Circuit Description

1. Scope

This document shows and provides the more detail information about the platform we used. The basic description for the Baseband and RF section are also included.The baseband circuit is based on MTK and RF circuit is based on RFMD. It works at two bands, GSM850, PCS1900 band.

2. Baseband

MT6252 is MTK first monolithic GSM handset chip solution which integrated RF，analog baseband，digital baseband as well as power Management Unit（PMU）and can greatly reduce the component count and make smaller PCB size. Beside，MT6252 is capable of SAIC（Single Antenna Interference Cancellation）and AMR speech. Based on 32 bit ARM7EJ-S RISC processor，MT6252 provides an unprecedented platform for high quality modem performance.

Platform

MT6252 has the ARM7EJ-S RISC processor running up to 104 MHz，thus providing best trade-off between system performance and power consumption.

For large amount of data transfer，high performance DMA（Direct Memory Access）with hardware flow control is implemented，that which greatly enhances the data movement speed while reducing MCU processor load.

Targeted as a modem-centric platform for mobile application，MT6252 also provides hardware security digital rights management for copyright protection. For further safeguarding，and to protect manufacturer's development investment，hardware flash content protection is also provide to prevent unauthorized porting of software.

Audio Interface

Using a highly integrated mixed-signal Audio Front-End, the MT6252 architecture allows for easy audio interfacing with direct connection to the audio transducers. The audio interface integrates D/A and A/D Converters for Voice band, as well as high resolution Stereo D/A Converters for Audio band. In addition, MT6252 also provides Stereo Input and Analog Mux. MT6252 supports AMR codec to adaptively optimize speech and audio quality. Moreover, HE-AAC codec is implemented to deliver CD-quality audio at low bit rates. Overall, MT6252's audio features provide a rich platform for multi-media applications.

Radio Interface

MT6252 integrates a mixed-signal Baseband front-end in order to provide a well-organized radio interface with flexibility for efficient customization. It contains gain and offset calibration mechanisms, and filters with programmable coefficients for comprehensive compatibility control on RF modules. MT6252 achieves great MODEM performance by utilizing 14-bit high resolution A/D Converter in the RF downlink path. Furthermore, to reduce the need for extra external current-driving component, the driving strength of some BPI outputs is designed to be configurable.

Debug Function

The JTAG interface enables in-circuit debugging of software program with the ARM7EJ-S core. With this standardized debugger interface, the MT6252 provides developers with a wide set of options for choosing ARM development kits from supports of thirty parties. For security reason, JTAG interface can be disabled by programming internal OTP (one-time programmable) fuse.

Low Power Features

The MT6252 offers various low-power features to help reduce system power consumption. These features include Pause Mode of 32.768kHz clocking at Standby State, Power Down Mode for individual peripherals, and Processor Sleep

Mode. In addition, MT6252 is also fabricated in advanced low leakage CMOS process, hence providing an overall ultra low leakage solution.

Power Management

MT6252 integrates all regulators that a voice-centric phone needs. 12 LDOs optimized for Specific GSM baseband sub-systems are included. Besides Li-Ion battery charge function, DUAL- SIM card level shifter interface, one open-drain output switch to controlling the KPLED and one LDO specifically driving the vibrator motor 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 part of MT6252 features.

3. The 2G mobile phone with dual frequency band, The uplink frequency band is from 824MHz to 849MHz for GSM850, the uplink frequency band is from 1850MHz to 1910MHz for GSM1900