

## 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
  - 350mA Step-Down DC/DC
  - 550mA Step-Down DC/DC
  - Step-Up DC/DC with OVP for WLED Bias
- I<sup>2</sup>C™ 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
- Digital Media Players
- Battery Operated Devices
- GPS Receivers, etc.

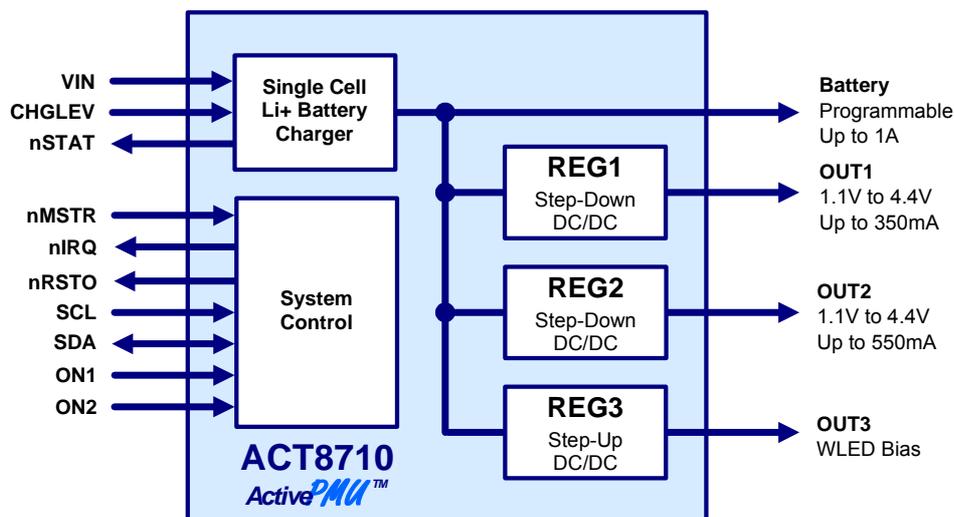
### GENERAL DESCRIPTION

The patent-pending ACT8710 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 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 I<sup>2</sup>C 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 350mA and 550mA, 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 are programmable and controllable via the I<sup>2</sup>C interface.

The ACT8710 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 <sup>①</sup>      | Capability <sup>②</sup> |
|-------|-----------------|----------------------------------|-------------------------|
| 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        | 350mA                   |
| REG2  | Step-Down DC/DC |                                  | 550mA                   |
| 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

