

BLU™

P R O D U C T S

DASH 3.5 SERVICE MANUAL





ATTENTION

Boards, which contain Electrostatic Sensitive Device(ESD), are indicated. Following information is ESD handling:

- Service personnel should ground themselves by using a wrist strap when exchanging system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until they are used.
- When returning system boards or parts like EEPROM to the factory, use the protective packages as described

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1. Introduction

1.1 Objective

The manual is not a general publication but only edited for experienced technician. The main purpose is to provide basic foundation for the electrical & mechanical maintenance.

1.2 General Safety notice

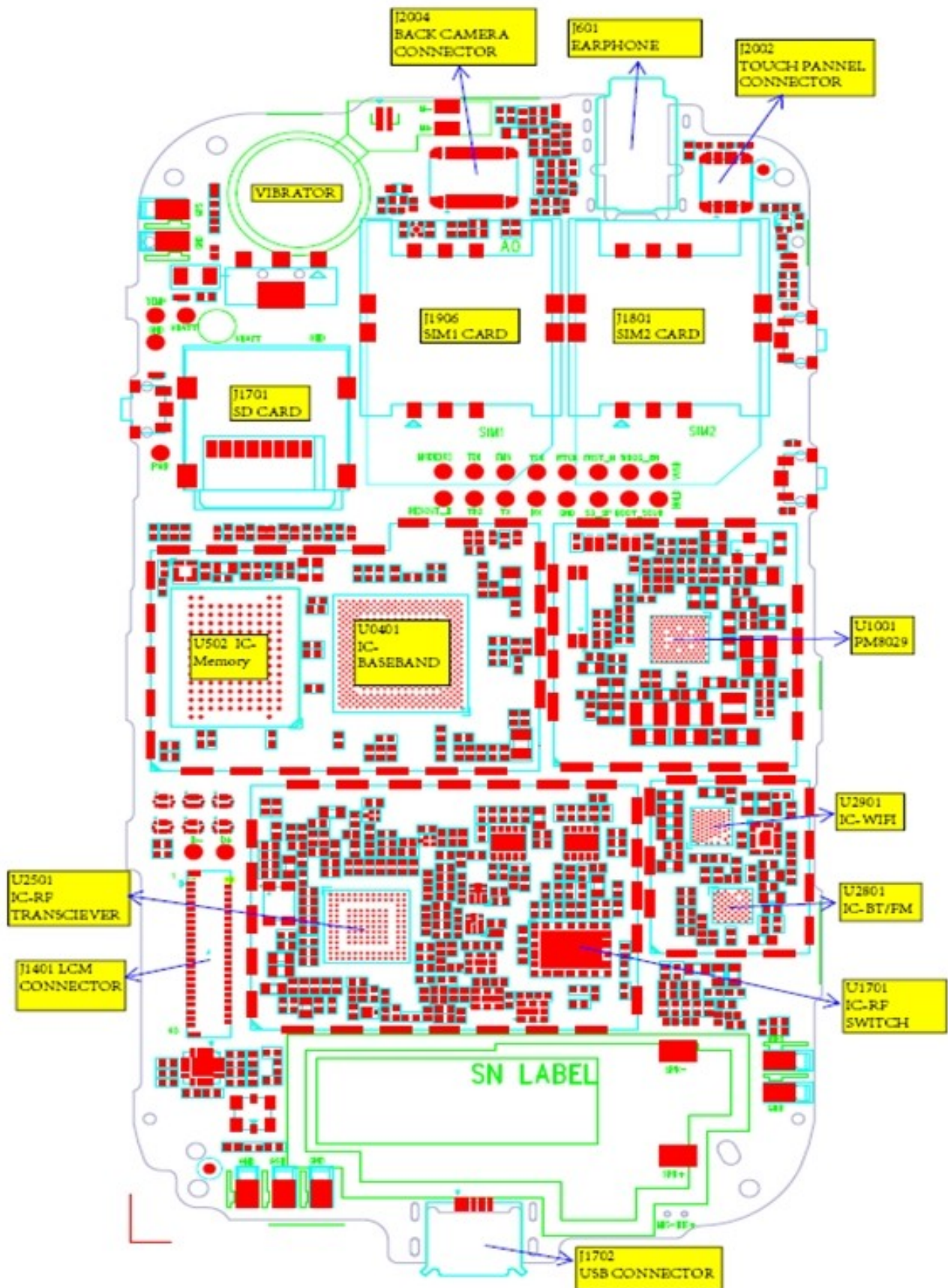
- 1) Only experienced technician can repair with this guide during product is power on. Any maintenance by other non-technicians will cause serious damage of the handset. Neither short circuit nor counter-polarity connection is allowed for any electronic part in the handset.
- 3) Be careful of ESD protection during maintenance to avoid the damage of electrostatic sensitive components on the handset.
- 4) If disassembling operation is necessary for repairing, comply with mechanical structure disassembling work instruction. Otherwise, disassembling operation will make the handset damaged.

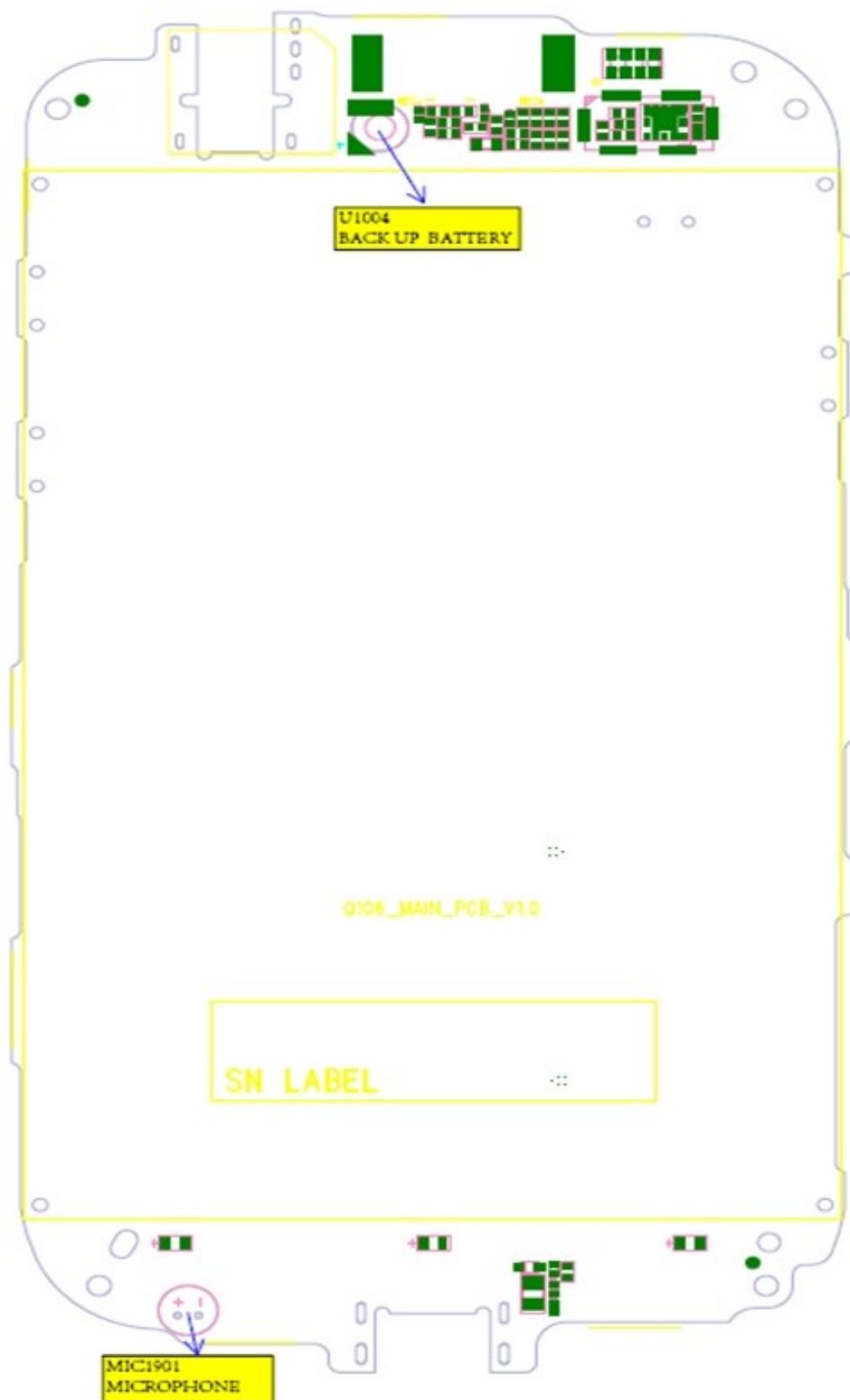
1.3 Use Instruction

- 1) Avoid using handset in conditions following:
 - Where there is any caustic liquid or gas
 - Where there is any high-temperature or fire circumstance
 - Where there is any flammable liquid or gas
 - 2) Do not use handset while driving for your safety;
 - 3) Please comply with corresponding rules in some special occasions (like in operating room, in airplane)
 - 4) Accessory purchasing or changing should comply with model matching;
 - 5) If need clean handset surface, please use cloth dipping a little clean water. Do not use soluble cleanser.
-

2. Technology summarize

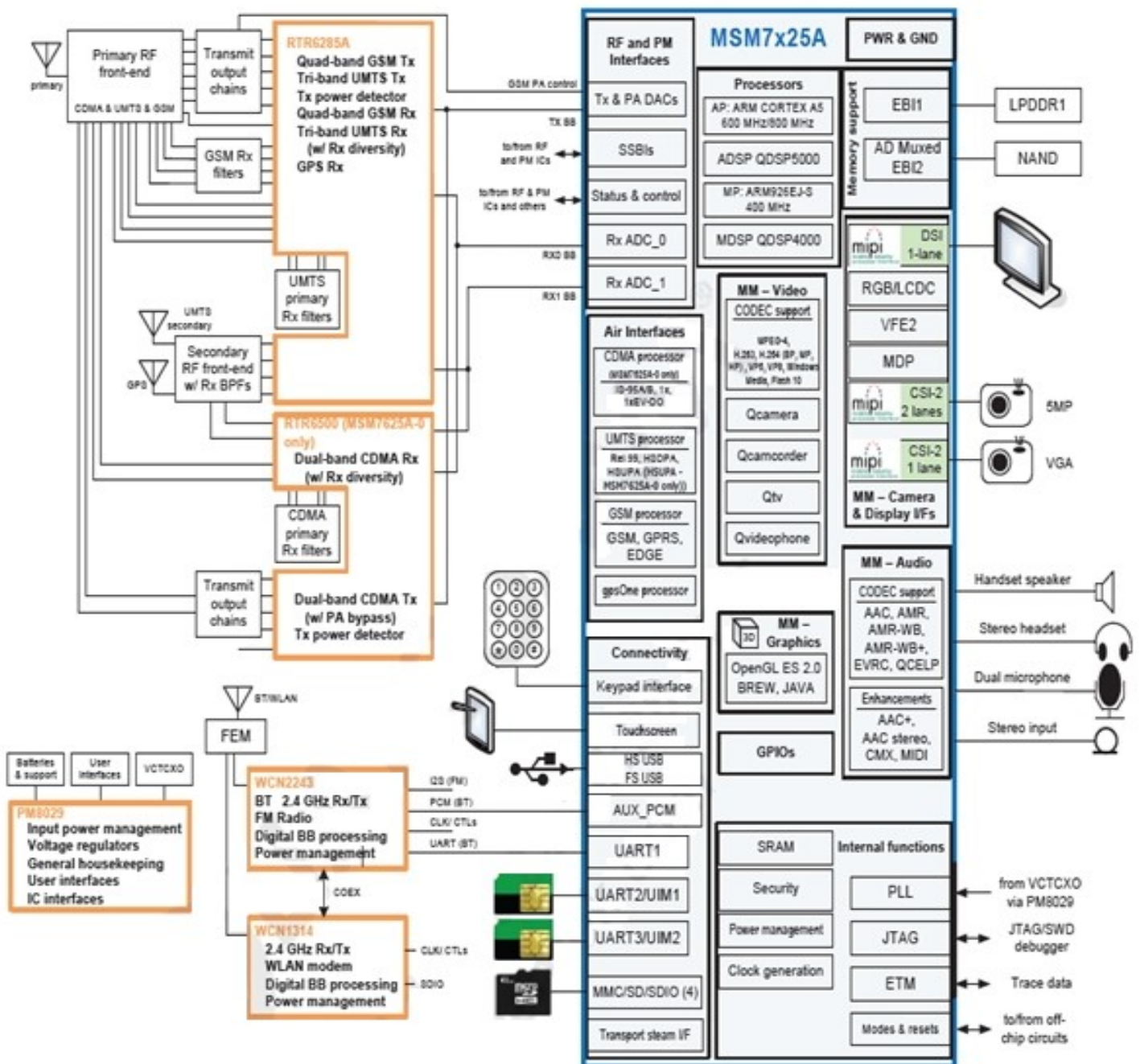
2.1 Description of main board component map





2.2 MSM7225A circuit system

MSM7225A functional block diagram as following:



MSM7225A functional system is made of three parts as below:

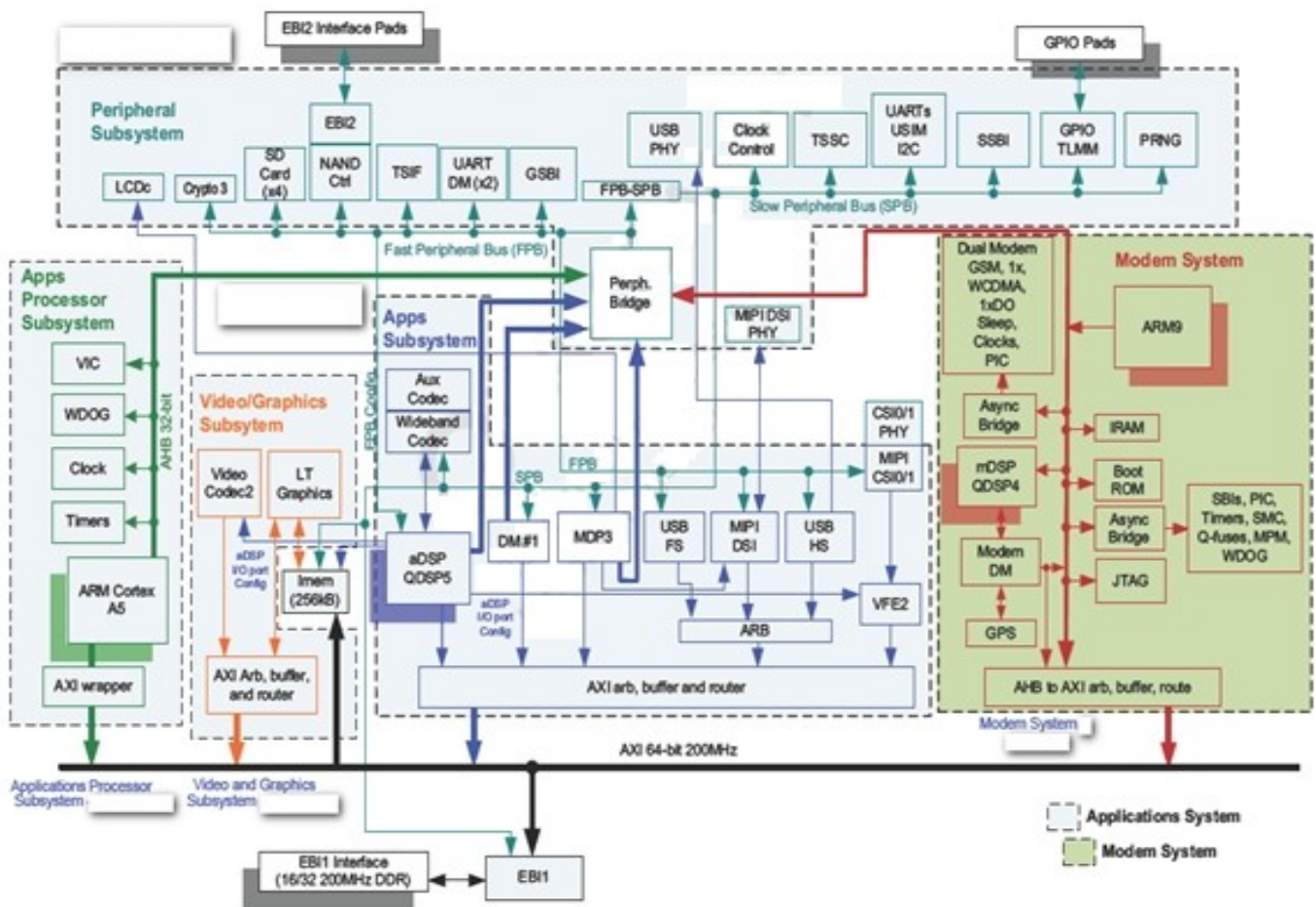
Digital baseband function: Memory, LCM, GPIO interface, Keypad interface etc.

Analog baseband function: AUDIO (including MIC, Receiver, Speaker) ,Camera, Video, Ambient light and Proximity sensor, Power management, RTC, Charge control, etc.

RF function: RF front-end module, Antenna, RF transceiver, GSM/WCDMA communication system, etc.

2.3 Base band circuit

MSM7225A baseband System Architecture as following:



Processing features:

- ◆ High-performance ARM CORTEX A5 800 MHz application processor :
 - 1) ARM architecture v7
 - 2) 32 KB instruction and 32 KB data cache
 - 3) 256 KB ARM L2 cache (L2C - 310)
 - 4) 8-stage In-order pipeline with dynamic branch prediction
 - 5) Supports the ARM and Thumb instruction sets, and Jazelle technology to enable direct execution of Java byte-codes
- ◆ Industry standard ARM926EJ-S 400 MHz embedded microprocessor subsystem
 - 1) 16 KB instruction and 16 KB data cache
 - 2) ARM version 5TEJ instructions

-
- 3) Higher performance five-stage pipeline, Harvard cached architecture
 - 4) Higher internal CPU clock rate with on-chip cache
 - 5) Internal watchdog and sleep timers
 - ◆ QDSP5000 350 MHz application digital signal processing (ADSP)
 - 1) 512 KB L2 cache
 - ◆ QDSP4000 122.88 MHz modem digital signal processing (MDSP)

Memory support features

- ◆ 256 KB internal memory (IMEM) for graphics, internal functions, DSP, etc.
- ◆ Dual-memory buses separating the high-speed memory subsystem (EBI1) from low-speed peripherals (EBI2) such as LCD panels
- ◆ Enhanced EBI1 memory support: 200 MHz bus clock for DDR SDRAM ◆

EBI2 support:

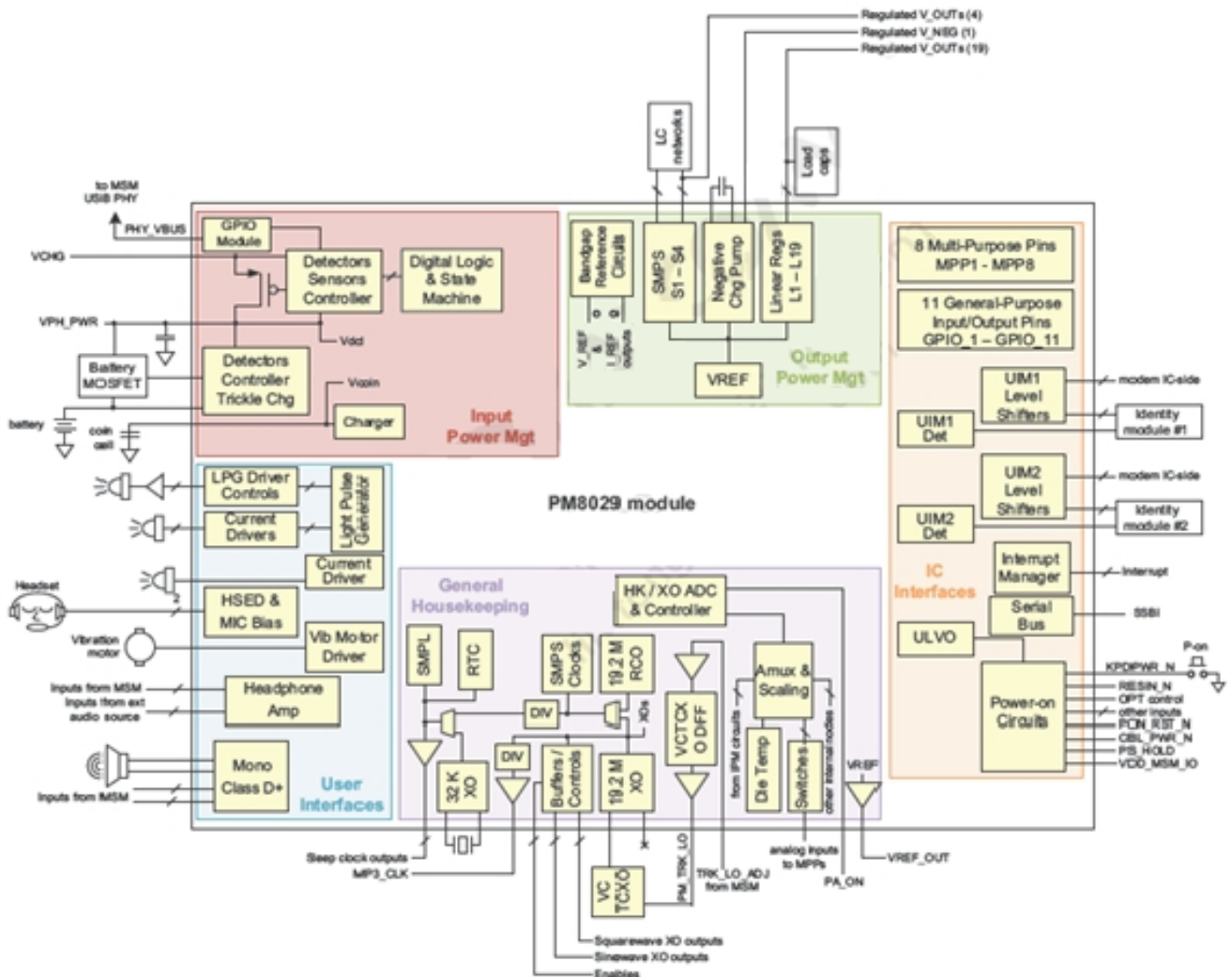
- 1) 1.8V memory interface support
- 2) Support for EBI2 A-D mixed mode
- 3) NAND flash memory interface
- 4) Support for 8-bit BCH ECC
- 5) Boot from NAND (One NAND not supported)
- 6) LCD

2.4 Power Management circuit

The PM8029 device integrates all wireless handset power-management, general house -keeping, and user-interface support functions into a single mixed-signal IC.

This mixed-signal BiCMOS device is available in the 140-pin Wafer Level Nano-Scale Package (140 WLNSP), which includes several ground pins for electrical ground and thermal relief.

Power management functional block diagram as following:



Power management features:

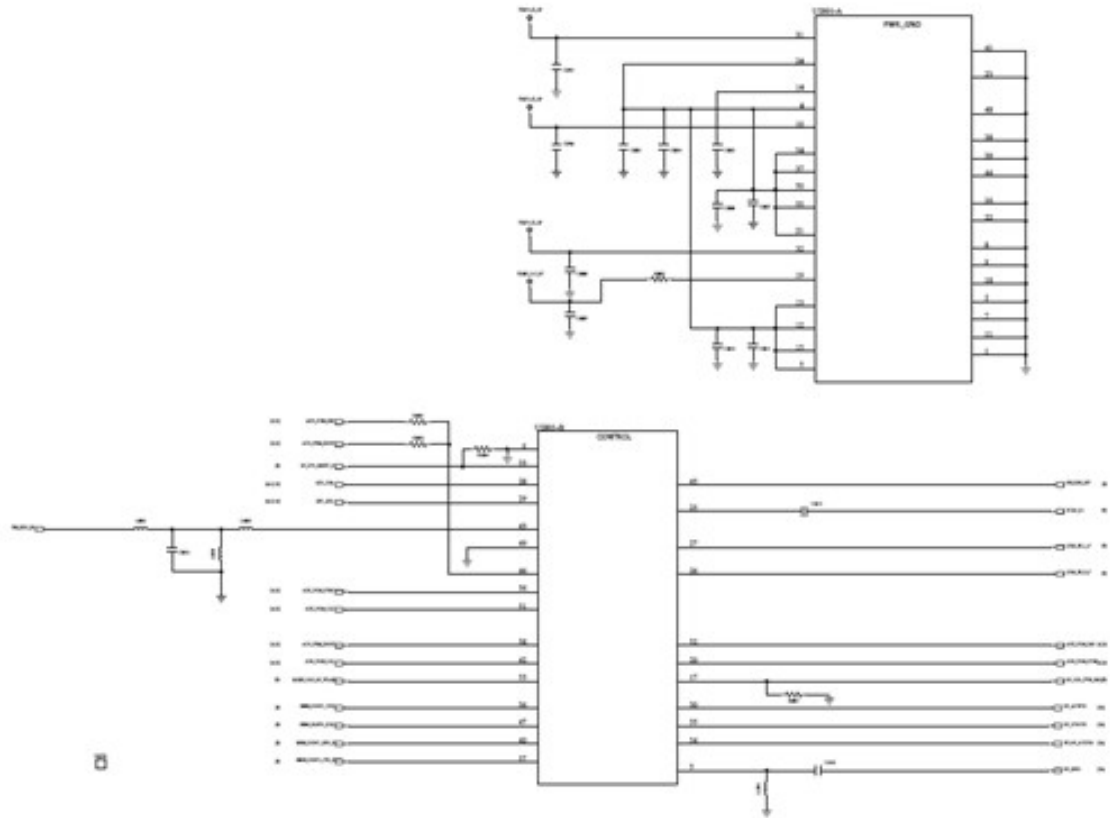
- ◆ Linear regulated charging from an external DC charger supply ◆
- Four buck switching regulators
- ◆ One negative charge pump switching regulator
- ◆ 19 linear regulators
- ◆ Multiple input ADC
- ◆ Single sine wave and dual square wave output VCTCXO (or XO) buffers and regulator with deglitches.
- ◆ Clock outputs to support high-speed USB (HS-USB) and general-purpose applications (19.2 MHz and 2.4 MHz).
- ◆ 19.2 MHz crystal oscillator for system timing
- ◆ 32.768 KHz crystal oscillator and real-time clock with alarm and coin cell backup
- ◆ Eleven configurable GPIO pins and eight MPPs
- ◆ Vibration motor driver with programmable output voltage
- ◆ Up to 1 W mono-speaker class-D drivers with bypass switches ◆
- Dual input, cap less output stereo headphone amplifiers
- ◆ 18 V overvoltage protection on VCHG pins
- ◆ Dual SIM dual standby (DSDS) - level translation and deactivation management for 2 UIM cards
- ◆ Synchronous GSM VBAT measurements - hardware to synchronize ADC measurements

with GSM transmit pulse

- ◆ PDM flip-flop - built-in voltage leveling and clock synchronization flip-flop

2.5 BT/FM circuit

BT/FM schematic as following:

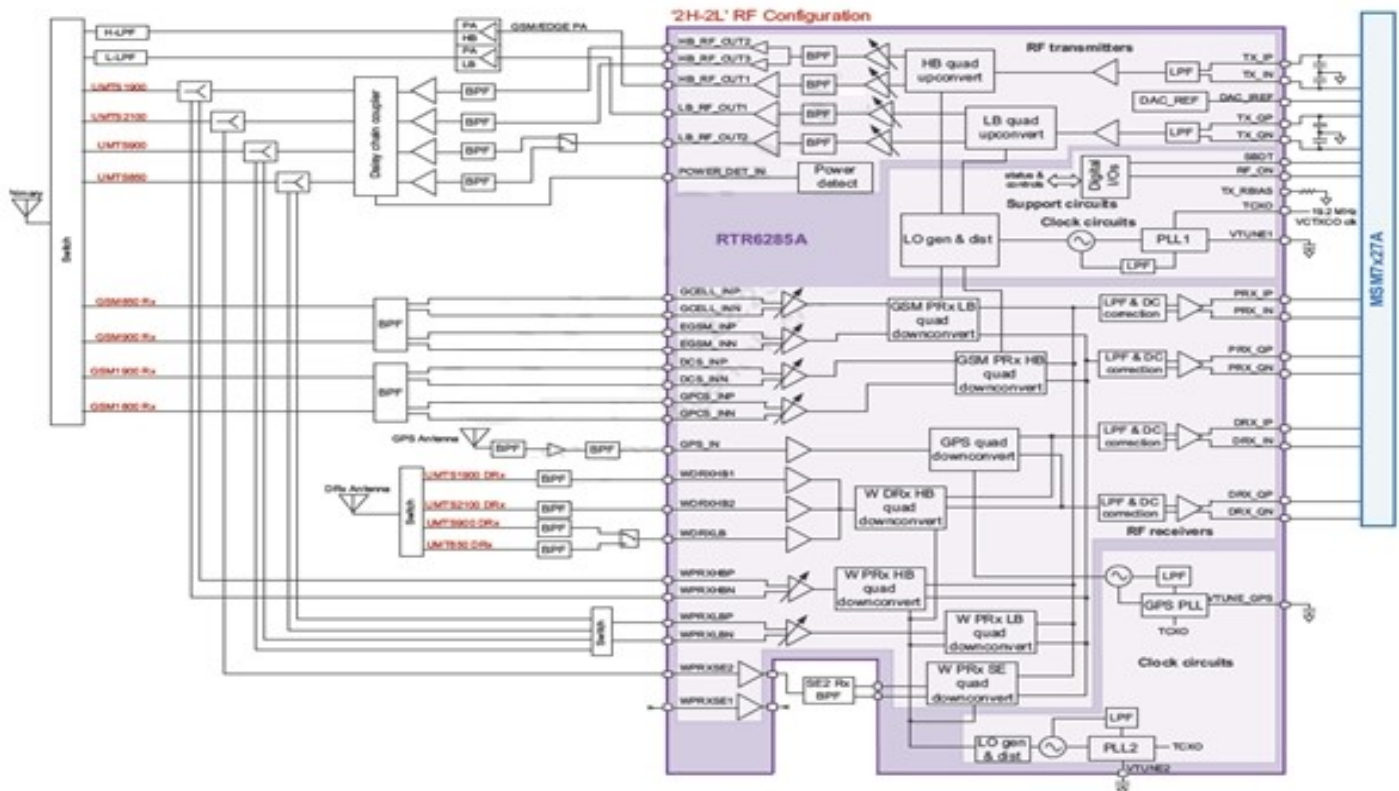


WCN2243 integrated BT/FM function.

- ◆ Standalone BT
 - 1) 2.4 GHz BT transceiver
 - 2) BT baseband processor
 - 3) Compliant with BT core specification version 4.0(BR/EDR+BLE)
 - ◆ Standalone FM radio
 - 1) FM transmitter/receiver
 - 2) FM baseband processor
 - 3) Worldwide FM band support with RDS
 - ◆ Support circuits that provide regulated supply voltages, clocks, and digital I/Os for the BT and FM radio circuits
-

2.6 RF circuit

RF functional block diagram as following:



RF interface features:

- ◆ TX output chain controls
 - 1) Multiple CDMA and UMTS PA on/off and range controls
 - 2) GSM PA power control
 - 3) 14-bit generic RF controller (GRFC) interface
- ◆ RTR6285A status and control
 - 1) Multiple SSBIs
 - 2) Tx enable and gain control
- ◆ Rx/Tx analog baseband interfaces
 - 1) Dual Rx analog baseband interfaces support CDMA and UMTS diversity Rx plus S-GPS
 - 2) Tx analog baseband supports all phone transmission modes

3. Trouble Shooting

3.1 Fail to startup/power on

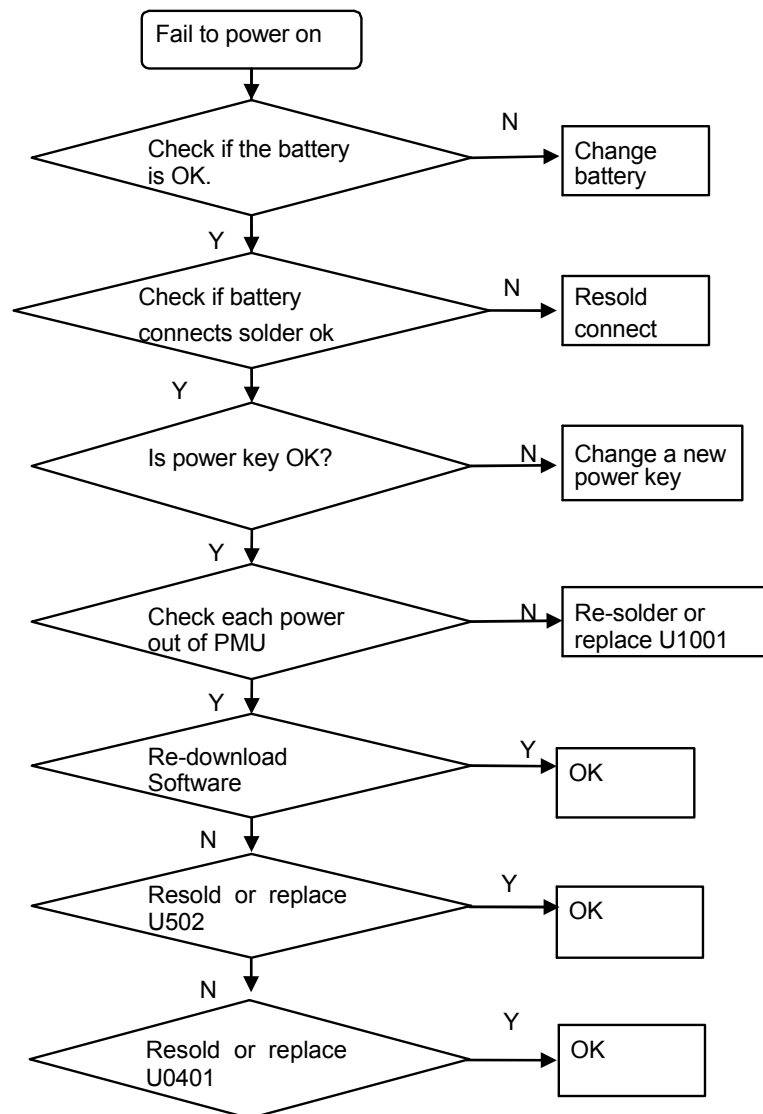
The following conditions may cause boot fail: battery low, battery connector is damaged or bad welding, components bad weld/short-circuit or damaged

First, change a fully charged battery test, still startup fail, check battery connector ok or not, if connector damaged change a new one;

Second, connect to DC power supply, if the boot process is no current, we should check power key solder ok or not;

Third, if the boot current is very small and cannot maintain, connect the power on test point to GND, then check below voltage in sequence, VREG_S1, VREG_S2, VREG_S3_SP, VREG_L3, VREG_L7, VREG_L4, VREG_L12, VREG_L9, VREG_L14 ok not.

Fourth, if the current stay in 40mA, we should check the circuit around flash, when CPU calling program from flash fail, the current will stay in 40mA, re-download the software or change a new flash or CPU.



3.2 Fail to charge

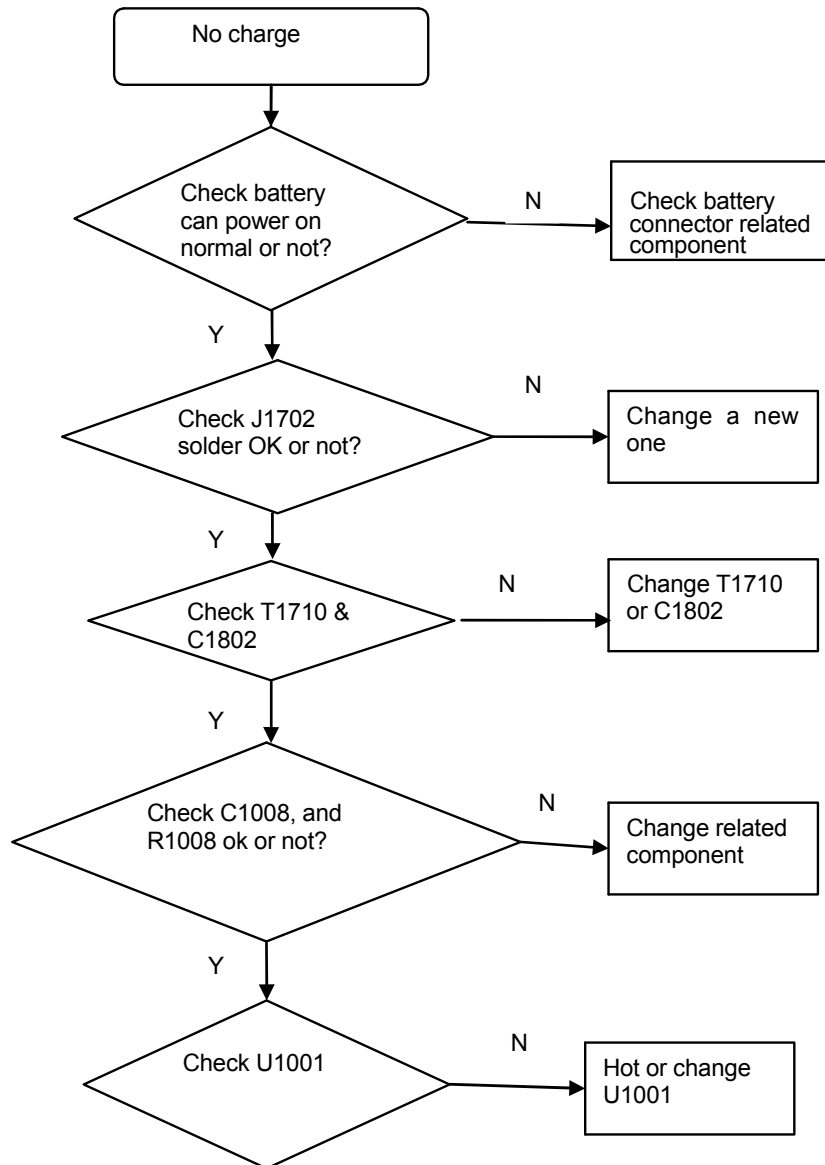
Check charging circuit related component, check below information in sequence:

First, checks whether boot normal use the battery, if not check battery connector solder ok or not;

Second, check USB connector on board solder ok or not;

Third, check T1710 whether reverse; check C1802 resistance is very big or not.

Fourth, check U1001 solder ok or not, re-hot U1001 or change a new one.



3.3 Fail to display

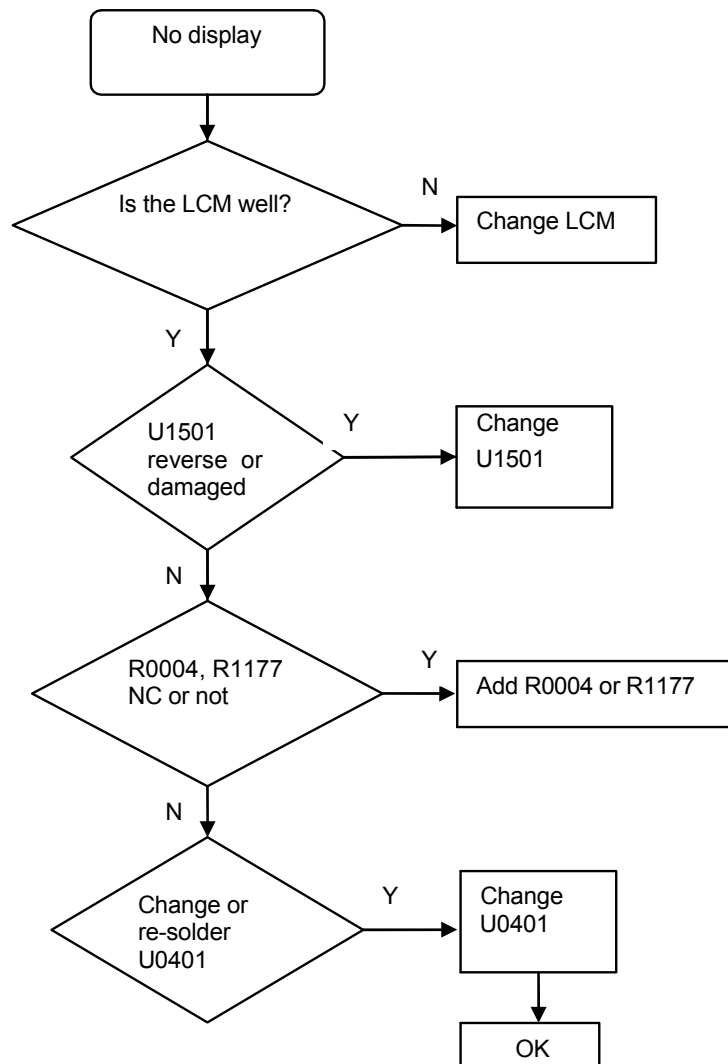
The screen dose not shines or shows white:

First, use DC power supply to start-up, check the board whether power on normal, ensure main board can power on normal

Second, check LCD module, change a new module, check whether can display normal,

Third, check R0004, R1177, U1501 solder ok or not

Fourth, use oscilloscope to test LCD_BACKLIGHT_EN, check it whether high, if not, check R1507 resistance, U0401 solder ok or not, re-hot U0401or check a new one.

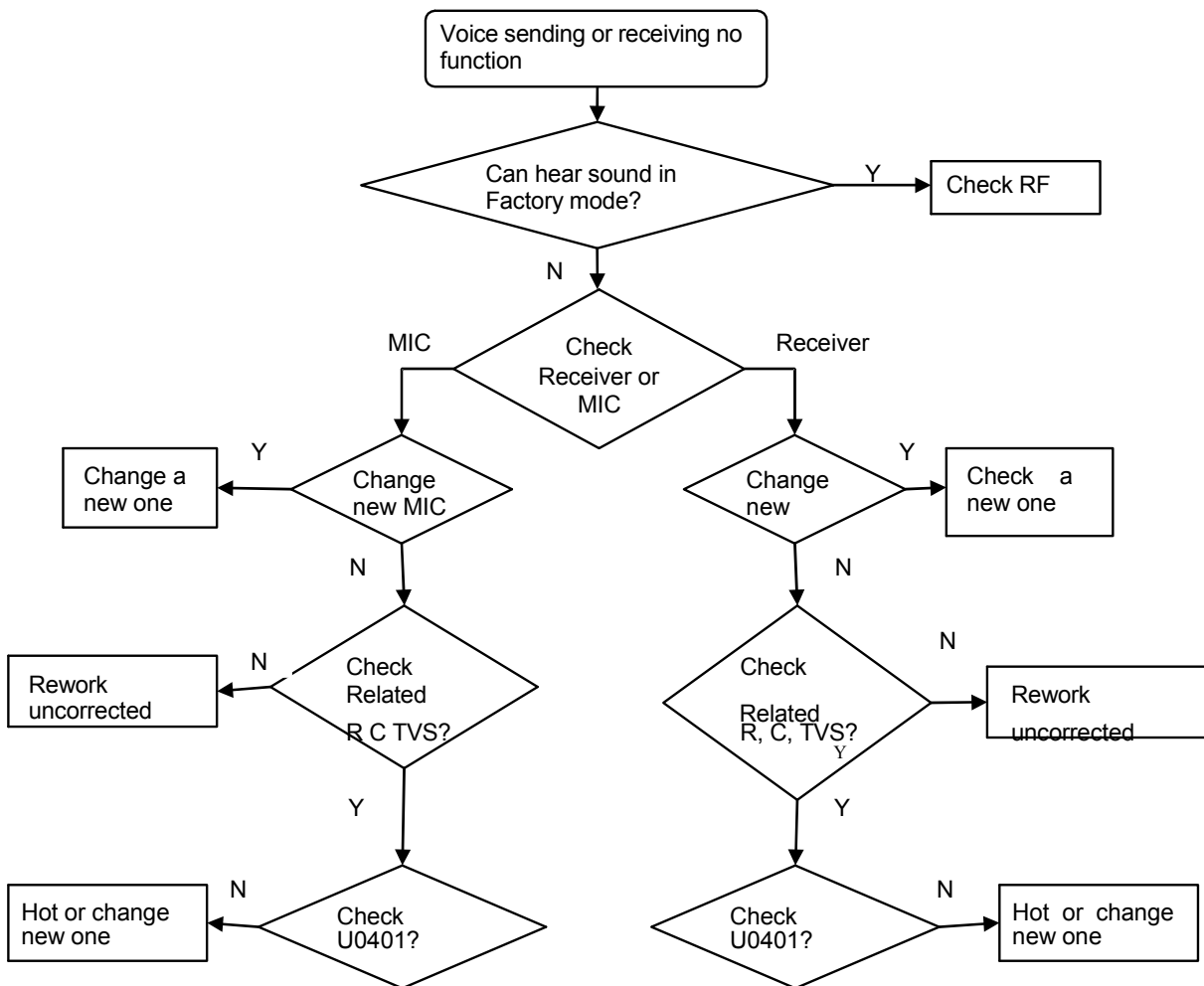


3.4 Fail to call

When call with somebody, we cannot hear what he says or he cannot hear what we say: This fail may cause by receiver or microphone fail, it can test in factory mode, type "***7***" enter factory mode, Transmitter/Receiver test, if ok, it may RF fail, if fail, we need to make sure is receiver or microphone fail.

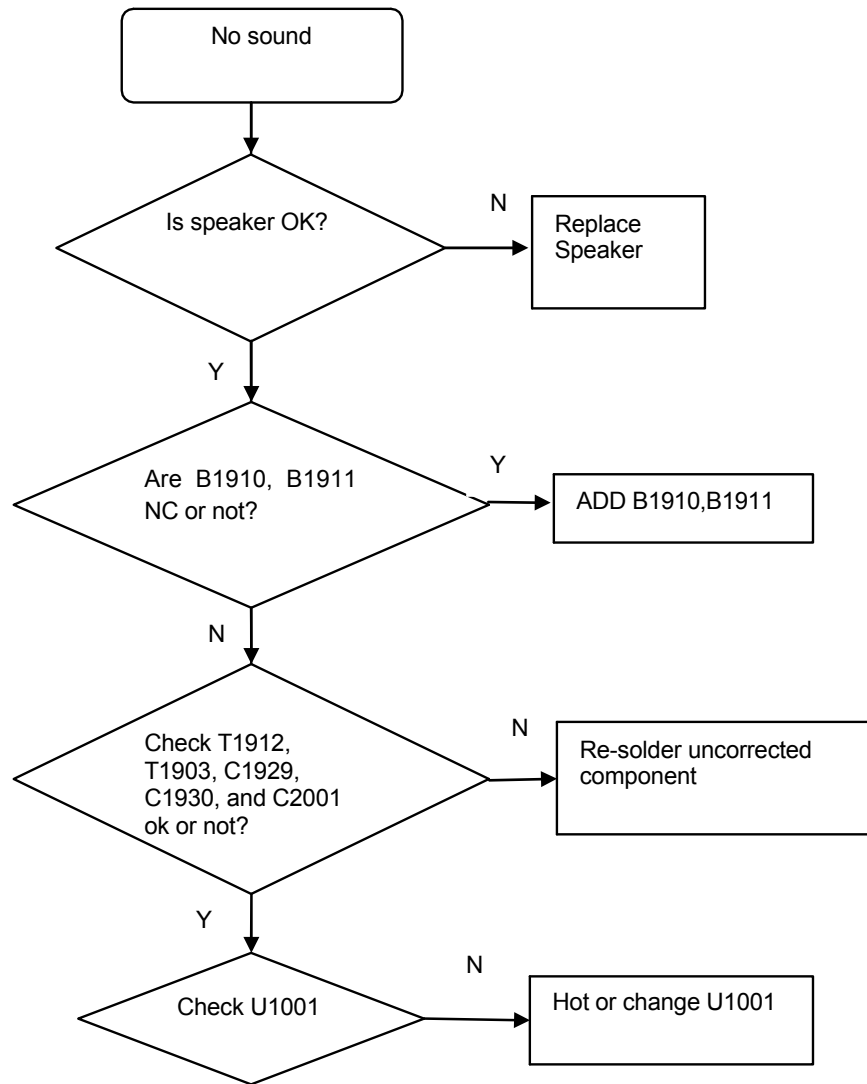
Call 112, if can hear voice, it may microphone problem, check microphone related circuit ,check B1501, B1502 ,C1907,C1908,T1901,T1902 solder ok or not, if all ok, change a new microphone, also fail, check CPU, re-hot U0401 or change a new one.

Call 112, if cannot hear voice, it may receiver problem, change a new receiver, check R1916, R1917, C1926, C1927, C1928, C2002, V1201, V1202 ok or not, if ok, check CPU, re-hot U0401 or change a new one.

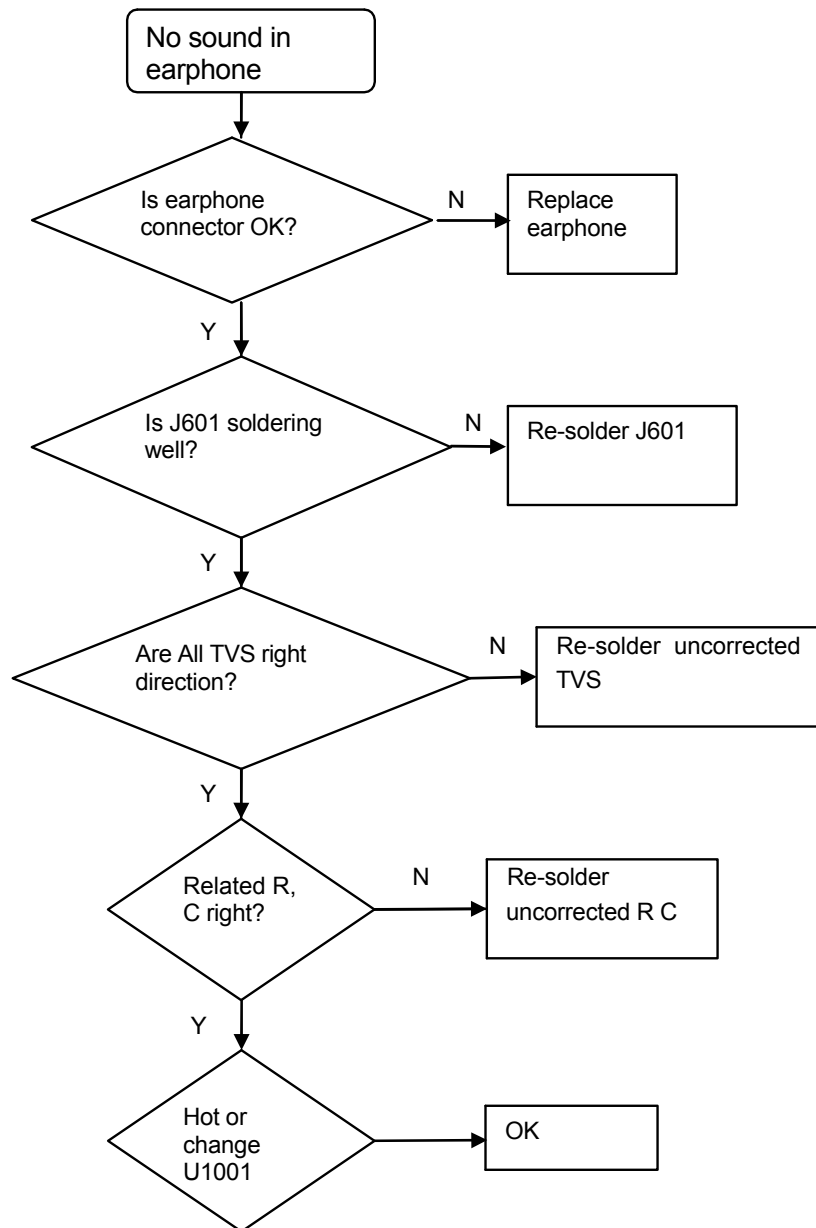


3.5 Speaker no sound

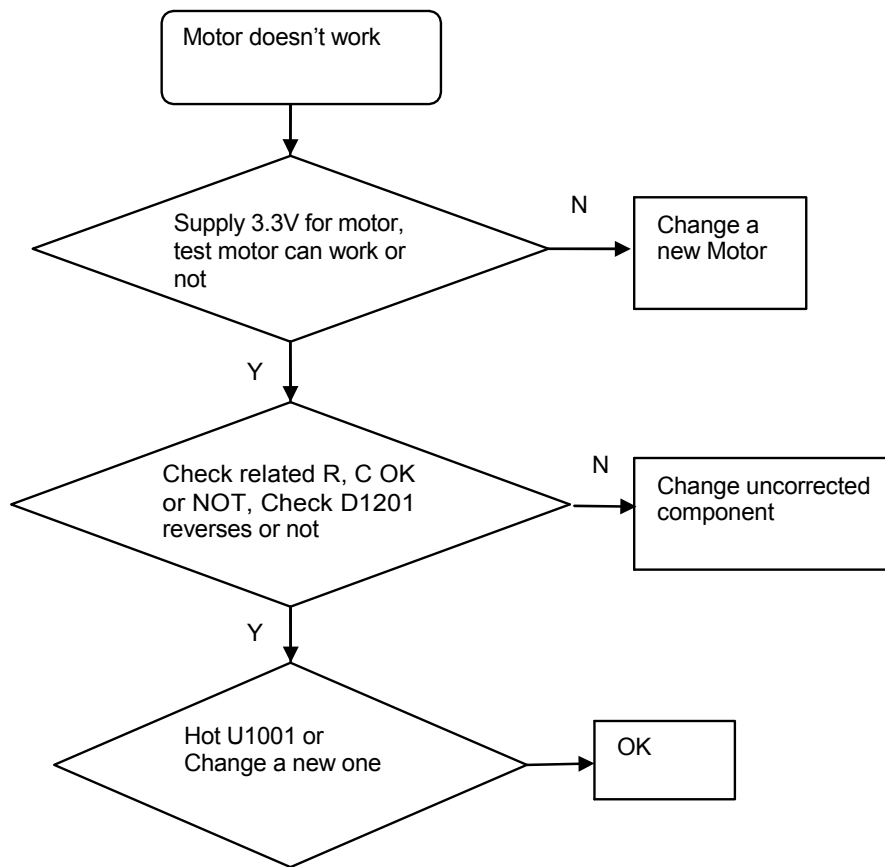
First, check speaker ok or not, change a new one;
Second, check B1910, B1911, T1912, T1903, C1929, C1930, C2001, solder ok or not;
Third, check U1001, re-hot or change a new one.



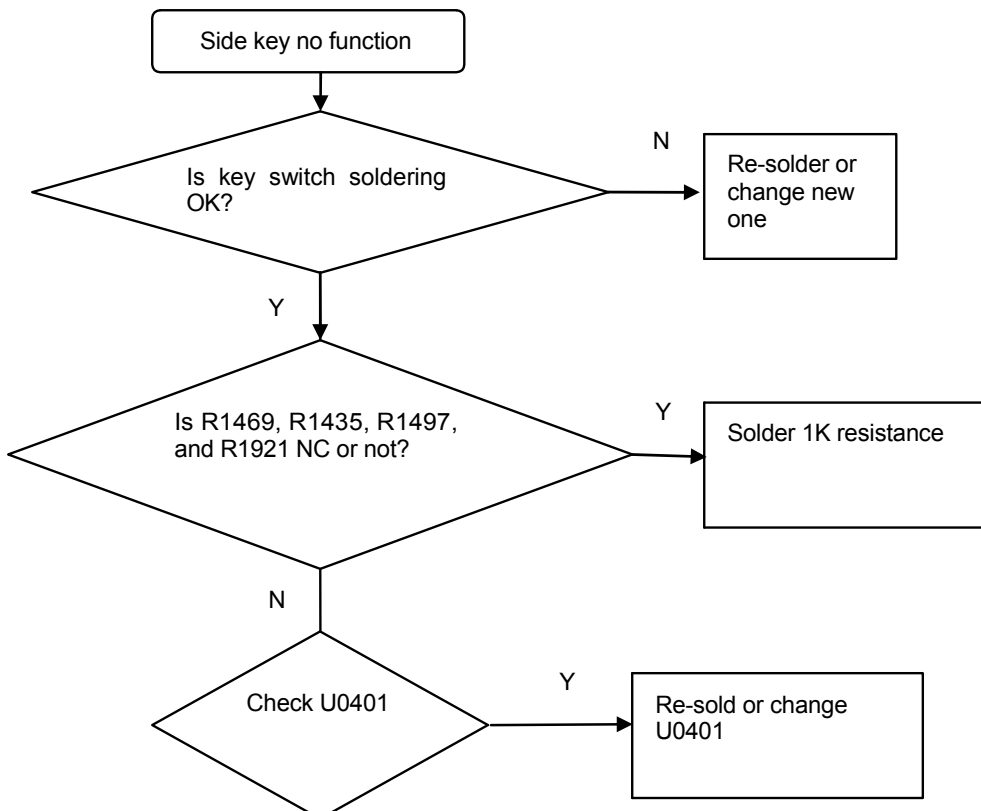
3.6 Earphone fail



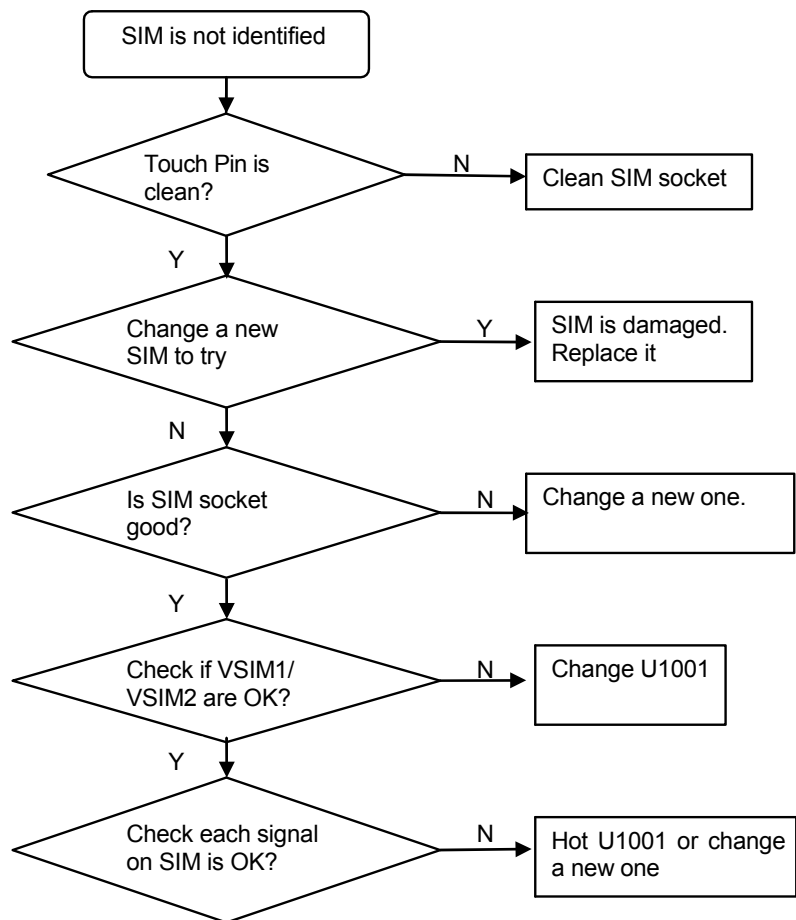
3.7 Vibrator fail



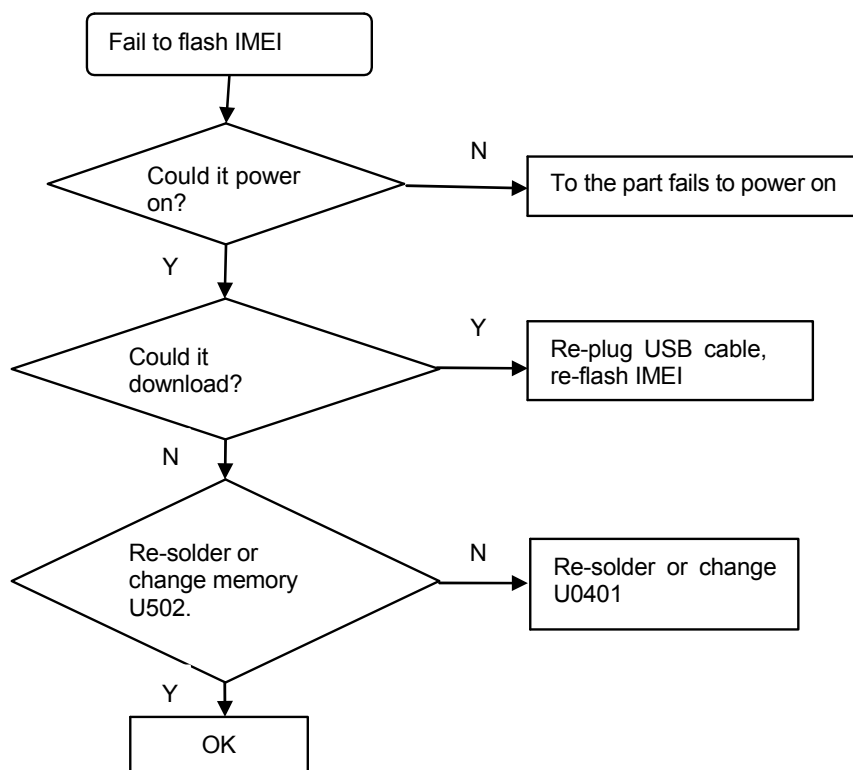
3.8 Side key fail



3.9 Failure to identify SIM card



3.10 Failure to flash IMEI

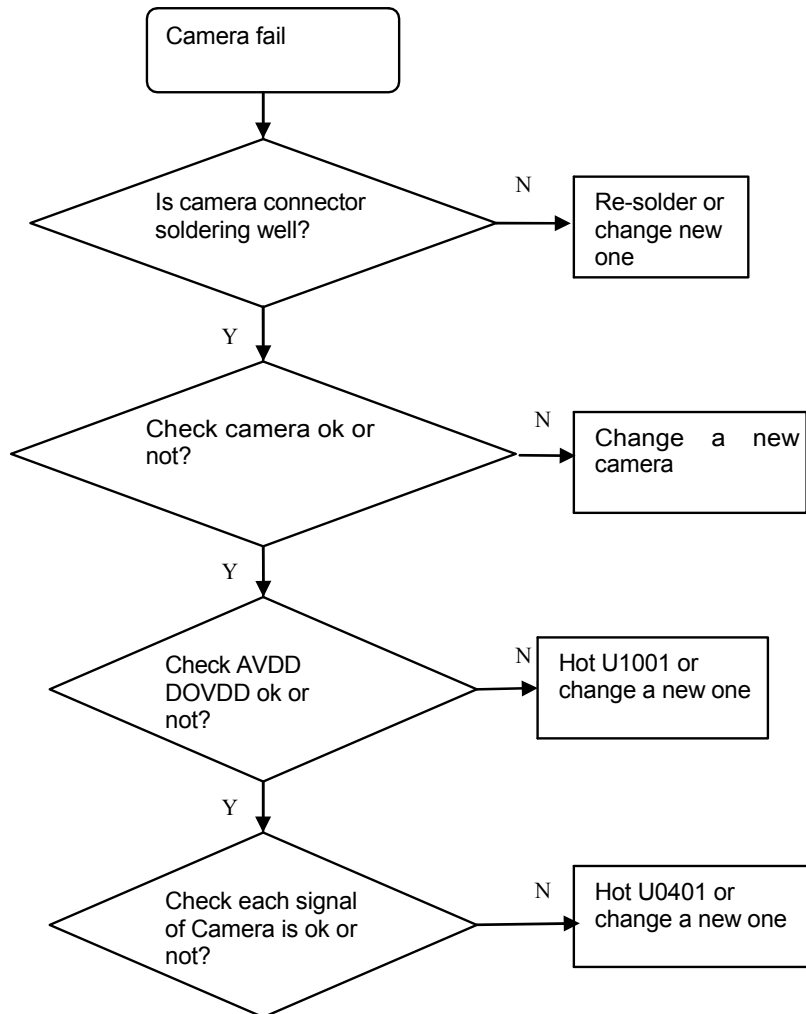


3.11 Camera fail

First, change a new camera module, check camera connector ok or not;

Second, check AVDD, DOVDD.

Third, use oscilloscope to test I2C, CAM_RST, CAM_MCLK, CAM_PCLK, MIPI_DATA, and MIPI_CLK. If signals abnormal check U0401, re-hot or change a new one.



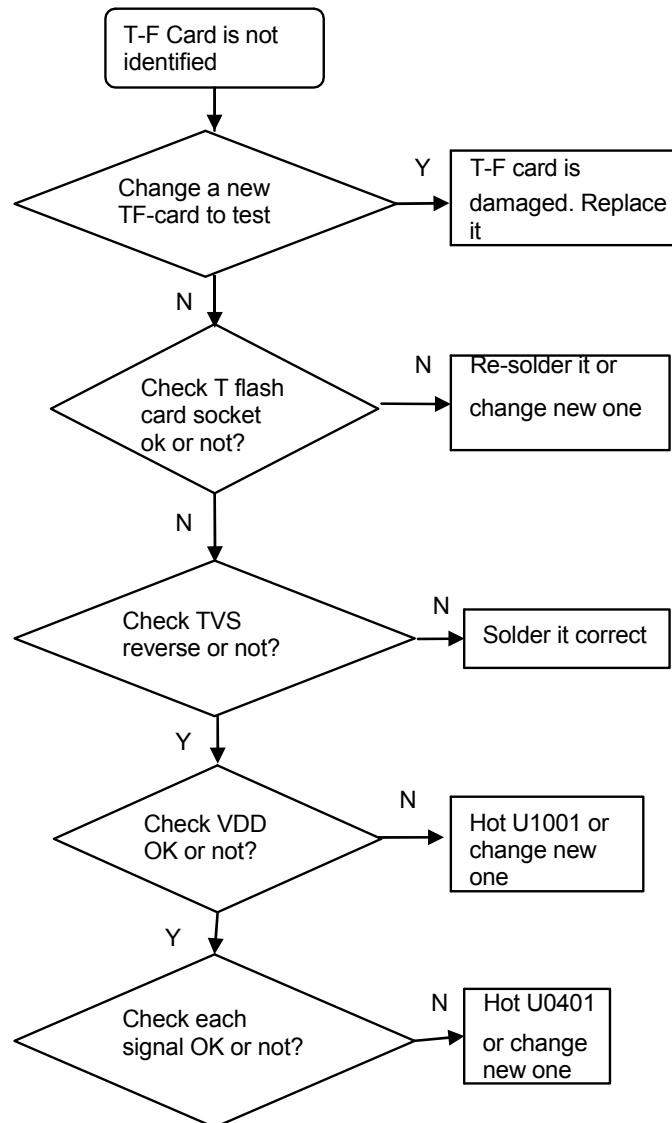
3.12 Failure to read T-flash card

First, change another T flash card, check whether T flash card bad or not

Second, check card connector solder ok or not, if fail, re-solder or change a new one

Third, check TVS reversed or not, check VDD whether normal

Fourth, test related signals, such as MCCK, MCCM0, MCDA0, MCDA1...MCDA3, if abnormal, check U0401, re-hot or change a new one.

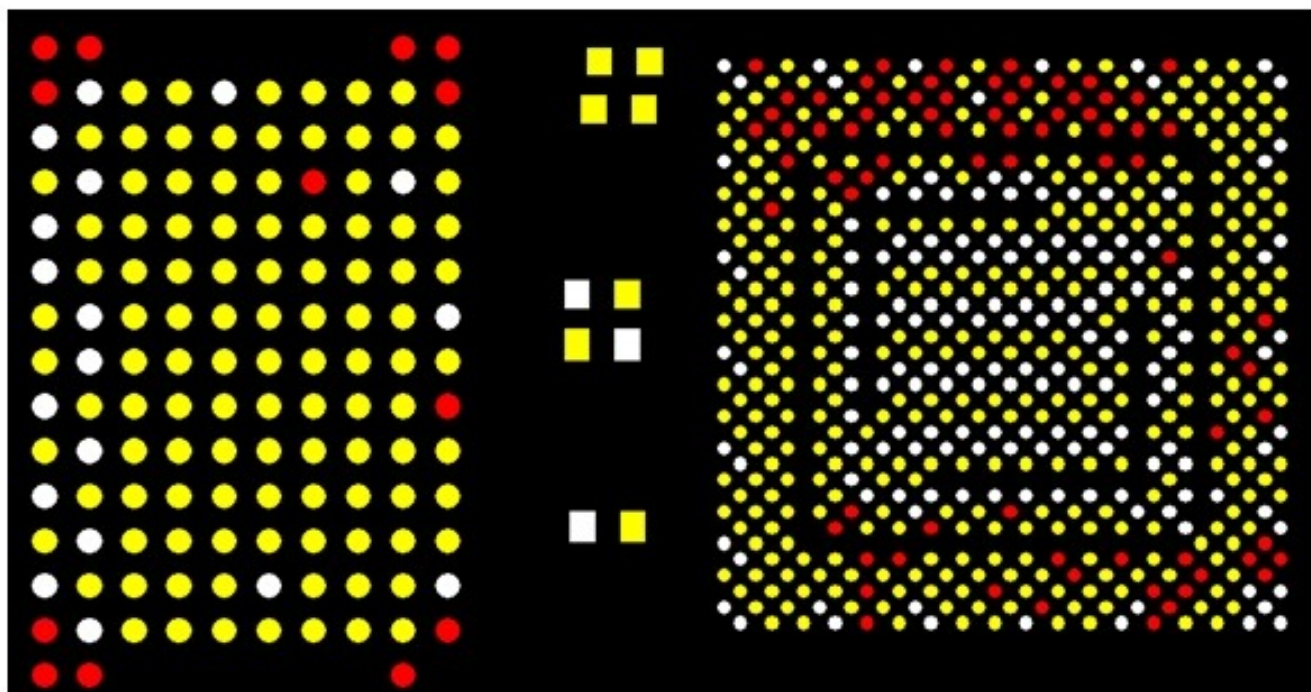


4. BGA related GND or no function pad

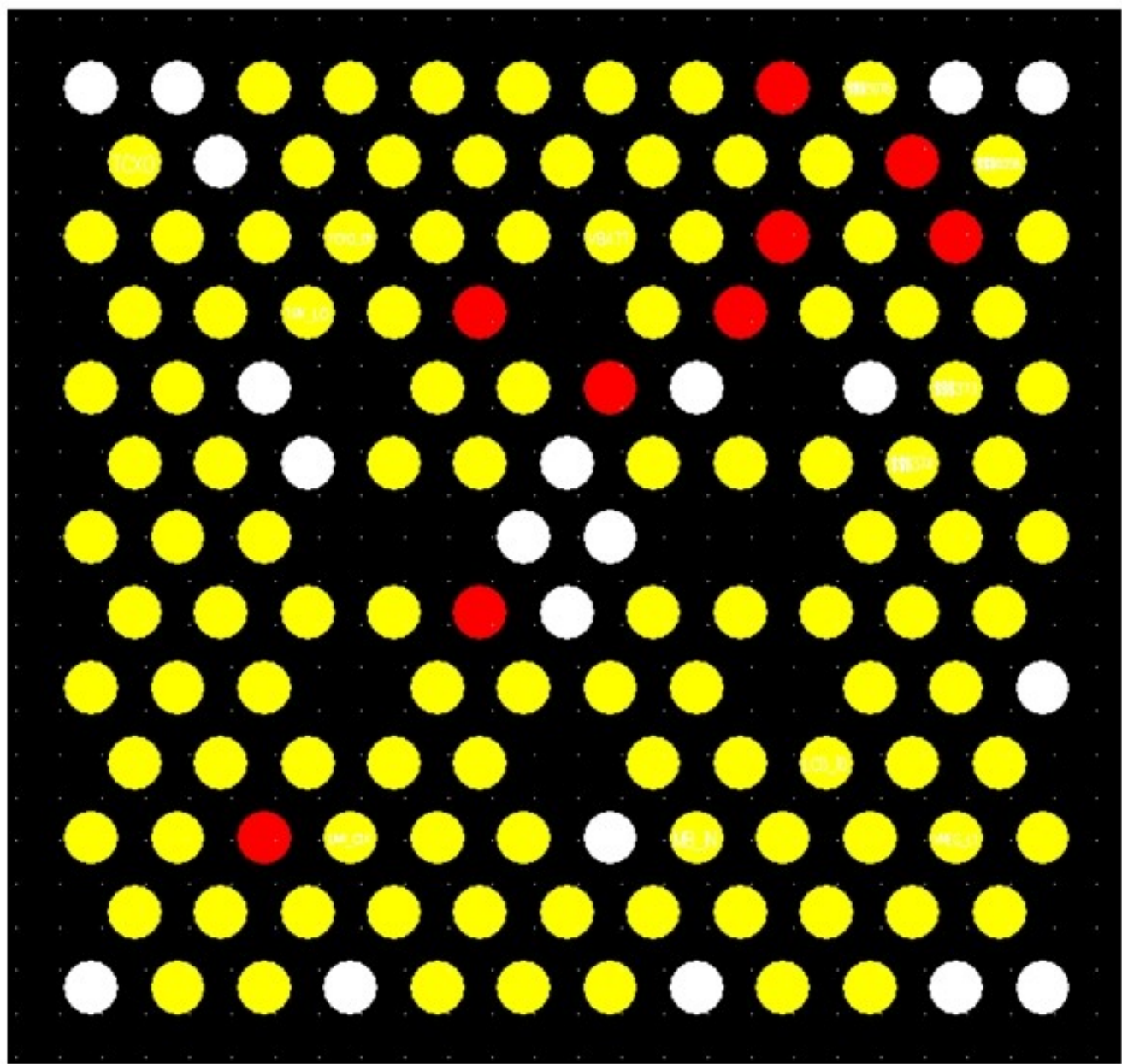
Red-----no function pad

White-----GND pad

4.1 CPU and memory pin map



4.2 PMU pin map



4.3 BT/FM/WIFI pin map

