

# RDA8851C GSM/GPRS Single-Chip Terminal

## FEATURES

- **External Memory Interface**
  - ◆ Integrated 32Mb 2.8V Flash on chip, and also Supports external SPI Flash
  - ◆ Integrated PSRAM on chip, 64Mb size
  - ◆ Power efficient using retention technology to avoid floating lines
  - ◆ Flexible IO voltage
- **GSM/GPRS Modem**
  - ◆ GPRS Class 10
  - ◆ Quad bands integrated transceiver
  - ◆ Supports HR, FR, EFR, AMR voice codec
  - ◆ Triple SIM controller with integrated level shifters
  - ◆ Provide a complete GSM/GPRS data path with integrated RF transceiver, Saw-Less, only needs external PA
- **Multimedia**
  - ◆ Support camera interface up to 3Mpix sensors with 8 bit parallel or 1/2/4 data series interface, Support CSI camera interface
  - ◆ Support LCD module interface with 8 bit parallel interface or SPI series interface
  - ◆ Support up to 480X640 resolution
  - ◆ 4-layers blending graphical engine capable of resizing and YUV2RGB conversion
  - ◆ Proprietary 16/32-bit digital signal processing engine to improve computation performance
- **Power Management**
  - ◆ Power On reset control
  - ◆ Internal 32K OSC for standby/ shutoff/ sleep state
  - ◆ Battery charger (from USB or AC charger)
  - ◆ Integrated all internal voltages from VBAT
  - ◆ Provide all LDOs for external components
- **User Interface**
  - ◆ 8x8 Keypad scanner with multiple key detection, support ADC serial interface Keypad
  - ◆ Alerter
  - ◆ Light Pulse Generator for blinking LED
  - ◆ Pulse Width Modulator for Keyboard or backlight control
  - ◆ Touch screen interface
  - ◆ LED drivers for LCD and keyboard backlight
  - ◆ Calendar (Real Time Clock) with alarm
- **Connectivity**
  - ◆ USB 1.1 Device
  - ◆ 2 UART interface
  - ◆ 1 SD controller
  - ◆ 1 SD/SPI controller
  - ◆ SPI with multiple chip select
  - ◆ I2C controller
  - ◆ General Purpose I/Os
  - ◆ 2 GPADC, 10bits, 2 channels
- **Audio**
  - ◆ 2 channels voice ADC, 8kHz, 13 bits/sample for headset and on-board microphone
  - ◆ Voice DAC, 8kHz, 13 bits/sample for receiver
  - ◆ High fidelity Stereo DAC, up to 48kHz, 16 bits per sample
  - ◆ Stereo Audio speaker driver
  - ◆ 1.5W differential output stereo amplifier for loudspeaker, Class K
  - ◆ Stereo analog audio line input
- **Debug**
  - ◆ Host debug interface allowing non intrusive in depth investigation
  - ◆ GDB debugger
  - ◆ Execution logger and profiling through debug port
  - ◆ High level text based debugging using Host debug or USB
- **FM**
  - ◆ Integrated Broadcast FM tuner which can be tuned world-wide frequency band
- **Bluetooth**
  - ◆ Integrated Bluetooth SoC complaint with 2.1 + EDR standard

## APPLICATIONS

Multi-band GSM/GPRS Mobile Handsets, PDAs, data terminals and Modems: GSM 850, GSM 900, DCS1800, PCS 1900.

The high level of integration achieved on RDA8851C allows for highly featured phone without increasing the BOM.

## GENERAL DESCRIPTION

A high performance, high integrated system-on-chip solution for low cost, low power GSM/GPRS mobile phones.

RDA8851C is a high performance, highly integrated system-on-chip solution for low cost, low power, GSM/GPRS mobile phone.

Integrating all essential electronic components, including baseband, quad band RF transceiver, power management, FM receiver onto a single system on chip, RDA8851C offers best in class bill of material, space requirement and cost/feature ratio for complete phone handsets.

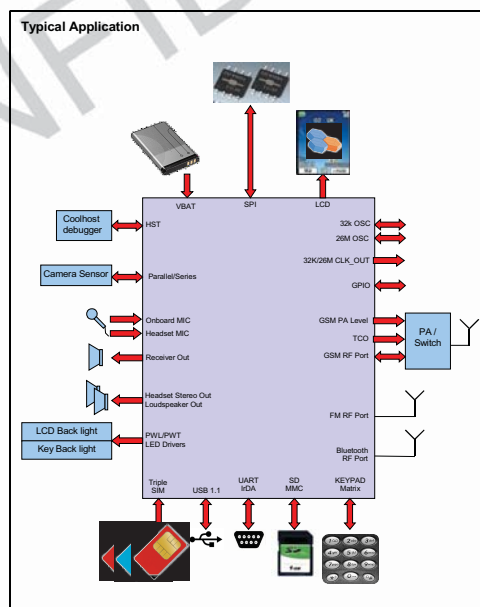
Built around a cost effective 32-bit XCPU RISC core running at up to 312MHz with 4k of Instruction cache and 4k of Data cache, RDA8851C offers plenty of processing power for multimedia applications. A high performance proprietary 16/32-bit digital signal processing engine can further improve overall performance and user experience when performing complex multimedia tasks.

It is also packed with impressive connectivity for easy scalability of the system, allowing glue less interfaces to camera and multimedia companion chips, SDMMC Memory Cards and SPI devices, LCD modules and USB (slave, full speed).

RDA8851C is GPRS Class 10 enabled, and supports Full Rate (FR), Half Rate (HR), Enhanced Full Rate (EFR) and Adaptive Multi Rate (AMR) voice coders. It also supports simultaneous dual network operation and integrates a SIM controller with integrated level shifters that can support three SIM cards.

Additionally, RDA8851C integrates a FM tuner and a Bluetooth module which completely include digital, analogue and RF function. And they can easily work only with a few passive components as filter or matching network.

RDA8851C is available in a small footprint, fine pitch, 12 X10, 203 ball TFBGA package.



**Figure 1: RDA8851C Typical Application**