32V Synchronous Step-Down Regulator Delivers 6A from a 7mm x 8mm QFN

MILPITAS, CA – January 19, 2009 – The LTC3609 is a high efficiency, synchronous buck regulator that can deliver up to 6A of continuous output current at voltages as low as 0.6V. It operates from an input voltage range of 4V to 32V (36V ABS Max), making it ideal for applications with multicell Li-Ion, lead acid batteries or fixed input voltage rails up to 32V. Its valley current control architecture delivers very low duty cycle operation at high frequencies with excellent transient response. The operating frequency is set by an external resistor. With a switching frequency of up to 1MHz, the LTC3609 can utilize small, low cost ceramic capacitors and low profile inductors.

The LTC3609 uses internal switches with an $R_{DS(ON)}$ of only 18mOhms and 13mOhms to deliver efficiencies as high as 95%. It can also be configured for discontinuous or forced continuous operation. Forced continuous operation reduces noise and RF interference while discontinuous mode provides high efficiency by reducing switching losses at light loads, requiring only 900uA of quiescent current. Shutdown quiescent current is only 15uA. Additional features include a Power Good voltage monitor, adjustable current limit, output overvoltage protection and programmable soft-start.

The LTC3609EWKG is available from stock in a 52-lead, 7mm x 8mm QFN package. Pricing starts at $7.75 each in 1,000-piece quantities. An industrial grade version, the LTC3609IWKG, is tested and guaranteed to operate from a -40°C to 125°C operating junction

temperature and is priced at $9.12 each in 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com.

Photo Caption: 6A, 32V Synchronous Step-Down DC/DC Converter in QFN

Summary of Features: LTC3609

- 6A Output Current
- Wide V_{IN} Range = 4V to 32V (36V Maximum)
- Internal N-Channel MOSFETs
- True Current Mode Control
- Optimized for High Step-Down Ratios
- $t_{ON(MIN)} \leq$ 100ns
- Extremely Fast Transient Response
- Stable with Ceramic C_{OUT}
- ±1% 0.6V Voltage Reference
- Power Good Output Voltage Monitor
- Adjustable On-Time/Switching Frequency
- Adjustable Current Limit
- Programmable Soft-Start
- Output Overvoltage Protection
- Optional Short-Circuit Shutdown Timer
- Low Shutdown I_Q: 15uA
- Available in a 7mm × 8mm 52-Pin 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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