



## **15V, 4MHz, Synchronous 2.5A Step-Down Regulator in a 3mm x 3mm QFN**

MILPITAS, CA – February 4, 2010 – The LTC3604 is a high efficiency, 4MHz synchronous buck regulator that incorporates a unique constant frequency/controlled on-time, current mode architecture. It can deliver up to 2.5A of continuous output current at output voltages as low as 0.6V from a 3mm x 3mm QFN or MSOP-16E package. Its current mode operation offers excellent line and load transient response even with high step-down ratios. The LTC3604 operates from an input voltage of 3.6V to 15V, making it ideal for applications powered from dual-cell Li-Ion battery stacks as well as 5V and 12V intermediate bus systems. Its switching frequency is user programmable from 800kHz to 4MHz, enabling the use of tiny, low cost capacitors and inductors.

The LTC3604 uses internal switches with  $R_{DS(ON)}$  of only 100mOhms and 130mOhms to deliver efficiencies as high as 95%. Its unique control architecture enables it to achieve duty cycles as low as 5% while maintaining switching frequencies as high as 2.25MHz, making it ideal for high step-down ratio applications, such as 12V<sub>IN</sub> to 1.2V<sub>OUT</sub> conversions. Burst Mode<sup>®</sup> operation is used to maximize light load efficiency, requiring only 300uA (at no load) and making the LTC3604 well suited for applications demanding maximum battery run time. For applications requiring the lowest possible noise, the LTC3604 can be configured to run in forced continuous mode, for minimum noise and potential RF interference. Additional features include a power good voltage monitor, output voltage tracking capability, and short circuit protection.


The LTC3604EUD is available in a 3mm x 3mm QFN-16 and the leaded version, the LTC3604EMSE, is available in a MSOP-16E package. Pricing starts at \$3.25 each in 1,000-piece quantities. Industrial grade versions, the LTC3604IUD and LTC3604IMSE, are guaranteed to operate over the -40°C to 125°C operating junction temperature range, priced at \$3.61 each in 1,000-piece quantities. All versions are available from stock. For more information, visit [www.linear.com](http://www.linear.com).

**Photo Caption: 2.5A, 15V Synchronous Step-Down DC/DC Converter****Summary of Features: LTC3604**

- 3.6V to 15V Operating Input Voltage Range
- 2.5A Output Current
- Up to 95% Efficiency
- Very Low Duty Cycle Operation: 5% at 2.25MHz
- Adjustable Switching Frequency: 800kHz to 4MHz
- External Frequency Synchronization
- Current Mode Operation for Excellent Line & Load Transient Response
- User-Selectable Low Ripple (20mVP-P) Burst Mode<sup>®</sup> (No Load  $I_Q = 300\mu A$ ) or Forced Continuous Operation
- 0.6V Reference Allows Low Output Voltages
- Short-Circuit Protected
- Output Voltage Tracking Capability
- Power Good Status Output
- Available in Small, Thermally Enhanced, 16-Pin QFN (3mm x 3mm) & MSOP Packages

**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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