Dual (2.5A + 1.5A) Synchronous Step-Down DC/DC Converter Delivers 95% Efficiency & Operates from 3.4V to 42V Inputs

MILPITAS, CA – May 12, 2015 – Linear Technology Corporation announces the LT8616, a 42V input capable, high efficiency dual synchronous monolithic step-down switching regulator. Its dual channel design delivers independent 2.5A and 1.5A continuous current to outputs as low as 0.8V. A dual channel synchronous rectification topology delivers up to 95% efficiency while Burst Mode® operation keeps quiescent current under 6.5µA (both channels enabled) in no-load standby conditions, making it ideal for always-on systems. Switching frequency can be programmed from 200kHz to 3MHz and is synchronizable throughout this range.

The LT8616's 35ns minimum on-time enables 16V_{IN} to 1.8V_{OUT} step-down conversions, while switching at 2MHz helps designers avoid critical noise-sensitive frequency bands, such as AM radio while having a very compact solution footprint. Its 3.4V to 42V input voltage range makes it ideal for automotive applications which must regulate through cold-crank and stop-start scenarios with minimum input voltages as low as 3.4V and load dump transients in excess of 40V. Each channel of the LT8616 maintains a minimum dropout voltage of only 400mV (at1A) under all conditions, enabling it to excel in scenarios such as automotive cold-crank. The LT8616's 28-lead thermally enhanced TSSOP package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT8616 utilizes dual internal top and bottom high efficiency power switches with the necessary boost diodes, oscillator, control and logic circuitry integrated into a single die. Each

channel switches 180 degrees out-of-phase to reduce output ripple. Each channel has a separate input for added design flexibility. Low ripple Burst Mode operation maintains high efficiency at low output currents while keeping output ripple below $15mV_{P-P}$. Unique design techniques and a new high speed process enable high efficiency over a wide input voltage range, and the LT8616's current-mode topology provides fast transient response and excellent loop stability. Other features include internal compensation, power good flags, output soft-start/tracking and thermal protection.

The LT8616 is available in a thermally enhanced 28-lead TSSOP package. Three temperature grades are available, with operation from –40°C to 125°C (junction) for the extended (E) and industrial (I) grades and a high temperature (H) grade of –40°C to 150°C. The 1,000 piece price starts at $4.15. All versions are available from stock. For more information, visit www.linear.com/product/LT8616.

Photo Caption: 42V, Dual Output 3MHz Synchronous Step-Down DC/DC Converter

Summary of Features: LT8616

- Wide Input Voltage Range: 3.4V to 42V
- 2.5A and 1.5A Buck Regulators with Separate Inputs
- Fast Minimum Switch On-Time: 35ns
- Ultralow Quiescent Current Burst Mode® Operation:
  - 6.5µA I_Q Regulating $12V_{IN}$ to $5V_{OUT}$ and $3.3V_{OUT}$
  - Output Ripple < 15mV
- 180° Out-of-Phase Switching
- Adjustable and Synchronizable: 200kHz to 3MHz
- Accurate 1V Enable Pin Thresholds
- Internal Compensation
- Output Soft-Start and Tracking
- TSSOP Package: Output Stays at or Below Regulation Voltage During Adjacent Pin Short or When a Pin Is Left Floating
- Thermally Enhanced 28-Lead TSSOP Package

The USA list pricing shown is for budgetary use only. International prices may differ due to local duties, taxes, fees and exchange rates.

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 over 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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