



60V Synchronous Buck Battery Charger Includes Lead-Acid & Li-Ion Charge Algorithms for up to 20A Charge Current

MILPITAS, CA – August 31, 2016 – Linear Technology Corporation introduces the [LTC4013](#), a highly integrated, high voltage multi-chemistry synchronous step-down battery charger controller. With a wide input voltage range that spans up to 60V, the LTC4013 uses temperature-compensated 3- and 4-stage charge algorithms to efficiently charge 12V and 24V lead-acid batteries. Alternatively, the LTC4013 will charge a multicell Lithium-based battery stack with float voltages near to the input supply. Mode pins define the float voltage and charge algorithm. Charge current is precision regulated to $\pm 5\%$ and programmable with a single resistor up to 20A (depending on the selection of external components). The LTC4013 features user-adjustable maximum power point tracking (MPPT) circuitry that enables simple power optimization in the case of power-limited sources such as solar panels. The MPPT open-circuit method corrects for panel temperature changes without the inconvenience of adding a solar panel temperature sensor. Applications include portable medical instruments, monitoring equipment, battery backup systems, industrial handhelds, industrial lighting, military equipment, ruggedized notebooks/tablet computers, plus remote powered communication and telemetry systems.

The LTC4013 utilizes N-channel MOSFETs for high efficiency charging, and features a wide battery charge voltage range of 0V to 60V. The main charging features of the product can be adjusted using pin-strap configurations and programming resistors, enabling the user to select between several predefined charging algorithms depending on battery chemistry. For lead-acid battery types such as vented, sealed and gel, the LTC4013 supports multiple charging stages, including float, programmable-timed absorption and equalization. Each charge voltage includes adjustable temperature compensation. For Li-Ion/Polymer cells, the device offers a constant-current/constant-voltage charging algorithm. The SYNC input provides the ability to synchronize the switching frequency to an external clock to avoid noise in a particular frequency range or to target noise filters to a specific frequency. Other product features include an external input

MOSFET driver (INFET) to avoid battery discharge during an input supply short, two open-drain status pins, and an ISMON pin that provides analog information about charge current.

The LTC4013 is housed in a compact 28-lead 4mm x 5mm QFN package with an exposed metal pad for excellent thermal performance. E- and I-grade devices are guaranteed for operation from -40°C to 125°C . 1,000-piece pricing starts at \$3.95 each for the E-grade and devices are available from stock. For more information, visit www.linear.com/product/LTC4013.

Photo Caption: 60V_{IN}/60V_{OUT} 20A Step-Down Lead-Acid & Li-Ion Charger Controller


Summary of Features: LTC4013

- Wide Input Voltage Range: 4.5V to 60V
- Wide Output (Battery) Voltage Range: up to 60V
- Built-In Charge Algorithms for Lead-Acid & Li-Ion Batteries
- $\pm 0.5\%$ Float Voltage Accuracy
- $\pm 5\%$ Charge Current Accuracy
- Maximum Power Point Tracking Input Control
- NTC Temperature Compensated Float Voltage
- Two Open-Drain Status Pins
- 28-Lead 4mm × 5mm QFN Surface Mount Package

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

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 over 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, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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Press Contacts:

North America / Worldwide

John Hamburger, Director Marketing
Communications
jhamburger@linear.com
Tel: 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager
ddickinson@linear.com
Tel: 408-432-1900 ext 2233

UK & Nordic

Alan Timmins
a.timmins@ntlworld.com
Tel: +44-1-252-629937