



EV6551-QB-00A

14V, 5A, H-Bridge Motor Driver Evaluation Board

DESCRIPTION

The EV6551-QB-00A is an evaluation board designed to demonstrate the capabilities of the MP6551, an H-bridge motor driver.

The MP6551 provides up to 5A of output current across a wide 2.5V to 14V input voltage range. Its input control signals are applied via a connector on the evaluation board (EN1, EN2, IN1, and IN2).

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input voltage	V_{IN}	2.5 to 14	V
Maximum output current	I_{OUT_MAX}	5	A
Reference voltage	V_{REF}	3.3	V
3P3 voltage	V_{3P3}	3.3	V

FEATURES

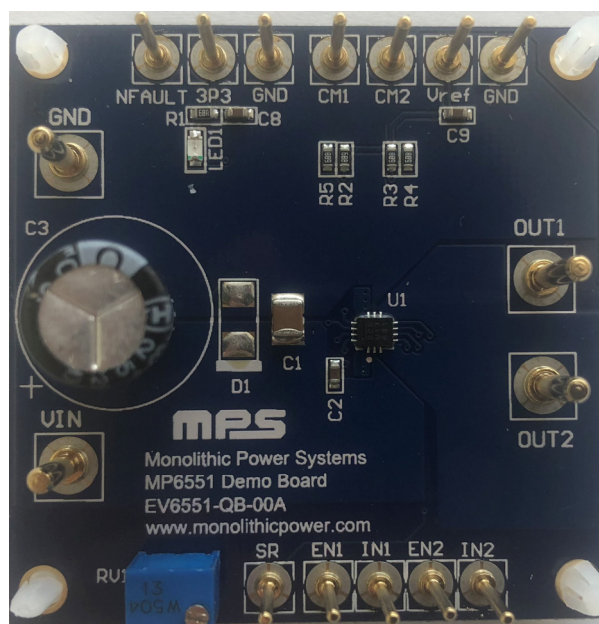
- Wide 2.5V to 14V Input Supply Range
- Up to 5A Output Current (I_{OUT})
- Integrated Bidirectional Current-Sense Amplifiers
- Supports 100% Duty Cycle Operation
- Low-Power Sleep Mode
- Over-Current Protection (OCP)
- Over-Temperature Protection (OTP)
- Fault-Indicating Output

APPLICATIONS

- Mini Drones
- Battery-Powered Toys

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EV6551-QB-00A EVALUATION BOARD



LxW (5.08cmx5.08cm)

Board Number	MPS IC Number
EV6551-QB-00A	MP6551GQB



QUICK START GUIDE

1. Preset the power supply between 2.5V and 14V, then turn off the power supply.
2. Connect the power supply terminals to:
 - a. Positive (+): VIN
 - b. Negative (-): GND
3. After making the connections, turn on the power supply.
4. Apply a 3.3V constant voltage to the 3P3 pin.
5. To set the current-sense reference voltage (V_{REF}), apply a 3.3V constant voltage to the VREF pin.
6. Connect the input control signals (generated by the external controller) to the ENx and INx pins.
7. Adjust the HS-FET turn-on/off speed via resistor RV1. The lower the resistance, the faster the HS-FET turn-on/off speed.

EVALUATION BOARD SCHEMATIC

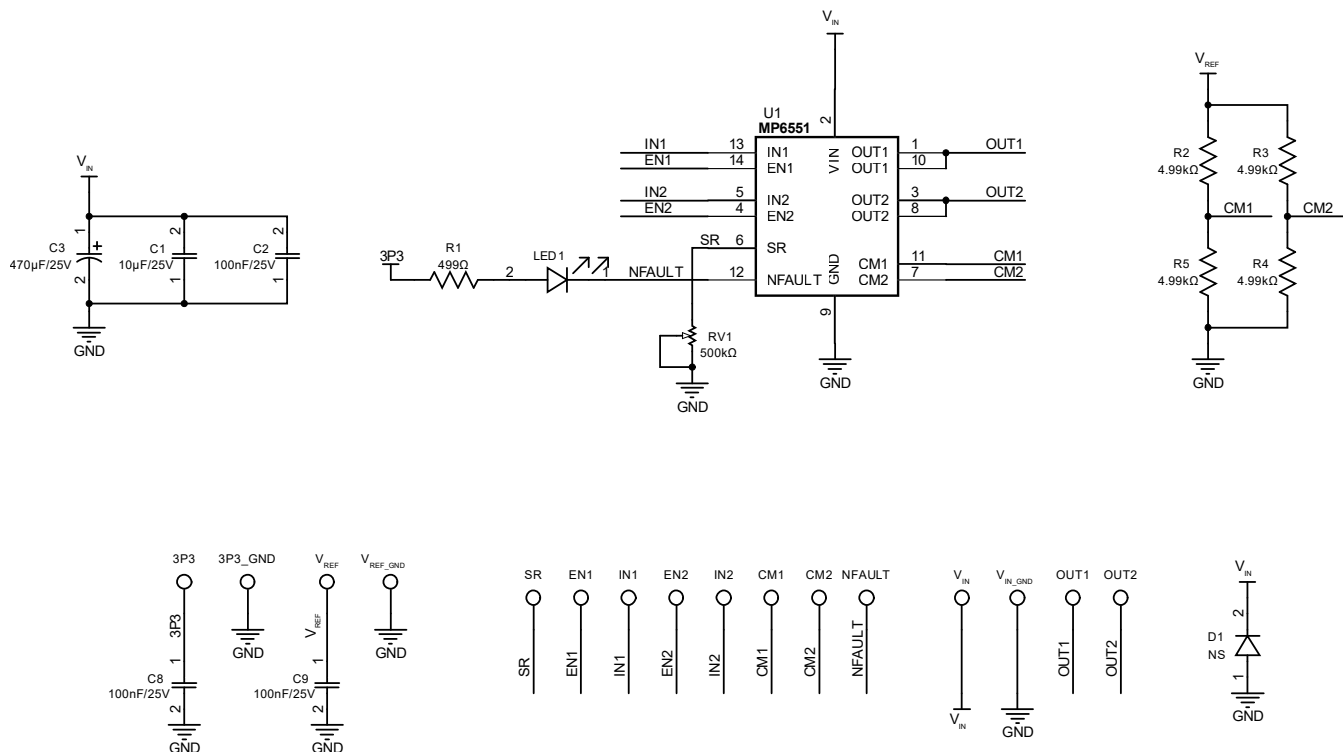


Figure 1: Evaluation Board Schematic

EV6551-QB-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
1	R1	499Ω	Film resistor, 1%	0603	Yageo	RC0603FR-07499RL
4	R2, R3, R4, R5	4.99kΩ	Film resistor, 1%	0603	Yageo	RC0603FR-074K99L
1	RV1	500kΩ	Square trimming potentiometer	DIP	Bourns	3266W-1-504LF
1	C1	10μF	Ceramic capacitor, 25V, X5R	1210	TDK	C3225X5R1E106K
3	C2, C8, C9	100nF	Ceramic capacitor, 25V, X8R	0603	Murata	GCM188R91E104KA37D
1	C3	470μF	Electrolytic capacitor, 25V	DIP	Jianghai	CD287-25V470
1	LED	Red	LED	0805	Bright LED	BL-HUE35A-AV-TRB
1	D1	NS				
1	U1	MP6551	14V, 5A, H-bridge motor driver	QFN-14 (2.5mmx3mm)	MPS	MP6551GQB
4	VIN, VIN_GND, OUT1, OUT2	2mm	Connector, Φ = 2mm needle	DIP	Any	
12	SR, EN1, IN1, EN2, IN2, NFAULT, 3P3, CM1, CM2, VREF, GND, GND	1mm	Connector, Φ = 1mm needle	DIP	Any	

PCB LAYOUT

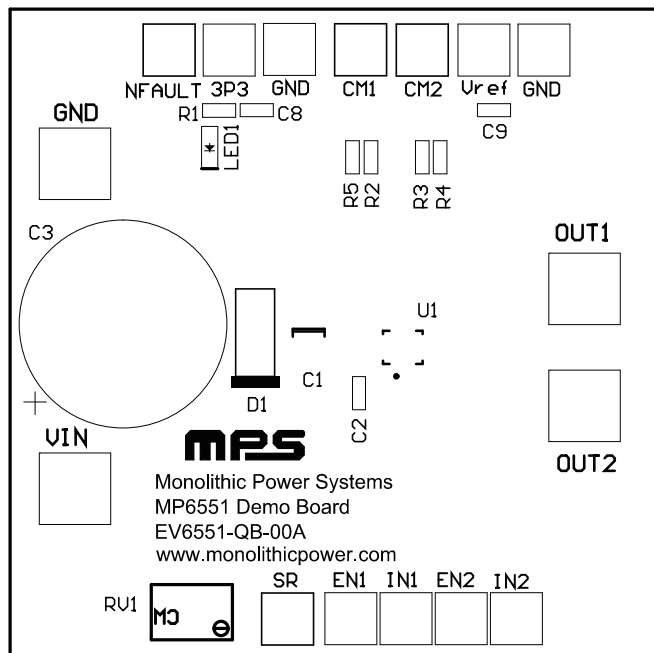


Figure 2: Top Silk

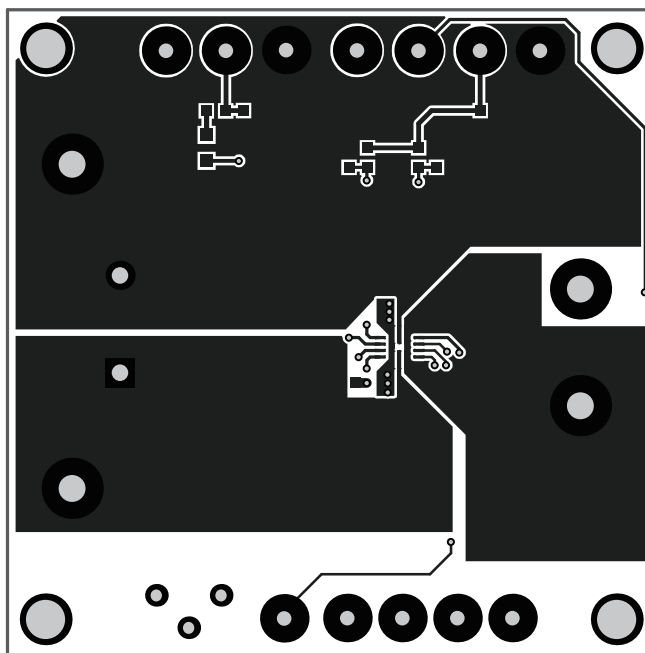


Figure 3: Top Layer

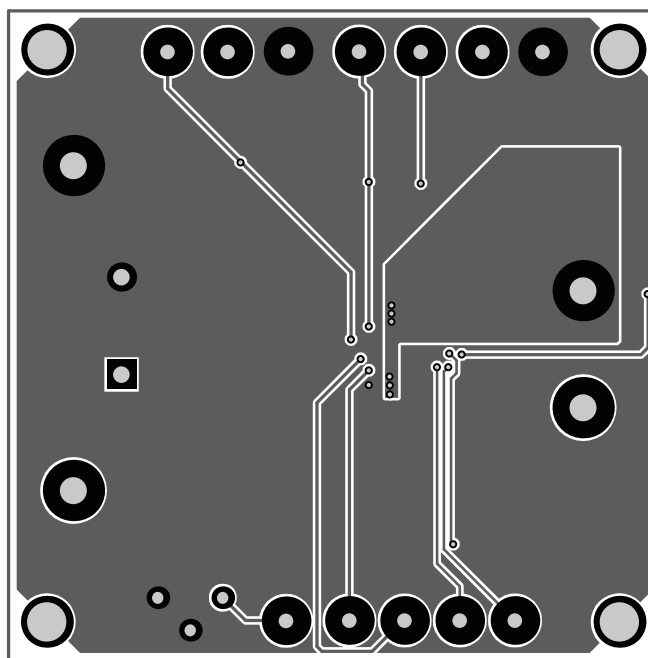


Figure 4: Bottom Layer



REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	3/9/2021	Initial Release	-

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