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Wide Input Voltage Range Synchronous Step-Down DC/DC Controller

MILPITAS, CA – August 18, 2008 – Linear Technology Corporation announces the LTC3851, a wide input range synchronous step-down switching regulator controller that drives all N-channel power MOSFET stages and has coincident or ratiometric tracking. The 4V to 38V input range encompasses a wide variety of applications, including most intermediate bus voltages and battery chemistries. The strong on-board MOSFET gate drivers allow the use of high power external MOSFETs to produce output currents up to 20A with output voltages ranging from 0.8V to 5.5V, making the LTC3851 ideal for point-of-load requirements. Applications include automotive, industrial, medical, datacom and telecom systems, multifunction printers and set-top boxes.

A constant-frequency current mode architecture provides a selectable fixed or phase-lockable (PLL) frequency from 250kHz to 750kHz. OPTI-LOOP[®] compensation allows the transient response to be optimized over a wide range of output capacitance and ESR values, including all ceramic capacitors designs. Output current sensing is accomplished by measuring the voltage drop across the output inductor (DCR) or by using an optional sense resistor; also the current limit threshold voltage is programmable. Current foldback limits MOSFET heat dissipation during short-circuit and over-load conditions. In addition, the LTC3851 has adjustable soft-start to control the turn-on time and manage inrush current. Selectable Burst Mode[®] operation, pulse skip mode or continuous current mode is user controlled to optimize light load efficiency vs. output ripple. The LTC3851 features a precision 0.8V reference with an accuracy of $\pm 1\%$ over a -40°C to 85°C operating temperature range. With up to 99% duty cycle, the LTC3851 has a very low drop-out voltage, a useful feature for extending run times in battery powered applications.


Available packages include a thermally enhanced 3mm x 3mm QFN-16 and narrow SSOP-16. Pricing in 1,000-piece quantities begins at \$1.71 each.

Photo Caption: Synchronous Step-Down DC/DC Controller**Summary of Features: LTC3851**

- V_{IN} Range: 4V to 38V
- V_{OUT} Range: 0.8V to 5.5V
- Strong On-Board N-Channel MOSFET Driver
- Current Mode Control
- Tracking
- DCR or R_{SENSE} Current Sense Options
- Programmable Current Limit Threshold Voltage
- Phase-Lock-Loop Synchronization
- Programmable Soft-Start
- Fixed Operating Frequency or Synchronizable from 250kHz to 750kHz
- $\pm 1\%$ Reference Voltage Accuracy over -40°C to $+85^{\circ}\text{C}$

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. For more information, visit www.linear.com.

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