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 adaptor voltage/current limit (4.4V/900mA/500mA)

- **Flash Charger**

  -Integrated MOSFET charge current up to 2.2A

  - Battery temperature monitor

  - Fully supports USB charge

  -High charge accuracy, ±0.5% accurency

  -Supports 4.1V/4.2V/4.22V/4.24V battery

  -Automatic charge control

  -Supports LED to indicate charge status

  -Automatic charge current adjustment based on system load

- **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, load current up to 0.6A

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

- **LDOs (14-CH)**

  -RTC_VCC: 30mA, 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

  - LDOIO0/LDOIO1: low noise LDO, 0.7V~3.3V adjustable, 100mV/step, load current up to 100mA

  - DLDO1/ ELDO1: 0.7~3.3V adjustable, 100mV/step, load current up to 400mA

  - DLDO2/ DLDO3/ ELDO2/ ELDO3: 0.7~3.3V adjustable, 100mV/step, load current up to 200mA

  - DLDO4: 0.7V~3.3V adjustable, 100mV/step, load current up to 100mA

  - DC5LDO: 0.7V~1.4V adjustable, 100mV/step, load current up to 200mA

- **Switch (2-CH)**

  - DC1SW: internal resistance 100mOhm, power sourced from DCDC1

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

- **Host Interface**

  - P2WI (Push-Pull Two Wire Interface) for host communication

  - Configurable interrupt management

  - Flexible pin function configuration: 2 GPIOs 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

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- 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

AXP228 is a highly integrated PMIC targeted at single cell Li-battery (Li-ion or Li-polymer) appli-cations that require multi-channe power conversion outputs. It provides an easy and flexible power management solution for multi-core processors to meet the increasingly complex and accurate Require-ments of power control.

AXP228 comes with an adaptive USB3.0-co-mpatible Flash Charger that supports up to 94% efficiency and 2.2A charge current. It also provides 21 power output channels (including 5-CH DCDC, with efficiency up to 95%). To ensure the security and stability of the power system, AXP228 provides multiple-channel 12-bit ADC for voltage/current temperature monitoring and integrates protection circuits such as OVP, UVP, OTP, and OCP. Moreover, AXP228 integrates a unique E-Gauge™ system which simplifies battery power measurement.

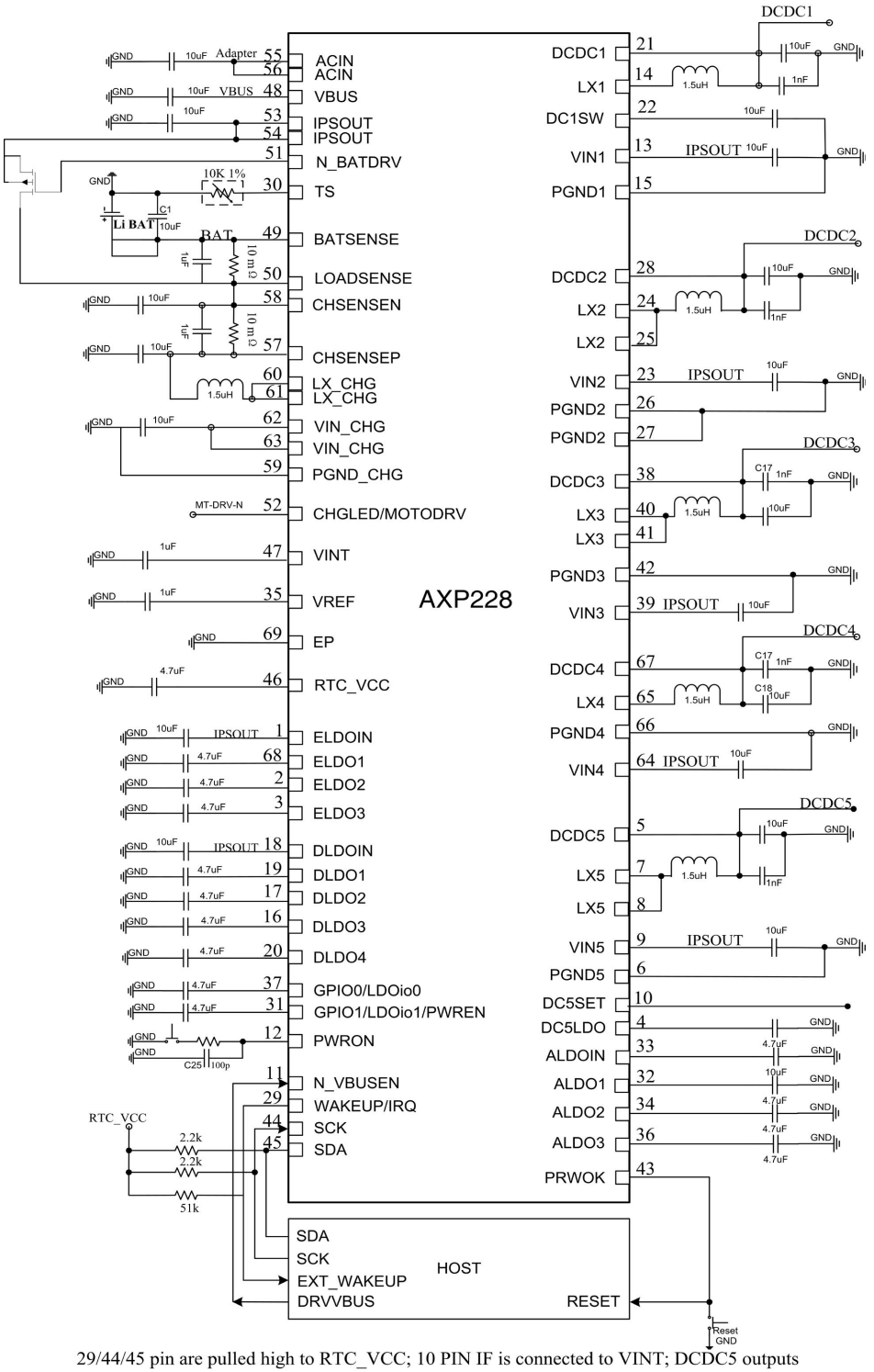
In addition, AXP228 contains a fast interface for the system to dynamically adjust output voltage and enable work mode switch in order to optimize battery life.

Importantly, AXP228 also features an IPS™ (Intelligent Power Select) circuit that transparently selects power path among USB, external adaptor, Li-battery, and system load, allowing the system to function normally when only running on external input power and not the battery.

AXP228 is available in 8mm x 8mm x 0.75mm 68-pin QFN package.

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TYPICAL APPLICATION DIAGRAM



29/44/45 pin are pulled high to RTC_VCC; 10 PIN IF is connected to VINT; DCDC5 outputs 1.35V;10 PIN IF is connected to GND; DCDC5 outputs 1.5V ;10 PIN is floating; DCDC5 outputs 1.2V;

Figure 1. Typical Application Circuit

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PIN CONFIGURATION

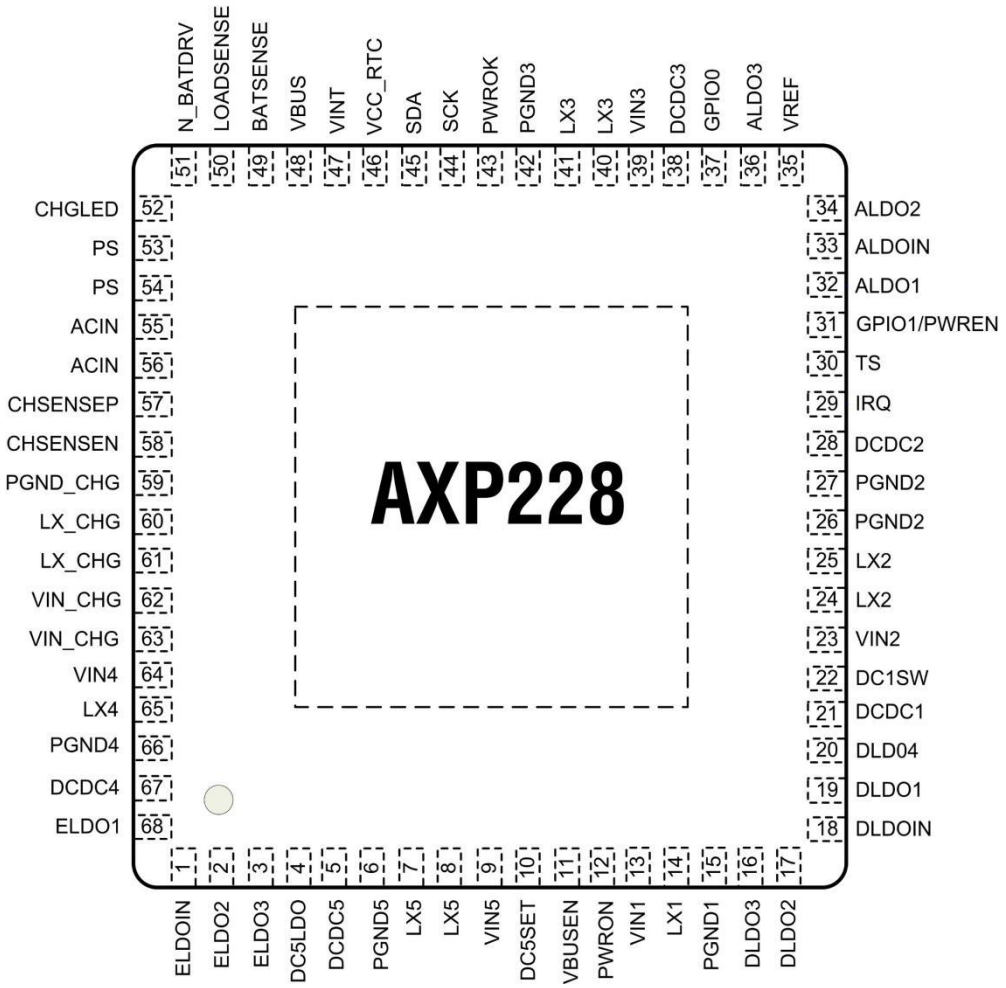


Figure 2. AXP288 Pin Configuration

DECLARATION

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