

DESCRIPTION

The EV4560DQ-00A is an evaluation board for the MP4560, a high frequency step-down regulator with an integrated power MOSFET.

The MP4560 integrates a 250mΩ MOSFET that provides 2A load current over a wide operating input voltage of 4.5V to 55V.

Current mode control provides fast transient response and eases loop stabilization. An internal soft-start prevents inrush current at turn-on.

The EV4560DQ-00A is a fully assembled and tested PCB. It generates a +3.3V output voltage at load current up to 2A from an 8V to 55V input range. Switching frequency is set at 500KHz.

ELECTRICAL SPECIFICATIONS

| Parameter | Symbol | Value | Units |
|----------------|-----------|--------|-------|
| Input Voltage | V_{IN} | 8 – 55 | V |
| Output Voltage | V_{OUT} | 3.3 | V |
| Output Current | I_{OUT} | 2 | A |

FEATURES

- 2A Output Current
- Programmable Switching Frequency up to 2MHz
- Wide 8V to 55V Operating Input Range
- Adjustable Output from 0.8V
- Fully Assembled and Tested

APPLICATIONS

- High Voltage Power Conversion
- Game Machines
- Automotive Systems
- Industrial Power Systems
- Distributed Power Systems
- Printer Systems
- Battery Powered Systems

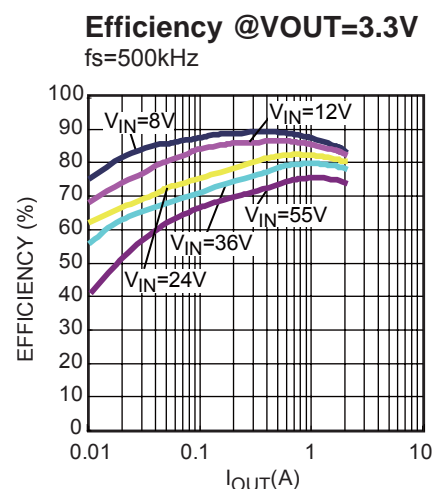
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EV4560DQ-00A EVALUATION BOARD

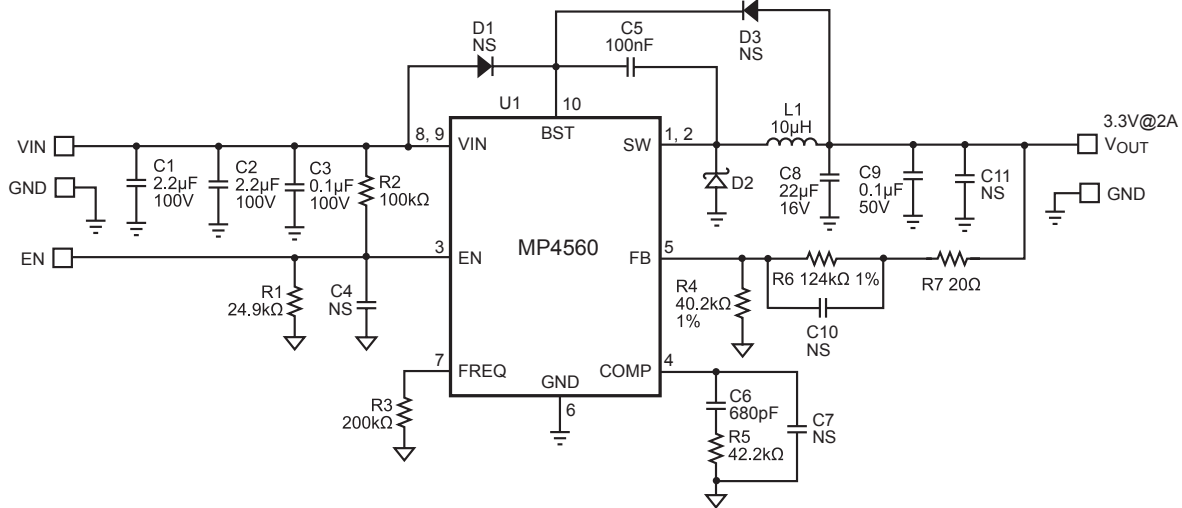


(L x W x H) 2.5" x 2.5" x 0.4"
(6.35cm x 6.35cm x 1.0cm)

| Board Number | MPS IC Number |
|--------------|---------------|
| EV4560DQ-00A | MP4560DQ |



EVALUATION BOARD SCHEMATIC



EV4560DQ-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer | Manufacturer P/N |
|-----|--------------------|--------|--|---------|--------------|--------------------|
| 2 | C1, C2 | 2.2µF | Ceramic Cap., 100V, X7R | 1210 | Murata | GRM32ER72A225KA35L |
| 1 | C3 | 0.1µF | Ceramic Cap., 100V, X7R | 0805 | TDK | C2012X7R2A104K |
| 0 | C4, C7, C10,C11 | NS | Not Stuffed | | | |
| 1 | C5 | 100nF | Ceramic Cap., 50V, X7R | 0603 | TDK | C1608X7R1H104K |
| 1 | C6 | 680pF | Ceramic Cap., 50V, X7R | 0603 | TDK | C1608X7R1H681K |
| 1 | C8 | 22µF | Ceramic Cap., 16V, X7R | 1210 | Murata | GRM32ER71C226ME18L |
| 1 | C9 | 0.1µF | Ceramic Cap., 50V, X7R | 0805 | Murata | GRM21BR71H104KA01L |
| 1 | R1 | 24.9kΩ | Film Res., 1% | 0603 | Yageo | RC0603FR-0724K9L |
| 1 | R2 | 100kΩ | Film Res., 1% | 0603 | Yageo | RC0603FR-07100KL |
| 1 | R3 | 200kΩ | Film Res., 1% | 0603 | Yageo | RC0603FR-07200KL |
| 1 | R4 | 40.2kΩ | Film Res., 1% | 0603 | Yageo | RC0603FR-0740K2L |
| 1 | R5 | 42.2kΩ | Film Res., 1% | 0603 | Yageo | RC0603FR-0742K2L |
| 1 | R6 | 124kΩ | Film Res., 1% | 0603 | Yageo | RC0603FR-07124KL |
| 1 | R7 | 20Ω | Film Res., 1% | 0603 | Yageo | RC0603FR-0720RL |
| 0 | D1, D3 | NS | Not Stuffed | | | |
| 1 | D2 | | Diode Schottky, 80V, 3A | SMC | Diodes Inc | B380-13-F |
| 1 | L1 | 10uH | Inductor, I _{sa} =4A,R _{dc} =26.5mΩ | SMD | Toko | D104C-#919AS-100M |
| | | | Inductor, I _{sa} =4A,R _{dc} =36mΩ | SMD | Cooper | SD8350-100-R |
| | | | Inductor, I _{sa} =4A,R _{dc} =35mΩ | SMD | Würth | 744066100 |
| 1 | U1 | | Step-Down Regulator | QFN10 | MPS | MP4560DQ |

PRINTED CIRCUIT BOARD LAYOUT

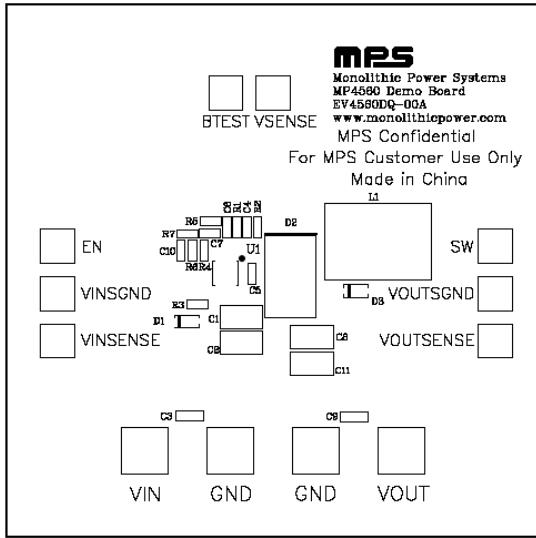


Figure 1—Top Silk Layer

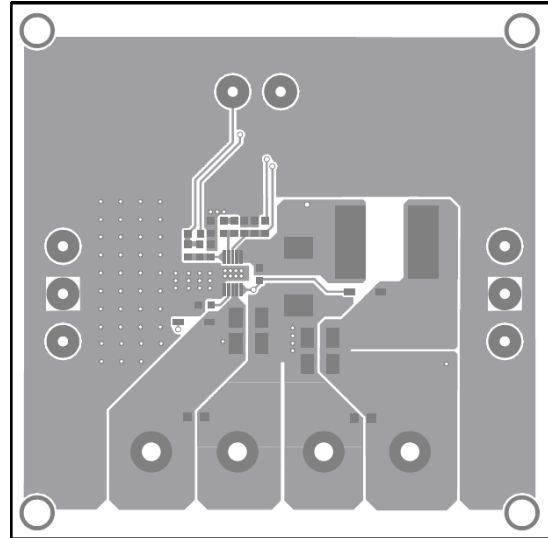


Figure 2—Top Layer

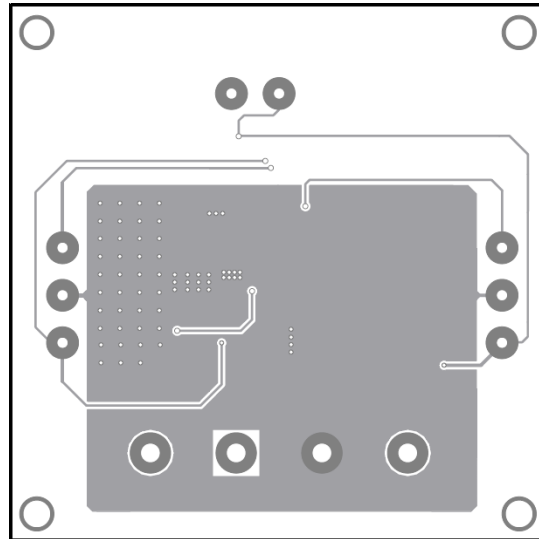


Figure 3—Bottom Layer