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42V, 2.5A (I_{OUT}) & 5A (I_{OUT}), 2MHz Step-Down DC/DC Converters Need Only 2.7 μ A of Quiescent Current

MILPITAS, CA – July 18, 2012 – Linear Technology Corporation announces the [LT3975](#), a 42V step-down switching regulator that can deliver 2.5A of continuous output current and requires only 2.7 μ A of quiescent current. Similarly, the [LT3976](#) can operate from a 40V input, delivers up to 5A of output current and requires only 3.3 μ A of quiescent current. Both devices offer a 4.2V to a nominal 40V input voltage range, making them ideal for automotive and industrial applications. Their internal 75mOhm switches deliver efficiencies as high as 90%. The LT3975's and LT3976's Burst Mode[®] operation offers ultralow quiescent current, a feature that is also well suited for automotive and industrial systems applications that demand always-on operation and optimum battery life. The devices' unique design maintains a minimum dropout voltage of only 500mV when the input voltage drops below the programmed output voltage, a functional necessity in applications subject to automotive cold-crank conditions. Switching frequency is user-programmable from 200kHz to 2MHz, and synchronizable from 250kHz to 2MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. The combination of their 16-lead thermally enhanced MSOP package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT3975 and LT3976 use a high efficiency 75mOhm switch, with the 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 15mV_{PK-PK}. Special design techniques and a new high voltage process deliver high efficiency

over a wide input voltage range, and their current-mode topology enables fast transient response and excellent loop stability. Other features include a power good flag, soft-start capability and thermal protection.

The LT3975EMSE and the LT3976EMSE are packaged in a thermally enhanced MSOP-16, priced starting at \$3.10 and \$3.75 each, respectively for 1,000-piece quantities. The LT3975IMSE and LT3976IMSE are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and are priced at \$3.41 and \$4.13 each, respectively in 1,000-piece quantities. The LT3975HMSE and LT3976HMSE are tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and are priced at \$3.66 and \$4.38 each, respectively in 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com/product/LT3975 and www.linear.com/product/LT3976


Photo Caption: 42V, 2.5A/5A (I_{OUT}), 2MHz Step-Down DC/DC Converters with $I_Q = 2.7\mu$ A

Summary of Features: LT3975 & LT3976

- Ultralow Quiescent Current: 2.7 μ A I_Q at 12V $_{IN}$ to 3.3V $_{OUT}$ (LT3975) & 3.3 μ A I_Q (LT3976)
- Low Ripple Burst Mode[®] Operation < 15mV $_{P-P}$
- Wide Input Range: Operation from 4.3V to 42V (LT3975) & 4.3 to 40V (LT3976)
- 2.5A Maximum Output Current (LT3975)
- 5A Maximum Output Current (LT3976)
- Excellent Start-Up & Dropout Performance
- Adjustable Switching Frequency: 200kHz to 2MHz
- Synchronizable Between 250kHz to 2MHz
- Accurate Programmable Undervoltage Lockout
- Low Shutdown Current: $I_Q = 700$ nA
- Power Good Flag
- Soft-Start Capability
- Thermal Shutdown Protection
- Current Limit Foldback with SS Override
- Saturating Switch Design: 75m Ω on Resistance
- Small, Thermally Enhanced 16-Pin MSOP 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, μModule[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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