EV3302-J-01A

1.3A Fixed Frequency White LED Driver Evaluation Board

The Future of Analog IC Technology

DESCRIPTION

The EV3302-J-01A is an evaluation board for the MP3302, a step-up converter designed for driving up to 27 white LEDs from a single cell lithium Ion battery. The EV board parameters are optimized for the load of 3 white LEDs in series, 9 strings paralleled.

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 occurs 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 5-pin TSOT23 package.

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

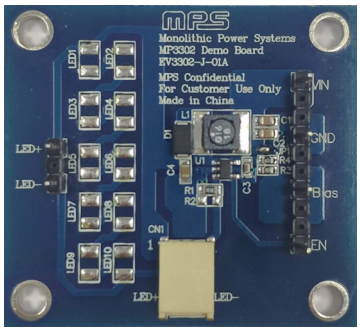
- Cell Phones
- Handheld Computers and PDAs
- Digital Still Cameras
- Small LCD Displays

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.
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ELECTRICAL SPECIFICATIONS

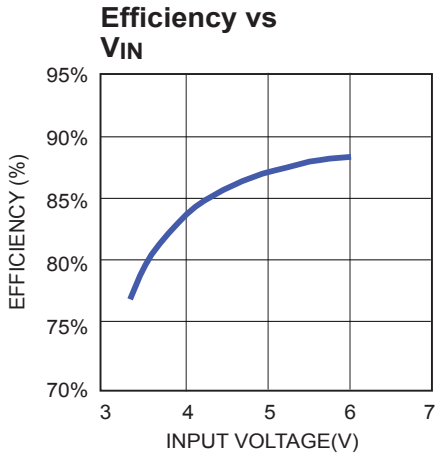
Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	3.3 – 6	V
Number of LEDs		27	

EV3302-J-01A EVALUATION BOARD



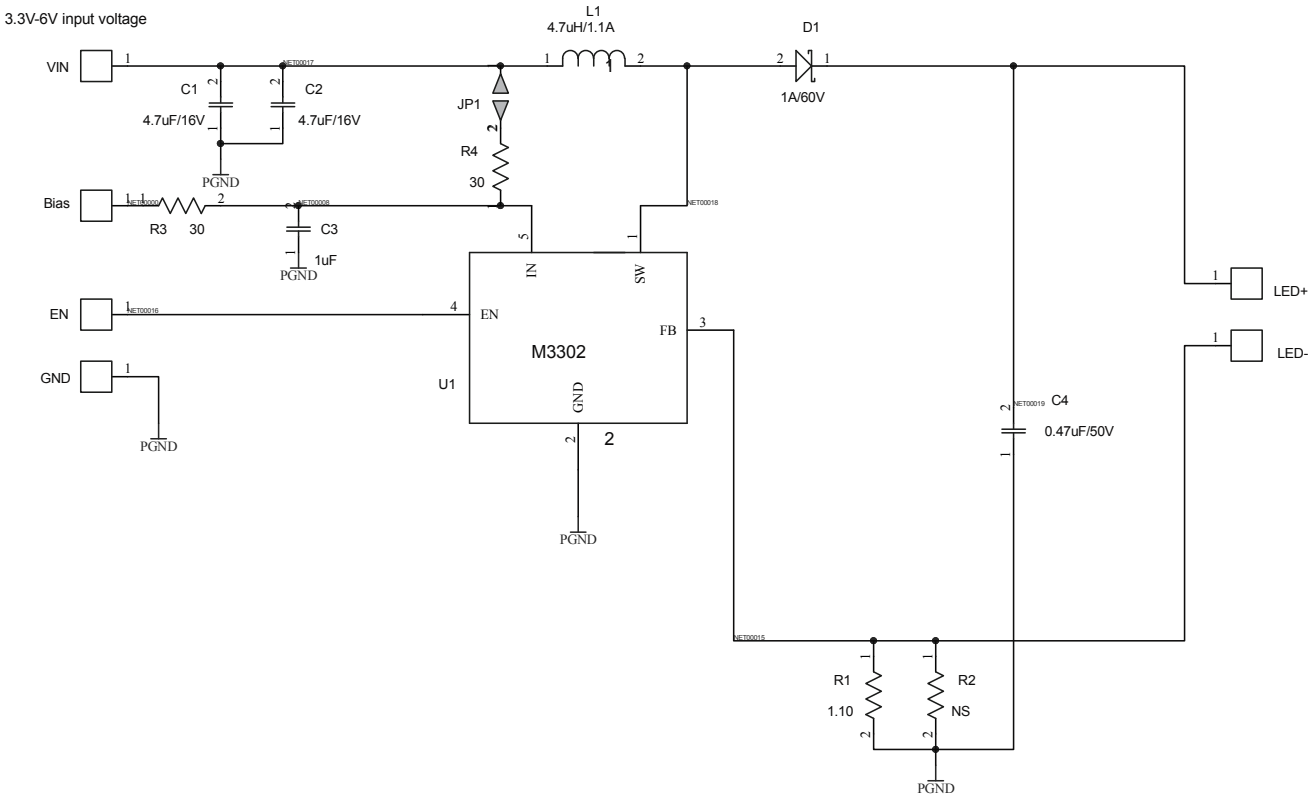
(L x W x H) 4.6cm x 4.6cm x 1.0cm

Board Number	MPS IC Number
EV3302-J-01A	MP3302DJ



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EVALUATION BOARD SCHEMATIC



EV3302-J-01A 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	1μF	Ceramic Capacitor, 16V, X7R	0603	TDK	C1608X7R1C105K
1	C4	0.47μF	Ceramic Capacitor, 50V, X7R	0805	Murata	GRM21BR71H474KA88
1	D1		Diode Schottky, 60V, 1A	SMA	Diodes Inc	B160
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			
2	R3,R4	30Ω	Resistor,1%	0603	Yageo	RC0603FR-0730RL
1	U1		White Led Driver	TSOT23-5	MPS	MP3302DJ
1	CN1		Connector		JST	SM02B-BHSS-1-TB

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PRINTED CIRCUIT BOARD LAYOU

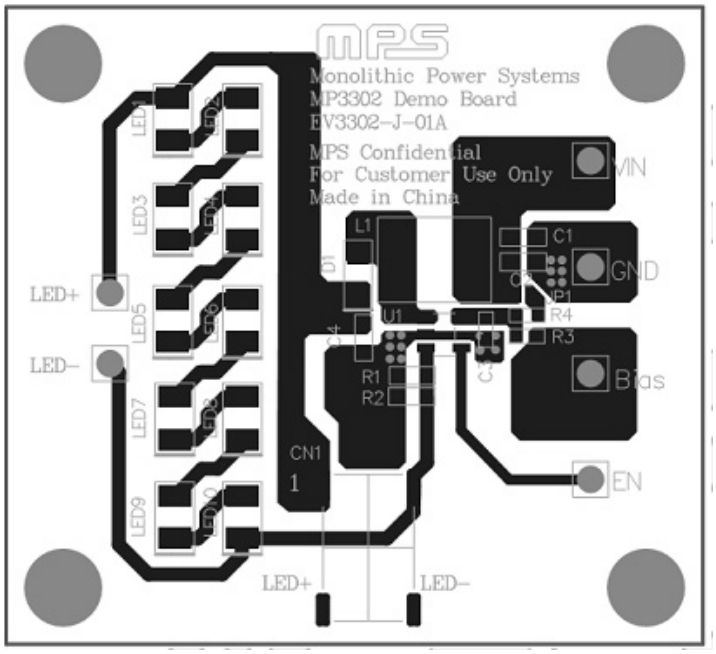


Figure 1—Top Layer

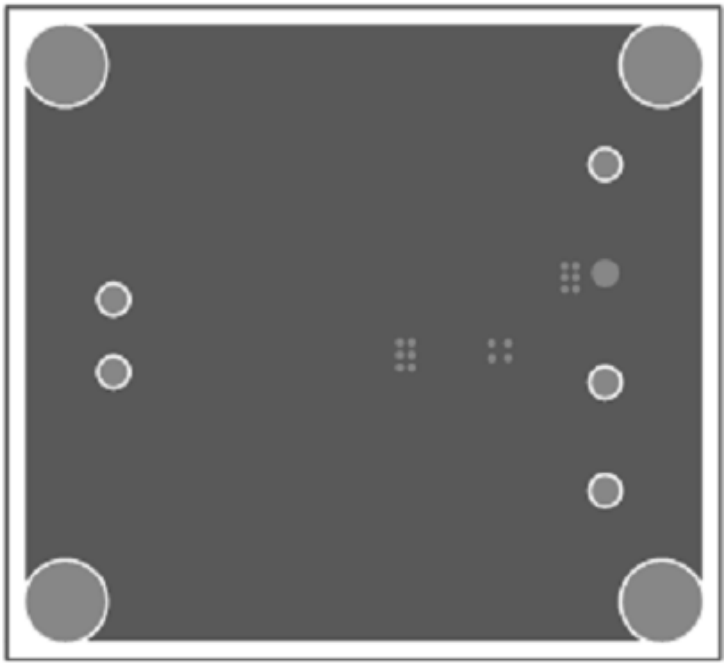


Figure 2—Bottom Layer

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QUICK START GUIDE

1. Connect the positive and negative terminals of the load panel (3 white LEDs in series, 9 stings paralleled) 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.
3. Drive EN pin high (1.5V < Ven < Vin) 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 or above 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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