



EV6604B-F-00A

45V, 2.5A, Simple Dual H-Bridge Driver
(PHASE/EN) in a TSSOP-28EP Package
Evaluation Board

DESCRIPTION

The EV6604B-F-00A evaluation board is designed to demonstrate the capabilities of the MP6604B, a dual H-bridge motor driver. It can be used to drive stepper motors, DC brushed motors, and other loads.

The MP6604B operates from an input voltage (V_{IN}) of up to 45V, and can deliver load currents up to 2.5A per H-bridge.

The MP6604B has PHASE, ENBL, and BRAKE input pin signals for each H-bridge. The input control signals can be generated on the board or can come from an external controller via the connector on the board.

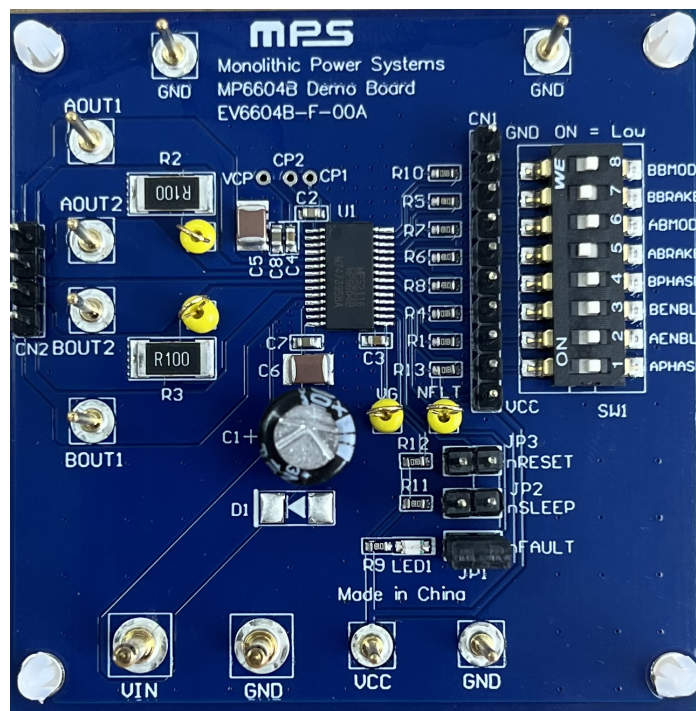
The MP6604B is available in a TSSOP-28EP package. It is recommended to read the MP6604B datasheet before making any changes to the EV6604B-F-00A.

PERFORMANCE SUMMARY

Specifications are at $T_A = 25^\circ\text{C}$, unless otherwise noted.

Parameters	Conditions	Value
Input voltage (V_{IN}) range		4.5V to 45V
Maximum output current (I_{OUT})		2.5A

EV6604B-F-00A EVALUATION BOARD



LxW (6.35cmx6.35cm)

Board Number	MPS IC Number
EV6604B-F-00A	MP6604BGF

QUICK START GUIDE

1. Connect the input voltage ($4.5V \leq V_{IN} \leq 45V$) 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 for the ENBL (xENBL), PHASE (xPHASE), BRAKE (xBRAKE), and BMODE (xBMODE) inputs.

Table 1: Input Logic Truth Table

xENBL	xPHASE	xBRAKE	xBMODE	xOUT1	xOUT2
L	X ⁽¹⁾	X ⁽¹⁾	X ⁽¹⁾	Hi-Z	Hi-Z
H	X ⁽¹⁾	H	L	GND	GND
H	X ⁽¹⁾	H	H	VIN	VIN
H	L	L	X ⁽¹⁾	GND	VIN
H	H	L	X ⁽¹⁾	VIN	GND

Note:

- 1) X denotes L or H.

EVALUATION BOARD SCHEMATIC

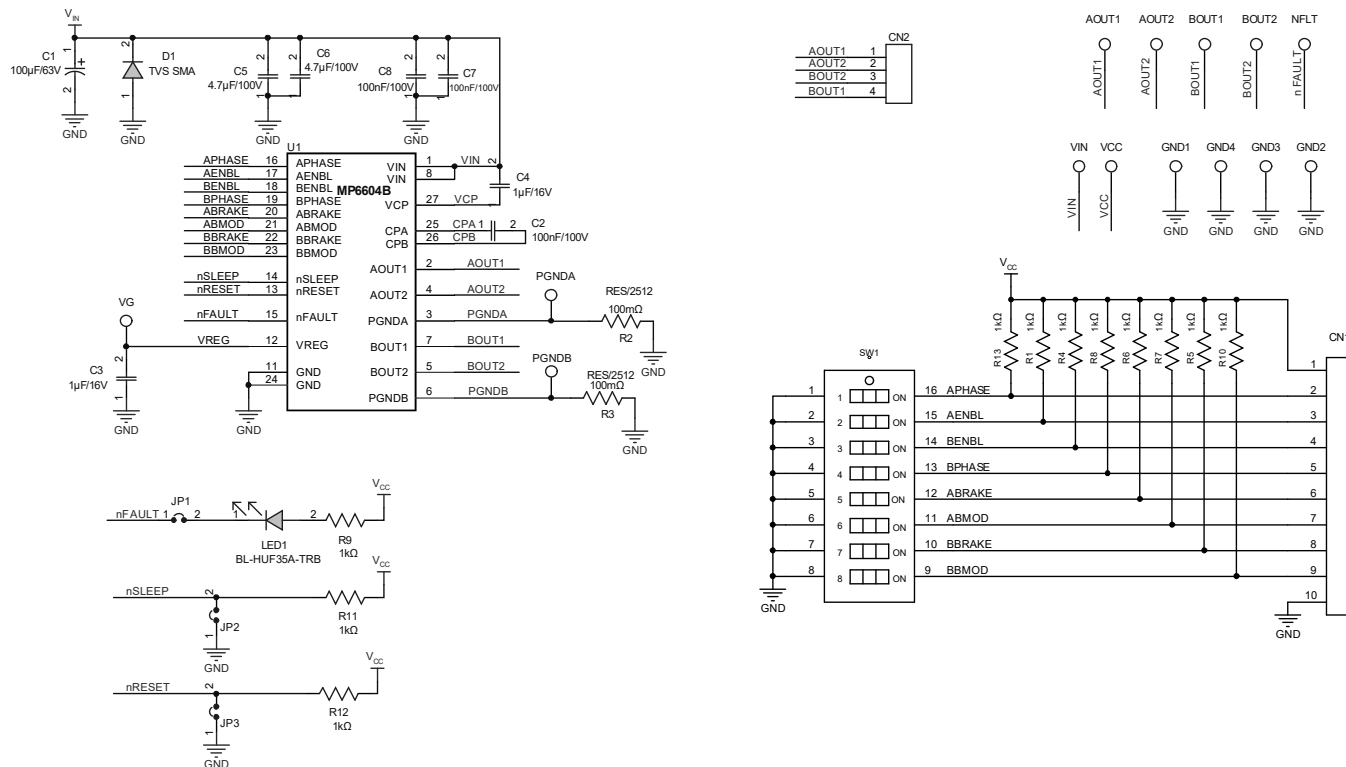


Figure 1: Evaluation Board Schematic

EV6604B-F-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	Würth	885012206120
2	C3, C4	1μF	Ceramic capacitor, 16V, X7R	0603	Murata	GRM188R71C105KA12D
2	C5, C6	4.7μF	Ceramic capacitor, 100V, X7S	1210	TDK	C3225X7S2A475K
11	R1, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13	1kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-071KL
2	R2, R3	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	Würth	418121270808
1	CN1	2.54mm	Connector, 10-bit	DIP	Any	
1	CN2	2.54mm	Connector, 4-bit	DIP	Any	
3	JP1, JP2, JP3	2.54mm	Connector, 2-bit	DIP	Any	
1	JP1	2.54mm	Short jumper	DIP	Any	
4	VG, NFLT, PGNDA, PGNDB	1mm	Test point	DIP	Any	
2	VIN, GND	2mm	Connector	DIP	Any	
8	VCC, GND, AOUT1, AOUT2, BOUT1, BOUT2, GND, GND	1mm	Connector	DIP	Any	
1	U1	MP6604B	45V, 2.5A, dual H-bridge driver (PHASE/EN)	TSSOP-28EP	MPS	MP6604BGF

PCB LAYOUT

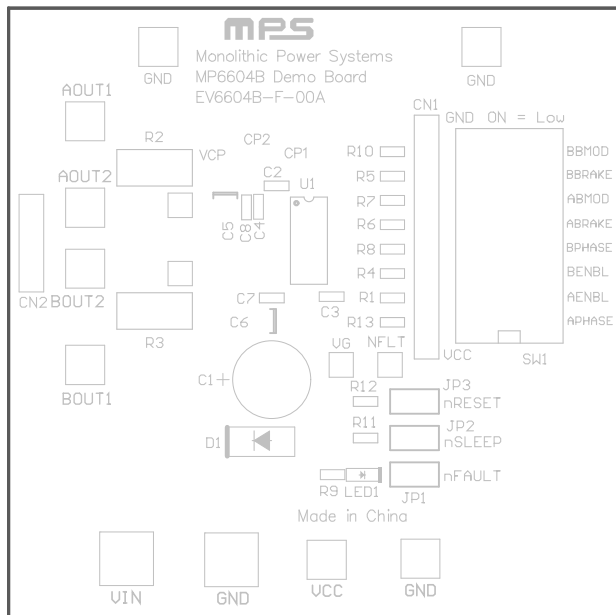


Figure 2: Top Silk

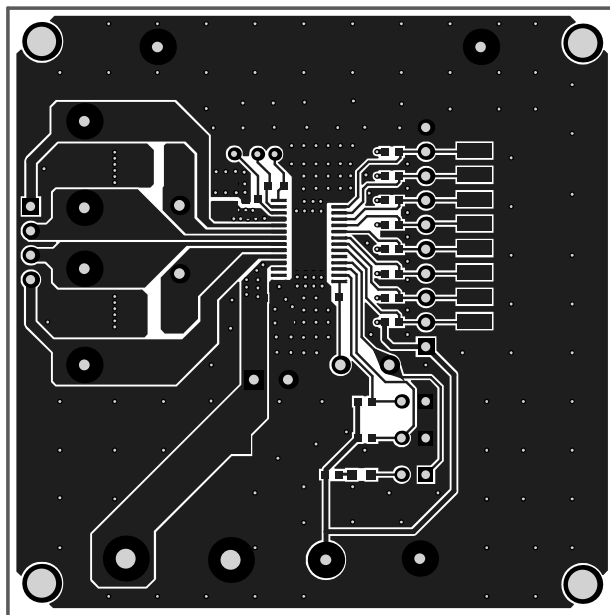


Figure 3: Top Layer

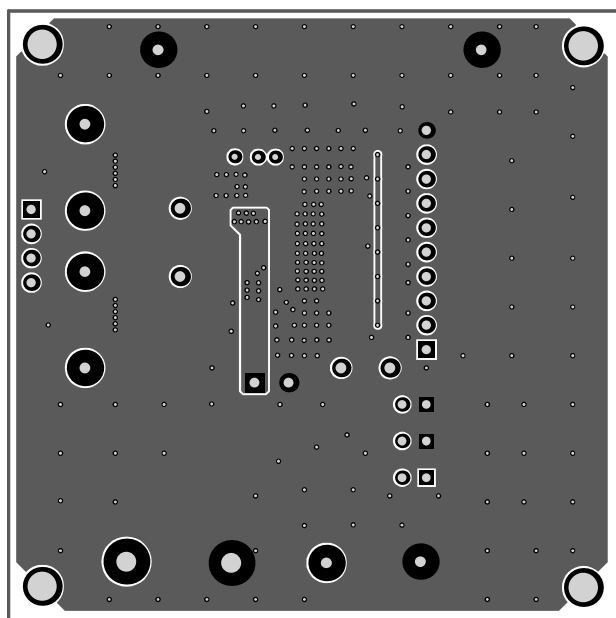


Figure 4: Bottom Layer

REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	7/8/2022	Initial Release	-

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