

## GS503B Circuit Description

Brand	Model Number	Version
	GS503	V1.1

GS503 adopts GSM communication system as main design; its circuit mainly consists of the following 5 parts,

- 1: BASEBAND (baseband, power supply, logic control)
- 2: GSM\_RF TRANSCEIVER
- 3: AUDIAO\_USB\_INTERFACE
- 4: KEYPAD\_LCD\_BACKLIGHT
- 5: SIM\_MEMORY
- 6:GPS

The description for each part is as follows,

### **1. BASEBAND (baseband, power supply, logic control)**

Baseband mainly contains main control chip MT6223 and charging chip SI4833. MT6223 is an extensively high-degree integrated chip provided by MTK, which integrates system control, power management, GSM system controller, A-D signal processing, audio signal input/output control, mic signal input/output control, LCD display driver, memory interface, USB, UART interface, Bluetooth control interface, system clock(32.768khz) and logic control.

### **2. GSM\_RF TRANSCEIVER**

GSM\_RF TRANSCEIVER is a quad-band transceiver (GSM850\900\DCS1800\PCS1900MHZ).

It contains transceiver chip MT6139, RF PA module RDA6222, SAW (GSM850\900\DCS1800\PCS1900MHZ), 26MHz crystal and antenna. The power is supplied to VDD\VRF by VBAT and MT6223.

The transceiver is mainly controlled by MT6223, which supply GSM operating time base, signal processing and logic control.

While receiving the signal, GSM antenna receives signal from base station, and then transmit it to SAW filter. After amplifying by MT6139, the signal detected will be sent to MT6223 for processing and then to D/A converter, finally it will be amplified to drive earphone or speaker.

While transmitting the signal, MT6223 send command to MT6139 by I/Q interface, and then the data will be processed according to GSM regulations. RF signal will be amplified to 0~2dBm and then to 30~33dBm.

Finally it will send signal to base station by GSM antenna, then the whole process is completed.

### **3. AUDIO\_USB\_INTERFACE**

Audio amplifier contains LM4890 Audio signal is output from MT6223 and transmitted to LM4890 for amplifying. And then it will be sent to speaker or headphone.

USB function is reserved in this board.

UART interface is used for downloading and calibration. This model does not provide UART cable. And all functions will be accomplished internally in MT6223.

### **4. KEYPAD\_LCD\_BACKLIGHT**

KEYPAD and LCD contains function is supplied by MT6223 ,BACKLIGHT is the circuit for LCD backlight, which includes LCD module and keypad backlight. LDO RT9193-30PB and LED array. At working mode, LDO—3V is turned on, and LCD backlight will light. Meanwhile keypad led will light. It will be turned off automatically after 15-30s, while the time can be customized.

### **5. SIM\_MEMORY**

SIM circuit consists of SIM socket and MT6223. Insert SIM card, the card type and network selection will be auto recognized.

Memory circuit consists of memory chip K5L2833ATA and MT6223. The power is supplied by MT6223 VMEM interface and the voltage is 1.8v. (1.8v/2.8v to be selected, which depends on the operating voltage of memory chip)

### **6. GPS RECEIVER**

GPS receiver main unit 1 , the GPS receiver antenna ; 2 , the GPS receiver host unit ; 3, power supply is composed of three parts .

Receiver host by the inverter , signal channel , microprocessor , memory , and display

GPS work , first received by an antenna to a plurality of satellite positioning signals sent to the GPS RF chip , after LNA amplification processing performs demodulation processing , after the completion of the demodulation signal sent through the serial port to the the MT6223 chip positioning data processing , and then the location information The display on the display , and then transmitted via GPRS communication mode to the service platform , thus completing the positioning service functions .