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EV3310EQ-00A

1.3A Step-up White LED Driver Evaluation Board

DESCRIPTION

The EV3310EQ-00A is an evaluation board for the MP3310, a monolithic step-up converter designed for driving arrays of WLEDs from a wide input supply range. The EV board is optimized for the load of 10 white LEDs in series, 4 strings panel.

The MP3310 uses current mode, fixed frequency architecture to regulate the LED current to user programmed value set by an external current setting resistor. The switching frequency is also programmable with an external resistor.

The MP3310 features true PWM dimming, which allows the flexible control of the backlighting luminance under wide range of the ambient brightness.

The MP3310 is turned off if an over-voltage condition is present due to an open circuit condition. Use one external resistor voltage divider to program OVP threshold. And it also includes under-voltage lockout, current limiting and thermal overload protection preventing damage in the event of an output overload.

The MP3310 is available in small 10-pin QFN 3x3mm package.

FEATURES

- Wide 5V to 25V Operating Input Range
- Drives up to 12 Series White LEDs
- Up to 93% Efficiency
- True PWM Dimming
- Adjustable Switching Frequency
- Adjustable Open Load Shutdown Voltage
- Fully Assembled and Tested

APPLICATIONS

- LCD Panels
- Digital Picture Frames
- Handheld Computers and PDAs
- Digital Still Cameras
- Small LCD Displays

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	5~25	V
# of WLEDs		40(10 in series, 4 strings paralleled)	
LED Current	I_{LED}	80	mA

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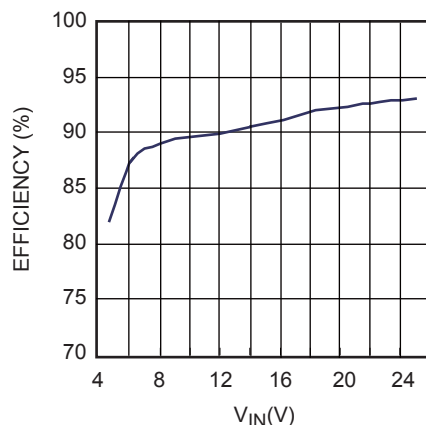
EV3310EQ-00A EVALUATION BOARD

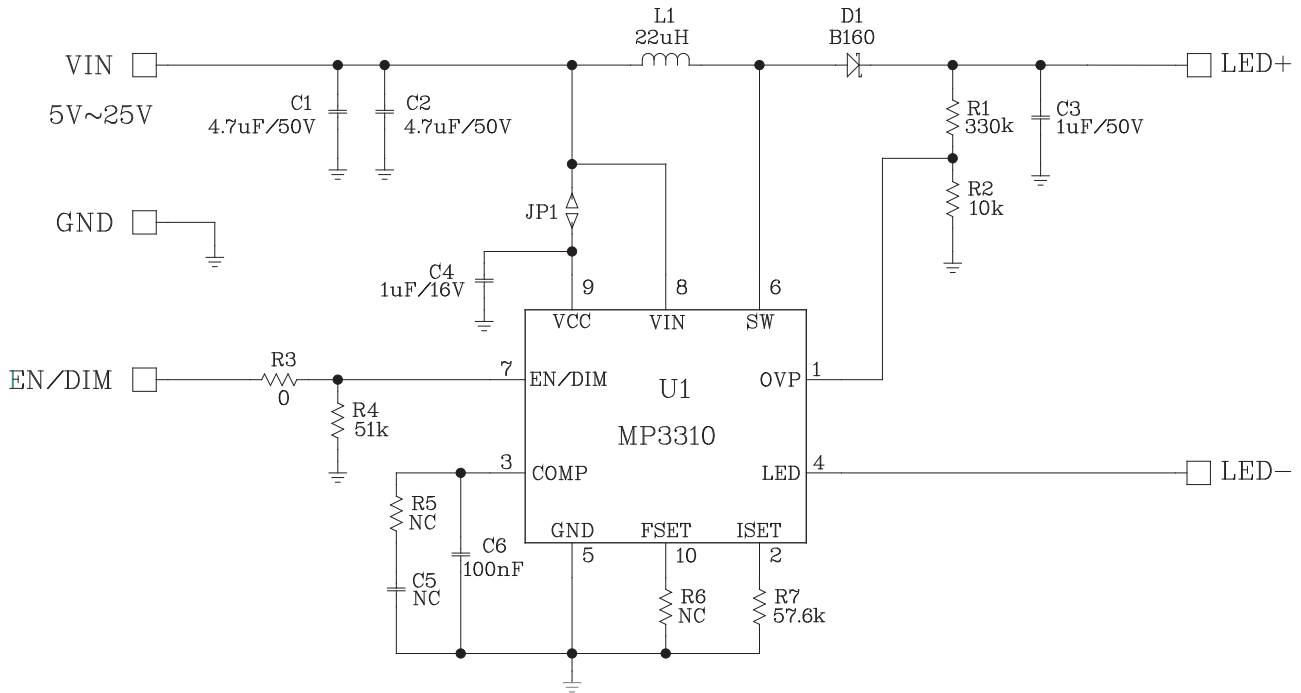


(L x W x H) 2.0" x 1.8" x 0.4"
5.0cm x 4.6cm x 1.0cm

Board Number	MPS IC Number
EV3310EQ-00A	MP3310EQ

VIN vs. Efficiency



EVALUATION BOARD SCHEMATIC

EV3310EQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C1, C2	4.7µF	Ceramic Capacitor,50V,X7R	1210	muRata	GRM32ER71H475KA88L
1	C3	1µF	Ceramic Capacitor,50V,X7R	1206	TDK	C3216X7R1H105K
1	C4	1µF	Ceramic Capacitor,16V,X7R	0603	muRata	GRM188R71C105KA12D
1	C5	NC				
1	C6	0.1µF	Ceramic Capacitor,16V,X7R	0603	muRata	GRM188R71C104KA01D
1	D1	B160	Diode Schottky	SMA	Diodes Inc.	B160
1	L1	22µH	Inductor 1.34A	D63LCB	TOKO	#A921CY-220M=P3
1	R1	330kΩ	1%	0603	Any	
1	R2	10kΩ	1%	0603	Any	
1	R3	0Ω	5%	0603	Any	
1	R4	51kΩ	5%	0603	Any	
2	R5, R6	Open				
1	R7	57.6kΩ	1%	0603	Any	
1	U1	MP3310EQ	MPS WLED Driver	QFN10 (3x3mm)	MPS	MP3310EQ-LF-Z R0

PRINTED CIRCUIT BOARD LAYOUT

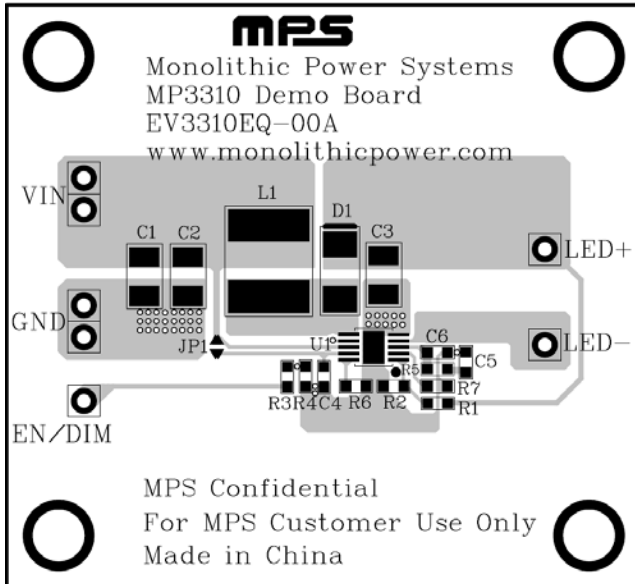


Figure 1—Top Layer

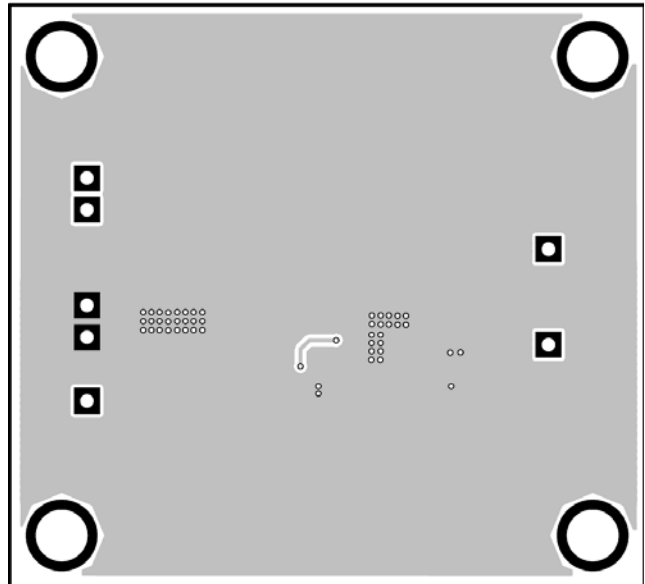


Figure 2—Bottom Layer

QUICK START GUIDE

1. Connect the positive and negative terminals of the load panel (10 white LEDs in series, 4 strings paralleled, each string has 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 (5V~25V) to the VIN and GND pins on the EV board, respectively. Turn the power supply on.
3. Drive EN pin high ($V_{EN} > 2V$) to enable the MP3310.
4. For PWM dimming mode, apply a PWM rectangular waveform with a minimum voltage less than 0.5V and a maximum greater than 2V on EN pin. The frequency of the PWM signal is recommended between 200Hz to 2kHz.
5. For smaller than 5.5V input applications, short J1 for a stronger drive voltage source (as compared with the internal 5V LDO).

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