



42V, 4A (I_{OUT}), Synchronous Step-Down Silent Switcher Needs Only 2.5 μ A of Quiescent Current

MILPITAS, CA – October 21, 2013 – Linear Technology Corporation announces the [LT8614](#), a 4A, 42V input capable synchronous step-down switching regulator. A unique Silent Switcher™ architecture reduces EMI/EMC emissions by more than 20dB, well below the CISPR 25 Class 5 limit. Even with switching frequencies in excess of 2MHz, synchronous rectification delivers efficiency as high as 96% while Burst Mode® operation keeps quiescent current under 2.5 μ A in no-load standby conditions. Its 3.4V to 42V input voltage range makes it ideal for automotive and industrial applications.

The LT8614's internal high efficiency switches can deliver up to 4A of continuous output current to voltages as low as 0.97V. Its Burst Mode operation provides ultralow quiescent current, making it well suited for applications such as automotive “always-on” systems, which need to extend operating battery life. The LT8614's unique design maintains a minimum dropout voltage of only 200mV at 1A under all conditions, enabling it to excel in scenarios such as automotive cold-crank. Furthermore, a fast minimum on-time of only 30ns enables 2MHz constant frequency switching from a 16V input to a 1.0V output, enabling designers to optimize efficiency while avoiding critical noise-sensitive frequency bands. The LT8614's 20-lead 3mm x 4mm QFN package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT8614 utilizes internal top and bottom high efficiency power switches with the necessary boost diode, oscillator, control and logic circuitry integrated into a single die. Low

ripple Burst Mode operation maintains high efficiency at low output currents while keeping output ripple below 10mV_{PK-PK}. Special design techniques and a new high speed process enable high efficiency over a wide input voltage range, and the LT8614's current-mode topology enables fast transient response and excellent loop stability. Other features include internal compensation, a power good flag, output soft-start/tracking and thermal protection.

The LT8614EUDC is packaged in a 3mm x 4mm QFN package and is priced starting at \$4.25 each. An industrial temperature version, the LT8614IUDC, is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced starting at \$4.68 each. An automotive temperature version, the LT8614HUDC, is tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and is priced starting at \$4.93 each. All pricing is for 1,000-piece quantities and all versions are available from stock. For more information, visit www.linear.com/product/LT8614


Photo Caption: 42V, 4A (I_{OUT}), 2.2MHz Synchronous Step-Down Reduces EMI/EMC Emissions by over 20dB

Summary of Features: LT8614

- Silent Switcher™ Architecture:
 - Ultralow EMI/EMC Emissions
 - High Efficiency at High Frequency
- Up to 96% Efficiency
- Wide Input Voltage Range: 3.4V to 42V
- Ultralow Quiescent Current Burst Mode® Operation: 2.5 μ A I_Q Regulating 12V_{IN} to 3.3V_{OUT} with Output Ripple < 10mV_{P-P}
- High Efficiency Synchronous Operation
- Fast Minimum Switch-On Time: 30ns
- Low Dropout under All Conditions: 200mV at 1A
- Adjustable & Synchronizable: 200kHz to 3MHz
- Peak Current-Mode Operation
- Accurate 1V Enable Pin Threshold
- Internal Compensation
- Output Soft-Start & Tracking
- Small 20-Lead 3mm × 4mm QFN

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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