Advanced PMU for Multi-core Application Processors integrated High-Accuracy Gas Gauge and Flash Charger

FEATURES

- **IPS™**

  -Input voltage range: 2.9V~6.3V (AMR: -0.3V~11V)

  -Configurable IPS™ system

  - Adaptive USB/AC adapter voltage/current limit (4.0V/900mA/500mA)

- **Flash Charger**

  -Integrated MOSFET charge current up to 2.2A

  - Battery temperature monitor

  - Fully supports USB charge

  -High charge accuracy, ±0.5% accuracy

  -Supports 4.1V/4.2V/4.24V/4.35V battery

  -Automatic charge control

  -Supports LED to indicate charge status

  -Automatic charge current adjustment based on system load

  - CHGLED:100 mA sink strength, can be used to drive the motor and charging LED

- **Buck DC-DC Converters (5-CH)**

  -DC-DC1: 1.6V~3.4V adjustable, 100mV/step, load current up to 1.4A

  -DC-DC2: 0.6V~1.54V adjustable, 20mV/step, load current up to 2.5A, supports VRC (Voltage Ramp Control)

  -DC-DC3: 0.6V-1.86V adjustable, 20mV/step, load current up to 2.5A

  - DC-DC4: 0.6V-1.54V adjustable, 20mV/step; 1.8V~2.6V,100mV/step,load current up to 0.6A

  - DC-DC5: 1.0V-2.55V adjustable, 50mV/step, load current up to 2A

- **LDOs (6-CH)**

  -RTC_VCC: 30mA@3V,100mA@1.8V, always valid

  -ALDO1/2: low noise LDO, 0.7V~3.3V adjustable, 100mV/step, load current up to 300mA

  - ALDO3: low noise LDO, 0.7V~3.3V adjustable, 100mV/step, load current up to 200mA

  - ELDO1: 0.7~3.3V adjustable, 100mV/step, load current up to 400mA

  - ELDO2: 0.7~3.3V adjustable, 100mV/step, load current up to 200mA

- **Host Interface**

  - TWSI for host communication

  - Configurable interrupt management

  - Flexible pin function configuration: 1 GPIO can be set as IO or LDO, etc

  - Integrated timer

  - 12 groups of registers for system shutdown data storage

- **E-Gauge™ System**

  - Highly accurate gauge system with dual modes

  - Easy Mode: highly adaptive to different powers

  - Exact Mode: highly accurate data is provided for specific power

  - Provides rich power information, such as instantaneous power consumption (mA or mW), remaining power (% or mA), charge status (%), remaining power life, charge time, etc.

  - Low power warning and low power protection

  - Provides die temperature

- **System Management**
  - Supports soft reset and hard reset
  - Supports soft shutdown and hard shutdown
  - Supports external wakeup triggers
  - Supports PWROK for system rest or shutdown indication
  - External power detection(insert/remove/drive strength deficiency)
  - All output voltage support software boot
  - Over/Under-voltage protection (OVP/UVP)
  - Over-current protection (OCP)
  - Over-temperature protection (OTP)
- **High Integration**
  - Highly accurate (0.5%) reference voltage
  - Integrates MOSFET

APPLICATIONS

- Tablets, smartphones, smart TVs, DVRs
- UMPC and UMPC-like, student computers

DESCRIPTION

AXP216 is a highly integrated PMIC targeted at single cell Li-battery (Li-ion or Li-polymer) applications that require multi-channel power conversion outputs. It provides an easy and flexible power management solution for multi-core processors to meet the increasingly complex and accurate requirements of power control.

AXP216 comes with an adaptive USB3.0-compatible Flash Charger that supports up to 94% efficiency and 2.2A charge current. It also provides 11 power output channels (including 5-CH DCDC, with efficiency up to 95%). To ensure the security and stability of the power system, AXP216 provides multiple-channel 12-bit ADC for voltage/current temperature monitoring and integrates protection circuits such as OVP, UVP, OTP, and OCP. Moreover, AXP216 integrates a unique E-Gauge™ system which simplifies battery power measurement.

In addition, AXP216 contains a fast interface for the system to dynamically adjust output voltage and enable work mode switch in order to optimize battery life.

Importantly, AXP216 also features an IPS™ (Intelligent Power Select) circuit that transparently selects power path among USB, external adapter, Li-battery, and system load, allowing the system to function normally when only running on external input power and not the battery.

AXP216 is available in 8mm x 8mm x 0.75mm 68-pin QFN package.

TYPICAL APPLICATION DIAGRAM

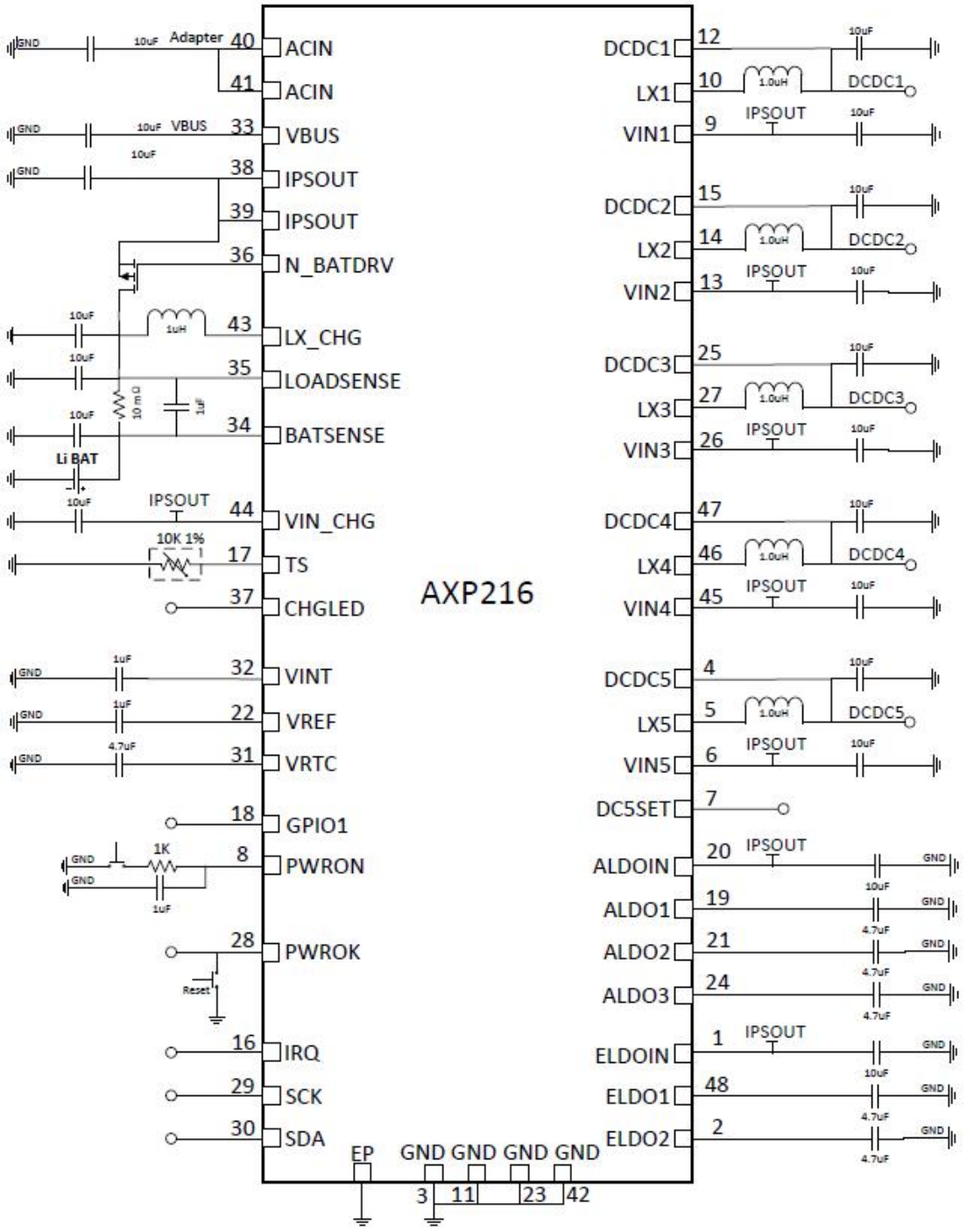

Figure 1. Typical Application Circuit

PIN CONFIGURATION

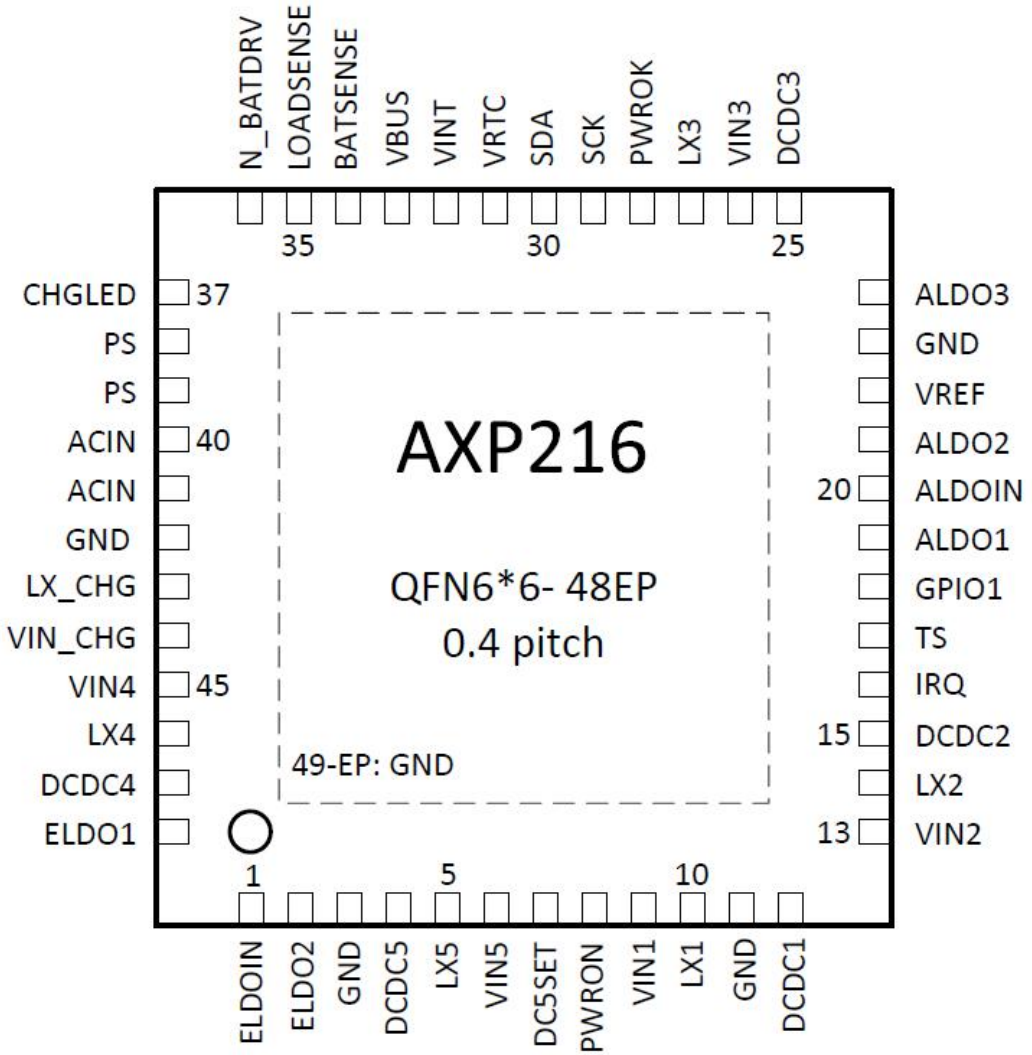

Figure 2. AXP216 Pin Configuration

DECLARATION

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