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High Speed Synchronous N-Channel MOSFET Driver Has Powerful Gate Drive for High Efficiency Buck or Boost DC/DC Converters

MILPITAS, CA – January 27, 2010 – Linear Technology Corporation introduces the LTC4449, a high speed synchronous MOSFET driver designed to drive upper and lower power N-channel MOSFETs in a synchronous rectified converter topology. This driver, combined with one of Linear Technology's DC/DC controllers and power FETs forms a complete high efficiency synchronous regulator that can be used as a step-down or step-up DC/DC converter.

The LTC4449 drives both upper and lower MOSFET gates over a range of 4V to 6.5V and operates from a supply voltage up to 38V. This powerful driver can sink up to 4.5A and source up to 3.2A, making it ideal for driving high gate capacitance and high current MOSFETs. It can also drive multiple MOSFETs in parallel for higher current applications. The fast 8ns rise time, 7ns fall time of the top MOSFET and 7ns rise time, 4ns fall time of the bottom MOSFET, when driving a 3,000pF load, minimize switching losses. Adaptive shoot-through protection is integrated to prevent the upper and lower MOSFETs from conducting simultaneously while minimizing dead time.

The LTC4449 features a 3-state pulse with modulation (PWM) input for power stage control and shutdown that is compatible with all multiphase controllers employing a 3-state output feature. In addition, the LTC4449 has a separate supply for the input logic to match the signal swing of the controller IC, as well as an undervoltage lockout circuit on both the driver and logic supplies.

The LTC4449EDCB is available in a 2mm x 3mm DFN-8 package, priced starting at \$1.25 each in 1,000-piece quantities. The Industrial grade version, LTC4449IDCB, is guaranteed to operate over a -40°C to 125°C operating junction temperature range and is priced at \$1.39 each in 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com.


Photo Caption: Synchronous MOSFET Driver for DC/DC Converters

Summary of Features: LTC4449

- Synchronous N-Channel MOSFET Driver
- 4V to 6.5V Gate Drive V_{CC} Voltage
- 38V Maximum Supply Voltage
- Adaptive Shoot-Through Protection
- Three-State PWM Input for Power Stage Control
- High Drive Current – 3.2A Source, 4.5A Sink
- Top Gate: 8ns Rise Time, 7ns Fall Time when Driving 3000pF
- Bottom Gate: 7ns Rise Time, 4ns Fall Time when Driving 3000pF
- 2mm x 3mm DFN-8 Package

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.

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