



The Future of Analog IC Technology®

EV3302DD-00A

1.3A Fixed Frequency White LED Driver Evaluation Board

DESCRIPTION

The EV3302DD-00A is an evaluation board for the MP3302DD, a step-up converter designed for driving up to 27 white LEDs from a single cell lithium ion battery. The EV board is optimized for the load of 3 white LEDs in series, 9 strings panel.

The MP3302 uses current mode, fixed frequency architecture to regulate the LED current, which is measured through an external current sense resistor. Its low 195mV feedback voltage reduces power loss and improves efficiency. The MP3302 monitors the output voltage and turns off the converter if an over-voltage condition is present due to an open circuit condition.

The MP3302 includes under-voltage lockout, current limiting and thermal overload protection preventing damage in the event of an output overload.

The MP3302 is available in small 8-pin QFN (2mm x 3mm) package.

ELECTRICAL SPECIFICATIONS

| Parameter | Symbol | Value | Units |
|----------------|----------|---------|-------|
| Input Voltage | V_{IN} | 3.3 – 6 | V |
| Number of LEDs | | 27 | |

FEATURES

- 3.3V to 6V Input Voltage Range
- Drives up to 27 White LEDs
- Up to 87% Efficiency
- Open Load Shutdown
- Fully Assembled and Tested

APPLICATIONS

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

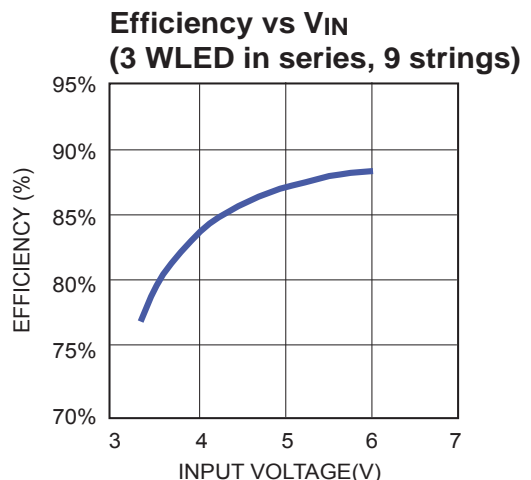
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EV3302DD-00A EVALUATION BOARD

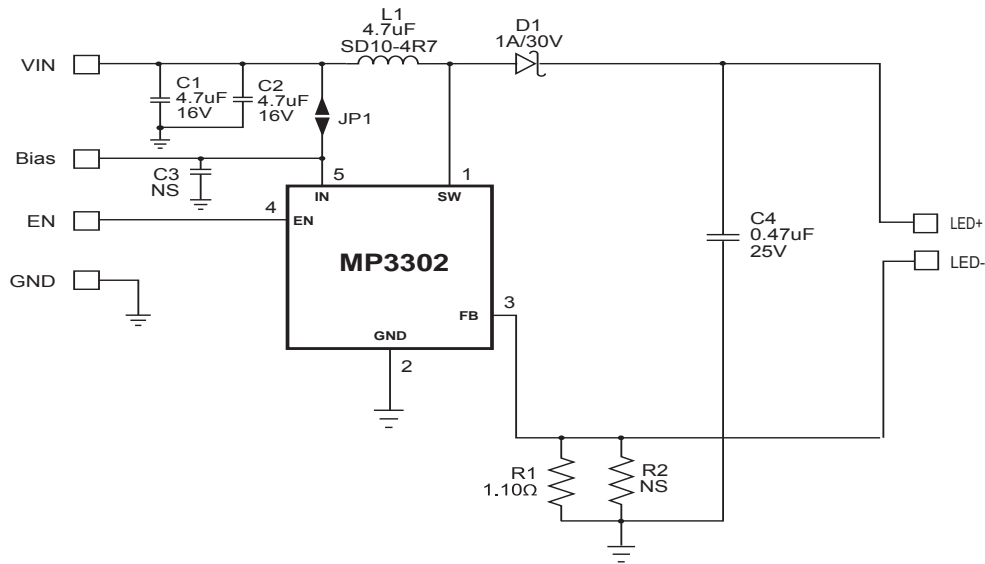


(L x W x H) 1.8" x 1.8" x 0.4"
4.6cm x 4.6cm x 1.0cm

| Board Number | MPS IC Number |
|--------------|---------------|
| EV3302DD-00A | MP3302DD |



EVALUATION BOARD SCHEMATIC



EV3302DD-00A BILL OF MATERIALS

| Qty | Ref | Value | Description | Package | Manufacturer | Part Number |
|-----|-------|--------|-----------------------------|---------|--------------|--------------------|
| 2 | C1,C2 | 4.7µF | Ceramic Capacitor, 16V, X5R | 0805 | Murata | GRM21BR61C475KA88 |
| 1 | C3 | NS | Not Stuffed | | | |
| 1 | C4 | 0.47µF | Ceramic Capacitor, 25V, X7R | 0805 | Murata | GRM21BR71E474KA01L |
| 1 | D1 | | Diode Schottky, 30V, 1A | SMA | Diodes Inc | DFLS130L-F |
| 1 | L1 | 4.7µH | Inductor, 1.1A | SMD | Cooper | SD10-4R7-R |
| 1 | R1 | 1.10Ω | Resistor, 1% | 0805 | Yageo | R0805FR-071R1L |
| 1 | R2 | NS | Not Stuffed | | | |
| 1 | U1 | | White Led Driver | QFN8 | MPS | MP3302DD |
| 1 | CN1 | | Connector | | JST | SM02B-BHSS-1-TB |

PRINTED CIRCUIT BOARD LAYOUT

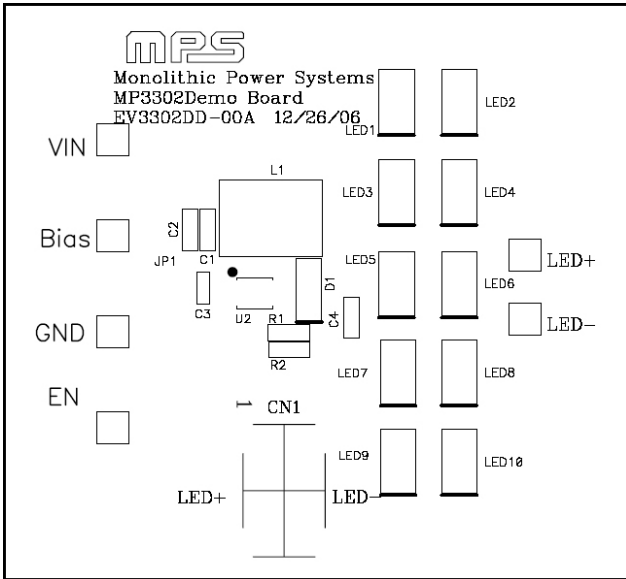


Figure 1—Top Silk Layer

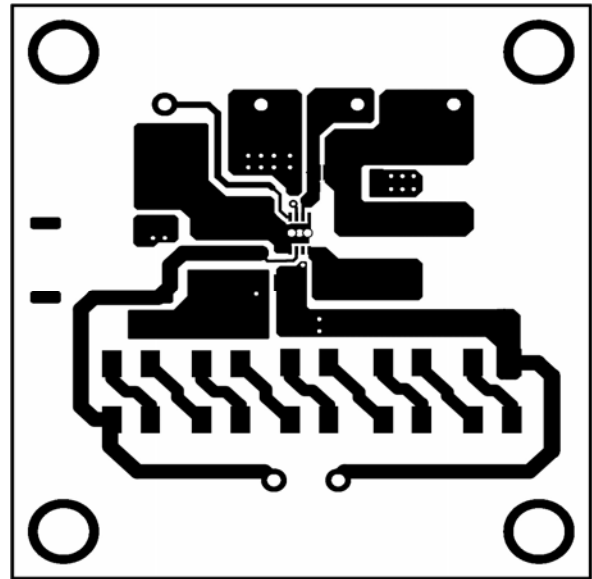


Figure 2—Top Layer

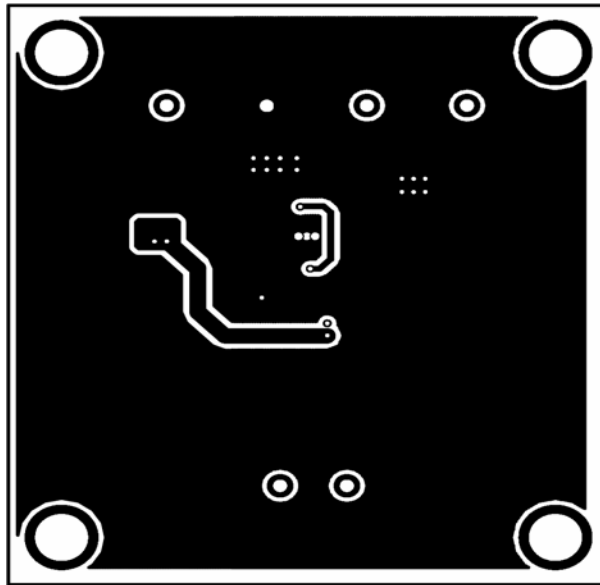


Figure 3—Bottom Layer

QUICK START GUIDE

1. Connect the positive and negative terminals of the load panel (3 white LEDs in series, 9 strings paralleled, each string have a 43ohm droop resistor) to the LED+ and LED- pins on the EV board, respectively.
2. Connect the positive and negative terminals of the power supply (3.3V ~ 6V) to the VIN and GND pins on the EV board, respectively. Turn the power supply on.
3. Drive EN pin high ($1.5V < V_{EN} < V_{IN}$) to enable the MP3302.
4. Apply a DC voltage of 0.7V to 1.4V on EN pin for analog dimming. Maximum brightness (180mA typical) occurs with 1.4V voltage applied.
5. For PWM dimming mode, apply a PWM rectangular waveform with a minimum voltage less than 0.5V and a maximum greater than 1.5V on EN pin. The frequency of the PWM signal is recommended between 100Hz to 1kHz.

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