

## DESCRIPTION

The MP6908 is a low-drop diode emulator IC that, when combined with an external switch, 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 or high-side rectification applications. Programmable ringing detection circuitry prevents the MP6908 from turning on falsely during discontinuous conduction mode (DCM) and quasi-resonant operation.

EV6908-S-01A is the evaluation board for MP6908.

## 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 both High-Side and Low-Side Rectification
- TSOT23-6 Package Available

## APPLICATIONS

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

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.

"MPS" and "The Future of Analog IC Technology" are Registered Trademarks of Monolithic Power Systems, Inc.

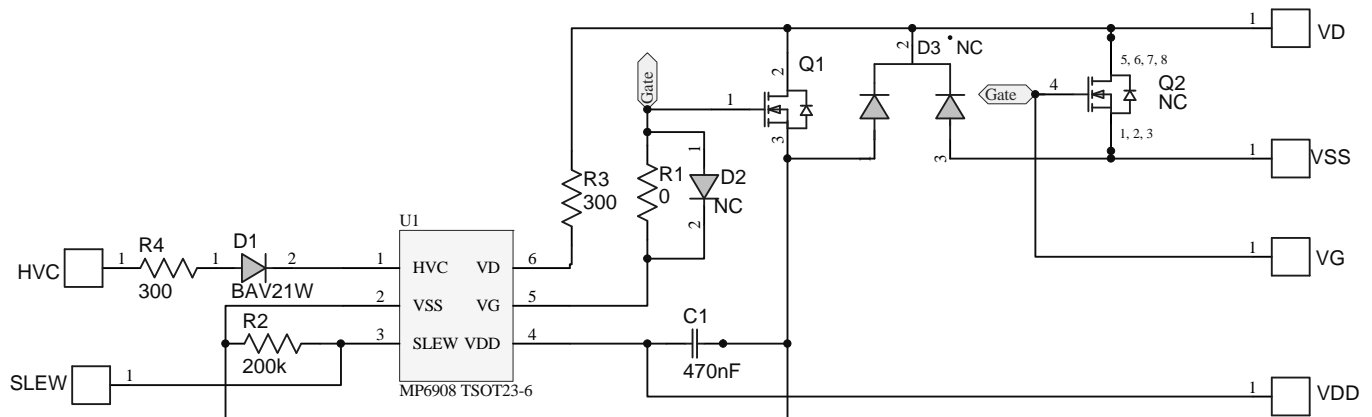
## EV6908-S-01A EVALUATION BOARD



(L x W) 2.9cm x2.9cm

Board Number	MPS IC Number
EV6908-S-01A	MP6908

## EVALUATION BOARD SCHEMATIC



## BILL OF MATERIALS

Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	470nF	Ceramic Capacitor;25V;X7R	0805	TDK	C2012X7R1E474K
1	R1	0	Film Resistor;1%	0603	Yageo	RC0603FR-070RL
2	R3,R4	300	Film Resistor;1%	0603	Yageo	RC0603FR-07301RL
1	R2	200k	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	Q1	FDPF045N10A	MOSFET	TO220-3	Fairchild	FDPF045N10A
0	D2,D3,Q2,SLEW	NC				
3	VG,HVC,VDD	1mm Connector Pin				
2	VD,VSS	2mm Connector Pin				

PRINTED CIRCUIT BOARD LAYOUT

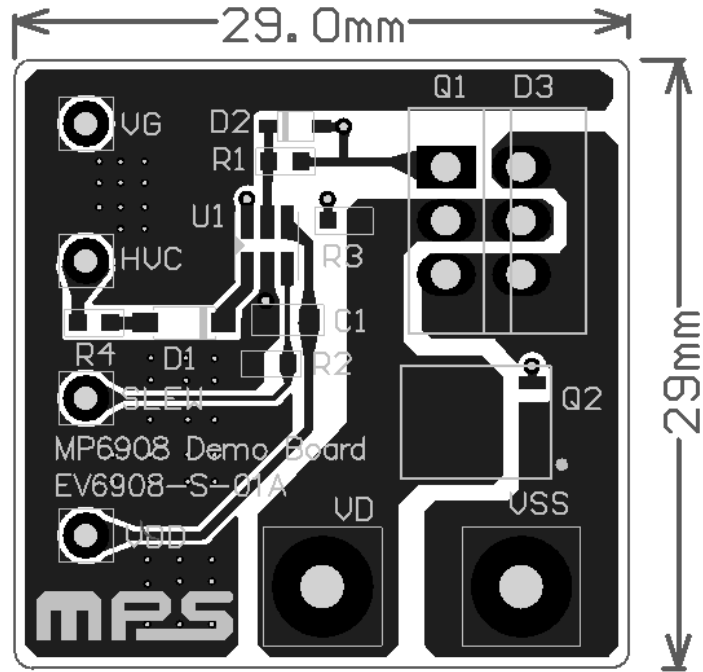


Figure 1: Top Layer

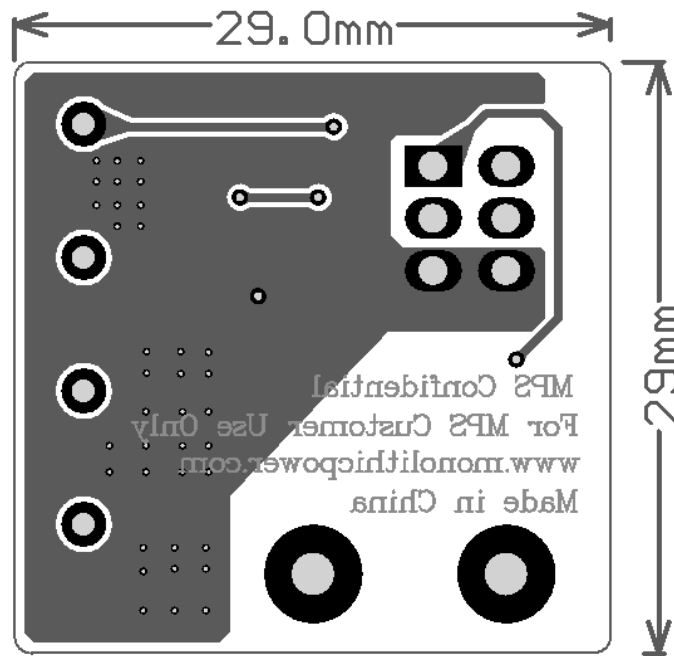


Figure 2: Bottom Layer

## QUICK START GUIDE

1. Connect the VSS and VD pin into the flyback circuit to replace the freewheel diode.
2. Choose the supply voltage:  
Connect HVC to VSS. The VDD will be supplied to 5V.  
Connect HVC to a high voltage (level or switching). The VDD will be supplied to 9V.
3. Turn the power supply on. The IC will start up and work as a freewheel diode automatically.

**NOTICE:** The information in this document is subject to change without notice. Users should warrant and guarantee that third party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.