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Quiescent Current 2.5uA, 40V, 350mA(I_{OUT}), 2.2MHz Step-Down DC/DC Converter

MILPITAS, CA – September 15, 2009 – Linear Technology Corporation announces the LT3970, a 350mA, 40V step-down switching regulator with integrated boost and catch diodes. Its Burst Mode[®] operation keeps quiescent current under 2.5uA in no load standby conditions. The LT3970's 4.2V to 40V input voltage range makes it ideal for automotive and industrial applications. Its internal 550mA switch can deliver up to 350mA of continuous output current to voltages as low as 1.21V. The LT3970's Burst Mode operation offers ultralow quiescent current, making it well suited for applications such as automotive or industrial systems, which demand always-on operation and optimum battery life. Switching frequency is user programmable from 200kHz to 2.2MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. The combination of its 10-lead 3mm x 2mm DFN-10 (or MSOP) package and high switching frequency keeps external inductors and capacitors small, providing a very compact, thermally efficient footprint.

The LT3970 utilizes a high efficiency 550mA, 300mV switch, with the necessary boost and catch Schottky diodes, oscillator, control and logic circuitry integrated into a single die. Low ripple Burst Mode operation maintains high efficiency at low output currents while keeping output ripple below 5mV_{PK-PK}. Special design techniques and a new high voltage process enable high efficiency over a wide input voltage range, and the LT3970's current mode topology enables fast transient response and excellent loop stability. Other features include a power good flag soft-start capability and output short protection.

The LT3970EDDB is packaged in a 2mm x 3mm DFN-10, and the LT3970EMS is packaged in a MSOP-10, priced starting at \$2.35 and \$2.40 each, respectively for 1,000 piece quantities. The LT3970IDDB and LT3970IMS are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and are priced at \$2.61 and \$2.67 each, respectively in 1,000 piece quantities. All versions are available from stock. For more information, visit www.linear.com.


Photo Caption: 40V 350mA (I_{OUT}), 2.2MHz Step-Down Switching Regulator in
3mm x 2mm DFN

Summary of Features: LT3970

- Low Ripple Burst Mode[®] Operation
- 2.5uA I_Q at 12V_{IN} to 3.3V_{OUT}
- Output Ripple < 5mV_{P-P}
- Wide Input Voltage Range: 4.2V to 40V Operating
- Adjustable Switching Frequency: 200kHz to 2.2MHz
- Integrated Boost & Catch Diodes
- 350mA Output Current
- Accurate 1V Enable Pin Threshold
- Low Shutdown Current: I_Q = 0.7uA
- Internal Sense Limits Catch Diode Current
- Power Good Flag
- Output Voltage: 1.21V to 25V
- Internal Compensation
- Small 10-Pin MSOP & (3mm x 2mm) DFN 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[®] 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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