

## EP LED48 SERIES–Constant Current LED Driver

### DC-DC Converter

#### Features

EFFICIENCY UP TO 96%  
 CONSTANT CURRENT LED DRIVER  
 WIDE INPUT AND OUTPUT VOLTAGE RANGE  
 INPUT VOLTAGE UP TO 52V  
 PWM DIMMING CONTROL  
 SHORT CIRCUIT AND OVERTEMPERATURE PROTECTED  
 INTERNAL SMD TECHNOLOGY  
 FULLY ISOLATED PLAST2C CASE WITH IP67 LEVEL  
 UL 94V-0 PACKAGE MATERIAL  
 RoHS COMPLIANT

#### Description

EPLED48 series is a high efficiency, constant current and step-down DC/DC converter. The LED DRIVER operates from an input voltage 9Vdc to 52Vdc and provides an externally adjustable output current of up to 1500mA and output power up to 54 watts. It is able to include the function of Over temperature protection(OTP), Over current protection(OCP), PWM/Digital Dimming and ON/OFF. The device can extensively be used for Landscape illumination, Special illumination, Back light source, Commercial illumination, Street light illumination, Home use illumination and Automobile illumination etc.

**IP67**

**CE**

**FCC**

**REACH COMPLIANT**

**RoHS COMPLIANT**

#### Selection Guide

MODEL NUMBER	INPUT NOMINAL VOLTAGE (VDC)	INPUT VOLTAGE RANGE (VDC)	OUTPUT VOLTAGE RANGE (VDC)	OUTPUT CURRENT RANGE (mA)	DIMMINING CONTROL	EFF (%.Typ.)
EPLED481.00(DA)(W)	48	9-52	2-46	0-1000	PWM	96
EPLED481.20(DA)(W)	48	9-52	2-46	0-1200	PWM	96
EPLED481.50(DA)(W)	48	9-52	2-46	0-1500	PWM	96

## Partnumbers Structure

Series                    Coding Scheme  
 EPLED48 Series      EPLED-x1-x.x2-y1zzz

EPLED = Series Name

x1 = Input Voltage

x.x2 = Output Current

y1=Package Style(DA=PINS)(W=WIRED)

Zzz = 0~9 , A~Z or blank for market purpose.

## Specifications

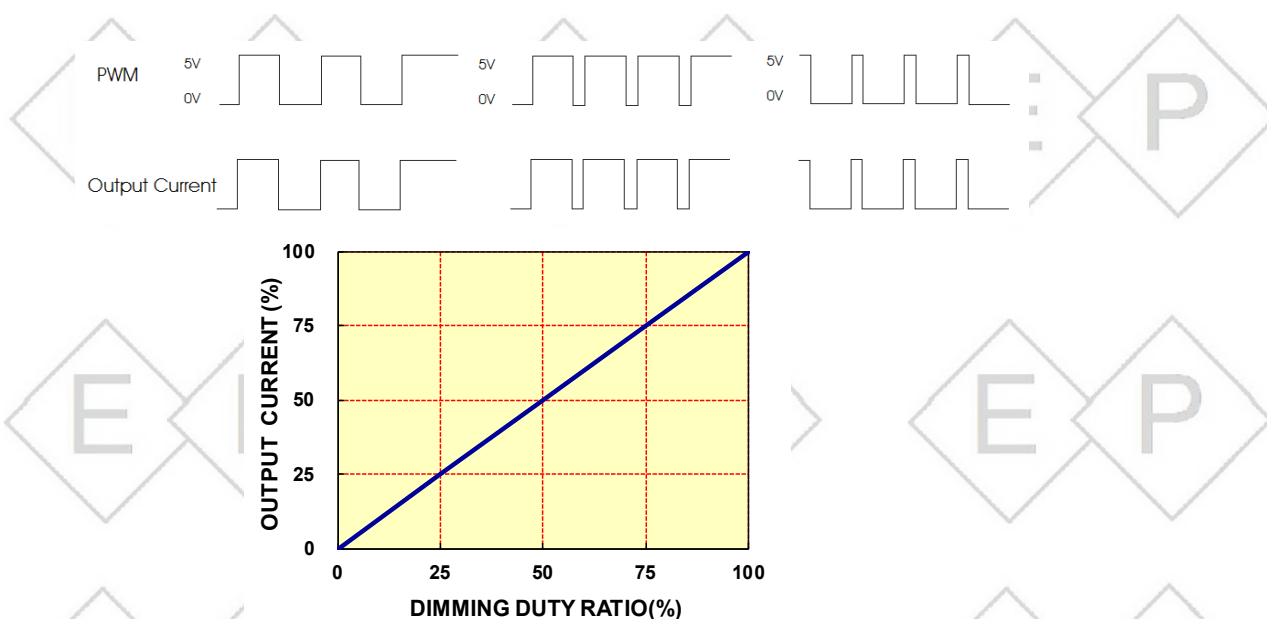
( Typical at 25°C, nominal input voltage, rated output current unless otherwise specified )

Project	Working Condition	Min.	Typ.	Max.	Unit
Input Voltage(absolute maximum)				52	VDC
Recommended Input Voltage		9	48	52	VDC
Input Filter			Capacitor		
Output Voltage range	Vin=52V	2		46	VDC
Output Current Accuracy	Vin=48V,10LEDS		±4	±6	%
Output Current Stability	Vin=48V,1LED to 10LEDS		±4	±6	%
Maximum Capacitive Load				10	uF
Operating Frequency				1000	KHz
Short Circuit Protection			Continuous		
Temperature Coefficient	-40°C~+71°C ambient			±0.03	%°C
Operating Temperature	1000mA/1200mA	-40		71	°C
	1500mA	-40		65	°C
Storage Temperature		-55		125	°C
Humidity(D) (W)				95	%
Over Temperature Shutdown (Auto-restart after cool down)	Internal IC Temperature		155		°C
	Temperature Hysteresis		30		°C
Maximum Case Temperature				105	°C
MTBF (using MIL-HDBK 217F)	Operating    Temperature 25°C		2000000		Hours
Case Material		Non Conductive plastic			
Potting Material		Epoxy (UL94V-0)			
Case Size(D)(W)		31.8*20.3*12.2			mm
Weight(D)			15.6		g
Weight(W)			18		g
EMI Radiated Emissions		EN55015			
Dust Test & Waterproof Test (D) (W)		IP67			

## PWM Dimming and On/Off Control (Leave open if not use)

Project	Working Condition	Min.	Typ.	Max.	Unit
ON/OFF Control	ON (DIM ~ -VIN)	2.5	FLOAT	6	VDC
	OFF (DIM ~ -VIN)	0		0.8	VDC
Quiescent Input Current in Shutdown Mode	Vin=24			1	mA
PWM Frequency	For Linear Operation (measured 1%~100% Dimming)	100		1K	Hz

## PWM Dimming and ON/OFF Control (measured 1%~100% Dimming)



**Fig.1 Dimming Duty Cycle:1%-100%**

The dimming of LEDs can be performed by applying PWM signals to DIM pin. The following Fig.1 show good linearity in dimming application of *EPLED Series*. A logic low (below 0.8V) at DIM PIN will disable the device and shut off the current flow to the LED array.

## Typical Applications

### PWM Dimming control circuit

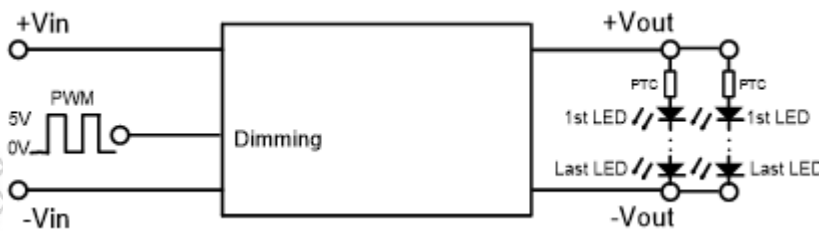
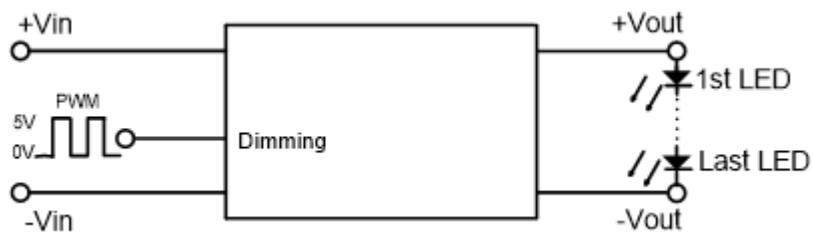
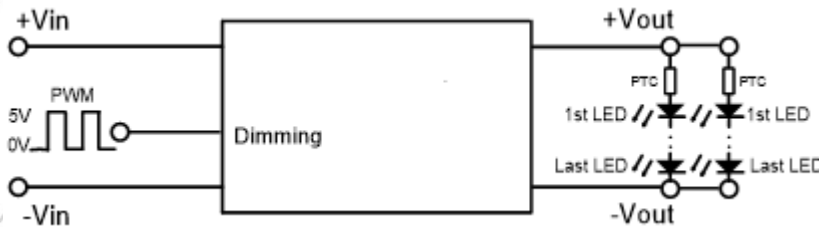


Fig.2

In actual use, if necessary to protect LED, a PTC of positive temperature coefficient may be connect to the input end of every channel or all channels, as shown in Fig.2.

### EMI filter circuit



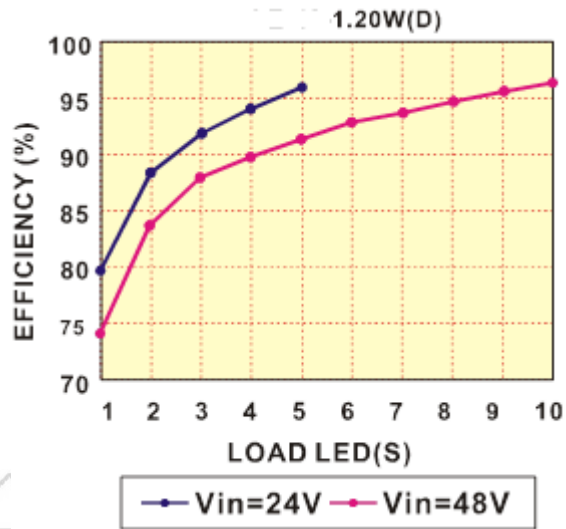
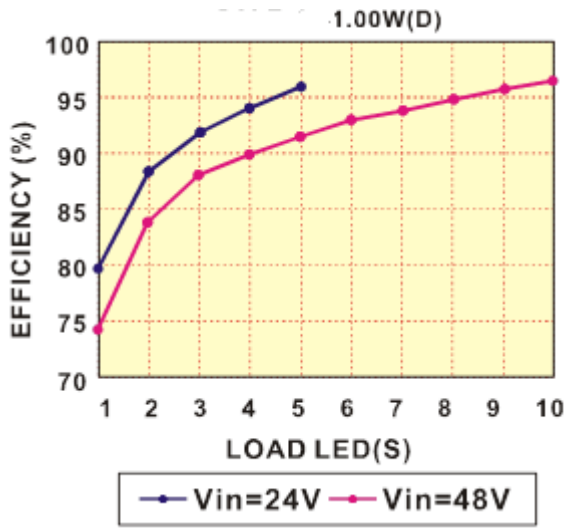
## Efficiency vs. Load LED

TA=25°C

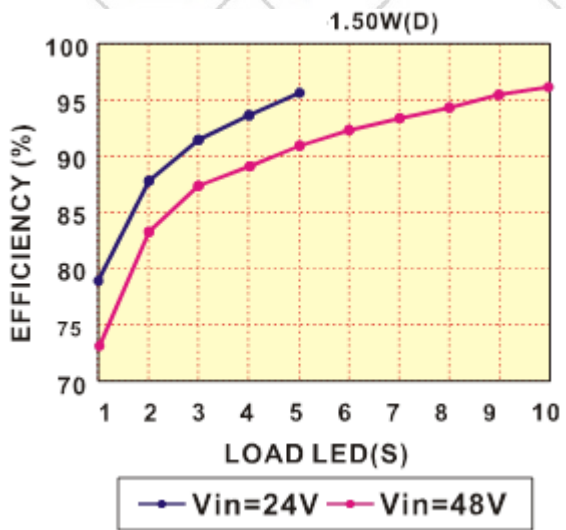
1-LED VF=3.6V; 2-LED VF=7.2V; 3-LED VF=10.8V; 4-LED VF=14.4V; 5-LED VF=18V;

OUTPUT CURRENT 1.00A

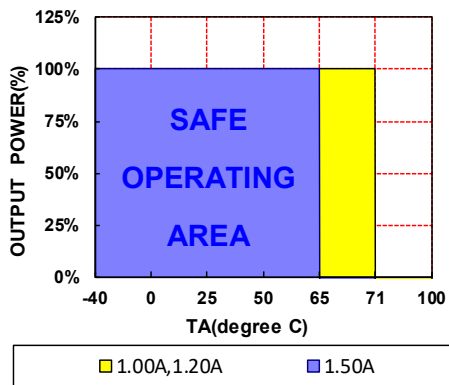
OUTPUT CURRENT 1.20A



OUTPUT CURRENT 1.50A

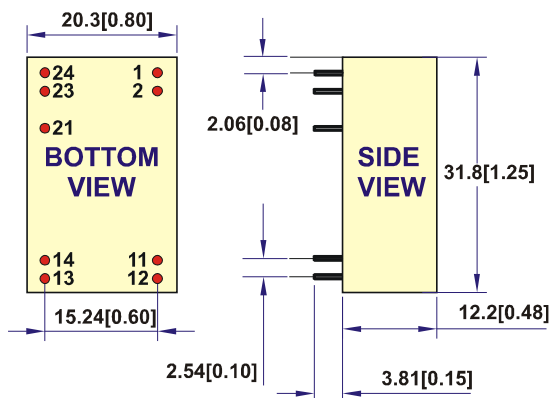


## Derating Curve



# Mechanical Dimensions & Recommended Footprint Details

## PACKAGE "DA"



All dimensions are in mm[inches]

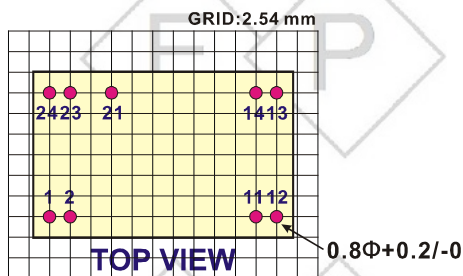
PINOUT	COMMENT
1 & 2	-Vin Don't connect to -Vout
11 & 12	-Vout LED - Connection
13 & 14	+Vout LED + Connection
	ON/OFF/PWM
21	PWM DIM Dimming
	Leave open if not used
23 & 24	+Vin DC Supply

NOTE:

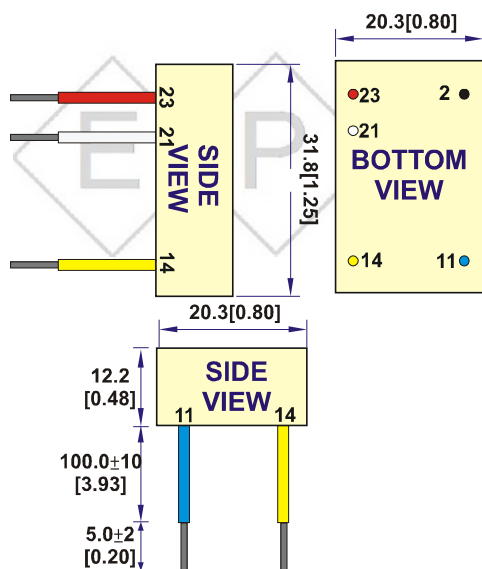
Pin Size is Tolerance 0.60Φ ±0.05mm

All dimensions are in mm(Inches)

Tolerance .X or .XX= ±0.5mm



## PACKAGE "W"



All dimensions are in mm[inches]

PINOUT	COMMENT
<u>2</u> (Black)	-Vin Don't connect to -Vout
<u>11</u> (Blue)	-Vout LED - Connection
<u>14</u> (Yellow)	+Vout LED + Connection
	ON/OFF/PWM
<u>21</u> (White)	PWM DIM Dimming
	Leave open if not used
<u>23</u> (Red)	+Vin DC Supply

NOTE:

All dimensions are in mm(Inches)

1. Case Tolerance .x or .xx ±0.5mm

2. Wire outside diameter=1.6mm ±0.1

3. Wire core diameter =0.75mm ±0.1

4. Wire is UL 3385/CAS TEM listed #22AWG /300V /105°C Rated

Spezifikationen können sich ohne Vorankündigung ändern.

Für etwaige fehlerhafte Angaben oder unvollständige Bezeichnungen kann keine Haftung übernommen werden.