

It is recommended to read the MP6612 datasheet prior to making any changes to the EV6612-F-00A.

1

QUICK START GUIDE

1. Connect the input voltage ($4V \leq V_{IN} \leq 40V$) and input ground to the VIN and GND connectors, respectively.
2. Set the input control and logic signal through the CN1 connector via the external microcontroller (MCU), or set it manually through SW1. Manual action requires an external 3.3V or 5V voltage to act as a pull-up power supply. Table 1 shows the logic truth table.

Table 1: MP6612 Input Logic Truth Table

IN1	IN2	OUT1	OUT2	Function (DC Motor)
Low	Low	Hi-Z	Hi-Z	Coast
Low	High	Low	High	Reverse
High	Low	High	Low	Forward
High	High	Low	Low	Brake

3. The VISEN output voltage (V_{ISEN}) scaling is set by an adjustable resistor (RV1). V_{ISEN} can be calculated with Equation (1):

$$V_{ISEN} = \frac{I_{OUT}}{10000} \times R_{ISET} \quad (1)$$

R_{ISET} can be estimated with Equation (2):

$$R_{ISET} = R1 + RV1 \quad (2)$$

The output current (I_{OUT}) is sensed when one of the low-side MOSFETs (LS-FETs) turns on, and the maximum V_{ISEN} is 1.5V.

EVALUATION BOARD SCHEMATIC

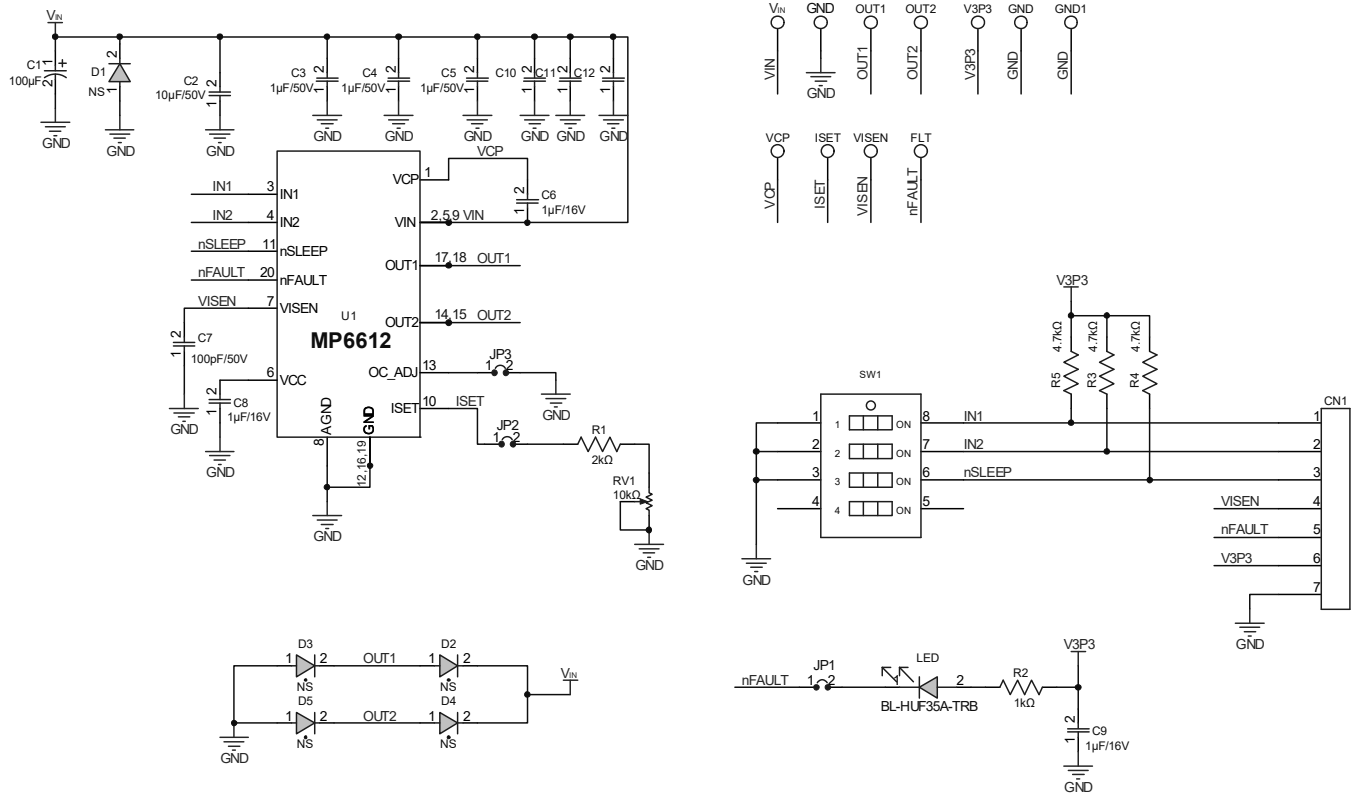


Figure 1: Evaluation Board Schematic

EV6612-F-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
1	C1	100μF	Electrolytic capacitor, 50V	DIP	Rubycon	50YXF100MEFC
1	C2	10μF	Ceramic capacitor, 50V, X7R	1210	TDK	C3225X7R1H106M
3	C3, C4, C5	1μF	Ceramic capacitor, 50V, X7R	0805	Wurth	885012207103
3	C6, C8, C9	1μF	Ceramic capacitor, 16V, X7R	0603	Wurth	885012206052
1	C7	100pF	Ceramic capacitor, 50V, NP0	0603	Wurth	885012006057
3	C10, C11, C12	100nF	Ceramic capacitor, 50V, X7R	0603	Wurth	885012206095
1	R1	2kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-072KL
1	R2	1kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-071KL
3	R3, R4, R5	4.99kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-074K99L
1	RV1	10kΩ	Through-hole trimmer potentiometer	DIP	Bourns	3266W-1-103F
1	LED	20mA	Red LED	0805	Kingbright	2012SURC-11
1	SW1	25mA	SPST slide switch	DIP	Wurth	418121270804
3	JP1, JP2, JP3	2.54mm	Connector header through-hole	DIP	Any	
2	JP1, JP2	2.54mm	Short jumper	DIP	Any	
1	CN1	2.54mm	Connector header through-hole	DIP	Any	
4	OUT1, OUT2, VIN, GND	2mm	Connector	DIP	Any	
3	V3P3, GND, GND1	1mm	Connector	DIP	Any	
4	VISEN, FLT, VCP, ISET	1mm	Test points	DIP	Any	
5	D1, D2, D3, D4, D5	NS				
1	U1	MP6612	40V, 5A, H-bridge DC motor driver	TSSOP-20EP	MPS	MP6612GF

PCB LAYOUT

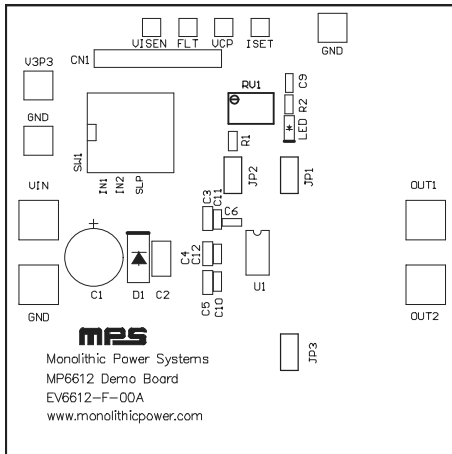


Figure 2: Top Silk

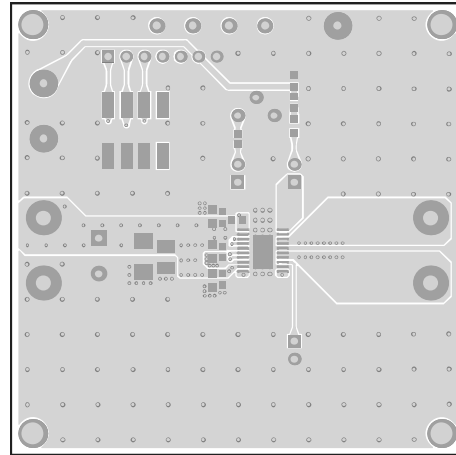


Figure 3: Top Layer

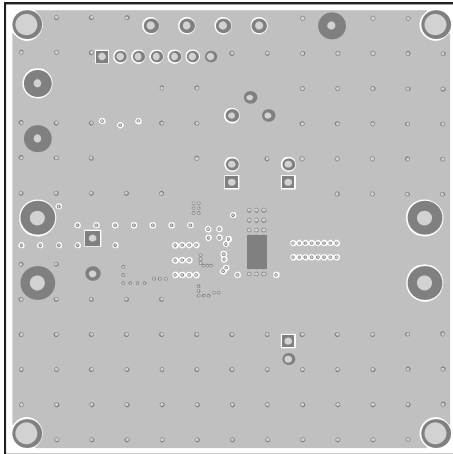


Figure 4: Mid-Layer 1

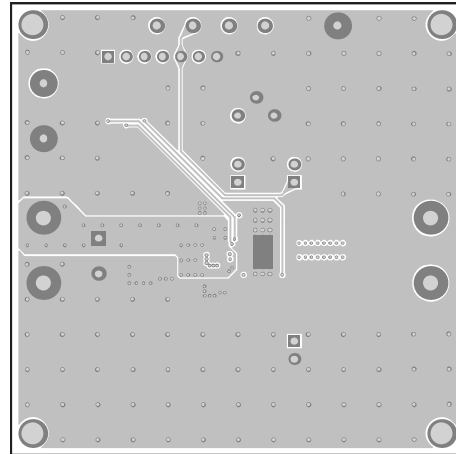


Figure 5: Mid-Layer 2

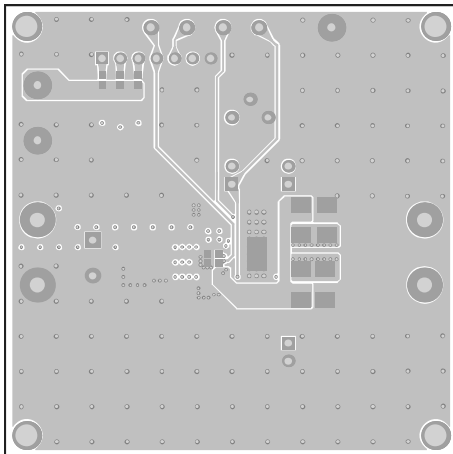


Figure 6: Bottom Layer

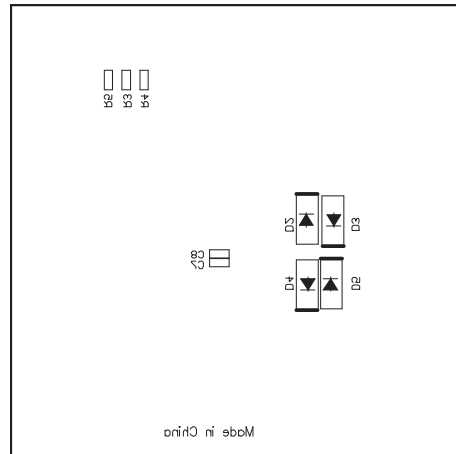


Figure 7: Bottom Silk

REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	3/16/2023	Initial Release	-
1.1	6/10/2024	Updated the maximum supply voltage from 45V to 40V in the header, Description, and Performance Summary sections	1
		Updated the headers to remove voltage	2–6
		Updated the maximum supply voltage from 45V to 40V in the Quick Start Guide section	2
		Updated the maximum supply voltage from 45V to 40V in the Bill of Materials section	4

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