Data Sheet

LT4201

65 V, 2.9 mΩ R_{DSON} Hot Swap E-Fuse with PMBus Telemetry

FEATURES

- Enables safe circuit board insertion into live backplane
- Internal MOSFET with 2.9 mΩ R_{DSON}
- Production tested MOSFET safe operating area
- Wide operating voltage range: 23 V to 65 V
- No input TVS needed
- Provides telemetry on voltage, current, power, energy, and temperature
- 12-bit ADC accuracy: 1% voltage, 1.5% current
- 1% accurate analog current sense output
- EEPROM for configuration and fault logging
- Digitally adjustable, 5% accurate electronic circuit breaker
- Pin-selectable startup current limit
- Digitally adjustable normal current limit
- Pin or digitally adjustable timers
- SMBus 3.0 interface and PMBus 1.3 compliant command structure
- Up to 3 alert outputs for faults and warnings
- 6 mm × 9 mm LFCSP package

APPLICATIONS

- Data center servers
- Data storage systems
- Intelligent electronic fuse
- Network routers and switches
- Server fan protection
- 5G MIMO antenna protection

GENERAL DESCRIPTION

The LT4201 provides a compact hot-swap solution with an internal power metal-oxide semiconductor field effect transistor (MOSFET), enabling a circuit board to be safely inserted and removed from a powered backplane. The safe operating area of the internal MOSFET is production tested and guaranteed for stresses during hot-swap events.

During startup, the LT4201 regulates the MOSFET gate to output a constant current to charge up the board capacitors. During normal operation, trilevel overcurrent protection is provided by an electronic circuit breaker, a current limit, and a fast comparator. The exposed pad of the LT4201 effectively transfers MOSFET heat to the printed circuit board (PCB), which coupled with the low MOSFET on resistance, enables high-current applications without direct airflow.

Device behavior can be finely tuned through an extensive register set, providing digital adjustment of multiple parameters. Board voltage, current, power, energy, and temperature are measured by two analog-to-digital converters (ADCs) and read through a 1 MHz capable PMBus™ interface. Internal electrically erasable programmable read-only memory (EEPROM) stores device configuration and provides black box recording of fault conditions.

TYPICAL APPLICATION CIRCUIT

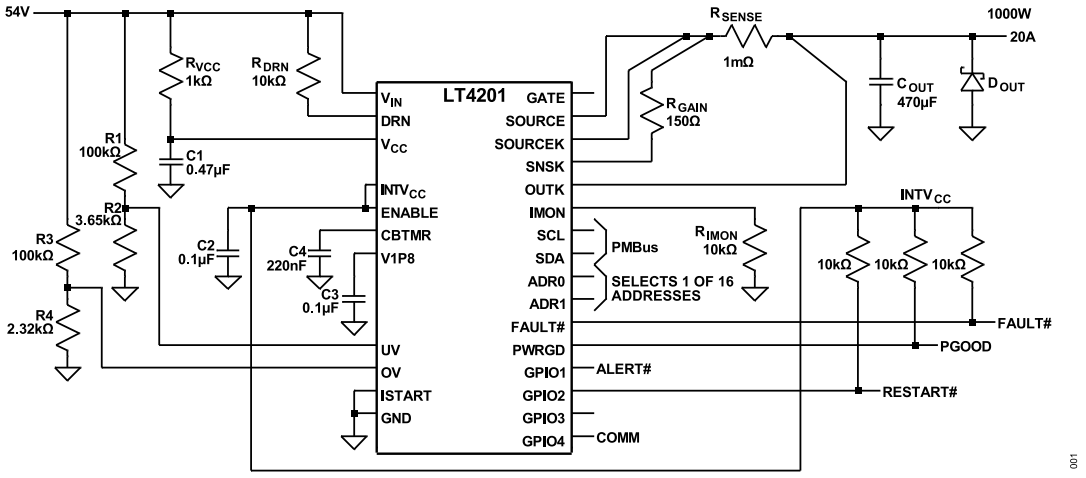

Figure 1. 54 V, 20 A Hot-Swap Circuit with Current-Limited Startup

For more information about the LT4201, contact your local Analog Devices, Inc., sales office at www.analog.com/sales.

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