



65V, 3.5A/5A Peak (I_{OUT}), Synchronous Step-Down Silent Switcher Delivers 94% Efficiency at 2MHz & Ultralow EMI Emissions

MILPITAS, CA – February 25, 2016 – Linear Technology Corporation announces the [LT8641](#), a 3.5A, 65V input capable synchronous step-down switching regulator. A unique Silent Switcher[®] architecture, combined with spread spectrum frequency modulation, reduces EMI/EMC emissions by more than 25dB even with switching frequencies in excess of 2MHz, enabling it to easily pass the automotive CISPR25 class 5 peak and average limits. Synchronous rectification delivers efficiency as high as 94% with a switching frequency of 2MHz. Its 3V to 65V input voltage range makes it ideal for single or dual cell automotive/transportation and industrial applications.

The LT8641's internal high efficiency switches deliver up to 3.5A of continuous output current and peak loads of 5A to voltages as low as 0.81V. The device's Burst Mode[®] operation keeps quiescent current under 2.5μA in no load standby conditions, making it well suited for applications such as automotive "always-on" systems, which need to extend operating battery life. The LT8641's unique design maintains a minimum dropout voltage of only 130mV at 1A under all conditions, enabling it to excel in scenarios such as automotive cold crank. Furthermore, a fast minimum on-time of only 35ns enables 2MHz constant frequency switching from a 24V input to a 3.3V output, equipping designers to optimize efficiency while avoiding critical noise sensitive frequency bands. The LT8641's 18-lead 3mm x 4mm QFN package and high switching frequency keep external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT8641 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}. Special design techniques and a new high speed process enable high efficiency over a wide input voltage range, and the LT8641'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 shutdown.

The LT8641EUDC is packaged in a 3mm x 4mm QFN package. An industrial temperature version, the LT8641IUDC, is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature. Pricing starts \$4.35 each in 1,000-piece quantities and both versions are available from stock. For more information, visit www.linear.com/product/LT8641.

Photo Caption: 65V, 3.5A(I_{OUT}), 2.2MHz Synchronous Step-Down Reduces EMI/EMC Emissions by Over 25dB


Summary of Features: LT8641

- Silent Switcher® Architecture
 - Ultralow EMI/EMC Emissions
 - Spread Spectrum Frequency Modulation
- High Efficiency at High Frequency
 - Up to 95% Efficiency at 1MHz
 - Up to 94% Efficiency at 2MHz
- Wide Input Voltage Range: 3V to 65V
- Ultralow Quiescent Current Burst Mode® Operation
- $2.5\mu\text{A}$ I_Q Regulating $12V_{IN}$ to $3.3V_{OUT}$, Output Ripple $< 10\text{mV}_{P-P}$
- Fast Minimum Switch-On Time: 35ns
- Low Dropout Under All Conditions: 130mV at 1A
- Safely Tolerates Inductor Saturation in Overload
- Adjustable & Synchronizable: 200kHz to 3MHz
- Peak Current Mode Operation
- Internal Compensation
- Output Soft-Start & Tracking
- Small 18-Lead 3mm × 4mm QFN

Pricing shown is for budgetary use only and 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, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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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
Tel: 408-432-1900 ext 2233

UK & Nordic

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