News Release | www.linear.com

35V Input (55V Transients), 2MHz Dual Channel Step-Down Regulator with Power-On Reset & Watchdog Timer

MILPITAS, CA – January 21, 2010 – Linear Technology Corporation announces the LT3640, a dual channel, current-mode step-down switching regulator with a power-on reset and watchdog timer. The devices 4V to 35V input voltage range and 55V transient ride through makes it ideal for load dump and cold crank conditions commonly found in automotive applications. The LT3640 uses a unique dual channel design with a high input voltage nonsynchronous channel that delivers 1.3A of output current combined with a lower input voltage ($2.5V_{IN}$ to $5.5V_{IN}$) synchronous channel, providing up to 1.1A of continuous output current. The device allows separate inputs for each channel, but most applications will use the output of the high voltage channel to power the lower voltage channel, offering dual outputs while optimizing efficiency and switching frequency. For example, using a nominal 12V input and a 2MHz switching frequency, the LT3640 can deliver a 3.3V output at 600mA with 85% efficiency via its high voltage channel and a 1.8V output at 800mA with 90% secondary conversion efficiency via its lower voltage channel.

The integrated microprocessor supervisor functions support high reliability applications such as automotive electronic control units. The LT3640 includes one power-on reset timer for each channel and one common watchdog timer. The reset and watchdog timeout periods are independently adjustable using external capacitors. Tight accuracy specifications and glitch immunity ensure reliable reset of system operation without false triggering. The LT3640 implements a windowed watchdog timer monitoring for WDI falling edges grouped too close together or too far apart.

The LT3640's switching frequency is user programmable from 350kHz to 2.5MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. Similarly, its low minimum on-time enables high switching frequencies even

with high step-down ratios. For example, even with inputs as high as 35V, the LT3640 delivers 3.3V and 1.1V outputs using a 2MHz switching frequency, allowing it to avoid critical frequency bands such as AM radio while minimizing the size of external components. The LT3640 can deliver output voltages as low as 1.26V on its high voltage channel and down to 0.6V on its low voltage channel, enabling it to power the latest generation of microprocessors. Its low ripple Burst Mode® operation reduces quiescent current to only 290uA with less than $15mV_{PK-PK}$ of output ripple, making it well suited for applications such as automotive or telecom systems that demand always-on operation and optimum battery life. The LT3640's 4mm x 5mm QFN-28 (or TSSOP-28) package and high switching frequency keeps external inductors and capacitors small, providing a very compact, thermally efficient footprint.

The LT3640EUFD and LT3640EFE priced starting at $3.50 and $3.65 each, respectively for 1,000 piece quantities. The LT3640IUFD and LT3640IFE are tested and guarantees to operate from a -40°C to 125°C operating junction temperature and are priced at $3.89 and $4.06 each, respectively in 1,000 piece quantities. All versions are available from stock. For more information, visit www.linear.com.

Photo Caption: 35V (55V Transients), Dual High Frequency Step-Down Regulator with Power-On Reset & Watchdog Timer

Summary of Features: LT3640

- High Voltage Buck Regulator:
  4V to 35V Operating, OVLO Protects Input to 55V
  1.3A Output Current
- Low Voltage Synchronous Buck Regulator:
  2.5V to 5.5V Input Voltage Range
  1.1A Output Current
- $35V_{IN}$ to $3.3V_{OUT1}$ Conversion at 2MHz
- Synchronizable, Adjustable 350kHz to 2.5MHz Switching Frequency
- Programmable Power-On Reset Timer
- Programmable Window Mode Watchdog Timer
- Low Ripple ($15mV_{PK-PK}$) BurstMode, Quiescent Current= 290µA
- Short-Circuit Robust
- Programmable Soft-Start
- Low Shutdown Current: I_Q < 1µA
- Available in Thermally Enhanced 28-Lead (4mm × 5mm) QFN & 28-Lead TSSOP Packages

About Linear Technology

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, uModule® products, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems.

Press Contacts:

North America / Worldwide

John Hamburger, Director Marketing Communications
jhamburger@linear.com
Tel 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager
ddickinson@linear.com
408-432-1900 ext 2233

UK & Nordic

Alan Timmins
alan@ezwire.com
Tel: +44-1-252-629937