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High Power Polyphase[®] Synchronous Boost Controller Eliminates Heat Sink with 97% Efficiency

MILPITAS, CA – September 27, 2010 – Linear Technology Corporation announces the [LTC3787](#), high power two phase single output synchronous step-up DC/DC controller, which replaces the boost diodes with high efficiency N-channel MOSFETs. This solution eliminates the heat sink normally required in medium to high power boost converters. The LTC3787 can produce a 24V at 10A output from a 12V input at up to 97% efficiency. The LTC3787's 135uA standby quiescent current when configured for Burst Mode[®] operation makes it ideal for high power automotive audio amplifiers, as well as industrial and medical applications where a step-up DC/DC converter must deliver high power in a small solution size.

The LTC3787 operates from an input voltage ranging from 4.5V to 38V during start-up, maintains operation down to 2.5V after start-up and can regulate an output voltage as high as 60V. The powerful 1.2Ohm onboard N-channel MOSFET gate drivers are capable of slewing large MOSFET gates quickly. The device's current mode architecture, clock output and phase modulation enables easy paralleling of multiple devices for up to 12 phase operation. The LTC3787 has a phase-lockable frequency from 75kHz to 850kHz or a selectable fixed frequency from 50kHz to 900kHz. In applications where the input voltage exceeds the regulated output voltage, the LTC3787 keeps the synchronous MOSFET on continuously so that the output voltage follows the input voltage with minimal power loss. In addition, this device features adjustable cycle-by-cycle current limit and can use a sense resistor or monitor the voltage drop across the inductor (DCR) for current sensing. Furthermore, the LTC3787 has adjustable soft-start, a power good output and maintains $\pm 1\%$ reference voltage accuracy over an operating junction temperature range of -40°C to 125°C.

The LTC3787 is available in SSOP-28 and 4mm x 5mm QFN-28 packages. The 1,000-piece price starts at \$4.12 each. For more information, visit www.linear.com/3787.

Photo Caption: 60V Multiphase Synchronous Step-Up DC/DC Controller

Summary of Features: LTC3787

- Up to 97% Efficiency
- Eliminates Heat Sink in Medium to High Power Boost Converters
- Up to 60V V_{OUT} Operation
- Wide V_{IN} Ranging from 4.5V to 38V, Maintains Operation down to 2.5V after Start-Up
- Low 135uA Quiescent Current
- Powerful 1.2 Ohm Gate Drivers
- 100% Duty Cycle Capability for Synchronous MOSFET
- Phase Lockable Frequency from 75kHz to 850kHz
- Programmable Fixed Frequency from 50kHz to 900kHz
- R_{SENSE} or Inductor DCR Current Sensing
- Current Mode Control
- ±1% Reference Voltage Accuracy over -40°C to +125°C
- Programmable Soft-Start
- Phase Modulation for up to 12 Phases
- Power Good Output

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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