

**SAMSUNG**

# GSM TELEPHONE

## SGH-C160L

# ***SERVICE*** *Manual*

### GSM TELEPHONE



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# 1. Safety Precautions

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## 1-1. Repair Precaution

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

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

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

You can prevent from ESD damage by static electricity.

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

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## 2. Specification

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### 2-1. GSM General Specification

|                                    | EGSM 900               | DCS1800                |
|------------------------------------|------------------------|------------------------|
| Freq. Band[MHz]<br>Uplink/Downlink | 880~915<br>925~960     | 1710~1785<br>1805~1880 |
| ARFCN range                        | 0~124 & 975~1023       | 512~885                |
| Tx/Rx spacing                      | 45MHz                  | 95MHz                  |
| Mod. Bit rate/<br>Bit Period       | 270.833kbps<br>3.692us | 270.833kbps<br>3.692us |
| Time Slot Period/Frame Period      | 576.9us<br>4.615ms     | 576.9us<br>4.615ms     |
| Modulation                         | 0.3GMSK                | 0.3GMSK                |
| MS Power                           | 33dBm~5dBm             | 30dBm~0dBm             |
| Power Class                        | 4<br>(max +33dBm)      | 1<br>(max +30dBm)      |
| Sensitivity                        | -102dBm                | -100dBm                |
| TDMA Mux                           | 8                      | 8                      |
| Cell Radius                        | 35Km                   | 2Km                    |

## 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  |

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### 3. Operation Instruction and Installation

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#### Main Function

DC-Jack TA (700mA)

No Java

MMS (30K)

WAP 2.0

10 Poly S/W MIDI

Dual band(900/1800MHz)

GPRS Class 10



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## 4. Array course control

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### 4-1. Software Adjustments



1. JIG Box: Download, Trace, Calibration, etc
2. RF test cable: RF test
3. Test cable: JIG to phone
4. Serial cable: PC to JIG
5. TA (Travel Adaptor)
6. Download JIG: Download, Calibration

## 4-2. Software Downloading

### 4-2-1. Downloading Binary Files

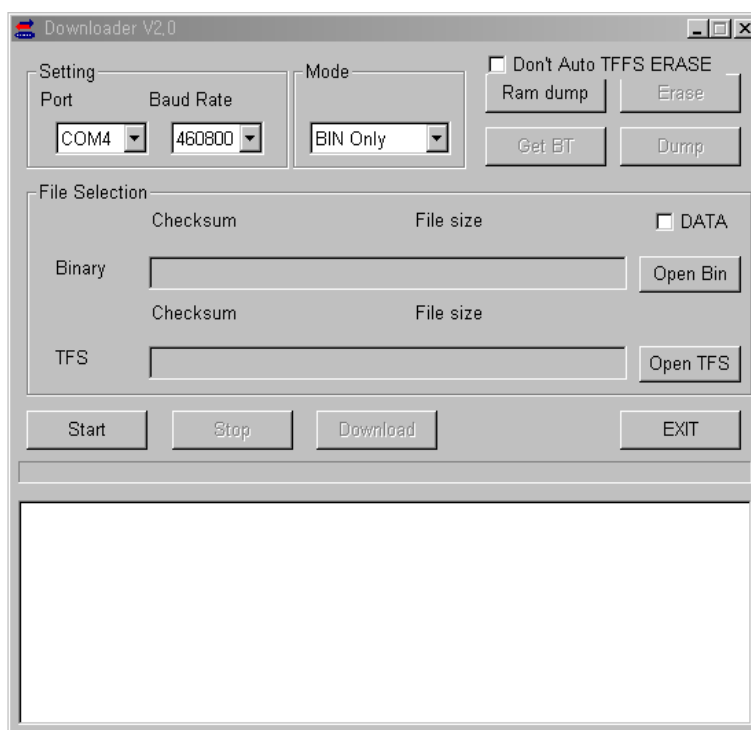
- 2 binary files for downloading C160L.
  - C160XAFK4.cla
  - C160XAFK4.tfs

### 4-2-2. Pre-requisite for Downloading

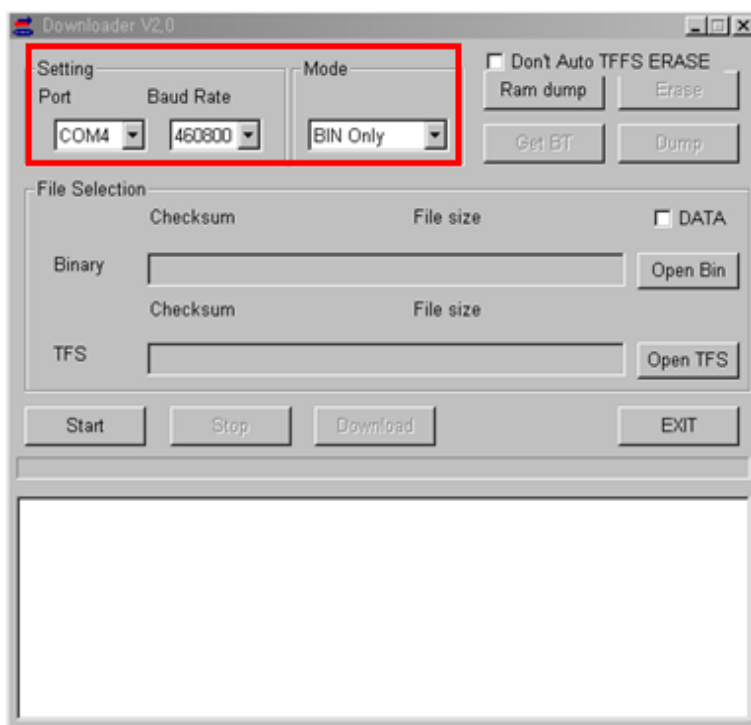
- Downloader Program([Virtuous 64X32 Downloader v2.exe](#))
- SGH-C160L Mobile Phone
- JIG BOX
- Download JIG
- Test Cable
- Serial Cable
- Binary files

### 4-2-3. S/W Downloader Program

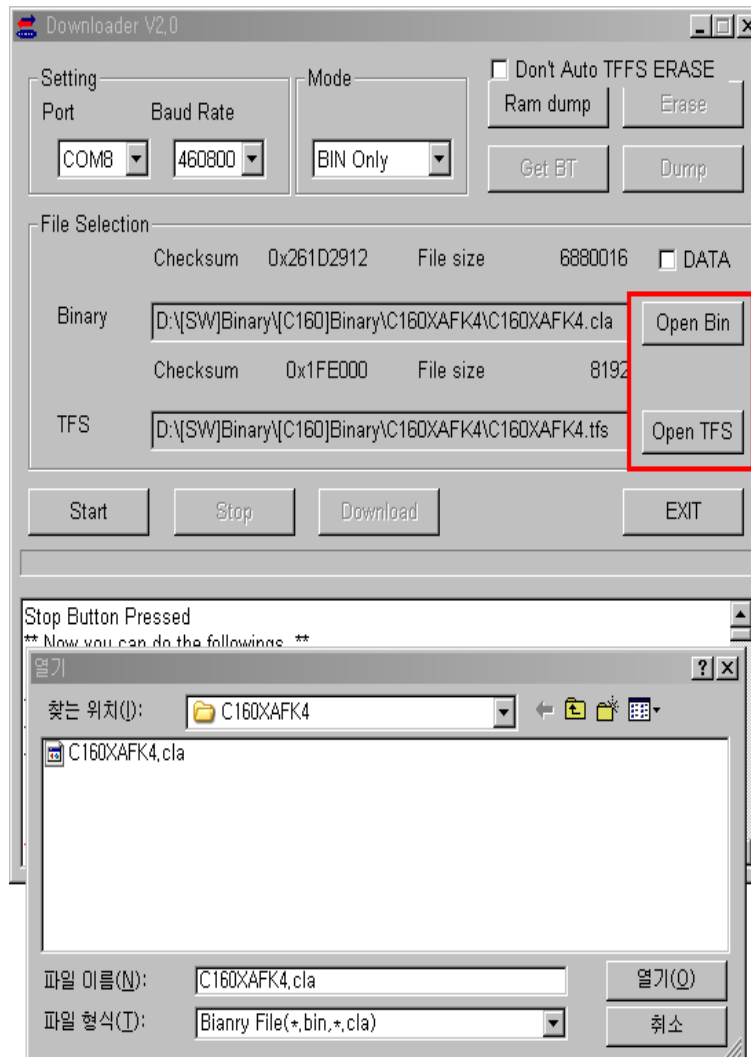
1. Load the binary download program by executing the “**Virtuous 64X32 Downloader v2.exe**”.



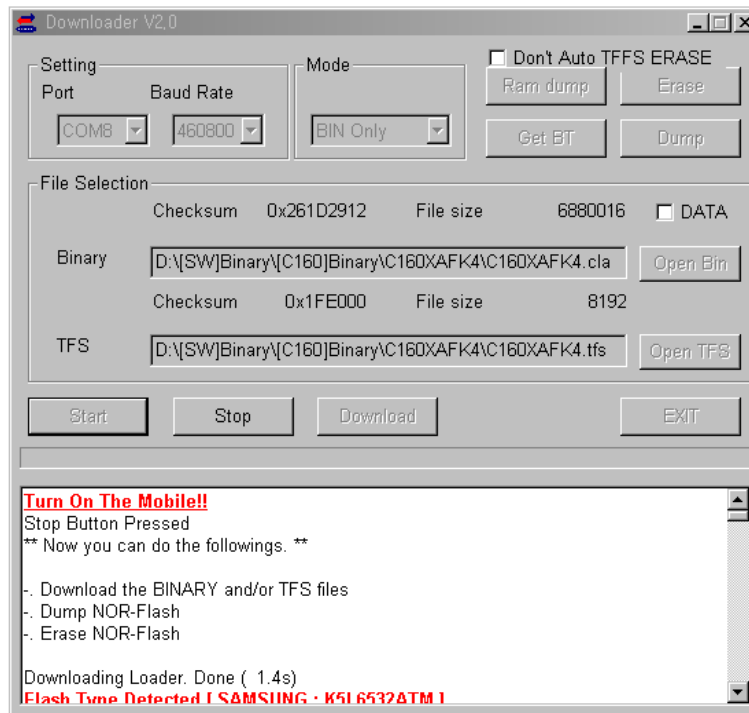
2. Select the Port, Baud Rate and Mode.



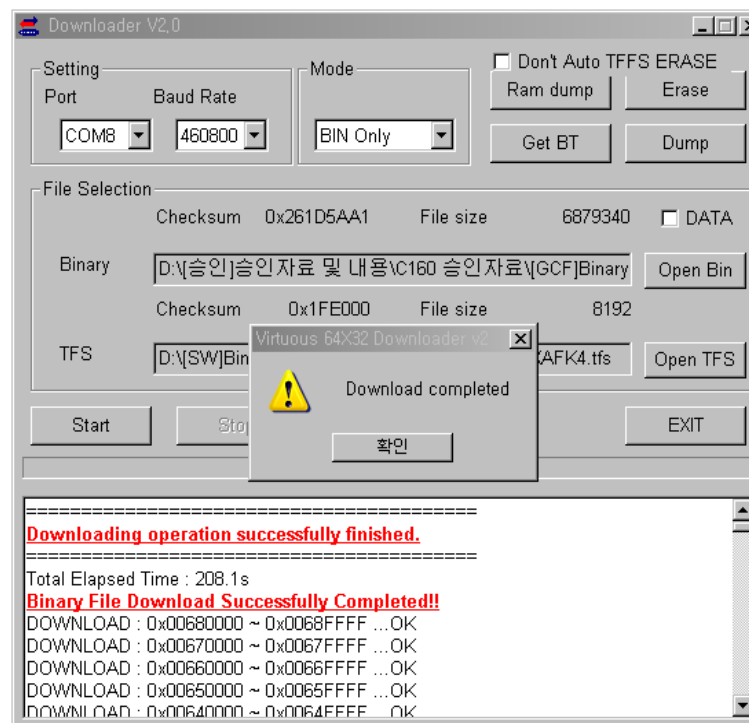
### 3. Select the binary files what you want to download



#### 4. Press the "Start" button and connect the Handset



#### 5. When downloading is complete, automatically the small window was showed up..



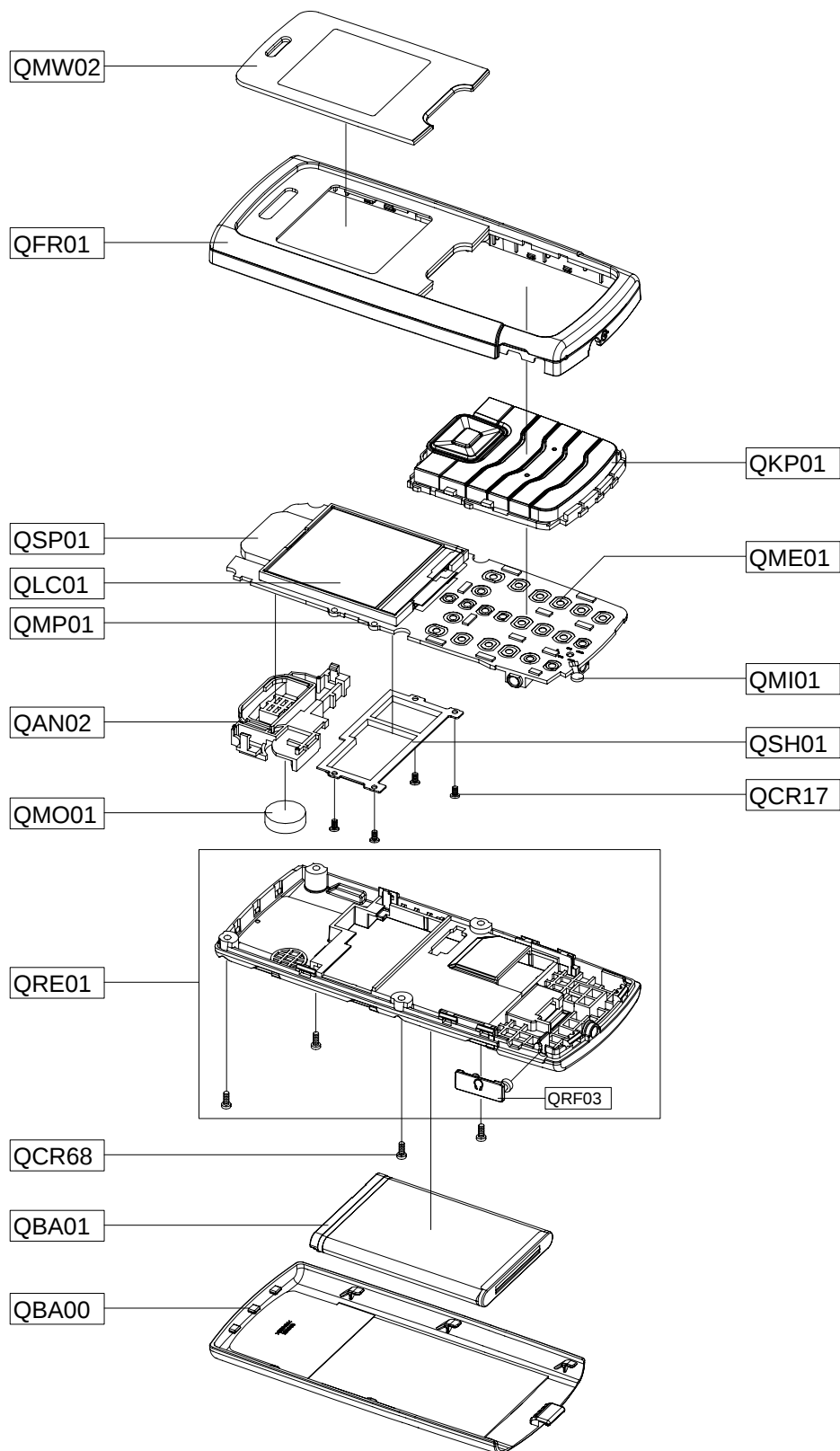


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## 5. Exploded View/Disassembly&Assembly Instructions

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### 5-1. Cellular phone Exploded View



## 5-2. Cellular phone Parts list

| Design LOC |       | Description                   | Sec Code    |
|------------|-------|-------------------------------|-------------|
| QAN02      |       | INTENNA-SGHC160               | GH42-01137A |
| QBA00      |       | PMO-COVER BATTERY V3          | GH72-37763H |
| QBA01      |       | INNER BATTERY PACK-750MAH BLK | GH43-02489A |
| QCR17      |       | SCREW-MACHINE                 | 6001-001460 |
| QCR68      |       | SCREW-TAPPING                 | 6002-001399 |
| QFR01      |       | ASSY CASE-FRONT               | GH98-03095H |
| QKP01      |       | ASSY KEYPAD-(CHE/BLK)         | GH98-03719A |
| QLC01      |       | LCD-LCD MODULE                | GH07-01056A |
| QME01      |       | UNIT-METAL DOME               | GH59-03976A |
| QMI01      |       | MICROPHONE-ASSY-SGHC160       | GH30-00177H |
| QMO01      |       | MOTOR DC-SGHC160              | GH31-00296A |
| QMP01      |       | A/S ASSY-PBA MAIN             | GH82-02348A |
| QMW02      |       | PCT-COVER MAIN WINDOW V3      | GH72-37764A |
| QSH01      |       | ASSY BRACKET-SHIELD CAN       | GH98-04066A |
| QSP01      |       | SPEAKER                       | 3001-002100 |
| QRE01      |       | ASSY CASE-REAR                | GH98-03096B |
|            | QRF03 | PMO-COVER EAR V3              | GH72-37762B |

| <b>Description</b>         | <b>Sec Code</b> |
|----------------------------|-----------------|
| BAG PE                     | 6902-000634     |
| ADAPTOR-SGHC266, MEXC ,BLK | GH44-01632A     |
| LABEL(R)-WATER SOAK        | GH68-09361A     |
| LABEL(P)-MIAMI             | GH68-12219A     |
| LABEL(R)-MAIN(LTN)         | GH68-14194H     |
| MANUAL USERS-LTN ENGLISH   | GH68-14402A     |
| MANUAL USERS-LTN SPANISH   | GH68-14403A     |
| BOX-UNIT(LTN)              | GH69-05175H     |
| MPR-TAPE MAIN WINDOW       | GH74-29030A     |
| MPR-VINYL BOHO FRONT       | GH74-31440A     |
| MPR-VINYL BOHO WINDOW      | GH74-31711A     |

## 5-3. Disassembly and Assembly Instructions

### 5-3-1. Disassembly

1

1) Unfasten rear 4 screws.



Notice 1)

Don't leave any scratch or spot on structure.

2

1) After disassemble both side lockers, separate the FRONT & REAR.



Notice 1)

Don't leave any scratch or spot on structure.

3

Disassemble a locker on PBA.



Notice 1)

Don't damage any parts.

4

Disassemble a speaker using tweezers.



Notice 1)

Don't damage speaker & wire.

### 5-3-2. Assembly

1

1) Reach in good condition a KEYPAD on FRONT structure.



Notice 1)

Reach in good condition holes around the 3\*4 KET on FRONT structure.

2

1) Insert speaker & LCD on FRONT structure.



Notice 1)

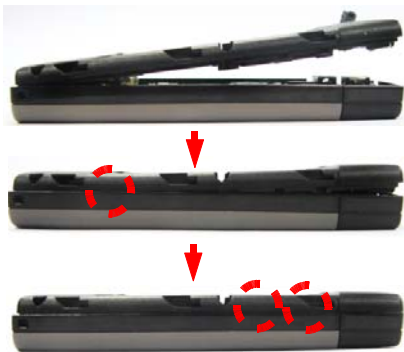
Don't stain any bow on LCD.

Notice 2)

Don't be down the speaker wire.

3

1) After pull out the earjack cover, assemble first the top & after the lower locker.



Notice 1)

Don't leave any scratch or spot on structure.

4

1) Fasten rear 4 screws.



Notice 1)

Don't leave any scratch or spot on structure.



## 6. MAIN Electrical Parts List

| Design LOC | Description    | SEC Code    | STATUS |
|------------|----------------|-------------|--------|
| BAT300     | HEADER-BATTERY | 3711-006228 | SA     |
| C100       | C-CER,CHIP     | 2203-005050 | SA     |
| C102       | C-CER,CHIP     | 2203-000425 | SA     |
| C103       | C-CER,CHIP     | 2203-006048 | SA     |
| C104       | C-CER,CHIP     | 2203-005444 | SA     |
| C105       | C-CER,CHIP     | 2203-006361 | SA     |
| C106       | C-CER,CHIP     | 2203-000812 | SA     |
| C107       | C-CER,CHIP     | 2203-000812 | SA     |
| C108       | C-CER,CHIP     | 2203-000812 | SA     |
| C109       | C-CER,CHIP     | 2203-000489 | SA     |
| C110       | C-CER,CHIP     | 2203-000278 | SA     |
| C111       | C-CER,CHIP     | 2203-000854 | SA     |
| C112       | C-CER,CHIP     | 2203-000278 | SA     |
| C113       | C-CER,CHIP     | 2203-001607 | SA     |
| C114       | C-CER,CHIP     | 2203-001259 | SA     |
| C115       | C-CER,CHIP     | 2203-001397 | SA     |
| C116       | C-CER,CHIP     | 2203-001259 | SA     |
| C117       | C-CER,CHIP     | 2203-001017 | SA     |
| C118       | C-CER,CHIP     | 2203-006048 | SA     |
| C119       | C-CER,CHIP     | 2203-006048 | SA     |
| C120       | C-CER,CHIP     | 2203-000233 | SA     |
| C121       | C-CER,CHIP     | 2203-000854 | SA     |
| C122       | C-CER,CHIP     | 2203-000278 | SA     |
| C123       | C-CER,CHIP     | 2203-006562 | SA     |
| C125       | C-CER,CHIP     | 2203-001153 | SA     |
| C126       | C-CER,CHIP     | 2203-000254 | SA     |
| C127       | C-CER,CHIP     | 2203-005234 | SA     |
| C128       | C-CER,CHIP     | 2203-000233 | SA     |
| C129       | C-CER,CHIP     | 2203-005446 | SA     |
| C130       | C-CER,CHIP     | 2203-005446 | SA     |
| C131       | C-CER,CHIP     | 2203-005446 | SA     |
| C132       | C-CER,CHIP     | 2203-001153 | SA     |
| C133       | C-CER,CHIP     | 2203-000254 | SA     |
| C134       | C-CER,CHIP     | 2203-000278 | SA     |
| C135       | C-CER,CHIP     | 2203-000854 | SA     |
| C136       | C-CER,CHIP     | 2203-000679 | SA     |
| C137       | C-CER,CHIP     | 2203-000278 | SA     |
| C138       | C-CER,CHIP     | 2203-006681 | SA     |
| C139       | C-CER,CHIP     | 2203-005234 | SA     |
| C140       | C-CER,CHIP     | 2203-000995 | SA     |
| C143       | C-CER,CHIP     | 2203-005234 | SA     |
| C144       | C-CER,CHIP     | 2203-000679 | SA     |
| C145       | C-CER,CHIP     | 2203-000995 | SA     |
| C146       | C-CER,CHIP     | 2203-005050 | SA     |
| C201       | C-CER,CHIP     | 2203-006562 | SA     |
| C202       | C-CER,CHIP     | 2203-005061 | SA     |
| C203       | C-CER,CHIP     | 2203-005061 | SA     |
| C204       | C-CER,CHIP     | 2203-005061 | SA     |
| C205       | C-CER,CHIP     | 2203-005061 | SA     |
| C206       | C-CER,CHIP     | 2203-000254 | SA     |
| C207       | C-CER,CHIP     | 2203-005061 | SA     |
| C208       | C-CER,CHIP     | 2203-005061 | SA     |
| C209       | C-CER,CHIP     | 2203-000254 | SA     |

| Design LOC | Description | SEC Code    | STATUS |
|------------|-------------|-------------|--------|
| C210       | C-CER,CHIP  | 2203-000254 | SA     |
| C211       | C-CER,CHIP  | 2203-005482 | SA     |
| C212       | C-CER,CHIP  | 2203-005482 | SA     |
| C213       | C-CER,CHIP  | 2203-000854 | SA     |
| C214       | C-CER,CHIP  | 2203-000679 | SA     |
| C216       | C-CER,CHIP  | 2203-005483 | SA     |
| C217       | R-CHIP      | 2007-000172 | SA     |
| C218       | R-CHIP      | 2007-000172 | SA     |
| C219       | C-CER,CHIP  | 2203-005482 | SA     |
| C301       | C-CER,CHIP  | 2203-005061 | SA     |
| C302       | C-CER,CHIP  | 2203-005061 | SA     |
| C303       | C-CER,CHIP  | 2203-005061 | SA     |
| C306       | C-CER,CHIP  | 2203-000679 | SA     |
| C307       | C-CER,CHIP  | 2203-005061 | SA     |
| C308       | C-CER,CHIP  | 2203-000425 | SA     |
| C310       | C-CER,CHIP  | 2203-000812 | SA     |
| C311       | C-CER,CHIP  | 2203-005061 | SA     |
| C312       | C-CER,CHIP  | 2203-000679 | SA     |
| C316       | C-CER,CHIP  | 2203-005482 | SA     |
| C319       | C-CER,CHIP  | 2203-000425 | SA     |
| C320       | C-CER,CHIP  | 2203-001153 | SA     |
| C321       | C-CER,CHIP  | 2203-005482 | SA     |
| C324       | C-CER,CHIP  | 2203-001153 | SA     |
| C325       | C-CER,CHIP  | 2203-000254 | SA     |
| C326       | C-CER,CHIP  | 2203-001405 | SA     |
| C328       | C-CER,CHIP  | 2203-001153 | SA     |
| C401       | C-CER,CHIP  | 2203-005482 | SA     |
| C402       | C-CER,CHIP  | 2203-000278 | SA     |
| C403       | C-CER,CHIP  | 2203-006257 | SA     |
| C404       | C-CER,CHIP  | 2203-000330 | SA     |
| C406       | C-TA,CHIP   | 2404-001381 | SA     |
| C407       | C-CER,CHIP  | 2203-000812 | SA     |
| C408       | C-CER,CHIP  | 2203-006348 | SA     |
| C409       | C-CER,CHIP  | 2203-006681 | SA     |
| C410       | C-CER,CHIP  | 2203-006348 | SA     |
| C412       | C-CER,CHIP  | 2203-006208 | SA     |
| C413       | C-CER,CHIP  | 2203-006562 | SA     |
| C414       | C-CER,CHIP  | 2203-006208 | SA     |
| C415       | C-CER,CHIP  | 2203-006257 | SA     |
| C416       | C-CER,CHIP  | 2203-006257 | SA     |
| C418       | C-CER,CHIP  | 2203-006825 | SA     |
| C419       | C-CER,CHIP  | 2203-005482 | SA     |
| C422       | C-CER,CHIP  | 2203-006257 | SA     |
| C423       | C-CER,CHIP  | 2203-006208 | SA     |
| C424       | C-CER,CHIP  | 2203-006257 | SA     |
| C425       | C-CER,CHIP  | 2203-006257 | SA     |
| C426       | C-CER,CHIP  | 2203-005482 | SA     |
| C432       | C-CER,CHIP  | 2203-005061 | SA     |
| C434       | C-CER,CHIP  | 2203-000812 | SA     |
| C500       | C-CER,CHIP  | 2203-006137 | SA     |
| C503       | C-CER,CHIP  | 2203-005480 | SA     |
| C504       | C-CER,CHIP  | 2203-005480 | SA     |
| C505       | C-CER,CHIP  | 2203-006260 | SA     |

| Design LOC | Description    | SEC Code    | STATUS |
|------------|----------------|-------------|--------|
| C506       | C-CER,CHIP     | 2203-006562 | SA     |
| C507       | C-CER,CHIP     | 2203-006562 | SA     |
| C508       | C-CER,CHIP     | 2203-006562 | SA     |
| C509       | C-CER,CHIP     | 2203-006562 | SA     |
| C510       | C-CER,CHIP     | 2203-006562 | SA     |
| C511       | C-CER,CHIP     | 2203-006562 | SA     |
| C512       | C-CER,CHIP     | 2203-006824 | SA     |
| C513       | C-CER,CHIP     | 2203-006562 | SA     |
| C514       | C-CER,CHIP     | 2203-000311 | SA     |
| C515       | C-NETWORK      | 2503-001053 | SA     |
| C516       | C-NETWORK      | 2503-001053 | SA     |
| C517       | C-NETWORK      | 2503-001053 | SA     |
| C518       | C-NETWORK      | 2503-001053 | SA     |
| C519       | C-CER,CHIP     | 2203-006137 | SA     |
| D301       | DIODE-TVS      | 0406-001150 | SA     |
| D400       | DIODE-ARRAY    | 0407-001002 | SA     |
| D501       | DIODE-TVS      | 0406-001223 | SA     |
| D502       | DIODE-TVS      | 0406-001223 | SA     |
| DCJ301     | JACK-DC POWER  | 3722-002433 | SA     |
| EAR300     | JACK-EAR PHONE | 3722-002010 | SA     |
| F101       | FILTER-SAW     | 2904-001753 | SA     |
| F500       | FILTER-EMI SMD | 2901-001329 | SA     |
| L100       | INDUCTOR-SMD   | 2703-002700 | SA     |
| L102       | INDUCTOR-SMD   | 2703-001180 | SA     |
| L103       | INDUCTOR-SMD   | 2703-002313 | SA     |
| L104       | INDUCTOR-SMD   | 2703-002313 | SA     |
| L105       | INDUCTOR-SMD   | 2703-002313 | SA     |
| L106       | INDUCTOR-SMD   | 2703-002313 | SA     |
| L107       | INDUCTOR-SMD   | 2703-002199 | SA     |
| L108       | INDUCTOR-SMD   | 2703-002199 | SA     |
| L109       | INDUCTOR-SMD   | 2703-002170 | SA     |
| L110       | INDUCTOR-SMD   | 2703-002313 | SA     |
| L111       | INDUCTOR-SMD   | 2703-002586 | SA     |
| L113       | INDUCTOR-SMD   | 2703-002586 | SA     |
| L114       | INDUCTOR-SMD   | 2703-002314 | SA     |
| L115       | INDUCTOR-SMD   | 2703-002203 | SA     |
| L116       | INDUCTOR-SMD   | 2703-002309 | SA     |
| L117       | INDUCTOR-SMD   | 2703-002309 | SA     |
| L118       | INDUCTOR-SMD   | 2703-002309 | SA     |
| L119       | INDUCTOR-SMD   | 2703-002203 | SA     |
| L120       | INDUCTOR-SMD   | 2703-002204 | SA     |
| L121       | INDUCTOR-SMD   | 2703-002268 | SA     |
| L122       | INDUCTOR-SMD   | 2703-002206 | SA     |
| L123       | INDUCTOR-SMD   | 2703-002267 | SA     |
| L124       | INDUCTOR-SMD   | 2703-002200 | SA     |
| L125       | INDUCTOR-SMD   | 2703-002206 | SA     |
| L126       | INDUCTOR-SMD   | 2703-002268 | SA     |
| L301       | BEAD-SMD       | 3301-001729 | SA     |
| L302       | BEAD-SMD       | 3301-001729 | SA     |
| L304       | BEAD-SMD       | 3301-001729 | SA     |
| L305       | BEAD-SMD       | 3301-001729 | SA     |
| L308       | BEAD-SMD       | 3301-001729 | SA     |
| L309       | BEAD-SMD       | 3301-001729 | SA     |

| Design LOC | Description  | SEC Code    | STATUS |
|------------|--------------|-------------|--------|
| L310       | BEAD-SMD     | 3301-001729 | SA     |
| L311       | BEAD-SMD     | 3301-001729 | SA     |
| L312       | BEAD-SMD     | 3301-001729 | SA     |
| L313       | BEAD-SMD     | 3301-001729 | SA     |
| L401       | INDUCTOR-SMD | 2703-002308 | SA     |
| L402       | INDUCTOR-SMD | 2703-002308 | SA     |
| L500       | INDUCTOR-SMD | 2703-002313 | SA     |
| L501       | INDUCTOR-SMD | 2703-002313 | SA     |
| LED301     | LED          | 0601-002199 | SA     |
| LED302     | LED          | 0601-002199 | SA     |
| LED303     | LED          | 0601-002199 | SA     |
| LED304     | LED          | 0601-002199 | SA     |
| LED305     | LED          | 0601-002199 | SA     |
| LED306     | LED          | 0601-002199 | SA     |
| LED307     | LED          | 0601-002199 | SA     |
| LED308     | LED          | 0601-002199 | SA     |
| LED309     | LED          | 0601-002199 | SA     |
| LED310     | LED          | 0601-002199 | SA     |
| LED311     | LED          | 0601-002199 | SA     |
| OSC400     | CRYSTAL-SMD  | 2801-003856 | SA     |
| PAM101     | IC-POWER AMP | 1201-002490 | SA     |
| R102       | R-CHIP       | 2007-007092 | SA     |
| R103       | R-CHIP       | 2007-000982 | SA     |
| R104       | R-CHIP       | 2007-007316 | SA     |
| R105       | R-CHIP       | 2007-000171 | SA     |
| R106       | R-CHIP       | 2007-000566 | SA     |
| R107       | C-CER,CHIP   | 2203-000854 | SA     |
| R108       | R-CHIP       | 2007-000148 | SA     |
| R109       | INDUCTOR-SMD | 2703-002281 | SA     |
| R110       | R-CHIP       | 2007-000566 | SA     |
| R111       | R-CHIP       | 2007-003001 | SA     |
| R112       | R-CHIP       | 2007-000932 | SA     |
| R113       | R-CHIP       | 2007-000932 | SA     |
| R114       | R-CHIP       | 2007-000171 | SA     |
| R115       | R-CHIP       | 2007-003001 | SA     |
| R116       | R-CHIP       | 2007-000143 | SA     |
| R117       | R-CHIP       | 2007-000143 | SA     |
| R118       | R-CHIP       | 2007-000932 | SA     |
| R119       | R-CHIP       | 2007-000932 | SA     |
| R120       | R-CHIP       | 2007-000143 | SA     |
| R121       | R-CHIP       | 2007-000143 | SA     |
| R122       | R-CHIP       | 2007-000171 | SA     |
| R123       | R-CHIP       | 2007-000141 | SA     |
| R124       | R-CHIP       | 2007-000148 | SA     |
| R210       | R-CHIP       | 2007-000174 | SA     |
| R211       | R-CHIP       | 2007-000171 | SA     |
| R212       | R-CHIP       | 2007-000162 | SA     |
| R214       | R-CHIP       | 2007-007107 | SA     |
| R215       | R-CHIP       | 2007-000159 | SA     |
| R216       | R-CHIP       | 2007-007142 | SA     |
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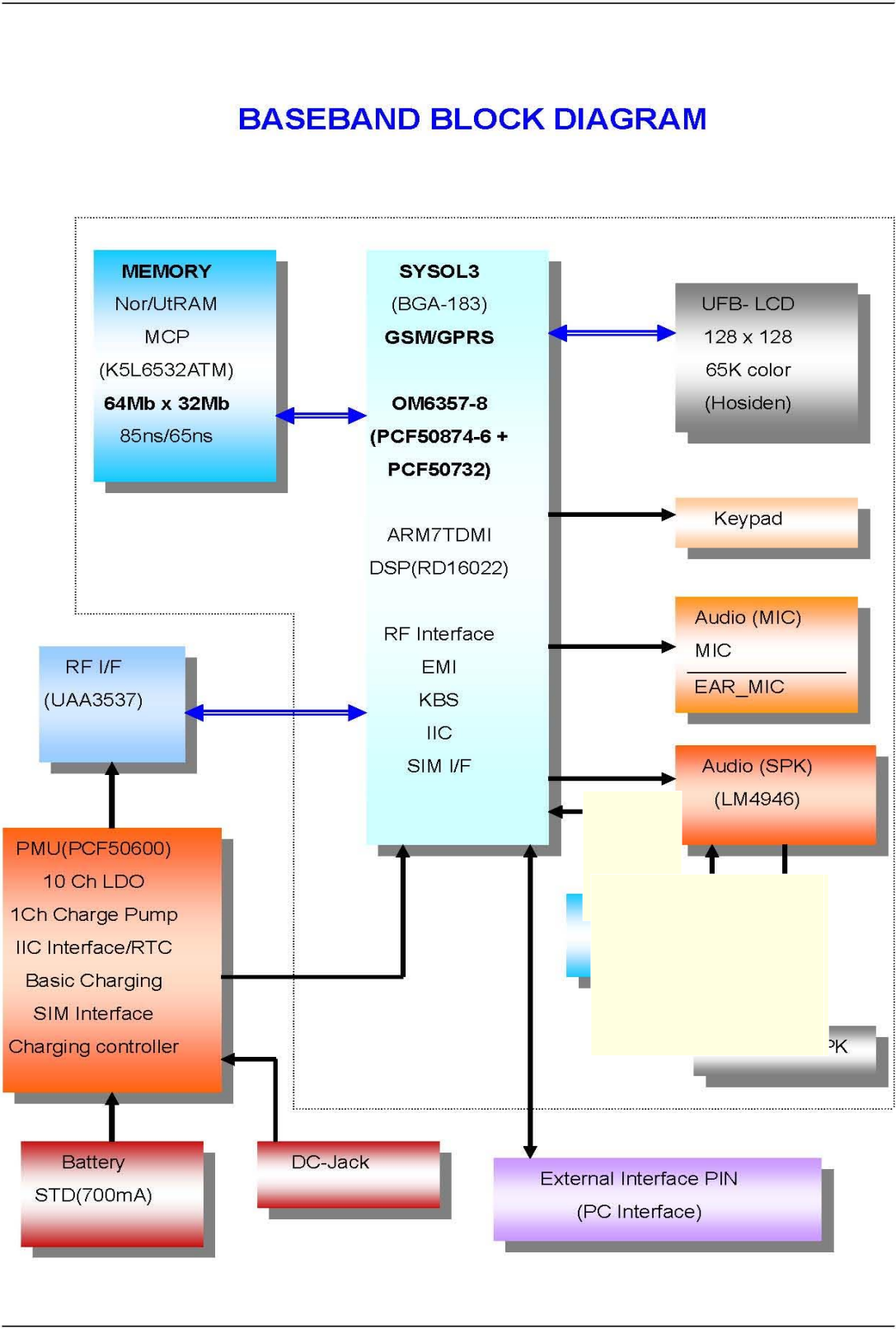
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|------------|-------------|-------------|--------|
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| R302       | R-CHIP      | 2007-000171 | SA     |
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| R323       | R-CHIP      | 2007-000140 | SA     |
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| R325       | R-CHIP      | 2007-002796 | SA     |
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| R327       | R-CHIP      | 2007-000140 | SA     |
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| R332       | R-CHIP      | 2007-003004 | SA     |
| R333       | R-CHIP      | 2007-001288 | SA     |
| R334       | R-CHIP      | 2007-003030 | SA     |
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| R348       | R-CHIP      | 2007-001317 | SA     |
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| R402       | R-CHIP      | 2007-000170 | SA     |
| R403       | R-CHIP      | 2007-007869 | SA     |
| R407       | R-CHIP      | 2007-000171 | SA     |
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| R417       | R-CHIP      | 2007-007334 | SA     |
| R426       | R-CHIP      | 2007-000148 | SA     |
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| Design LOC | Description         | SEC Code    | STATUS |
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| R511       | R-CHIP              | 2007-007142 | SA     |
| R513       | R-CHIP              | 2007-000155 | SA     |
| R517       | R-CHIP              | 2007-000172 | SA     |
| R518       | R-CHIP              | 2007-000172 | SA     |
| RFS101     | CONNECTOR-COAXIAL   | 3705-001358 | SA     |
| SIM400     | CONNECTOR-CARD EDGE | 3709-001400 | SA     |
| TA101      | C-TA,CHIP           | 2404-001449 | SA     |
| TA301      | C-TA,CHIP           | 2404-001424 | SA     |
| TA401      | C-TA,CHIP           | 2404-001381 | SA     |
| TA402      | C-TA,CHIP           | 2404-001381 | SA     |
| TCX101     | OSCILLATOR-VCTCXO   | 2809-001307 | SA     |
| TH200      | THERMISTOR-NTC      | 1404-001221 | SA     |
| TR400      | TR-POWER            | 0502-001116 | SA     |
| U100       | IC-TRANSCEIVER      | 1205-002689 | SA     |
| U301       | IC-VOLTAGE COMP.    | 1202-001068 | SA     |
| U400       | IC-POWER SUPERVISOR | 1203-004550 | SA     |
| U401       | IC-POS.FIXED REG.   | 1203-004338 | SA     |
| U500       | IC-DC/DC CONVERTER  | 1203-003708 | SA     |
| U502       | IC-AUDIO AMP        | 1201-002494 | SA     |
| U503       | FET-SILICON         | 0505-001469 | SA     |
| U505       | IC-ANALOG MULTIPLEX | 1001-001349 | SA     |
| U507       | R-CHIP              | 2007-000171 | SA     |
| U508       | R-CHIP              | 2007-007101 | SA     |
| UCP200     | IC-COMM. CONTROLLER | 1205-003192 | SA     |
| UME300     | IC-MCP              | 1108-000103 | SA     |
| VR300      | VARISTOR            | 1405-001082 | SA     |
| VR303      | DIODE-TVS           | 0406-001223 | SA     |
| VR304      | DIODE-TVS           | 0406-001223 | SA     |
| VR401      | VARISTOR            | 1405-001082 | SA     |
| VR500      | VARISTOR            | 1405-001082 | SA     |
| VR501      | VARISTOR            | 1405-001082 | SA     |
| VR502      | VARISTOR            | 1405-001082 | SA     |
| VR503      | VARISTOR            | 1405-001082 | SA     |
| VR504      | VARISTOR            | 1405-001082 | SA     |
| VR505      | VARISTOR            | 1405-001082 | SA     |
| VR506      | VARISTOR            | 1405-001082 | SA     |
| VR507      | VARISTOR            | 1405-001082 | SA     |
| VR508      | VARISTOR            | 1405-001082 | SA     |
| ZD300      | DIODE-ZENER         | 0403-001547 | SA     |
| ZD301      | DIODE-TVS           | 0406-001104 | SA     |
| ZD302      | DIODE-TVS           | 0406-001254 | SA     |
| ZD303      | DIODE-TVS           | 0406-001254 | SA     |
| ZD400      | DIODE-ZENER         | 0403-001340 | SA     |

## 7-1. RF Solution Block Diagram

[illegible]

7-2. Base Band Solution Block Diagram

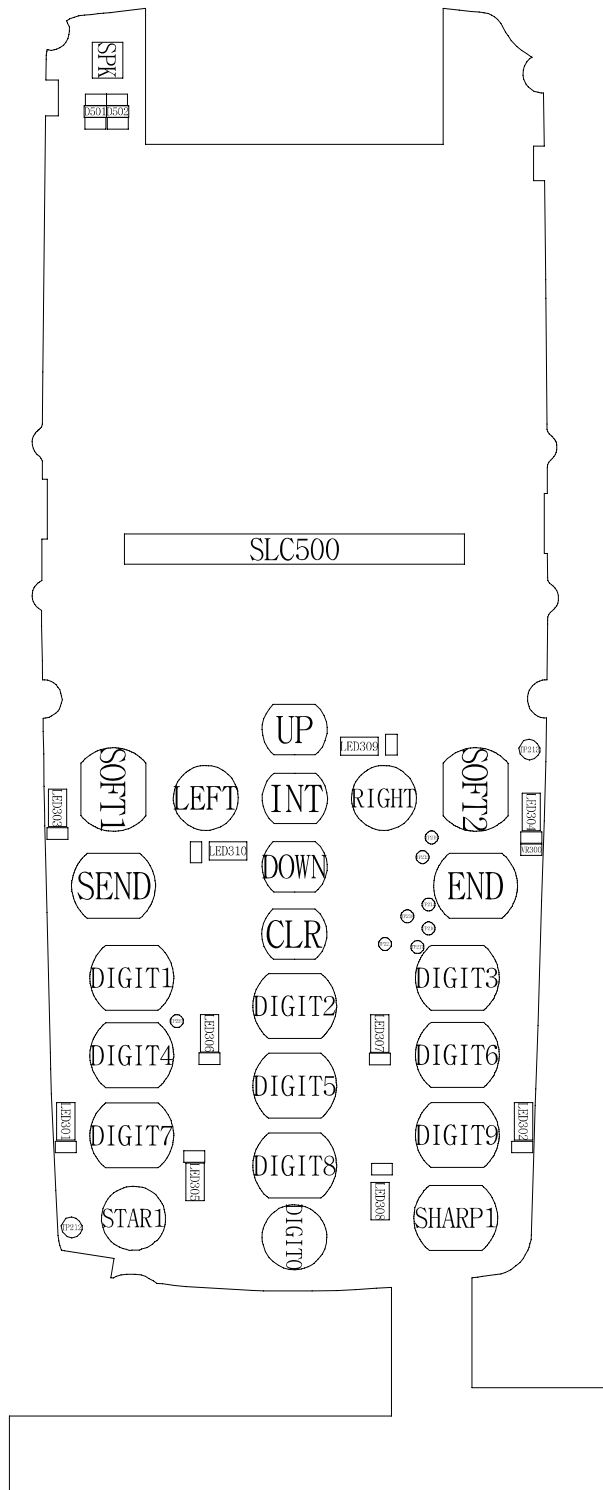


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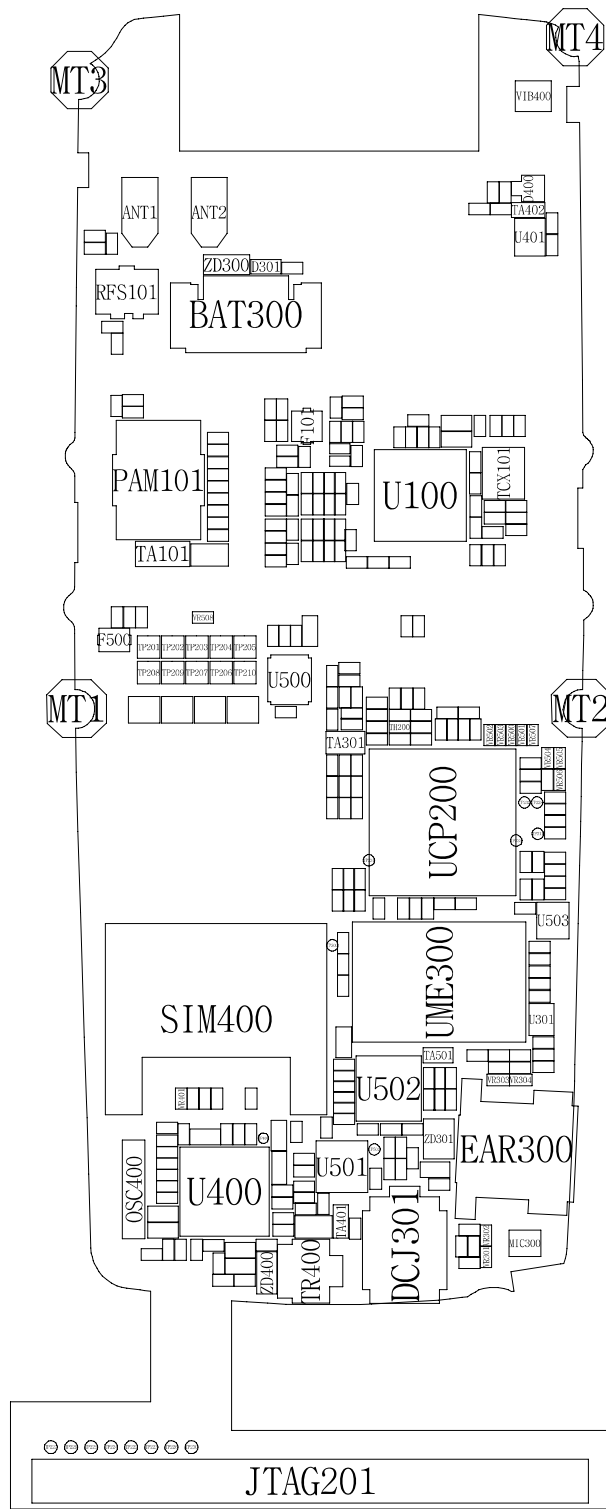
## 8. PCB Diagrams

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Top



## Bottom

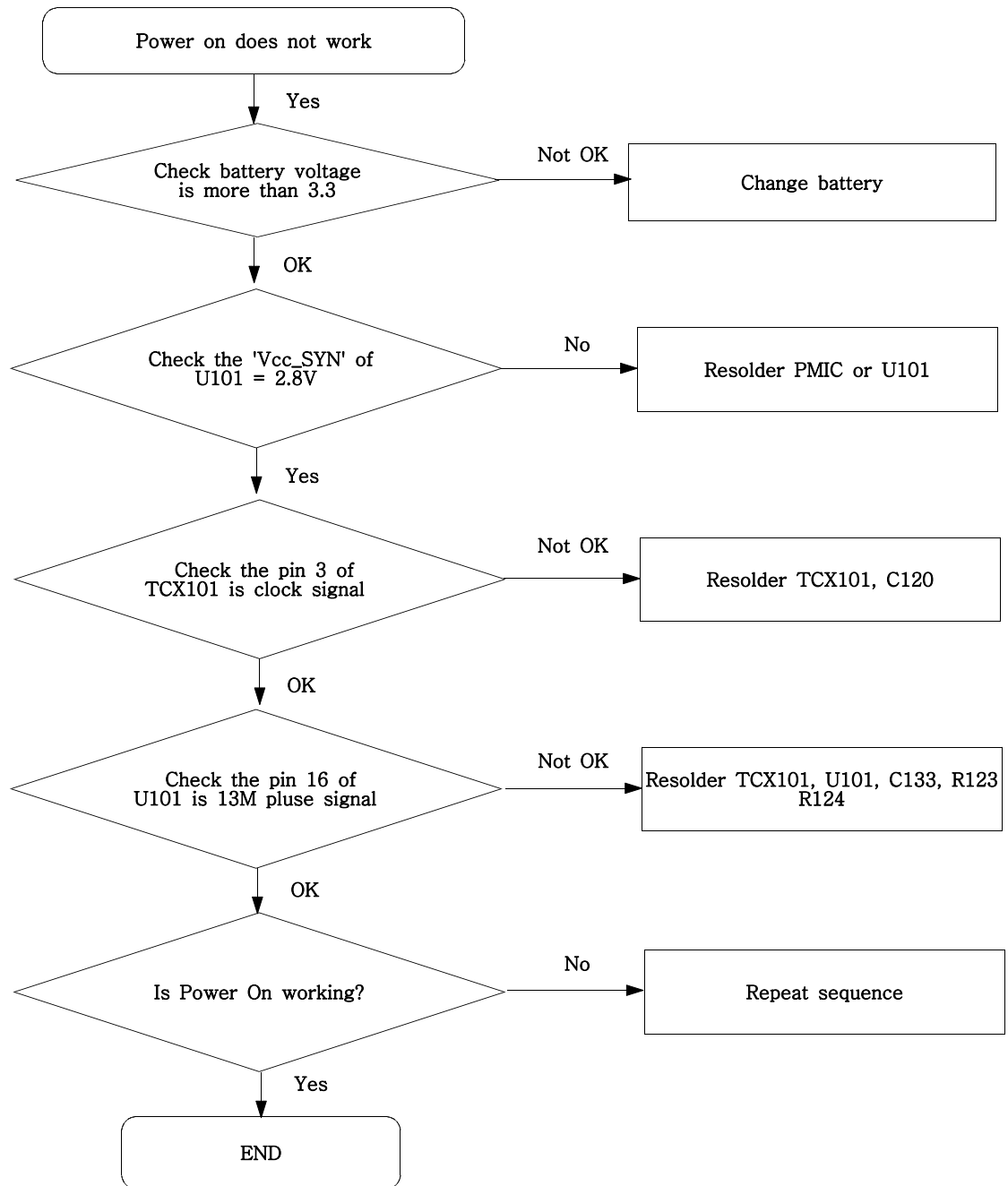


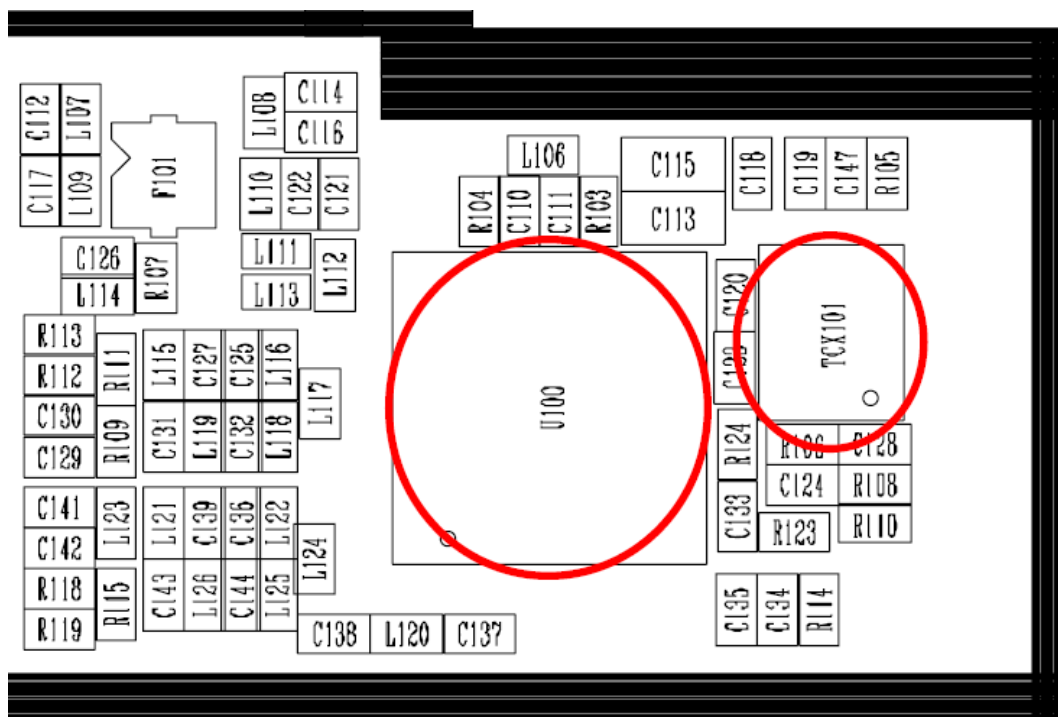
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## 9. Flow Chart of Troubleshooting

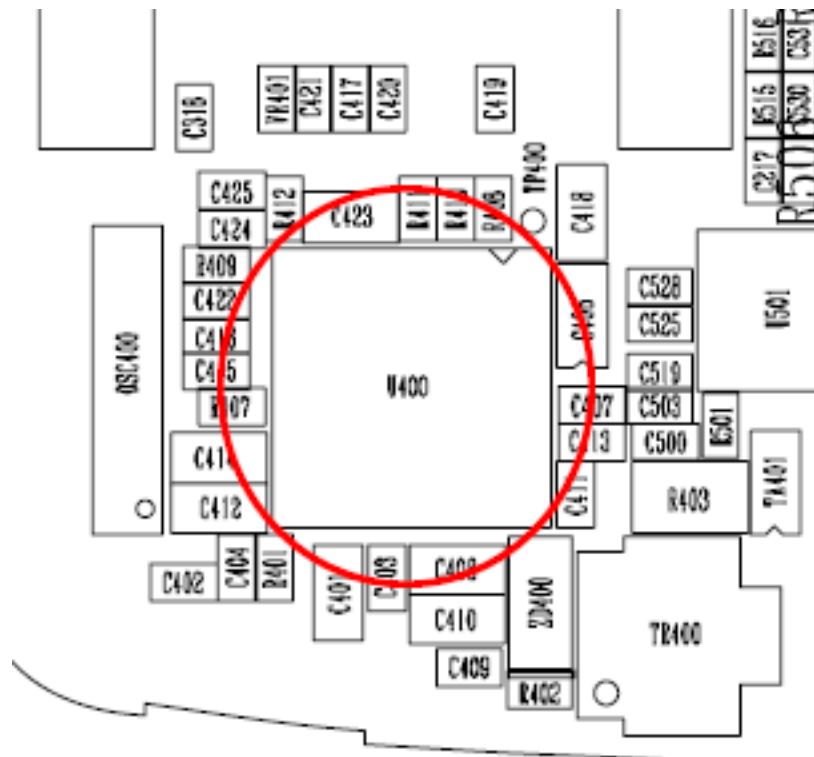
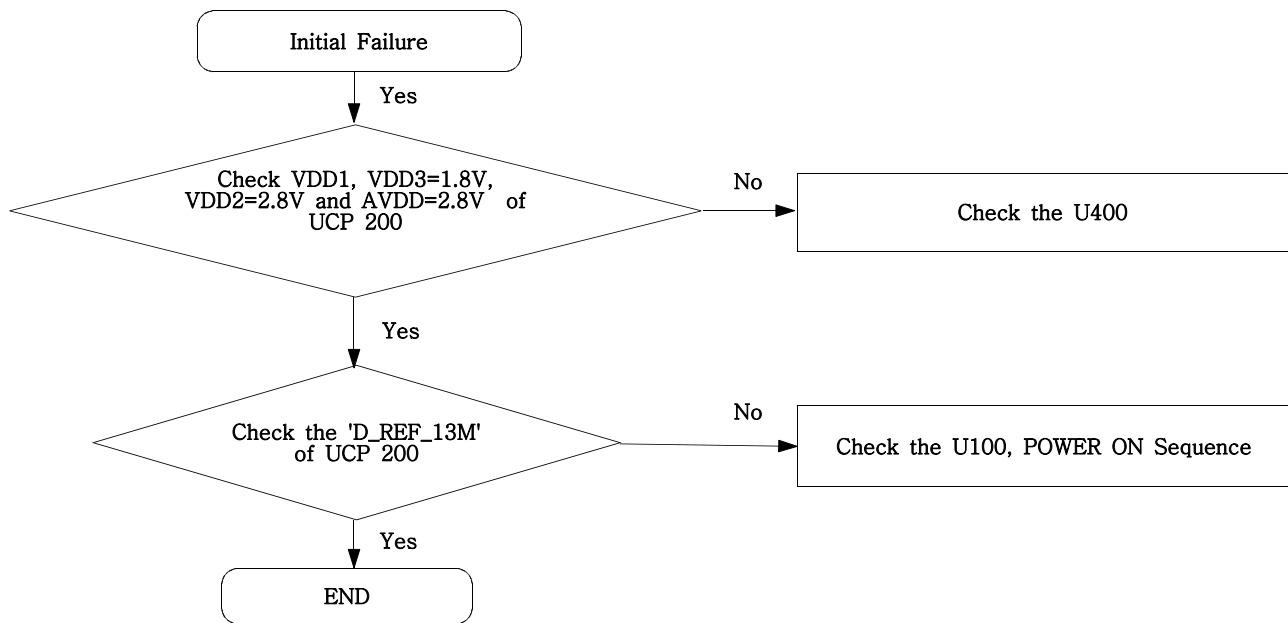
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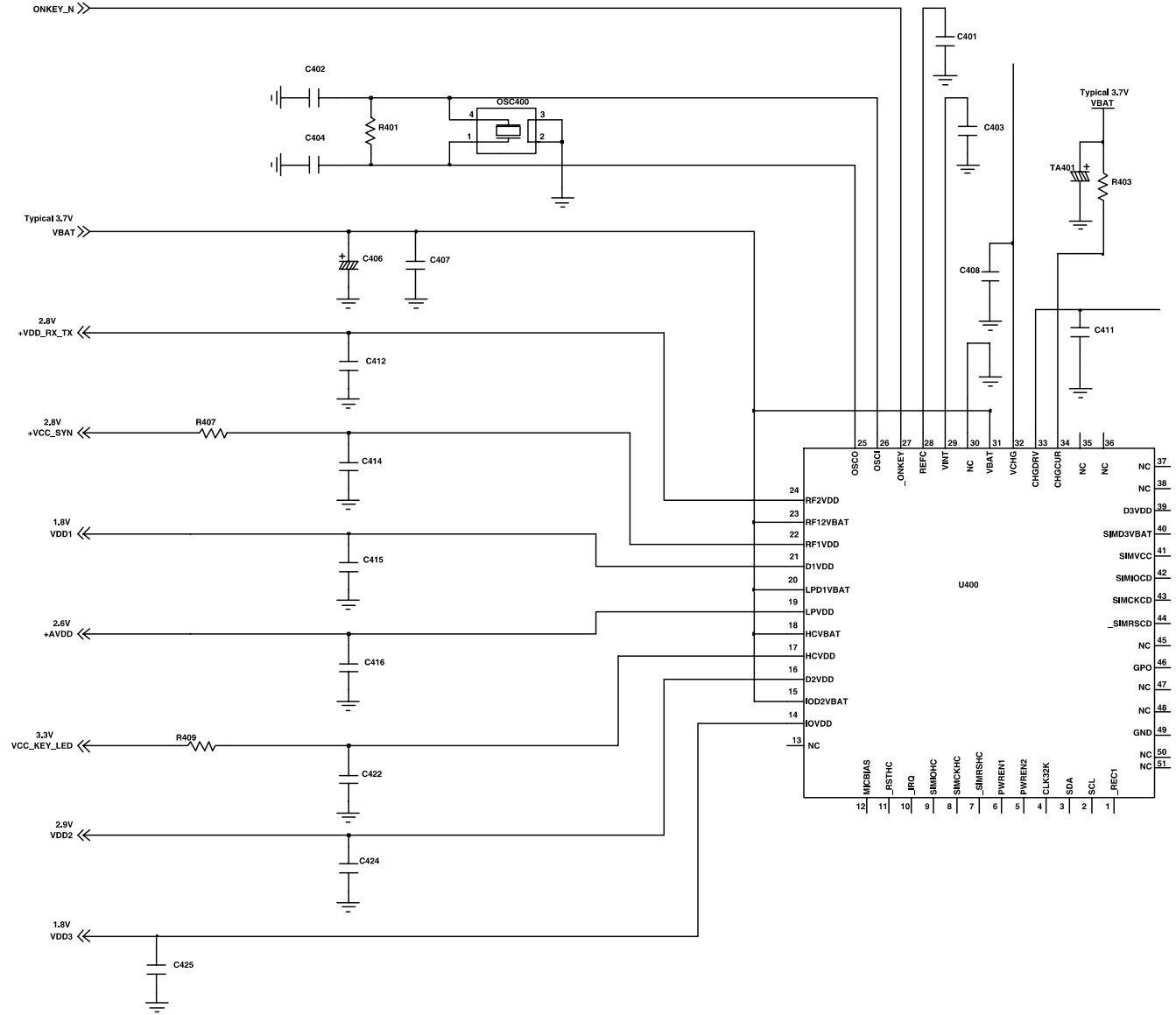
### 9-1. Power On



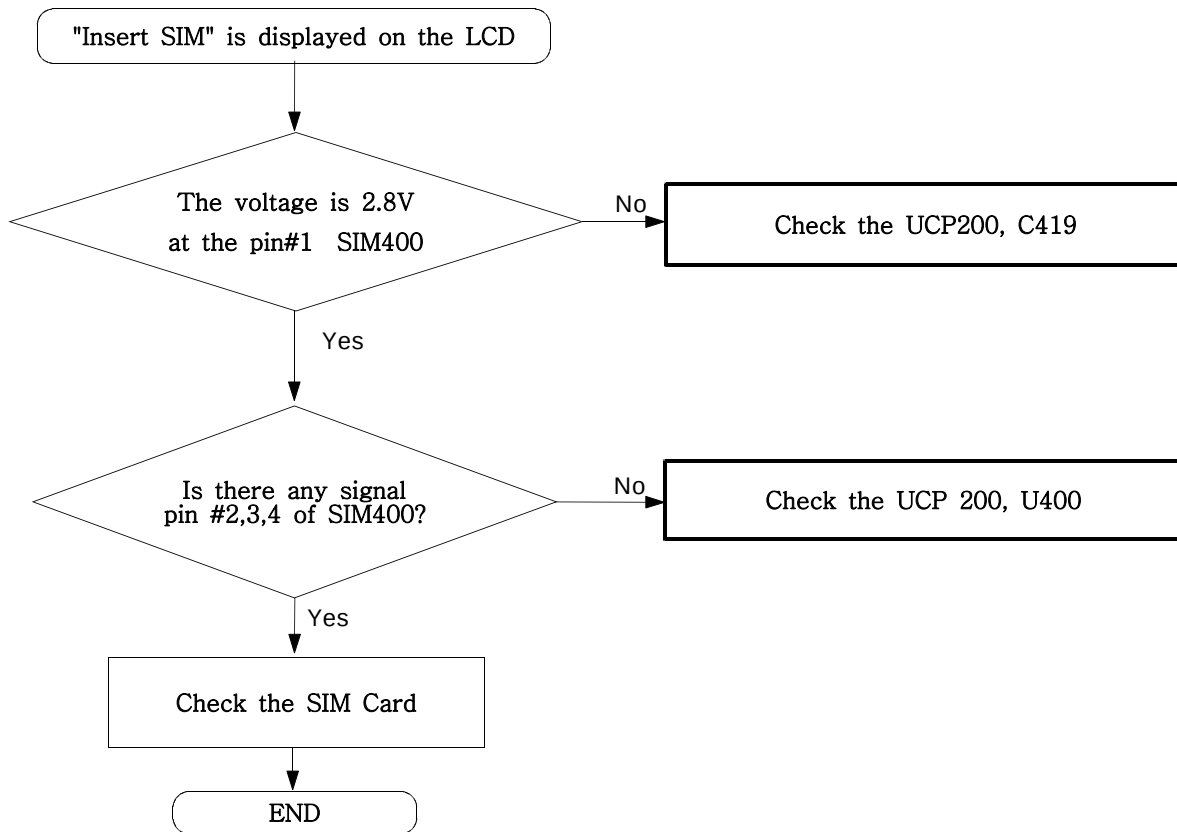


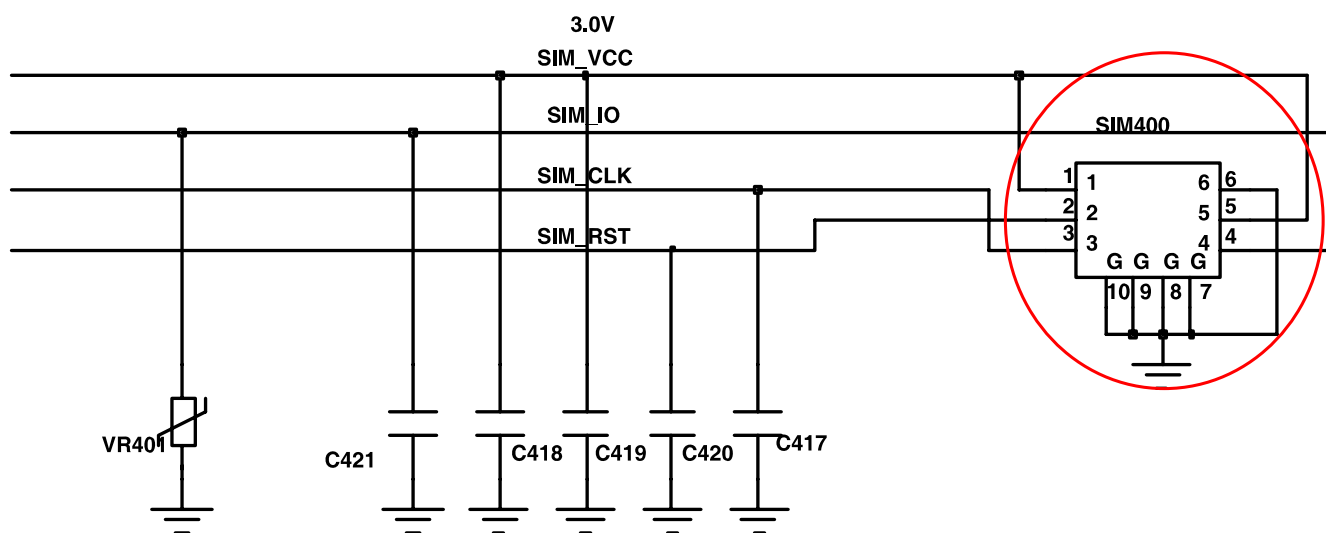
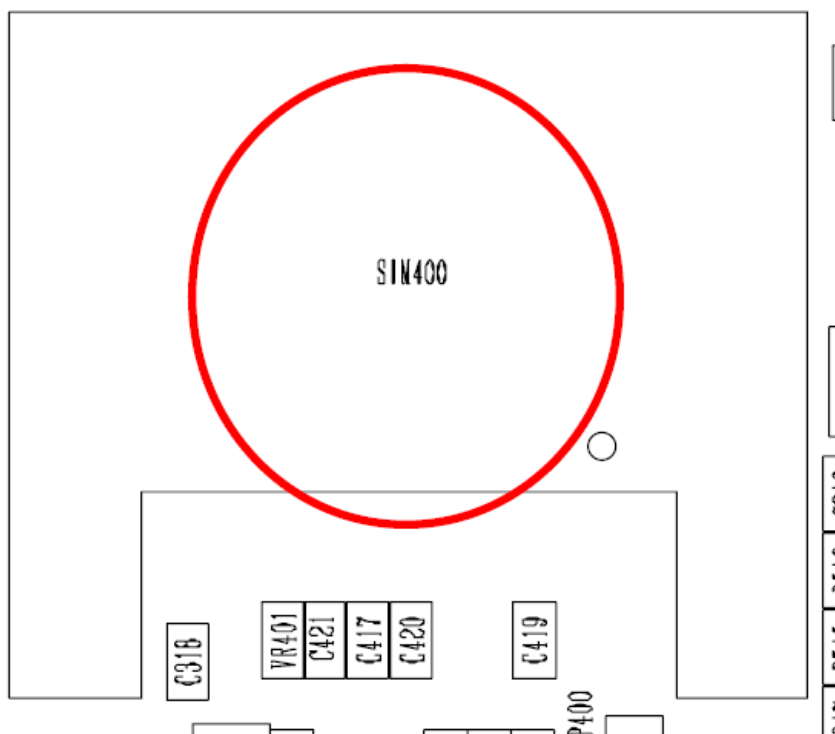
9-2. Initial



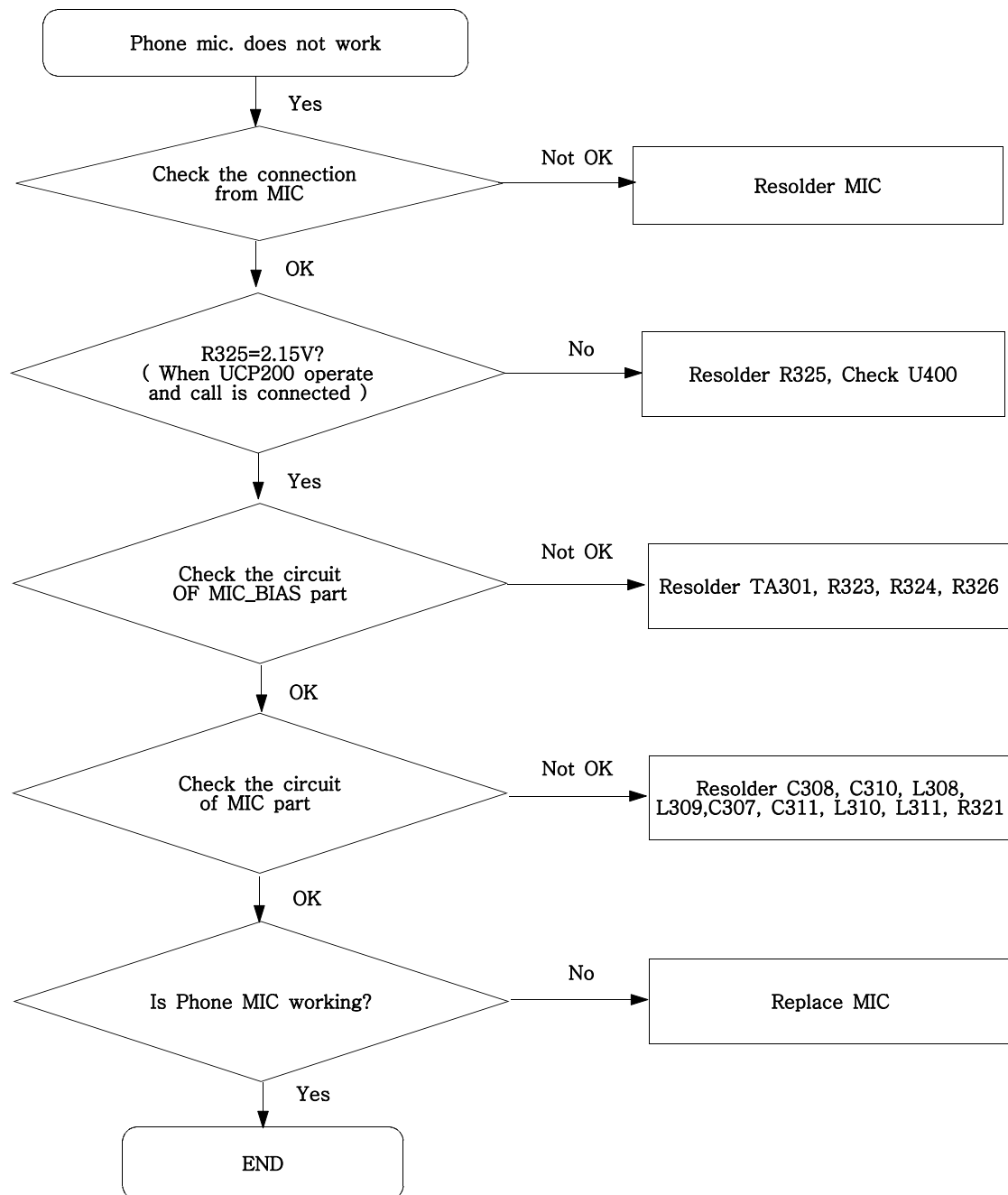


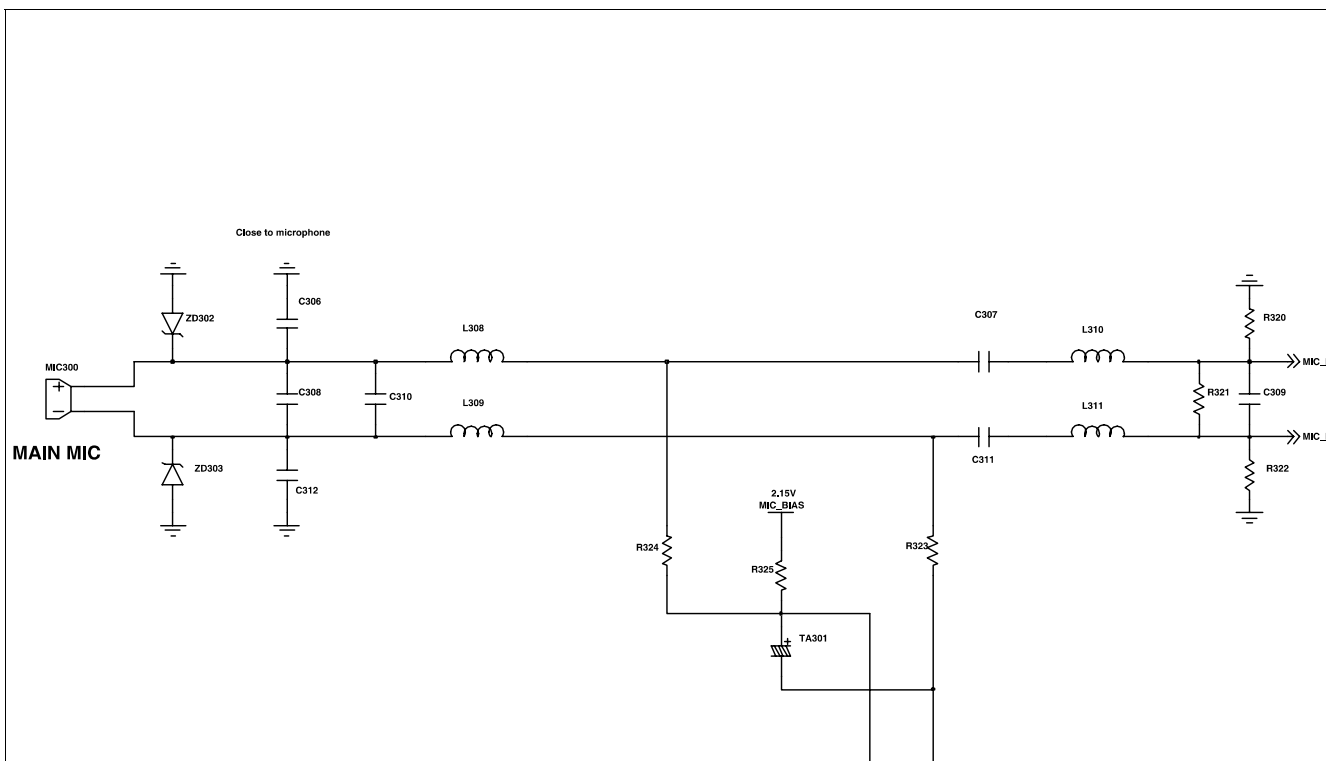
## 9-3. Sim Part



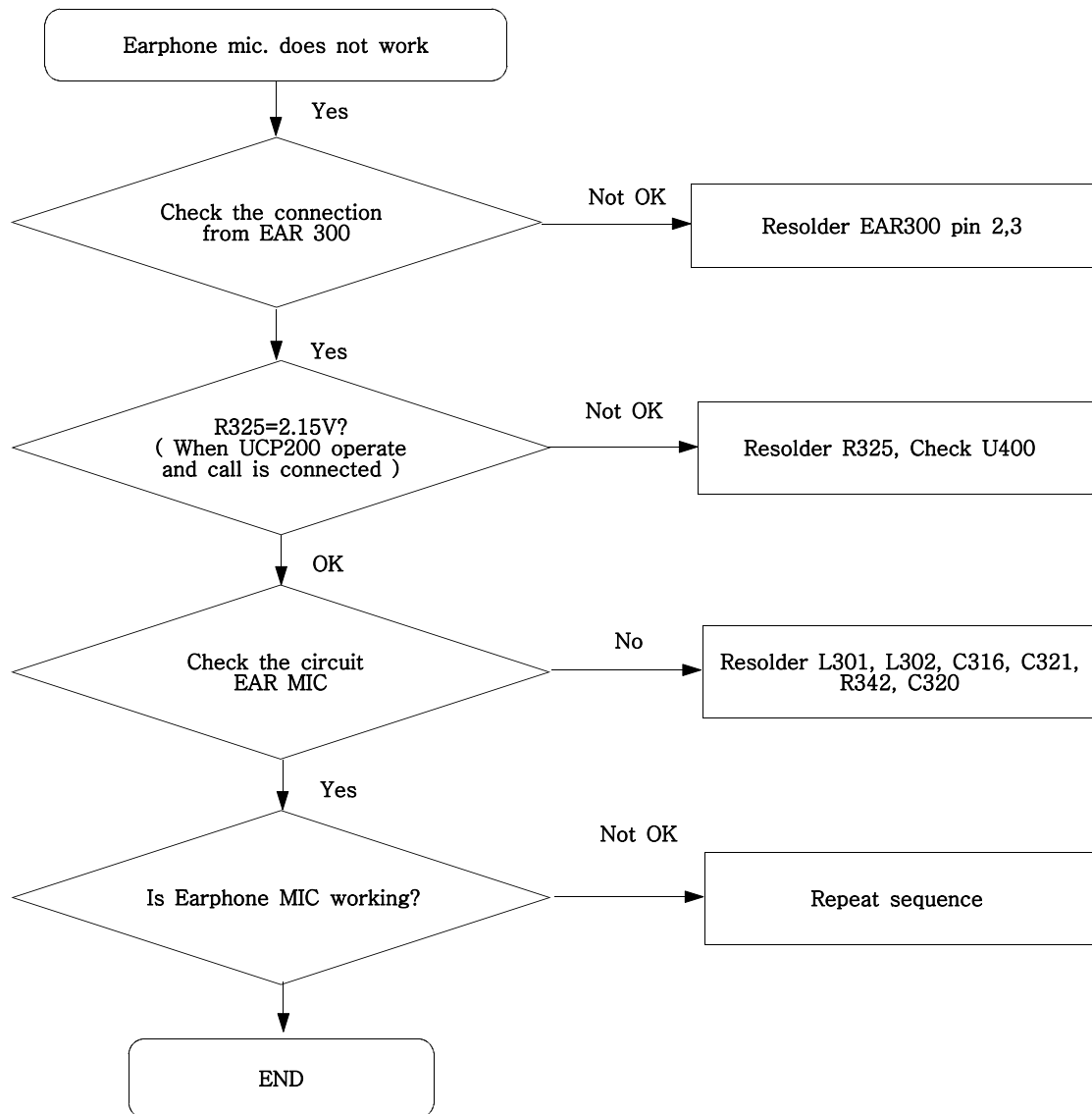


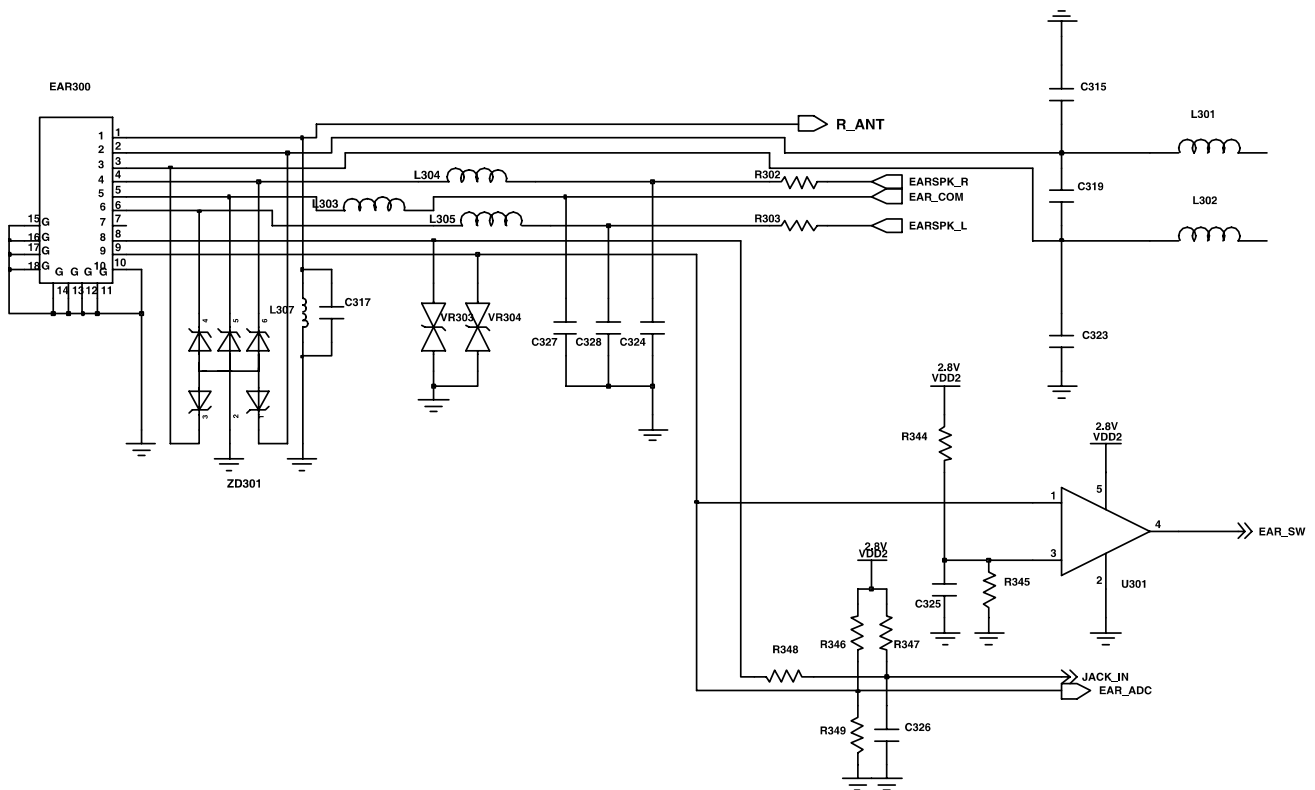
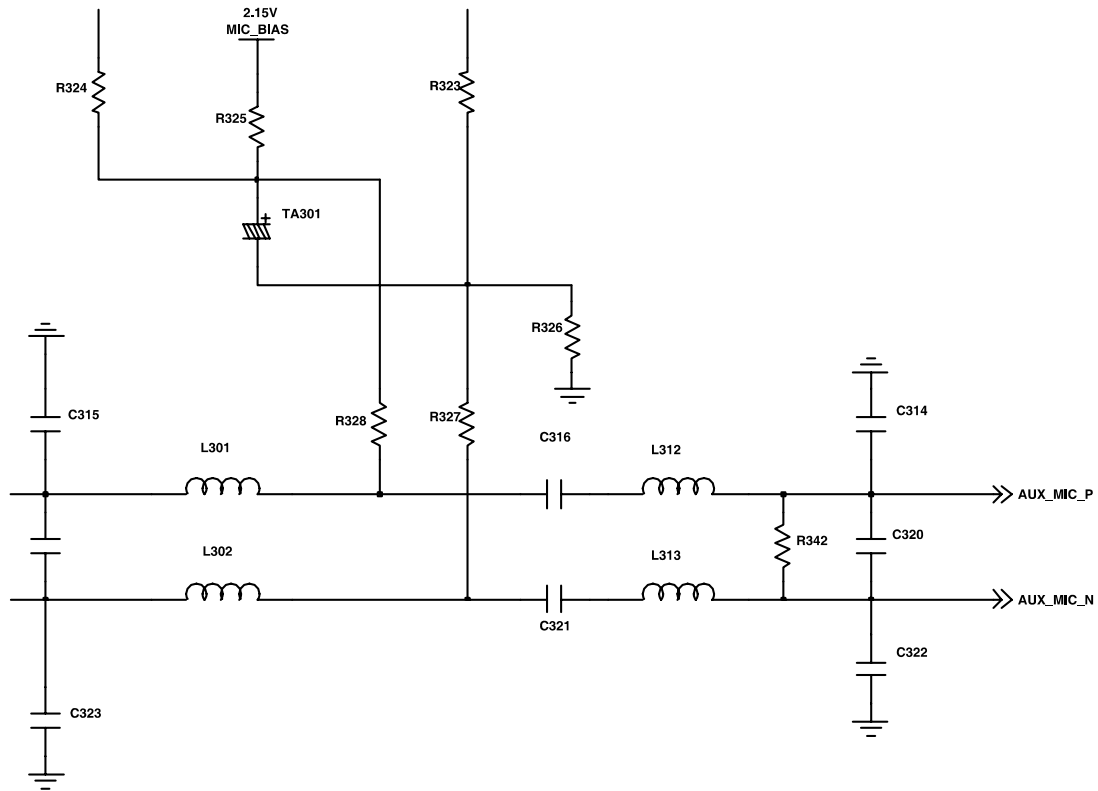
## 9-4. Microphone Part - Phone MIC





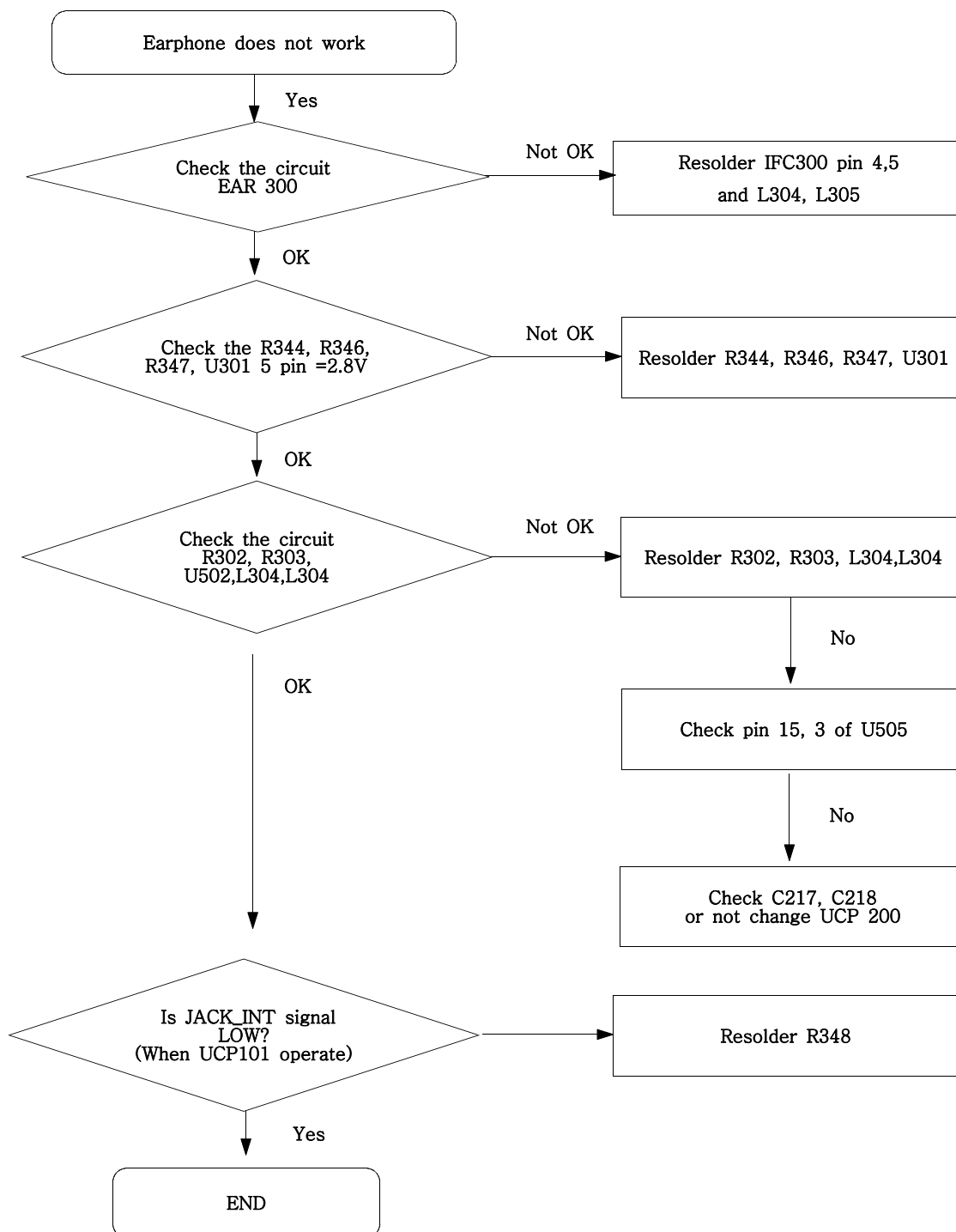
## 9-5. Microphone Part - Earphone MIC

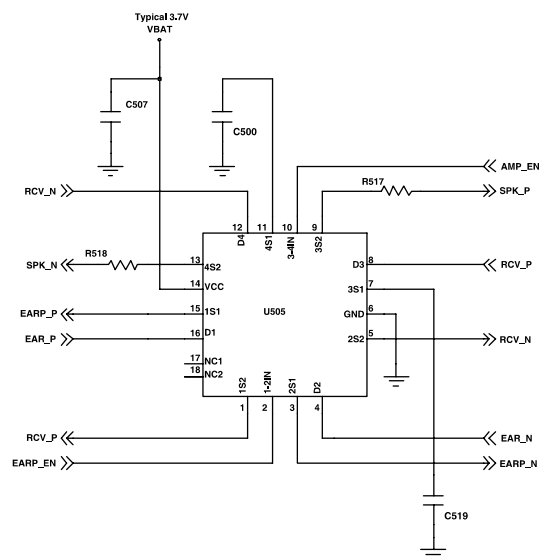
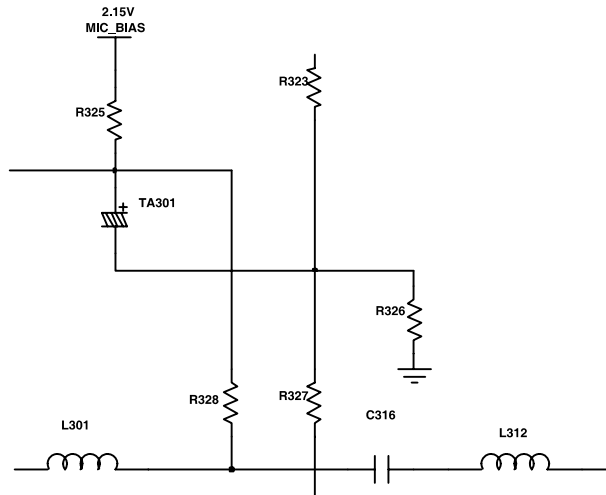
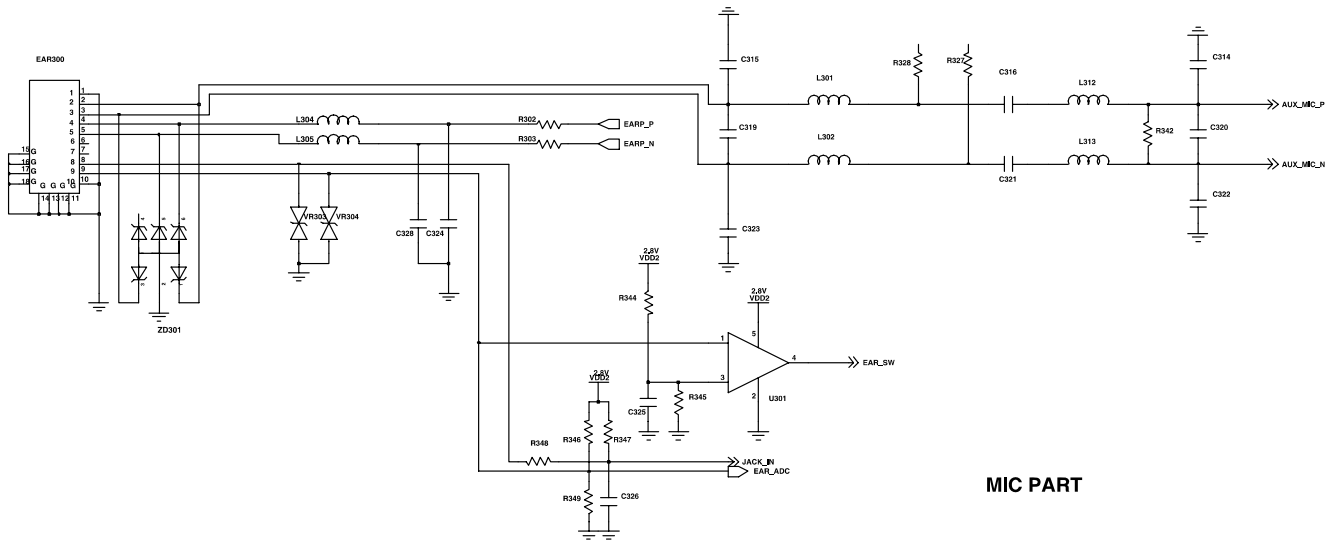




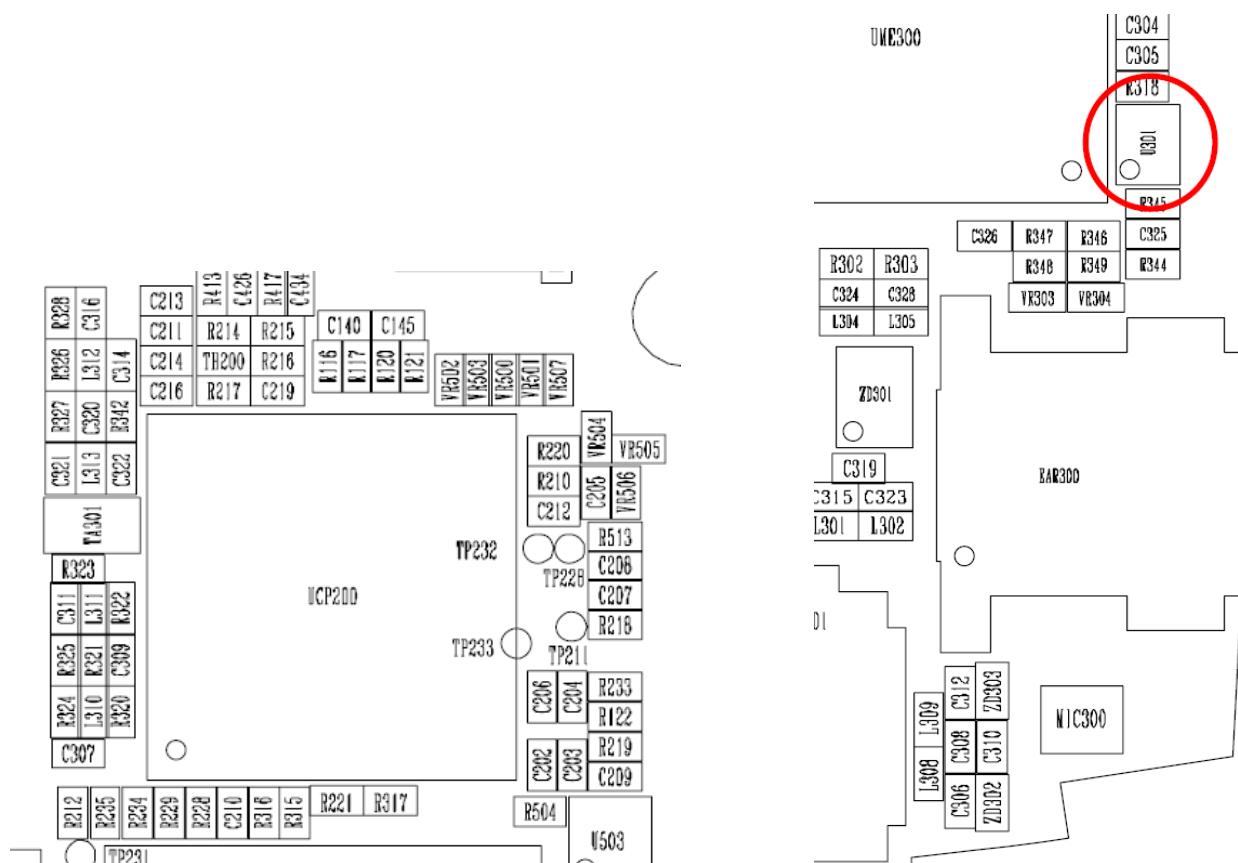
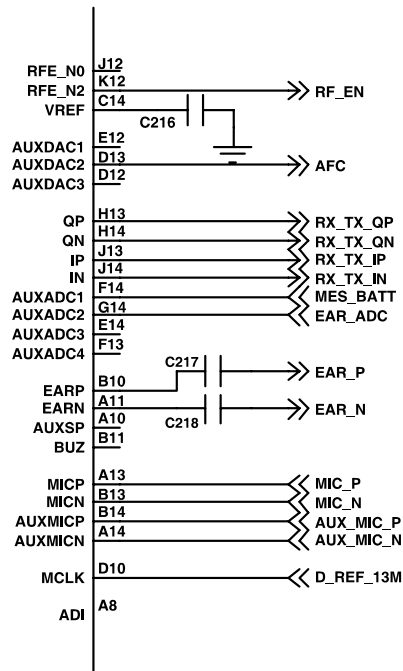


## 9-6. Earphone Part

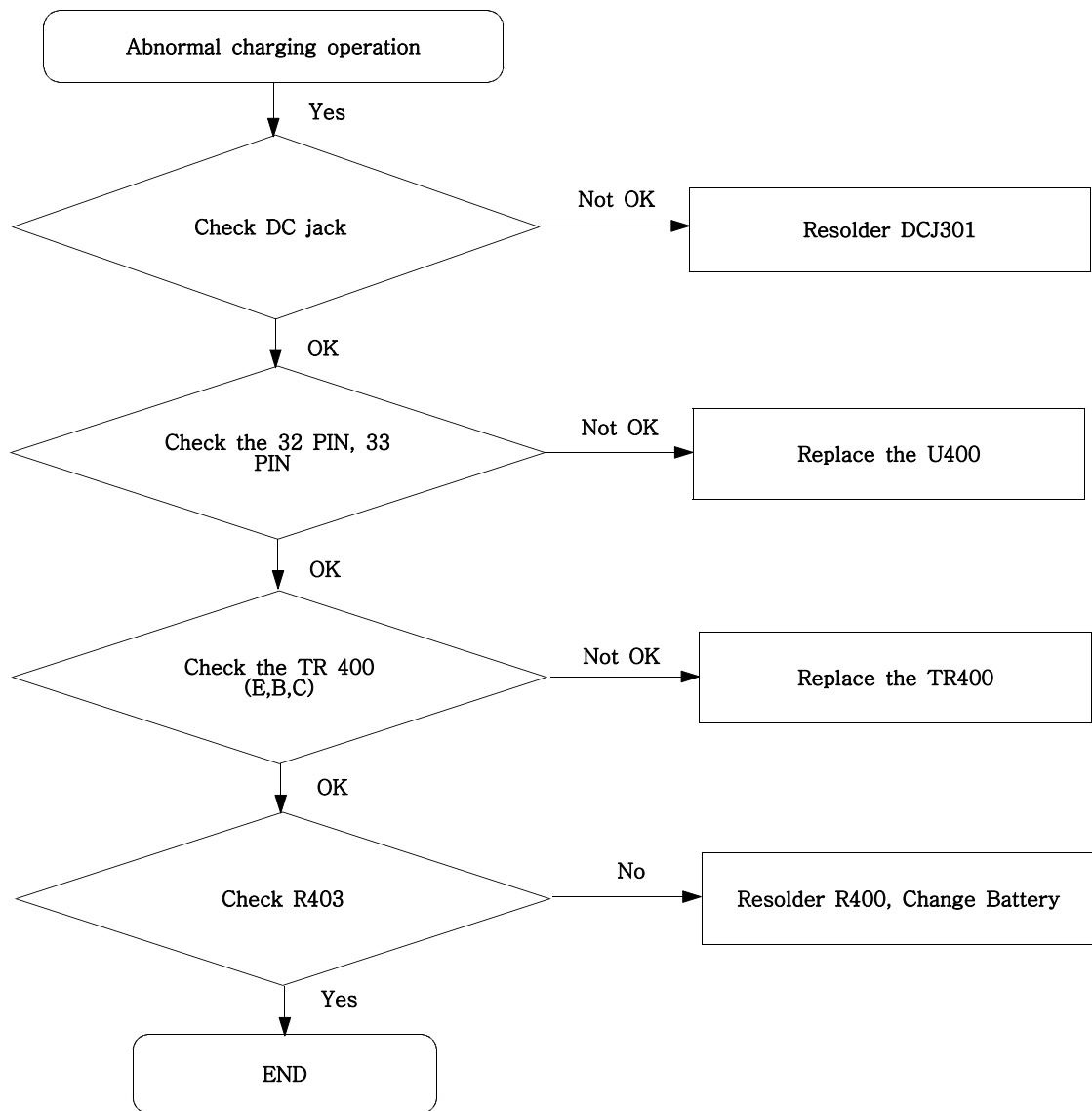


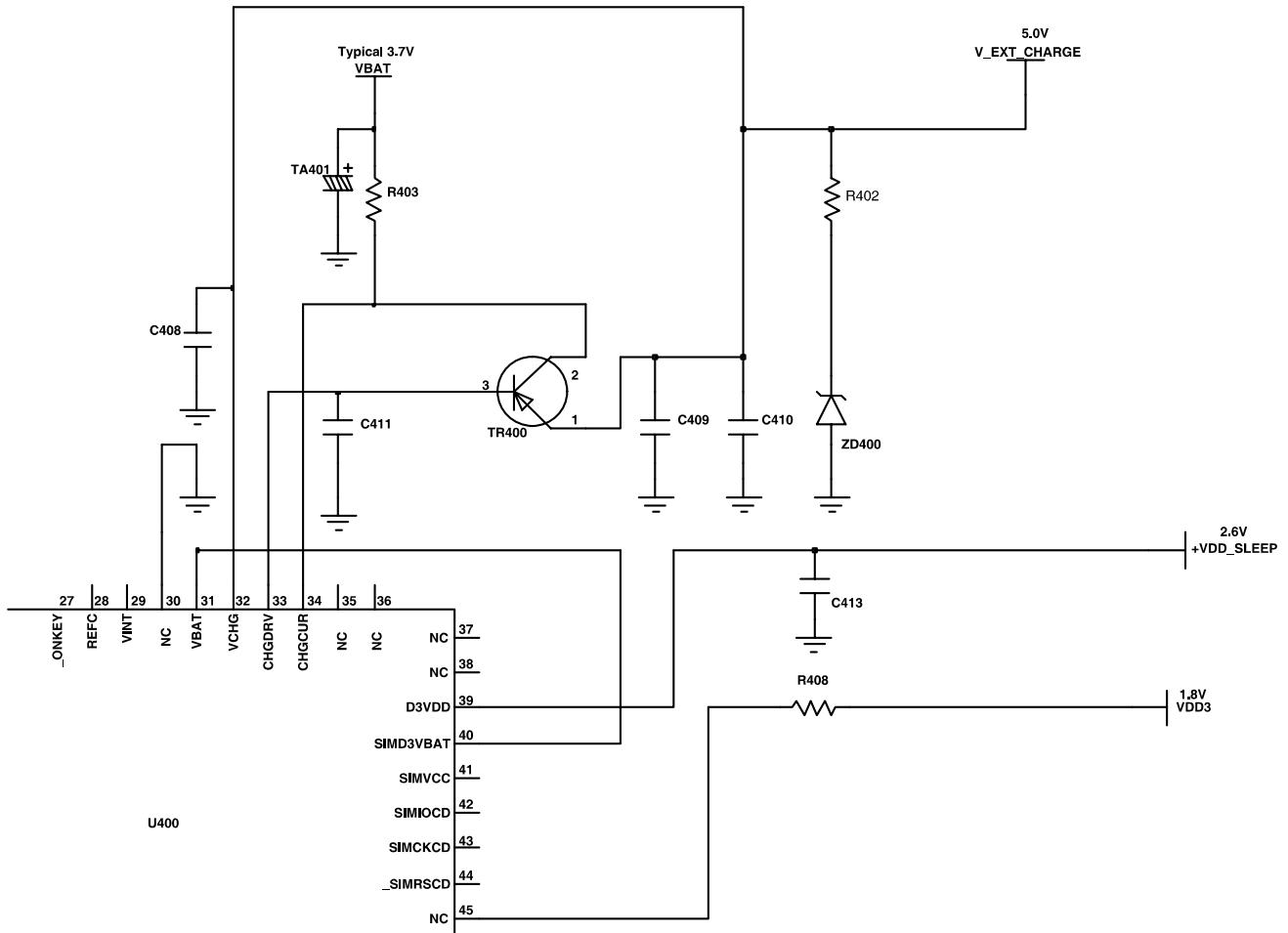
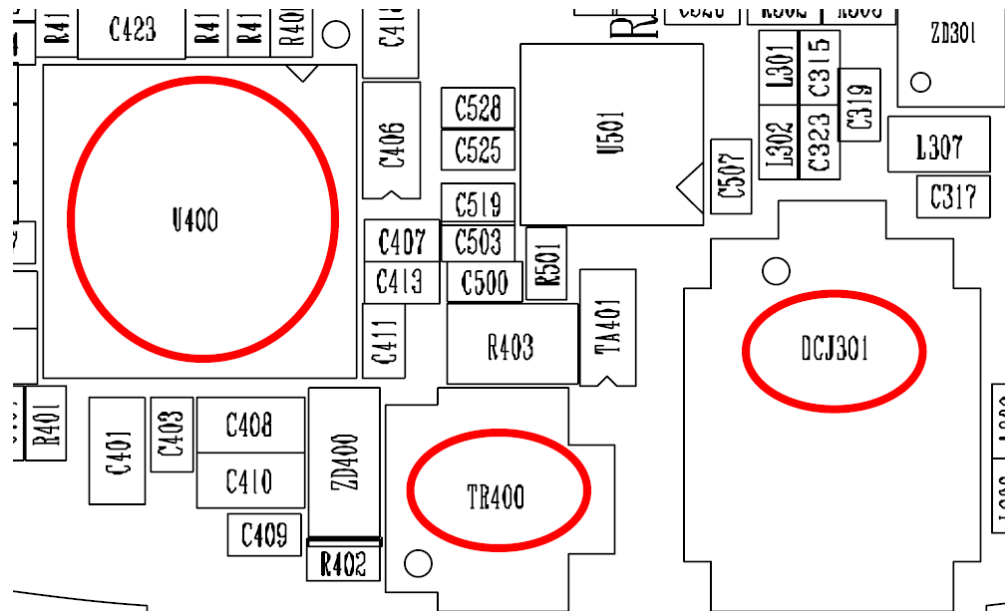


# UCP200

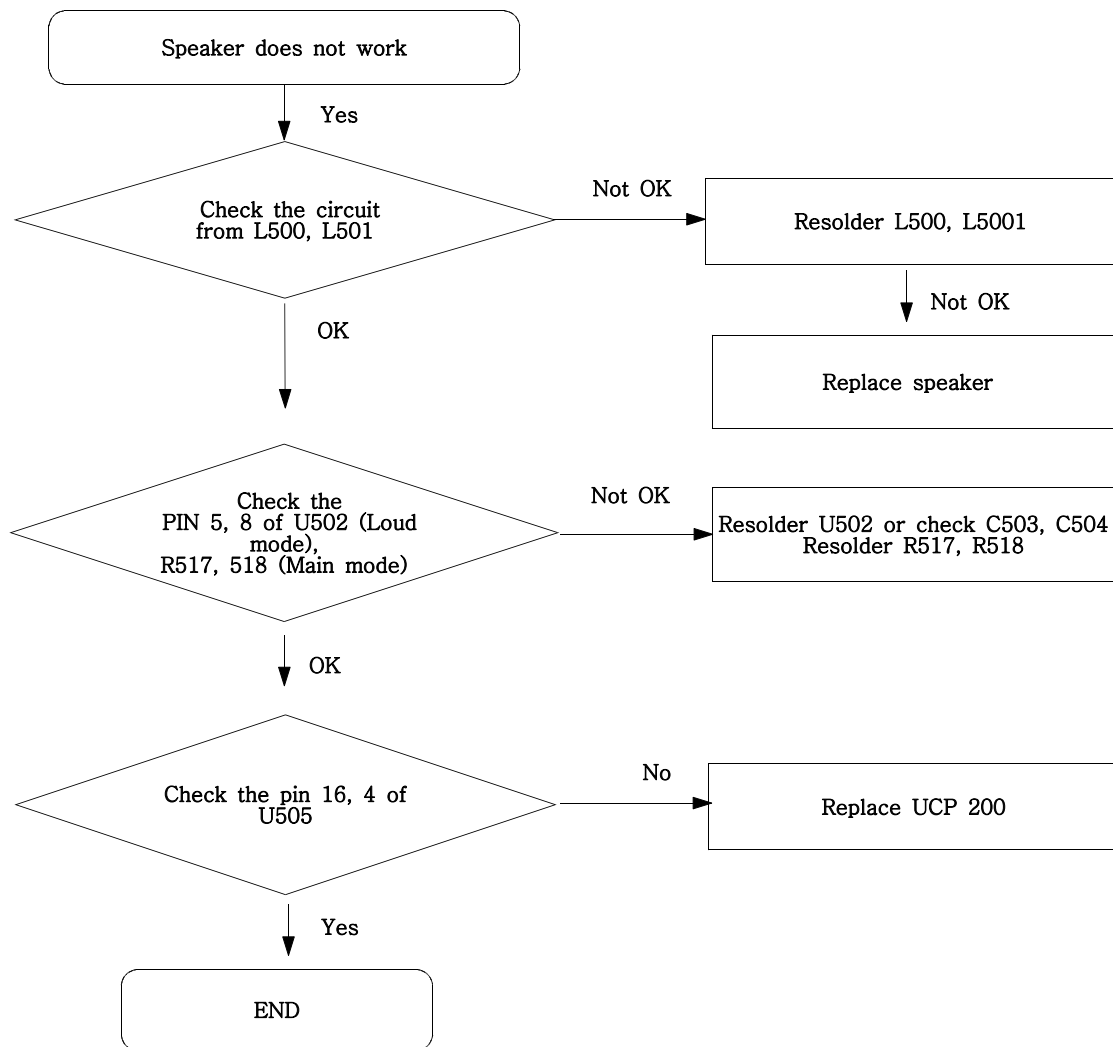


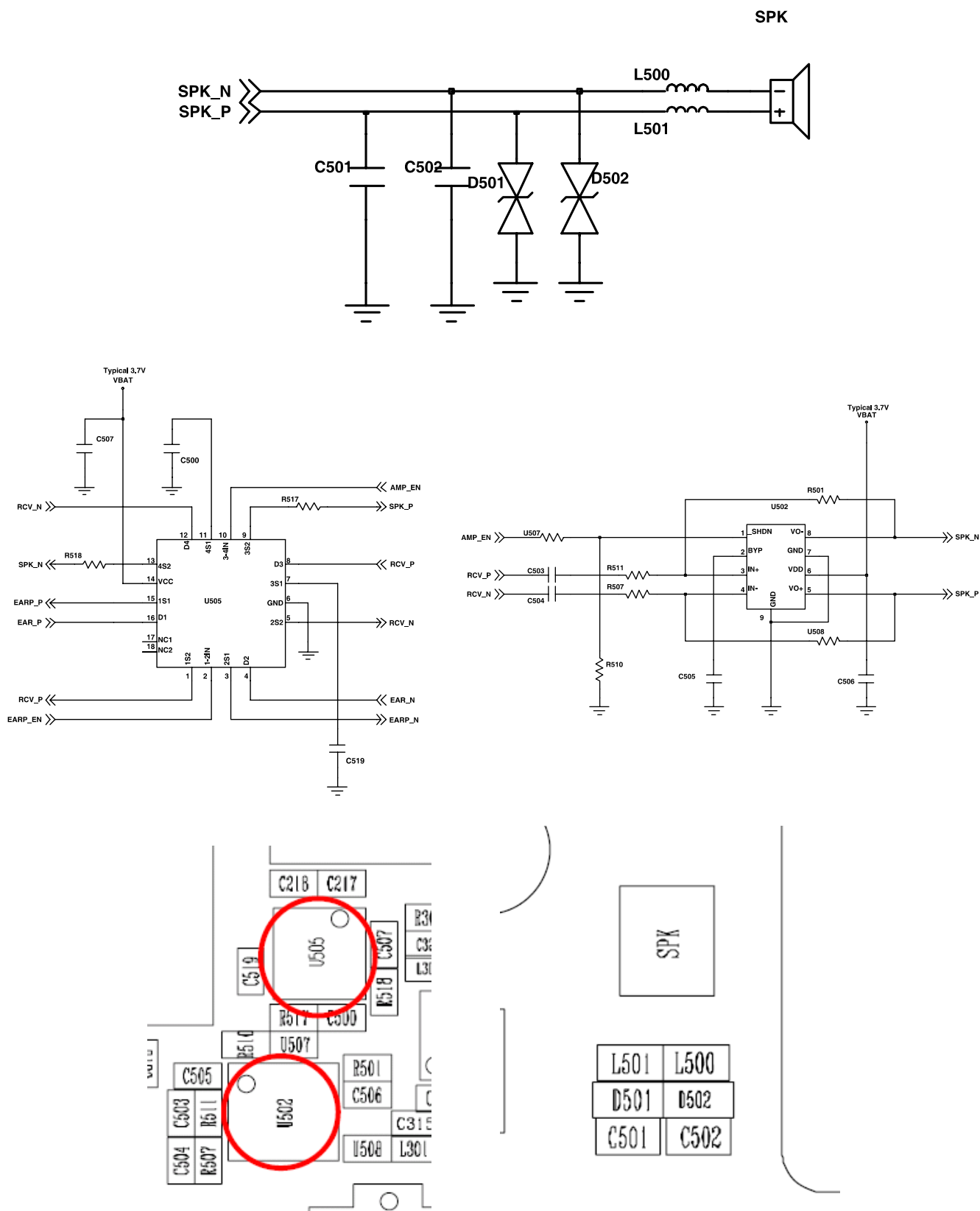
## 9-7. Charging Part



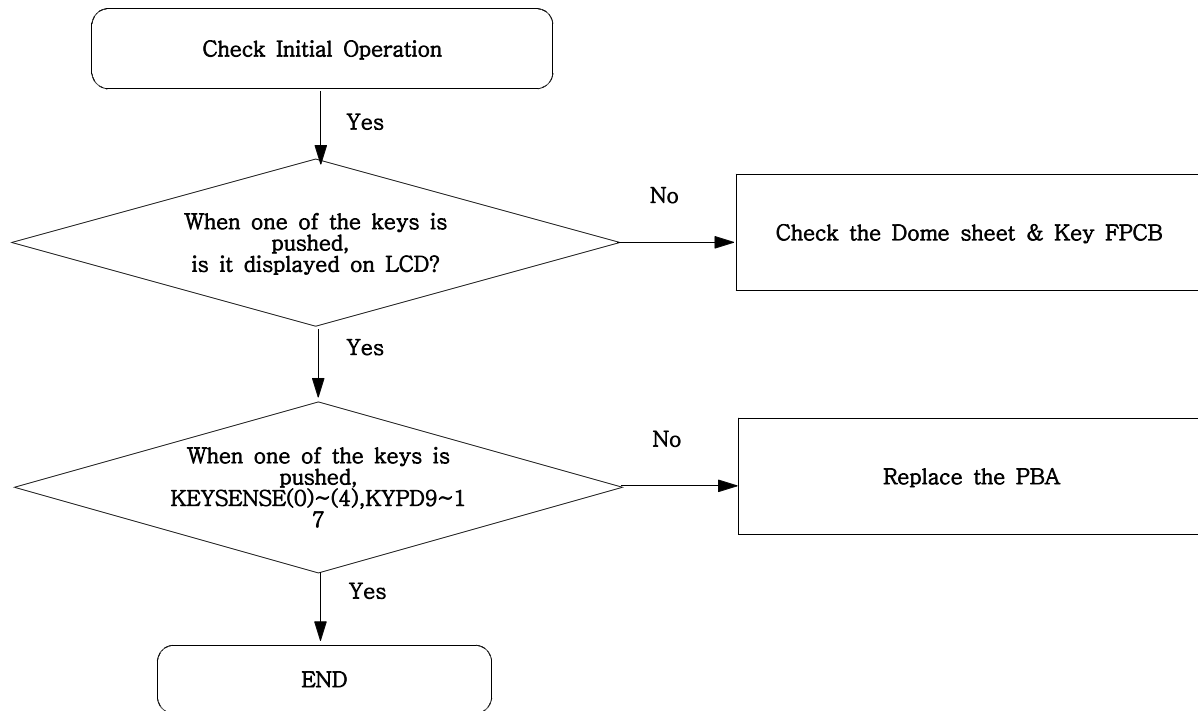


## 9-8. Speaker Part

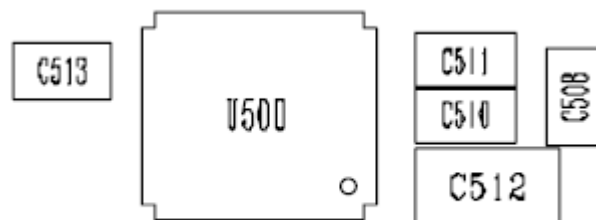
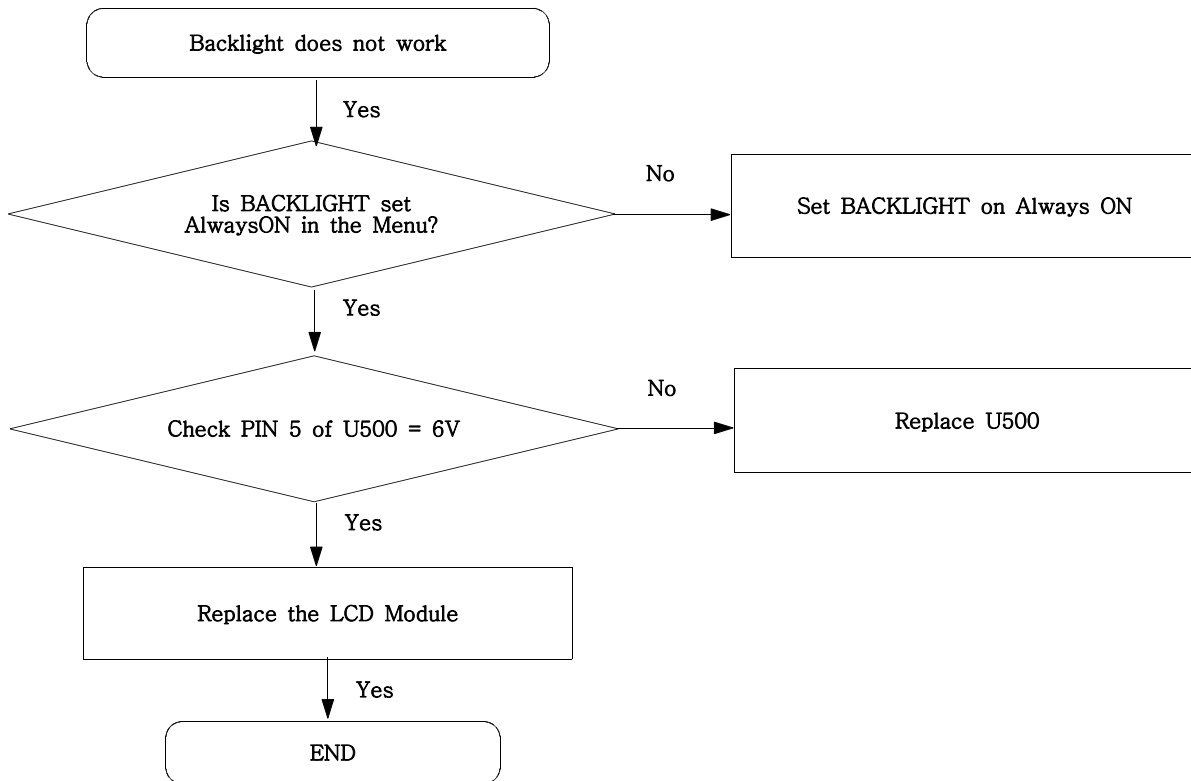


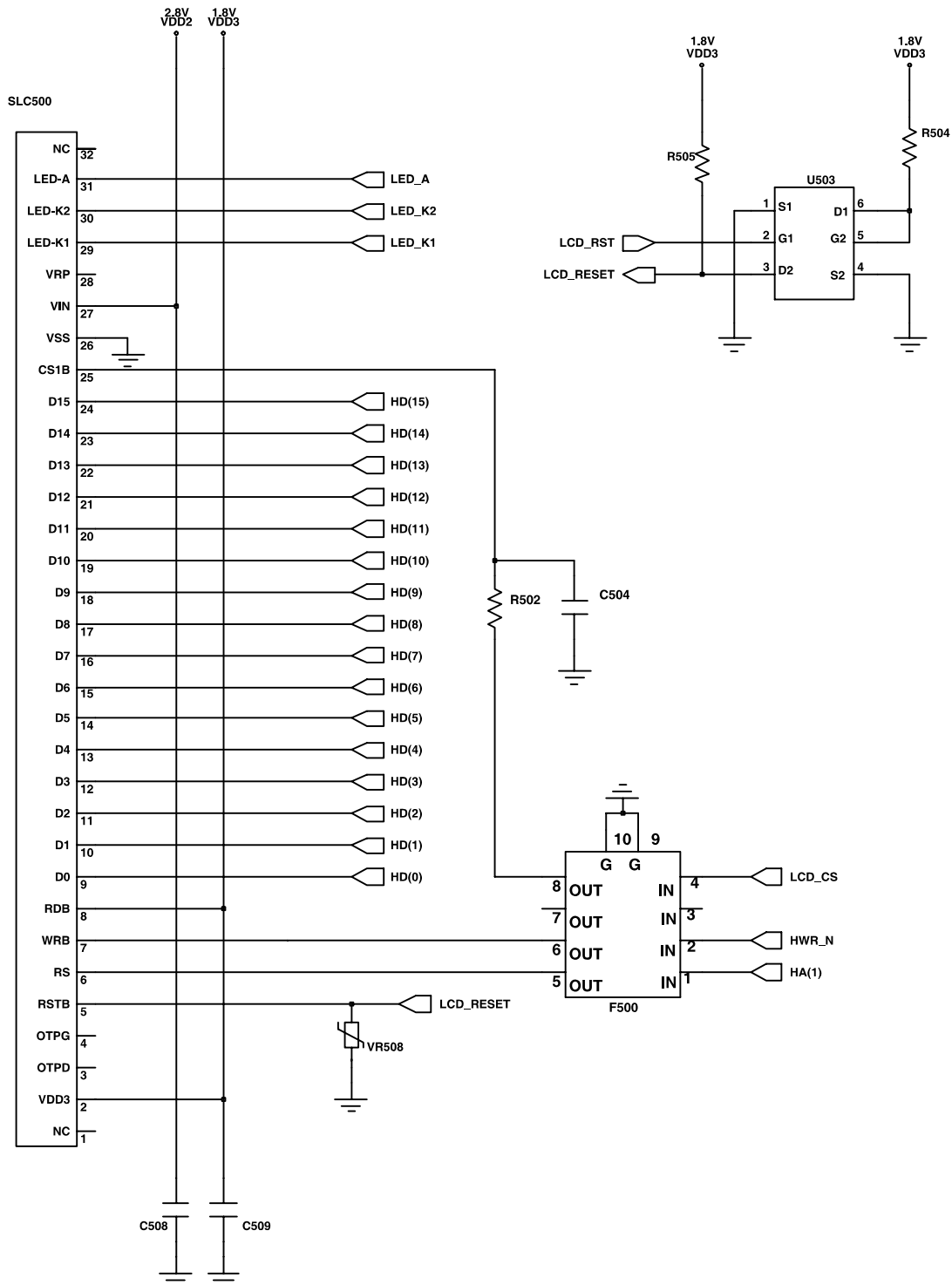


## 9-9. Key Data Input

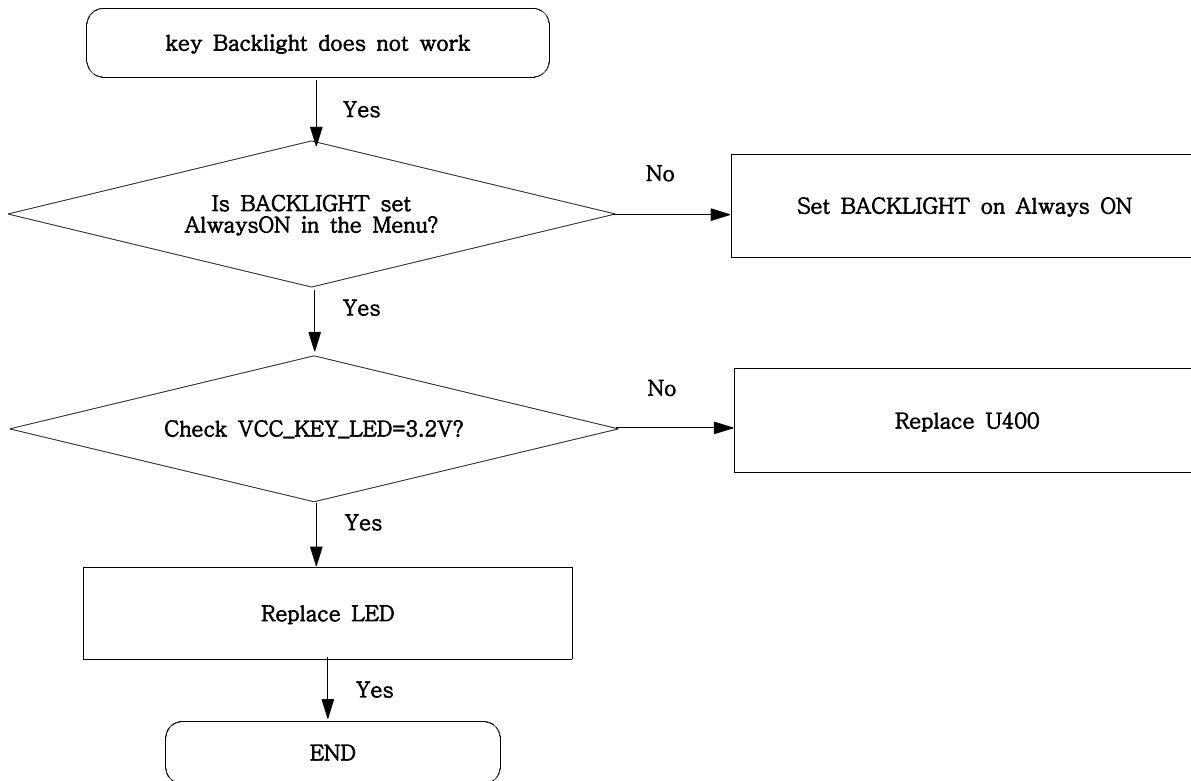


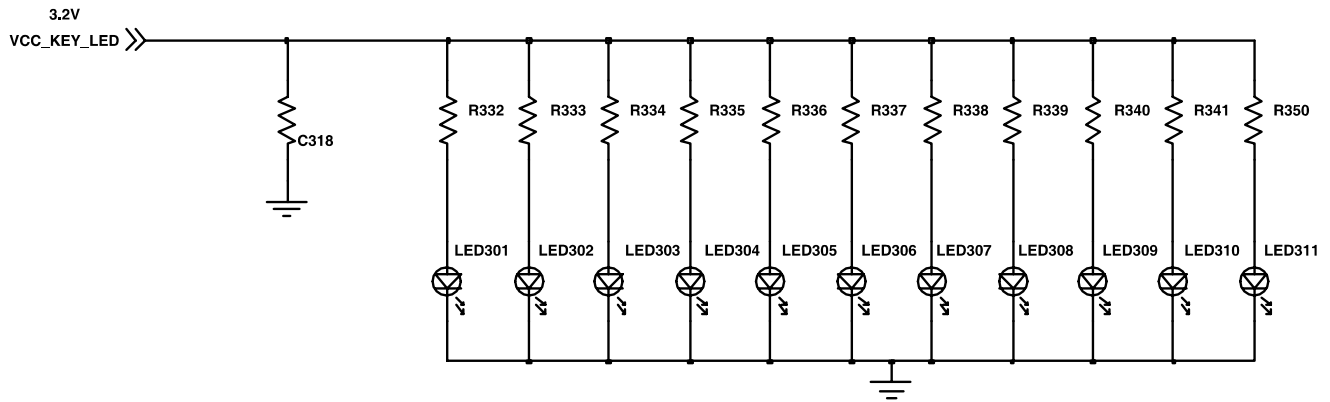
## 9-10. Back Light (for Color Main LCD)



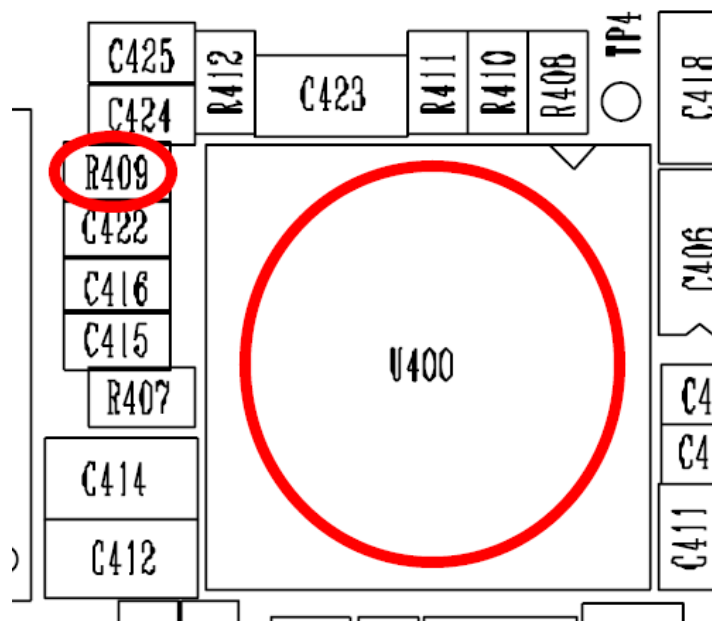
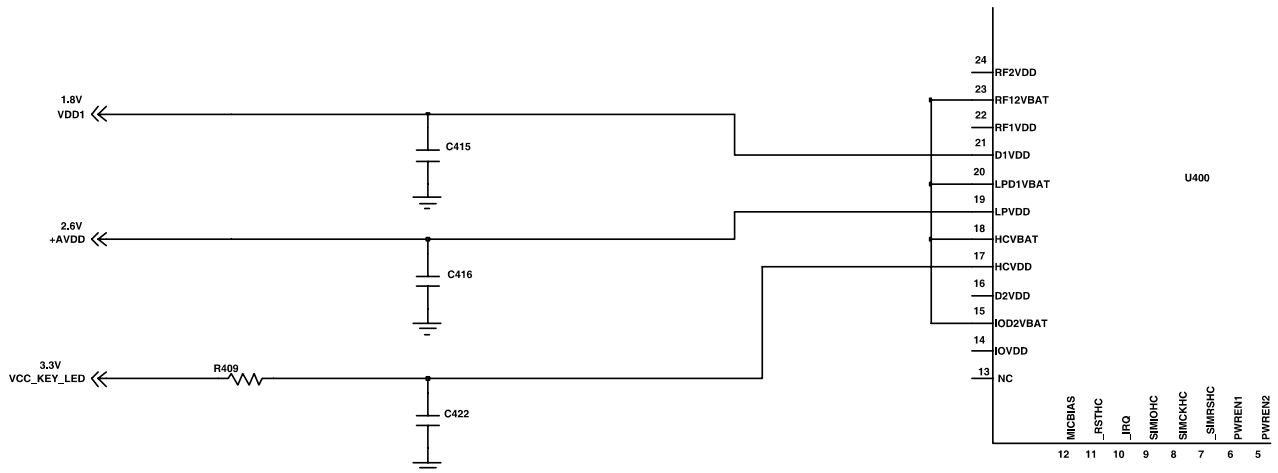


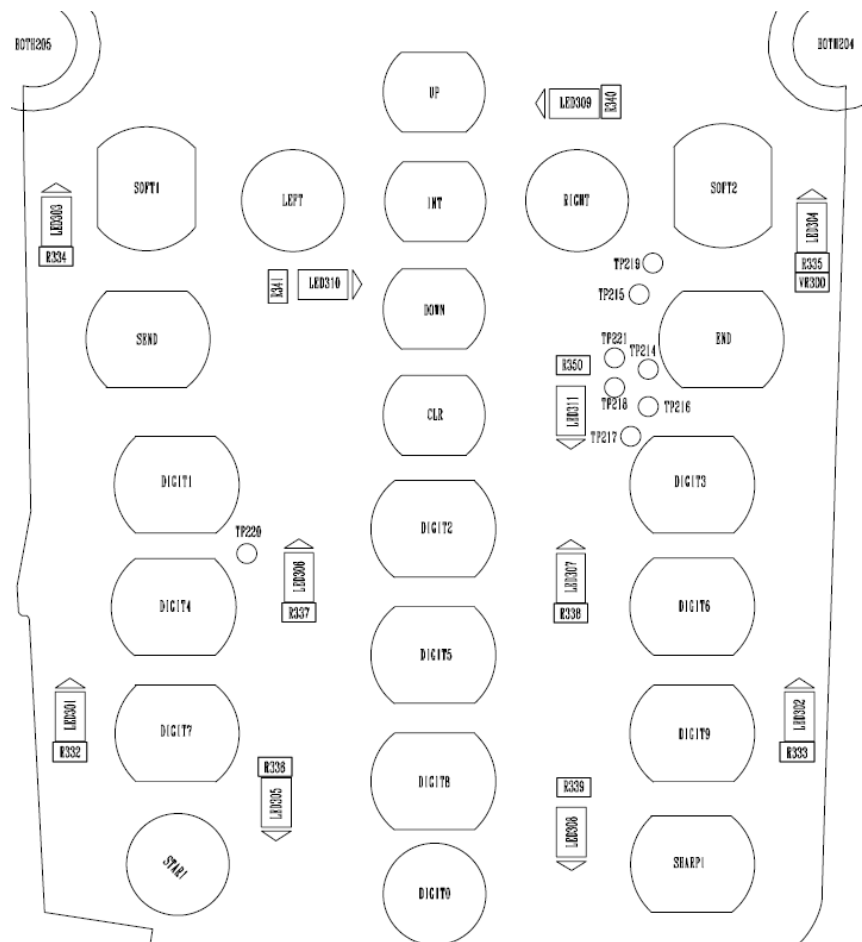
## 9-11. Key Back Light



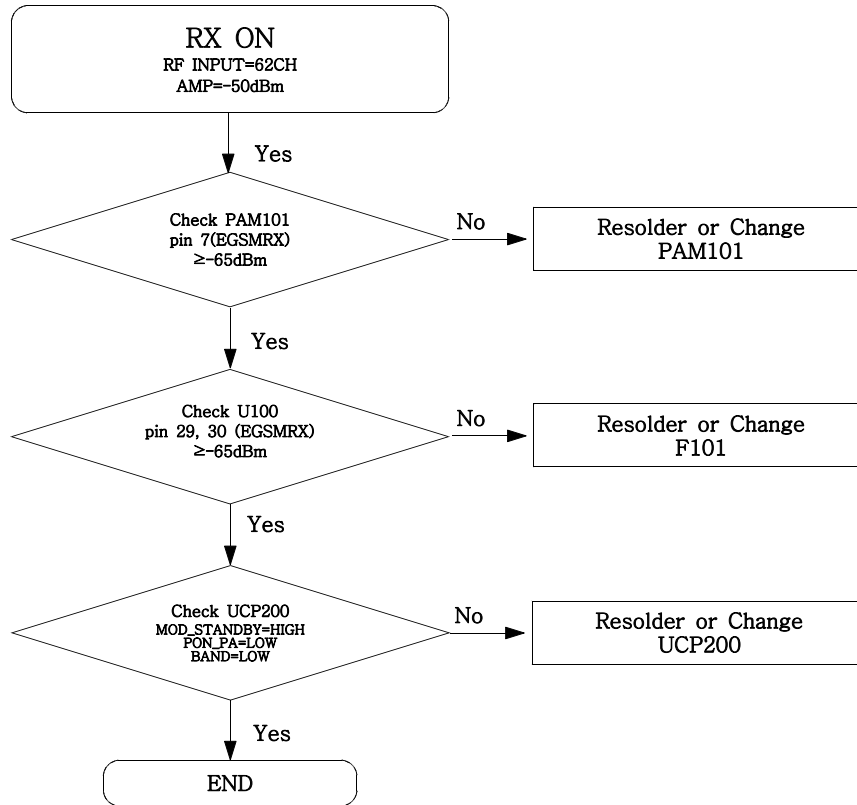


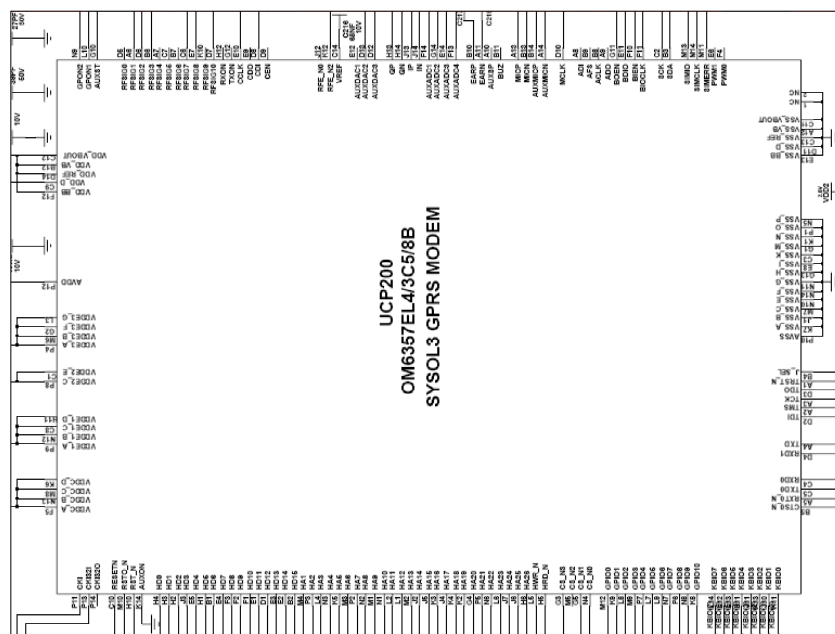
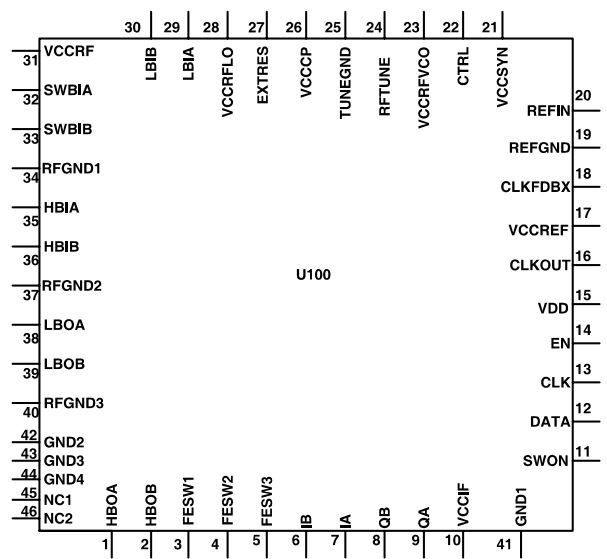
## KEY LED

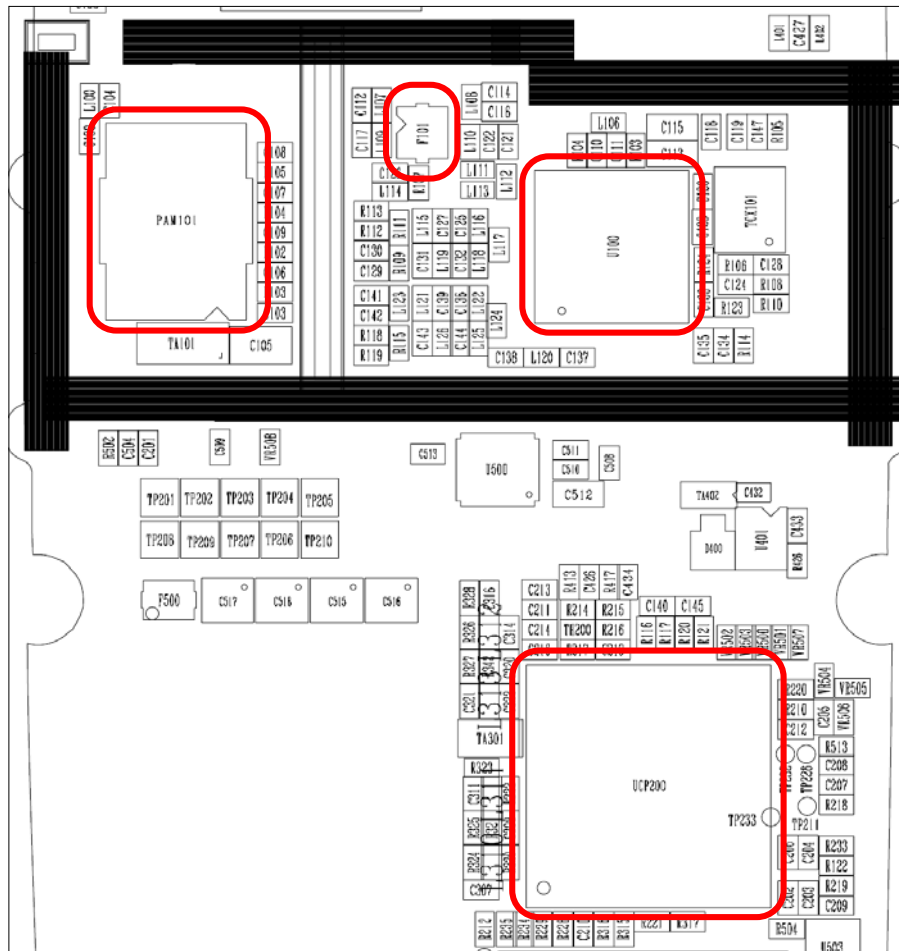




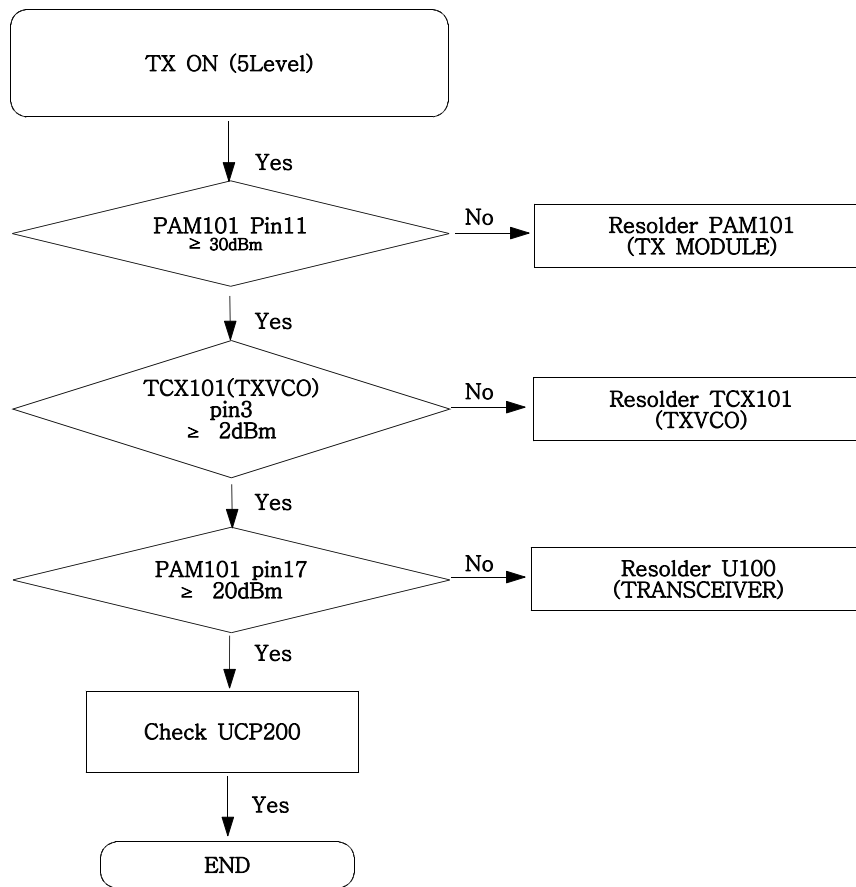
## 9-12. GSM Receiver

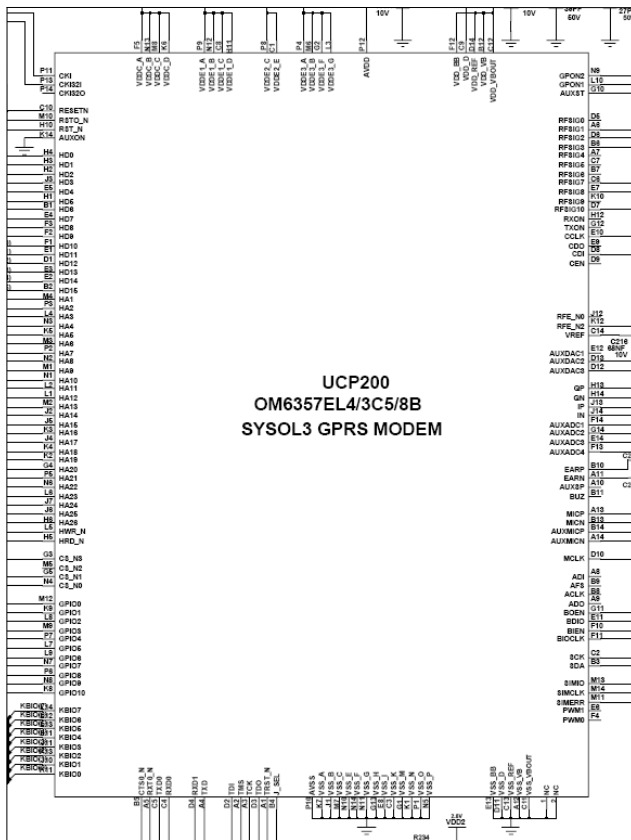
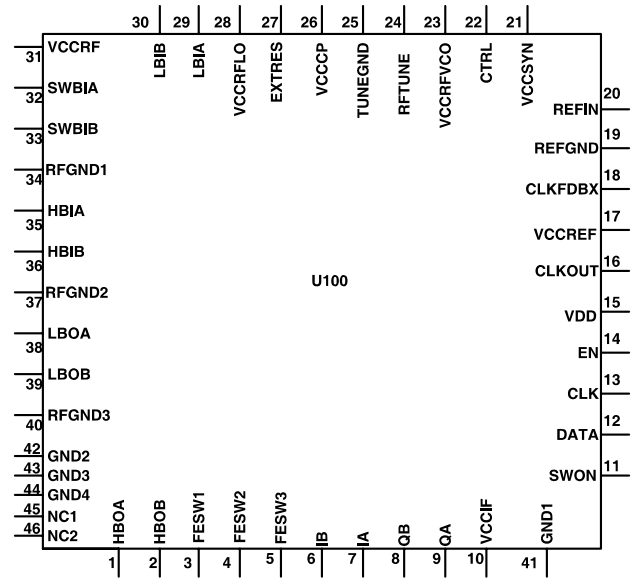
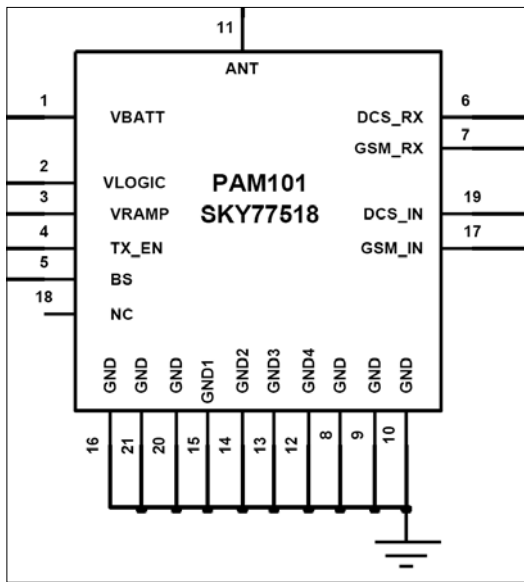




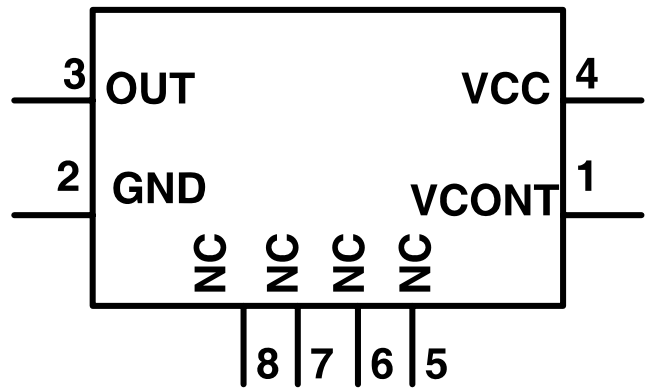


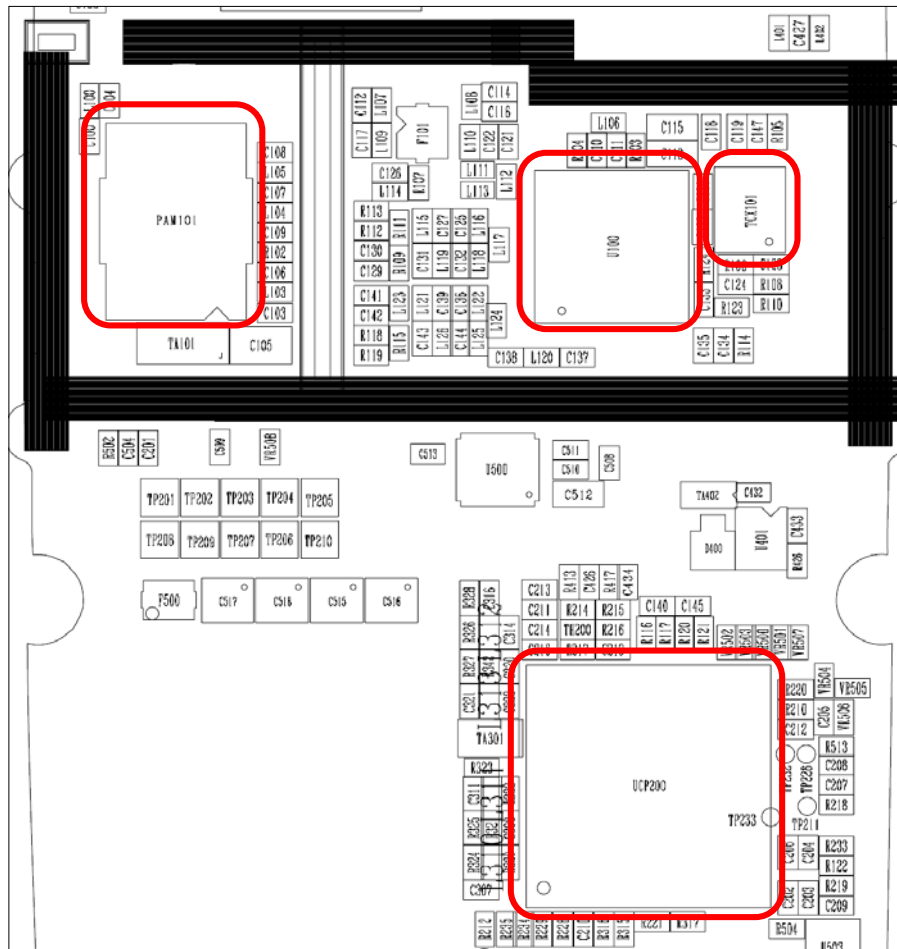
### 9-13. GSM Transmitter



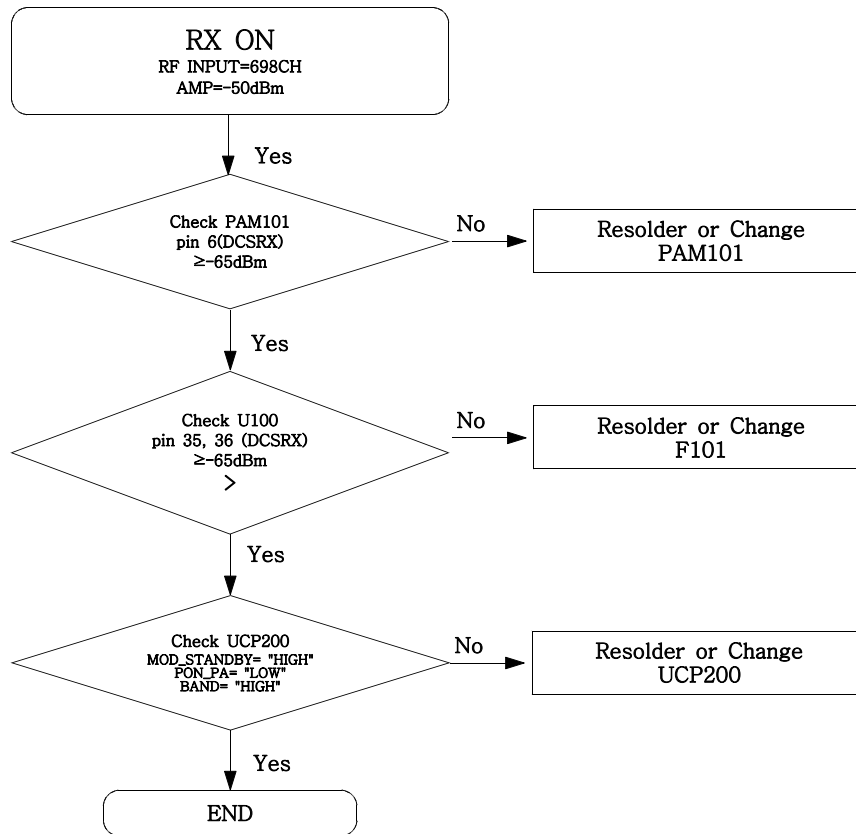


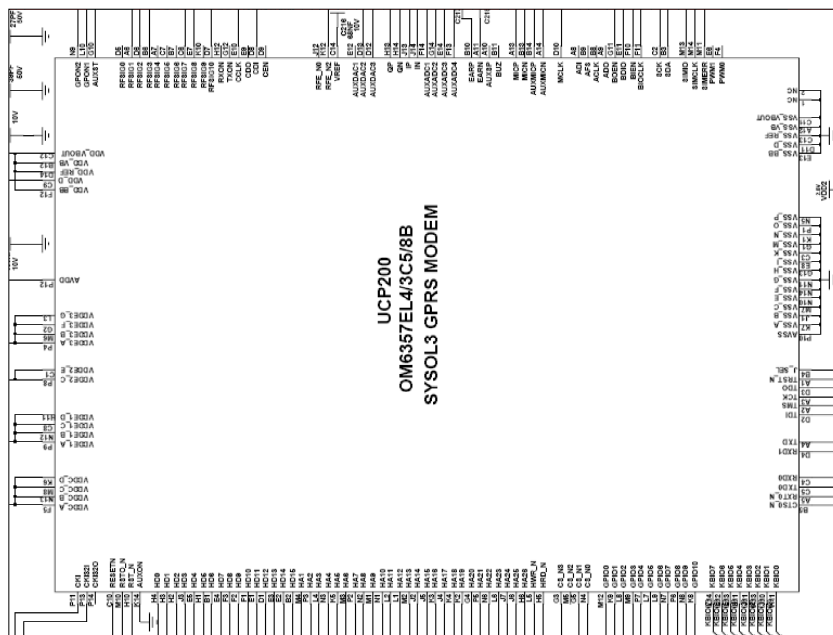
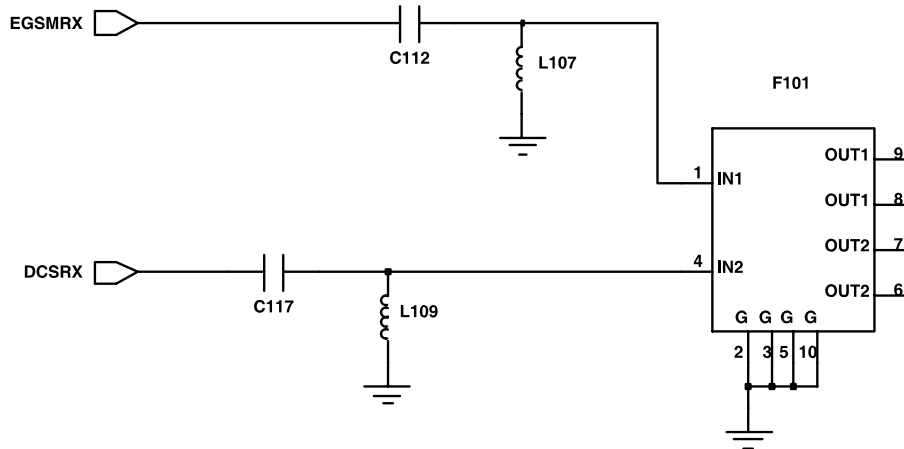
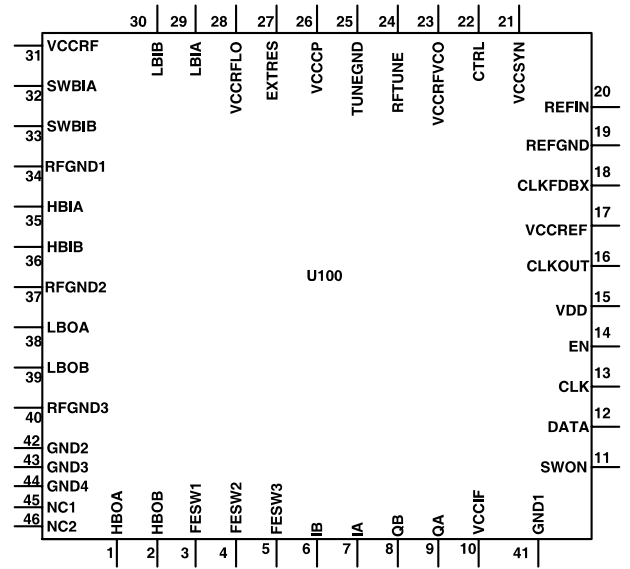
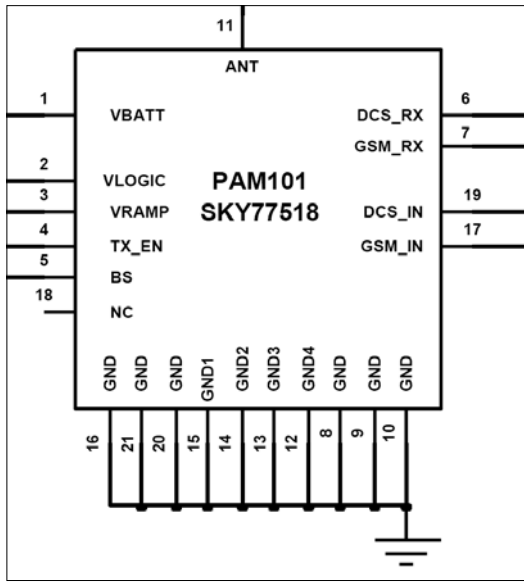
## TCX101





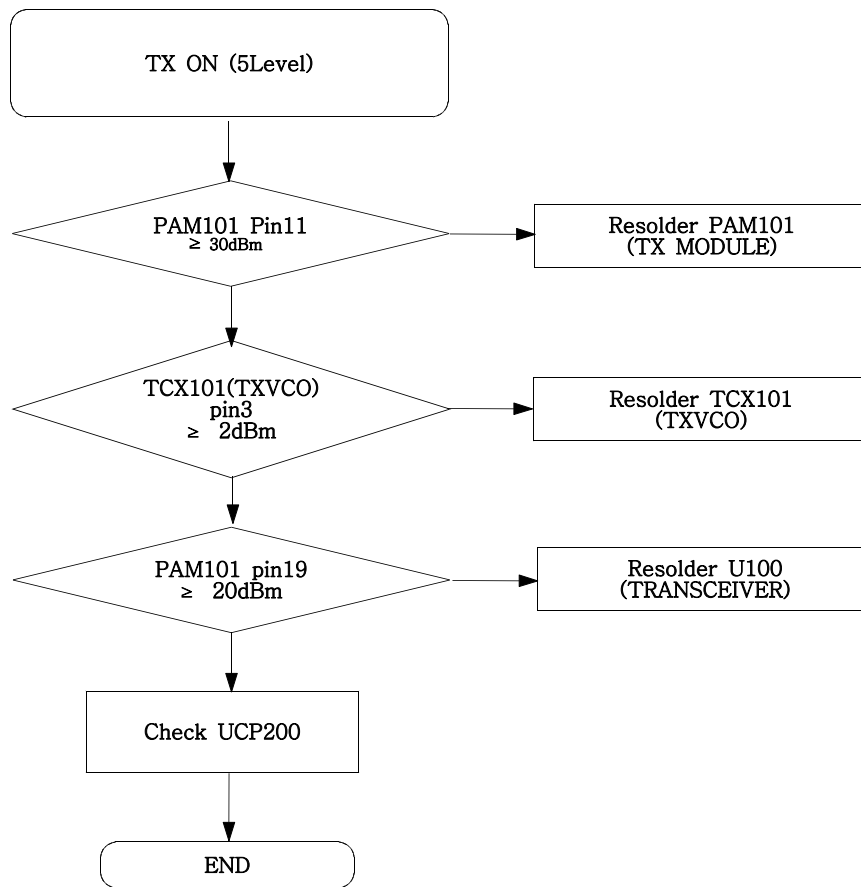
## 9-14. DCS Receiver

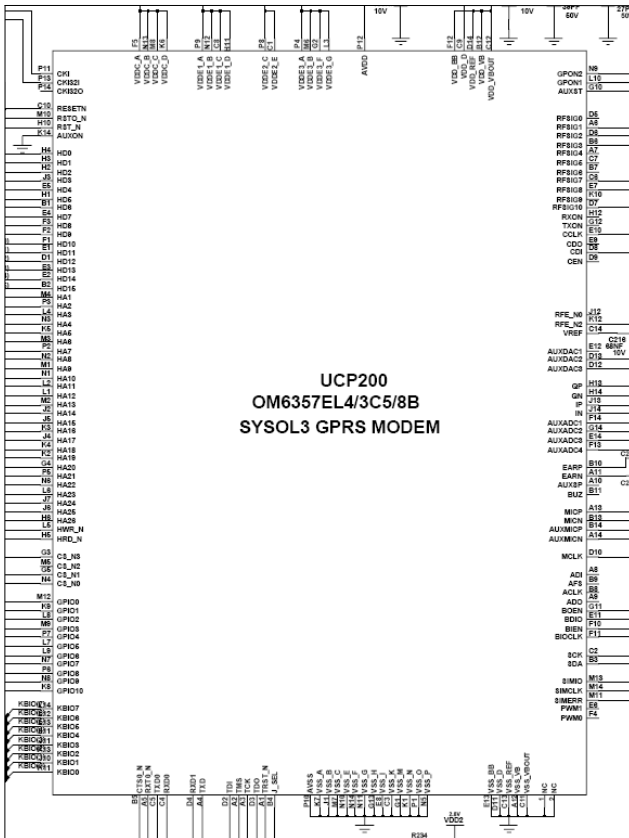
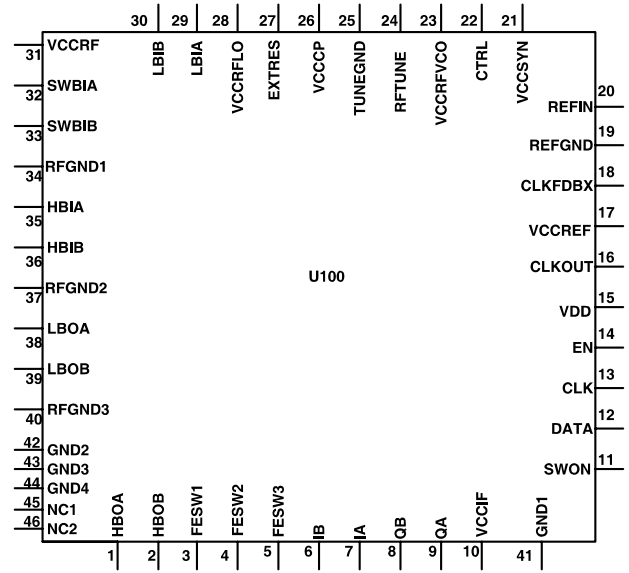
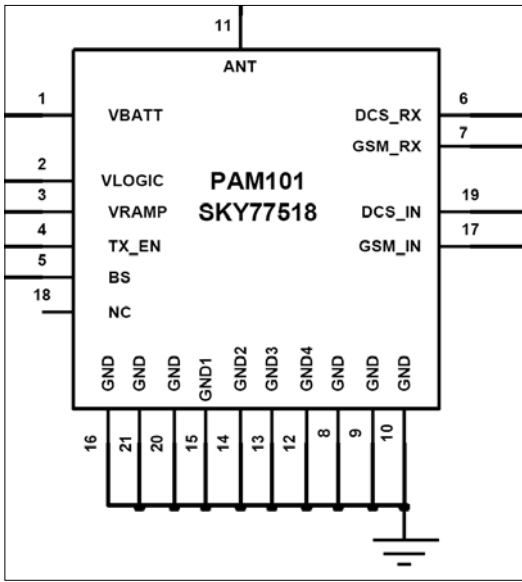




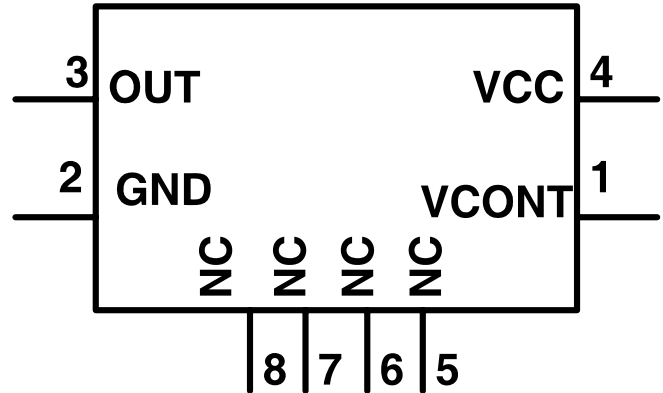


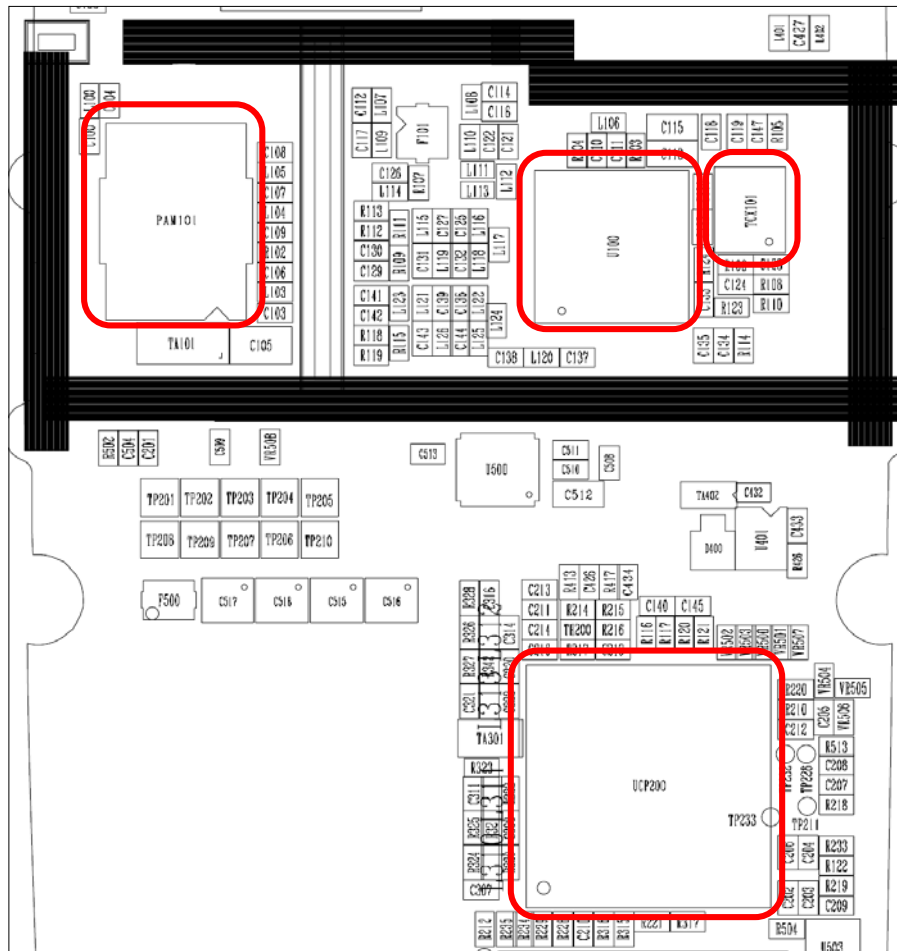
## 9-15. DCS Transmitter





## TCX101





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## 10. Reference data

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### Reference Abbreviate

- **ARFCN** : Absolute Radio Frequency Channel Number
- **BER** : Bit Error Rate
- **BPSK**: Binary Phase Shift Keying
- **ESD** : Electrostatically Sensitive Devices
- **ETSI**: European Telecommunications Standards Institute
- **MS**: Mobile Station
- **QPSK**: Quadrature Phase Shift Keying
- **RF** : Radio Frequency
- **TDMA** : Time Division Multiple Access



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