



## **15W I<sup>2</sup>C Power Manager Charges Li-Ion Cells at 3.5A for Tablets, UMPCs & Portable Power Systems**

MILPITAS, CA – June 15, 2011 – Linear Technology Corporation introduces the [LTC4155](#), a high power, I<sup>2</sup>C controlled, high efficiency PowerPath™ manager, ideal diode controller and lithium-ion battery charger for single-cell portable devices such as tablet PCs, ultra-mobile PCs (UMPCs), personal video players, smart phones, digital cameras, PDAs, portable medical and industrial devices and personal navigation devices. The IC is designed to efficiently transfer up to 15W from a variety of sources while minimizing power dissipation and easing thermal budgeting constraints. The LTC4155's switching PowerPath topology seamlessly manages power distribution from two input sources such as a wall adapter and USB port to the device's rechargeable lithium-ion battery while preferentially providing power to the system load when input power is limited.

Because power is conserved, the LTC4155 allows the output load current to exceed the current drawn by the input supply, maximizing use of the available power for battery charging without exceeding the input supply power delivery specifications. For example, when powered from a 5V/2A wall adapter, the IC's switching regulator efficiently transfers over 90% of the available 10W, enabling up to 2.4A charge current and resulting in faster charge times. Unlike ordinary switching battery chargers, the LTC4155 features instant-on operation to ensure that system power is available at plug-in even with a deeply discharged battery. USB On-The-Go support provides a 5V supply back to the USB port without any additional components.

A simple 2-wire I<sup>2</sup>C port provides broad adjustability for many system control parameters including charge current, input current (including USB 2.0 and 3.0 compatible settings) and float voltage. The communications bus also allows the LTC4155 to provide status information such as battery temperature, input supply status, charger status and fault status.

The LTC4155's autonomous full-featured single-cell Li-Ion/Polymer battery charger is capable of up to 3.5A charge current and features four float voltage settings and fifteen charge

current settings. For improved safety margin, an integrated overtemperature battery conditioning circuit can optionally reduce the battery voltage in case both high battery temperature and high battery voltage occur simultaneously. Further, the charger includes automatic recharge, bad cell detection, trickle charge, programmable safety timer, thermistor temperature qualified charging, programmable end-of-charge indication/termination and programmable interrupt generation.

The LTC4155's dual input, priority multiplexing overvoltage protection (OVP) circuit prevents any damage from accidental application of high voltage. Its ideal diode controller guarantees that ample power is always available to V<sub>OUT</sub> even if input power is insufficient or absent. To minimize battery drain when a device is connected to a suspended USB port, an LDO from V<sub>BUS</sub> to V<sub>OUT</sub> provides the allowable USB to suspend current to the application. To eliminate battery drain between manufacture and sale, a ship-and-store feature reduces the already low battery standby current to nearly zero.

The LTC4155 is housed in a low profile (0.75mm) 28-pin 4mm x 5mm QFN package and is guaranteed for operation from -40°C to 85°C. 1,000-piece pricing starts at \$4.07 each. For more information, visit [www.linear.com/product/LTC4155](http://www.linear.com/product/LTC4155)

**Photo Caption:** High Efficiency I<sup>2</sup>C Power Manager & 3.5A Battery Charger with OVP & USB OTG

### Summary of Features: LTC4155

- High Power, High Efficiency Switching Li-Ion Battery Charger Capable of 3.5A Charge Current
- Monolithic Switching Regulator Makes Optimal Use of Limited Input Power Available
- Dual Overvoltage Protection Controller with Priority Multiplexing for Multiple Inputs
- Input Overvoltage Protection
- I<sup>2</sup>C/SMBus Control for Optimal System Performance & Status Information
- Instant-On Operation with Low Battery
- Battery Ideal Diode Controller for Power Management
- USB OTG Power Delivery from the Battery to the USB Port
- Overtemperature Battery Conditioner
- Full Featured Li-Ion/Polymer Charger with 4 Float Voltage Settings
- 3.5A Maximum Charge Current from Wall Adapter
- Supports USB 2.0 & USB 3.0 Specifications
- Low Profile (0.75mm) 28-Lead 4mm x 5mm QFN Package

## About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, and  $\mu$ Module<sup>®</sup> subsystems.

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