



5A, 15V 2-Phase Synchronous Boost Regulator Offers 95% Efficiency, 3MHz Switching & Output Disconnect in a 3mm x 5mm DFN

MILPITAS, CA – July 8, 2014 – Linear Technology Corporation announces the [LTC3124](#), a dual-phase, 3MHz, current-mode, synchronous boost DC/DC converter with output disconnect and inrush current limiting. Dual-phase operation significantly reduces peak inductor and capacitor ripple currents, minimizing component size while delivering lower output ripple versus an equivalent single-phase device. Its internal 2.5A per phase capable switches together deliver 5A of switch current. These 18V switches can deliver output voltages as high as 15V from an input voltage range of 1.8V at start-up (0.5V when running) to 5.5V, making it ideal for supercapacitor-based backup power systems and Li-Ion/Polymer or multicell NiMH applications. The LTC3124 delivers up to 1.5A of continuous output current at 12V from a 5V input. Synchronous rectification enables efficiencies up to 95%, while Burst Mode[®] operation lowers quiescent current to only 25 μ A, providing extended battery run time. The combination of its thermally enhanced 3mm x 5mm DFN-16 (or TSSOP-16) package and a constant switching frequency of up to 3MHz, which minimizes both inductor and capacitor size, provides a compact solution footprint required in handheld applications.

The LTC3124 has internal switches with an $R_{DS(ON)}$ of only 130mOhm (N-channel) and 200mOhm (P-channel) to deliver efficiencies as high as 95%. The output disconnect feature allows the output to be completely discharged in shutdown. It also limits the inrush of current during start-up, minimizing surge currents seen by the input supply. The LTC3124 will also regulate the output voltage when the input voltage exceeds the output voltage, enabling

compatibility with any battery chemistry. For applications demanding the lowest possible noise operation, the LTC3124 can be set via an external pin to operate in a continuous frequency mode. This version runs in continuous mode at all current levels to minimize possible interference of switching noise with noise-sensitive circuitry, slightly reducing light load efficiency. Additional features include external synchronization, output overvoltage protection, and robust short-circuit protection. The LTC3124 delivers an ideal solution for boost applications requiring outputs up to 15V where high efficiency, small solution size and high reliability are defining factors.

LTC3124EDHC and LTC3124EFE are both available from stock in 16-lead 3mm x 5mm DFN and thermally enhanced TSSOP packages, respectively. 1,000-piece pricing starts at \$3.26 each. Industrial grade versions, the LTC3124IDHC and LTC3124IFE, are guaranteed to operate over the -40°C to 125°C operating junction temperature range and a high temperature grade version, the LTC3124HFE is guaranteed to operate over -40°C to 150°C . All versions are available from stock. For more information, visit www.linear.com/product/LTC3124

Photo Caption: 5A, 15V 2-Phase Synchronous Boost Regulator Offers 95% Efficiency

Summary of Features: LTC3124

- V_{IN} Range: 1.8V to 5.5V, 500mV After Start-Up
- Adjustable Output Voltage: 2.5V to 15V
- 1.5A Output Current for $V_{\text{IN}} = 5\text{V}$ & $V_{\text{OUT}} = 12\text{V}$
- Dual-Phase Control Reduces Output Voltage Ripple
- Output Disconnects from Input When Shut Down
- Synchronous Rectification: Up to 95% Efficiency
- Inrush Current Limit
- Up to 3MHz Programmable Switching Frequency Synchronizable to External Clock
- Selectable Burst Mode[®] Operation: $25\mu\text{A } I_{\text{Q}}$
- Output Overvoltage Protection
- Internal Soft-Start
- $<1\mu\text{A } I_{\text{Q}}$ in Shutdown
- 16-Lead, Thermally Enhanced 3mm x 5mm x 0.75mm DFN & TSSOP Packages

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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Press Contacts:

North America / Worldwide

John Hamburger, Director Marketing
Communications
jhamburger@linear.com
Tel: 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager
ddickinson@linear.com
Tel: 408-432-1900 ext 2233

UK & Nordic

Alan Timmins
alan@ezwire.com
Tel: +44-1-252-629937