



# EV6610-J-00A

## 45V, 3A Half-Bridge Power Driver Evaluation Board

### DESCRIPTION

The EV6610-J-00A is an evaluation board for the MP6610GJ, a half-bridge power driver.

The EV6610-J-00A operates from a supply voltage of up to 45V, and can deliver load currents up to 3A. The input control signals for the MP6610 are either generated on the board, or from an external controller through the board's connector (P1).

### ELECTRICAL SPECIFICATIONS

| Parameter              | Symbol      | Value   | Units |
|------------------------|-------------|---------|-------|
| Input voltage          | $V_{IN}$    | 4 to 45 | V     |
| Maximum output current | $I_{OUT-L}$ | 3       | A     |

### FEATURES

- Wide 4V to 45V Input Voltage Range
- Up to 3A Output Current
- Internal Current Sense
- 2.5V, 3.3V, or 5V Compatible Logic Supply
- Over-Current Protection (OCP), Over-Voltage Protection (OVP), Over-Temperature Protection (OTP)
- Fault Indication Output

### APPLICATIONS

- Solenoid Drivers
- Brushed DC Motors
- Relay Drivers

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## EV6610-J-00A EVALUATION BOARD



(LxW) 6.35cmx6.35cm

| Board Number | MPS IC Number |
|--------------|---------------|
| EV6610-J-00A | MP6610GJ      |

## QUICK START GUIDE

1. Attach the input voltage ( $4V \leq V_{IN} \leq 45V$ ) to the VIN connector, and attach the input ground to the GND connector.
2. Attach the VCC voltage (2.5V, 3.3V, or 5V) to the VCC connector, and attach the input ground to the GND connector.
3. Input control signals can be generated on the board through the placement of short jumpers (JP1 and JP2), or by an external controller connected through the P1 connector. If using an external controller, remove the short jumpers (JP1 and JP2). Table 1 shows the input logic truth table.

**Table 1: Logic Truth Table**

| EN | IN | OUT |
|----|----|-----|
| 0  | 0  | Z   |
| 0  | 1  | Z   |
| 1  | 0  | L   |
| 1  | 1  | H   |

4. The output current limit threshold is reached when the ISET pin reaches 1.5V. The ISET pin voltage scaling is set by the trimming potentiometer (RV1). For example, with a 10kΩ resistor connected from ISET to ground, the ISET pin voltage is 1V for every 1A of output current. This means that when the current reaches 1.5A, the ISET pin voltage reaches 1.5V, and a current trip occurs.

# EVALUATION BOARD SCHEMATIC

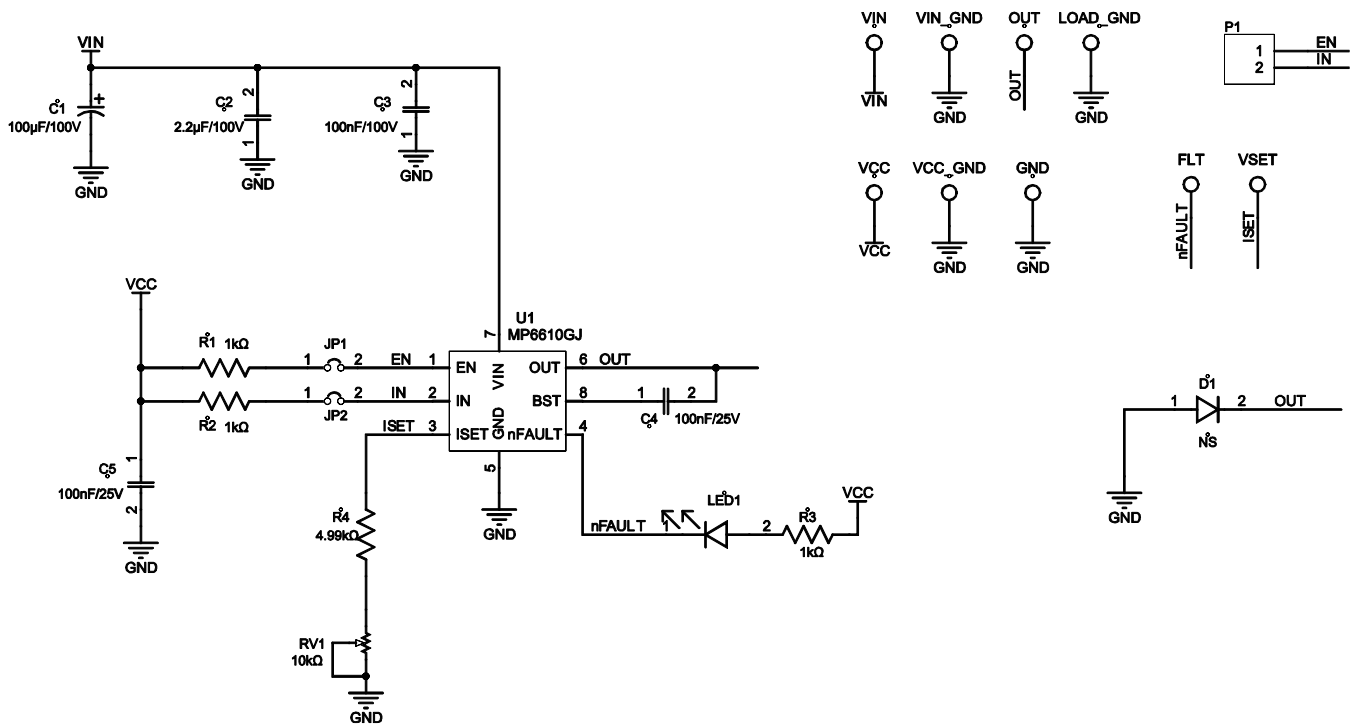


Figure 1: Evaluation Board Schematic

**EV6610-J-00A BILL OF MATERIALS**

| Qty | Ref                            | Value             | Description                   | Package  | Manufacturer      | Manufacturer P/N   |
|-----|--------------------------------|-------------------|-------------------------------|----------|-------------------|--------------------|
| 1   | C1                             | 100μF             | 100V electrolytic capacitor   | DIP      | Jianghai          | CD263-100V100      |
| 1   | C2                             | 2.2μF             | 100V ceramic capacitor, X7R   | 1210     | Murata            | GRM32ER72A225KA35L |
| 1   | C3                             | 100nF             | 100V ceramic capacitor, X7R   | 0603     | Murata            | GRM188R72A104KA35D |
| 2   | C4, C5                         | 100nF             | 25V ceramic capacitor, X7R    | 0603     | Murata            | GRM188R71E104KA01D |
| 3   | R1, R2, R3                     | 1kΩ               | Film resistor, 1%             | 0603     | Yageo             | RC0603FR-071KL     |
| 1   | R4                             | 4.99kΩ            | Film resistor, 1%             | 0603     | Yageo             | RC0603FR-074K99L   |
| 1   | RV1                            | 10kΩ              | Square trimming potentiometer | DIP      | Bourns            | 3266W-1-103F       |
| 1   | LED1                           | Red               | LED                           | 0805     | Baihong           | BL-HUE35A-AV-TRB   |
| 1   | D1                             | NS                |                               |          |                   |                    |
| 3   | JP1, JP2, P1                   | 2 bits/<br>2.54mm | Connector                     | DIP      | Würth Electronics | 61304011121        |
| 2   | JP1, JP2                       | 2.54mm            | Short jumper                  | DIP      | Würth Electronics | 60900213421        |
| 2   | FLT, VSET                      | Yellow            | Test point                    | DIP      | Any               |                    |
| 4   | VIN, VIN_GND,<br>OUT, LOAD_GND | Φ = 2mm           | Connector, 2mm<br>needle      | DIP      | Any               |                    |
| 3   | VCC, VCC_GND,<br>GND           | Φ = 1mm           | Connector, 1mm<br>needle      | DIP      | Any               |                    |
| 1   | U1                             | 45V, 3A           | Half-bridge power<br>driver   | TSOT23-8 | MPS               | MPQ6610GJ          |

## PCB LAYOUT

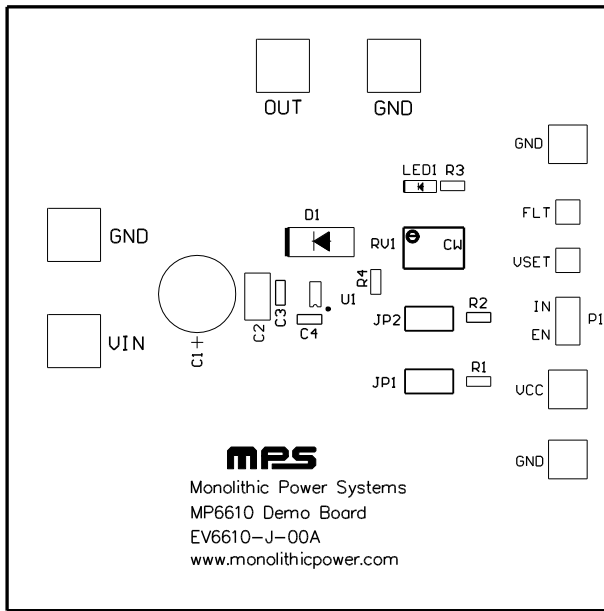


Figure 2: Top Silk Layer

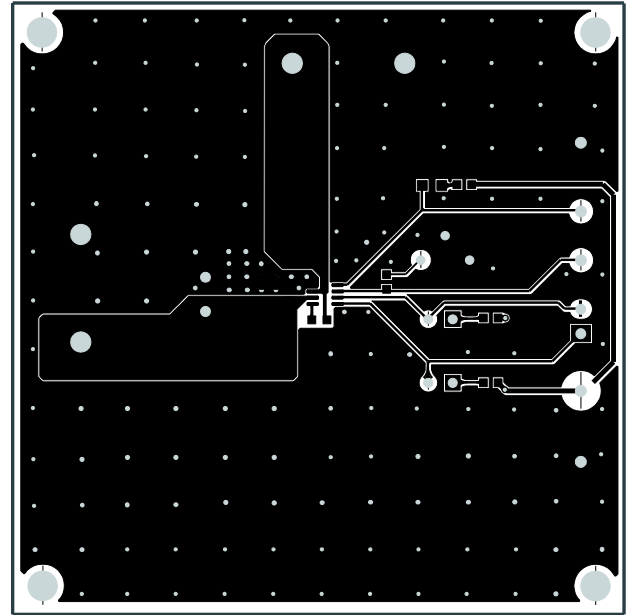


Figure 3: Top Layer

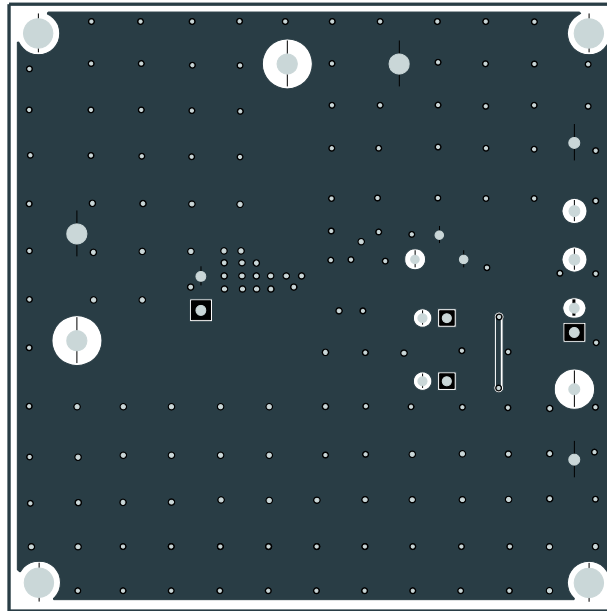


Figure 4: Bottom Layer

## Revision History

| Revision # | Revision Date | Description     | Pages Updated |
|------------|---------------|-----------------|---------------|
| 1.0        | 10/13/2020    | Initial Release | -             |

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