CIRCUIT DESCRIPTION

1. Scope

The equipment under test (EUT) is a Quad-mode mobile with GSM mode(GSM850/EGSM900/DCS/PCS1900)andUMTSmode(Band1+Band2+Band5).This document is shown and provided the more detail information about the platform used in. The basic description for the Baseband and RF section are also included.

2. Baseband

MT8382 is a highly integrated baseband platform incorporating both modem and applicaition processing subsystems to enable 3G smart phone applications,with integrated Bluetooth,WiLAN and GPS modules.The chip integrates a Quad-core ARM Cortex-A7 ®MPCore operating up to 1.2GHz,an ARM Cortex-R4 MCU and a powerful multi-standard video accelerator.MT8382 supports various interfaces,including parallel/serial NAND flash memory and 32-bit LPDDR2 for optimal performance,and supports booting from eMMC to minimize the overall BOM cost. In addition,an extensive set of interfaces and connectivity peripherals are included to interface to cameras,touch-screen displays,MMC/SD cards.

3. PMU

MT6323 is a power management system chip optimized for 2G/3G handsets and smart phones,especially based on the MediaTek MT8382 system solution.MT6323 contains 3 buck converters and 23 LDOs,which are optimized for specific 2G/3G/smart phone subsystems.

MT6323 provides mono 0.7W into 8ohm,high efficiency Class AB/D audio amplifiers and flexibility for various applications of indicator LED drivers.It supports up to 4 channel LEDs with independent controlled.Flexible control includes:register mode,PWM mode and breath mode. Sophisticated controls are available for power up,battery charging and the RTC alarm.MT6323 supports lithium-ion(Li-ion) battery and provides pre-charge indication.The charger input voltage can be up to 10V and allows USB charging,too.Some multi-purpose pins enable MT6323 to be configured in various applications.

4. Radio transceiver

MT6166 is a RF transceiver targeted at high speed 2G/3G-FDD/TDD multi-mode smart phone and tablet computers implanted in 40nm CMOS.The RF transceiver function is fully integrated.This document briefly introduces the RF macros in MT6166.The key features are listed as below:

1).Full multi-mode RF solution(GGE/WCDMA/TDSCDMA)through to 3GPP Release 8(HSPA+).

2).Direct Conversion(3G),Two Point Modulation(TPM) for GMSK and Small Signal Polar for 8-PSK

3).Hybrid Direct-Conversion(3G)/low-IF(GGE,DC-HSDPA) receiver

4).Low supply current& operation directly from DC-DC converter

5).26MHz intenal DCXO or external VCTCXO operation(with integrated AFC DAC)

6).Support RF calibration features for key Rx and Tx specifications(Image rejection,LO feedthrough,DC offset)

5. Radio PA

AP6684 is a quad-band GSM/GPRS(GSM850/GSM900/DCS1800/PCS1900) frond-end module (FEM) with four high linearity/ low insertion loss TRX ports for multimode applications.

This front-end module integrates high power/high efficiency PA blocks，high linearity/low insertion loss antenna switch and controller in a compact module。In addition，the built-in low pass filter rejects higher order harmonics and eliminates the need of external low pass filter network.

The AP6684 provides 50 Ohm matched input and output ports requiring no external matching network。It also integrates an ESD protection circuit to provide robust ESD protection at the antenna port.

6. WIFI/BT/FM/GPS

MT6627 is 4-in-1 connectivity RF chip which contains front-ends of a 2.4GHz WiFi and Bluetooth transceiver, a GPS/Glonass receiver , and an FM receiver.

MT6627 supports integrated passive device to save footprint on PCB and cost due to WiFi/Bluetooth / GPS external BoM (bill of materials) in a 40-pin QFN package.

Supports WiFi external LNA and GPS external LNA.

Wlan features

- 802.11 b/g/n MAC/BB/RF integrated
- Built-in 21dBm WiFi PA with self-calibration
- Supports WiFi Direct (WFA P-2-P standard) and WiFi Miracast (WiFi Display)

Bluetooth features

- Supported Bluetooth V4.0, BT low Energy (LE)
- Bluetooth specification 3.0+HS and 4.0 Low Energy(LE) compliance
- Integrated PA with 10dBm (Chip-out) transmit power

FM features

- FM 65-108MHz band with 50KHz step and RDS/RBDS supported
- Audio sensitivity 5dBuVemf at((S+N)/N=26dB)
- RDS sensitivity 19dBuVemf at stereo 22.5kHz，5% BLER
- 2-wire Audio interface