

## DESCRIPTION

The EV2481-H-01A is a Buck-Boost converter evaluation board for the MP2481, a wide input step-up/down converter designed for driving up to 27 white LEDs. The EV board parameters are optimized for the load of 3 white LEDs in series, 9 strings paralleled.

The MP2481 is a 1.2A output, 36V white LED driver suitable for either step-down or inverting step-up/down applications. It achieves 1.2A peak output current over a wide input supply range with excellent load and line regulation. Current mode operation provides fast transient response and eases loop stabilization. Fault condition protection includes thermal shutdown, cycle-by-cycle peak current limiting, open LED protection and output short circuit protection.

The MP2481 incorporates both DC and PWM dimming onto a single control pin. The separate input reference ground pin allows for direct enable and/or dimming control for a positive to negative power conversion.

The MP2481 requires a minimum number of readily available standard external components and is available in 8-pin MSOP8 packages.

## FEATURES

- Wide 4.5V to 26V Operating Input Range for Inverting Step-up/down Applications
- Drives up to 27 White LEDs
- Up to 85% Efficiency
- Analog and PWM Dimming
- Cycle-by-Cycle Over Current Protection
- Thermal Shutdown Protection
- Open Strings Protection
- Input Over Voltage Protection
- Output short circuit protection

## APPLICATIONS

- WLED Backlights

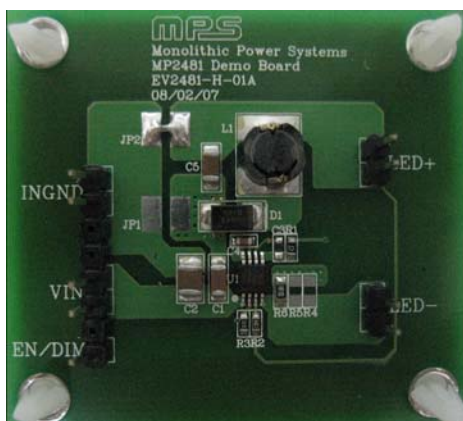
## ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	4.5-26	V
# of WLEDs		27(3 in series, 9 strings paralleled)	
LED Current	$I_{LED}$	180	mA

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Products, Quality Assurance page.

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## EV2481-H-01A EVALUATION BOARD



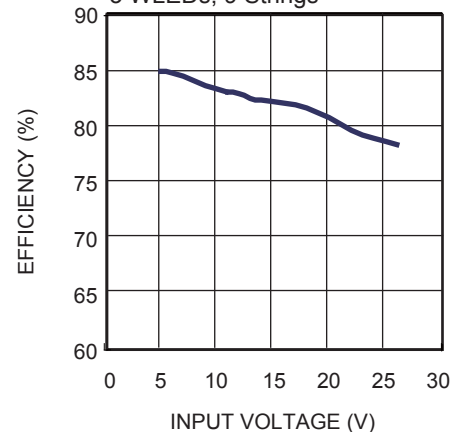
(L x W x H) 2.0" x 1.8" x 0.2"  
(5.0cm x 4.5cm x 0.5cm)

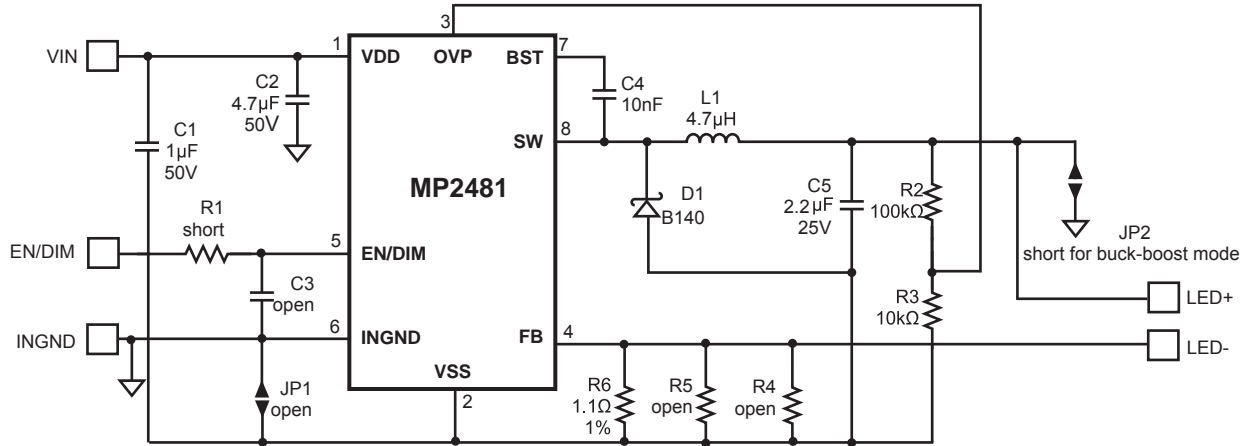
Board Number	MPS IC Number
EV2481-H-01A	MP2481

## EVALUATION BOARD SCHEMATIC

### Efficiency vs. Input Voltage

Step-up/down Application  
3 WLEDs, 9 Strings





## EV2481-H-01A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	1µF	Ceramic Capacitor,50V,X7R	1206	TDK	C3216X7R1H105K
1	C2	4.7µF	Ceramic Capacitor,50V,X7R	1210	Murata	GRM32ER71H475KA88L
1	C3	open				
1	C4	10n	Ceramic Capacitor,50V,X7R	0603	TDK	C1608X7R1H103K
1	C5	2.2µF	Ceramic Capacitor,25V,X7R	1206	Murata	GRM31MR71E225KA93L
1	D1	B140	Diode Schottky	SMA	Diodes Inc.	B140-13-F
1	L1	4.7µH	Inductor 1.66A	D63LCB	TOKO	D63LCB-#A921CY-4R7M
1	R1	short				
1	R2	100kΩ	5%	0603	Any	
1	R3	10kΩ	5%	0603	Any	
2	R4,R5	open				
1	R6	1.1Ω	1%	0805	Yageo	RC0805FR-071R1L
1	U1	MP2481	MPS WLED Driver	MSOP8EP	MPS	MP2481DH-LF-Z

### PRINTED CIRCUIT BOARD LAYOUT

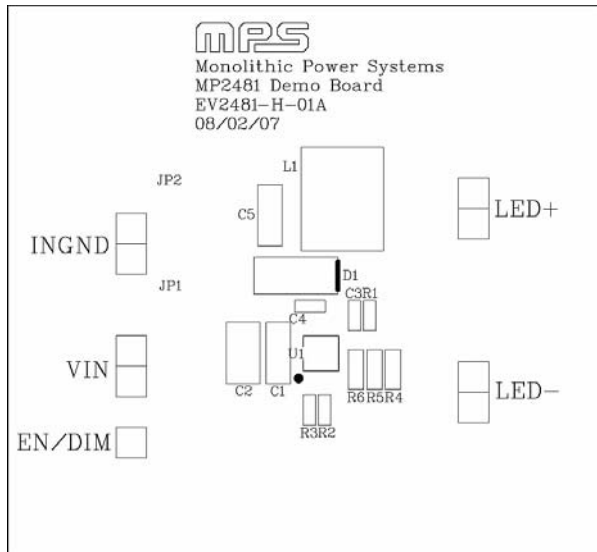


Figure 1—Top Silk Layer

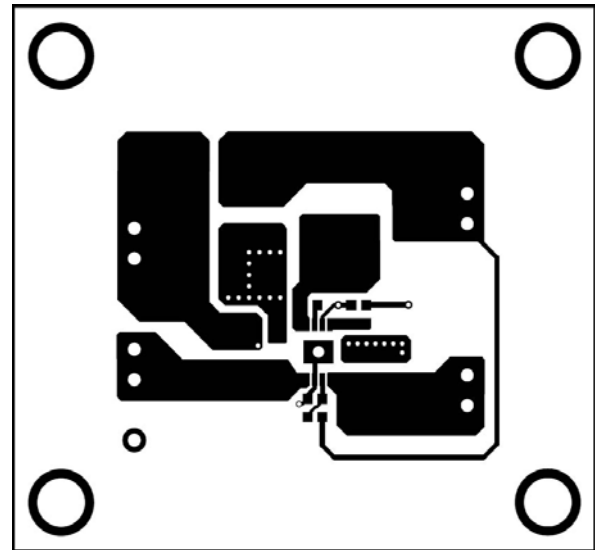


Figure 2—Top Layer

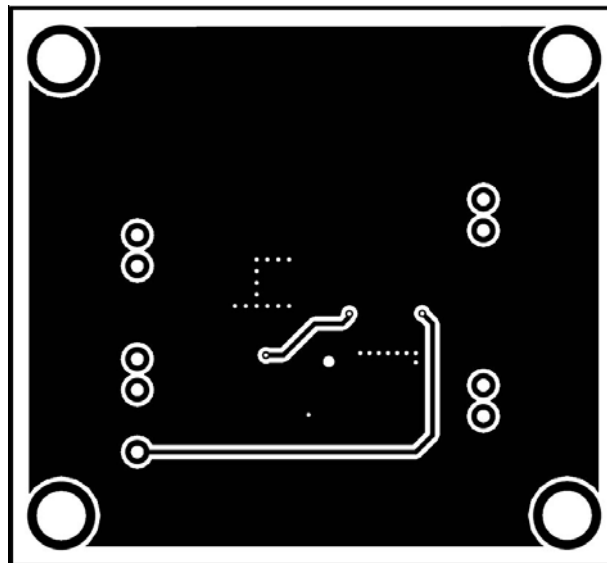


Figure 3—Bottom Layer