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**36V, 3.5A, 2.4MHz Step-Down DC/DC Converter Requires Only
75uA of Quiescent Current & Operates with 150°C
Maximum Junction Temperature**

MILPITAS, CA – September 9, 2009 – Linear Technology announces the “H-grade” version of the LT3680, a 3.5A, 36V step-down switching regulator with Burst Mode[®] operation to keep quiescent current under 75uA. The LT3680 operates within a V_{IN} range of 3.6V to 36V, making it ideal for load dump and cold-crank conditions found in automotive applications. The H-grade version operates up to a junction temperature of 150°C, compared to the “E” and “I” versions’ 125°C maximum junction temperature. All electrical specifications are identical for the E, I and H-grade versions. The H-grade devices are tested and guaranteed to the maximum junction temperature of 150°C, making them ideal for automotive and industrial applications which are subjected to high ambient temperatures.

The LT3680’s 4.6A internal switch can deliver up to 3.5A of continuous output current at voltages as low as 0.79V. The LT3680’s Burst Mode operation ensures ultralow quiescent current, well suited for applications such as automotive or telecom systems, which demand always-on operation and optimum battery life. Switching frequency is user programmable from 250kHz to 2.4MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. The LT3680’s thermally enhanced MSOP-10E package and high switching frequency keep external inductors and capacitors small, providing a compact, thermally efficient footprint. Other features include external synchronization (from 250kHz to 2MHz), a power good flag and soft-start capability.

The LT3680HMSE is priced starting at \$5.35 each in 1,000-piece quantities and is available from stock. For more information, visit www.linear.com.


Photo Caption: 36V, 3.5A Step-Down with Only 75uA Quiescent Current

Summary of Features: LT3680

- Wide Input Range: 3.6V to 36V
- 3.5A Maximum Output Current
- Low Ripple (<15mV_{P-P}) Burst Mode Operation: $I_Q = 75\mu\text{A}$ at 12V_{IN} to 3.3V_{OUT}
- Adjustable Switching Frequency: 200kHz to 2.4MHz
- Low Shutdown Current: $I_Q < 1\mu\text{A}$
- Integrated Boost Diode
- Synchronizable Between 250kHz to 2MHz
- Power Good Flag
- Saturating Switch Design: 95m Ohm On-Resistance
- 0.790V Feedback Reference Voltage
- Output Voltage: 0.79V to 30V
- Thermal Protection
- Soft-Start Capability
- Small 10-Pin Thermally Enhanced MSOP
- Maximum Junction Temperature of 150°C

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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