Features

- **300mA/1.8V/2.5V Switching Regulator for Baseband Supply**
- **2.8V/80mA LDO for Baseband Pad Supply**
- **Two 130mA/2.8V Low-noise, High PSRR RF LDO Voltage Regulators**
- **130mA/2.7V/2.8V Baseband Low-noise, High PSRR Analog LDO Regulator**
- **Ultra Low-power RTC LDO Voltage Regulator**
- **Backup Battery Charger**
- **Li-Ion or Li-polymer Battery Charger Controller**
- **Buzzer and Vibrator Drivers**
- **Charging LED Driver**
- **Power Management Start-up Controller and Reset Generation**
- **SIM Level Shifters and SIM 10mA/1.8V/2.8V LDO Voltage Regulator**
- **Ultra-low Sleep Mode Current Consumption (17 µA typ)**
- **Over and Under Voltage Protections**
- **Over Temperature Protection**
- **Low-power Mode and Sleep Mode**
- **Straight and Easy Interfacing to any Baseband Controller**
- **Small 5x5mm, Forty-nine Ball FBGA Package**

Description

The AT73C202 is a low-cost, ultra low-power, power and battery management IC designed to interface directly with state-of-the-art cellular phones, for example with 2.5G GSM phones. It includes all required power supplies tailored to be fully compatible with the sub-systems of recent mobile phone chipsets, including the RF, analog and digital (DSP, microcontroller, memories) sections.

The AT73C202 integrates a step-down DC-DC converter that supplies 300 mA with internal switches and two levels of voltage programming for the baseband core (1.8V and 2.5V). A low-power mode is available in order to minimize standby current consumption during the “quiet” transmission periods.

In addition, the AT73C202 includes a lowcost battery charger, using a simple external PNP transistor for Li-Ion or Li-Polymer batteries. Battery operating conditions are maintained within safe limits under hardware control during the start-up procedure (when the phone is turned on or a charger is plugged in). The battery pre-charge is also integrated and self-operated by the AT73C202. On completion the fast charge and end-of-charge procedure is transferred to the baseband software.

The AT73C202 integrates 7 low-dropout linear regulators specifically designed to supply RF (x2), analog, memories, etc. It also includes a back-up battery charger and an ultra low-power regulator dedicated to the baseband real-time clock (RTC) supply during sleep mode.

The hardwired start-up mechanism (power management controller state machine) ensures safe telephone operation during the wake-up and shut-down procedures, and during the multiple real-life operating conditions of a mobile phone (such charger plug-in, plug-out, battery plug-in, plug-out, low or dead battery, etc.).

The AT73C202 is packaged into a 49 ball (7x7 matrix), 0.65mm pitch, 5mm x 5mm outline FBGA package.

Power Management for Mobiles (PM)

AT73C202

Summary

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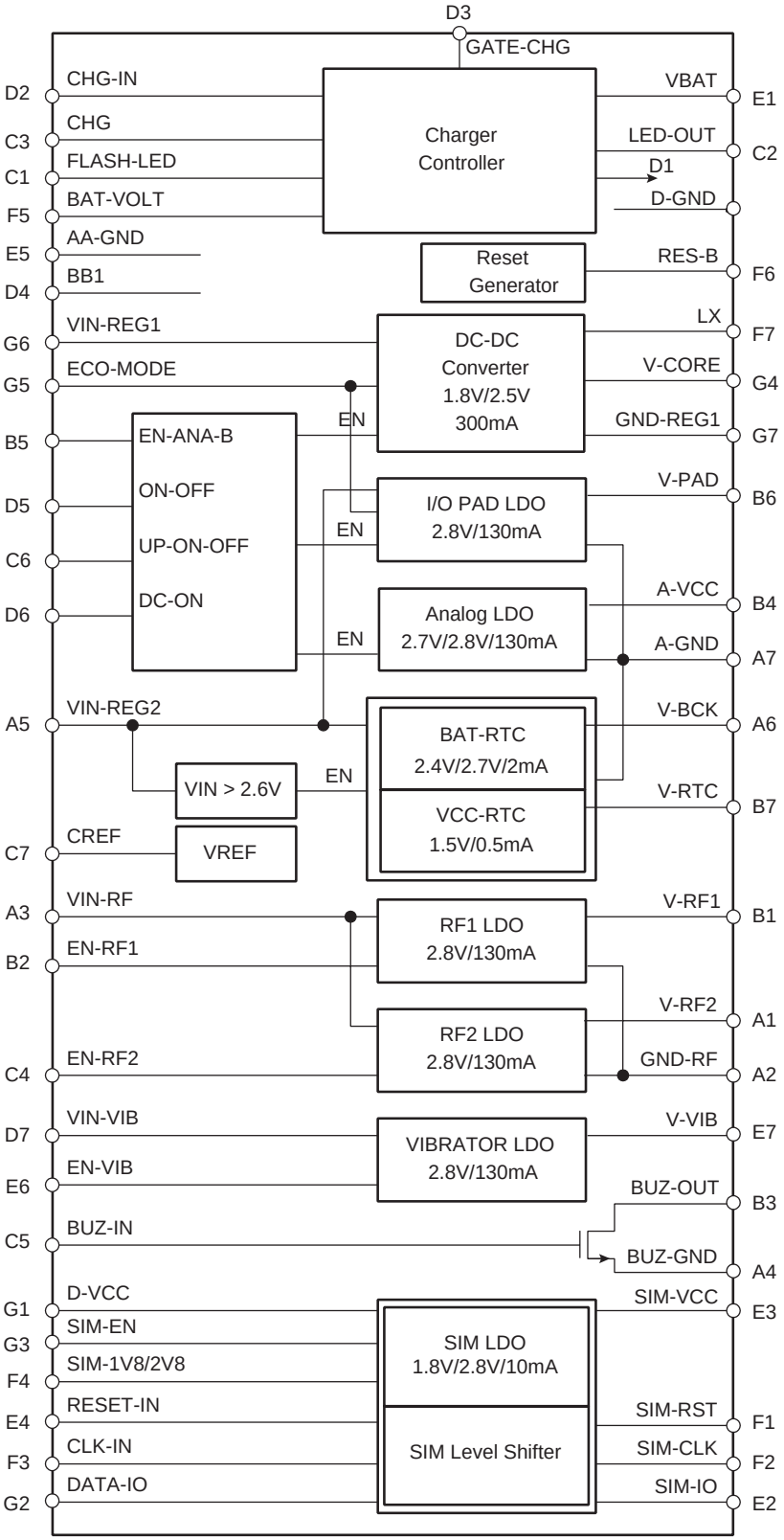
Note: This is a summary document. A complete document is available on our Web site at www.atmel.com.

Functional Diagram

Figure 1. AT73C202 Functional Diagram



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