



42V, 3.5A (I_{OUT}), 2.2MHz Synchronous Step-Down DC/DC Converter Delivers 96% Efficiency & Needs Only 2.5 μ A of Quiescent Current

MILPITAS, CA – December 17, 2013 – Linear Technology Corporation announces the [LT8610A](#) and [LT8610AB](#). Both are 3.5A, 42V input capable synchronous step-down switching regulators. 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. Their 3.4V to 42V input voltage range makes them ideal for automotive and industrial applications. The internal 5A switches can deliver up to 3.5A of continuous output current to voltages as low as 0.97V. The LT8610A/ABs' Burst Mode operation offers ultralow quiescent current, making it well suited for applications such as automotive “always-on” systems, which is needed to extend operating battery life. The LT8610A/AB'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, so designers can optimize efficiency while avoiding critical noise-sensitive frequency bands. The LT8610A/AB's 16-lead thermally enhanced MSOP package and high switching frequency keeps external inductors and capacitors small, providing a compact thermally efficient footprint. The LT8610AB offers higher efficiency at very light loads <0.5mA when compared to the LT8610A, but this does result in slightly higher output ripple.

The LT8610A and LT8610AB share all of the performance and features of the LT8610 with the following improvements. First, they deliver 3.5A of continuous output current, in lieu of the LT8610's 2.5A capability. Secondly, their minimum on-time has been reduced from 50ns to 30ns, enabling 16V to 1V step-down conversion @ 2MHz, compared to 1.8V for the standard LT8610. All other electrical parameters are identical to the standard LT8610.

The LT8610AEMSE and LT8610ABEMSE are packaged in thermally enhanced MSOP-16 packages and are priced starting at \$3.75 each. An industrial temperature version, the LT8610AIMSE and LT8610ABIMSE are tested and guaranteed to operate from a -40°C to

125°C operating junction temperature and are priced starting at \$4.13 each. Automotive temperature versions, the LT8610AHMSE and LT8610ABHMSE are tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and are priced starting 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/LT8610A


Photo Caption: 42V, 3.5A (I_{OUT}), 2.2MHz Synchronous Step-Down DC/DC Converter with $I_Q = 2.5\mu A$

Summary of Features: LT8610A-AB

- Wide Input Voltage Range: 3.4V to 42V
- Up to 3.5A of Continuous Output Current
- Ultralow Quiescent Current Burst Mode® Operation:
- 2.5 μ A I_Q Regulating 12V_{IN} to 3.3V_{OUT}
- Output Ripple < 10mV_{P-P} (LT8610A Only)
- High Efficiency Synchronous Operation:
 - o 96% Efficiency at 1A, 5V_{OUT} from 12V_{IN}
 - o 94% Efficiency at 1A, 3.3V_{OUT} from 12V_{IN}
- Fast Minimum Switch-On Time: 30ns
- Low Dropout under All Conditions: 200mV at 1A
- 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

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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