



The Future of Analog IC Technology®

## EV2360DG-00B

1.8A, 24V, 1.4MHz Step-Down Converter  
in 2mm x 2mm QFN8 Evaluation Board

### DESCRIPTION

The EV2360DG-00B is the evaluation board for the MP2360, a monolithic non-synchronous step-down switch mode converter with an integrated power MOSFET.

The MP2360 achieves 1.8A continuous output current over a wide input supply range with excellent load and line regulation.

Current mode operation provides fast transient response and eases loop stabilization.

Fault condition protection includes cycle-by-cycle current limiting and thermal shutdown.

The MP2360 is available in a 2mm x 2mm QFN8 package.

### ELECTRICAL SPECIFICATIONS

| Parameter      | Symbol    | Value    | Units |
|----------------|-----------|----------|-------|
| Input Voltage  | $V_{IN}$  | 4.5 – 24 | V     |
| Output Voltage | $V_{OUT}$ | 3.3      | V     |
| Output Current | $I_{OUT}$ | 1.8      | A     |

### FEATURES

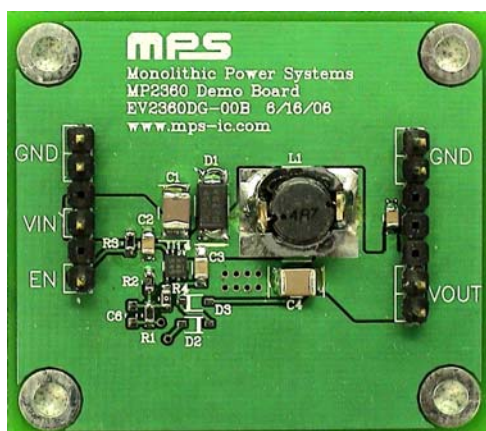
- 2.5A Peak Output Current
- 1.8A Continuous Output Current
- Wide 4.5V to 24V Operating Input Range
- Output Adjustable from 0.8V to 15V
- Ultra Compact 2mmx2mm QFN8 Package
- Fully Assembled and Tested

### APPLICATIONS

- Broadband Communications Equipment
- Digital Entertainment Systems
- Distributed Power Systems
- Battery Chargers
- Pre-Regulator for Linear Regulators

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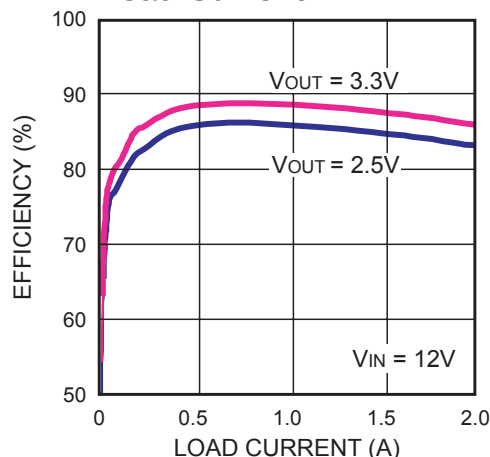
### EV2360DG-00B EVALUATION BOARD



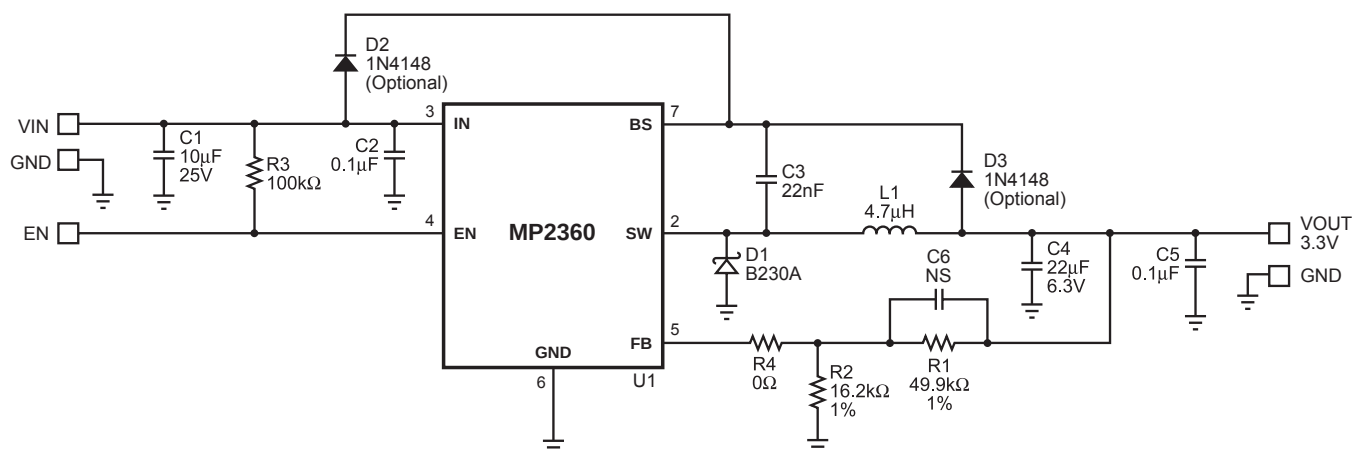
(L x W x H) 1.8" x 1.6" x 0.4"  
(4.5cm x 4.0cm x 1.0cm)

| Board Number | MPS IC Number |
|--------------|---------------|
| EV2360DG-00B | MP2360DG      |

### Efficiency vs Load Current



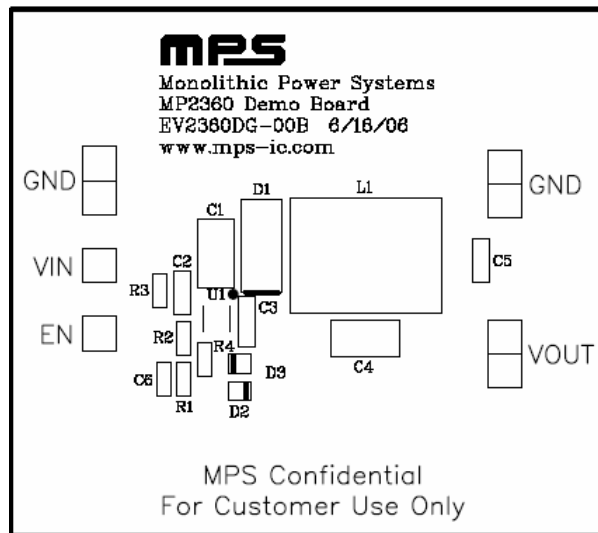
## EVALUATION BOARD SCHEMATIC



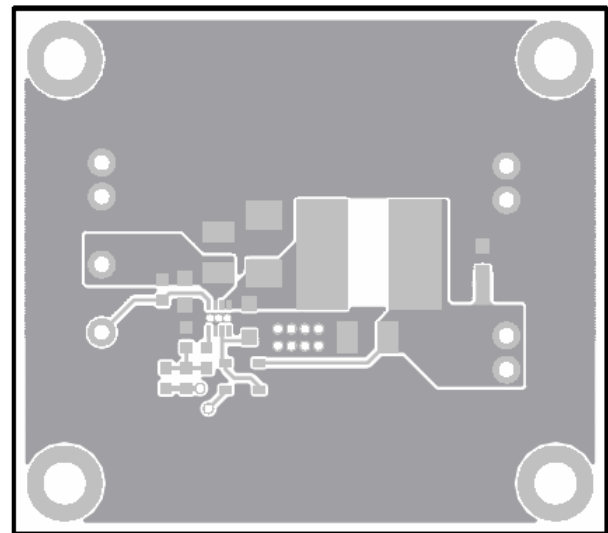
## EV2360DG-00B BILL OF MATERIALS

| Qty | Ref    | Value  | Description                  | Package | Manufacturer | Manufacturer P/N |
|-----|--------|--------|------------------------------|---------|--------------|------------------|
| 1   | C1     | 10µF   | Ceramic Capacitor, 25V, X7R  | 1210    | TDK          | C3225X7R1E106M   |
| 1   | C2, C5 | 0.1µF  | Ceramic Capacitor, 50V, X7R  | 805     | TDK          | C2012X7R1H104K   |
| 1   | C3     | 22nF   | Ceramic Capacitor, 50V, X7R  | 603     | TDK          | C1608X7R1H223K   |
| 2   | C4     | 22µF   | Ceramic Capacitor, 6.3V, X5R | 1210    | TDK          | C3225X5R0J226M   |
| 1   | C6     |        | Not Stuffed, Optional        |         |              |                  |
| 1   | R1     | 49.9kΩ | Film Resistor, 1%            | 603     | Panasonic    | ERJ-3EKF4992V    |
| 1   | R2     | 16.2kΩ | Film Resistor, 1%            | 603     | Panasonic    | ERJ-3EKF1622V    |
| 1   | R3     | 100kΩ  | Film Resistor, 5%            | 603     | Panasonic    | ERJ-3GEYJ104V    |
| 1   | R4     | 0Ω     | Film Resistor, 5%            | 603     | Panasonic    | ERJ-3GEY0R00V    |
| 1   | L1     | 4.7µH  | Inductor, 3.3A, DS84LC       | SMD     | Toko         | B1015AS-4R7N     |
| 1   | D1     |        | Diode Schottky, 30V, 2A      | SMA     | Diodes Inc   | B230A-13         |
| 2   | D2, D3 |        | Not Stuffed, Optional        |         |              |                  |
| 1   | U1     |        | DC/DC Converter              | QFN8    | MPS          | MP2360DG         |

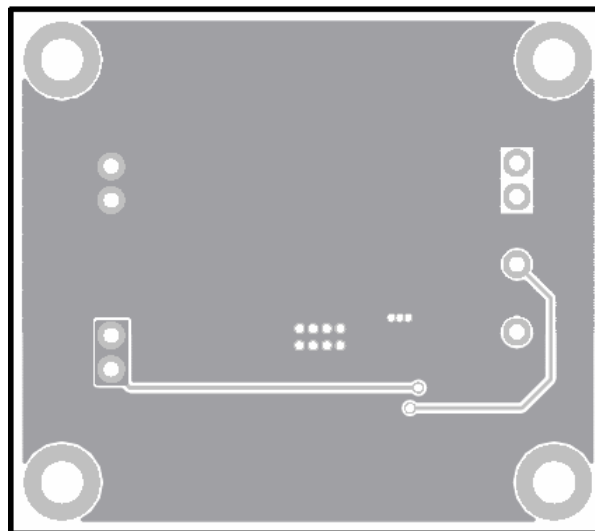
## PRINTED CIRCUIT BOARD LAYOUT



**Figure 1—Top Silk Layer**



**Figure 2—Top Layer**



**Figure 3—Bottom Layer**

## QUICK START GUIDE

1. Connect the positive terminal of the load to VOUT pin, and the negative terminal of the load to GND pin.
2. Preset the power supply output to 4.5V – 24V and turn off the power supply.
3. Connect the positive terminal of the power supply output to the VIN pin and the negative terminal of the power supply output to the GND pin.
4. Turn the power supply on. The board will automatically startup.
5. To use the Enable function, apply a digital input to EN pin. Drive EN higher than 1.2V to turn on the regulator, drive EN less than 0.4V to turn it off.
6. The output voltage  $V_{OUT}$  can be changed by varying R1. Calculate the new values by the following formula:

$$R1 = R2 \times \left( \frac{V_{OUT}}{0.81} - 1 \right)$$

Where  $R2 = 16.2k\Omega$

Example:

For  $V_{OUT} = 3.3V$ :

$$R1 = 16.2k\Omega \times \left( \frac{3.3}{0.81} - 1 \right) = 49.8k\Omega$$

Therefore, use a 49.9k $\Omega$  standard 1% value resistor.

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