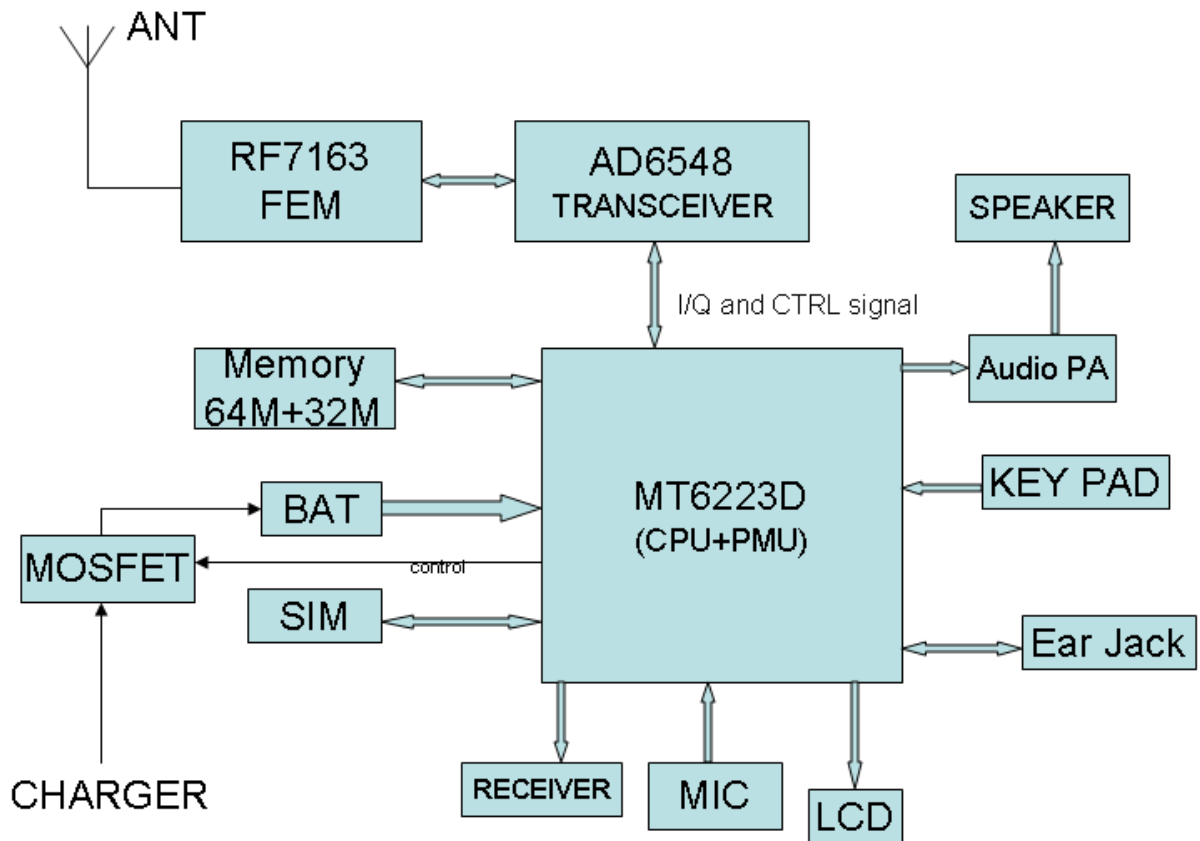

Circuit Description

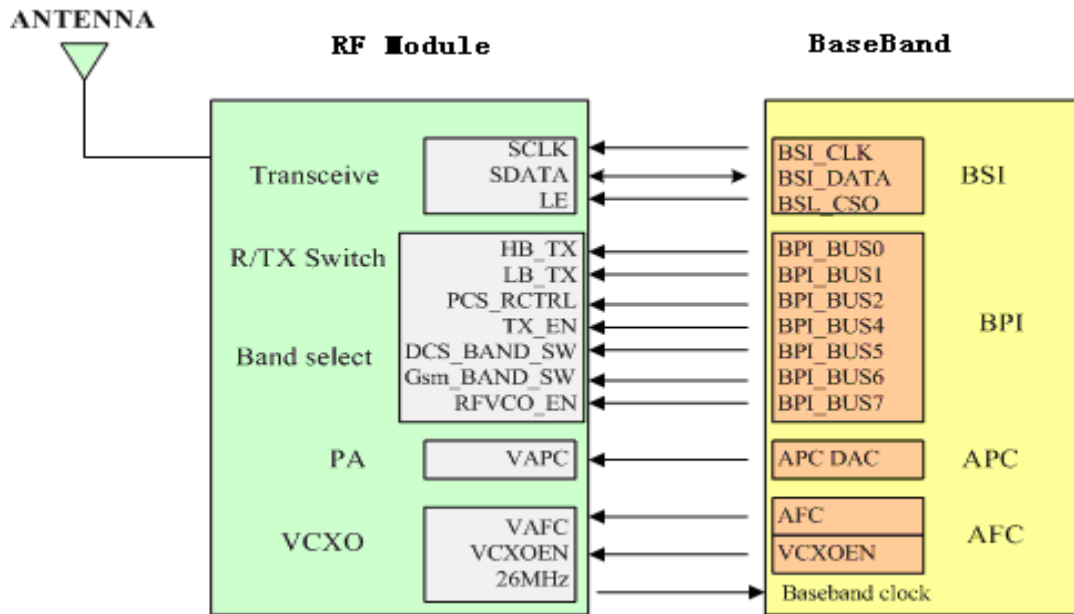
VERSION : V1.0

block diagram



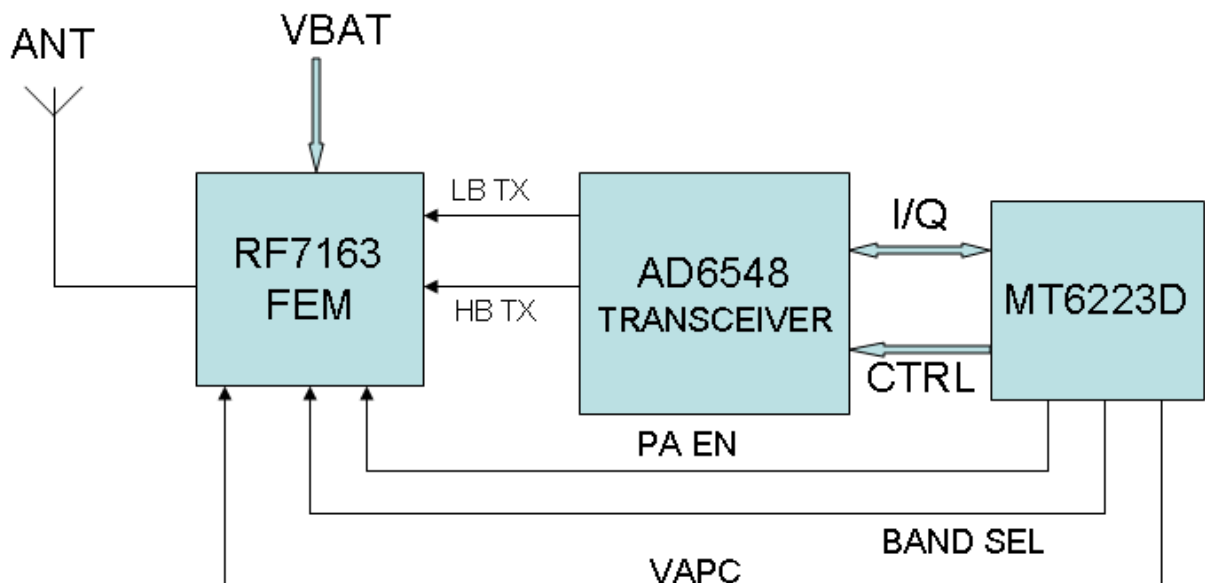
RF part

2.1 RF block diagram



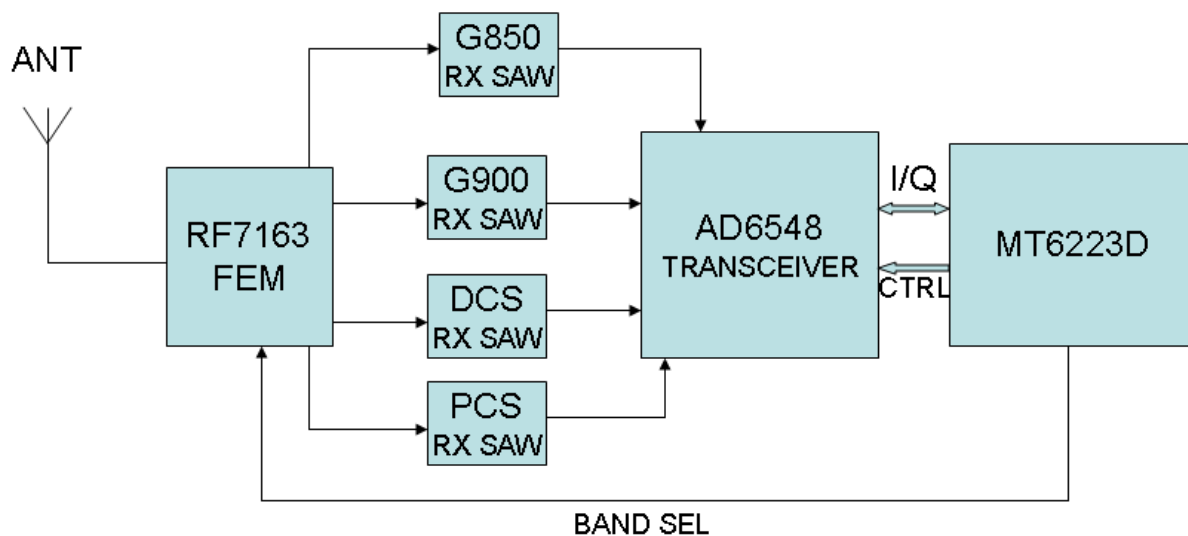
GSM RF and BB interface diagram

2.2 RF TRANSMIT PART



This circuit shows the transmitter path. The RF signal which is amplified by RF PA is transmitted to antenna through antenna switch and then radiated to the air. MT6223D controls RFPA through PA_EN, BANDSW, APC CONTROL.

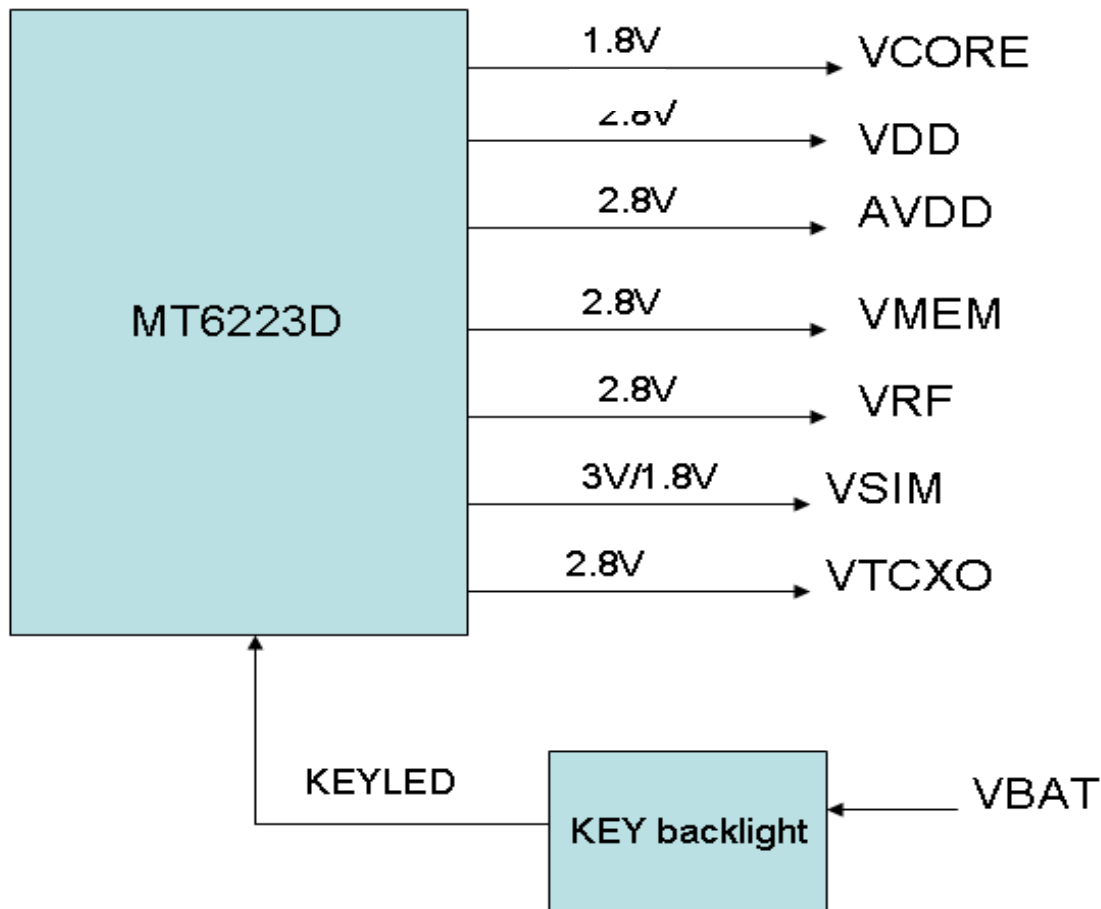
2.3 RF RECEIVE PART



This circuit shows the receiver path. When receiving, the antenna receives the RF signal, and then demodulated by AD6548 after band filter. MT6223D control the RF switch to select the proper band(DCS or GSM) through band select signal. MT6223D controls AD6548 through SPI, and transmit/receive data through I/Q bus.

BB PART

POWER MANAGEMENT PART

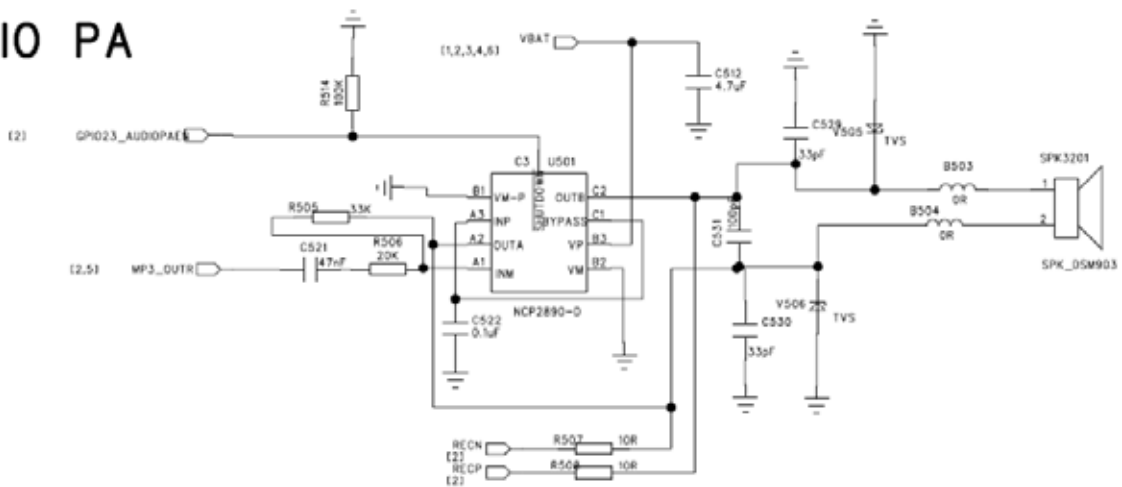


MT6223D integrates all regulators that a voice-centric phone needs. Seven LDOs optimized for Specific GSM/GPRS baseband sub-systems are included, and a RF transceiver needed LDO is also built-in. Besides Li-Ion battery charge function, SIM card level shifter interface, two open-drain output switches to control the LED and vibrator are equipped. Other power management schemes such as thermal overload protection, Under Voltage Lock-out Protection (UVLO), over voltage protection and power-on reset and start-up timer are also MT6223 features. Besides, 3 NMOS switches controlling the RGB LEDs are also embedded to reduce BOM cost.

Audio part

Audio PA part and Receiver Part

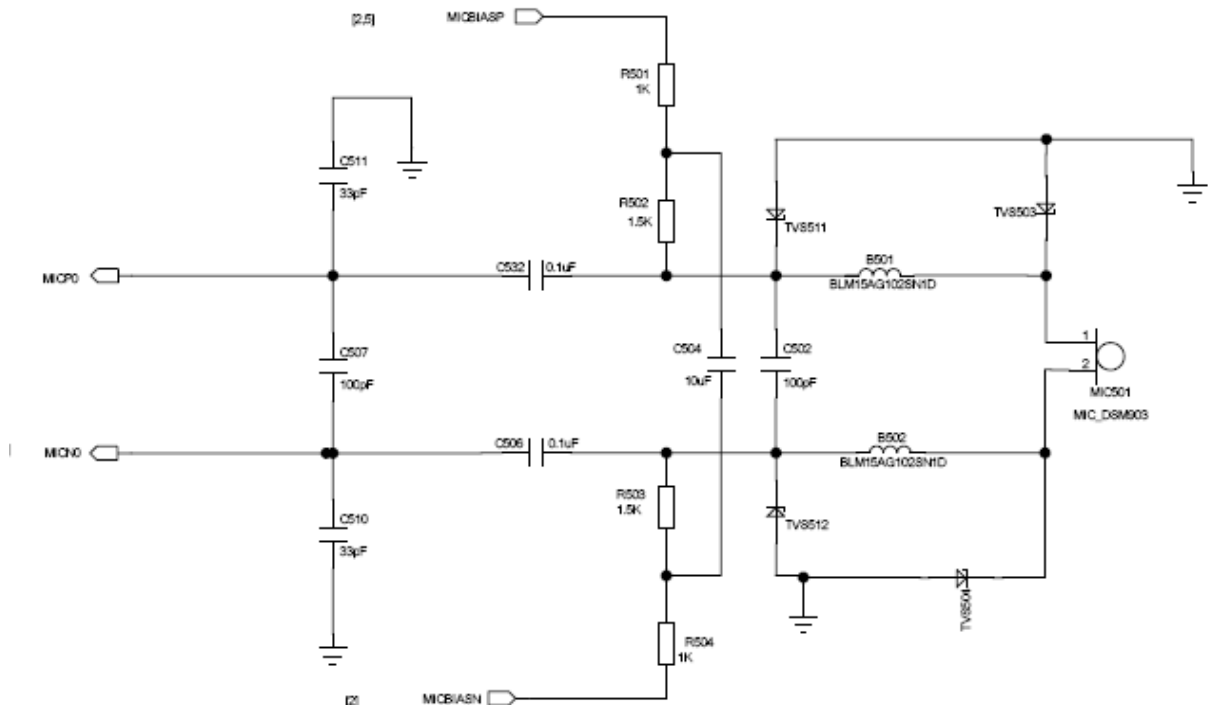
AUDIO PA



This is the speaker circuit. The speaker is driven by audio power amplifier NCP2990. GPIO23_AUDIO_EN can control the audio PA enable or disable.

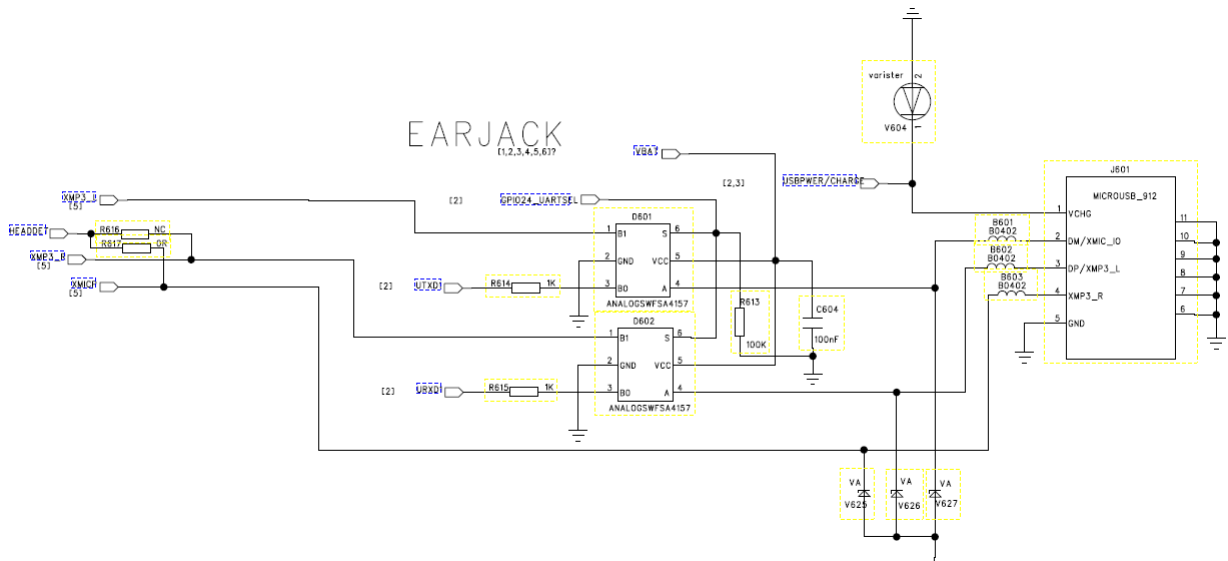
Speaker is also as receiver. R507, R508 is used to reduce the power to receiver.

MIC Circuit Description



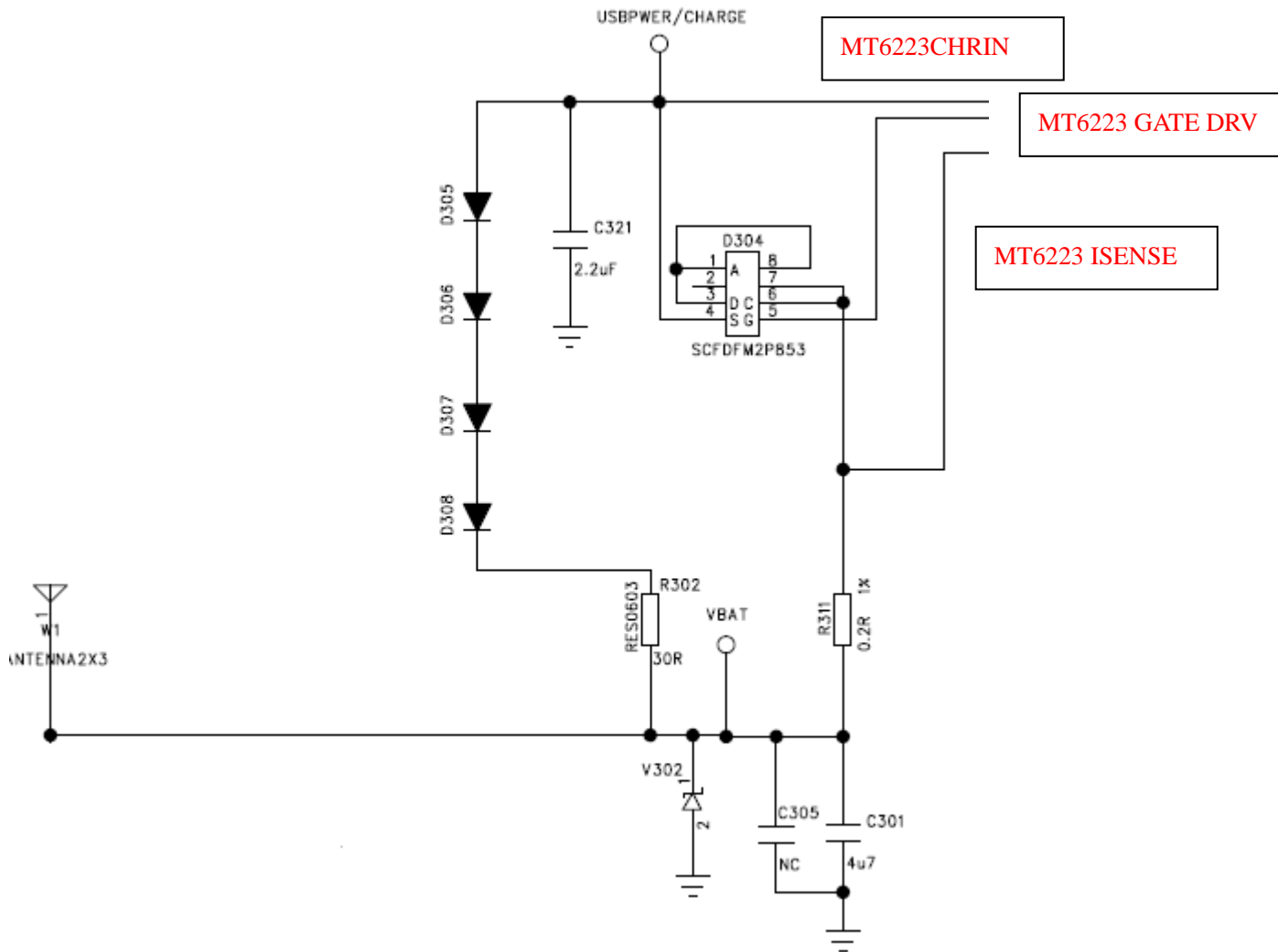
This is microphone circuit. MICBIASP provides the bias voltage for microphone. B501, B502 are used to restrain high frequency signals.

IO circuit



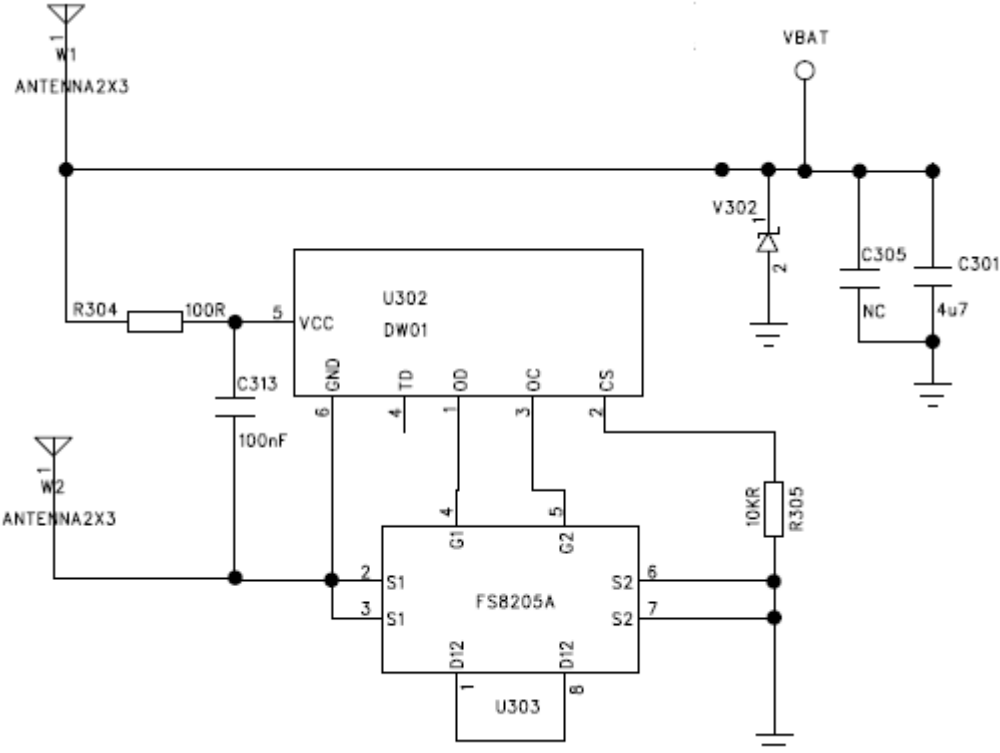
The I/O circuit contains earphone port, download port and charge input. Earphone and download share pin2 and pin3. CPU can determine which function will be used by controlling GPIO24. Earphone function is selected as default.

Charge circuit part



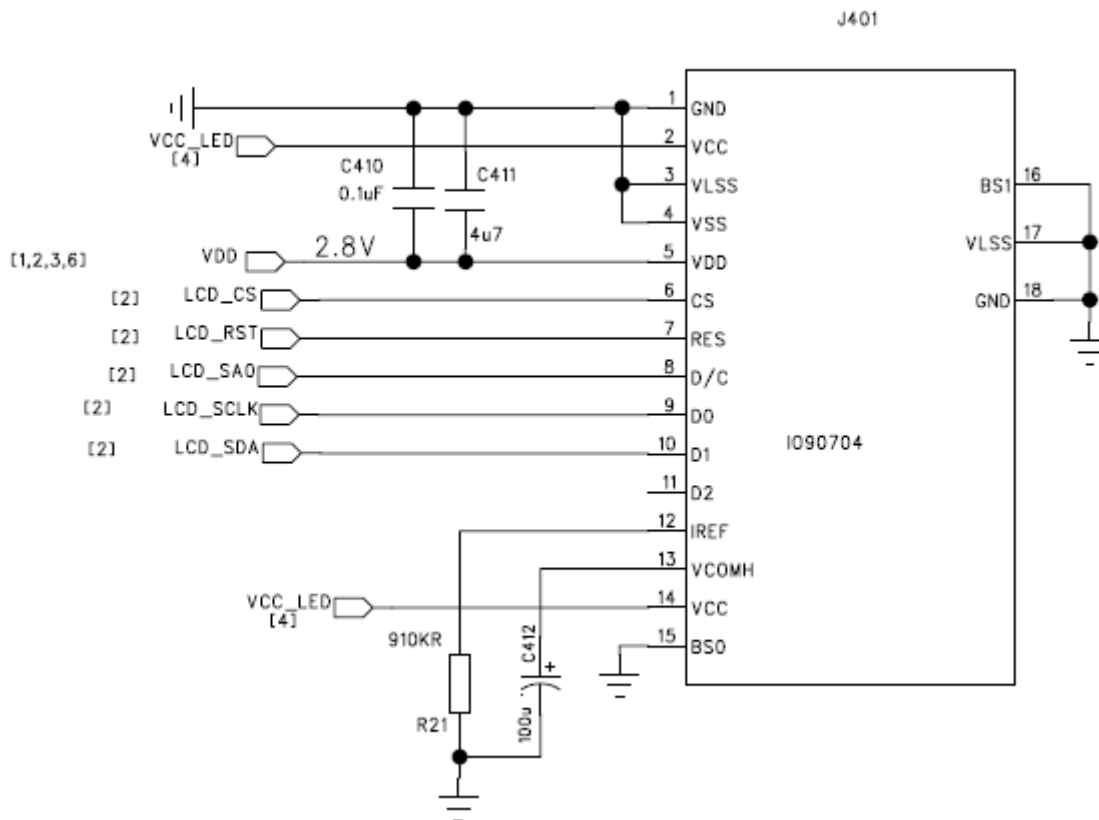
The MT6223 integrate the charger control circuit. When inserting the charging adapter, CHRIN detect high level, and start the charging program. GATEDRV can control the charging current. ISENSE and VBAT can sense the charging current. If battery is over discharged, charging current can pass D305,D306,D307,D308,R302 into battery.

Battery protect circuit



This part is battery protect circuit. It will protect battery from overcharge and over discharge.

DISPLAY PART



Display part is OLED. The OLED connects to MT6223 through FPC. The signals are defined as follows:

VDD : OLED inner driver working voltage , provided by MT6223

LCD_CS : OLED Chip select signal

LCD_SAO: OLED data/command select signal

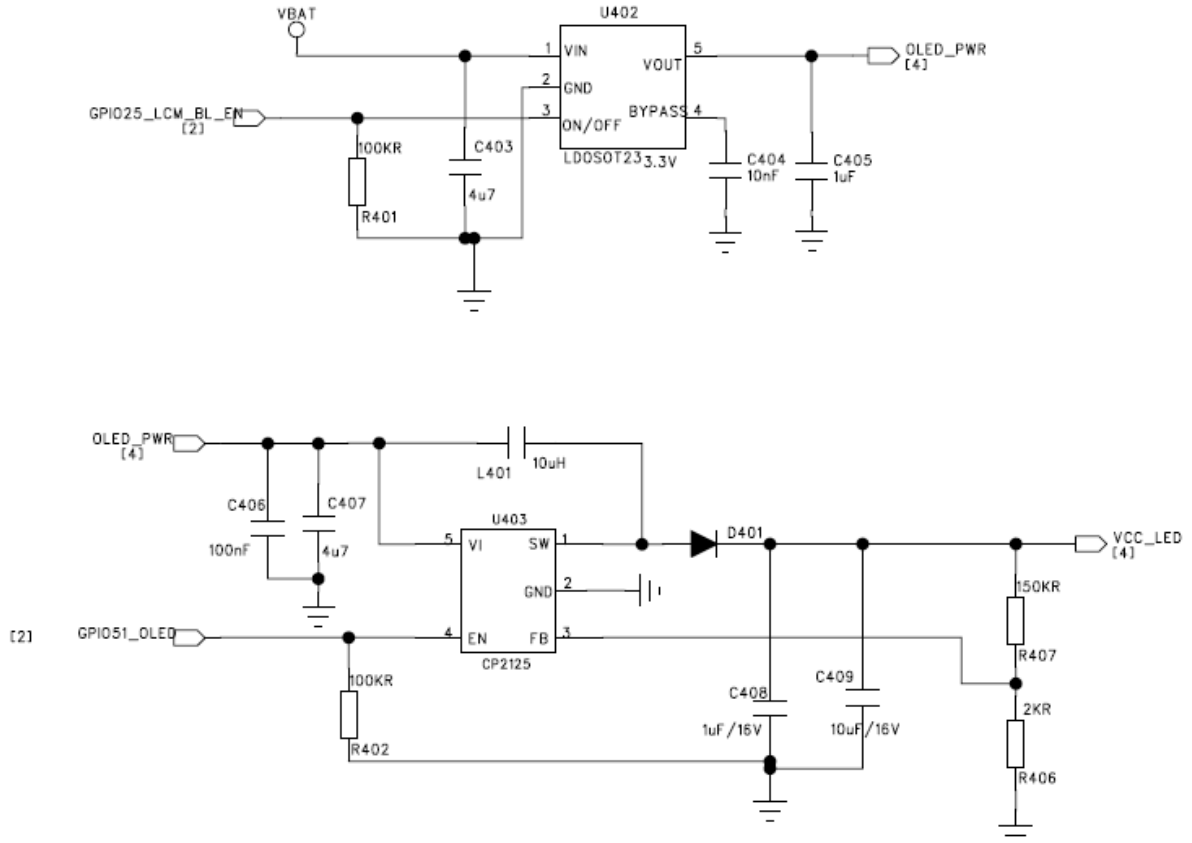
LCD_RST : Reset signal

LCD_SDA : OLED data/command signal

LCD_SCLK : OLED clock signal

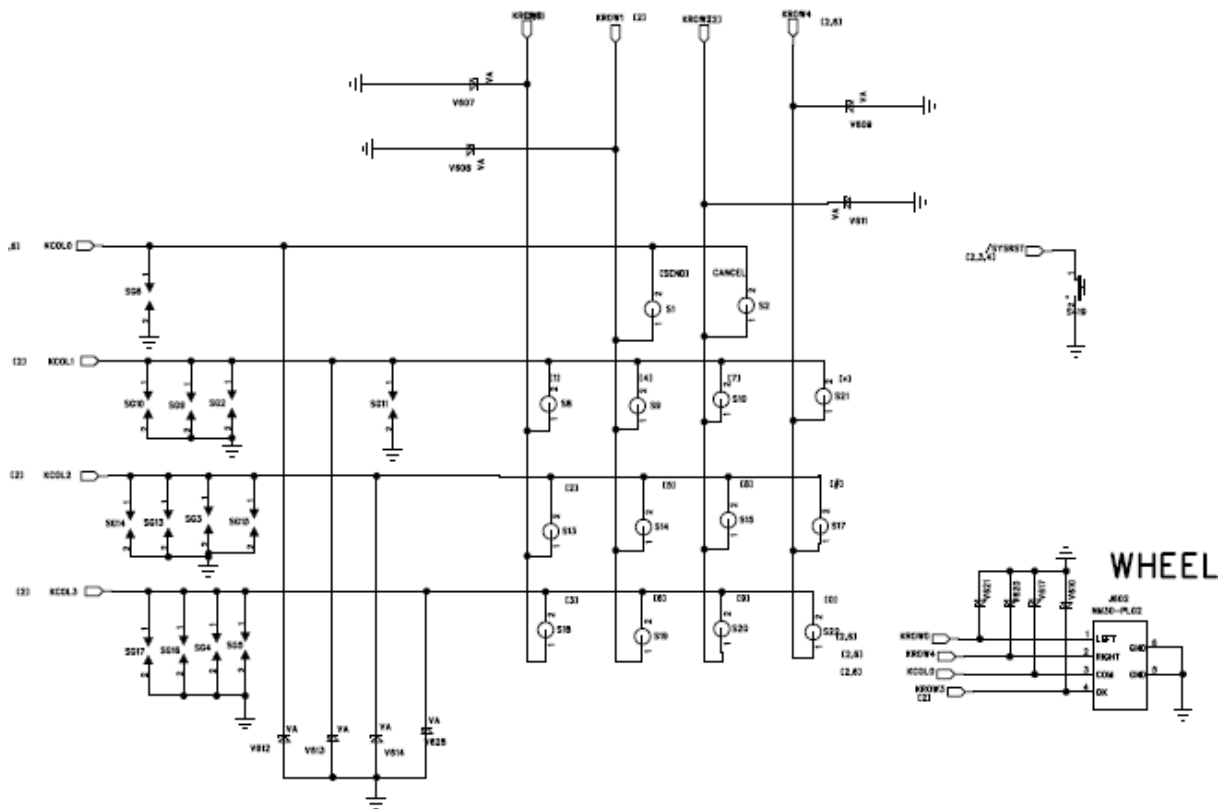
VCC_LED : OLED driving voltage, control the brightness.

3.3V LDO



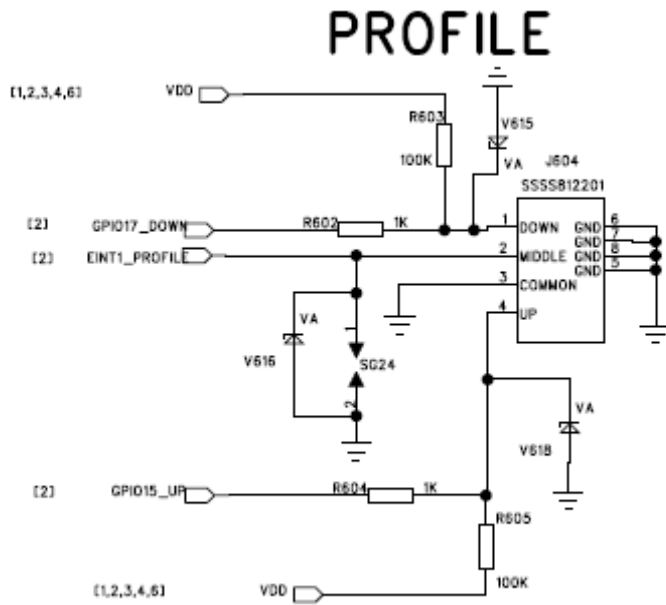
OLED driving voltage is provided by the boost circuit. GPIO25 and GPIO51 are connected to control the OLED open or close.

KEY PAD PART

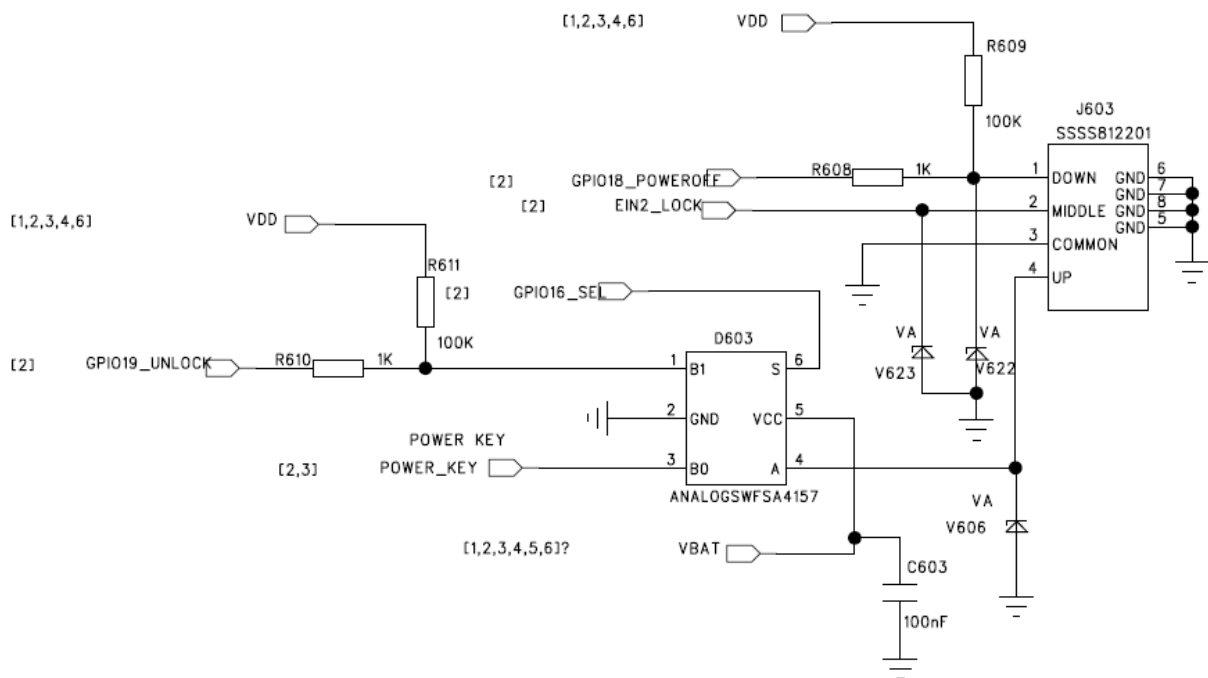


The keypad is a 5*5 scan matrix (5 inputs and 5 outputs), can support 21 keys. KROW0~KROW4 is output for row scan, and KCOL0~KCOL4 is input for column scan. When some key is pressed, the column detects low level, CPU start the keypad scan program, judge the key value, and start the corresponding operation.

Side key part



CPU can judge which profile is selected by the input value of GPIO15 and GPIO17. CPU is woken up by EINT1.



This part is power on/off and lock/unlock circuit. EINT2 can wake up CPU.