



42V, 750mA(I_{OUT}), 2.2MHz Step-Down DC/DC Converter Needs Only 2.5 μ A Quiescent Current

MILPITAS, CA – October 25, 2011 – Linear Technology Corporation announces the [LT3973](#), a 750mA, 42V step-down switching regulator with integrated boost and catch diodes. Its Burst Mode[®] operation keeps quiescent current under 2.5 μ A in no load standby conditions. The LT3973's 4.2V to 42V input voltage range makes it ideal for automotive and industrial applications. Its internal 1.2A switch can deliver up to 750mA of continuous output current to voltages as low as 1.21V. The device's Burst Mode operation offers ultralow quiescent current, making it well suited for applications such as automotive or industrial systems, which demand always-on operation and optimum battery life.

The unique design of the LT3973 maintains a minimum dropout voltage of only 530mV when the output voltage drops below the programmed output voltage, ideal for applications subjected to scenarios such as automotive cold-crank. Switching frequency is user programmable from 200kHz to 2.2MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. The combination of its 10-lead 3mm x 3mm DFN-10 (or thermally enhanced MSOP) package and high switching frequency keeps external inductors and capacitors small, providing a very compact, thermally efficient footprint.

The LT3973 utilizes a high efficiency 250mV_{CESAT} switch, with the necessary boost and catch diodes, 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 voltage process enable high efficiency over a wide input voltage range, and the LT3973's current mode topology enables fast transient response and excellent loop stability. Other features include a power good flag, internal catch diode current limit and thermal protection.

The LT3973EDD is packaged in a 3mm x 3mm DFN-10, and the LT3973EMSE is in a thermally enhanced MSOP-10, priced starting at \$2.75 and \$2.85 each, respectively for 1,000 piece quantities. The LT3973IDD and LT3973IMSE are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and are priced at \$3.03 and \$3.14 each, respectively in 1,000 piece quantities. The LT3973HDD and LT3973HMSE are tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and are priced at \$3.38 and \$3.49 each, respectively in 1,000 piece quantities. All versions are available from stock. For more information, visit www.linear.com/product/LT3973

Photo Caption: 42V, 750mA(I_{OUT}), 2.2MHz Step-Down DC/DC Converter with $I_Q = 2.5\mu$ A

Summary of Features: LT3973

- Ultralow Quiescent Current
- 2.5 μ A I_Q at 12V_{IN} to 3.3V_{OUT}
- Low Ripple Burst Mode[®] Operation, Output Ripple < 10mV_{P-P}
- Wide Input Voltage Range: 4.2V to 42V Operating
- Adjustable Switching Frequency: 200kHz to 2.2MHz
- Integrated Boost & Catch Diodes
- 750mA Output Current
- Excellent Start-up & Dropout Performance
- Accurate Programmable Undervoltage Lockout
- Low Shutdown Current: $I_Q = 0.75\mu$ A
- Internal Catch Diode Current Limit
- Power Good Flag
- Thermal Shutdown
- Small, Thermally Enhanced 10-Lead MSOP & (3mm x 3mm) DFN Packages
- 42V, 750mA(I_{OUT}), 2.2MHz Step-Down DC/DC Converter with $I_Q = 2.5\mu$ A

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, and µModule[®] subsystems.

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