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36V_{IN}, 4A (I_{OUT}), 1.5MHz Synchronous Step-Down DC/DC Converter Offers Quiescent Current of Only 70uA

MILPITAS, CA – February 15, 2011 – Linear Technology Corporation announces the [LT3690](#), a 36V input capable, synchronous step-down switching regulator which can deliver up to 4A of continuous output current at efficiencies as high as 93%. The LT3690 operates within a V_{IN} range of 3.9V to 36V, and offers transient protection to 60V, making it well suited for load dump and cold-crank conditions found in automotive applications. The LT3690's Burst Mode[®] operation requires only 70uA of quiescent current, ideal for applications such as automotive or telecom systems, which demand always-on operation and optimum battery life. Switching frequency is user-programmable from 170kHz to 1.5MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. The combination of its 4mm x 6mm QFN-26 package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT3690 utilizes a high efficiency 5.5A, 90mOhm high-side switch with the necessary boost diode, oscillator, control and logic circuitry integrated into a single chip. The 30mOhm internal synchronous power switch increases efficiency and eliminates the need for an external Schottky catch diode. Low ripple Burst Mode operation maintains high efficiency at low output current while keeping output ripple below 15m V_{PK-PK}. Special design techniques enable high efficiency over a wide input voltage range and the device's current mode topology enables fast transient response and excellent loop stability. Other features include external synchronization (from 170kHz to 1.5MHz), a power good flag and robust short-circuit protection.

The LT3690EUF is priced at \$4.95 each for 1,000-piece quantities. The LT3690IUF is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced at \$5.45 each in 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com/3690


Photo Caption: 36V, 4A (I_{OUT}), Synchronous Step-Down Switching Regulator

Summary of Features: LT3690

- Wide Input Range: Operation from 3.9V to 36V, Overvoltage Lockout Protects Circuits Through 60V Transients
- 4A Maximum Output Current
- Integrated 30mOhm N-Channel Synchronous Switch
- 70μA I_Q at 12V_{IN} to 3.3V_{OUT}
- Low Ripple Burst Mode® Operation Allows Output Ripple <15mV_{P-P}
- Programmable Input Undervoltage Lockout
- 0.8V Feedback Reference Voltage
- Output Voltage 0.8V to 20V
- Programmable & Synchronizable Oscillator (170kHz to 1.5MHz)
- Soft-Startup & Output Voltage Tracking
- Short-Circuit Robust
- Power Good Flag
- Small Thermally Enhanced 4mm x 6mm QFN 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 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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