EV2488DN-00A

High Voltage White LED Driver Evaluation Board

DESCRIPTION

The EV2488DN-00A is an evaluation board for the MP2488DN, a step down converter designed for driving up to 10 white LEDs in series with 330mA current.

The MP2488 is a peak current mode control, fixed frequency regulator to deliver a constant current of up to 2A to high power white LEDs. Its low 200mV feedback voltage reduces power loss and improves efficiency.

The wide 4.5V to 55V input range accommodates a variety of step-down applications, making it ideal for automotive, industry and general lighting application.

The MP2488 is available in small 3mmX3mm 10 pin QFN and SOIC8 with exposed pad package.

FEATURES

- Up to 55V Input Voltage
- Drive up to 10 WLEDs series of 330mA
- Up to 200kHz programmable Switching Frequency
- Up to 97.5% Efficiency
- 220mΩ Internal Power MOSFET
- 200mV reference voltage

APPLICATIONS

- High Power white LED Driver
- Automotive, Industry and General Lighting
- Constant Current Source

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ELECTRICAL SPECIFICATIONS

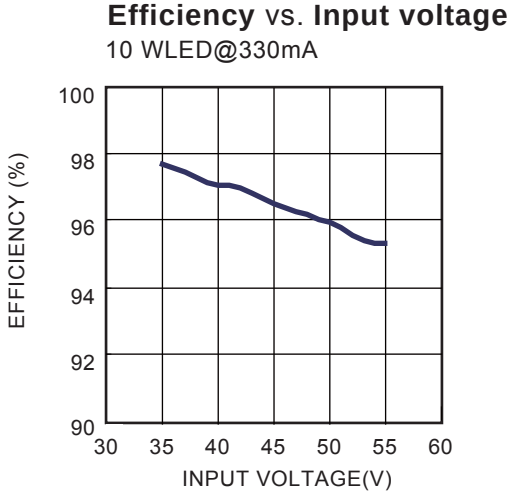
Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	40 – 55	V
# of WLEDs		10 (in series)	
LED Current	ILED	330	mA

EV2488DN-00A EVALUATION BOARD



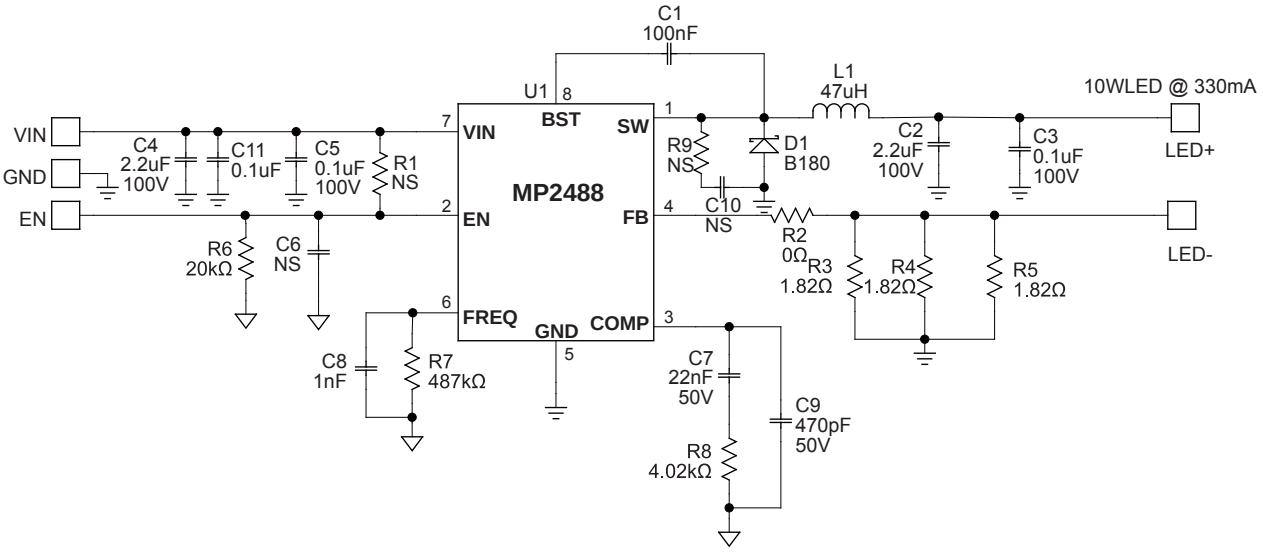
(L x W x H) 2” x 1.8” x 0.4”
5.3cm x 4.6cm x 1.0cm

Board Number	MPS IC Number
EV2488DN-00A	MP2488DN



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EVALUATION BOARD SCHEMATIC



EV2488DN-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C8	1nF/50V	Cemaric capacitor,50V,X7R	0603	TDK	C1608X7R1H102K
1	C7	22nF/50V	Cemaric capacitor,50V,X7R	0603	TDK	C1608X7R1H223K
1	C1	100nF/50V	Cemaric capacitor,50V,X7R	0603	TDK	C1608X7R1H104K
1	C9	470pF/50V	Cemaric capacitor,50V,X7R	0603	TDK	C1608X7R1H471K
1	C6	NS				
3	C3,C5,C11	0.1μF/100V	Cemaric capacitor,100V,X7R	0805	TDK	C2012X7R2A104K
1	C10	NS				
2	C2,C4	2.2μF/100V	Cemaric capacitor,100V,X7R	1210	TDK	C3225X7R2A225K
1	D1	1A/90V	schottky diode 90V, 1A	SMA	TDK	B190A
		1A/80V	schottky diode 80V, 1A	SMA	TDK	B180-7-F
1	U1		WLED Driver	SOIC8E	MPS	MP2488DN
1	R2	0Ω	Film, 5%	0603	Yageo	RC0603JR-070RL
1	R8	4.02kΩ	Film, 1%	0603	Yageo	RC0603FR-074k02L
1	R6	20kΩ	Film, 1%	0603	Yageo	RC0603FR-0720KL
1	R7	487kΩ	Film, 1%	0603	Yageo	RC0603FR-074878KL
1	R1	NS				
3	R3,R4,R5	1.82Ω	Film, 1%	0805	Yageo	RC0805FR-071R82L
1	R9	NS				
1	L1	47μH	Inductor, 47μH, 130mΩ,1.2A	SMD	TDK	SLF7055T-470M1R2-3PF
		47μH	Inductor, 47μH, 175mΩ,1.7A	SMD	TOKO	DS104C2-B952AS-470MP3

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PRINTED CIRCUIT BOARD LAYOUT

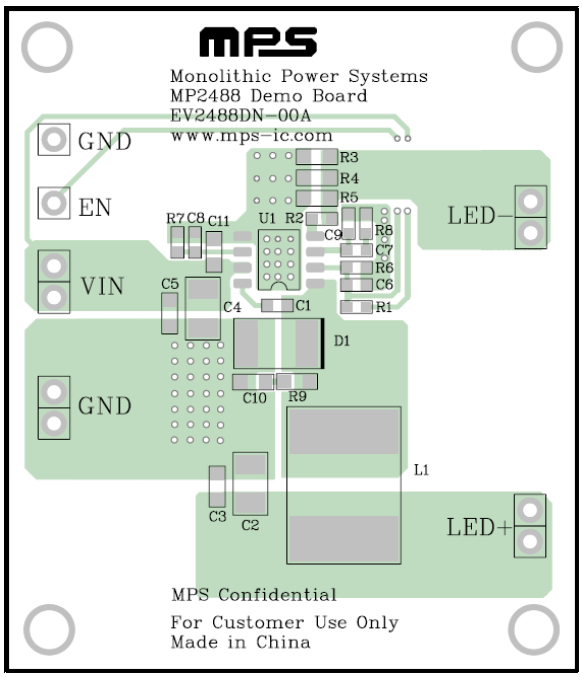


Figure 1—Top Layer

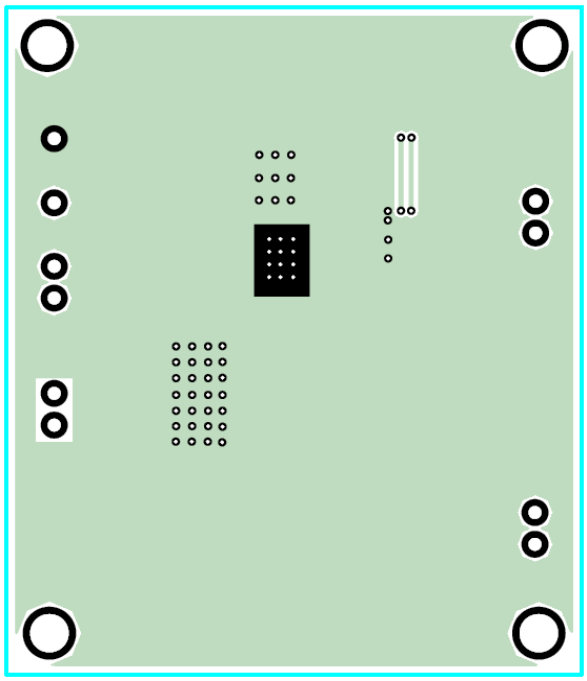


Figure 2—Bottom Layer

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QUICK START GUIDE

1. Connect the positive and negative terminals of the WLED (10WLED in series) load to the LED+ and LED- pins on the EV board, respectively.
2. Connect the positive and negative terminals of the power supply (40V ~ 55V) to the VIN and GND pins on the EV board, respectively. Turn the power supply on.
3. Drive EN pin high (V_{EN} >1.7V) to enable the MP2488.
4. For PWM dimming mode, apply a PWM signal with high level greater than 1.7V to the EN pin. The typical PWM frequency should be around 200Hz. The WLED brightness can be controlled by the PWM dimming duty cycle.

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