

# Dual Input Linear Charger, Smart Power Selector with Advanced Battery Temperature Monitoring

## General Description

The MAX8934A/MAX8934B/MAX8934C dual-input Li+/Li-Poly linear battery charger with Smart Power Selector™ safely charges a single Li+/Li-Poly cell in accordance with JEITA specifications. The MAX8934\_ monitors the battery temperature (TBATT) while charging, and automatically adjusts the fast-charge current and charge termination voltage as the battery temperature varies. The MAX8934\_ also monitors the battery temperature while the battery is discharging, and provides a warning flag (OT) to the system in the event that the battery is over temperature. Two safety profiles are supported (see the *Charging Profiles* section for details). An ultra-low IQ, always-on LDO provides an additional 3.3V supply for system power.

The MAX8934\_ operates with either separate inputs for USB\* and AC adapter power, or from a single input that accepts both. All power switches for charging and switching the load between battery and external power are included on-chip. No external MOSFETs are required.

The MAX8934\_ features a Smart Power Selector to make the best use of limited USB or adapter power. Input current limit and battery charge current limit are independently set. Input power not used by the system charges the battery. Charge current limit and USB current limit can be set up to 1.5A and 2A, respectively, while USB input current can be set to 100mA or 500mA. Automatic input selection switches the system load from battery to external power.

The MAX8934A provides a SYS output voltage of 5.3V, while the MAX8934B/MAX8934C provides a SYS output voltage of 4.35V.

Other features include overvoltage protection (OVP), open-drain charge status and fault outputs, power-OK monitors, charge timers, and battery thermistor monitor. Additionally, on-chip thermal limiting reduces battery charge rate to prevent charger overheating. The MAX8934\_ is available in a 28-pin, 4mm x 4mm TQFN package.

## Applications

PDA's, Palmtop, and Wireless Handhelds  
Portable Media, MP3 Players, and PND's  
Digital Still Cameras and Digital Video Cameras  
Handheld Game Systems

\*Protected by U.S. Patent #6,507,172.

Smart Power Selector is a trademark of Maxim Integrated Products, Inc.

## Features

- ◆ JEITA-Compliant Li+ Charger with Smart Power Selector, No External MOSFETs Needed
- ◆ Monitors Battery Temperature and Adjusts Charge Current and Termination Voltage Automatically
- ◆ OT Flags System of a Hot Battery During Discharge
- ◆ Ultra-Low IQ, Always-On 3.3V LDO
- ◆ Common or Separate USB and Adapter Inputs
- ◆ Automatic Adapter/USB/Battery Switchover
- ◆ Load Peaks in Excess of Adapter Rating are Supported by Battery
- ◆ Input Currents to 16V (AC) and 9V (USB)
- ◆ 40mΩ SYS-to-BATT Switch
- ◆ Thermal Regulation Prevents Overheating
- ◆ 4.35V or 5.3V SYS Regulation Voltage

## Ordering Information

PART	TEMP RANGE	PIN-PACKAGE
MAX8934AETI+	-40°C to +85°C	28 Thin QFN
MAX8934BETI+	-40°C to +85°C	28 Thin QFN
MAX8934CETI+	-40°C to +85°C	28 Thin QFN

+Denotes a lead(Pb)-free/RoHS-compliant package.

Selector Guide appears at end of data sheet.

## Typical Operating Circuit

