

LTC News for Immediate Release

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Synchronous Buck-Boost Regulator Increases Battery Run-Time

MILPITAS, CA – January 24, 2005 – Linear Technology Corporation announces the LTC3442, a true Buck-Boost DC/DC converter, which delivers up to a continuous 1.2 amps of output current at efficiencies as high as 95%. The LTC3442 is a synchronous, fixed frequency, Buck-Boost DC/DC converter designed to optimize battery run time for single cell Li-Ion, multi-cell alkaline or NiMH battery powered applications. It operates from an input voltage range of 2.4V to 5.5V and can provide a fixed output voltage between 2.4V to 5.25V.

The LTC3442 has a programmable switching frequency that can be set between 300 kHz and 2 MHz via a single resistor, allowing designers to set the frequency for optimum efficiency, smallest external components or to avoid critical noise sensitive frequency bands. The LTC3442 utilizes a unique Buck-Boost topology, allowing it to operate above, below and equal to the output voltage with a single inductor. This synchronous buck-boost topology delivers up to 95% efficiency over the entire Li-Ion battery range, unlike a SEPIC or boost/LDO combination which offer efficiencies in the mid-70% range. It provides a continuous transfer function through all the operating modes as the battery voltage declines. The small implementation footprint makes it ideal for space-constrained environments such as cellular phones, PDAs, wireless and DSL modems and digital cameras.

The LTC3442 uses two 0.10 Ohm N-channel and two 0.11 Ohm P-channel switches in a constant frequency, synchronous switching topology to obtain efficiencies as high as 95%. An average input current limit is user programmable for applications such as USB power. The LTC3442's Burst Mode® operation can be programmed to automatically engage at a user determined current level, optimizing battery run-time for each application. Burst Mode operation reduces quiescent current to only 35uA with light loads. Integrated output disconnect in shutdown reduces I_{SD} to less than 1uA while improving system reliability. The LTC3442 also features anti-ringing control to minimize EMI, soft-start control and thermal shutdown. The combination of the tiny solution footprint and Buck-Boost topology make the LTC3442 ideal for handheld applications, which require both optimum battery run-time and small size.

(more...)

The LTC3442 is available from stock in a 4mm x 3mm DFN package. Pricing starts at \$3.95 each in 1,000-piece quantities.

Summary of Features: LTC3442

- Fixed Frequency Operation with Input Voltages Above, Below or Equal to the Output
- Up to 1.2A Continuous Output Current
- Single Inductor, No Schottky Diodes Required
- Only 35uA Quiescent Current In Burst Mode Operation
- Output Disconnect in Shutdown: $I_{SD} < 1\mu A$
- 2.4V to 5.5V Input Voltage Range
- 2.4V to 5.25V Output Voltage Range
- 300kHz to 2MHz Programmable Constant Switching Frequency
- Programmable Input Current Limit
- Adjustable Automatic Burst Mode Operation
- 4mm x 3mm DFN-12 Package

COMPANY BACKGROUND: Linear Technology Corporation was founded in 1981 as a manufacturer of high performance linear integrated circuits. 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, 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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READER SERVICE: Call toll-free 1-800-4-LINEAR (for literature only), or go to the company's web site: <http://www.linear.com>

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