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4A, 4MHz, Synchronous Step-Down Regulator in 3mm x 5mm QFN

MILPITAS, CA – April 14, 2010 – The LTC3614 is a high efficiency synchronous buck regulator from Linear Technology that incorporates a constant frequency, current mode architecture capable of switching frequencies up to 4MHz. Low resistance internal switches allow the LTC3614 to deliver up to 4A of continuous output current from a 3mm x 5mm QFN package, and its low dropout operation allows the output voltage to range from 0.6V to just millivolts below V_{IN} . The LTC3614 operates over an input voltage range of 2.25V to 5.5V, making it ideal for single- cell Li-Ion applications as well as 3.3V or 5V intermediate bus systems. Its switching frequency is user programmable from 300kHz to 4MHz, enabling the use of tiny, low cost capacitors and inductors.

The LTC3614 uses internal switches with $R_{DS(ON)}$ of only 25mOhms and 35mOhms to deliver efficiencies of up to 95%. Burst Mode[®] operation reduces no-load quiescent current to only 75uA, maximizing both light-load efficiency and run time in battery-powered applications. An adjustable Burst Mode clamp enables designers to optimize light load efficiency. For applications requiring the lowest possible noise, the LTC3614 can be configured to run in either pulse-skipping or forced continuous mode, reducing noise and potential RF interference. Additionally, programmable switching slew rates can further reduce potential noise concerns. The LTC3614 also offers tracking capability as well as a DDR memory mode in which the device can source/sink $\pm 3A$. Additional features include optional active voltage positioning, a Power Good voltage monitor, external synchronization capability and thermal protection.

The LTC3614EUDD is available in a 3mm x 5mm QFN-24. Pricing starts at \$3.45 each in 1,000-piece quantities. An industrial grade version, the LTC3614IUDD is guaranteed to meet specifications over the -40°C to 125°C operating junction temperature range and is priced at \$4.06 each in 1,000-piece quantities. For more information, visit www.linear.com.


Photo Caption: 4A, Synchronous Step-Down DC/DC Converter Capable of up to 4MHz Switching Frequency

Summary of Features: LTC3614

- 4A Output Current
- 2.25V to 5.5V Input Voltage Range
- Output Voltage Range: 0.6V to V_{in}
- Adjustable Switching Frequency: Up to 4MHz
- Low Output Ripple ($<20mV_{PK-PK}$) Burst Mode[®] Operation: $I_Q = 75\mu A$
- $\pm 1\%$ Output Voltage Accuracy
- High Efficiency: Up to 95%
- Programmable Slew Rate on SW Node Reduces Noise & EMI
- Optional Active Voltage Positioning (AVP) with Internal Compensation
- Selectable Pulse-Skipping/Forced Continuous/Burst Mode Operation with Adjustable Burst Clamp
- Programmable Soft-Start
- Inputs for Start-Up Tracking or External Reference
- DDR Memory Mode, $I_{OUT} = \pm 3A$
- Available in a 24-Pin 3mm \times 5mm QFN Thermally Enhanced Package

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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