



3.5A I_{OUT} , 2.2MHz Synchronous Step-Down DC/DC Converter Delivers 96% Efficiency, $I_Q=2.5\mu A$ & Operates from 3.0V to 42V Input

MILPITAS, CA – October 29, 2014 – Linear Technology Corporation announces the [LT8610AC](#), a 3.5A, 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 μA in no-load standby conditions. The device's 3.0V to 42V input voltage range makes it ideal for automotive applications, which must regulate through cold-crank/stop-start scenarios with minimum input voltages as low as 3.0V and load dump transients in excess of 40V. Its internal 5A switches can deliver up to 3.5A of continuous output current to voltages as low as 0.80V.

The LT8610AC'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 LT8610AC's unique design maintains a minimum dropout voltage of only 200mV at 1A under all conditions, enabling it to excel in conditions 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, optimizing efficiency while avoiding critical noise-sensitive frequency bands. The LT8610AC's 16-lead thermally enhanced MSOP package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT8610AC 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 LT8610AC'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 LT8610ACEMSE is packaged in thermally enhanced MSOP-16 package and is priced at \$3.75 each. An industrial temperature version, the LT8610ACIMSE, is tested and guaranteed to operate from a $-40^{\circ}C$ to $125^{\circ}C$ operating junction temperature and is priced at \$4.13. An automotive temperature version, the LT8610ACHMSE, is tested and guaranteed to operate from a $-40^{\circ}C$ to $150^{\circ}C$ operating junction temperature, priced at \$4.38 each. All pricing is for 1,000 piece quantities and all versions are available from stock. For more information, visit www.linear.com/product/LT8610AC

Photo Caption: 42V, 3.5A I_{OUT} , 2.2MHz Synchronous Step-Down DC/DC Converter Operates from 3.0V to 42V


Summary of Features: LT8610AC

- Wide Input Voltage Range: 3.0V to 42V
- Up to 3.5A of Continuous Output Current
- Ultralow Quiescent Current Burst Mode® Operation:
- $2.5\mu A$ I_Q Regulating $12V_{IN}$ to $3.3V_{OUT}$, Output Ripple $< 10mV_{P-P}$
- High Efficiency Synchronous Operation:
 - 95% Efficiency at 1A, $5V_{OUT}$ from $12V_{IN}$
 - 93% Efficiency at 1A, $3.3V_{OUT}$ from $12V_{IN}$
- Fast Minimum Switch-On Time: 30ns
- Low Dropout Under All Conditions: 200mV at 1A
- Minimum Output Voltage of 0.8V
- Allows Use of Small Inductors
- Adjustable & Synchronizable: 200kHz to 2.2MHz
- Current Mode Operation
- Accurate 1V Enable Pin Threshold
- Internal Compensation
- Output Soft-Start & Tracking
- Small Thermally Enhanced 16-Lead MSOP Package

The USA list pricing shown is for budgetary use only. International prices may differ due to local duties, taxes, fees and exchange rates.

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

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