EV9989-V-00A

High Efficiency Synchronous Rectification EV Board

DESCRIPTION

The MP9989 is a fast turn-off, intelligent rectifier for flyback converters that integrates a 100V MOSFET. It can replace a diode rectifier for higher efficiency and power density. The chip regulates the forward voltage drop of the internal power switch to 40mV and turns off before the drain-source voltage reverses.

The MP9989 can generate its own supply voltage without the need for auxiliary winding, which makes it suitable for charger applications with a low output voltage requirement or any other adaptor applications with high-side set-up. The internal ringing detection circuitry prevents the MP9989 from falsely turning on during discontinuous conduction mode (DCM) or quasi-resonant operations.

EV9989-V-00A is the evaluation board for MP9989.

FEATURES

- Integrated 100V/10mΩ MOSFET
- Wide Output Range down to 0V
- No Need for Auxiliary Winding for High-Side or Low-Side Rectification
- Ringing Detection Prevents False Turn-On during DCM Operations
- Compatible with Energy Star
- Supports DCM, CCM, and Quasi-Resonant Operations

APPLICATIONS

- Laptop Adapters
- QC and USB PD Charger
- High-Efficiency Flyback Converters

All MPS parts are lead-free, halogen free, and adhere to the RoHS directive. For MPS green status, please visit MPS website under Quality Assurance.
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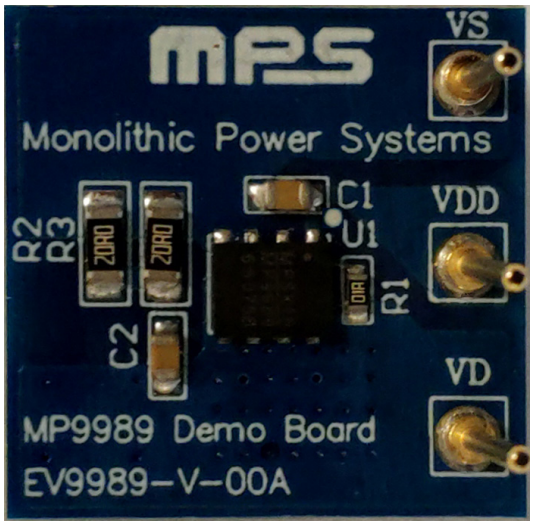
EV9989-V-00A EVALUATION BOARD



(L x W) 2.2cm x2.2cm

Board Number	MPS IC Number
EV9989-V-00A	MP9989GV

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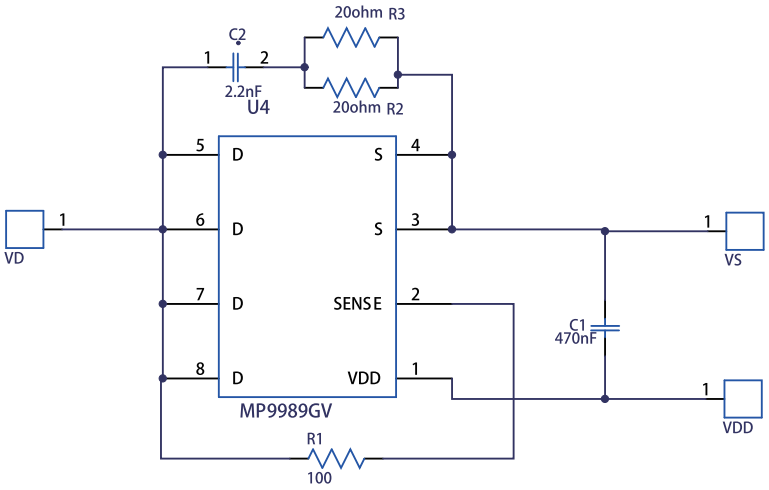
EVALUATION BOARD SCHEMATIC



BILL OF MATERIALS

Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	470nF	Ceramic Capacitor; 25V;X7R	0805	Murata	GRM21BR71E474KA01L
1	C2	2.2nF	Ceramic Capacitor; 250V;X7R	0805	TDK	C2012X7R2E222K
1	R1	100	Film Resistor;1%	0603	Yageo	RC0603FR-07100RL
2	R2,R3	20	Film Resistor;1%	1206	Yageo	RC1206FR-0720RL
1	U1	MP9989GV	R7	QFN-8	MPS	R7
3	VS,VD, VDD	Connector	1.0mm			

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PRINTED CIRCUIT BOARD LAYOUT

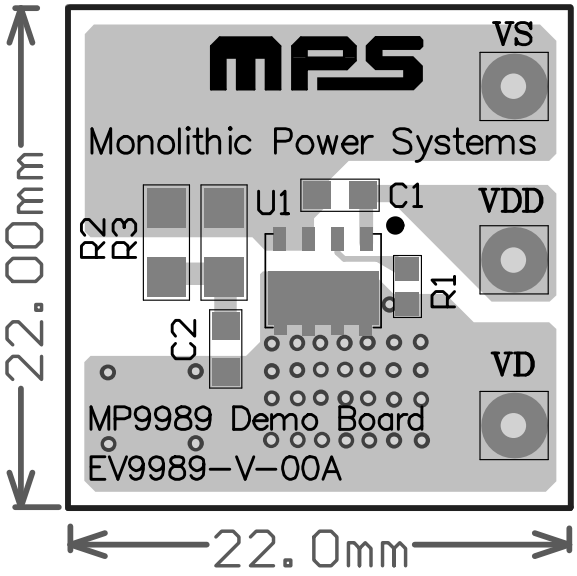

Figure 1: Top Layer

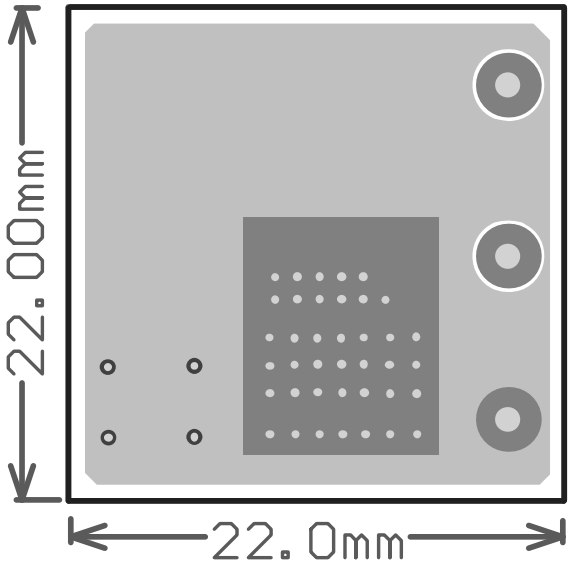

Figure 2: Bottom Layer

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QUICK START GUIDE

1. Connect the VS and VD pin into the flyback circuit to replace the freewheel diode.
2. Turn the power supply on. The IC will start up and work as a freewheel diode automatically.

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