



60V Synchronous Boost Controller Reduces Thermal Stress with up to 98% Efficiency

MILPITAS, CA – July 23, 2014 – Linear Technology Corporation announces the [LTC3769](#), a synchronous step-up DC/DC controller that replaces the boost diode with a high efficiency N-channel MOSFET, increasing efficiency and maximizing output current capability. This controller produces 24V at up to 5A output from a 12V input with up to 98% efficiency, making it ideal for automotive, industrial and medical applications where a step-up DC/DC converter must have low heat dissipation in a small solution size.

The LTC3769 operates over an input voltage range of 4.5V to 60V during start-up, maintains operation down to $2.3V_{IN}$ after start-up and can regulate an output as high as 60V. The low 28 μ A quiescent current extends the run time in battery-powered applications when in standby mode with the output voltage in regulation. 1.2 Ohm onboard N-channel MOSFET gate drivers are capable of slewing large MOSFET gates quickly, minimizing transition losses and enabling up to 10A output current.

The LTC3769 has adjustable cycle-by-cycle current limit protection and uses either a sense resistor or monitors the voltage drop across the inductor (DCR) for current sensing. In applications where the input voltage may exceed the regulated output voltage, the LTC3769 keeps the synchronous MOSFET on continuously so that the output voltage follows the input voltage with minimal power loss. The LTC3769's current-mode architecture enables a selectable frequency from 50kHz to 900kHz or it can be synchronized to an external clock from 75kHz to 850kHz. Furthermore, this device has adjustable soft-start, a power good output signal and maintains $\pm 1\%$ reference voltage accuracy over a -40°C to 125°C operating temperature range.

The LTC3769 is available in 20-lead TSSOP and 24-pin 4mm x 4mm QFN packages. Four temperature grades are available, with operation from -40 to 125°C for the extended and industrial grades, a high temp automotive range of -40°C to 150°C and a military grade of -55°C to 150°C . The 1,000-piece price starts at \$2.75 each. For more information, visit www.linear.com/product/LTC3769


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

Summary of Features: LTC3769

- Up to 98% Efficiency
- Up to 60V V_{OUT} Operation
- Wide V_{IN} Ranging from 4.5V to 60V, Maintains Operation down to 2.3V After Start-Up
- Low 28 μ A Quiescent Current Extends the Run Time in Battery-Powered Applications
- 4 μ A Shutdown 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
- $\pm 1\%$ Reference Voltage Accuracy over -40°C to $+125^{\circ}\text{C}$
- Programmable Soft-Start
- Power Good Output

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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