



32V (40V max) Synchronous Monolithic 1-Cell Li-Ion/Polymer Battery Charger Delivers up to 4A Charge Current

MILPITAS, CA – August 12, 2010 – Linear Technology Corporation introduces the [LT3651-4.2](#), a highly efficient, 4A monolithic synchronous buck battery charger for 1-cell Li-Ion/Polymer batteries. The LT3651-4.2 accepts inputs up to 32V with a 40V absolute maximum rating for added system margin. Charge current is programmable and dynamically adjustable up to 4A; fully integrated synchronous power devices minimize power dissipation and save board space. User-selectable timer or C/10 termination requires no external microcontroller and simplifies the design. The LT3651-4.2 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 applications, desktop cradle chargers and notebook or tablet computers.

The programmable switching frequency (200kHz to 1MHz) of the LT3651-4.2 enables the designer to balance solution size, power loss, and filtering needs. Synchronous operation enables charging efficiencies as high as 90%. Final float voltage accuracy is $\pm 0.5\%$, charge current accuracy is $\pm 7.5\%$ and C/10 detection accuracy is $\pm 4\%$. Once charging is terminated, the LT3651-4.2 automatically enters a low current standby mode which reduces the input supply current to 80uA. In shutdown, the input bias current is reduced to 15uA. The LT3651-4.2 maximizes battery life during all non-charging periods by draining $< 1\mu\text{A}$ from the battery. For safety and autonomous charge control, the device includes 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 LT3651-4.2 is available in a low-profile (0.75mm) 36-pin 5mm x 6mm QFN package, and is offered in both E and I grade versions, guaranteed from -40°C to 125°C . Pricing starts at \$4.13 and \$4.75 each, respectively, in 1,000-piece quantities. Two-cell 8.2V and 8.4V options and a one-cell 4.1V version are planned for release within the next 2-3 months. For more information, visit www.linear.com/3651.


Photo Caption: 32V, 4A Synchronous Monolithic 1-Cell Li Charger

Summary of Features: LT3651-4.2

- Wide Input Voltage Range: 4.75V to 32V (40V Absolute Maximum Rated)
- Programmable Charge Current up to 4A
- 1 Cell Li-Ion/Polymer Charge Capability, 4.2V Charge Voltage
- Synchronous Rectification Increases Charging Efficiency
- User-Selectable Termination: C/10 or Programmable Termination Timer
- Programmable Switching Frequency (200kHz to 1MHz)
- Programmable Input Current Limit
- $\pm 0.5\%$ Charge Voltage Accuracy
- $\pm 7.5\%$ Charge Current Accuracy
- $\pm 4\%$ 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
- Low-Profile (0.75mm) 5mm x 6mm QFN-36 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™ 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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