



The Future of Analog IC Technology™

# EV1518DG-00A

## Fixed Frequency WLED Driver Evaluation Board

### GENERAL DESCRIPTION

The EV1518DG-00A is an evaluation board for the MP1518, a step-up converter designed for driving up to 6 series white LEDs from a single cell Lithium Ion battery. The MP1518 uses current mode, fixed frequency architecture to regulate the LED current, which is measured through an external current sense resistor. Its low 104mV feedback voltage reduces power loss and improves efficiency. The OV pin monitors the output voltage and turns off the converter if an over-voltage condition is present due to an open circuit condition.

The MP1518 includes under-voltage lockout, current limiting and thermal overload protection preventing damage in the event of an output overload.

### ELECTRICAL SPECIFICATIONS

| Parameter     | Symbol    | Value     | Units |
|---------------|-----------|-----------|-------|
| Input Voltage | $V_{IN}$  | 2.5 – 6.0 | V     |
| # of WLEDs    |           | Up to 6   |       |
| LED Current   | $I_{LED}$ | 20        | mA    |

### FEATURES

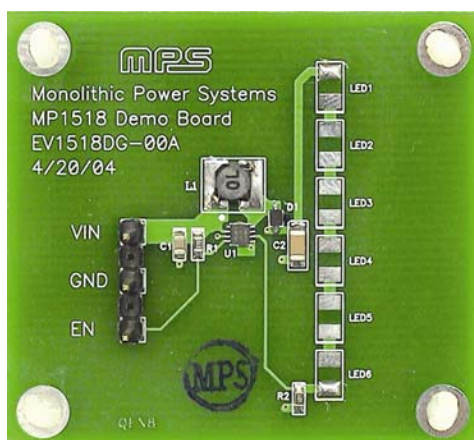
- On Board Power MOSFET
- Drives up to 6 Series White LEDs
- Up to 87% Efficiency
- Over 1MHz Fixed Switching Frequency
- Open Load Shutdown
- Low 104mV Feedback Voltage
- Soft Start/PWM Dimming
- UVLO, Thermal Shutdown
- Internal Current Limit

### APPLICATIONS

- Cell Phones
- Handheld Computers and PDAs
- Digital Still Cameras
- Small LCD Displays

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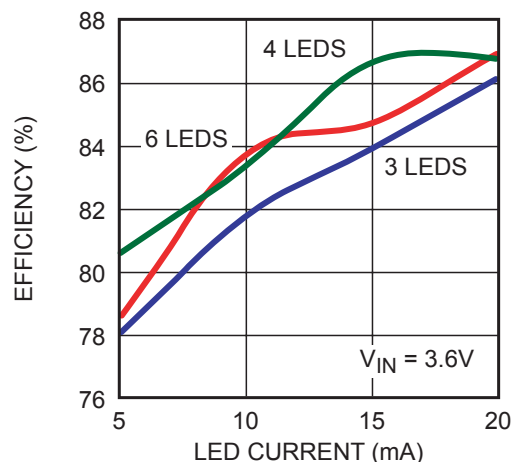
### EV1518DG-00A EVALUATION BOARD



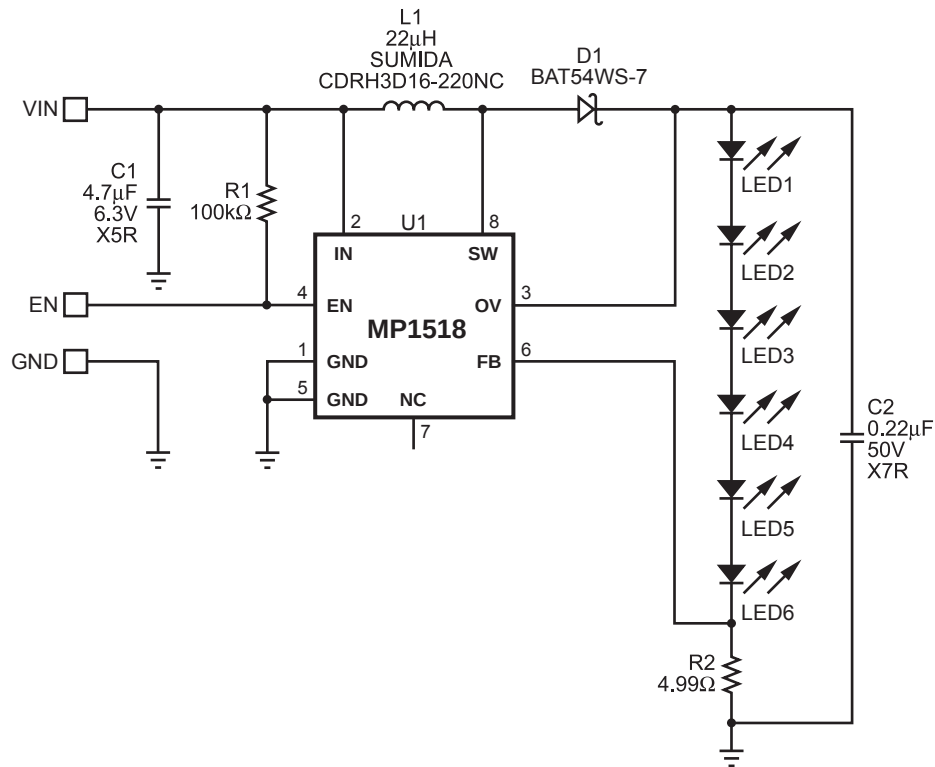
(L x W x H) 2.0" x 1.8" x 0.4"  
(5.0cm x 4.5cm x 1.0cm)

| Board Number | MPS IC Number |
|--------------|---------------|
| EV1518DG-00A | MP1518DG      |

### Efficiency vs LED Current



## EVALUATION BOARD SCHEMATIC



## EV1518DG-00A BILL OF MATERIALS

| Qty | Ref                                | Value  | Description                  | Package    | Manufacturer | Manufacturer P/N  |
|-----|------------------------------------|--------|------------------------------|------------|--------------|-------------------|
| 1   | C1                                 | 4.7µF  | Ceramic Capacitor, 6.3V, X5R | 0805       | TDK          | C2012X5R0J475M    |
| 1   | C2                                 | 0.22µF | Ceramic Capacitor, 50V, X7R  | 1206       | TDK          | C3216X7R1H224K    |
| 1   | D1                                 |        | Diode Schottky, 30V, 200mW   | SOD-323    | Diodes Inc   | BAT54WS-7         |
| 1   | L1                                 | 22µH   | 400mA                        | SMD        | Sumida       | CDRH3D16-220NC    |
| 6   | LED1, LED2, LED3, LED4, LED5, LED6 |        | Not Stuffed                  |            |              |                   |
| 1   | R1                                 | 100kΩ  | Resistor, 5%                 | 0805       | Panasonic    | ERJ-6GEYJ104V     |
| 1   | R2                                 | 4.99Ω  | Resistor, 1%                 | 0805       | Yageo        | 9C08052A4R99FKHFT |
| 1   | U1                                 |        | White Led Driver             | QFN8 (2x2) | MPS          | MP1518DG          |

## PRINTED CIRCUIT BOARD LAYOUT

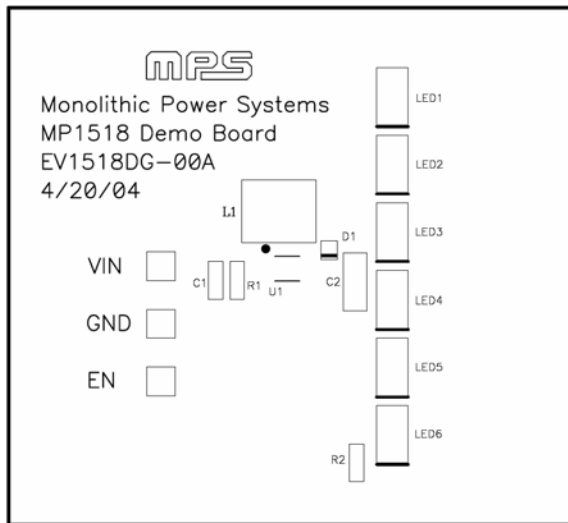


Figure 1—Top Silk Layer

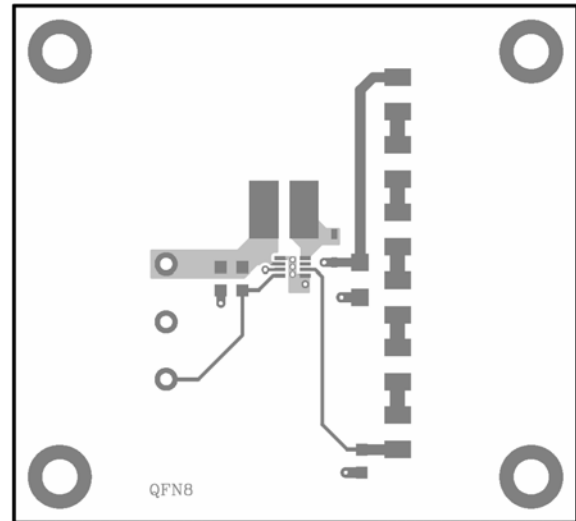


Figure 2—Top Layer

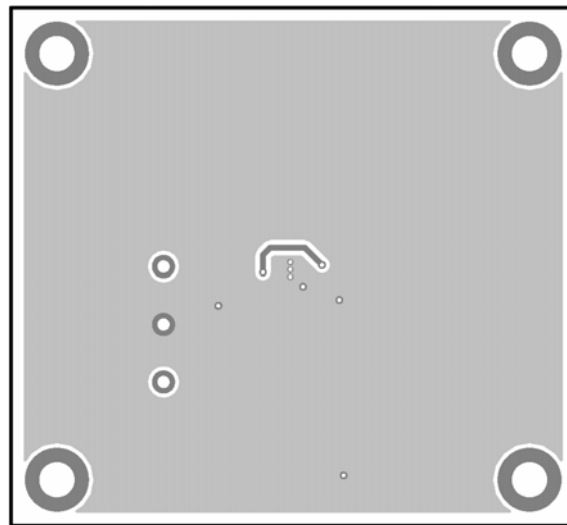


Figure 3—Bottom Layer

## QUICK START GUIDE

1. Solder LED1 – LED6 to board.
2. Connect the positive and negative terminals of the power supply (2.5V to 6V) to the VIN and GND pins, respectively.
3. This board is set up for automatic startup. Pull EN low to shut down the MP1518.
4. To use burst mode brightness control, drive EN with a PWM signal.

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