



## **32V Monolithic Li-Ion/Polymer Battery Chargers Deliver up to 2A in Compact 9mm<sup>2</sup> Package**

MILPITAS, CA – June 17, 2009 – Linear Technology Corporation introduces the LT3650-4.1 and LT3650-4.2, compact, monolithic high-voltage battery chargers for single-cell Li-Ion/Polymer batteries. The device's switchmode architecture minimizes power dissipation without compromising board space. The LT3650-4.1/4.2 operates from 4.75V to 32V and has a 40V absolute maximum rating for added system margin. User selectable timer or C/10 termination requires no external microcontroller and simplifies the design. Charge current is programmable and dynamically adjustable up to 2A; the power device is integrated on chip to save board space. The LT3650-4.1/4.2 does not require external high-precision resistors to set the float voltage, further saving cost and space. Applications include industrial handheld instruments, 12V to 24V automotive and heavy equipment, desktop cradle chargers and small notebook or tablet computers. The LT3650-4.1 offers a 4.1V battery float voltage, allowing high temperature safety margin, while the LT3650-4.2 features a 4.2V final charge voltage for optimized battery run time.

The LT3650-4.1/4.2's high operating frequency of 1MHz and current mode architecture allow the use of small inductors and capacitors, minimizing noise and filtering needs. Final float voltage accuracy is specified at  $\pm 0.5\%$ , charge current accuracy is  $\pm 5\%$  and C/10 detection accuracy is  $\pm 2.5\%$ . Once charging is terminated, the LT3650-4.1/4.2 automatically enters a low current standby mode that reduces the input supply current to 85uA. In shutdown, the input bias current is reduced to 15uA. The LT3650-4.1/4.2 maximizes battery life during all non-charging periods, draining less than 1uA from the battery. For safety and autonomous charge control, the LT3650-4.1/4.2 includes features such as automatic restart and preconditioning, a thermistor input for temperature-qualified charging, programmable input current limit, bad battery detection and binary coded status output pins.

The LT3650-4.1 and LT3650-4.2 are housed in a compact, low-profile (0.75mm) 12-pin 3mm x 3mm DFN package, and are offered in both E and I grade versions, both operating from -40°C to +85°C. Pricing starts at \$2.80 and \$3.22, for the E & I grades respectively, in 1,000-piece quantities. For more information, visit [www.linear.com](http://www.linear.com).


### **Photo Caption: 32V, 2A Monolithic 1-Cell Li Chargers**

#### **Summary of Features: LT3650-4.1 and LT3650-4.2**

- Wide Input Voltage Range: 4.75V to 32V (40V Absolute Maximum)
- Programmable Charge Current up to 2A
- User-Selectable Termination: C/10 or Programmable Termination Timer
- Dynamic Charge Rate Programming/Soft-Start Pin
- Battery Float Voltage: 4.1V (LT3650-4.1), 4.2V (LT3650-4.2)
- Programmable Input Current Limit
- 1MHz Switching Frequency Enables Small External Components
- ±0.5% Charge Voltage Accuracy
- ±5% Charge Current Accuracy
- ±2.5% C/10 Detection Accuracy
- NTC Resistor Temperature Monitor
- Automatic Recharge
- Automatic Preconditioning
- Binary Coded Open-Collector Charge Status Pins
- Bad Battery Detection with Auto-Reset
- Compact, Low-Profile (0.75mm) 3mm x 3mm DFN-12 Package

#### **About Linear Technology**

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, uModule<sup>®</sup> products, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems.

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