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Integrated 2Amp MOSFET & Sense Resistor Provides Compact Hot Swap Solution

MILPITAS, CA – September 4, 2008 – Linear Technology Corporation introduces the LTC4217, a 2A integrated Hot Swap™ controller for protecting low power boards with load supply voltages ranging from 2.9V to 26.5V. Like other Hot Swap devices, the LTC4217 allows a board to be safely inserted and removed from a live backplane by limiting the amount of inrush current to the load supply during power up. Hot Swap controllers typically call for a number of supporting components. However, the LTC4217 integrates a power MOSFET and sense resistor in its power path to limit inrush current, thereby drastically reducing the number of external components required. The device's internal dV/dT circuit means there is no need for an external gate capacitor. An adjustable current limit allows users to vary the current limit threshold under different loading conditions, for example in disk drive spin-up to normal operation. This high level of integration packaged in a tiny DFN makes the LTC4217 a convenient Hot Swap solution in applications where board real estate is at a premium.

The LTC4217 is suitable for a wide range of RAID, server, telecom and industrial applications, especially in compact boards utilizing technologies like Fibre Channel, where power is typically limited to less than 25W due to their small size and inability to dissipate large amounts of heat. The LTC4217 Hot Swap operation and integration was designed with these considerations in mind. During start-up, inrush currents are controlled by limiting the gate ramp rate to a safe 0.3V/ms. Load current is monitored using the voltage sensed across the internal 7.5mohm sense resistor and adjusting the internal 25mohm MOSFET gate-to-source voltage

accordingly. A separate I_{SET} pin allows one to adjust the 2% accurate (2A) current limit threshold during startup and normal operation as needed. Meanwhile, current foldback and power-good circuitry ensure that the switch is protected from excessive load current and indicate whether or not healthy power conditions are maintained. The LTC4217 also features current, temperature and fault outputs, 2% accurate overvoltage and undervoltage protection, and an adjustable current limit timer. A dedicated 12V version (LTC4217-12) is also available, which contains preset 12V-specific thresholds.

The LTC4217 is offered in commercial and industrial versions, supporting operating temperature ranges from 0°C to 70°C and -40°C to 85°C, respectively. The LTC4217 can be ordered in either a small 16-pin 5mm x 3mm QFN package or a 20-lead TSSOP, both of which are RoHS compliant. The devices are priced starting at \$3.35 each in 1,000 piece quantities and are available today in production quantities. Please visit www.linear.com for more product selection and information.


Photo Caption: 2A Hot Swap Controller with Integrated Power MOSFET & Sense Resistor

Summary of Features: LTC4217

- Small Footprint
- 25mohm MOSFET and 7.5mohm R_{SENSE}
- Wide Operating Voltage Range: 2.9V to 26.5V
- Adjustable, 2% Accurate (2A) Current limit
- Current & Temperature Monitor Outputs
- Overtemperature Protection
- Adjustable Current Limit Timer Before Fault
- Powergood & Fault Outputs
- Adjustable Inrush Current Control
- 2% Accurate Undervoltage & Overvoltage Protection

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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