

## EPLED24 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 36V  
PWM/DC DIMMING CONTROL  
SHORT CIRCUIT PROTECTED  
INTERNAL SMD TECHNOLOGY  
FULLY ISOLATED PLASTIC CASE WITH IP67 LEVEL  
UL 94V-0 PACKAGE MATERIAL  
RoHS COMPLIANT

#### Description

EPLED-24 series is a high efficiency, constant current and step-down DC/DC converter. The LED DRIVER operates from an input voltage 6Vdc to 36Vdc and provides an externally adjustable output current of up to 1500mA and output power up to 45 watts. It is able to include the function of 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)	DIMMING CONTROL	EFF (%Typ.)
EPLED241.00(D)(W)(S)	24	6-36	2-30	0-1000	PWM/DC	96
EPLED241.20(D)(W)(S)	24	6-36	2-30	0-1200	PWM/DC	96
EPLED241.50(D)(W)(S)	24	6-36	2-30	0-1500	PWM/DC	96

## Partnumbers Structure

Series                      Coding Scheme  
 EPLED24 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)				36	VDC
Recommended Input Voltage		6	24	36	VDC
Input Filter			Capacitor		
Output Voltage range	Vin=36V	2		30	VDC
Output Current Accuracy	Vin=24V,5LEDS		±5	±6	%
Output Current Stability	Vin=24V,1LED to 5LEDS		±5	±6	%
Maximum Capacitive Load				2.2	uF
Operating Frequency				1000	KHz
Ripple & Noise (20MHz BW)				1500	mVp-p
Short Circuit Protection			Continuous		
Temperature Coefficient	-40°C~+71°C ambient			±0.03	%°C
Operating Temperature	1000mA/1200mA/1500mA	-40		71	°C
Storage Temperature		-55		125	°C
Humidity (D) (W)				95	%
Humidity (S)				85	%
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		

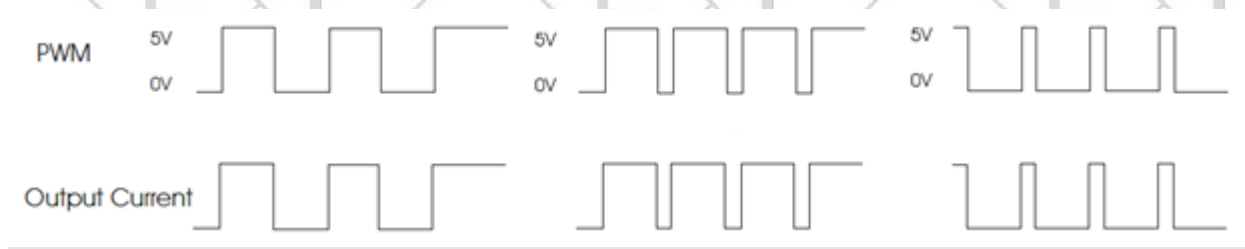
## PWM Dimming and On/Off Control (Leave open if not use)

Project	Working Condition	Min.	Typ.	Max.	Unit
ON/OFF Control	ON (DIM ~ -VIN)	2.6		5.5	VDC
	OFF (DIM ~ -VIN)	0		0.4	VDC
Quiescent Input Current in Shutdown Mode	Vin=24			1	mA
PWM Frequency	For Linear Operation (measured 1%~100% Dimming)	100		500	Hz

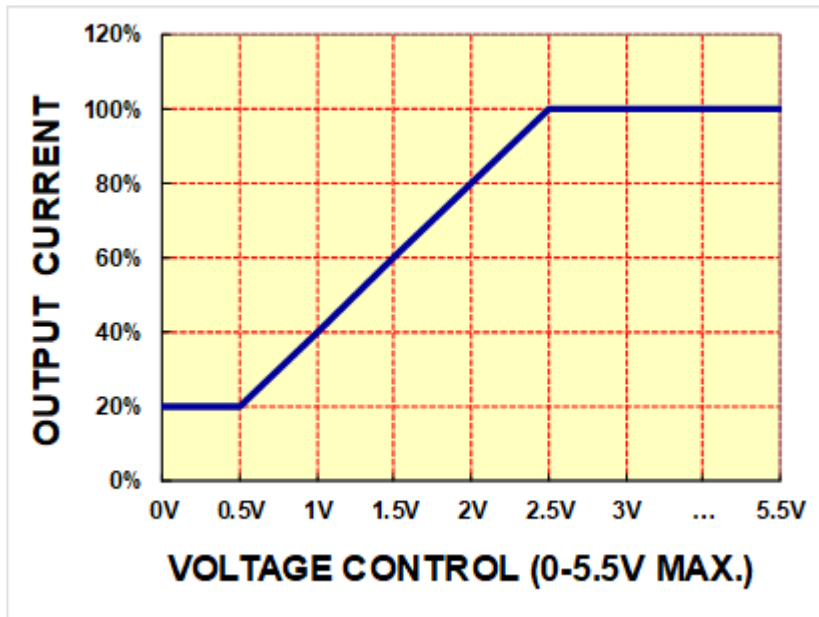
## Analogue Dimming Control (Leave open if not use)

Project	Working Condition	Min.	Typ.	Max.	Unit
Input Voltage Range		0		5.5	VDC
Control Voltage Range Limits	ON (DIM ~ -VIN)	0.5		2.5	VDC
	OFF (DIM ~ -VIN)	0		0.4	VDC
Quiescent Input Current in Shutdown Mode	Vin=24			1	mA

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



## Analogue Dimming Control (measured 20%~100% Dimming)



## Typical Applications

### PWM Dimming control circuit

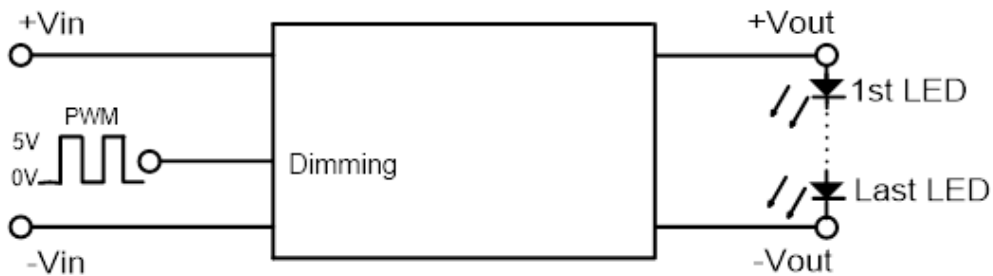
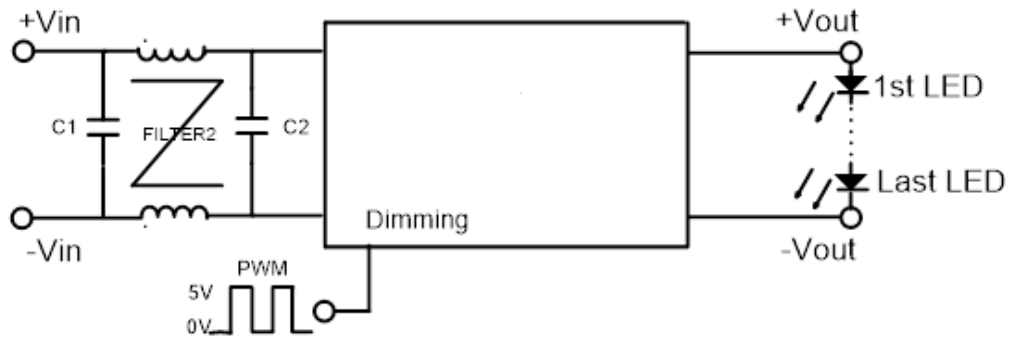


Fig.2

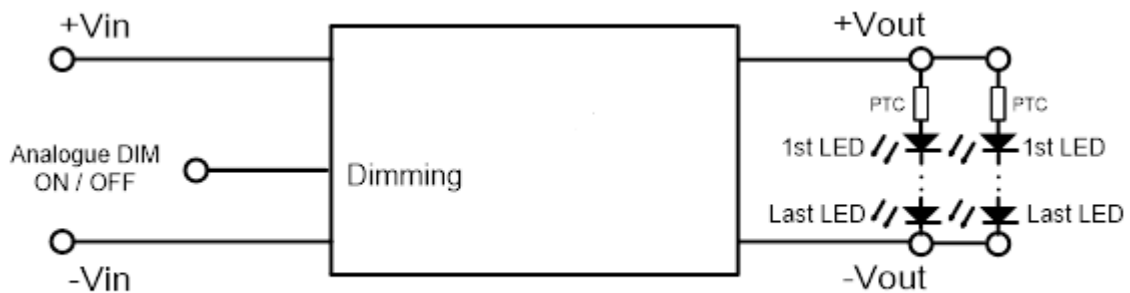
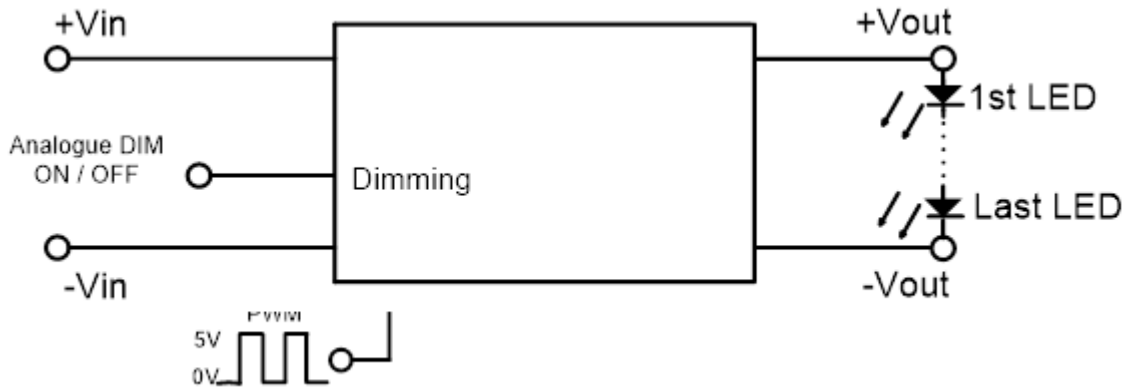
In actual use, if necessary to protect LED, a PTC of positive temperature coefficient may be connect to the input end of every channel or all channels, as shown in Fig.2.

## EMI filter circuit



## Typical Applications

### Analogue Dimming control circuit

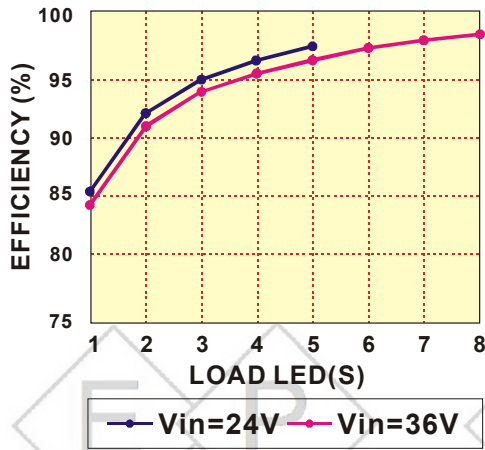


## Efficiency vs. Load

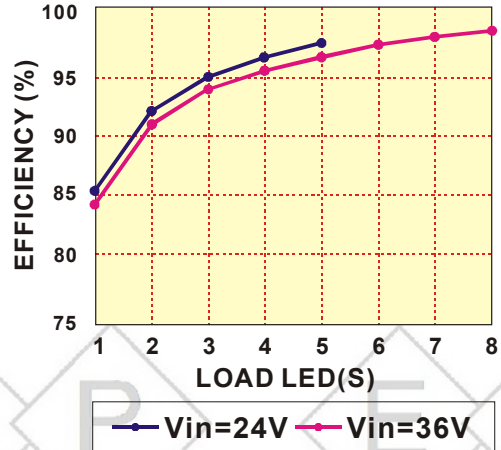
TA=25°C

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

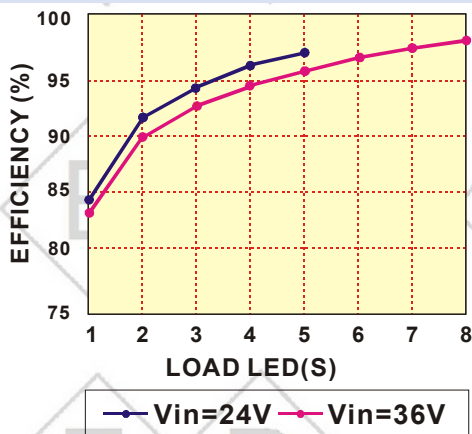
OUTPUT CURRENT 1.0A



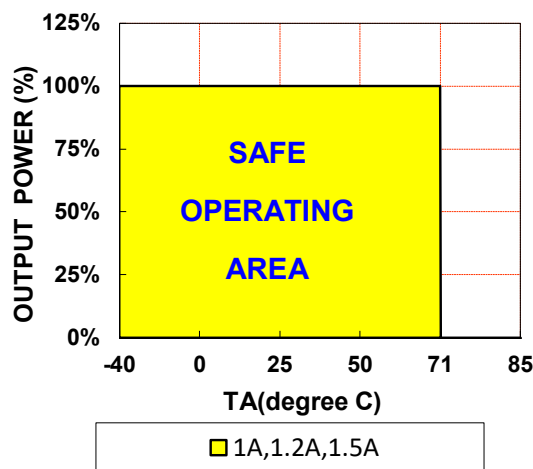
OUTPUT CURRENT 1.20A



OUTPUT CURRENT 1.50A

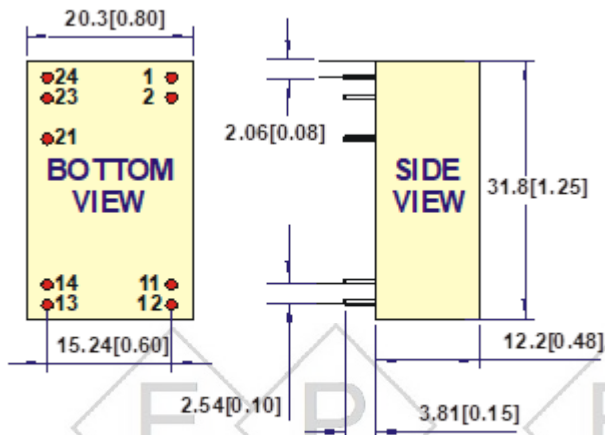


## Derating Curve



**Mechanical Dimensions**  
**Recommended Footprint Details**

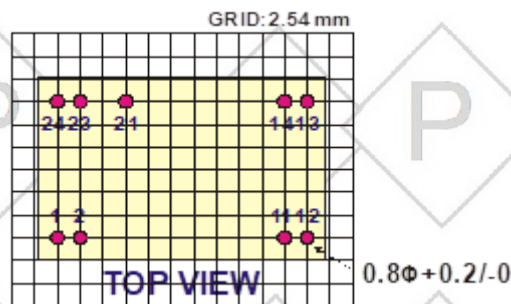
PACKAGE "D"



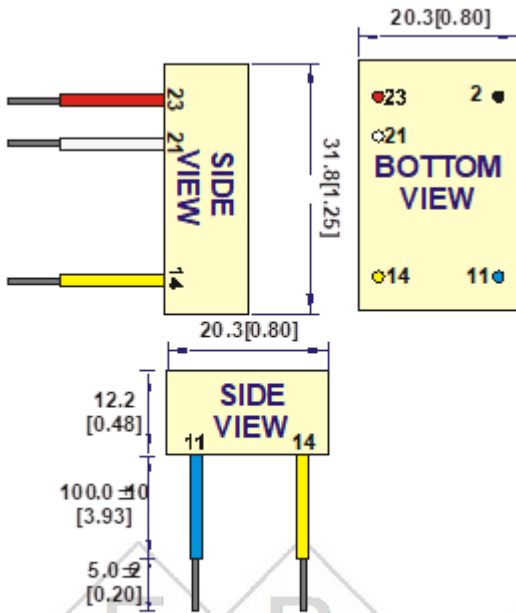
PINOUT	COMMENT
1 & 2	-Vin Don't connect to -Vout
11 & 12	-Vout LED - Connection
13 & 14	+Vout LED + Connection
	ON/OFF/PWM
21	PWM/DC DIM Dimming
	Leave open if not used
23 & 24	+Vin DC Supply

All dimensions are in mm[inches]

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

NOTE:

All dimensions are in mm(Inches)

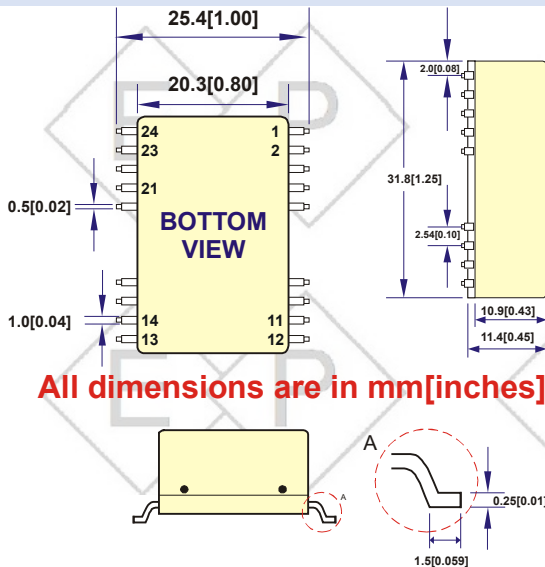
1. Case Tolerance .x or .xx ±0.5mm

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

## PACKAGE "S"



All dimensions are in mm[inches]

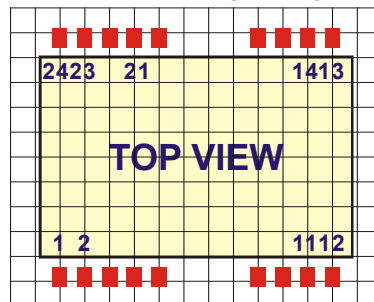
PINOUT	COMMENT
1 & 2 -Vin	Don't connect to -Vout
11 & 12 -Vout	LED - Connection
13 & 14 +Vout	LED + Connection
21 PWM/DC DIM	ON/OFF/PWM/DC Dimming Leave open if not used
23 & 24 +Vin	DC Supply

NOTE:

All dimensions are in mm [inches]

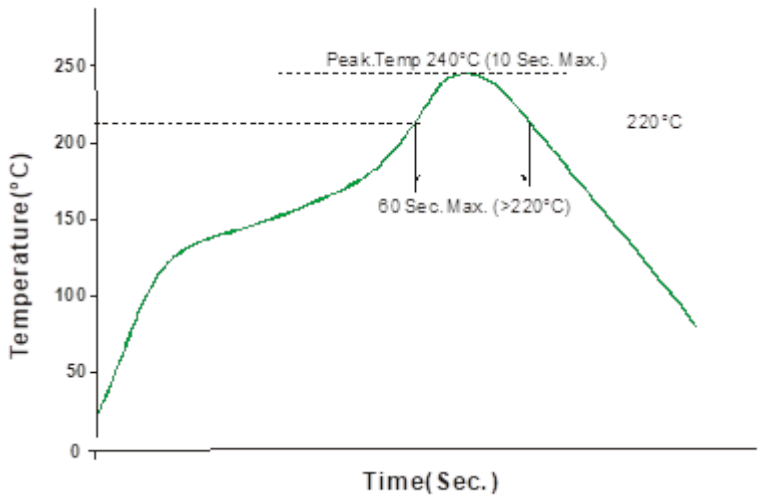
Tolerance .X or .XX= ±0.5mm

GRID: 2.54 mm

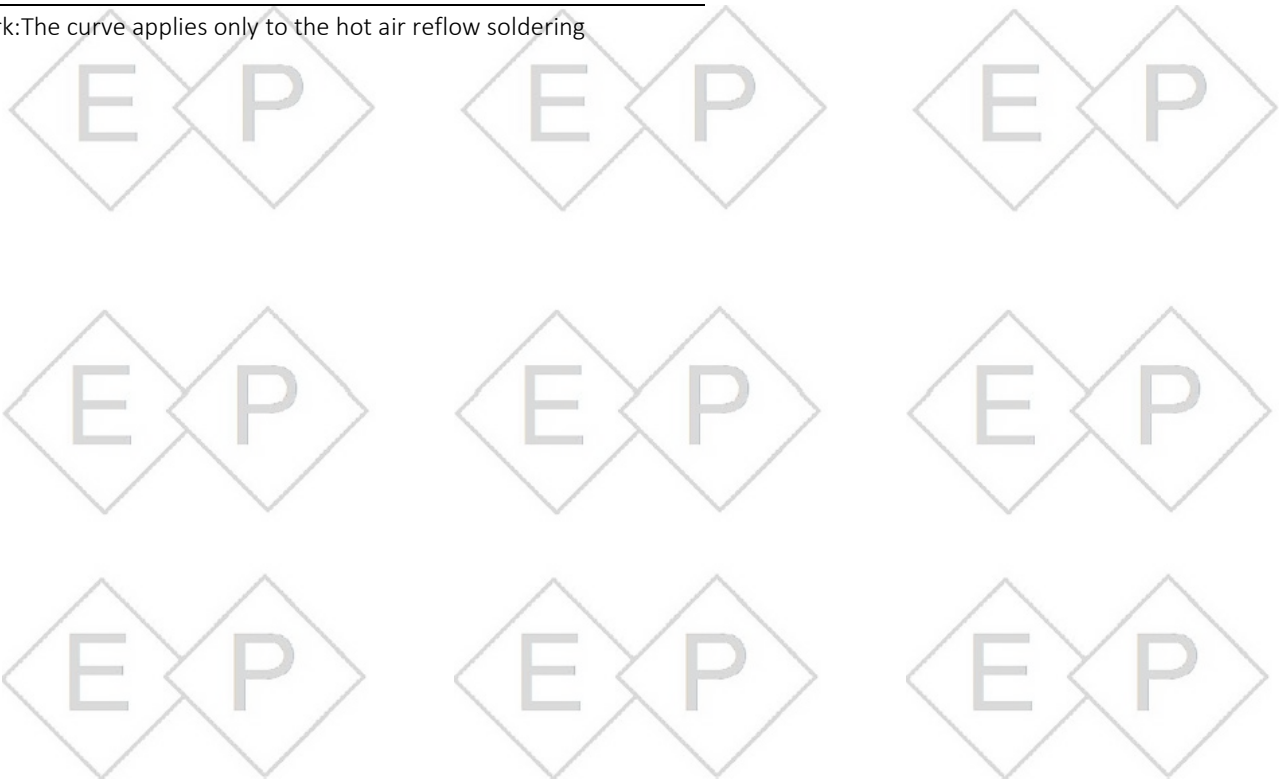




## Reflow Soldering Curve



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.