

Press Release

18V, 10A (I_{OUT}), Synchronous Step-Down Silent Switcher® 2 Delivers 95% Efficiency at 2MHz and Ultralow EMI Emissions

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Analog Devices announces the Power by Linear™ LT8642S, a 10A, 18V input synchronous step-down switching regulator. Its Silent Switcher® 2 architecture uses two internal input capacitors as well as internal BST and INTV_{CC} capacitors to minimize the area of the hot loops. The LT8642S dramatically reduces EMI emissions as a result of its controlled switching edges and its internal construction using copper pillars in lieu of bond wires and an integral ground plane. This improved EMI performance is not sensitive to PCB layout, simplifying design and reducing risk even when using two-layer PC boards. The LT8642S easily passes the automotive CISPR 25, Class 5 peak EMI limits with a 2MHz switching frequency over its entire load range. Spread spectrum frequency modulation is available to lower EMI levels further.



- View the LT8642S product page, download data sheet, order samples and evaluation boards:
<http://www.analog.com/LT8642S>

The LT8642S's synchronous rectification delivers efficiency as high as 95% with a switching frequency of 2MHz. Its 2.8V to 18V input voltage range ideal for automotive and industrial applications. The internal high efficiency switches deliver up to 10A of continuous output current to voltages as low as 0.60V. The LT8642S's Burst Mode® operation ensures only 240µA of quiescent current. An external compensation pin enables fast transient response and current sharing for paralleling multiple devices. A fast minimum on-time of only 25ns enables 2MHz constant frequency switching from a 12V input to a 0.6V output. The LT8642S's 24-lead 4mm x 4mm LQFN package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT8642S 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 10mVP-P. For applications requiring the lowest noise operation, the LT8642S can be programmed to run in forced continuous mode over the entire load range. Its switching frequency is programmable and synchronizable from 200kHz to 3MHz. Special design techniques and a new high-speed process enable high efficiency over a wide input voltage range, and the LT8642S current mode topology enables fast transient response and excellent loop stability. Other features include a power good flag, output soft-start/tracking and thermal protection.

The LT8642SEV is packaged in a 4mm x 4mm LQFN package. An industrial temperature version, the LT8642SIV, is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature. Both versions are available from stock. For more information, go to www.analog.com/LT8642S.

Summary of Features: LT8642S

- Silent Switcher® 2 Architecture
 - Ultralow EMI Emissions on any PCB
 - Eliminates PCB Layout Sensitivity
 - Internal Capacitors for V_{IN} , BST, $INTV_{CC}$ Reduce Radiated EMI
 - Spread Spectrum Frequency Modulation
- High Efficiency at High Frequency
- Up to 96% Efficiency at 1MHz
- Up to 95% Efficiency at 2MHz
- Wide Input Voltage Range: 2.8V to 18V 10A Maximum Continuous Output Current
- External Compensation: Fast Transient Response and Current Sharing
- Low Quiescent Current Burst Mode® Operation
 - 240µA IQ Regulating 12V_{IN} to 1.2V_{OUT}
 - Output Ripple < 10mV_{P-P}
- Fast Minimum Switch On-Time: 25ns
- Low Dropout Under All Conditions: 50mV at 1A
- Forced Continuous Mode
- Safely Tolerates Inductor Saturation in Overload
- Adjustable and Synchronizable: 200kHz to 3MHz
- Output Soft-Start and Tracking
- Small 24-Lead 4mm × 4mm LQFN

Pricing & Availability

Part Number	Production Availability	Price Each Per 1,000	Package
LT8642S	Now	Starts at \$4.15	4mm x 4mm x 0.94mm LQFN

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Editor's Contact Information



John Hamburger

john.hamburger@analog.com



Doug Dickinson

douglas.dickinson@analog.com

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