ACT8712

Product Brief, 03-Feb-08
Advanced Information—All Information Subject to Change

Four Channel Integrated Power Management IC for Handheld Portable Equipment

FEATURES

- **Multiple Patents Pending**
- **Li+ Battery Charger with Integrated MOSFET**
  - **ON/OFF Control and Status Indication**
- **Three Integrated Regulators**
  - **550mA Step-Down DC/DC**
  - **750mA Step-Down DC/DC**
  - **Step-Up DC/DC with OVP for WLED Bias**
- **I²C™ Compatible Serial Interface**
  - **Programmable Output Voltages**
  - **Configurable Operating Modes**
  - **Programmable Charger Current**
- **Minimal External Components**
- **4x4mm, Thin-QFN (TQFN44-24) Package**
  - **Only 0.75mm Height**
  - **RoHS Compliant**

APPLICATIONS

- **Portable Devices and PDAs**
- **UMPC**
- **Battery Operated Devices**
- **GPS Receivers, etc.**

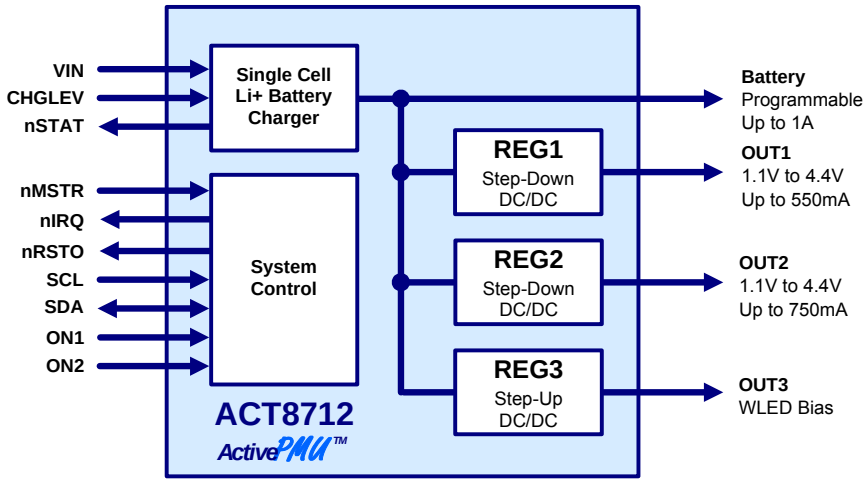
GENERAL DESCRIPTION

The patent-pending ACT8712 is a complete, cost effective, highly efficient *ActivePMU™* power management solution that is ideal for a wide range of portable hand held equipment. This device integrates two PWM step-down DC/DC converters, one PWM step-up DC/DC converter with over-voltage protection (OVP) and a full-featured linear-mode Li+ battery charger into a single, thin, space-saving package. An I²C Serial Interface provides programmability for the DC/DC converters and battery charger.

REG1 and REG2 are fixed-frequency, current-mode PWM step-down DC/DC converters that are optimized for high efficiency and are capable of supplying up to 550mA and 750mA, respectively. REG3 is a fixed-frequency PWM step-up converter that safely and efficiently biases a string of up to seven white-LEDs for backlighting. The battery charger incorporates an internal power MOSFET for constant-current/constant-voltage, thermally regulated charging of a single-cell Li+ battery. All DC/DC converters' output voltage and charger current are programmable and controllable via the I²C interface.

The ACT8712 is available in a tiny 4mm x 4mm 24-pin Thin-QFN package that is just 0.75mm thin.

SYSTEM BLOCK DIAGRAM



PRODUCT OPTIONS

Block	Function	Output Voltage①	Capability②
CHGR	Battery Charger	4.20V (4.10V to 4.40V available)	Programmable up to 1A
REG1	Step-Down DC/DC	Programmable 1.1V to 4.4V	550mA
REG2	Step-Down DC/DC		750mA
REG3	Step-up DC/DC	Programmable up to 27.5V	Up to 7 WLEDs

①: Output voltage options detailed in this table represent standard voltage options, and are available for samples or production orders. Contact Active-Semi for more information regarding semi-custom output voltage combinations.

②: Contact factory for additional available products or custom requirements.

FUNCTIONAL BLOCK DIAGRAM