



## DESCRIPTION

The EV6982-J-00A is an evaluation board designed to demonstrate the capabilities of the MP6982, a fast turn-off, intelligent rectifier for GaN HEMT applications.

The MP6982 can replace a Schottky diode for higher efficiency. The device regulates the external synchronous rectification (SR) GaN HEMT's forward voltage drop ( $V_{FORWARD}$ ) to about 40mV and turns off before the drain-to-source voltage ( $V_{DS}$ ) reverses.

# EV6982-J-00A

# Fast Turn-Off, Intelligent Rectifier with No Auxiliary Winding Requirement Evaluation Board

The MP6982 can generate its own supply voltage without the need for auxiliary winding, which makes it suitable for charger applications with a low output voltage ( $V_{OUT}$ ), or for high-side (HS) SR configurations. The configurable ringing detection circuitry prevents the MP6982 from falsely turning on during discontinuous conduction mode (DCM) and quasi-resonant (QR) operations.

The MP6982 is available in a TSOT23-6 package.

# EVALUATION BOARD



**LxW (2.2cmx1.75cm)**

Board Number	MPS IC Number
EV6982-J-00A	MP6982GJ

## QUICK START GUIDE

The EV6982-J-00A evaluation board can be used to evaluate the MP6982's performance. For proper measurement equipment set-up (high-side rectification), refer to Figure 1 and follow the steps below:

1. Connect the VSS and VD terminals to the flyback circuit. This replaces the freewheel diode.
2. Connect the HVC pin to a high-voltage node (either DC or AC). For high-side rectification, HVC pin can be connected to VD via an external resistance, or to the secondary ground via an external diode. The VDD voltage ( $V_{DD}$ ) should automatically be charged to 5.4V.
3. Turn on the power supply. The IC should start up automatically and work as a freewheel diode.

(For low-side rectification connection and more details, please refer to MP6982's datasheet.)

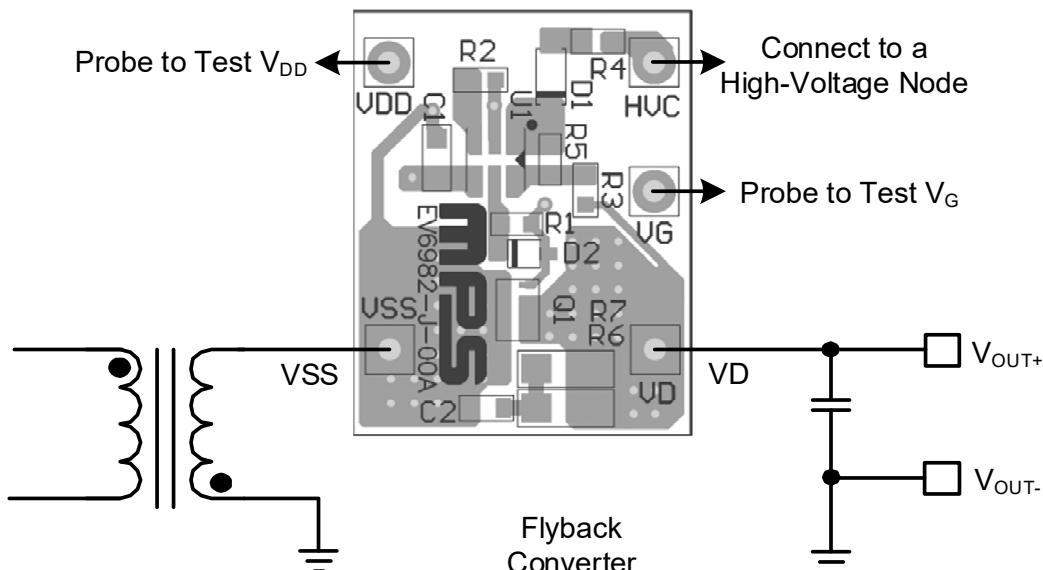


Figure 1: Measurement Equipment Set-Up

## EVALUATION BOARD SCHEMATIC

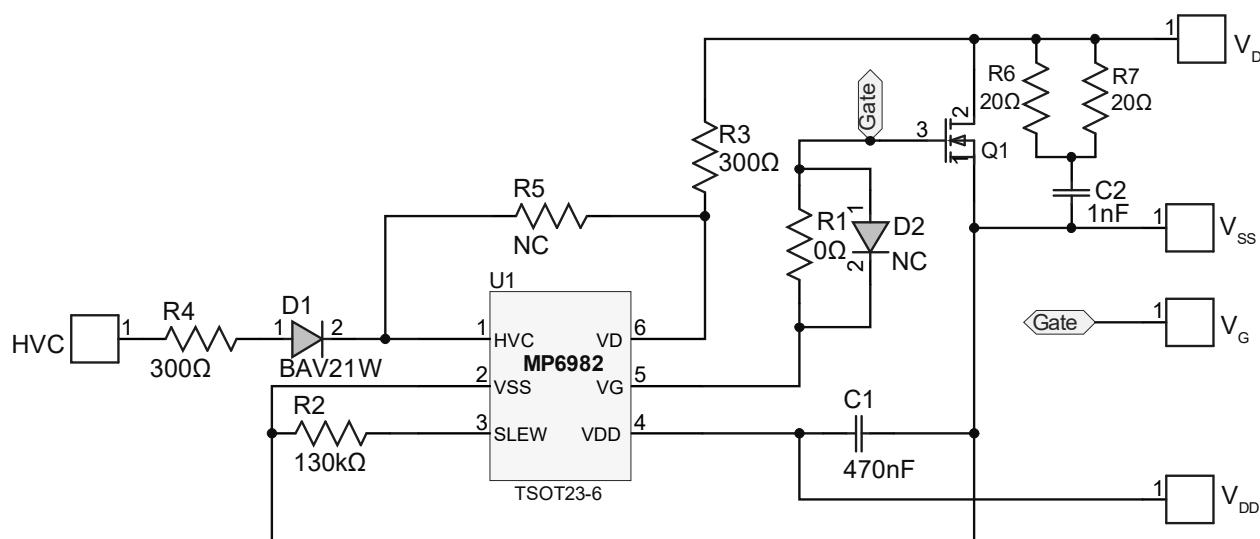


Figure 2: Evaluation Board Schematic

**EV6982-J-00A BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
1	C1	470nF	Ceramic capacitor, 25V, X7R	0805	Wurth	885012207076
1	C2	1nF	Ceramic capacitor, 250V, U2J	0805	Murata	GRM21A7U2E102JW31D
1	R1	0Ω	Film resistor, 1%	0603	Yageo	RC0603FR-070RL
2	R3, R4	300Ω	Film resistor, 1%	0603	Yageo	RC0603FR-07300RL
2	R6, R7	20Ω	Film resistor, 1%	1206	Yageo	RC1206FR-0720RL
1	R2	130kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-07100KL
1	D1	200V	Diode, 200V	SOD-123	Diodes, Inc.	BAV21W-7-F
1	Q1	150V	GaN HEMT	FCLGA (3.2x2.2)	Innoscience	INN150LA070A
3	D2, R5	NC				
5	VG, HVC, VDD, VSS, VD	1mm	Connector	1mm	Any	
1	U1	MP6982	Intelligent flyback synchronous rectifier	TSOT23-6	MPS	MP6982GJ

## PCB LAYOUT

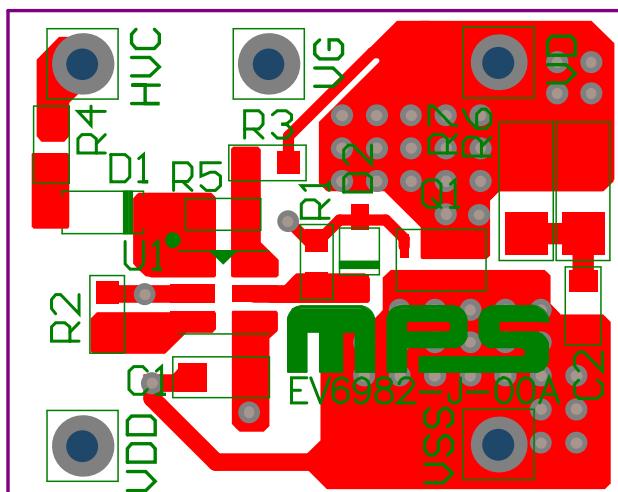


Figure 3: Top Layer

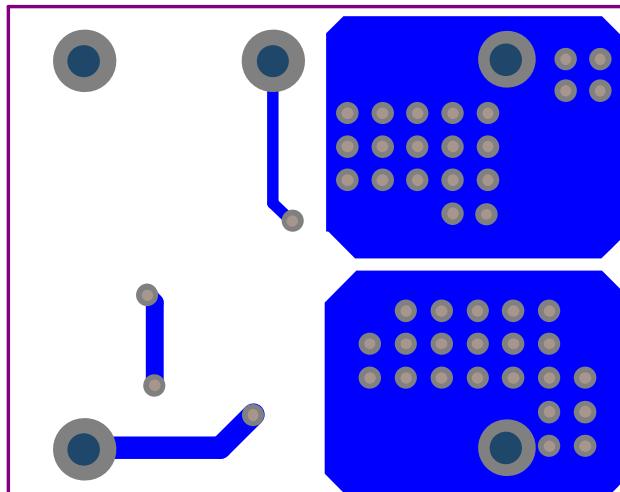


Figure 4: Bottom Layer

## REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	2/12/2024	Initial Release	-

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