Single Cell Li-Battery PWM Charger and Power System Management IC

FEATURES

- **Battery Management**
  - Operation Voltage: 2.9V~6.3V (AMR：-0.3V~15V)
  - Configurable Intelligent Power Select system
  - Current and voltage limit of adaptive USB or AC adapter input
  - The resistance of internal ideal diode lower than 100mΩ
- **Full-integrated Charger**
  - Max Charge Current up to 1.8A
  - Battery temperature monitor
  - Support USB-Compatible charger
  - High precision as 0.5%
  - support 4.1V/4.15V/4.2V/4.36V battery
  - Charging process control automatically
  - LED driver to indication the charging status
  - Auto adjust the charging current according to the system load
- **Backup Battery**
  - Provide power to RTC module by using the backup battery
  - Integrated an backup battery charger
- **2 Synchronous Duck DC-DC**
  - DC-DC1 : PWM Charger
  - DC-DC2 : 1.6A ,with Voltage from 0.7V to 2.275V and 25mV/step, supporting Voltage Ramp Control(VRC)
  - DC-DC3 : 1.2A with Voltage from 0.7V to 3.5V and 25mV/step
- **5 Low-dropout Linear Regulator(LDO)**
  - LDO1:Always-on 30mA LDO1
  - LDO2:200mA Low Noise with voltage from 1.8V to 3.3V and 100mV/step
  - LDO3:200mA with Voltage from 0.7V to 3.5V and 25mV/step
  - LDO4:200mA Low Noise with voltage from 1.8V to 3.3V and 100mV/step
  - LDO5:50mA Low Noise with voltage from 1.8V to 3.3V and 100mV/step

NOTE: VRC，Voltage Ramp Control

- **Signal Capture**
  - built-in 16 channel 12 Bit ADC
  - 4 external input channels
  - Built-in high precision coulomb counter and fuel-gauge system
  - Wealthily power information，such as the real-time power dissipation (mA or mW)，remaining battery status(% or mAh)，and remaining battery or charging time
  - Low power warning and protection
  - Provide temperature information of chip
- **Host Interface**
  - Host can exchange data with processor by TWSI
  - Flexibility to configure the interrupt management
  - Multi-function GPIO can be set to IO,PWM ,current sink and other function
  - Built-in timer
  - Four registers can be used to save the data when system shutdown
- **System Management**
  - Soft reset or hardware reset
  - Support soft shutdown or hardware shutdown, and external wakeup
  - Monitoring output voltage, self-diagnostic function
  - PWROK is used for system reset
  - External power source detect (insert/remove/lack of driving capacity)
  - Soft start
  - Over voltage protection /under voltage protection (OVP/UVP)
  - Over current protection (OCP)
  - Over temperature protection (OTP)
  - Support OTG VBUS power state setting/monitoring
- **Fully Integration**
  - high precision internal Reference Voltage （0.5%）
  - Built-in MOSFET

APPLICATIONS

- Handhold mobile devices
  Smart cell phone, PMP/MP4, digital camera, handhold navigation devices GPS, PDA, digital broadcast TV receiver
- MID(Mobile internet device)
- Digital photo Frame，portable DVD player, UMPC, and UMPC-like， Learning machine
- Application Processor systems
- Other battery and multi-power applications

DESCRIPTION

AXP202 is designed to be a highly-integrated power system management IC that is optimized for applications requiring single-cell Li-battery (Li-Ion/Polymer) and multiple output DC-DC converters. It is offering an easy-to-use and flexible complete solution which can fully meet the increasingly complexity of accurate power control required by modern application processor system.

AXP202 comprises an adaptive USB-Compatible PWM charger, 2 BUCK DC-DC converters, 5 LDOs, multiple 12-bit ADCs of Voltage, current and temperature as well as 4 configurable GPIOs. To guarantee the safty and stability of power system,

AXP202 has integrated various protection circuits such as Over voltage Protection(OVP)/Under voltage Protection(UVP)、Over temperature protection(OTP)、Over current protection(OCP). With Intelligent Power Select, IPS™ circuits, AXP202 can distribute power safely and transparently among external AC-adapter, Li-battery and loaded application system, and it can still work normally when there is no battery (deeply discharged/infective battery) but only external input power source.

The AXP202 provides a small, simple solution for obtaining power from three different power sources, single-cell Li-Ion battery, USB port, and AC-adapter, and it can support rechargable backup battery too. To ensure compatibility with a wide range of system processors,

AXP202 uses a Two Wire Serial Interface (TWSI),through which application processor is capable of enabling/disabling power rails, programming voltage, visiting internal registers as well as measurement data (including Fuel Gauge). With the power monitoring results of high precision (1%, determined by the 1% BIAS resistance), end users will be always posted with the real-time power consumption, which can bring them an unprecedented experiences of power management.

TYPICAL APPLICATION DIAGRAM

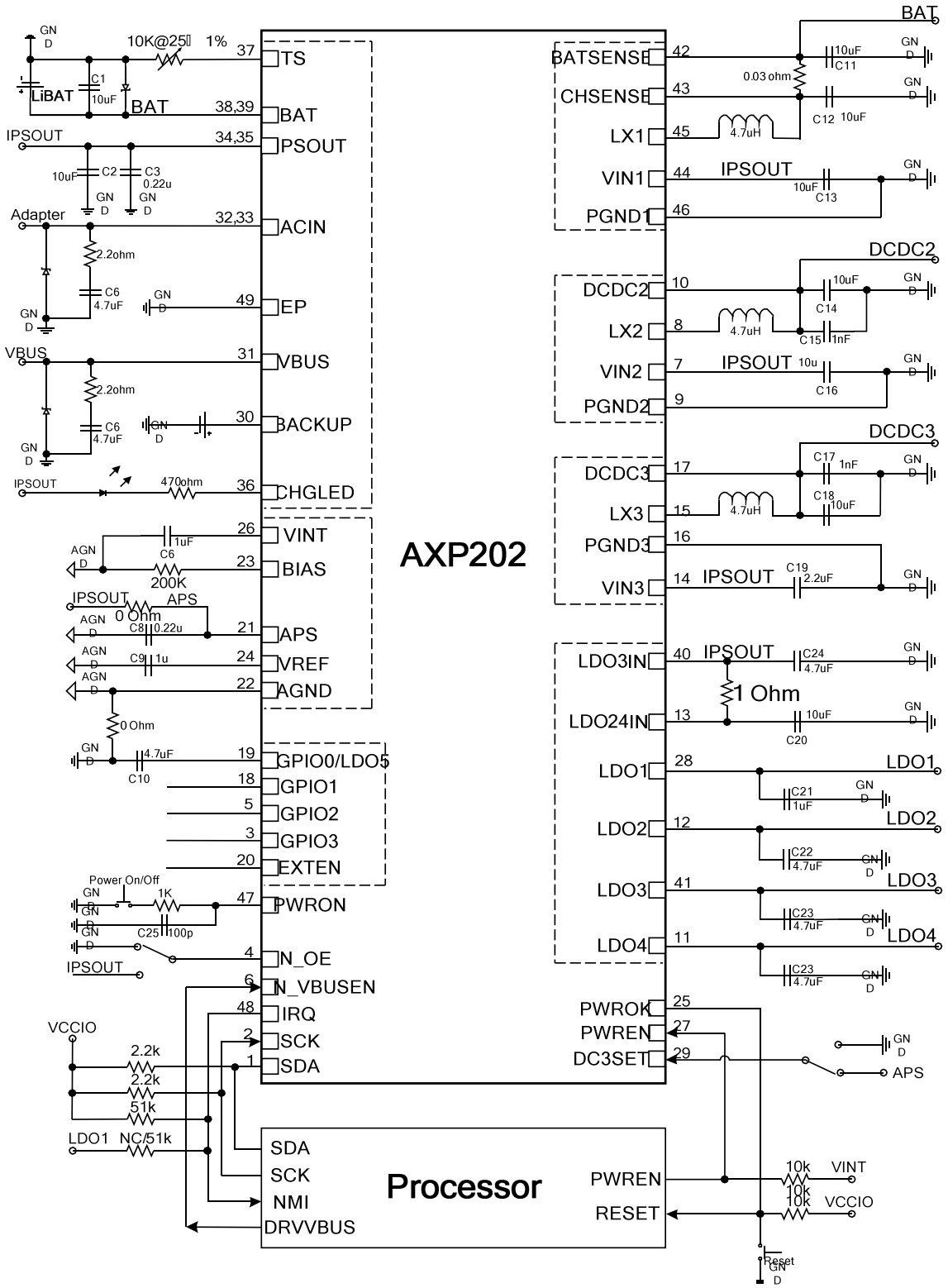

Figure 1. Typical Application Circuit

PIN CONFIGURATION

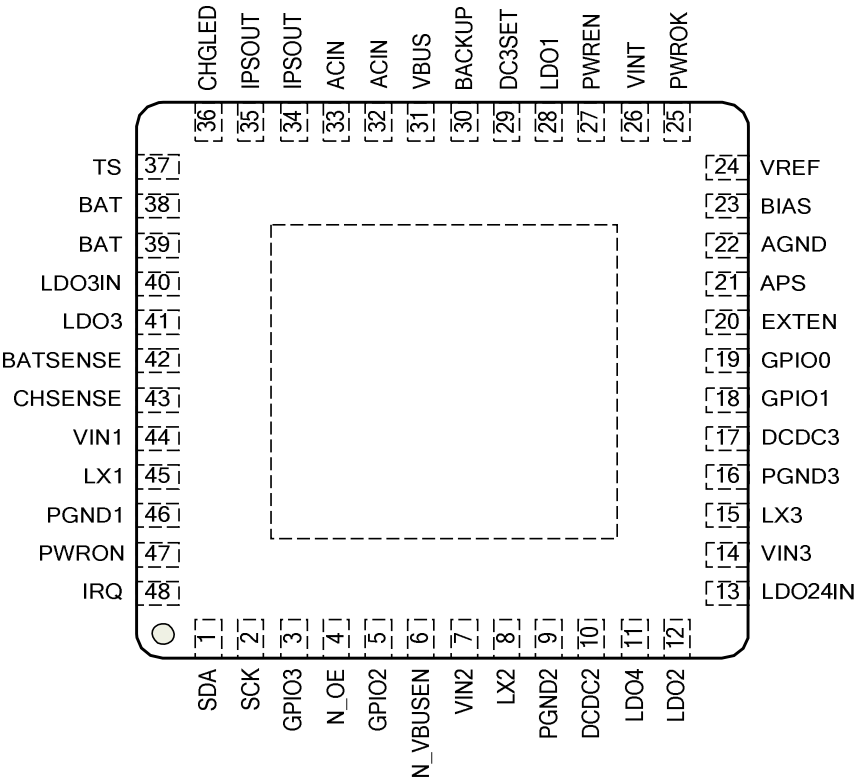

Figure 2. AXP202 Pin Configuration

DECLARATION

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