



News Release | www.linear.com

High Efficiency Dual $\pm 3A$ Synchronous Buck Regulator for DDR Power & Termination Complies with DDR/DDR2/DDR3 Standards

MILPITAS, CA – August 8, 2011 – Linear Technology Corporation introduces the [LTC3618](#), a high-efficiency dual monolithic synchronous step-down switching regulator, capable of generating the supply voltage and the bus termination voltage for DDR/DDR2/DDR3 and future standard memory applications requiring both sourcing and sinking of current. The output of the first step-down regulator offers a high accuracy V_{DDQ} supply capable of $\pm 3A$ output. An internal resistor divider sets the V_{TT} DDR termination supply and V_{TTR} reference voltages equal to half the voltage applied to the V_{DDQIN} input, with output current capability of $\pm 3A$ (sinking/sourcing) at V_{TT} and $\pm 10mA$ at V_{TTR} . The V_{TT} output is capable of operation down to 0.5V to support all DDR standards.

The LTC3618 operates from an input voltage range of 2.25V to 5.5V and allows switching frequencies as high as 4MHz, enabling the use of very small external components. This creates a small, compact solution footprint that is preferred for DDR applications requiring $\pm 3A$ or less current. The internal synchronous top and bottom power switches have an $R_{DS(ON)}$ of only 75mOhm and 55mOhm, respectively. This enables the LTC3618 to attain efficiencies as high as 94%, eliminating the need for an external catch diode and minimizing external component count and board space, as well as generating far less heat than linear regulator solutions.

The LTC3618 utilizes a constant frequency, current-mode architecture. The switching frequency can be set between 400kHz and 4MHz by a single external resistor. This high frequency capability allows use of smaller capacitor values, while maintaining low output voltage ripple. 0°, 90° or 180° of phase shift between the two channels can be selected to minimize input capacitance and current ripple. For noise-sensitive switching applications, the LTC3618 can be synchronized to an external clock up to 4MHz. Forced continuous mode operation helps reduce noise and RF interference. Optional external compensation allows optimization of transient response over a wide range of loads and output capacitors. The device includes an input overvoltage lockout circuit to protect the input supply from back-boosting.

For optimal thermal performance, the LTC3618 is offered in 24-pin thermally enhanced 4mm x 4mm QFN and TSSOP packages. The device is guaranteed for operation from -40°C to 125°C. 1,000-piece pricing starts at \$4.10 each. For more information, visit

www.linear.com/product/LTC3618

Photo Caption: Dual $\pm 3A$ DDR Switching Regulator for DDR/DDR2/DDR3 & Future Standards

Summary of Features: LTC3618

- High Efficiency Synchronous Operation: up to 94%
- Dual Outputs with $\pm 3A$ Output Current Capability
- 2.25V to 5.5V Input Voltage Range
- $\pm 1\%$ Output Voltage Accuracy
- V_{TT} Output Voltage Range Down to 0.5V
- $V_{TTR} = V_{DDQIN} \cdot 0.5$, $V_{FB} = V_{TTR}$
- Shutdown Current: $< 1\mu A$
- Adjustable Switching Frequency: Up to 4MHz
- Internal or External Compensation
- Selectable 0°/90°/180° Phase Shift Between Channels
- Soft-Start
- Power Good Status Outputs
- Low Profile 24-Pin 4mm x 4mm QFN & 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 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, and μ Module[®] subsystems.

LT, LTC, LTM, μ Module and  are registered trademarks of Linear Technology Corp. All other trademarks are the property of their respective owners.

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