



42V, 2.5A(I_{OUT}), 2.2MHz Synchronous Step-Down DC/DC Converter Delivers 96% Efficiency, Consumes Only 2.5 μ A of Quiescent Current

MILPITAS, CA – May 21, 2012 – Linear Technology Corporation announces the [LT8610](#), a 2.5A, 42V input capable synchronous step-down switching regulator. 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. The LT8610's 3.4V to 42V input voltage range makes it ideal for automotive and industrial applications. Its internal 3.5A switches can deliver up to 2.5A of continuous output current to voltages as low as 0.97V. The LT8610's Burst Mode operation offers ultralow quiescent current, making it well suited for applications such as automotive “always-on” systems, which need to extend operating battery life.

The LT8610's unique design maintains a minimum dropout voltage of only 200mV (@1A) under all conditions, enabling it to excel in scenarios such as automotive cold-crank. Furthermore, a fast minimum on-time of only 50ns enables 2MHz constant frequency switching from a 16V input to a 1.8V output, enabling designers to optimize efficiency while avoiding critical noise-sensitive frequency bands. The LT8610's 16-lead thermally enhanced MSOP package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT8610 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 LT8610s' 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 [LT8611](#) includes all of the features of the LT8610, plus a built-in current sense amplifier with monitor and control pins, enabling accurate input or output current regulation and limiting. It is offered in a 3mm x 5mm 24-lead QFN package.

The LT8610EMSE comes in a thermally enhanced MSOP-16 package and is priced from \$3.55 each. An industrial temperature version, the LT8610IMSE, is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced from \$3.91. An automotive temperature version, the LT8610HMSE, is tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and is priced from \$4.16 each. All pricing is for 1,000 piece quantities and all versions are available from stock.

The LT8611EUDD is packaged in a 3mm x 5mm QFN-24 package and is priced from \$3.80 each. An industrial temperature version, the LT8611IUDD, is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced from \$4.16. An automotive temperature version, the LT8611HUDD, is tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and is priced from \$4.41 each. All pricing is for 1,000 piece quantities and all versions are available from stock. For more information, visit www.linear.com/product/LT8610 and www.linear.com/product/LT8611


Photo Caption: 42V, 2.5A(I_{OUT}), 2.2MHz Synchronous Step-Down DC/DC Converter with $I_Q = 2.5\mu$ A

Summary of Features: LT8610/LT8611

- 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}, Output Ripple < 10mVP-P
- High Efficiency Synchronous Operation
 - 96% Efficiency at 1A, 5V_{OUT} from 12V_{IN}
 - 94% Efficiency at 1A, 3.3V_{OUT} from 12V_{IN}
- Fast Minimum Switch-On Time: 50ns
- Low Dropout under All Conditions: 200mV at 1A
- Allows Use of Small Inductors
- Adjustable and Synchronizable: 200kHz to 2.2MHz
- Current Mode Operation
- Accurate 1V Enable Pin Threshold
- Internal Compensation
- Output Soft-Start & Tracking
- Rail-to-Rail Current Sense Amplifier with Monitor (LT8611)
- Small Thermally Enhanced 16-Lead MSOP Package (LT8610)
- Small Thermally Enhanced 3mm × 5mm 24-Lead QFN Package (LT8611)

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, µModule[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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