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36V Input Dual 800mA Micropower Step-Down Regulator Has Integrated Power-On Reset & Watchdog Timer

MILPITAS, CA – February 9, 2011 – Linear Technology Corporation announces the [LT3688](#), a dual 800mA, 36V input step-down switching regulator with dual power-on reset and a watchdog timer. The LT3688's 3.8V to 36V input voltage range makes it ideal for load dump and cold crank conditions commonly found in automotive applications. Its dual 1.2A internal switches deliver up to 800mA of continuous output current from each channel at output voltages as low as 0.8V. The LT3688's Burst Mode[®] operation provides quiescent current of only 115µA, making it well suited for applications such as automotive or telecom systems, which demand always-on operation and optimum battery life. Switching frequency is user programmable from 350kHz to 2.2MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. The LT3688's 4mm x 4mm QFN-24 (or thermally enhanced TSSOP-24) package and high switching frequency keep external inductors and capacitors small, providing a very compact, thermally efficient footprint.

The integrated microprocessor supervisor functions support high reliability applications such as automotive electronic control units. Each power-on reset timer and the watchdog timer timeout periods are independently programmable using external capacitors. Tight accuracy specifications and glitch immunity ensure reliable reset operation of a system without false triggering. The open collector RST will pull down if output voltage drops 10% below the

programmed value. The watchdog timer monitors for watchdog falling edges grouped too close together or too far apart.

The LT3688 utilizes dual high efficiency 1.2A, 280mV switches with integrated boost diodes, oscillator, control and logic circuitry integrated into a single IC. Low ripple Burst Mode operation maintains high efficiency at low output currents while keeping output ripple below 25mV_{PK-PK}. Special design techniques and a new high voltage process enable high efficiency over a wide input voltage range, and current mode topology enables fast transient response and excellent loop stability. Other features include external synchronization (from 350kHz to 2.2MHz), programmable undervoltage lockout and enhanced short-circuit protection.

The LT3688EUF and LT3688EFE are priced starting at \$3.60 and \$3.75 each, respectively, for 1,000 piece quantities. The LT3688IUF and LT3688IFE are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and are priced at \$4.01 and \$4.17 each, respectively, in 1,000 piece quantities. The LT3688HFE is tested and guaranteed to operate from a -40°C to 150°C operating junction temperature and is priced at \$4.42 each in 1,000 piece quantities. All versions are available from stock. For more information, visit www.linear.com/3688

Photo Caption: 36V Input, Dual 800mA Step-Down Regulator with Power-On Reset & Watchdog Timer

Summary of Features: LT3688

- Wide Input Range: Operation from 3.8V to 36V
- Low Ripple (<25mV_{P-P}) Burst Mode[®] Operation: I_Q = 115µA at 12V_{IN} to 3.3V & 5V
- Programmable, Defeatable Window Watchdog Timer
- Two Independently Programmable Power-on-Reset Timers
- Synchronizable, Adjustable 350kHz to 2.2MHz Switching Frequency
- Two 800mA Output Switching Regulators with Internal Power Switches

- Programmable Input Undervoltage Lockout with Hysteresis
- 24-Pin 4mm x 4mm QFN or Thermally Enhanced TSSOP 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 μ Module[®] subsystems.

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