



General Purpose Dual 3A, 4MHz, Synchronous Step-Down Regulator Also Supports DDR Memory

MILPITAS, CA – May 3, 2010 – Linear Technology introduces the [LTC3615](#), a high efficiency, 4MHz synchronous buck regulator that incorporates a constant frequency, current-mode architecture. Low resistance internal switches enable the LTC3615 to deliver up to 3A of continuous output current from each channel while its low dropout operation provides an output voltage ranging from 0.6V to just millivolts below V_{IN} . The LTC3615 operates from an input voltage of 2.25V to 5.5V, making it ideal for single-cell Li-Ion applications as well as 3.3V and 5V intermediate bus systems. Its switching frequency is user programmable from 400kHz to 4MHz, enabling the use of tiny, low cost capacitors and inductors. The combination of its fast switching capability and the very small 4mm x 4mm QFN-24, or thermally enhanced TSSOP-24 package, offer a highly compact solution footprint for applications requiring dual outputs up to 3A.

The LTC3615 uses internal switches with $R_{DS(ON)}$ of only 55mOhms and 75mOhms to deliver efficiencies up to 94%. Burst Mode[®] operation reduces no-load quiescent current to only 130uA, 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 LTC3615 can be configured to run in either pulse-skipping or forced continuous modes, reducing noise and potential RF interference. Programmable switching slew rates further reduce potential noise concerns. Selectable 0°, 90° or 180° of phase shift between its two channels minimize input current ripple as well as output voltage ripple. The LTC3615 offers inputs for tracking capability as well as a DDR memory mode in which the device can source/sink $\pm 1.5A$. Additional features include optional active voltage positioning (AVP) a Power Good voltage monitor, external synchronization capability and thermal protection.

The LTC3615EUF is available in a 4mm x 4mm QFN-24 and the LTC3615EFE is in a TSSOP-24E with exposed pad. Pricing starts at \$3.95 and \$4.10 each, respectively in 1,000-piece quantities. Industrial grade versions, the LTC3615IUF and LTC3615IFE, are guaranteed to meet specifications over the -40°C to 125°C operating junction temperature range and are priced at \$4.65 and \$4.82 each, respectively in 1,000-piece quantities. For more information, visit www.linear.com/pr/3615

Photo Caption: Dual 3A, 4MHz Monolithic Synchronous Step-Down Regulator

Summary of Features: LTC3615

- High Efficiency: Up to 94%
- Dual Outputs with 2 × 3A Output Current Capability
- DDR Memory Mode $I_{OUT} = \pm 1.5A$
- Low Output Ripple Burst Mode[®] Operation: $I_Q = 130\mu A$
- 2.25V to 5.5V Input Voltage Range
- Low Dropout Operation: 100% Duty Cycle
- Output Voltages Down to 0.6V
- 1.33% Output Voltage Accuracy
- Programmable Slew Rate at Switch Pins
- Shutdown Current $\leq 1\mu A$
- Adjustable Switching Frequency up to 4MHz
- Internal or External Compensation
- Selectable Pulse-Skipping/Forced Continuous/Burst Mode Operation with Adjustable Burst Clamp
- Optional Active Voltage Positioning (AVP) with Internal Compensation
- Selectable 0°/90°/180° Phase Shift between Channels
- Fixed Internal & Programmable External Soft-Start
- Accurate Start-Up Tracking Capability
- Available in Thermally Enhanced 4mm × 4mm QFN-24 & TSSOP-24 Packages

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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