EVQ6528-V-00A

5V to 60V, H-Bridge Gate Driver Evaluation Board, AEC-Q100 Qualified

DESCRIPTION

The EVQ6528-V-00A is an evaluation board designed for the MPQ6528, an H-bridge gate driver.

The EVQ6528-V-00A operates from a supply voltage of up to 60V. It is configured to drive two half-bridges consisting of four N-channel power MOSFETs. The driving control signals are generated by the external controller (e.g. MCU or FPGA).

The MPQ6528 is available in a QFN-28 (4mmx5mm) package.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input voltage	V_{IN}	5 to 60	V
OC_REF voltage	V_{OC_REF}	0.125 to 2.4	V
VCC voltage	V_{CC}	3.3 or 5	V

FEATURES

- Wide 5V to 60V Input Voltage Range
- Configurable OCP Threshold
- Supports 100% Duty Cycle Operation
- Over-Current Protection (OCP), Over-Temperature Protection (OTP)
- Fault Indication Output
- Available in a QFN-28 (4mmx5mm) Package
- AEC-Q100 Grade 1

APPLICATIONS

- DC Brush Motors
- Automotive Actuators
- Power Converters
- Gate Openers

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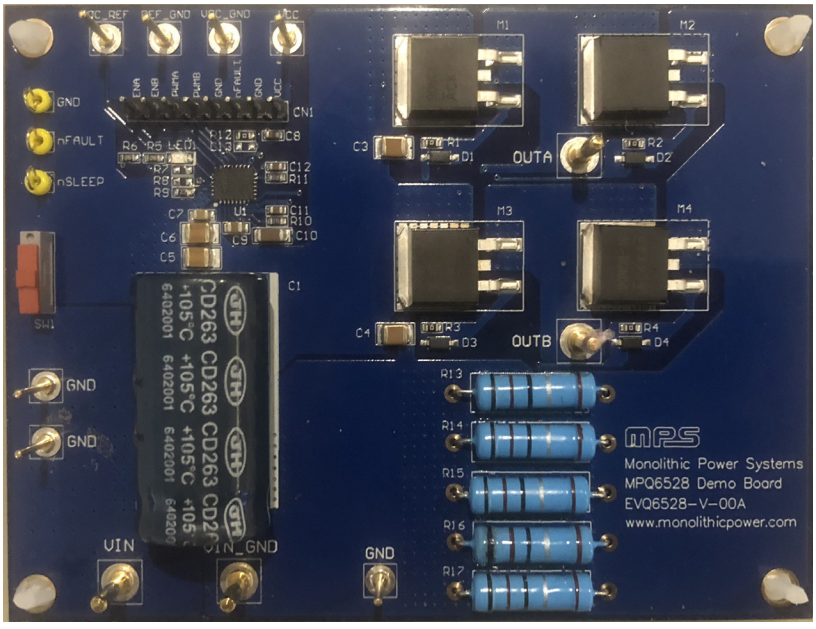
EVQ6528-V-00A EVALUATION BOARD



LxW (10.3cmx7.8cm)

Board Number	MPS IC Number
EVQ6528-V-00A	MPQ6528GV

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QUICK START GUIDE

1. Attach the input voltage (5V ≤ V_{IN} ≤ 60V) to the VIN connector, and attach input ground to the GND connector.
2. Attach the VCC voltage (3.3V or 5V) to the VCC connector, then switch SW1 to the bottom side (position 1) to enable the chip.
3. To set the over-current protection (OCP) threshold, attach the OC_REF voltage (0.125V ≤ V_{OC_REF} ≤ 2.4V) to the OC_REF connector.
4. Attach the driving control signals generated by the external controller to the CN1 connector.

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EVALUATION BOARD SCHEMATIC

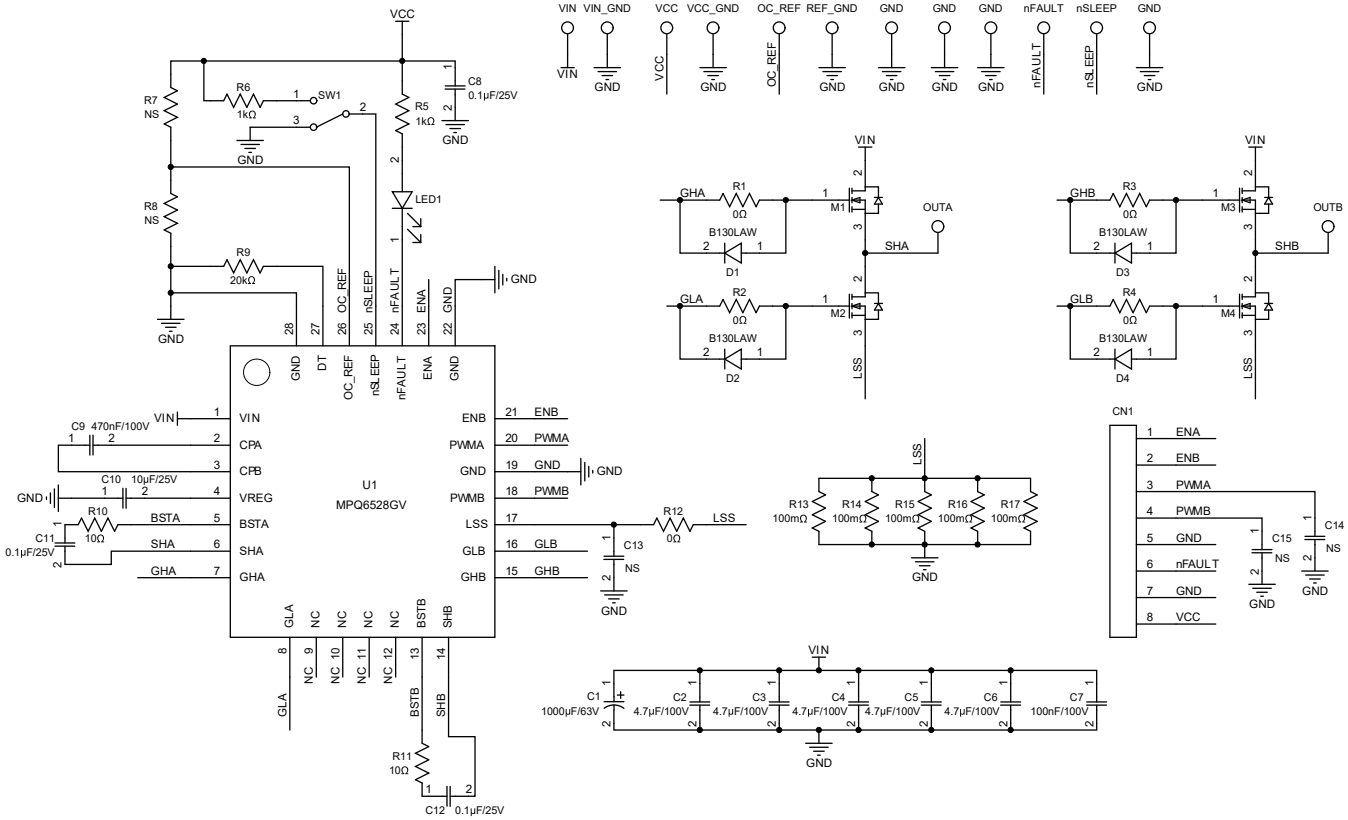

Figure 1: Evaluation Board Schematic

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EVQ6528-V-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	1000µF	Electrolytic capacitor, 63V	DIP	Jianghai	CD263-63V1000
5	C2, C3, C4, C5, C6	4.7µF	Ceramic capacitor, 100V, X7S	1210	Murata	GRJ32DC72A475KE11L
1	C7	100nF	Ceramic capacitor, 100V, X7R	0805	Murata	GRM21BR72A104KAC4L
3	C8, C11, C12	100nF	Ceramic capacitor, 25V, X8R	0603	Murata	GCM188R91E104KA37D
1	C9	470nF	Ceramic capacitor, 100V, X7R	0805	Murata	GRM21BR72A474KA73L
1	C10	10µF	Ceramic capacitor, 25V, X5R	1206	TDK	C3216X5R1E106K
3	C13, C14, C15	NS				
5	R1, R2, R3, R4, R12	0Ω	Film resistor, 1%	0603	Yageo	RC0603FR-070RL
2	R5, R6	1kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-071KL
2	R7, R8	NS				
1	R9	20kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-0720KL
2	R10, R11	10Ω	Film resistor, 1%	0603	Yageo	RC0603FR-0710RL
5	R13, R14, R15, R16, R17	100mΩ	Resistor, 1%, 2W	DIP	Any	
4	D1, D2, D3, D4	30V, 1A	Schottky diode	SOD-123	Diodes	B130LAW
4	M1, M2, M3, M4	80V, 90A	N-channel MOSFET, 80V, 90A, Q_G = 60nC, 11mΩ when V_{GS} = 10V	TO-263	Analog Power	AM90N08-10B-T1-PE
1	LED1	Red	LED	0805	Baihong	BL-HUE35A-AV-TRB
1	SW1	SPDT	Button	DIP	Wurth	450301014042
1	CN1	8-bits/ 2.54mm	Connector	DIP	Any	
4	VIN, VIN_GND, OUTA, OUTB	Φ = 2mm	Connector	DIP	Any	
7	VCC, VCC_GND, OC_REF, REF_GND, GND, GND, GND	Φ = 1mm	Connector	DIP	Any	
3	nFAULT, nSLEEP, GND	Yellow	Test point	DIP	Any	
1	U1	MPQ6528	60V, H-bridge gate driver	QFN-28 (4mmx 5mm)	MPS	MPQ6528GV

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PCB LAYOUT

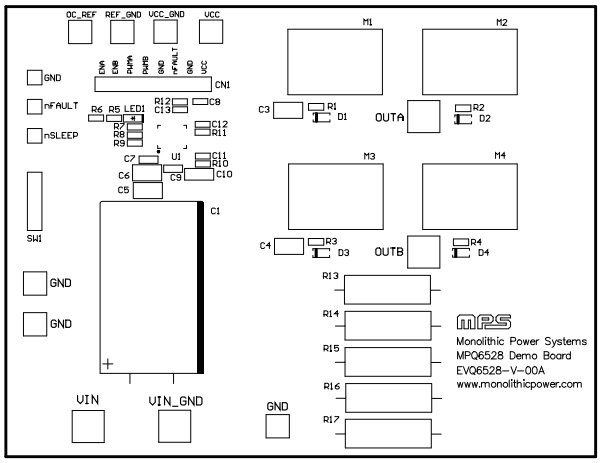

Figure 2: Top Silk Layer

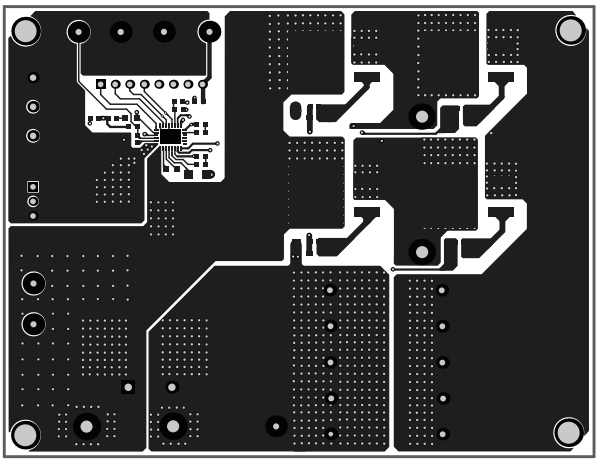

Figure 3: Top Layer

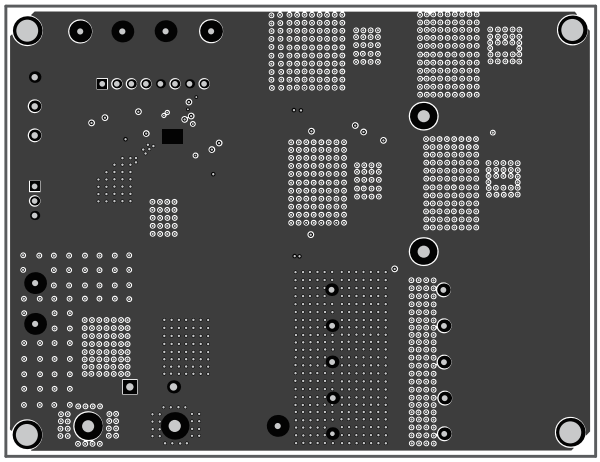

Figure 4: Inner Layer 1

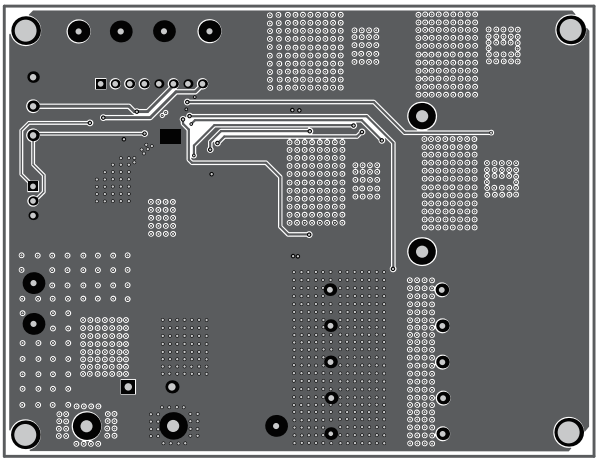

Figure 5: Inner Layer 2

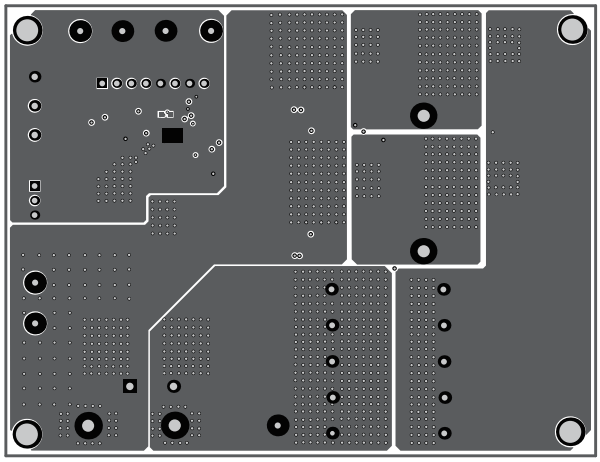

Figure 6: Bottom Layer

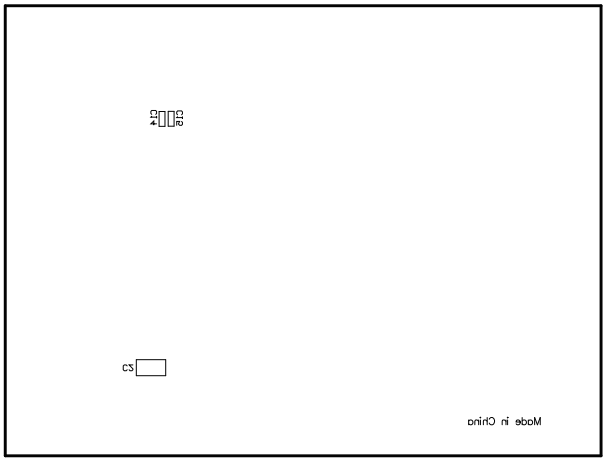

Figure 7: Bottom Silk Layer

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REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	4/15/2021	Initial Release	-

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