



EV6619-Q-00A

28V, 5A, H-Bridge Motor Driver Evaluation Board

DESCRIPTION

The EV6619-Q-00A is an evaluation board for the MP6619, an H-Bridge motor driver that operates from a supply voltage up to 28V and delivers a motor current up to 5A.

The MP6619 has cycle-by-cycle current regulation and limiting. It is typically used to drive a brushed DC motor. Full protection features include over-current protection (OCP), over-voltage protection (OVP), over-temperature protection (OTP) and under-voltage lockout (UVLO).

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input voltage	V _{IN}	5.4 to 28	V
Output current	I _{OUT}	5	A

FEATURES

- Wide 5.4V to 28V Input Voltage Range
- Up to 5A Peak Output Current
- 65mΩ R_{DS(ON)} for Each MOSFET of H-Bridge
- 100% Duty Cycle Operation of H-Bridge
- 1μA Shutdown Current
- Full Protection Features
- IC is Available in a QFN-19 (3mmx3mm) Package

APPLICATIONS

- Brushed DC Motors
- Solenoids/Actuators

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EV6619-Q-00A EVALUATION BOARD



(LxWxH) 6.35cmx6.35cmx1cm

Board Number	MPS IC Number
EV6619-Q-00A	MP6619GQ

QUICK START GUIDE

1. Attach the input voltage ($5.4V \leq V_{IN} \leq 28V$) to the VIN connector.
2. Attach input ground to the GND connector.
3. Input control and logic signal can be set either through the CN1 connector via the external MCU, or through SW1 via manual action. Manual action requires an external 3.3V or 5V VCC voltage as a pull-up power supply. Table 1 shows the logic truth table.

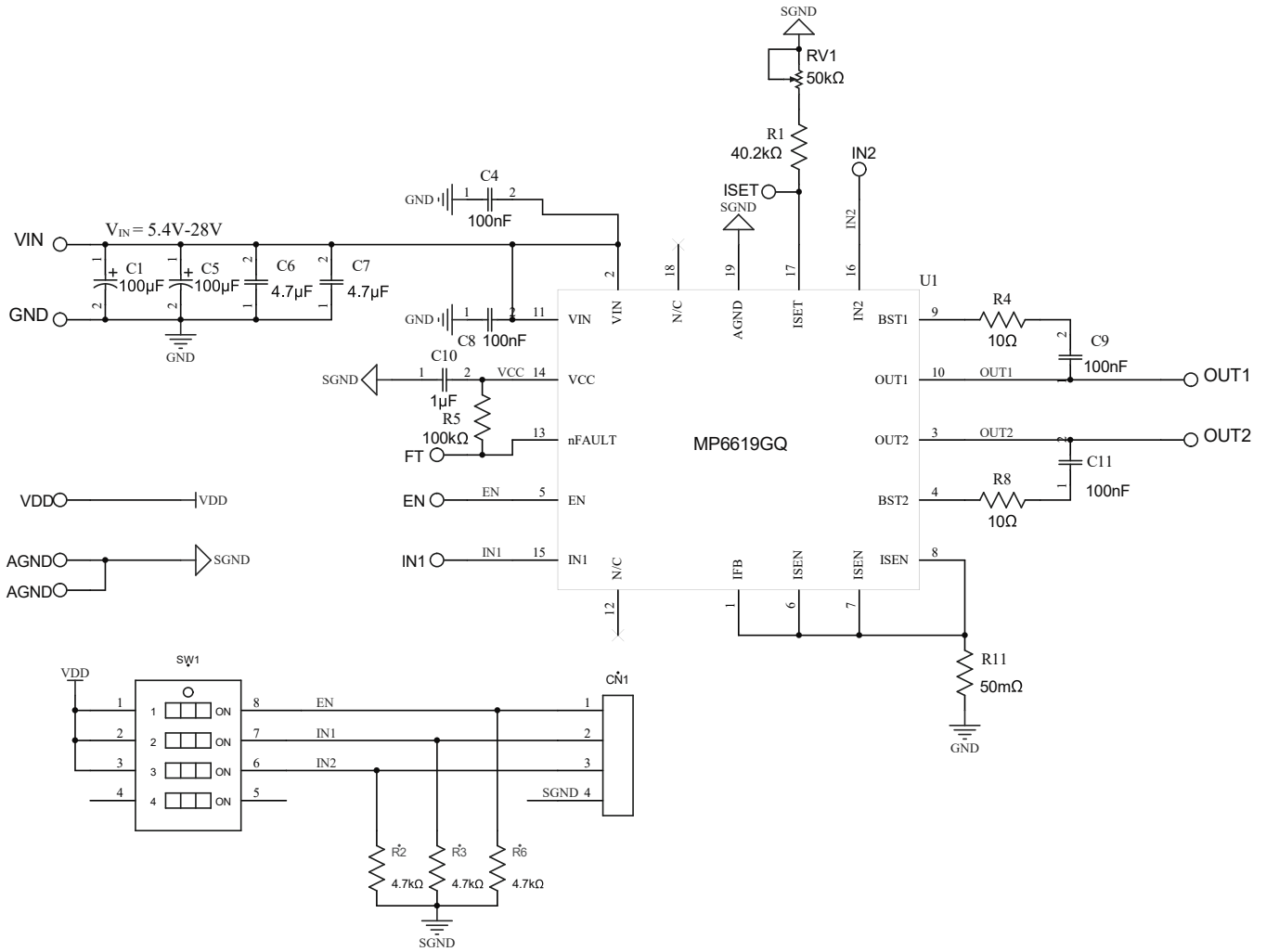
Table 1: Logic Truth Table

EN	INx	OUTx
0	x	Z
1	0	L
1	1	H

4. The current control trip value is set by the RV1 adjustable resistor. When ISET is floating, the current trip voltage is set to the default 200mV. If a resistor is connected between ISET and GND, the current trip voltage can be reduced below 200mV to reduce power loss on the sense resistor. The relationship between the current trip voltage and R_{ISET} can be calculated with Equation (1):

$$V_{ITRIP} = 0.2 \times \frac{40}{R_{ISET} \text{ (k}\Omega\text{)}} \quad (1)$$

EVALUATION BOARD SCHEMATIC



EV6619-Q-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1, C5	100 μ F	Electrolytic capacitor, 50V	DIP	Rubycon	50YXF100MEFC
4	C4, C8, C9, C11	100nF	Ceramic capacitor, 50V, X7R, 0402	0402	muRata	GRM155R71H104KE14D
2	C6, C7	4.7 μ F	Ceramic capacitor, 50V, X7R, 1210	1210	muRata	GRM32ER71H475KA88L
1	C10	1 μ F	Ceramic capacitor, 25V, X7R, 0402	0402	muRata	GRM155C81E105KE11D
1	R1	40.2k Ω	Film resistor, 1%	0402	Yageo	RC0402FR-0740K2L
3	R2, R3, R6	4.7k Ω	Film resistor, 1%	0603	Yageo	RC0603FR-074K7L
1	R5	100k Ω	Film resistor, 1%	0402	Yageo	RC0402FR-07100KL
2	R4, R8	10 Ω	Film resistor, 1%	0402	Yageo	RC0402FR-0710RL
1	R11	50m Ω	Film resistor, 1%	3720	Cyntec	RL3720WT-R050-FN
1	RV1	50k Ω	50k Ω adjustable resistor	DIP	Bourns	3266W-1-503LF
1	SW1	4-bit	4-bit dial switch	SMD		418121270804
1	CN1		2.54mm single line	DIP		
3	VDD, 2 \uparrow GND		1mm needle	DIP		
4	VIN, GND, OUT1, OUT2		2mm needle	DIP		
8	ISET, IN1, IN2, EN, FAULT, VCC, OUT1, OUT2		Test point			
1	U1	MP6619	28V, 5A, H-bridge motor driver		MPS	MP6619

PCB LAYOUT

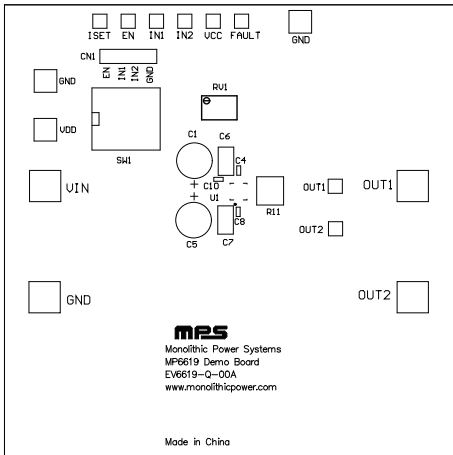


Figure 1: Top Silk Layer

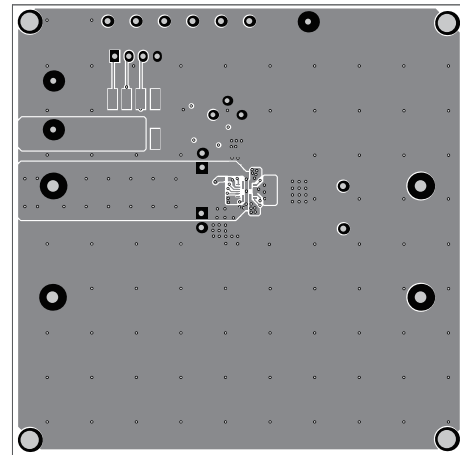


Figure 2: Top Layer

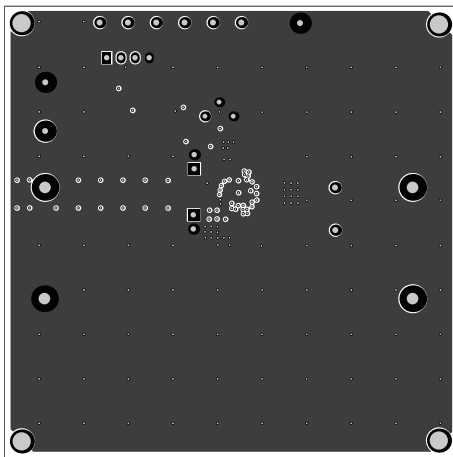


Figure 3: Mid-Layer 1

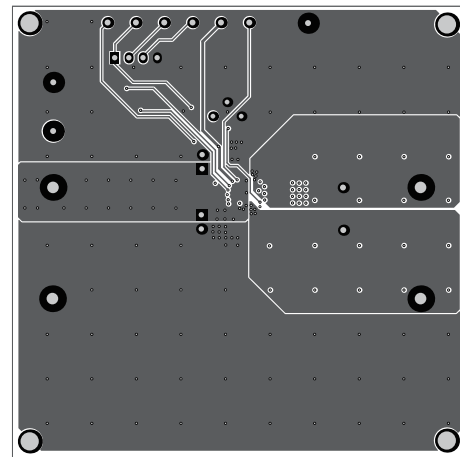


Figure 4: Mid-Layer 2

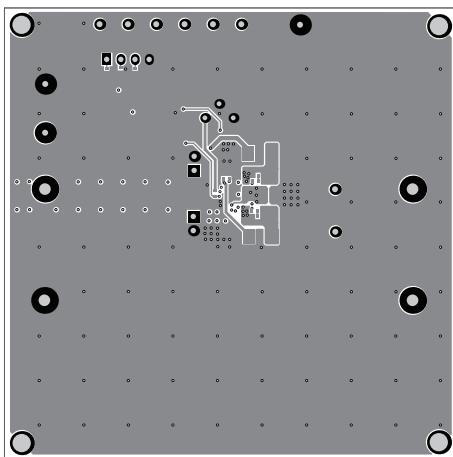


Figure 5: Bottom Layer

REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.1	3/2/2021	update SCH	Page 4

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