



The Future of Analog IC Technology®

EV3308DL-00A

1.3A Fixed Frequency White LED Driver Evaluation Board

DESCRIPTION

The EV3308DL-00A is an evaluation board for the MP3308DL, a monolithic step-up converter designed for driving arrays of WLEDs from 3V input or a single-cell lithium-ion battery. The EV board is optimized for the load of 3 white LEDs in series, 9 strings panel.

The MP3308 uses fixed frequency, current mode architecture to regulate the LED current, which is measured through an external current sense resistor. Its low 200mV feedback voltage reduces power loss and improves efficiency.

The MP3308 features dual PWM-dimming input control and true PWM dimming—this control allows for a wide luminescent range that makes the display readable under a variety of ambient light conditions with minimal PWM dimming noise.

The MP3308 includes over-voltage protection, short-circuit protection, under-voltage lockout, current limiting, and thermal overload protection.

The MP3308 is available in small 3mmx4mm 14-pin QFN package.

FEATURES

- 3-6V Input Voltage Range
- Drives up to 27 White LEDs
- Programmable Open Load Shutdown Threshold
- Up to 88% Efficiency
- Fully Assembled and Tested

APPLICATIONS

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

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	3 - 6	V
# of WLEDs		27(3 in series, 9 strings paralleled)	
LED Current	I_{LED}	180	mA

For MPS green status, please visit MPS website under Quality Assurance. "MPS" and "The Future of Analog IC Technology" are Registered Trademarks of Monolithic Power Systems, Inc.

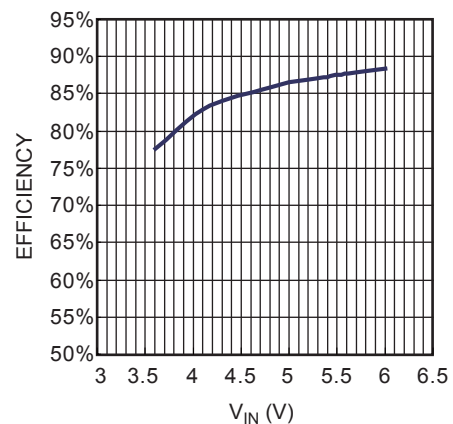
EV3305DD-00A EVALUATION BOARD



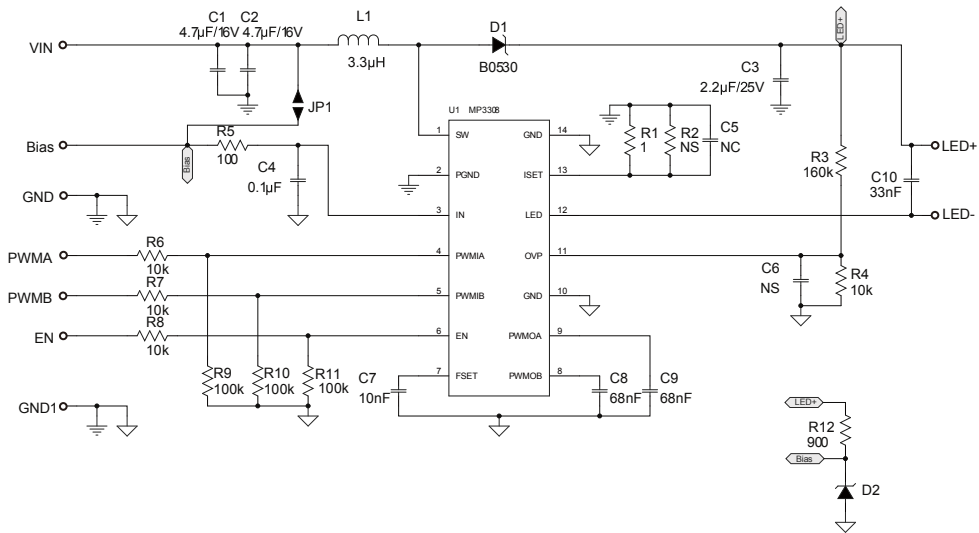
(L x W x H) 2" x 1.8" x 0.4"
5cm x 4.5cm x 1.0cm

Board Number	MPS IC Number
EV3308DL-00A	MP3308DL

Efficiency vs. V_{IN}



EVALUATION BOARD SCHEMATIC



EV3305DD-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C1, C2	4.7µF	Ceramic Capacitor, 50V, X7R	1210	muRata	GRM31CR71C475KA01
1	C3	2.2µF	Ceramic Capacitor, 25V, X7R	1210	muRata	GRM31CR71E225KA88L
1	C4	0.1µF	Ceramic Capacitor, 16V, X7R	0603	muRata	GRM188R71C104KA01D
2	C5, C6	NC		0603		
1	C7	10nF	Ceramic Capacitor, 50V, X7R	0603	muRata	GRM188R71H103KA01D
2	C8, C9	68nF	Ceramic Capacitor, 50V, X7R	0603	muRata	GRM188R71H683KA93D
1	C10	33n	Ceramic Capacitor, 50V, X7R	0603	muRata	GRM188R71H333KA61D
1	D1		B0530W	SOD-123	Diodes	B0530W
1	D2	NC				
1	L1	3.3µH	Inductor, 2.08A	SMD	TOKO	D63CB-A916CY-3R3M
1	R1	1Ω	Film Resistor, 1%	0805	Yageo	RC0805FR-071RL
1	R2	NC		0805		
1	R3	160kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-07160KL
4	R4, R6, R7, R8	10kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0710KL
1	R5	100Ω	Film Resistor, 1%	0603	Yageo	RC0603FR-07100RL
3	R9, R10, R11	100kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-07100KL
1	R12	910Ω	Film Resistor, 1%	0603	Yageo	RC0603FR-070K91L
1	U1		Step-Up White LED Driver	QFN14	MPS	MP3308DL R0

PRINTED CIRCUIT BOARD LAYOUT

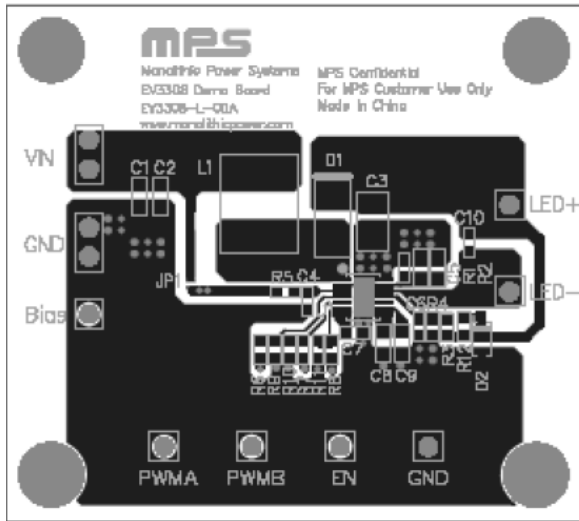


Figure 1—Top Layer

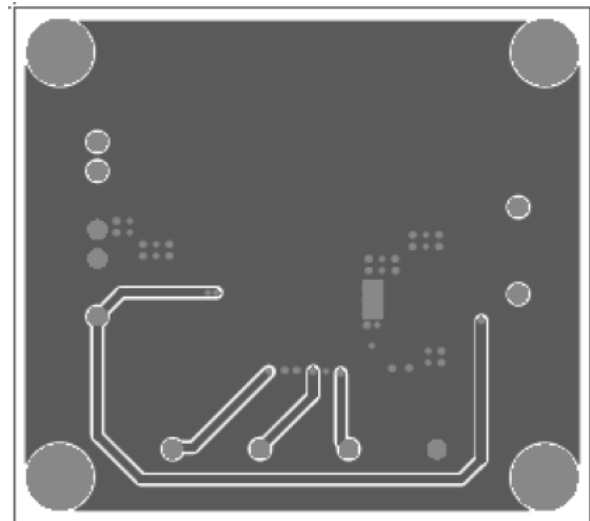


Figure 2—Bottom Layer

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 to the VIN and GND pins on the EV board, respectively. Turn the power supply on.
3. If the power supply is less than 3.5V, additional bias circuit (R12, D2) is used. Put a 900Ω resistor on R12 and 5V Zener diode on D2.
4. Drive EN pin high ($V_{EN} > 2V$) to enable the MP3308.
5. Provide two PWM dimming signal on PWMIA and PWMIB pin respectively. Dual PWM dimming can adjust LED brightness. A capacitor on the FSET pin sets the PWM dimming frequency with a duty cycle of:

$$D_{PWMIA} \times D_{PWMIB}$$

Where D_{PWMIA} is the duty cycle on the PWMIA pin, and D_{PWMIB} is the duty cycle on the PWMIB pin.

NOTICE: The information in this document is subject to change without notice. Users should warrant and guarantee that third party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.