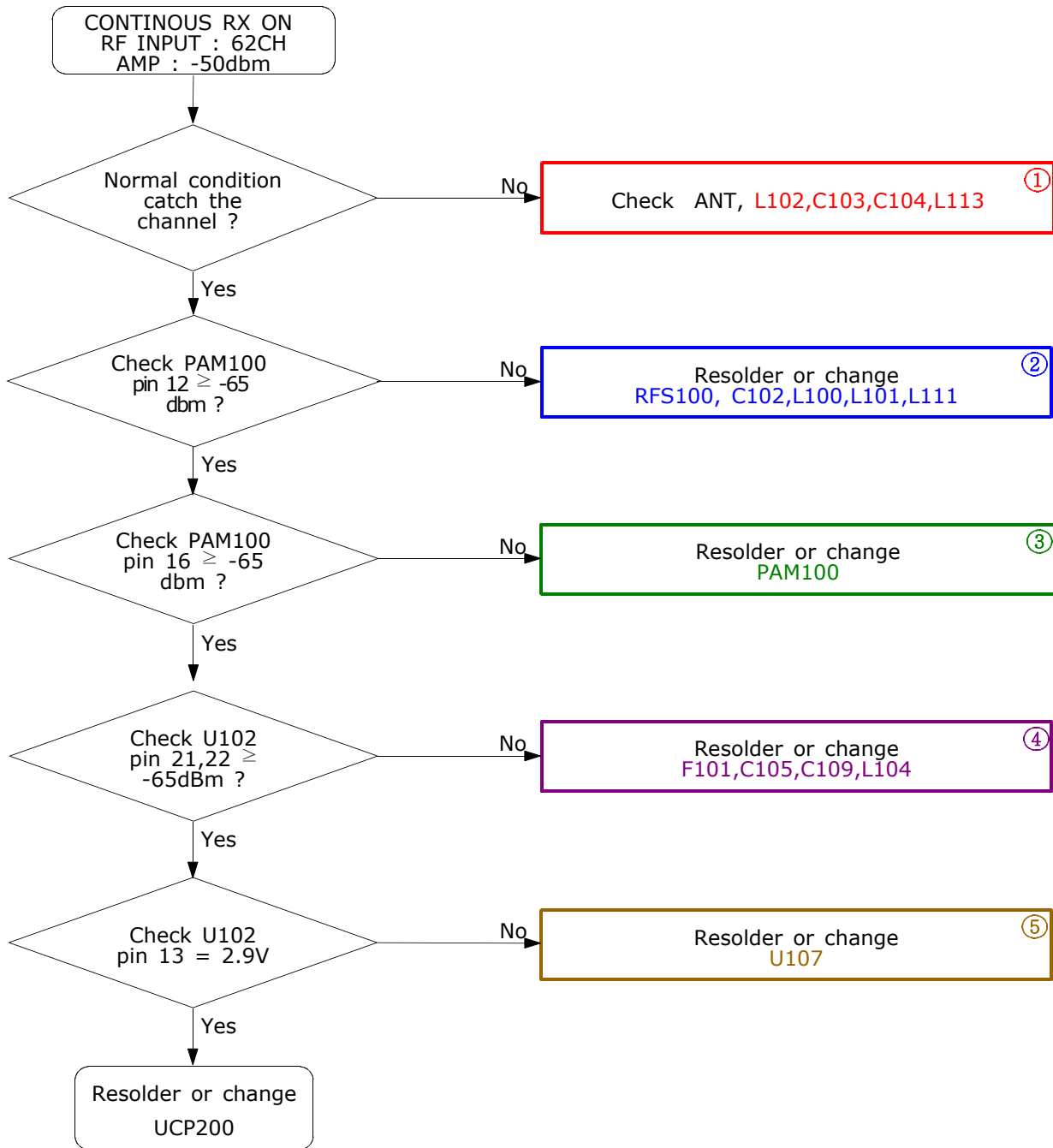
### 2-1-7. LCD backlight

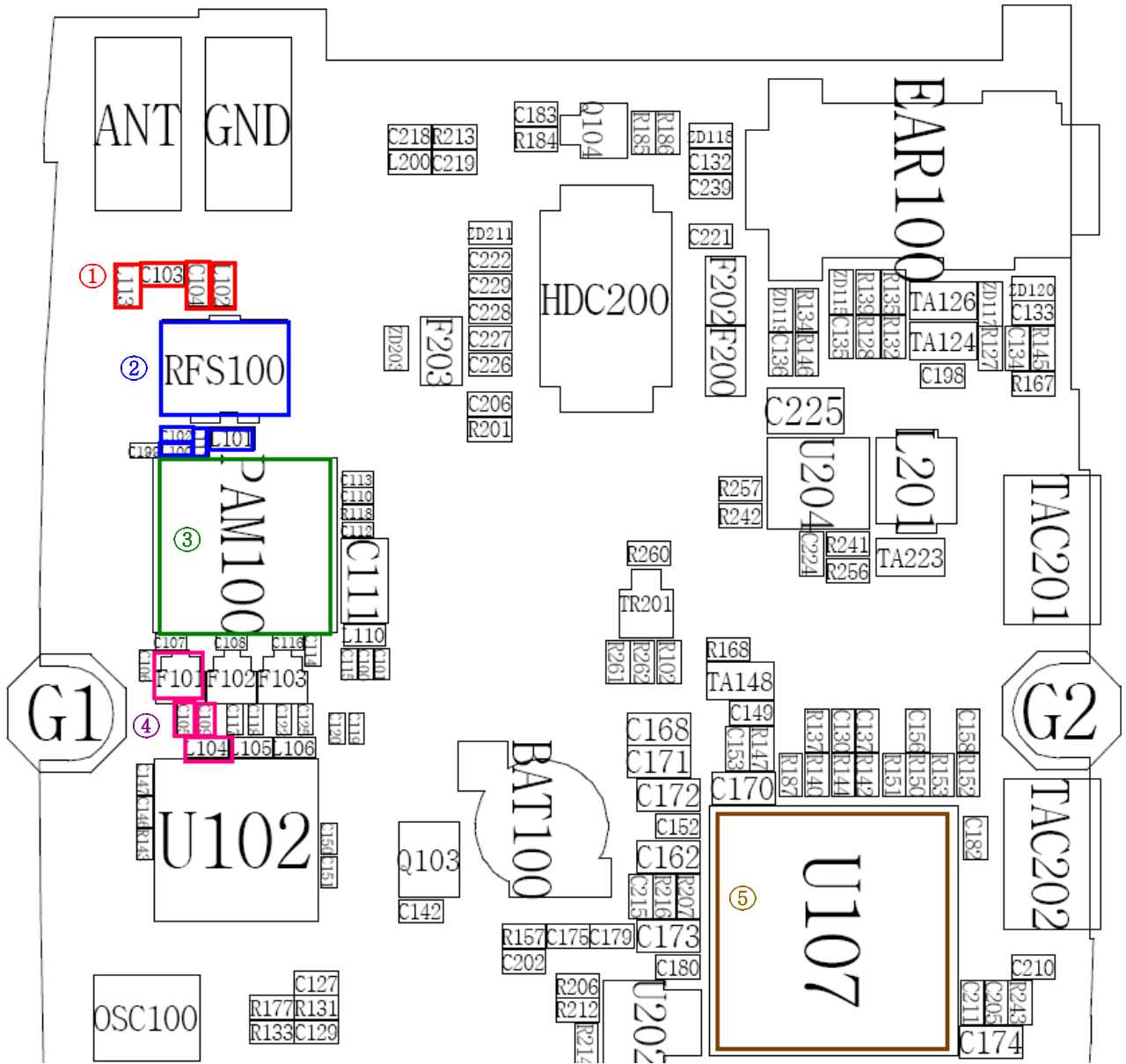




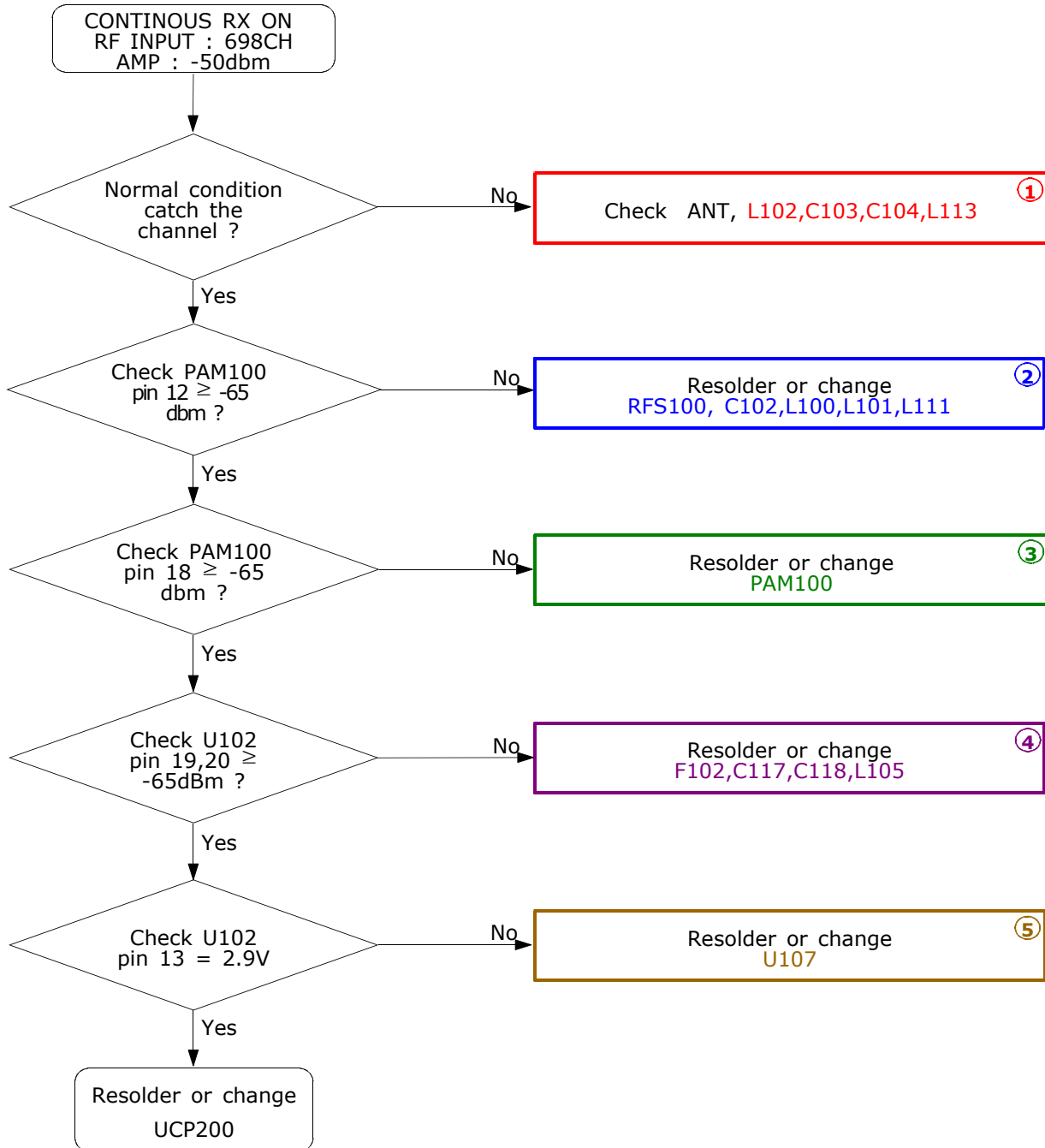
## 2-2. RF

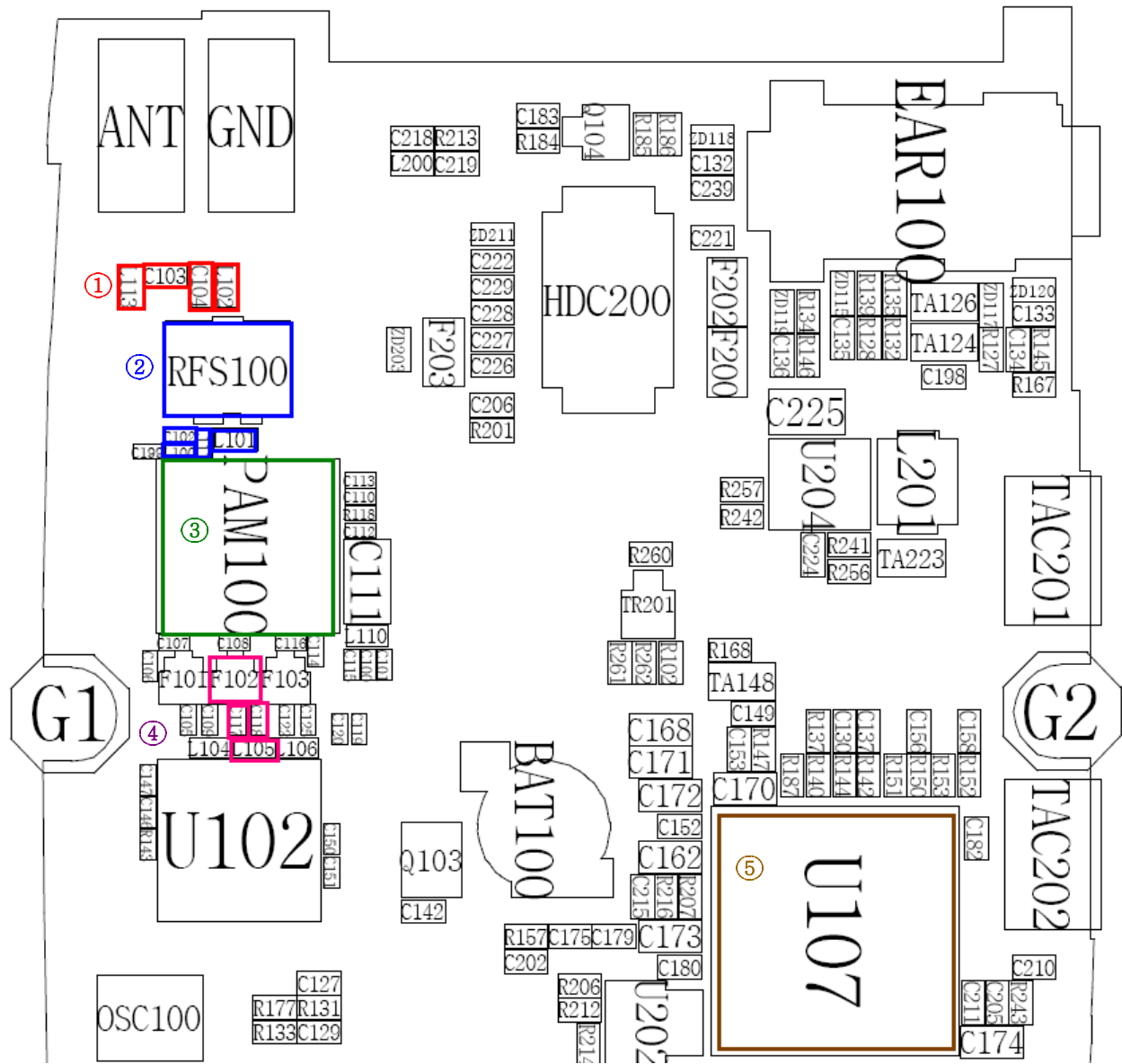
### 2-2-1. GSM Rx



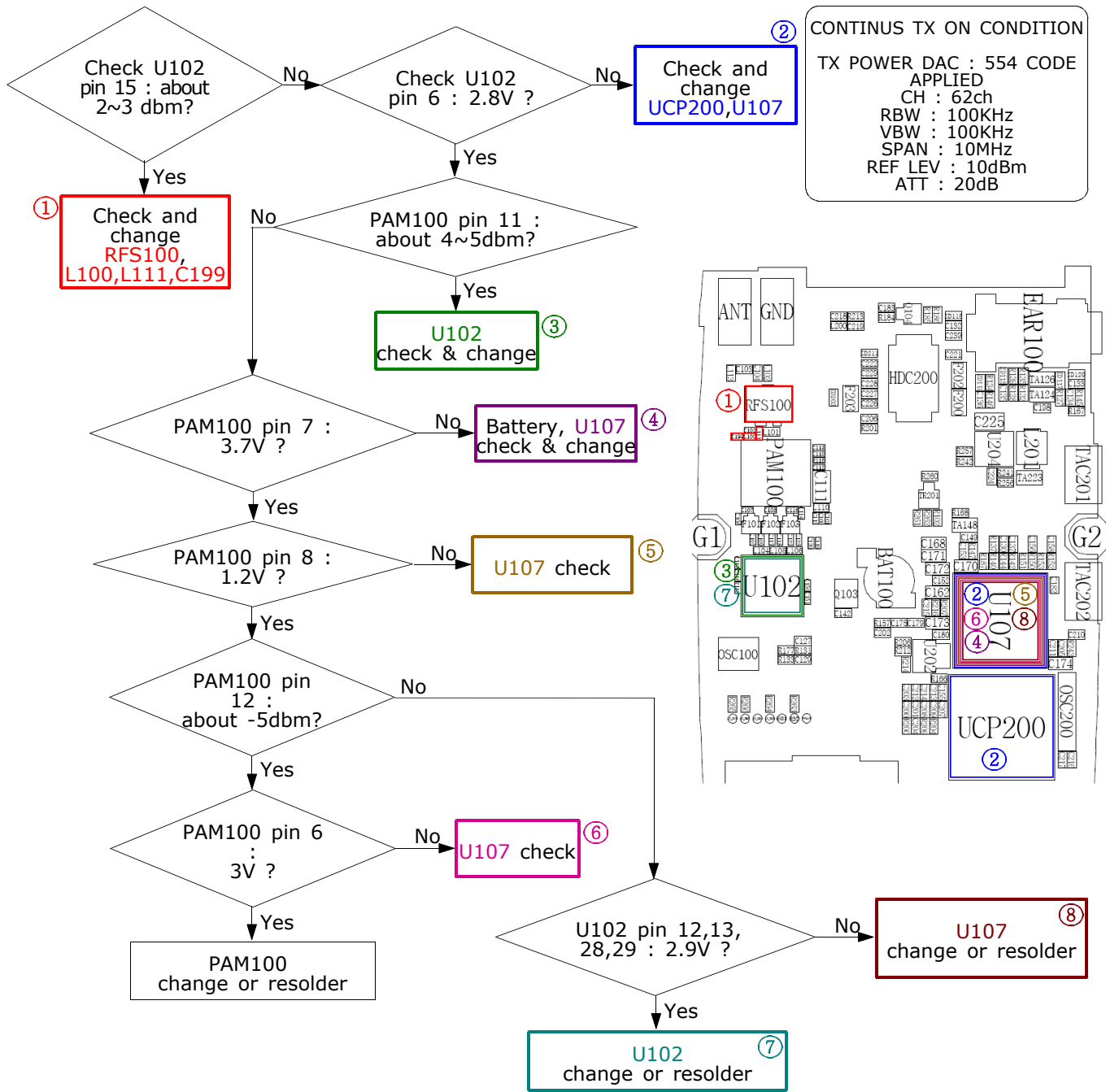


### 2-2-2. DCS Rx

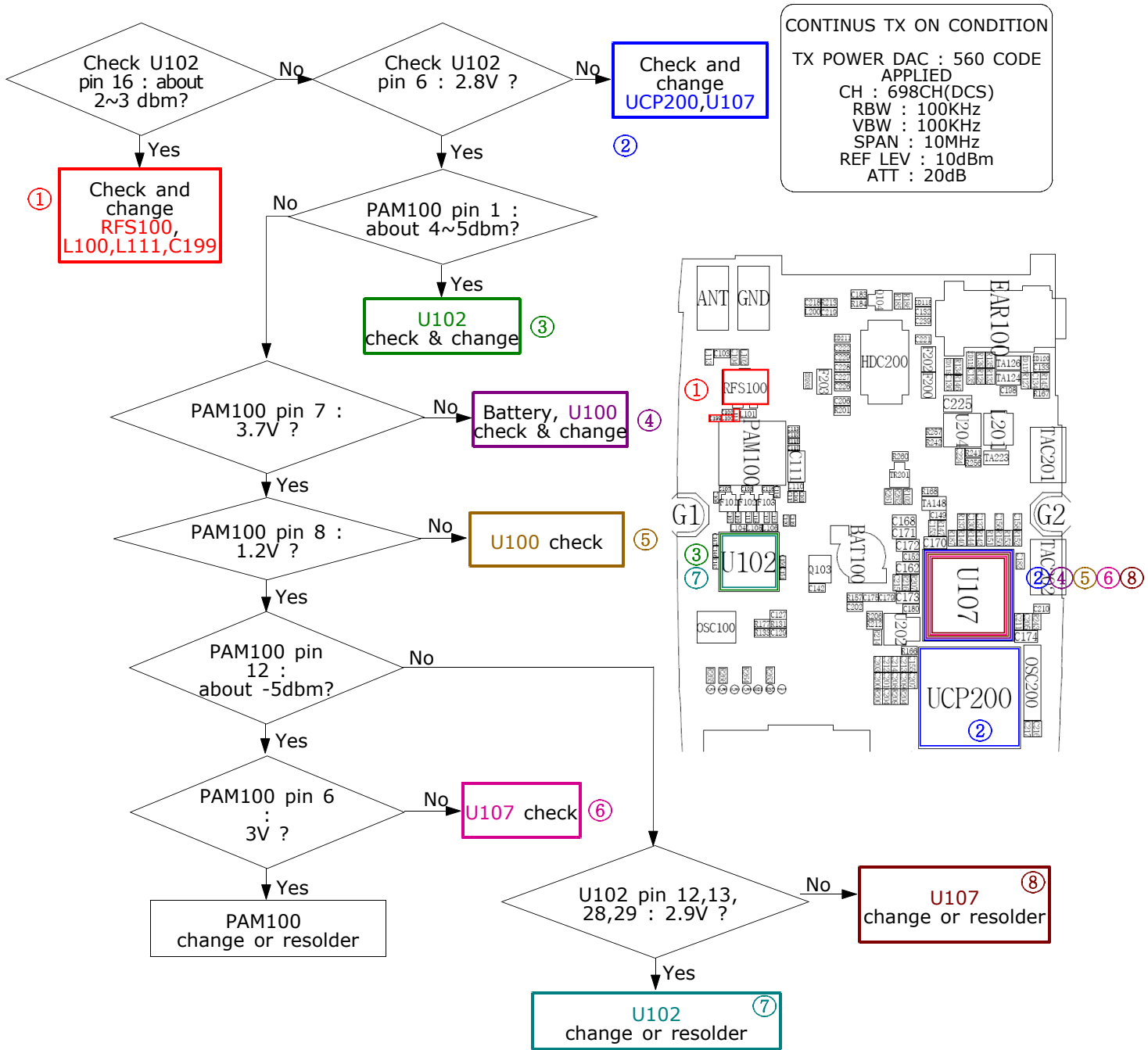




**2-2-3. GSM Tx**



### 2-2-4. DCS Tx



## 4. SGH-X150 MAIN Electrical Parts List

SEC Code	Design LOC	Discription	STATUS
0403-001411	ZD114	DIODE-ZENER	SA
0403-001427	ZD112	DIODE-ZENER	SA
0501-000225	Q104	TR-SMALL SIGNAL	SA
0501-000225	TR201	TR-SMALL SIGNAL	SA
0504-000168	Q103	TR-DIGITAL	SA
0601-001819	LED200	LED	SA
0601-001819	LED201	LED	SA
0601-001819	LED202	LED	SA
0601-001819	LED204	LED	SA
0601-001819	LED205	LED	SA
0601-001819	LED206	LED	SA
0601-001819	LED213	LED	SA
0601-001819	LED214	LED	SA
0601-001819	LED215	LED	SA
0601-001819	LED217	LED	SA
0601-001819	LED219	LED	SA
0601-001819	LED220	LED	SA
0601-001819	LED222	LED	SA
0601-001819	LED225	LED	SA
0801-002529	U109	IC-CMOS LOGIC	SA
1009-001020	U203	IC-HALL EFFECT S/W	SA
1109-001218	UME200	IC-MCP	SA
1201-002278	PAM100	IC-POWER AMP	SA
1203-002850	U204	IC-DC/DC CONVERTER	SA
1203-003663	U105	IC-BATTERY	SA
1203-003897	U107	IC-POWER SUPERVISOR	SA
1205-002683	U102	IC-TRANSCEIVER	SA
1209-001219	U202	IC-SENSOR	SA
1405-001082	ZD100	VARISTOR	SA
1405-001082	ZD101	VARISTOR	SA
1405-001082	ZD102	VARISTOR	SA
1405-001082	ZD103	VARISTOR	SA
1405-001082	ZD104	VARISTOR	SA
1405-001082	ZD105	VARISTOR	SA
1405-001082	ZD106	VARISTOR	SA

SEC Code	Design LOC	Discription	STATUS
1405-001082	ZD107	VARISTOR	SA
1405-001082	ZD108	VARISTOR	SA
1405-001082	ZD109	VARISTOR	SA
1405-001082	ZD110	VARISTOR	SA
1405-001082	ZD111	VARISTOR	SA
1405-001082	ZD113	VARISTOR	SA
1405-001082	ZD115	VARISTOR	SA
1405-001082	ZD117	VARISTOR	SA
1405-001082	ZD118	VARISTOR	SA
1405-001082	ZD119	VARISTOR	SA
1405-001082	ZD120	VARISTOR	SA
1405-001082	ZD202	VARISTOR	SA
1405-001082	ZD203	VARISTOR	SA
1405-001082	ZD204	VARISTOR	SA
1405-001082	ZD205	VARISTOR	SA
1405-001082	ZD206	VARISTOR	SA
1405-001082	ZD208	VARISTOR	SA
1405-001082	ZD209	VARISTOR	SA
1405-001082	ZD210	VARISTOR	SA
1405-001082	ZD211	VARISTOR	SA
1405-001082	ZD212	VARISTOR	SA
1405-001082	ZD213	VARISTOR	SA
2007-000140	R107	R-CHIP	SA
2007-000140	R108	R-CHIP	SA
2007-000140	R111	R-CHIP	SA
2007-000140	R112	R-CHIP	SA
2007-000140	R113	R-CHIP	SA
2007-000140	R114	R-CHIP	SA
2007-000140	R115	R-CHIP	SA
2007-000140	R116	R-CHIP	SA
2007-000140	R120	R-CHIP	SA
2007-000140	R121	R-CHIP	SA
2007-000140	R122	R-CHIP	SA
2007-000140	R123	R-CHIP	SA
2007-000140	R145	R-CHIP	SA



SEC Code	Design LOC	Discription	STATUS
2007-000140	R183	R-CHIP	SA
2007-000140	R212	R-CHIP	SA
2007-000143	R241	R-CHIP	SA
2007-000148	R137	R-CHIP	SA
2007-000148	R142	R-CHIP	SA
2007-000148	R150	R-CHIP	SA
2007-000148	R152	R-CHIP	SA
2007-000148	R157	R-CHIP	SA
2007-000153	R117	R-CHIP	SA
2007-000157	R184	R-CHIP	SA
2007-000157	R204	R-CHIP	SA
2007-000157	R259	R-CHIP	SA
2007-000161	R140	R-CHIP	SA
2007-000161	R144	R-CHIP	SA
2007-000161	R151	R-CHIP	SA
2007-000161	R153	R-CHIP	SA
2007-000162	R172	R-CHIP	SA
2007-000162	R182	R-CHIP	SA
2007-000162	R209	R-CHIP	SA
2007-000162	R213	R-CHIP	SA
2007-000162	R243	R-CHIP	SA
2007-000170	R214	R-CHIP	SA
2007-000171	R127	R-CHIP	SA
2007-000171	R134	R-CHIP	SA
2007-000171	R166	R-CHIP	SA
2007-000171	R168	R-CHIP	SA
2007-000171	R177	R-CHIP	SA
2007-000171	R187	R-CHIP	SA
2007-000171	R258	R-CHIP	SA
2007-000171	R268	R-CHIP	SA
2007-000172	R128	R-CHIP	SA
2007-000172	R135	R-CHIP	SA
2007-000172	R200	R-CHIP	SA
2007-000172	R201	R-CHIP	SA
2007-000242	R139	R-CHIP	SA

SEC Code	Design LOC	Discription	STATUS
2007-000242	R148	R-CHIP	SA
2007-000242	R149	R-CHIP	SA
2007-000566	R104	R-CHIP	SA
2007-000566	R105	R-CHIP	SA
2007-000566	R179	R-CHIP	SA
2007-000566	R180	R-CHIP	SA
2007-000566	R181	R-CHIP	SA
2007-000831	R185	R-CHIP	SA
2007-001119	R147	R-CHIP	SA
2007-001119	R169	R-CHIP	SA
2007-001292	R244	R-CHIP	SA
2007-001292	R247	R-CHIP	SA
2007-001292	R248	R-CHIP	SA
2007-001292	R249	R-CHIP	SA
2007-001292	R252	R-CHIP	SA
2007-001292	R255	R-CHIP	SA
2007-001301	R227	R-CHIP	SA
2007-001301	R229	R-CHIP	SA
2007-001301	R231	R-CHIP	SA
2007-001301	R235	R-CHIP	SA
2007-001307	R230	R-CHIP	SA
2007-001307	R234	R-CHIP	SA
2007-001307	R237	R-CHIP	SA
2007-001307	R238	R-CHIP	SA
2007-001307	R261	R-CHIP	SA
2007-001308	R133	R-CHIP	SA
2007-001323	R146	R-CHIP	SA
2007-001335	R186	R-CHIP	SA
2007-002797	R131	R-CHIP	SA
2007-003001	R242	R-CHIP	SA
2007-007139	R263	R-CHIP	SA
2007-007139	R264	R-CHIP	SA
2007-007139	R265	R-CHIP	SA
2007-007139	R266	R-CHIP	SA
2007-007142	R206	R-CHIP	SA

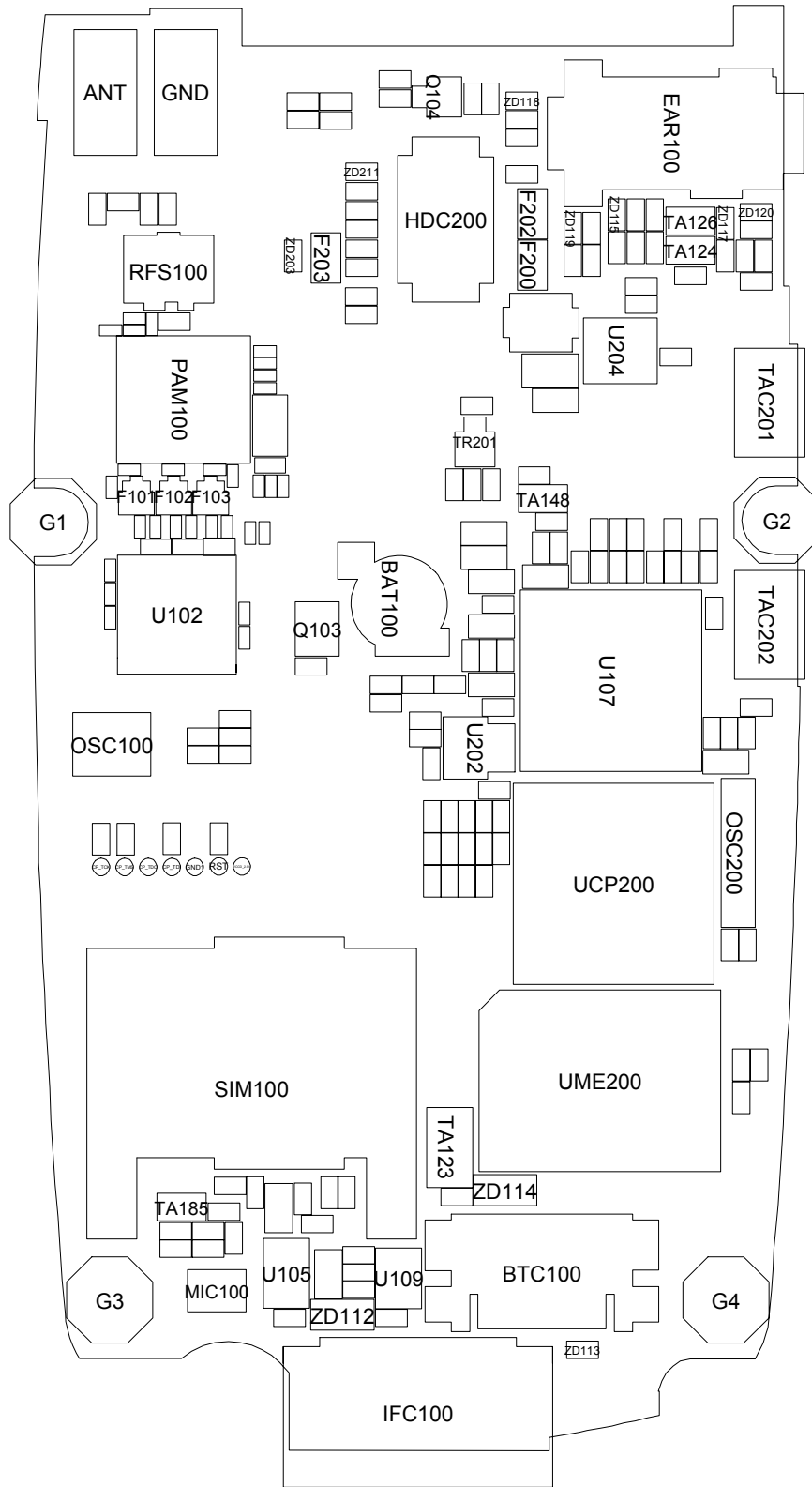
SEC Code	Design LOC	Discription	STATUS
2007-007573	R207	R-CHIP	SA
2007-007573	R216	R-CHIP	SA
2007-008137	R170	R-CHIP	SA
2007-008516	R118	R-CHIP	SA
2007-008516	R143	R-CHIP	SA
2007-009160	R171	R-CHIP	SA
2203-000233	C133	C-CER,CHIP	SA
2203-000233	C135	C-CER,CHIP	SA
2203-000233	C175	C-CER,CHIP	SA
2203-000233	L102	C-CER,CHIP	SA
2203-000254	C152	C-CER,CHIP	SA
2203-000254	C153	C-CER,CHIP	SA
2203-000254	C201	C-CER,CHIP	SA
2203-000254	C204	C-CER,CHIP	SA
2203-000254	C206	C-CER,CHIP	SA
2203-000254	C207	C-CER,CHIP	SA
2203-000254	C208	C-CER,CHIP	SA
2203-000254	C210	C-CER,CHIP	SA
2203-000254	C212	C-CER,CHIP	SA
2203-000278	C157	C-CER,CHIP	SA
2203-000278	C216	C-CER,CHIP	SA
2203-000278	C217	C-CER,CHIP	SA
2203-000359	C160	C-CER,CHIP	SA
2203-000359	C161	C-CER,CHIP	SA
2203-000386	C127	C-CER,CHIP	SA
2203-000679	C200	C-CER,CHIP	SA
2203-000812	C140	C-CER,CHIP	SA
2203-000812	C141	C-CER,CHIP	SA
2203-000812	C142	C-CER,CHIP	SA
2203-000812	C198	C-CER,CHIP	SA
2203-000940	C138	C-CER,CHIP	SA
2203-000995	C134	C-CER,CHIP	SA
2203-000995	C136	C-CER,CHIP	SA
2203-000995	C219	C-CER,CHIP	SA
2203-001072	C183	C-CER,CHIP	SA

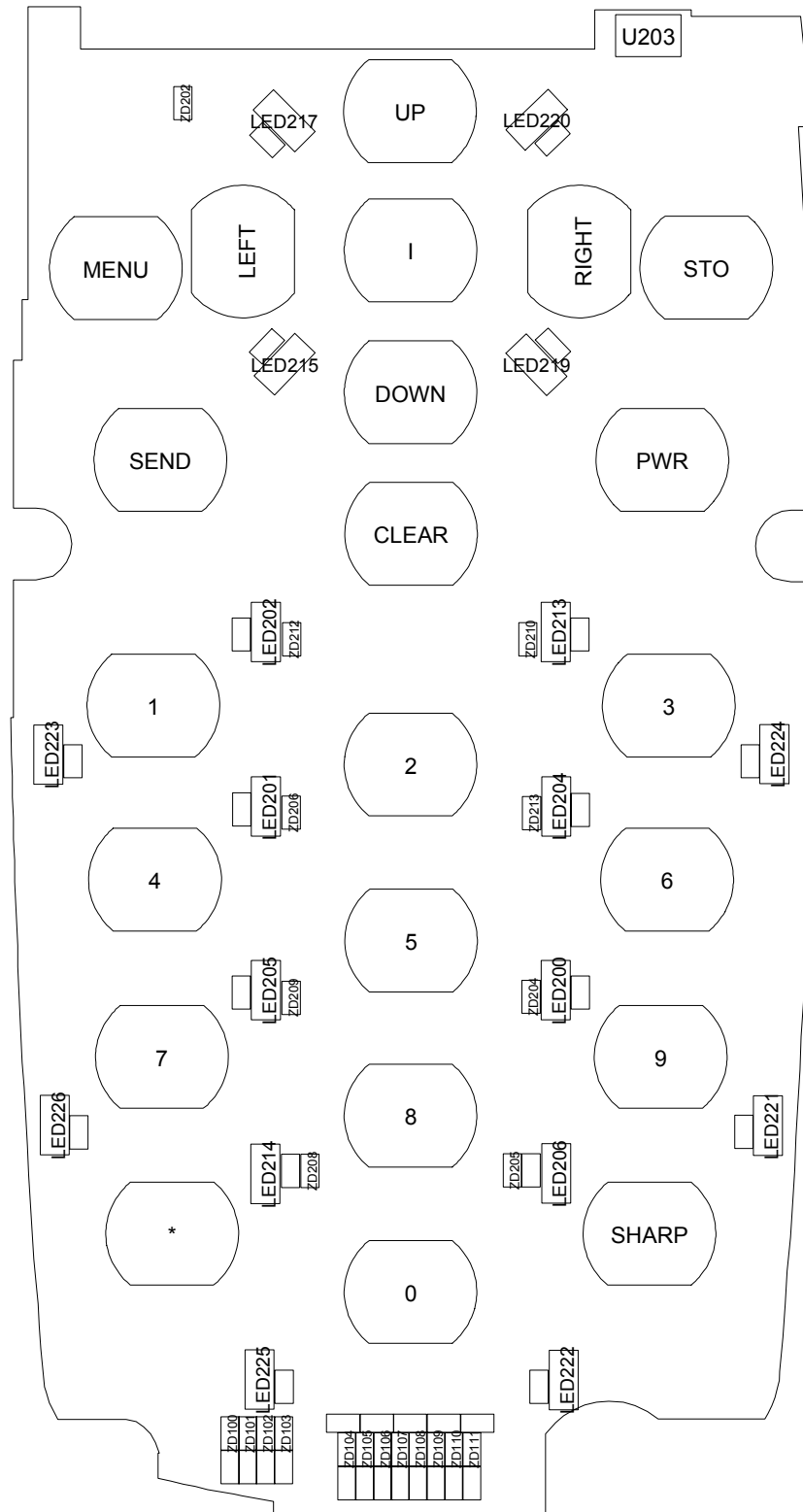
SEC Code	Design LOC	Discription	STATUS
2203-001412	C129	C-CER,CHIP	SA
2203-005065	C168	C-CER,CHIP	SA
2203-005065	C170	C-CER,CHIP	SA
2203-005065	C171	C-CER,CHIP	SA
2203-005065	C172	C-CER,CHIP	SA
2203-005065	C173	C-CER,CHIP	SA
2203-005065	C174	C-CER,CHIP	SA
2203-005234	C103	C-CER,CHIP	SA
2203-005482	C121	C-CER,CHIP	SA
2203-005482	C139	C-CER,CHIP	SA
2203-005482	C155	C-CER,CHIP	SA
2203-005482	C156	C-CER,CHIP	SA
2203-005482	C158	C-CER,CHIP	SA
2203-005482	C180	C-CER,CHIP	SA
2203-005482	C188	C-CER,CHIP	SA
2203-005482	C203	C-CER,CHIP	SA
2203-005482	C211	C-CER,CHIP	SA
2203-005482	C213	C-CER,CHIP	SA
2203-005482	C215	C-CER,CHIP	SA
2203-005482	C218	C-CER,CHIP	SA
2203-005482	C221	C-CER,CHIP	SA
2203-005482	C239	C-CER,CHIP	SA
2203-005682	C113	C-CER,CHIP	SA
2203-005682	C114	C-CER,CHIP	SA
2203-005682	C115	C-CER,CHIP	SA
2203-005682	C116	C-CER,CHIP	SA
2203-005682	C120	C-CER,CHIP	SA
2203-005736	C106	C-CER,CHIP	SA
2203-005736	C107	C-CER,CHIP	SA
2203-005736	C110	C-CER,CHIP	SA
2203-005792	C105	C-CER,CHIP	SA
2203-005792	C109	C-CER,CHIP	SA
2203-006137	C132	C-CER,CHIP	SA
2203-006137	C179	C-CER,CHIP	SA
2203-006137	C202	C-CER,CHIP	SA

SEC Code	Design LOC	Discription	STATUS
2203-006183	C225	C-CER,CHIP	SA
2203-006194	C101	C-CER,CHIP	SA
2203-006194	C146	C-CER,CHIP	SA
2203-006201	C162	C-CER,CHIP	SA
2203-006257	C149	C-CER,CHIP	SA
2203-006260	C205	C-CER,CHIP	SA
2203-006260	C209	C-CER,CHIP	SA
2203-006260	C214	C-CER,CHIP	SA
2203-006260	C224	C-CER,CHIP	SA
2203-006318	C102	C-CER,CHIP	SA
2203-006318	C117	C-CER,CHIP	SA
2203-006318	C118	C-CER,CHIP	SA
2203-006399	C182	C-CER,CHIP	SA
2203-006423	C100	C-CER,CHIP	SA
2203-006423	C112	C-CER,CHIP	SA
2203-006423	C150	C-CER,CHIP	SA
2203-006423	C151	C-CER,CHIP	SA
2203-006438	C222	C-CER,CHIP	SA
2203-006556	C119	C-CER,CHIP	SA
2203-006556	C199	C-CER,CHIP	SA
2203-006626	C130	C-CER,CHIP	SA
2203-006626	C137	C-CER,CHIP	SA
2203-006648	C147	C-CER,CHIP	SA
2404-001225	TA124	C-TA,CHIP	SA
2404-001225	TA126	C-TA,CHIP	SA
2404-001225	TA148	C-TA,CHIP	SA
2404-001225	TA185	C-TA,CHIP	SA
2404-001274	TA123	C-TA,CHIP	SA
2404-001374	C111	C-TA,CHIP	SA
2404-001394	C186	C-TA,CHIP	SA
2404-001394	C187	C-TA,CHIP	SA
2404-001394	TA223	C-TA,CHIP	SA
2703-002203	L113	INDUCTOR-SMD	SA
2703-002313	L101	INDUCTOR-SMD	SA
2703-002484	L106	INDUCTOR-SMD	SA

SEC Code	Design LOC	Discription	STATUS
2703-002485	L104	INDUCTOR-SMD	SA
2703-002558	L110	INDUCTOR-SMD	SA
2703-002603	L105	INDUCTOR-SMD	SA
2703-002767	L201	INDUCTOR-SMD	SA
2703-002842	L100	INDUCTOR-SMD	SA
2703-002842	L111	INDUCTOR-SMD	SA
2801-003856	OSC200	CRYSTAL-SMD	SA
2801-004426	OSC100	CRYSTAL-SMD	SA
2901-001296	F200	FILTER-EMI SMD	SA
2901-001296	F202	FILTER-EMI SMD	SA
2901-001296	F203	FILTER-EMI SMD	SA
2904-001592	F101	FILTER-SAW	SA
2904-001599	F102	FILTER-SAW	SA
3301-001342	L200	BEAD-SMD	SA
3404-001152	TAC201	SWITCH-TACT	SA
3404-001152	TAC202	SWITCH-TACT	SA
3705-001358	RFS100	CONNECTOR-COAXIAL	SA
3709-001384	SIM100	CONNECTOR-CARD EDGE	SA
3710-001611	IFC100	CONNECTOR-INTERFACE	SA
3711-005728	HDC200	HEADER-BOARD TO BOARD	SA
3711-005901	BTC100	CONNECTOR-BATTERY	SA
3722-002067	EAR100	JACK-EAR PHONE	SA
4302-001130	BAT100	BATTERY-LI(2ND)	SA
GH09-00039A	UCP200	IC MICOM	SA
GH71-04302A	ANT	NPR-ANTENNA CONTACT	SA
GH71-04302A	GND	NPR-ANTENNA CONTACT	SA

# 5. SGH-X150 PCB Diagrams







## 6. SGH-X150 Block Diagrams

