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350mA Synchronous Step-Down DC/DC Converter Delivers 92% Efficiency at 2MHz & Operates from 3.0V to 42V Inputs

MILPITAS, CA & NORWOOD, MA – June 13, 2017 – Analog Devices, Inc., which recently acquired Linear Technology Corporation, announces the [LT8606](#), a 350mA, 42V input synchronous step-down switching regulator. A unique synchronous rectification topology delivers 92% efficiency while switching at 2MHz, enabling designers to avoid critical noise-sensitive frequency bands, such as AM radio while using a very compact solution footprint. Burst Mode[®] operation keeps quiescent current under 3 μ A in no-load standby conditions, ideal for always-on systems. Its 3.0V to 42V input voltage range makes it suitable for automotive applications which must regulate through cold-crank and stop-start scenarios with minimum input voltage as low as 3.0V and load dump transients in excess of 40V. Its internal 650mA switches deliver up to 350mA of continuous output current. The LT8606 maintains a minimum dropout voltage of only 175mV (at 300mA) under all conditions, enabling it to excel in scenarios such as automotive cold-crank. Spread spectrum frequency modulation and special design techniques offer low EMI operation, enabling it to meet CISPR25, Class 5 EMI limits required by many automotive and industrial applications. Furthermore, a fast minimum on-time of only 45ns enables 2MHz constant frequency switching from a 16V input to a 1.5V output. The LT8606's 2mm x 2mm 8-lead DFN or 10-lead thermally enhanced MSOP package and high switching frequency, which keeps the external inductor and capacitors small, provide a compact, thermally efficient footprint.

The LT8606 utilizes internal top and bottom high efficiency power switches with the necessary boost diode, 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_{P-P}. Unique design techniques and a high speed process enable high efficiency over a wide input voltage range, and the LT8606's current mode topology enables fast transient response and excellent loop stability. Other features include internal compensation, a power good flag, output soft-start/tracking and thermal protection.

The LT8606EDC is packaged in a 2mm x 2mm 8-lead DFN package and the LT8606EMSE is offered in a thermally enhanced MSOP-10 package. Industrial temperature versions, the LT8606IDC and LT8606IMSE, are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature. Pricing starts at \$2.05 each in 1,000-piece quantities and both versions are available from stock. For more information, visit www.linear.com/product/LT8606.

Photo Caption: 42V, 350mA, 2.2MHz Synchronous Step-Down DC/DC Converter Operates from 3.0V to 42V

Summary of Features: LT8606

- Wide Input Voltage Range: 3.0V to 42V
- Ultralow Quiescent Current Burst Mode[®] Operation:
 - $<3\mu\text{A}$ I_Q Regulating 12V_{IN} to 3.3V_{OUT}
 - Output Ripple $<10\text{mV}_{\text{P-P}}$
- High Efficiency 2MHz Synchronous Operation:
 - $>92\%$ Efficiency at 0.35A, 12V_{IN} to 5V_{OUT}
- 350mA Maximum Continuous Output
- Fast Minimum Switch-On Time: 45ns
- Adjustable & Synchronizable: 200kHz to 2.2MHz
- Spread Spectrum Frequency Modulation for Low EMI
- Allows Use of Small Inductors
- Low Dropout
- Peak Current Mode Operation
- Accurate 1V Enable Pin Threshold
- Internal Compensation
- Output Soft-Start & Tracking
- Tiny 2mm x 2mm 8-Lead DFN or 10-Lead MSOP Package

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

Analog Devices just got more Powerful. On March 10, Analog Devices acquired Linear Technology, creating the premier high-performance analog company. More info at <http://lt.linear.com/07c>

About Analog Devices

Analog Devices (NASDAQ: ADI) is the leading global high-performance analog technology company dedicated to solving the toughest engineering challenges. We enable our customers to interpret the world around us by intelligently bridging the physical and digital with unmatched technologies that sense, measure, power, connect and interpret. Visit <http://www.analog.com>

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