



High Speed Synchronous N-Channel MOSFET Driver Delivers 5A for High Efficiency Buck or Boost DC/DC Converters

MILPITAS, CA – November 27, 2007 – Linear Technology Corporation introduces the LTC4442/-1, a high speed synchronous MOSFET driver designed to drive upper and lower N-Channel power MOSFETs in a synchronous rectified converter topology. This driver, when combined with many of Linear Technology DC/DC controllers, forms a complete high efficiency synchronous regulator that can be used as a step-down or step-up DC/DC converter.

This powerful driver can sink up to 5A and source up to 2.4A, making it ideal for driving high gate capacitance, high current MOSFETs. The LTC4442/-1 can also drive multiple MOSFETs in parallel for higher current applications. The fast 12ns rise time, 8ns fall time of the top MOSFET and 12ns rise time, 5ns fall time of the bottom MOSFET, when driving a 3,000pF load, minimize switching losses. Adaptive shoot-through protection is integrated to prevent both the upper and lower MOSFETs from conducting simultaneously, minimizing dead time.

The LTC4442/-1 has a 3-state PWM input for power stage shut-down that is compatible with all multi-phase controllers employing a 3-state output feature. In addition, it has a separate supply for the input logic to match the signal swing of the controller IC and has an undervoltage lockout circuit on both the driver and logic supplies. Furthermore, this part drives both upper and lower MOSFET gates over a range of 6.2V to 9.5V and operates up to a 38V supply voltage. The -1 version has a higher V_{CC} undervoltage lockout of 6.2V instead of 3.2V, intended to drive standard 5V logic N-Channel MOSFETs.

The LTC4442/-1 is offered in a thermally enhanced MSOP-8 package, operating over the -40°C to 85°C temperature range, priced starting at \$1.25 for 1000-piece quantities.


Photo Caption: Synchronous MOSFET Driver for DC/DC Converters

Summary of Features: LTC4442/-1

- Synchronous N-Channel MOSFET Driver
- High Drive Current – 2.4A Source, 5A Sink
- Adaptive Zero Shoot-Through Protection
- Top Gate: 12ns Rise Time, 8ns Fall Time when Driving 3000pF
- Bottom Gate: 12ns Rise Time, 5ns Fall Time when Driving 3000pF
- Three-State PWM Input for Power Stage Shutdown
- 38V Maximum Supply Voltage
- 6.2V to 9.5V Gate Drive Voltage
- LTC4442 UVLO of 3.2V
- LTC4442-1 UVLO of 6.2V

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. For more information, visit www.linear.com.

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