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15V, 4MHz, Synchronous Step-Down Regulator Delivers 5A from a 4mm x 4mm QFN

MILPITAS, CA – February 23, 2009 – Linear Technology introduces the LTC3605, a high efficiency, 4MHz synchronous buck regulator that uses a constant frequency controlled on-time, current mode architecture. The LTC3605 delivers up to 5A of continuous output current at output voltages as low as 0.6V with minimum thermal derating from a 4mm x 4mm QFN package. It operates from an input voltage of 4V to 15V, making it ideal for dual-cell Li-Ion applications, as well as fixed rail systems with voltages up to 12V. The LTC3605's switching frequency is user programmable from 800kHz to 4MHz, enabling the use of tiny low cost capacitors and inductors.

The LTC3605 uses internal N-channel switches with $R_{DS(ON)}$ s of only 35mOhm and 70mOhm to deliver efficiencies as high as 96%. Its low minimum on-time allows low duty cycle operation at high switching frequencies. The LTC3605's PolyPhase[®] operation (up to 12 phases) allows multiple regulators to be cascaded, running out of phase to minimize input and output capacitance. Current mode operation offers fast transient response while simplifying compensation. Additional features include output tracking and a shutdown current of only 15uA.

The LTC3605EUF is available in a 4mm x 4mm QFN-24. Pricing starts at \$4.25 each in 1,000-piece quantities and is available from stock. For more information, visit www.linear.com.


Photo Caption: 5A, 15V Synchronous Step-Down DC/DC Converter in 4x4 QFN

Summary of Features: LTC3605

- High Efficiency: Up to 96%
- 5A Output Current
- 4V to 15V V_{IN} Range
- Integrated Power N-Channel MOSFETs (70mOhm Top and 35mOhm Bottom)
- Adjustable Frequency 800kHz to 4MHz
- PolyPhase[®] Operation (Up to 12 Phases)
- Output Tracking
- 0.6V $\pm 1\%$ Reference Accuracy
- Current Mode Operation for Excellent Line & Load Transient Response
- Shutdown Mode Draws Less than 15uA Supply Current
- Available in 24-Pin (4mm x 4mm) QFN 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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