

Six Channel Integrated Power Management IC for Handheld Portable Equipment

FEATURES

- Multiple Patents Pending
- Li+ Battery Charger with Integrated MOSFET
 - Programmable Charge Current up to 1A
 - ON/OFF Control
- Five Integrated Regulators
 - 350mA PWM Step-Down DC/DC
 - Step-Up DC/DC with OVP for WLED Bias
 - 350mA Low Noise LDO
 - 250mA Low Noise LDO
 - 250mA Low Noise LDO
- I²C™ Compatible Serial Interface
 - Programmable Output Voltages
 - Configurable Operating Modes
- Minimal External Components
- 4x4mm, Thin-QFN (TQFN44-24) Package
 - Only 0.75mm Height
 - RoHS Compliant

APPLICATIONS

- Portable Devices and PDAs
- Wireless Handhelds
- DMB Enabled Devices
- GPS Receivers, etc.

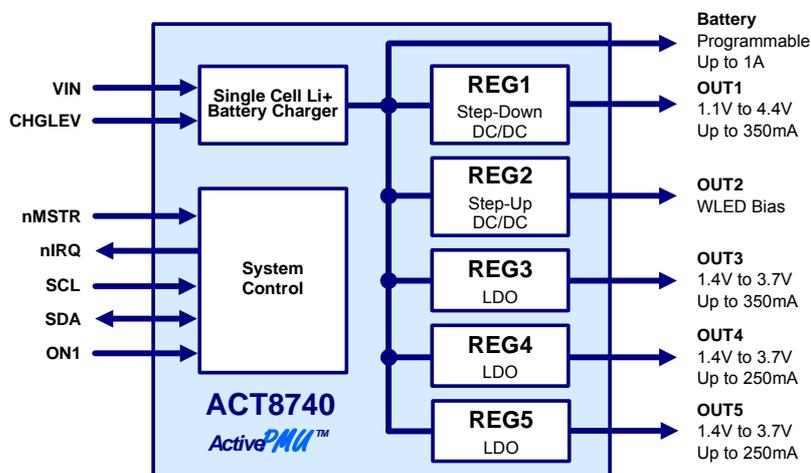
GENERAL DESCRIPTION

The patent-pending ACT8740 is a complete, cost effective, highly-efficient *ActivePMU™* power management solution that is ideal for a wide range of portable handheld equipment. This device integrates one PWM step-down DC/DC converter, one PWM step-up DC/DC converter with over-voltage protection (OVP), three low dropout linear regulators (LDOs) 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, LDOs and battery charger.

REG1 is a fixed-frequency, current-mode PWM step-down DC/DC converter that is optimized for high efficiency and is capable of supplying up to 350mA output current. REG2 is a fixed-frequency, step-up DC/DC converter that safely and efficiently biases a string of up to seven white-LEDs for back-lighting. REG3, REG4 and REG5 are low noise, high PSRR linear regulators that are capable of supplying up to 350mA, 250mA and 250mA, respectively. 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 and LDOs output voltages are programmable and controllable via the I²C interface.

The ACT8740 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 Voltage ^① | Capability ^② |
|-------|-----------------|----------------------------------|-------------------------|
| CHGR | Battery Charger | 4.20V (4.10V to 4.40V available) | Programmable up to 1A |
| REG1 | Step-Down DC/DC | 1.1V to 4.4V | 350mA |
| REG2 | Step-Up DC/DC | Up to 27.5V | Up to 7 WLEDs |
| REG3 | LDO | 1.4V to 3.7V | 350mA |
| REG4 | LDO | | 250mA |
| REG5 | LDO | | 250mA |

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

