



MOSFET Ideal Diode Controller Provides Fast Turn-On and Turn-Off for Robust Power Supply ORing in Low Voltage Applications

MILPITAS, CA – July 31, 2008 – Linear Technology introduces the LTC4352, a 0V to 18V ideal diode controller that enables low loss ORing of multiple power sources with minimal disturbance to supply voltages. The LTC4352 regulates the forward voltage drop across an external N-channel MOSFET to ensure smooth current transfer between supplies in diode-OR applications. In low voltage systems a slow handoff between controllers results in a voltage droop during supply switchover. The fast 500ns turn-on time and carefully architected LTC4352 ensures smooth switchover from one path to the other without oscillation. In the event the input supply fails or is shorted, a fast turn-off minimizes reverse current. In addition to redundant power supply ORing, the LTC4352 makes an excellent diode replacement in supply holdup applications where momentary collapse of supply voltage is isolated from the load.

Fast turn-on is achieved via charge stored on an external capacitor for immediate sourcing of gate pull-up current. The LTC4352 provides under/overvoltage monitoring and a FAULT# pin to indicate when the input supply is outside of proper levels or an open MOSFET fault has occurred, while a STATUS pin indicates the MOSFET on state. The ideal diode behavior may be overridden to allow reverse current if desired. Furthermore, the LTC4352 can be used for inrush current control in applications where the input supply is hot-plugged.

In contrast to a standard diode, the LTC4352 can prevent out of range input voltages from affecting the load voltage, using back-to-back MOSFETs and resistive dividers on the UV and OV pins to set the allowable input voltage operating range. The controller operates with supplies from 2.9V to 18V, and offers additional flexibility to control voltages down to 0V by applying an external supply.

The level of monitoring and control provided by the LTC4352 is perfect for paralleled and redundant supplies in high-availability systems. This polished and efficient solution is offered in space-saving 12-pin MSOP and 3mm x 3mm DFN packages and is specified over the commercial and industrial temperature ranges. Pricing starts at \$2.50 each in 1,000 piece quantities.


Photo Caption: Fast Turn-On Ideal Diode Controller

Summary of Features: LTC4352

- Low Loss Replacement for Power Diode in Multiple Power Supply or Supply Holdup Applications
- Controls External N-Channel MOSFET for High-Current Capability
- 0V to 18V Supply ORing or Holdup
- 500ns Turn-On and Turn-Off Time
- Input Undervoltage & Overvoltage Protection
- Open MOSFET Detect
- STATUS and FAULT Outputs for Monitoring
- Hot Swappable
- Reverse Current Enable Input
- Available in 12-pin MSOP & DFN (3mm x 3mm) Packages

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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