

EPLED48 SERIES—Constant Current LED Driver

DC-DC Converter

Features

EFFICIENCY UP TO 97%
 CONSTANT CURRENT LED DRIVER
 WIDE INPUT AND OUTPUT VOLTAGE RANGE
 INPUT VOLTAGE UP TO 56V
 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 56Vdc and provides an externally adjustable output current of up to 1000mA and output power up to 52 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
FC

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.)
EPLED480.30(D)(W)(S)	48	9-56	2-52	0-300	PWM	97
EPLED480.35(D)(W)(S)	48	9-56	2-52	0-350	PWM	97
EPLED480.50(D)(W)(S)	48	9-56	2-52	0-500	PWM	97
EPLED480.60(D)(W)(S)	48	9-56	2-52	0-600	PWM	97
EPLED480.70(D)(W)(S)	48	9-56	2-52	0-700	PWM	97
EPLED480.90(D)(W)(S)	48	9-56	2-52	0-900	PWM	97
EPLED481.00(D)(W)(S)	48	9-56	2-52	0-1000	PWM	97

Partnumbers Structure

Series Coding Scheme
 EPLED Series EPLED-x1-x.x2-y1-zzz

EPLED = Series Name
 x1 = Input Voltage
 x.x2 = Output Current
 y1=Package Style(D=PINS)(W=WIRED)(S=SMD)
 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)				56	VDC
Recommended Input Voltage		9	48	56	VDC
Input Filter				Capacitor	
Output Voltage range	Vin=56V	2		52	VDC
Output Current Accuracy	Vin=48V,10LEDS		±4	±6	%
Output Current Stability	Vin=48V,1LED to 10LEDS		±4	±6	%
Maximum Capacitive Load				2.2	uF
Operating Frequency		40		1000	KHz
Short Circuit Protection				Continuous	
Temperature Coefficient	-40°C~+71°C ambient			±0.03	%°C
Operating Temperature	300mA/350mA/500mA	-40		85	°C
	600mA/700mA/1A	-40		71	°C
Storage Temperature		-55		125	°C
Humidity(D) (W)				95	%
Humidity(S)				85	%
Over Temperature Shutdown	Internal IC Temperature		150		°C
(Auto-restart after cool down)	Temperature Hysteresis		20		°C
Maximum Case Temperature				100	°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
Case Size(S)			31.8*20.3*10.9		mm
Weight(D)			15.6		g
Weight(W)			18		g
Weight(S)			12.8		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		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)

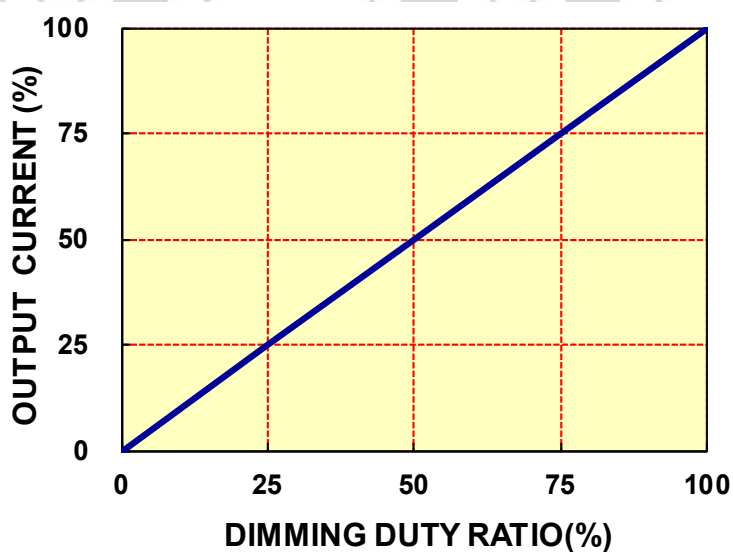
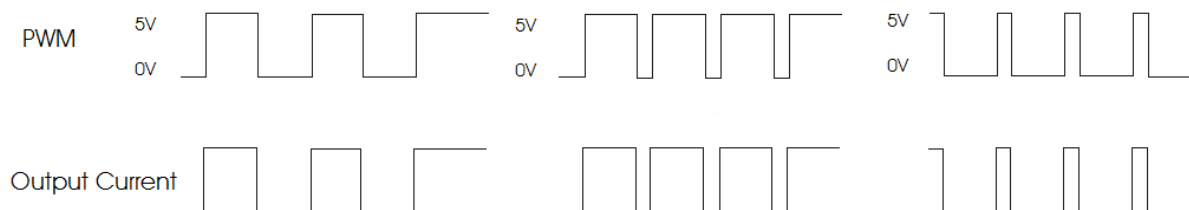


Fig.1 Dimming Duty Cycle:1%-100%

The dimming of LEDs can be performed by applying PWM signals to DIM pin.

The above 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

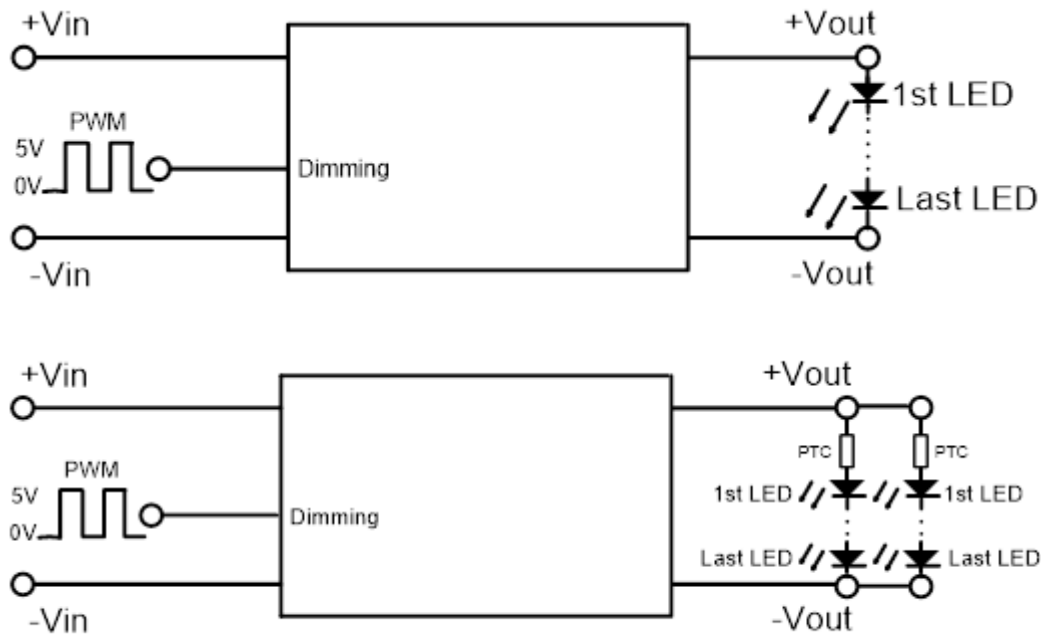
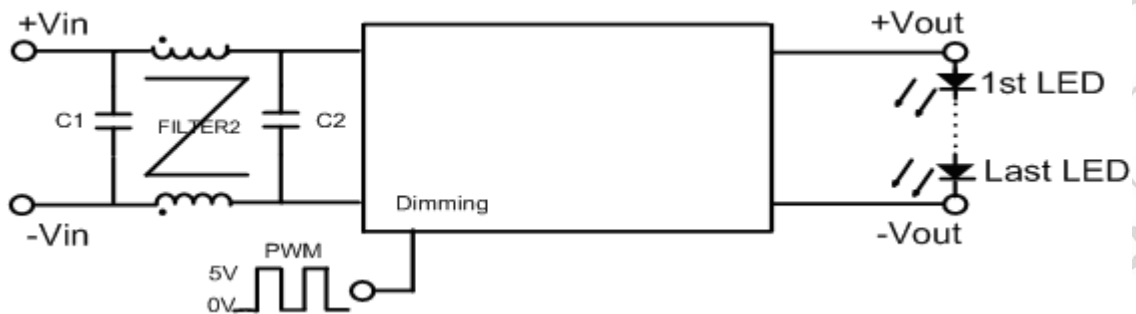


Fig.2

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

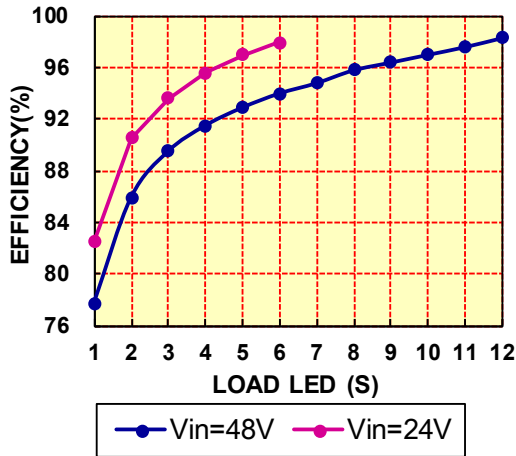


Efficiency vs. Load LED

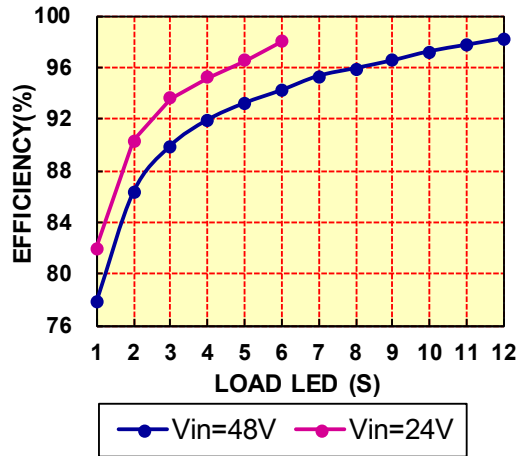
TA=25°C

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

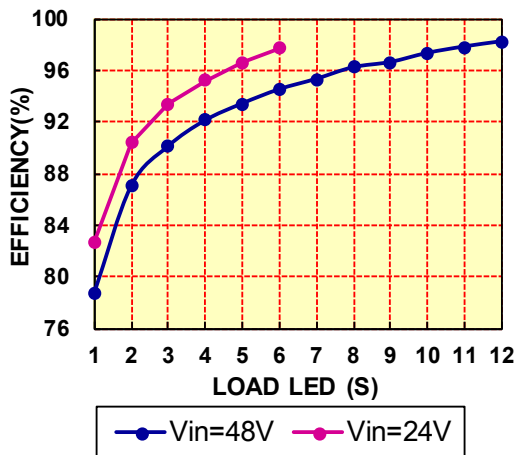
OUTPUT CURRENT 0.30A



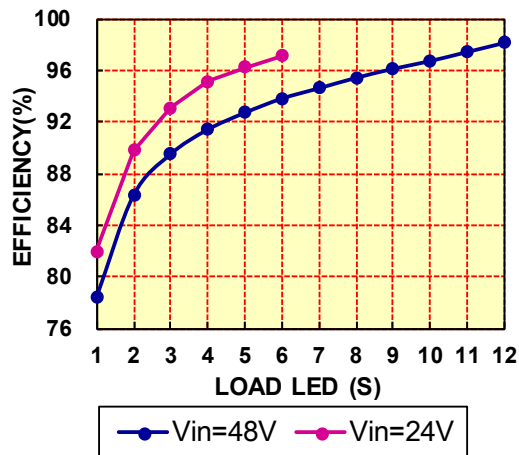
OUTPUT CURRENT 0.35A



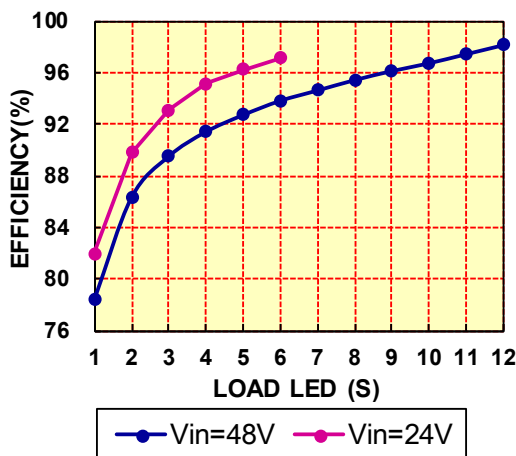
OUTPUT CURRENT 0.50A



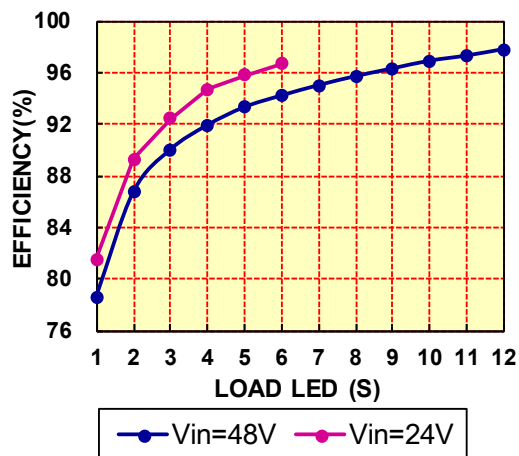
OUTPUT CURRENT 0.60A



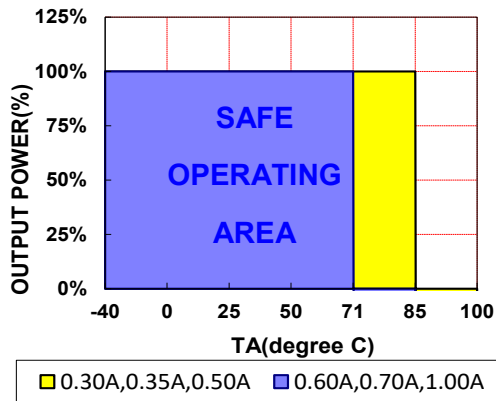
OUTPUT CURRENT 0.70A



OUTPUT CURRENT 1.00A



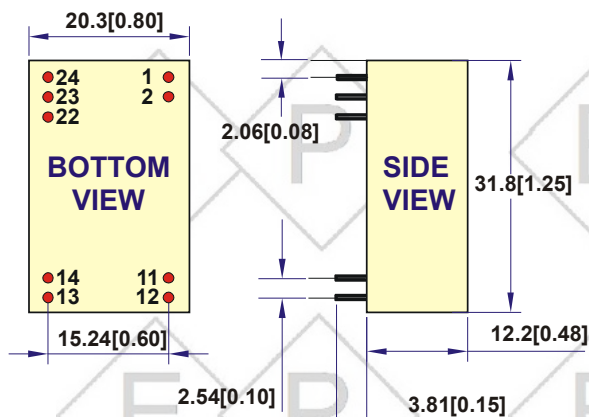
Derating Curve



Mechanical Dimensions

Recommended Footprint Details

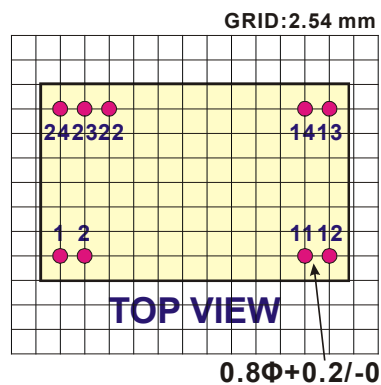
Package "D"



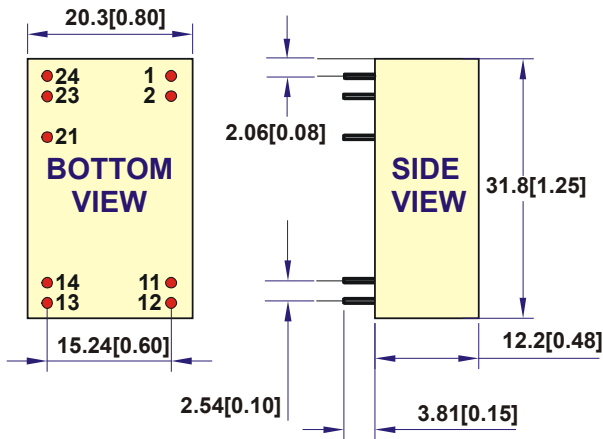
PINOUT	COMMENT
1 & 2 -Vin	Don't connect to -Vout
11 & 12 -Vout	LED - Connection
13 & 14 +Vout	LED + Connection
22 ON/OFF/PWM	Dimming
23 & 24 +Vin	DC Supply

NOTE:
Pin Size is Tolerance 0.60Φ ±0.05mm
All dimensions are in mm(Inches)
Tolerance .X or .XX= ±0.5mm

All dimensions are in mm[inches]



Package "DA"



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

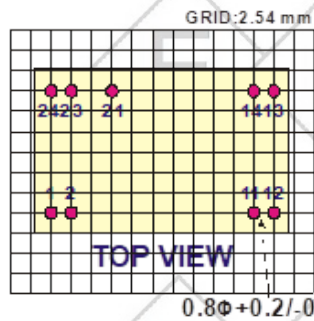
NOTE:

Pin Size is Tolerance $0.60\phi \pm 0.05\text{mm}$

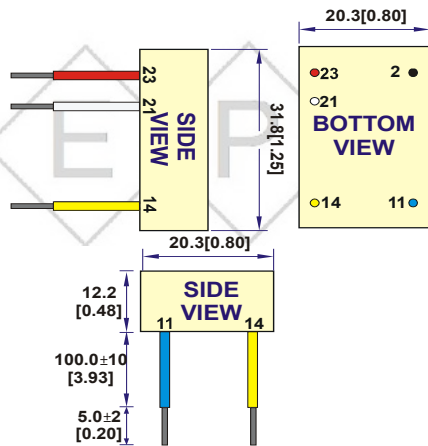
All dimensions are in mm [inches]

Tolerance .X or .XX= $\pm 0.5\text{mm}$

All dimensions are in mm[inches]



PACKAGE "W"



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

NOTE:

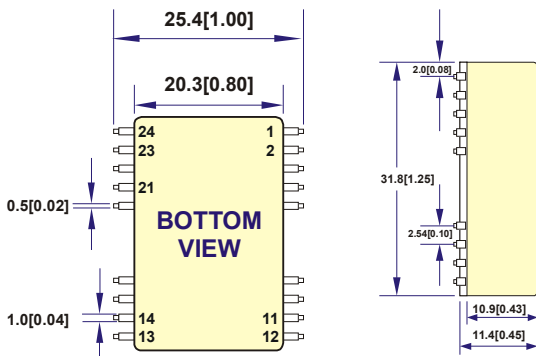
Pin Size is Tolerance $0.60\phi \pm 0.05\text{mm}$

All dimensions are in mm [inches]

Tolerance .X or .XX= $\pm 0.5\text{mm}$

All dimensions are in mm[inches]

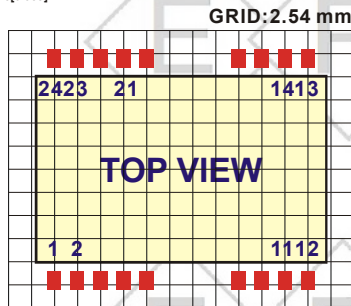
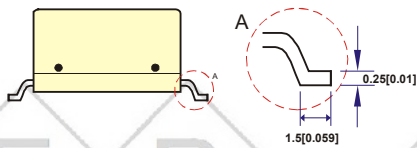
PACKAGE "S"



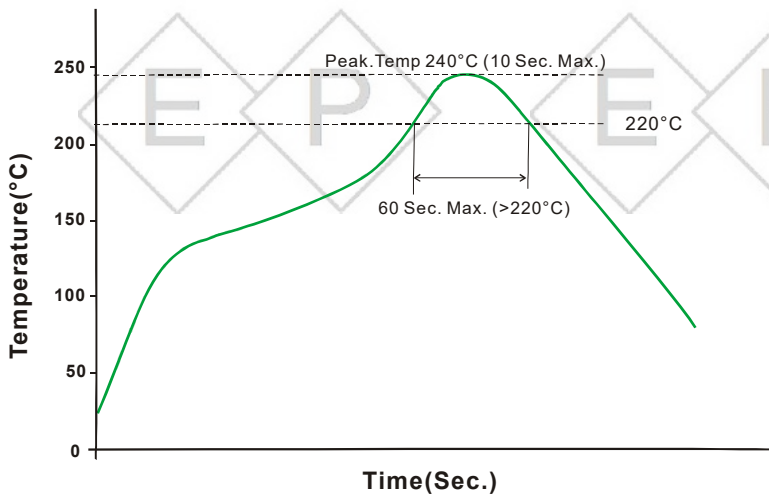
All dimensions are in mm[inches]

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

NOTE : All dimensions are in mm [inches]
Tolerance .X or .XX= ±0.5mm



Reflow Soldering Curve



Remark: The curve applies only to the hot air reflow soldering

Spezifikationen können sich ohne Vorankündigung ändern.

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