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Wide Input Voltage Range Low Minimum On-Time Synchronous Step-Down DC/DC Controller

MILPITAS, CA – November 4, 2009 – Linear Technology Corporation announces the LTC3775, a low minimum on-time wide input voltage range synchronous step-down DC/DC switching regulator controller that drives all N-channel power MOSFET stages. With less than a 30ns minimum on-time, the LTC3775 is well suited for high step-down ratios. The 4.5V to 38V input range encompasses a wide variety of applications, including most intermediate bus voltages and battery chemistries. The powerful onboard MOSFET gate drivers allow the use of high power external MOSFETs to produce output currents up to 20A with output voltages that range from 0.6V to 80% of the input voltage, making the LTC3775 ideal for automotive, industrial, medical, datacom and telecom applications.

A constant-frequency, leading edge modulation, voltage mode line feed forward architecture provides a selectable fixed or phase-lockable (PLL) frequency from 250kHz to 1MHz. Output current sensing is accomplished by monitoring the current in both the top-side and bottom-side MOSFET, allowing cycle-by-cycle control of the inductor current. In addition, the LTC3775 has adjustable soft-start to control the turn-on time and manage inrush current. Selectable pulse skip mode or forced continuous mode is user controlled to optimize light load efficiency. The LTC3775 features a precision 0.6V reference with an accuracy of ±0.75% over a -40°C to 125°C operating temperature range.

The LTC3775 is available in a thermally enhanced 3mm x 3mm QFN-16 package. The LTC3775E operates from -40°C to 85°C with the 1000-piece price starting at $1.79 each. The LTC3775I industrial grade version operates from -40°C to 125°C, with a 1,000-piece price that starts at $2.09 each. Both versions are available from stock. For more information, visit www.linear.com.

Photo Caption: Synchronous Step-Down DC/DC Controller

Summary of Features: LTC3775

- V_{IN} Range: 4.5V to 38V
- V_{OUT} Range: 0.6V to 0.8V_{IN}
- Low Minimum On-Time < 30ns
- Strong Onboard N-Channel MOSFET Driver
- Leading Edge Modulation Voltage Mode Control
- Line Feedforward Compensation
- Sense Resistor or $R_{DS(ON)}$ Current Sensing
- Programmable Cycle by Cycle Current Limit
- Phase-Lockable Fixed Frequency from 250kHz to 1Mhz
- Programmable Soft-Start
- ±0.75% Reference Voltage Accuracy over -40°C to +125°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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