

EVQ6610-S-00B 30V, Half-Bridge Power Driver Evaluation Board

DESCRIPTION

The EVQ6610-S-00B is an evaluation board for the MPQ6610, a half-bridge power driver.

The EVQ6610-S-00B is designed to drive solenoid load. It operates from a supply voltage of up to 30V with programmable pull-in current and hold current. The input control signal for the MPQ6610 can be set by SW1 or applied through the connector P2 on the board.

ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	Vin	5 - 30	V

EVQ6610-S-00B EVALUATION BOARD

FEATURES

- Wide 5V to 30V Input Voltage Range
- Programmable Pull-in Current and Hold Current
- Internal Current Sense
- OCP, OVP, OTP
- Fault Indication Output

APPLICATIONS

Solenoid Drivers

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(L x W x H) 6.35cm x 5.08cm x 1cm

Board Number	MPS IC Number	
EVQ6610-S-00B	MPQ6610GS	



EVALUATION BOARD SCHEMATIC





-	1			1		1
Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	100µF	Electrolytic Cap. 100V	DIP	江海	CD263-100V100
2	C2, C5	3.3µF	Ceramic Cap. 50V, X7R	1210	muRata	GRM32DR71H335K A88L
2	C3, C4	100nF	Ceramic Cap. 50V, X7R	0603	Wurth	885012206095
1	R1	100K	Film Resistor, 1%	0603	Yageo	RC0603FR-07100KL
2	R2, R3	1K	Film Resistor, 1%	0603	Yageo	RC0603FR-071KL
2	RV1, RV2	50K	Adjustable Resistor	DIP	BOURNS	3266W-1-503LF
1	D1		Schottky Diode, 30V/200mA	SOT-23	Diodes	BAT54
1	D2		LED, Red	0805	佰鸿	2012SURC-11
1	D3		TVS, 60V	DO- 214AB	VISHAY	SMCJ60A
1	Q1		PNP Transistor, -40V/-0.2A	SOT-23	ON Semiconductor	MMBT3906LT1
1	U1		55V, 3A, Half-bridge Driver	SOIC-8	MPS	MPQ6610GS-AEC1
1	U2		30V, 70mA, High Voltage Regulator	SOT- 223-3	Microchip	MCP1790-3302E/DB
1	SW1		Button	DIP		SS-12D01EG4
2	JP1, P2		2PIN, 2.54MM Connector			61304011121
1	JP1		2.54MM Short Jumper			60900213421
1	P1, P3		Header, 2-Pin	DIP	Wurth	691236510002
5	TP1, TP2, TP3, TP4, TP5		Test Point			

EVQ6610-S-00B BILL OF MATERIALS



PRINTED CIRCUIT BOARD LAYOUT



Figure 1: Top Silk



Figure 2: Top Layer



Figure 3: Bottom Layer



QUICK START GUIDE

To use the board, the power supply input is connected to connector P1. Voltages from 5V to 30V is supported. The solenoid is connected to connector P3. The "OUT" pin will be driven to VIN to actuate the solenoid.

To use the internal slide switch to enable and disable the solenoid, leave jumper JP1 in place. A small 3.3V LDO regulator is present on the PCB to provide the logic level to enable the MPQ6610. If you want to control the circuit using an external logic signal, remove JP1 and apply the control signal to connector P2. The control signal can be any logic level from 2.5V to 5V, but keep in mind that the voltage will affect the time delays.

Two potentiometers are used to control the pull-in and hold current. RV1 in parallel with RV2 sets the maximum pull-in current, and RV2 sets the hold current. The hold current will always be less than the pull-in current. If you turn the pull-in current all the way up, then the pull-in current will not be limited. At the lowest setting of RV2, the hold current will be limited to approximately 300mA.

Note that the MPQ6610 has an over-current protection circuit that will activate between 3A and 6A. If the solenoid draws more than this current, the MPQ6610 will disable the output for about 1.6mS, then will re-enable it.

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