



MP5021B

12 V, 7 mΩ RDSon Hot-Swap Protection Device with Current Monitoring

DESCRIPTION

The MP5021B is a hot-swap protection device designed to protect circuitry on its output from transients on its input. Also, it protects its input from undesired shorts and transients coming from its output.

At start-up, the slew rate at the output limits the inrush current. An external capacitor at SS controls the slew rate.

The maximum output load is current limited using a sense FET topology where a low-power resistor from ISET to ground controls the magnitude of the current limit.

An internal charge pump drives the gate of the power device, allowing a power FET with a very low on resistance of 7 mΩ.

The MP5021B includes an IMON option to produce a voltage proportional to the current through the power device, as set by a resistor from IMON to ground.

The MP5021B includes an optional discharge function that provides a discharge path for the external output capacitor when the part is disabled. Fault protections include current-limit protection, thermal shutdown, and damaged MOSFET detection. Both the current limit and thermal shutdown have user-settable auto-retry and latch-off mode. Also, the device features over-voltage protection (OVP) and under-voltage protection (UVP).

The MP5021B is available in a 3mm x 5mm QFN package.

FEATURES

- 4.8 V to 16 V Operating Input Range
- Integrated 7 mΩ Power FET
- Adjustable Current Limit
- Output Current Measurement
- ±5% Current Monitor Accuracy
- Fast Response (<200 ns) for Short Protection
- PG Detector and FLT B Indication
- PG Assert Low at VIN = 0
- Damaged MOSFET Detection
- External Soft-Start
- Programmable EN Blanking Time
- Under/Over-Voltage Lockout
- Thermal Protection
- Small QFN-22 (3mmx5mm) Package

APPLICATIONS

- Hot Swappable
- PC Cards
- Disk Drives
- Laptops

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Products, Quality Assurance page. "MPS" and "The Future of Analog IC Technology" are registered trademarks of Monolithic Power Systems, Inc.

TYPICAL APPLICATION

