EV6613-V-00A

45V, 5A, Simple H-Bridge Driver Evaluation Board

DESCRIPTION

The EV6613-V-00A evaluation board is designed to demonstrate the capabilities of the MP6613, a simple H-bridge motor driver. It can be used to drive brushed DC motors or other loads.

The MP6613 operates from an input voltage (V_{IN}) of up to 45V, and can deliver load current up to 5A.

The MP6613 supports several control modes, which can be configured via the pins. The input control signals are generated on the board, or they come from an external controller via the connector on the board.

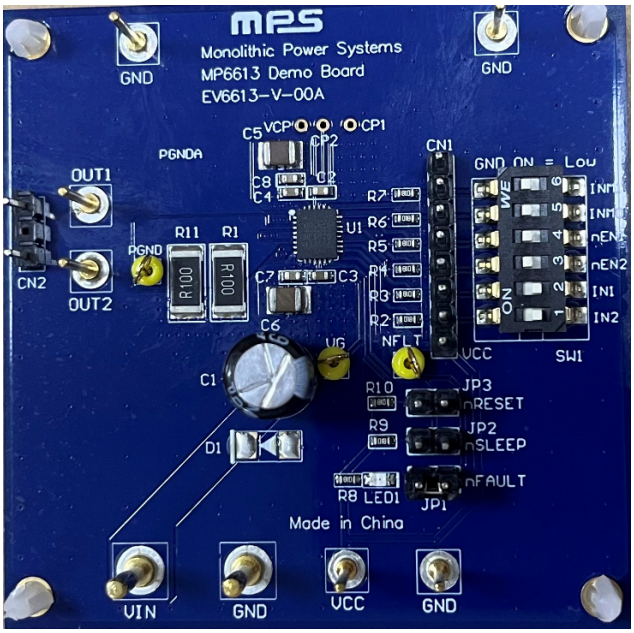
The MP6613 is available in a QFN-28 (4mmx5mm) package. It is recommended to read the MP6613 datasheet prior to making any changes to the EV6613-V-00A.

PERFORMANCE SUMMARY (1)

Specifications are at T_A = 25°C, unless otherwise noted.

Parameters	Conditions	Value
Input voltage (V_{IN}) range		4.5V to 45V
Maximum output current (I_{OUT})		5A

EV6613-V-00A EVALUATION BOARD



LxW (6.35cmx6.35cm)

Board Number	MPS IC Number
EV6613-V-00A	MP6613GV

QUICK START GUIDE

1. Connect the input voltage (4.5V ≤ V_{IN} ≤ 45V) and input ground to the VIN and GND connectors, respectively.
2. Connect the VCC voltage (V_{CC} = 3.3V or 5V) and input ground to the VCC and GND connectors, respectively.
3. Set the input control and logic signal through the CN1 connector via the external MCU, or manually through SW1.

   Table 1 shows the input logic when INM[1:0] = 00.

Table 1: Input Logic with INM[1:0] = 00

nENx	INx	OUTx
Low	High	VIN
Low	Low	GND
High	-	Hi-Z

Table 2 shows the input logic when INM[1:0] = 01.

Table 2: Input Logic when INM[1:0] = 01

ENBL	PHASE	BRK	BMOD	OUT1	OUT2
Low	-	-	-	Hi-Z	Hi-Z
High	-	High	Low	GND	GND
High	-	High	High	VIN	VIN
High	Low	Low	-	GND	VIN
High	High	Low	-	VIN	GND

Table 3 shows the input logic when INM[1:0] = 10.

Table 3: Input Logic for INM[1:0] = 10

INHx	INLx	OUTx
Low	Low	Hi-Z
Low	High	GND
High	Low	VIN
High	High	Hi-Z

EVALUATION BOARD SCHEMATIC

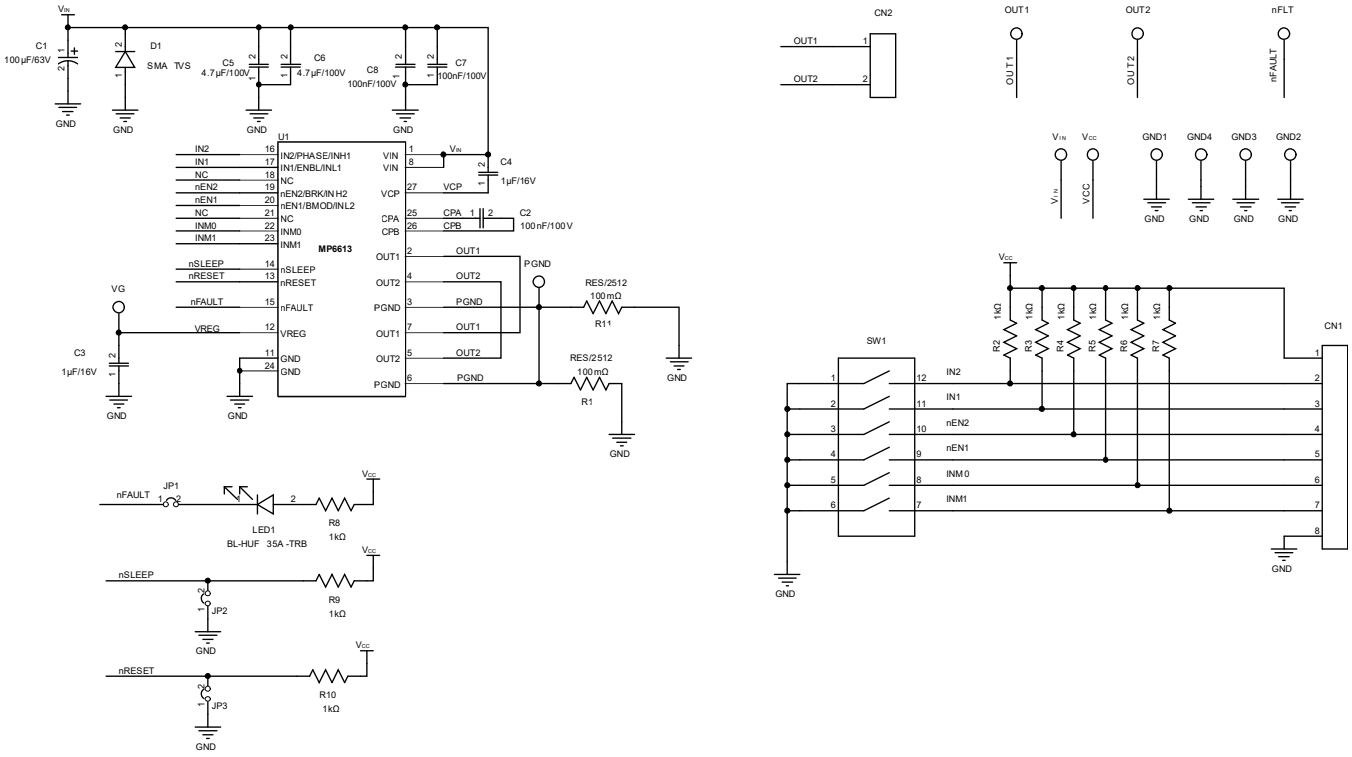


Figure 2: Evaluation Board Schematic

EV6613-V-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
1	C1	100µF	Electrolytic capacitor, 63V	DIP	Rubycon	63PX100MEFC8X11.5
3	C2, C7, C8	100nF	Ceramic capacitor, 100V, X7R	0603	Wurth	885012206120
2	C3, C4	1µF	Ceramic capacitor, 16V, X7R	0603	Murata	GRM188R71C105KA12D
2	C5, C6	4.7µF	Ceramic capacitor, 100V, X7S	1210	TDK	C3225X7S2A475K
9	R2, R3, R4, R5, R6, R7, R8, R9, R10	1kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-071KL
2	R1, R11	100mΩ	Film resistor, 1%	2512	Yageo	RL2512FK-070R1L
1	LED1	20mA	Red LED	0805	Baihong	BL-HUE35A-AV-TRB
1	D1	NS				
1	SW1	25mA	Button	SMD	Wurth	418121270806
1	CN1	2.54mm	Connector	DIP	Any	
1	CN2	2.54mm	Connector	DIP	Any	
3	JP1, JP2, JP3	2.54mm	Connector	DIP	Any	
1	JP1	2.54mm	Short jumper	DIP	Any	
3	VG, NFLT, PGND	1mm	Test point, Φ = 1mm needle	DIP	Any	
2	VIN, GND	2mm	Connector, Φ = 2mm needle	DIP	Any	
6	VCC, GND, OUT1, OUT2, GND, GND	1mm	Connector	DIP	Any	
1	U1	MP6613	45V, 5A, simple H-bridge driver	QFN-28 (4mmx 5mm)	MPS	MP6613GV

PCB LAYOUT

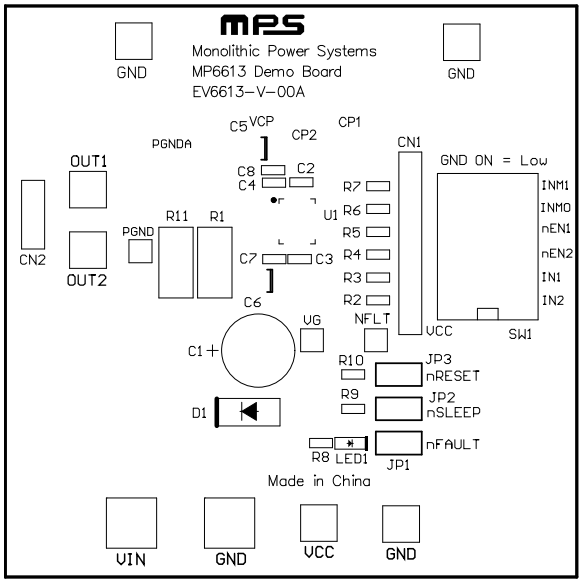


Figure 3: Top Silk

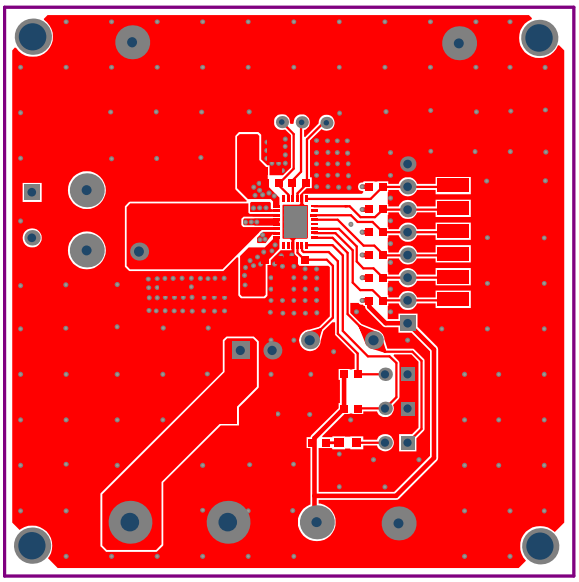


Figure 4: Top Layer

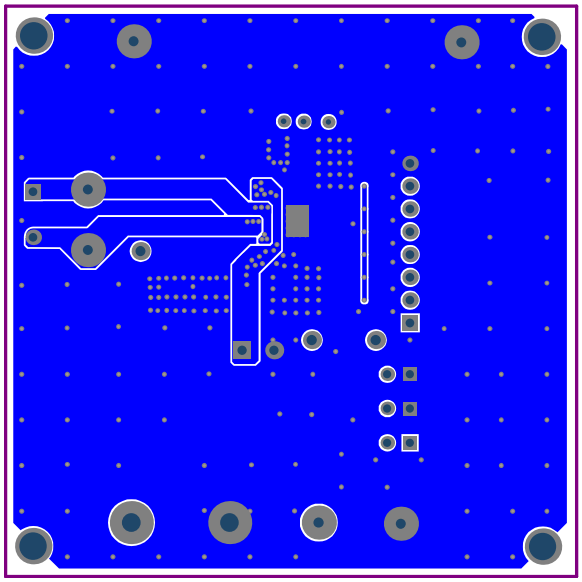


Figure 5: Bottom Layer

REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	6/14/2022	Initial Release	-