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Ultralow Voltage 20mV Step-Up Converter & Power Manager for Energy Harvesting Applications

MILPITAS, CA – December 1, 2009 – Linear Technology announces the LTC3108, a highly integrated step-up DC/DC converter designed to start-up and run from extremely low input voltage sources such as thermoelectric generators (TEGs), thermopiles and small solar cells. Its self-resonant topology steps up from input voltages as low as 20mV. Small temperature differences can be harvested and used to generate system power instead of traditional battery power. Energy harvesters are designed for applications requiring very low average power, but require periodic pulses of higher load current. For example, in many wireless sensor applications the circuitry is only powered take measurements and transmit data periodically at low duty cycle.

The LTC3108 uses a small standard step-up transformer to provide a complete power management solution. Its 2.2V LDO can power an external microcontroller, while its main output is pin selectable to one of four (2.35V, 3.3V, 4.1V or 5V) fixed voltages to power a wireless transmitter or sensors. A second switched output can be enabled by the host in order to power devices that do not have a micropower shutdown capability. The addition of a storage capacitor provides continuous power even when the input energy source is unavailable. The LTC3108's extremely low quiescent current (<6 μ A) and high efficiency design ensure the fastest possible charge times for the output reservoir capacitor. The combination of the LTC3108's 3mm x 4mm DFN package (or SSOP-16) and very small external components ensure a highly compact solution for energy harvesting applications.

The LTC3108EDE's in a 3mm x 4mm DFN package and the LTC3108EGN is available in a SSOP-16 package. Pricing starts at \$2.95 each for 1,000-piece quantities. Industrial temperature grade versions, the LTC3108IDE and LTC3108IGN, are also available. Pricing starts at \$3.45 each for 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com.

Photo Caption: Ultralow 20mV Step-up Converter for Energy Harvesting Applications

Summary of Features: LTC3108

- Operates from a 20mV Input
- Complete Energy Harvesting Power Management System
 - Selectable V_{OUT} of 2.35V, 3.3V, 4.1V or 5V
 - LDO: 2.2V at 3mA
 - Logic Controlled Switched Output
 - Reserve Energy Output
- Power Good Indicator
- Ultralow I_Q : 6 μ A
- Uses Standard Compact Step-Up Transformer
- Small 12-Lead (3mm x 4mm) DFN or 16-Lead SSOP 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, μ Module[®] 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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