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60V Input Synchronous Step-Down DC/DC Controller Draws Only 50 μ A in Battery-Powered Systems

MILPITAS, CA – October 28, 2010 – Linear Technology Corporation introduces the [LTC3891](#), a high voltage synchronous step-down DC/DC controller that draws only 50 μ A in standby mode with the output in regulation. The 4V to 60V input supply range is designed to protect against high voltage transients, continue operation during automotive cold crank and cover a broad range of input sources and battery chemistries. The output voltage can be set from 0.8V to 24V at output currents up to 20 amps with efficiencies as high as 95%, making it well suited for 12V, 24V or 48V automotive, heavy equipment, industrial control, robotics and telecom applications.

The LTC3891 has powerful 1.1 Ω on-chip MOSFET gate drivers. It operates with a selectable fixed frequency between 50kHz and 900kHz and is synchronizable to an external clock from 75kHz to 850kHz with its phase-locked loop (PLL). The user can select from continuous operation, pulse skipping and low ripple Burst Mode[®] operation during light loads. Its current-mode architecture provides easy loop compensation, fast transient response and excellent line regulation. Output current sensing is accomplished by measuring the voltage drop across the output inductor (DCR) for the highest efficiency or by using an optional sense resistor. Current foldback limits MOSFET heat dissipation during overload conditions. Additional features include a low 95ns minimum on-time for high step-down ratios at high frequency, up to 99% duty cycle for low voltage drop out, an internal LDO that powers gate drivers from the input voltage or EXTV_{CC} and a power good signal.

The LTC3891 is available in 20-pin 3mm x 4mm QFN and 20-lead TSSOP thermally enhanced packages. Three operating junction temperature grades are available with extended and industrial versions from -40 to 125°C, a high temp automotive grade version from -40°C to 150°C and a military grade version from -55°C to 150°C. The 1,000-piece price starts at \$3.47 each. For more information, visit www.linear.com/3891.


Photo Caption: High Voltage DC/DC Synchronous Controller

Summary of Features: LTC3891

- Wide Input Voltage Range: 4V to 60V
- 50µA Quiescent Current
- Wide Output Voltage Range: 0.8V to 24V
- Synchronous Rectification for up to 95% Efficiency
- Low 95ns Minimum On-time for High Step-Down Ratios
- DCR or R_{SENSE} Current Sense
- Selectable Low Ripple Burst Mode[®] Operation, Pulse Skipping or Continuous Operation
- Selectable Fixed Operating Frequency from 50kHz to 900kHz
- PLL Synchronizable Operating Frequency from 75kHz to 850kHz
- Current-Mode Control for Fast Transient Response & Easy Loop Compensation
- Adjustable Soft-Start or Tracking
- Output Overvoltage & Overcurrent Foldback Protection
- Extended & Industrial Grades: -40°C to 125°C Operating Junction Temp
- Automotive Temp Grade: -40°C to 150°C Operating Junction Temp
- Military Temp Grade: -55°C to 150°C Operating Junction Temp

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, µModule[®] 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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