

PI2002 Features

- Power Source & Load Fault Protection
- Fast Dynamic Response, with 120 ns reverse & 150 ns forward over current turn-off delay time
- 4 A gate discharge current
- Accurate drain-to-drain voltage sensing to indicate system level fault conditions
- Programmable under & over-voltage detection
- Over temperature fault detection
- Programmable over current Gate off time
- Programmable short circuit load detection function
- Active low fault flag output

PI2002



Product Description

The PI2002 *Cool-ORing*™ solution is a high-speed Active ORing controller IC with a load disconnect feature designed for use with back-to-back N-channel MOSFETs in redundant power system architectures. The PI2002 can also be used with a single MOSFET as a low side disconnect switch. The PI2002 *Cool-ORing* controller enables an extremely low power loss solution with fast dynamic response to fault conditions, critical for high availability systems. The PI2002 controls back-to-back MOSFETs providing true bi-directional switch capabilities to protect against both power source and load fault conditions.

The gate drive output turns the MOSFETs on in normal steady state operation, while achieving high-speed turn-off under a variety of potential system-level fault conditions, per conventional Active ORing solutions with auto-reset once the fault clears. The PI2002 has the added benefit of being able to protect against output load fault conditions that may induce excessive forward current and device over-

temperature by removing gate drive from the back-to-back MOSFETs with an auto-retry programmable off-time. The back-to-back MOSFETs drain-to-drain voltage is monitored to detect normal forward, excessive forward, light load and reverse current flow. The PI2002 provides an active low fault flag output to the system during excessive forward current, reverse current, light load, under-voltage, over-voltage and over-temperature. A temperature sensing function turns off the MOSFETs and indicates a fault if the junction temperature exceeds 145°C.

Applications

- N+1 Redundant Power Systems
- Servers & High End Computing
- Telecom Systems
- Active ORing with Load Disconnect
- High current Active ORing
- Low Side Disconnect Switch

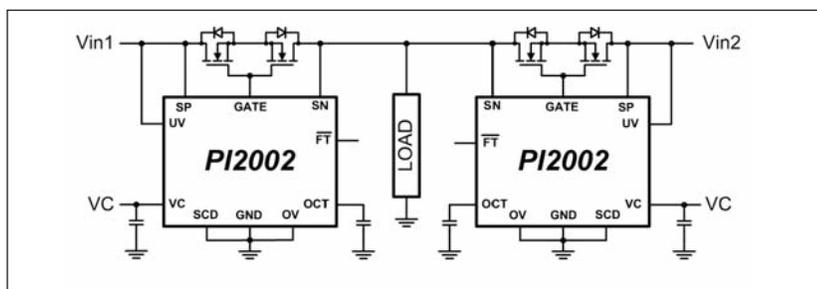
Part Numbering

Part Number	Package	Target Application	Bias Supply	MOSFET Gate Voltage	MOSFET Gate Discharge Current	Turn-off Delay Time	Transport Media
PI2002-00-QEIG	3mm x 3mm 10 Lead TDFN	Universal Low Voltage	4.5 V – 13.2 V	9 V – 11 V	4 A (typ)	Reverse Fault 120 ns (typ.)	Tape and Reel
PI2002-00-SOIG	8 Lead SOIC	Active ORing w/Load Disconnect				Forward Over-Current 150 ns (typ.)	

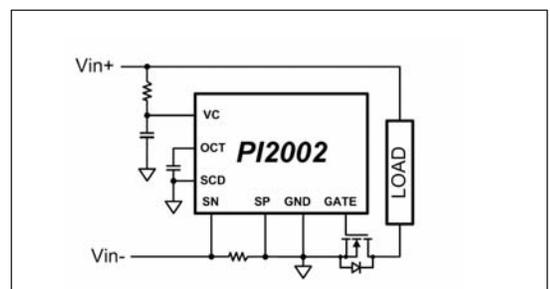
Evaluation Board

PI2002-EVAL1 PI2002 Evaluation Board using 3mm x 3mm TDFN package and back-to-back SO-8 MOSFETs in high-side configuration.

Typical Application



High Side Active ORing with Load Disconnect



Low Side Disconnect Switch