

#### DESCRIPTION

The EV2480-N-00A Evaluation Board is designed to demonstrate the capabilities of MP2480DN. The MP2480 is step-down switching regulator to deliver a constant current of up to 3A for high power LED

With a 30-36V input VIN and a EN DC signal which is higher than 2V, EV2480-N-00A can deliver a regulated voltage to drive a LED string. The LED current is regulated to about 2A.

#### **ELECTRICAL SPECIFICATION**

Parameter	Symbol	Value	Units
Input Voltage	VIN	30-36	V
Enable	EN	2- 5	V
Dimming	DIM	2- 5	V
LED Current	I <sub>LED</sub>	2	Α
LED Voltage	VLED	24	V

#### **FEATURES**

- Wide 5V to 36V Operating Input Range
- Up to 95% Efficiency
- Hysteretic Control with No Compensation
- No Output Capacitor Required
- ±3% LED Current Accuracy
- Up to 2MHz Switching Frequency
- Up to 20kHz Dimming Frequency
- 200mV Reference Voltage
- Short-Circuit Protection with Integrated High-Side MOSFET
- Thermal Shut Down

### AVAILABLE IN SOIC8-EPAPPLICATIONS

- High Power LED Driver
- General Lighting and LCD Backlighting
- Constant Current Source

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## **EV2480-N-00A EVALUATION BOARD**



(L x W x H) 6.35cm x 6.35cm x 0.8cm

Board Number	MPS IC Number	
EV2480-N-00A	MP2480DN	







## **EVALUATION BOARD SCHEMATIC**

### EV2480-N-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
1	C1	22µF	Electrolytic Capacitor,50V	DIP		22µF./50V
2	C2,C3	2.2µF	Ceramic Capacitor,50V,X7R	1206	muRata	GRM32ER71H225 KA88L
1	C4	0.1µF	Ceramic Cap., 50V, 10%, X7R	0603	muRata	GRM188R71H104K
2	C5,C6	NC		1206		
1	D1	B340	Diode Schottky	SMC	Diodes Inc.	B340
1	L1	47µH	Inductor 2.7A	SMD	Wurth	744770147
1	R1	NC		0603		
1	R2	1k	Film Res., 1%	0603	Yageo	RC0603FR-071KL
2	R3,R4	200mΩ	Film Res., 1%	1206	Yageo	RL1206FR-070R2L
1	R5	10k	Film Res., 1%	0603	Yageo	RC0603FR-0710KL
1	U1	MP2480DN	MPS WLED Driver	SOIC8-EP	MPS	MP2480DN



#### **EVB TEST RESULTS**

# Performance waveforms are tested on the evaluation board. VIN = 30V, ILED = 2A, 7 LEDs Load, $T_A = 25^{\circ}C$ , unless otherwise noted.





**Steady State** 

















**EN Off** 



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#### EVB TEST RESULTS (continued)

Performance waveforms are tested on the evaluation board. VIN = 30V, ILED = 2A, 7 LEDs Load,  $T_A = 25^{\circ}C$ , unless otherwise noted.





## PRINTED CIRCUIT BOARD LAYOUT



Figure 1—Top Silk Layer



Figure 2—Top Layer



Figure 3—Bottom Layer



#### **QUICK START GUIDE**

- 1. Check the LED string voltage and preset the input voltage power supply to 30-36V.
- 2. Set a second power supply to 2- 5V as the power supply for 'EN'.
- 3. Turn-off all power supplies. Connect all the power supply.
- 4. Connect the anode of the LED string to LED+, and the cathode to LED-.
- 5. Turn on the power supplies. The LED string should be lighten
- 6. To demo the dimming function: Connect the 'DIM' with a function generator. Set the PWM signal amplitude to 2- 5V and the frequency within 100Hz to 20kHz range.

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