EV6908-J-00A

No Need for Aux Winding, Fast Turn-off Synchrounous Rectification Evaluation Board

DESCRIPTION

The EV6908-J-00A is an evaluation board designed for the MP6908, a low-drop diode emulator IC. When combined with an external switch, the MP6908 replaces Schottky diodes in high-efficiency flyback converters. The MP6908 regulates the forward drop of an external synchronous rectifier (SR) MOSFET to about 40mV, which switches off once the voltage becomes negative.

The MP6908 can generate its own supply voltage for battery charging applications, with a low output voltage for high-side rectification applications. Configurable ringing detection circuitry prevents the MP6908 from false turn on during discontinuous conduction mode (DCM) and quasi-resonant operation.

FEATURES

- 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 and Quasi-Resonant Operations
- Works with Standard and Logic Level SR MOSFETs
- Compatible with Energy Star
- 30ns Fast Turn-Off and Turn-On Delay
- 100μA Quiescent Current
- Supports DCM, CCM, and Quasi-Resonant Operations
- Supports High-Side and Low-Side Rectification
- Available in a TSOT23-6 Package

APPLICATIONS

- USB PD Quick Chargers
- Adapters
- Flyback Power Supplies with Low and/or Variable Output Voltage

EV6908-J-00A EVALUATION BOARD

LxW (2.9cmx2.9cm)

Board Number	MPS IC Number
EV6908-J-00A	MP6908

QUICK START GUIDE

1. Connect the VSS and VD pins in the flyback circuit. This replaces the freewheel diode.
2. Choose the VDD (IC power supply) voltage level :
   a. If HVC is connected to VSS, VDD is automatically charged to 5V.
   b. If HVC is connected to a high voltage node (either DC or AC), VDD is automatically charged to 9V.
3. Turn the power supply on. The IC should start up and automatically work as a freewheel diode.

EVALUATION BOARD SCHEMATIC

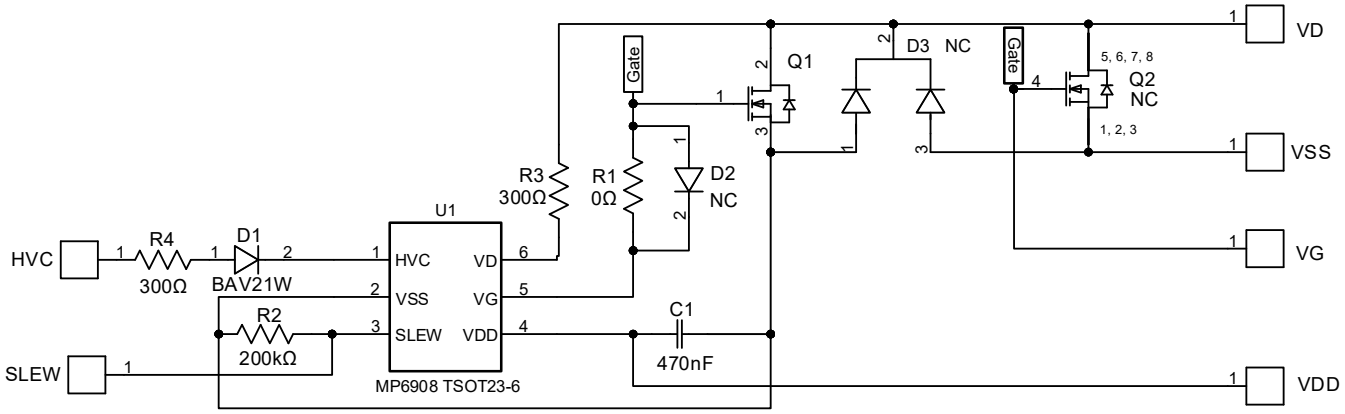

Figure 1: Evaluation Board Schematic

BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	470nF	Ceramic capacitor, 25V, X7R	0805	TDK	C2012X7R1E474K
1	R1	0Ω	Film resistor, 1%	0603	Yageo	RC0603FR-070RL
2	R3, R4	300Ω	Film resistor, 1%	0603	Yageo	RC0603FR-07301RL
1	R2	200kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-07200KL
1	D1	BAV21W	Diode, 200V	SOD-123	Diodes	BAV21W-7-F
1	U1	MP6908	Smart synchronous rectifier	TSOT23-6	MPS	MP6908GJ-Z
1	Q2	100V/7mΩ	N-channel MOSFET	PG-TDSON-8	Infineon	BSC070N10NS3GATMA1
0	D2, D3, Q1	NC				
4	VG, HVC, VDD, SLEW	1mm	Connector pin	DIP	Any	
2	VD, VSS	2mm	Connector pin	DIP	Any	

PCB LAYOUT

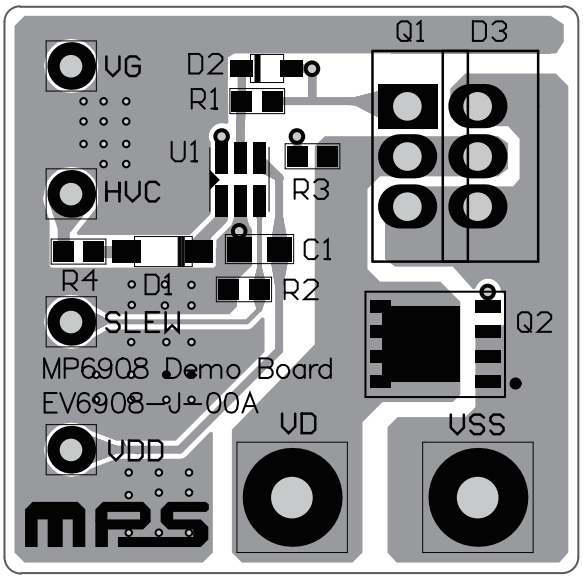

Figure 2: Top Layer

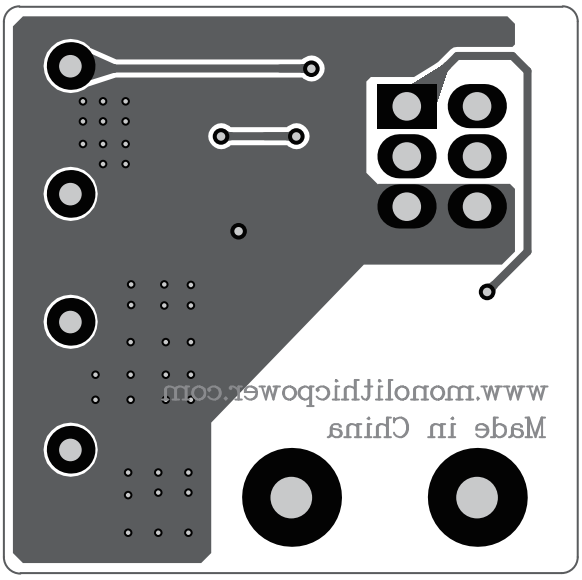

Figure 3: Bottom Layer

REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	5/13/2021	Initial Release	-