# EV6545-V-00A

## 45V, 2.5A, Simple, Three-Phase Power Stage Evaluation Board

## DESCRIPTION

The EV6545-V-00A is an evaluation board designed to demonstrate the capabilities of the MP6545, a three-phase power stage. The MP6545 can be used to drive brushless DC motors or other loads.

The device can operate from supply voltages of up to 45V, and can deliver load currents up to 2.5A per phase.

The MP6545 has separate high-side (HS) and low-side (LS) input pins for each output pin. The input control signals are generated on the board or come from an external controller via the connector on the board.

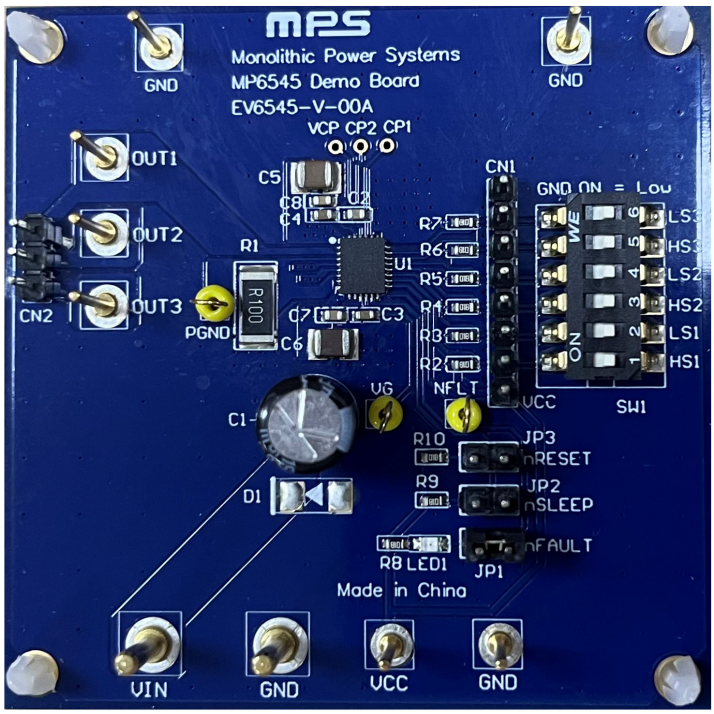
It is recommended to read the MP6545 datasheet before making any changes to the EV6545-V-00A.

## PERFORMANCE SUMMARY (1)

Specifications are at $T_A$ = 25°C, unless otherwise noted.

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

## EVALUATION BOARD




**LxW (6.35cmx6.35cm)**

| Board Number | MPS IC Number |
|---|---|
| EV6545-V-00A | MP6545GV |


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## QUICK START GUIDE

1. Preset the input power supply between 4.5V and 45V.
2. Connect the input power supply terminals to:
   a. Positive (+): VIN
   b. Negative (-): GND
3. Preset the VCC supply to 3.3V or 5V.
4. Connect the VCC supply terminals to:
   a. Positive (+): VCC
   b. Negative (-): GND
5. The input control and logic signal can be set by the CN1 connector via the external MCU or can be set manually via SW1. Table 1 shows the input logic truth table for the MP6545.

**Table 1: Input Logic Truth**

| HSx | LSx | OUTx |
|---|---|---|
| 0 | 0 | Z |
| 0 | 1 | L |
| 1 | 0 | H |
| 1 | 1 | Z |


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# EVALUATION BOARD SCHEMATIC

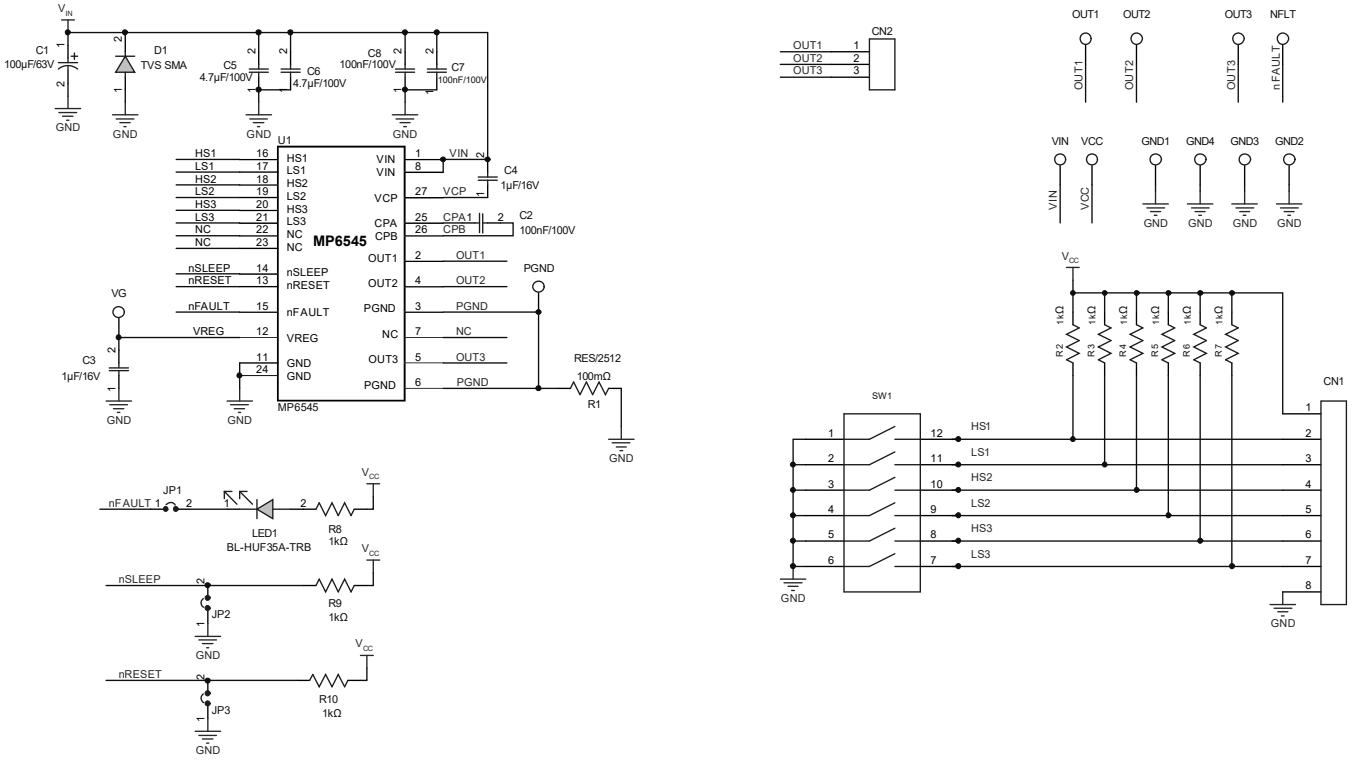



**Figure 1: Evaluation Board Schematic**


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## EV6545-V-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer | Manufacture PN |
|---|---|---|---|---|---|---|
| 1 | C1 | 100µF | Electrolytic capacitor, 63V | DIP | Rubycon | 63PX100MEFC8X 11.5 |
| 3 | C2, C7, C8 | 100nF | Ceramic capacitor, 100V, X7R | 0603 | Wurth | 885012206120 |
| 2 | C3, C4 | 1µF | Ceramic capacitor, 16V, X7R | 0603 | Murata | GRM188R71C105 KA12D |
| 2 | C5, C6 | 4.7µF | Ceramic capacitor, 100V, X7S | 1210 | TDK | C3225X7S2A475K |
| 9 | R2, R3, R4, R5, R6, R7, R8, R9, R10 | 1kΩ | Film resistor, 1% | 0603 | Yageo | RC0603FR-071KL |
| 1 | R1 | 100mΩ | Film resistor, 1% | 2512 | Yageo | RL2512FK-070R1L |
| 1 | LED1 | 20mA | LED | 0805 | Baihong | BL-HUE35A-AV-TRB |
| 1 | D1 | NS | | | | |
| 1 | SW1 | 25mA | Button | SMD | Wurth | 418121270808 |
| 1 | CN1 | 2.54mm | Connector | DIP | Any | |
| 1 | CN2 | 2.54mm | Connector | DIP | Any | |
| 3 | JP1, JP2, JP3 | 2.54mm | Connector | DIP | Any | |
| 1 | JP1 | 2.54mm | Short jumper | DIP | Any | |
| 3 | VG, NFLT, PGND | 1mm | Test point | DIP | Any | |
| 2 | VIN, GND | 2mm | Connector | DIP | Any | |
| 7 | VCC, GND, OUT1, OUT2, OUT3, GND, GND | 1mm | Connector | DIP | Any | |
| 1 | U1 | MP6545 | 45V, 2.5A, three-phase power stage | QFN-28 (4mmx 5mm) | MPS | MP6545GV |


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## PCB LAYOUT

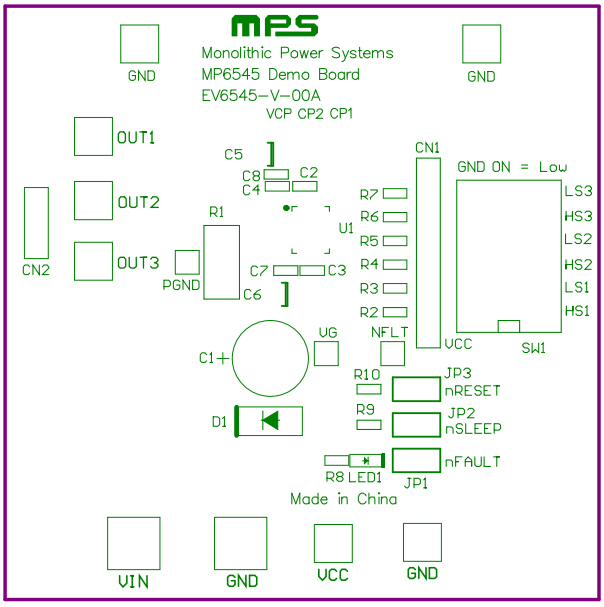



**Figure 2: Top Silk**

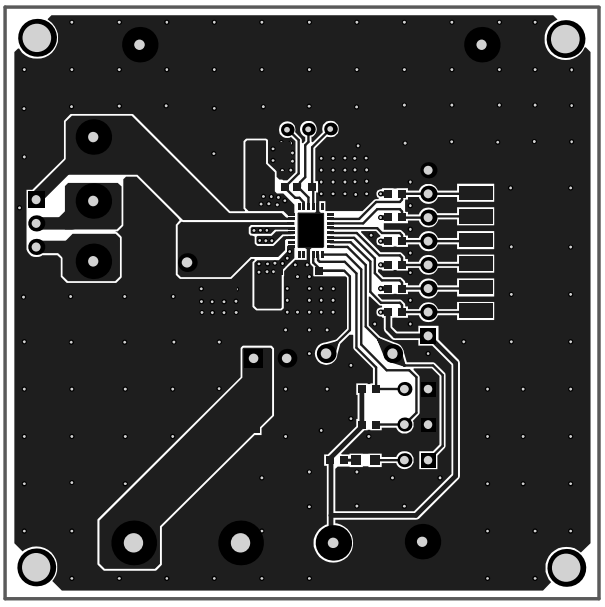


**Figure 3: Top Layer**

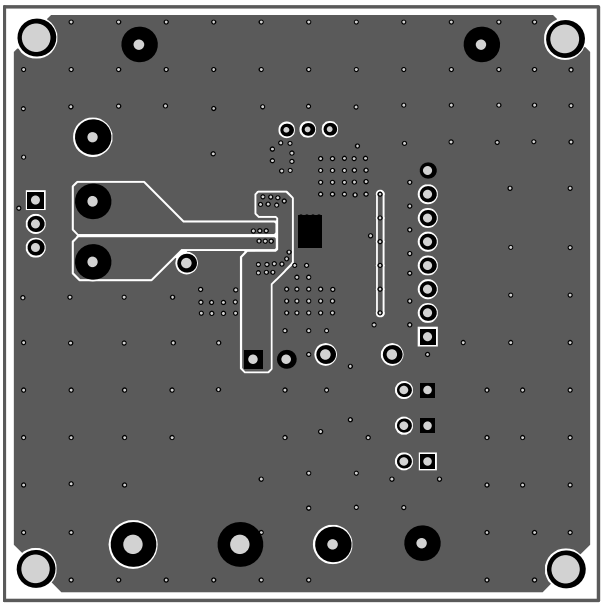


**Figure 4: Bottom Layer**


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## REVISION HISTORY

| Revision # | Revision Date | Description | Pages Updated |
|---|---|---|---|
| 1.0 | 5/12/2022 | Initial Release | - |

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