ACT3780

Product Brief, 05-Dec-12

ActivePath™ Battery Charger

FEATURES

- ***ActivePath***™ **System Power Selection of Best Available Input Supply**
- **50mΩ Battery Switch for Highest Efficiency**
- **Dynamic Control of Charging Current Allowing System to Draw Maximum Load from AC/USB Input**
- **±0.5% Battery Charge Voltage Accuracy**
- **Up to 12V Input with Over Voltage Protection**
- **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 Packages**

APPLICATIONS

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

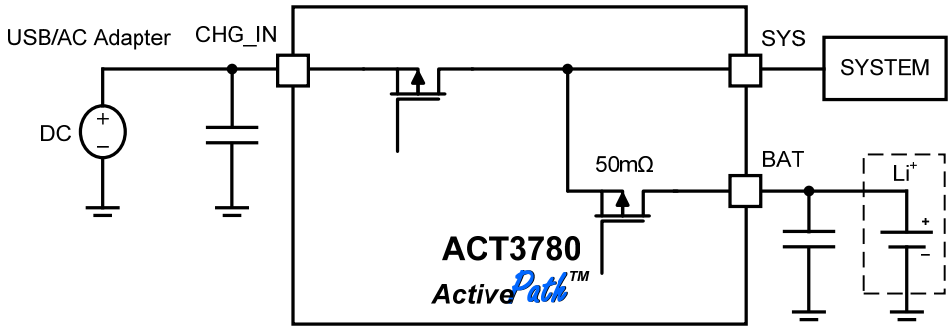
GENERAL DESCRIPTION

The ACT3780 is a complete battery-charging and system power management solution for portable hand-held equipment using single-cell Lithium-based batteries. The ACT3780 incorporates Active-Semi's proprietary *ActivePath* architecture which automatically selects the best available input supply for the system.

The *ActivePath* architecture performs three important functions: First, the battery is charged while powering with the system, minimizing current draw from the battery while ensuring that sufficient current is available to power the system. Second, if no input supply is available, system power is automatically switched to the battery. And finally, if the system load-requirement exceeds the capability of the input supply, *ActivePath* automatically supplements the input with the battery to satisfy the system's power requirements.

In addition to *ActivePath*, the ACT3780 charger features a complete, high-accuracy (±0.5%), thermally regulated, stand-alone single cell linear Li+ charger with an integrated 12V power MOSFET. The ACT3780 is available in a thermally enhanced 4mm × 4mm Thin-QFN44-20.

ActivePath DIAGRAM



ORDERING INFORMATION①②

PART NUMBER	BATTERY VOLTAGE	SYSTEM VOLTAGE	PACKAGE	PINS	TEMPERATURE RANGE
ACT3780QY-T	4.2V	4.6V	TQFN44-20	20	-40℃ to 85℃
ACT3780QY410-T	4.1V	4.6V	TQFN44-20	20	-40℃ to 85℃

①: 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.

②: Standard product options are identified in this table. Contact factory for custom options. Minimum order quantity is 12,000 units.

FUNCTIONAL BLOCK DIAGRAM