



The Future of Analog IC Technology®

EVQ6526-U-00A

0.9A, 28V

**Six Half-Bridge Motor Driver
Evaluation Board**

DESCRIPTION

The MPQ6526 is a six half-bridge DMOS output driver with integrated power MOSFETs. It can drive up to six different loads. The input voltage ranges from 7V to 28V, with the up to 0.9A output current capability.

The six half-bridges of MPQ6526 can be controlled separately from a standard serial data interface, and have various diagnostic functions. It has very low quiescent current in standby mode make a wide range of applications possible.

Fully protection includes short-circuit protection, under-voltage protection and thermal shutdown.

ELECTRICAL SPECIFICATIONS

| Parameter | Symbol | Value | Units |
|------------------------|--------------------|--------|-------|
| Input Voltage | V _{IN} | 7 – 28 | V |
| Maximum Output Current | I _{OUT-L} | 0.9 | A |

FEATURES

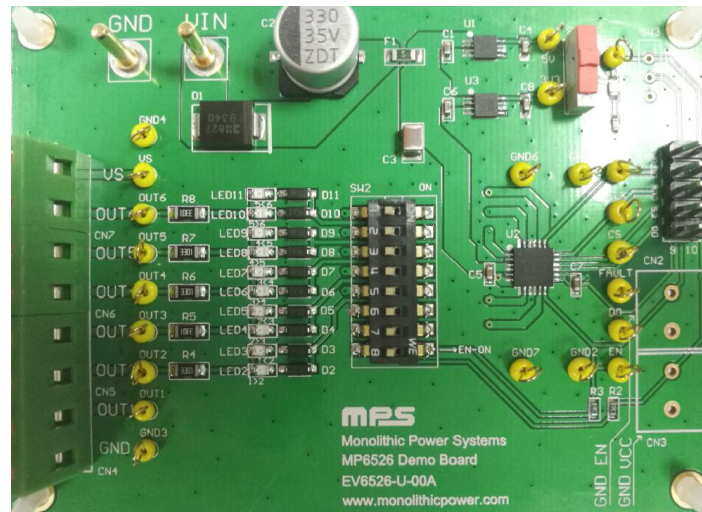
- Wide 7V to 28V Operating Input Range
- Up to 0.9A Output Current for Each Channel
- Total Max Current 2.4A (all outputs combined)
- R_{dson} (HS + LS) Typically 1.1Ω at 25°C, Maximum 2Ω at 150°C
- Very Low Quiescent Current I_{VS} < 6μA in Standby Mode Versus Total Temperature Range
- Serial Data Interface
- Short-Circuit Protection
- Under-Voltage Protection

APPLICATIONS

- Drive various loads in automotive and industrial applications
- DC Motors

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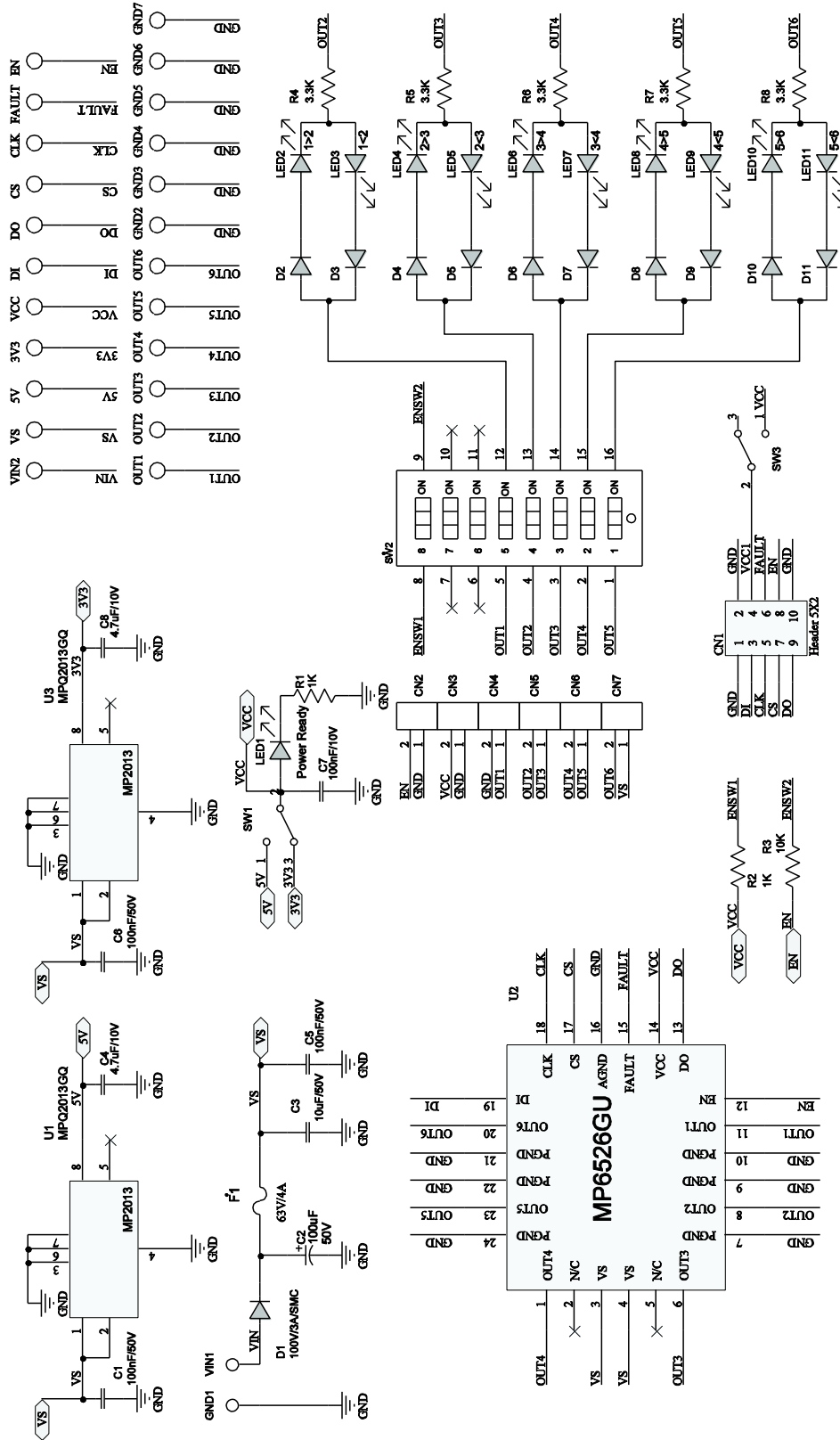
EVQ6526-U-00A EVALUATION BOARD



(L x W x H) 3.73" x 2.74" x 0.4"
(9.33cm x 6.85cm x 1cm)

| Board Number | MPS IC Number |
|---------------|---------------|
| EVQ6526-U-00A | MPQ6526 |

EVALUATION BOARD SCHEMATIC



EVQ6526-U-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer | Part Number |
|-----|--|-----------------------|--|---------|--------------|--------------------|
| 22 | 5V, 3.3V, CLK, CS, DI, DO, EN, FAULT, GND2, GND3, GND4, GND5, GND6, GND7, OUT1, OUT2, OUT3, OUT4, OUT5, OUT6, VCC, VS1 | | Test Point | | | |
| 2 | C4, C8 | 1 μ F/10V | Ceramic Capacitor; 10V;X7R | 0603 | Murata | GRM188R71A105KA61D |
| 4 | C1, C5, C6, C7 | 100nF/50V | Ceramic Capacitor; 50V;X7R | 0603 | Murata | GCJ188R71H104KA12D |
| 1 | C2 | 330 μ F | Electrolytic Capacitor;35V ;Electrolytic;S MD | SMD | Jianghai | VZ1-35V330 |
| 1 | C3 | 10 μ F/50V | Capacitor;50V | 1210 | TDK | C3225X7R1H106K |
| 1 | CN1 | | Header, 5x2- Pin, Dual row | | | |
| 2 | CN2, CN3 | NS | | | | |
| 4 | CN4, CN5, CN6, CN7 | | CONN/2PIN/2 MM | | | |
| 1 | D1 | B340 | Diode;40V;3A; | SMC | Diodes | B340 |
| 10 | D2, D3, D4, D5, D6, D7, D8, D9, D10, D11 | 1N4148W | Diode;75V; 0.15A; | SOD-123 | Diodes | 1N4148W |
| 1 | F1 | CC12H4A | Fuse;63V;4A; | 1206 | COOPER | CC12H4A |
| 2 | GND,VIN | | Connector, 2mm | | | |
| 11 | LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8, LED9, LED10, LED11 | BL- HUF35A- TRB | LED;Red; | 0805 | BRIGHT LED | BL-HUF35A-TRB |
| 1 | R1 | 1k | Film Res., 1% | 0603 | Yageo | RC0603FR-071KL |
| 2 | R2, R3 | 10k | Film Res., 1% | 0603 | Yageo | RC0603FR-0710KL |
| 5 | R4, R5, R6, R7, R8 | 3.3k | Film Resistor;1% | 1206 | Yageo | RC0603FR-071KL |
| 1 | SW1 | | Switch | | Würth | 450301014042 |
| 1 | SW2 | | 8 Bit Dial Switch | SMD | Würth | 418121270808 |

EVQ6526-U-00A BILL OF MATERIALS *(continued)*

| Qty | Ref | Value | Description | Package | Manufacturer | Part Number |
|-----|-----|---------------------|--|---------|--------------|--------------------|
| 1 | SW3 | NS | | | | |
| 1 | U1 | MPQ2013 AGQ-5-Z | 5V step down regulator | | MPS | MPQ2013AGQ-5-Z R10 |
| 1 | U3 | MPQ2013 AGQ-33-Z | 3.3V step down regulator | | MPS | MPQ2013AGQ-33-Z R7 |
| 1 | U2 | MPQ6526 | Six half-bridge motor driver with serial input control | QFN5x5 | MPS | MPQ6526GU-R3 |

PRINTED CIRCUIT BOARD LAYOUT

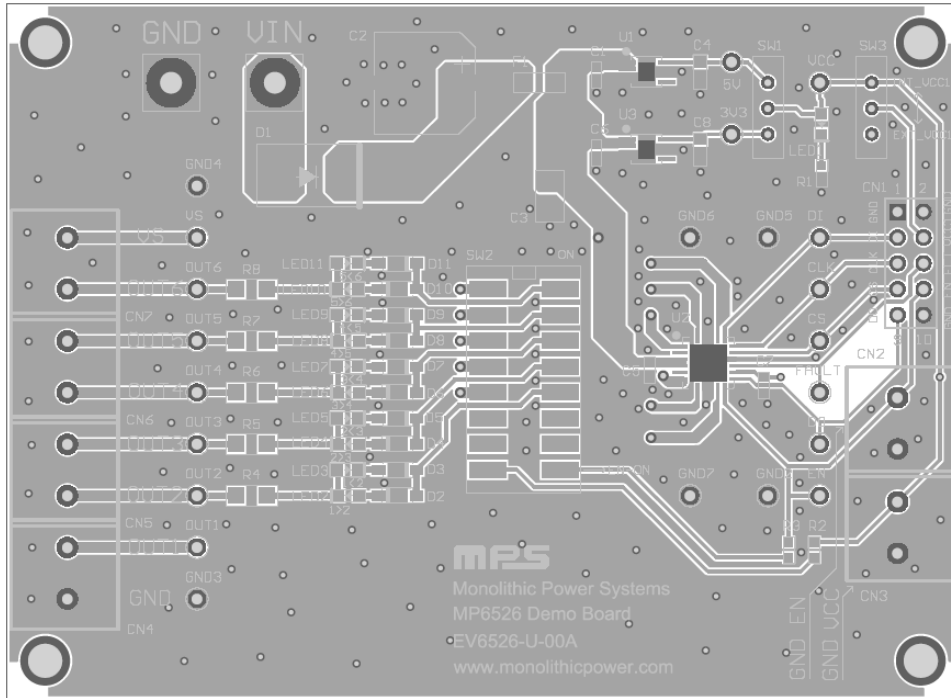


Figure 1—Top Layer

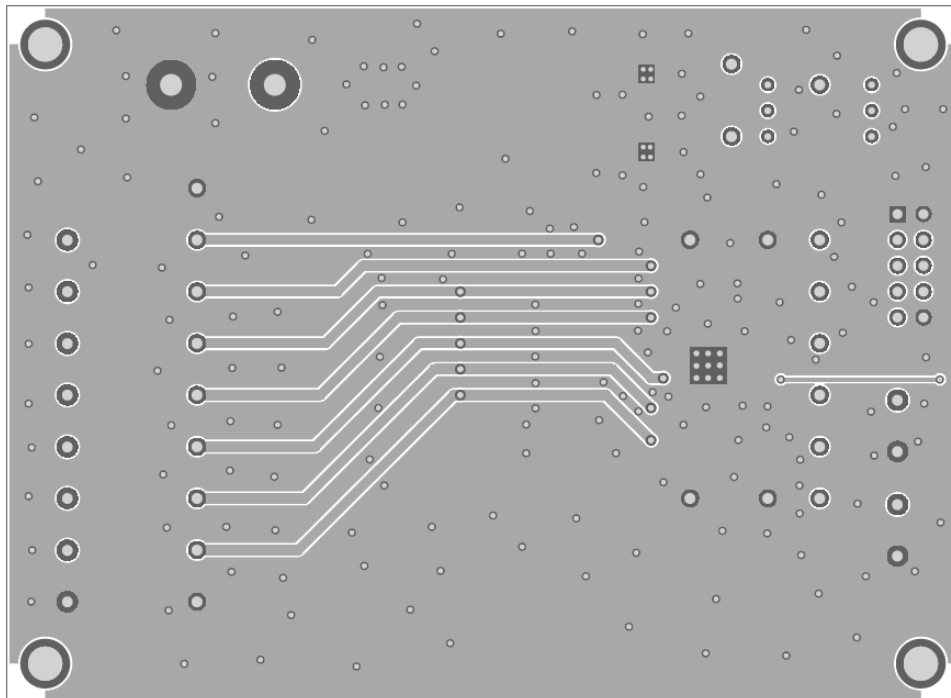


Figure 2—Bottom Layer

QUICK START GUIDE

1. Power Requirements

- a. Power supply range: 7V to 28V, 3A Max.

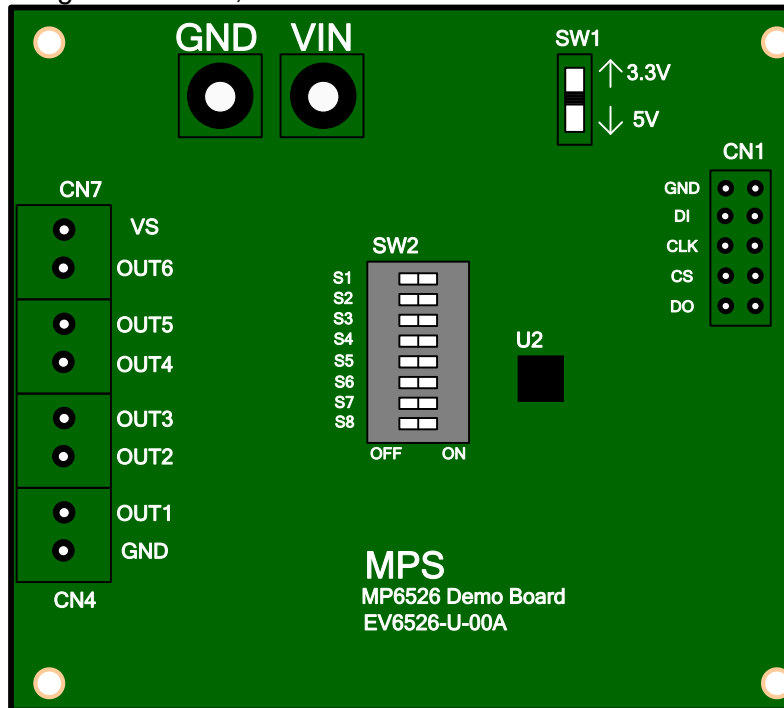


Figure 3 — EVQ6526-U-00A Bird's-eye View

2. Setup Condition

- a. Adjust the power supply VIN with recommended operating range (7V to 28V).
- b. Input for VCC power supply is on board (5V or 3.3V, use SW1 to adjust).
- c. Easy adaptation of loads by CN4 - CN7.
- d. EN alternatively connected to VCC or GND, selected by S8 of SW2.
- e. Serial data interface control via CN1 connectors.

3. Monitors

- a. For full-bridge application, indicate rotation direction of DC motors can be observed by LEDs if S1 – S5 of SW2 switches ON position.
- b. All pins are easily accessible via test points.
- c. A low output at FAULT indicates that the IC has detected an over-temperature or over-current condition.

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