

DESCRIPTION

The MPQ6523 is a triple half-bridge DMOS output driver with integrated power MOSFETs. It can drive up to three different loads. The input voltage ranges from 7V to 28V, with the up to 0.9A output current capability.

The three half-bridges of MPQ6523 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

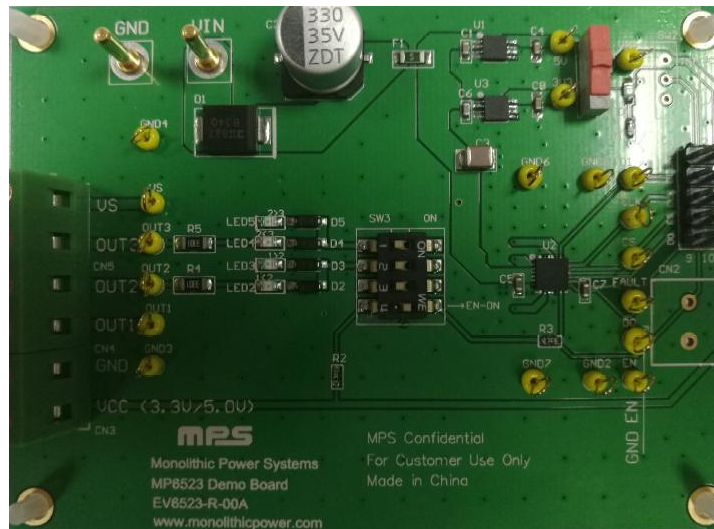
- Wide 7V to 28V Operating Input Range
- Up to 0.9A Output Current for Each Channel
- Total Max Current 2.4A (all outputs combined)
- R_{dson} (HS + LS) Typically 1.1 Ω at 25°C, Maximum 2 Ω at 150°C
- Very Low Quiescent Current $I_{VS} < 6\mu A$ in Standby Mode Versus Total Temperature Range
- Serial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

APPLICATIONS

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

All MPS parts are lead-free, halogen free, and adhere to the RoHS directive. For MPS green status, please visit MPS website under Quality Assurance. "MPS" and "The Future of Analog IC Technology" are Registered Trademarks of Monolithic Power Systems, Inc.

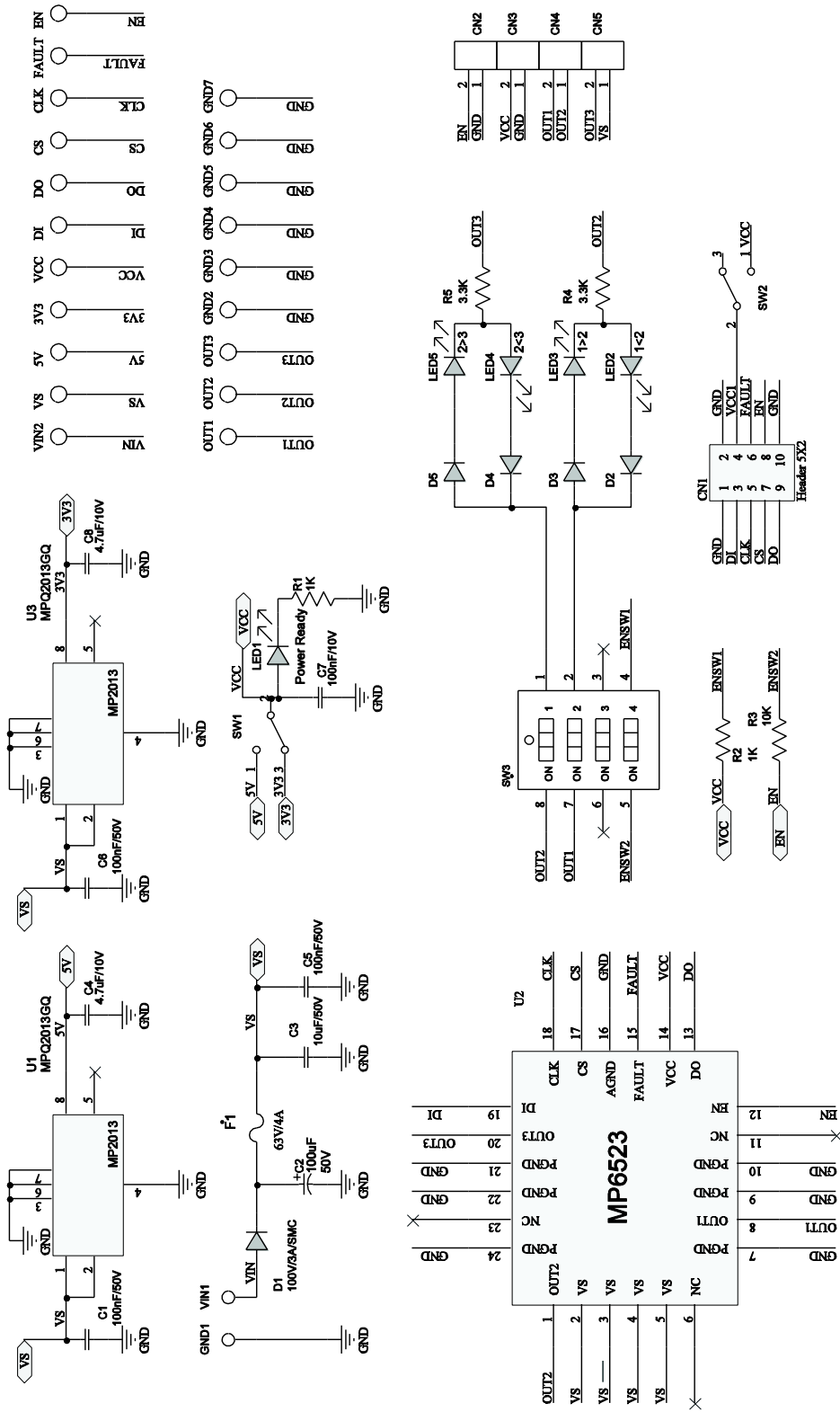
EVQ6523-R-00A EVALUATION BOARD



(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 |
|---------------|---------------|
| EVQ6523-R-00A | MPQ6523 |

EVALUATION BOARD SCHEMATIC



EVQ6523-R-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer | Part Number |
|-----|--|-----------------------|---|---------|--------------|------------------------|
| 19 | 5V, 3.3V, CLK, CS, DI, DO, EN, FAULT,GND, GND2,GND3, GND4,GND5, GND6,GND7, OUT1,OUT2, OUT3, VCC, VS | | Test Point | | | |
| 2 | C4, C8 | 1 μ F/10V | Ceramic Capacitor; 10V;X7R | 0603 | Murata | GRM188R71A105KA61 D |
| 4 | C1, C5, C6, C7 | 100nF/50V | Ceramic Capacitor; 50V;X7R | 0603 | Murata | GCJ188R71H104KA12D |
| 1 | C2 | 330 μ F | Electrolytic Capacitor;35V;E lectrolytic;SMD | SMD | Jianghai | VZ1-35V330 |
| 1 | C3 | 10 μ F/50V | Capacitor;50V | 1210 | TDK | C3225X7R1H106K |
| 1 | CN1 | | Header, 5x2- Pin, Dual row | | | |
| 2 | CN2 | NS | | | | |
| 4 | CN3, CN4, CN5 | | Connector | | Würth | 691216510002 |
| 1 | D1 | B340 | Diode;40V;3A; | SMC | Diodes | B340 |
| 10 | D2, D3, D4, D5 | 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 | 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 | 3.3k | Film Resistor;1% | 1206 | Yageo | RC0603FR-071KL |
| 1 | SW1 | | Switch | | Würth | 450301014042 |
| 1 | SW2 | NS | | | | |
| 1 | SW3 | | 4 Bit Dial Switch | SMD | Würth | 418121270804 |
| 1 | U1 | MPQ2013 AGQ-5-Z | 5V step down regulator | | MPS | MPQ2013AGQ-5-Z R10 |
| 1 | U3 | MPQ2013 AGQ-33-Z | 3.3 step down regulator | | MPS | MPQ2013AGQ-33-Z R7 |
| 1 | U2 | MPQ6523 | Triple half- bridge motor driver with serial input control | QFN4x4 | MPS | MPQ6523GQ-R3 |

PRINTED CIRCUIT BOARD LAYOUT

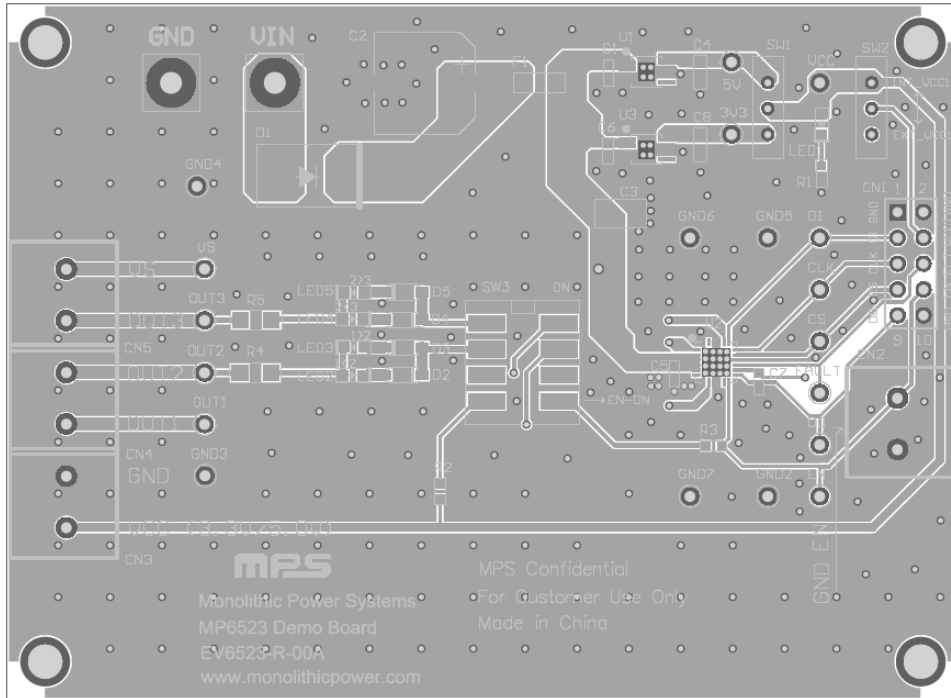


Figure 1—Top Layer

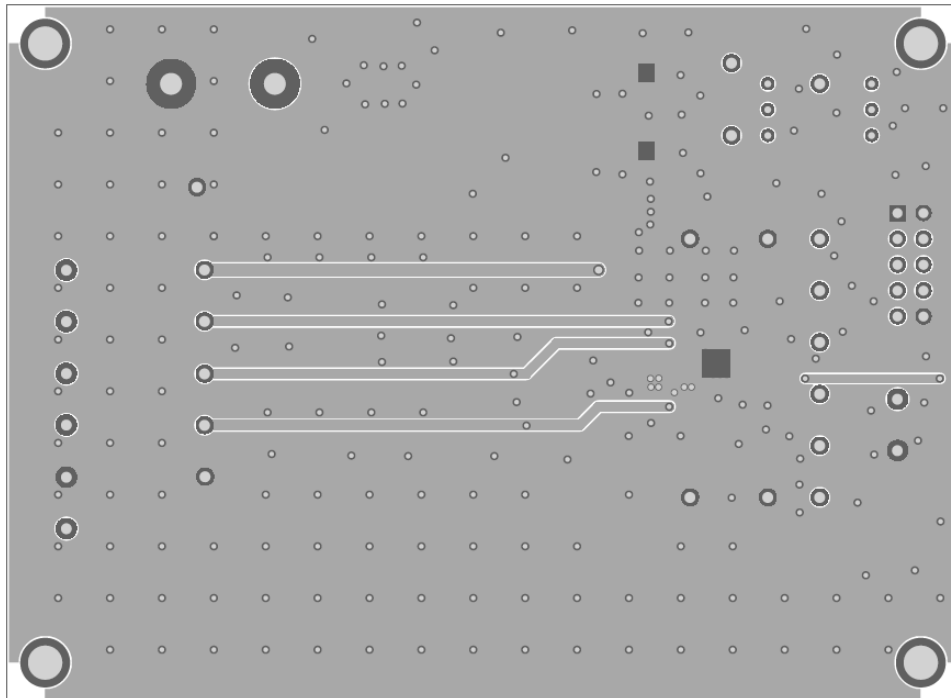


Figure 2—Bottom Layer