

FEATURES

- **ActivePath™ System Power Selection of Best Available Input Supply**
- **40mΩ Battery Switch for Highest Efficiency**
- **Dynamic Control of Charging Current Allowing System to Draw Maximum Load from AC/USB Input**
- **±0.5% Battery Voltage Accuracy**
- **Up to 12V Input**
- **Thermal Regulation for Charge Control**
- **Charge Status Outputs for LED or System Interface**
- **Battery Voltage Level Indication**
- **Programmable Fast Charge Current**
- **Programmable Charging Timer**
- **Low Reverse Leakage Current**
- **Short-Circuit and Thermal Protection**
- **Preconditioning for Deeply Depleted Battery**
- **Low Quiescent Current Standby Mode**
- **Space-Saving, Thermally-Enhanced TQFN44-20 or TDFN3545-20 Packages**

GENERAL DESCRIPTION

The ACT3780 is a complete battery charging and management solution for one cell Lithium-Ion or Lithium-Polymer battery. The ACT3780 incorporates the *ActivePath* architecture which automatically selects the best available input supply for the system.

When an external power source such as an AC adapter or a USB port is connected in, the ACT3780 regulates the system voltage to 4.8V in addition to providing charging current to the battery. If the external input source is not present or the system load current is more than the input source can provide, the *ActivePath* supplies additional current from the battery to the system.

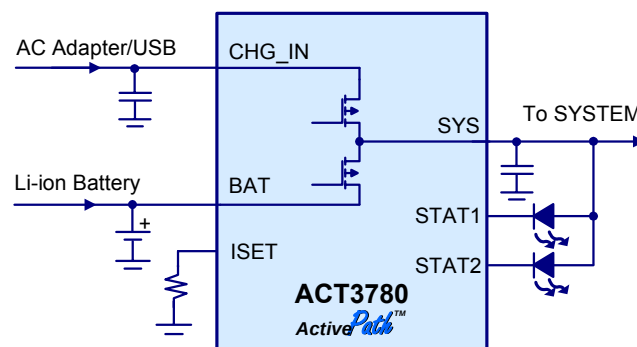
The ACT3780 charger is a complete, thermally regulated, stand-alone single cell linear Li+ charger that integrates an internal power 12V MOSFET. The battery regulation voltage is ±0.5% accurate, and is factory programmed from 4.2V (other voltages available upon request).

The ACT3780 is available in an thermally enhanced 4mm x 4mm Thin-QFN and 3.5mm x 4.5mm Thin-DFN 20-pin packages.

APPLICATIONS

- Personal Navigation Devices
- Smart Mobile Phones
- Blue-Tooth Devices
- Portable Media Players
- Portable Devices

SIMPLIFIED APPLICATION CIRCUIT



ORDERING INFORMATION^{①②}

PART NUMBER	BATTERY VOLTAGE	SYSTEM VOLTAGE	PACKAGE	PINS	TEMPERATURE RANGE
ACT3780QY-T	4.2V	4.6V	TQFN44-20	20	-40°C to 85°C
ACT3780NY-T	4.2V	4.6V	TDFN3545-20	20	-40°C to 85°C

①: Battery and system 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: All Active-Semi components are RoHS Compliant and with Pb-free plating unless specified differently. The term Pb-free means semiconductor products that are in compliance with current RoHS (Restriction of Hazardous Substances) standards.

FUNCTIONAL BLOCK DIAGRAM

