



BRIGHTTEK

BRIGHTTEK (EUROPE) LIMITED

Brighten up The World With LED!



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

PRODUCT DATASHEET



- ▶ PLCC2 Reverse Mount
- ▶ 3228RV 0.80t Series
- ▶ Cool White 6000K

NOW69S51RV



Release Date: 03 March 2025 Version: A1.1



3228RV 0.80t Series

3228RV 0.80t Series



FEATURES:

- **Package:** PLCC2 SMT Reverse Mount Package
- **Forward Current:** 20mA
- **Forward Voltage (typ.):** 3.2V
- **Luminous Intensity (typ.):** 2500mcd/7.5lm@20mA
- **Colour:** Cool White
- **Colour Temperature (typ.):** 6000K
- **Viewing Angle:** 120°
- **Materials:**
 - Resin: Silicon (Yellow Diffused)
 - L/T Finish: Ag plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+85°C
- **Grouping Parameters:**
 - Forward Voltage
 - Luminous Intensity
 - CIE Chromaticity
- **Soldering Methods:** Infrared Reflow, Vapor-Phase Reflow, Wave Solder
- **MSL:** 5a according to J-STD020
- **Packing:** 12mm tape with max.2000pcs /reel, ø178mm (7")

APPLICATIONS:

- Instrument Panel Backlighting
- Switch Push Button
- Electronic Signs and Signals
- Office Automation,
- Home Appliances
- Light Pipe

CHARACTERISTICS:

Absolute Maximum Characteristics ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	25	mA
Pulse Forward Current Duty Factor 10%, Frequency 1kHz	I_{PF}	100	mA
Power Dissipation	P_D	85	mW
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature	T_{OPR}	$-40^{\circ}\sim+85^{\circ}$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-40^{\circ}\sim+85^{\circ}$	$^{\circ}\text{C}$
Soldering Temperature	T_{SOL}	260 for 5S	$^{\circ}\text{C}$
Colour Rendering Index	CRI	min.70	---

Electrical & Optical Characteristics ($T_a=25^{\circ}\text{C}$)

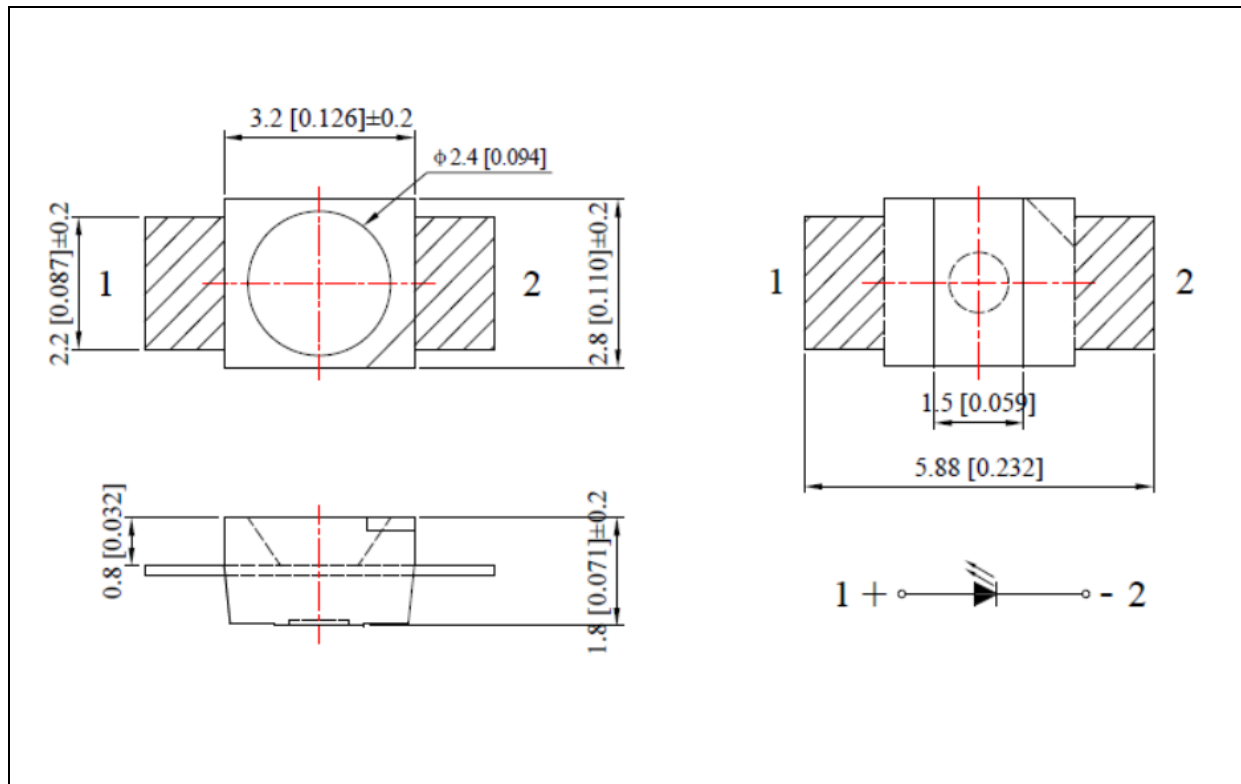
Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.8	3.2	3.6	V	$I_F=20\text{mA}$
Luminous Intensity	I_v	2000	2500	---	mcd	$I_F=20\text{mA}$
Luminous Flux	Φ_v	6	7.5	---	lm	$I_F=20\text{mA}$
Chromaticity Coordinates	X	---	0.3100	---	---	$I_F=20\text{mA}$
	Y	---	0.3250	---		
Colour Temperature	CCT	---	6000	---	K	$I_F=20\text{mA}$
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	$I_F=20\text{mA}$

1. Luminous intensity (I_v) $\pm 10\%$, Forward Voltage (V_F) $\pm 0.1\text{V}$, Viewing angle($2\theta_{1/2}$) $\pm 5^{\circ}$



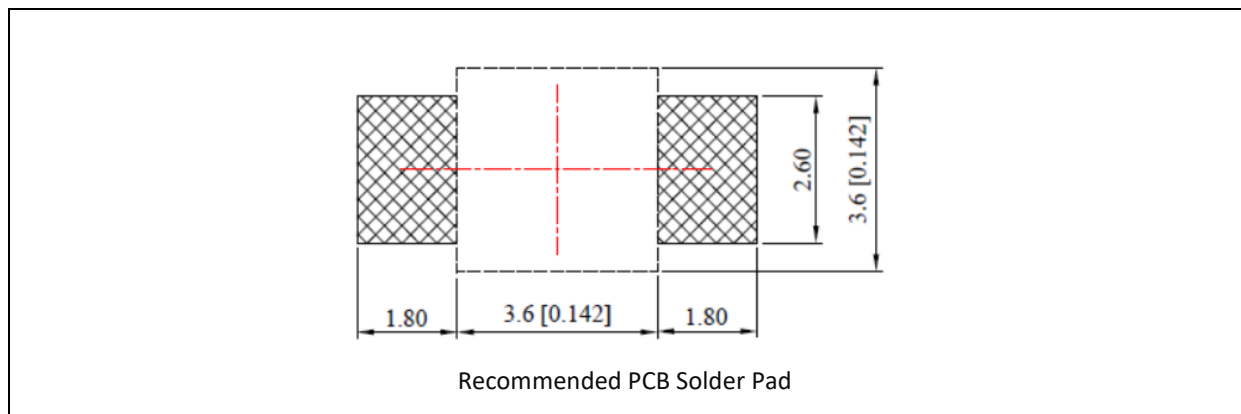
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.13\text{mm}$, unless otherwise noted.

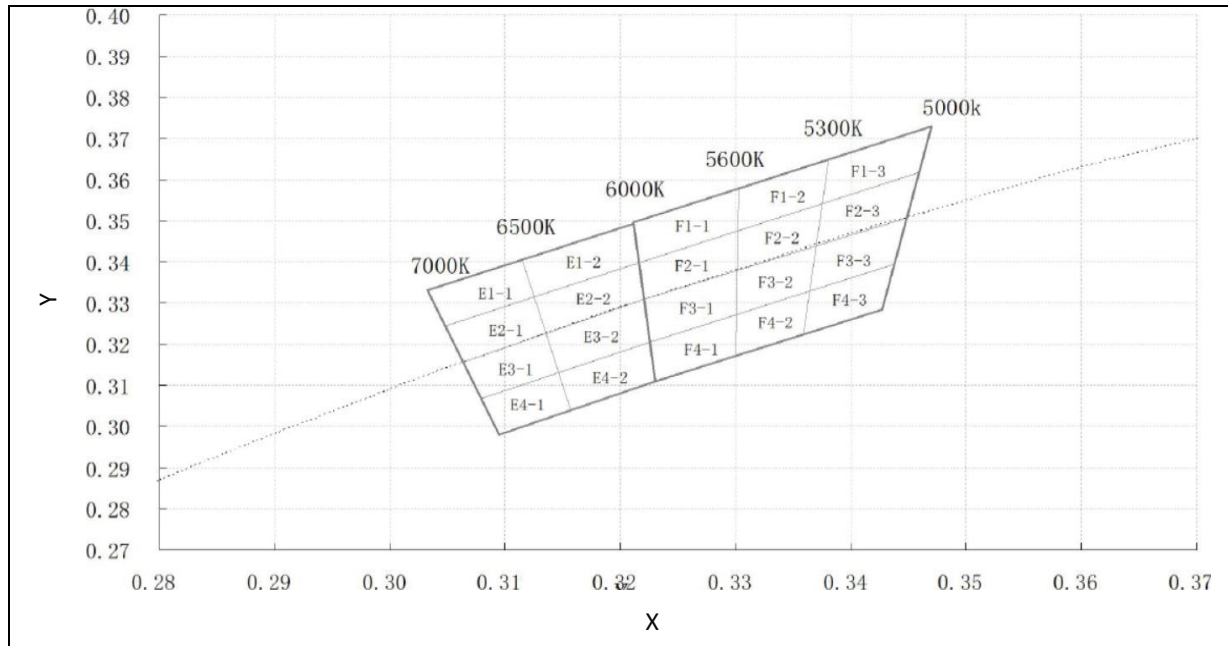
Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.12\text{mm}$ with angle tolerance $\pm 0.5^\circ$.

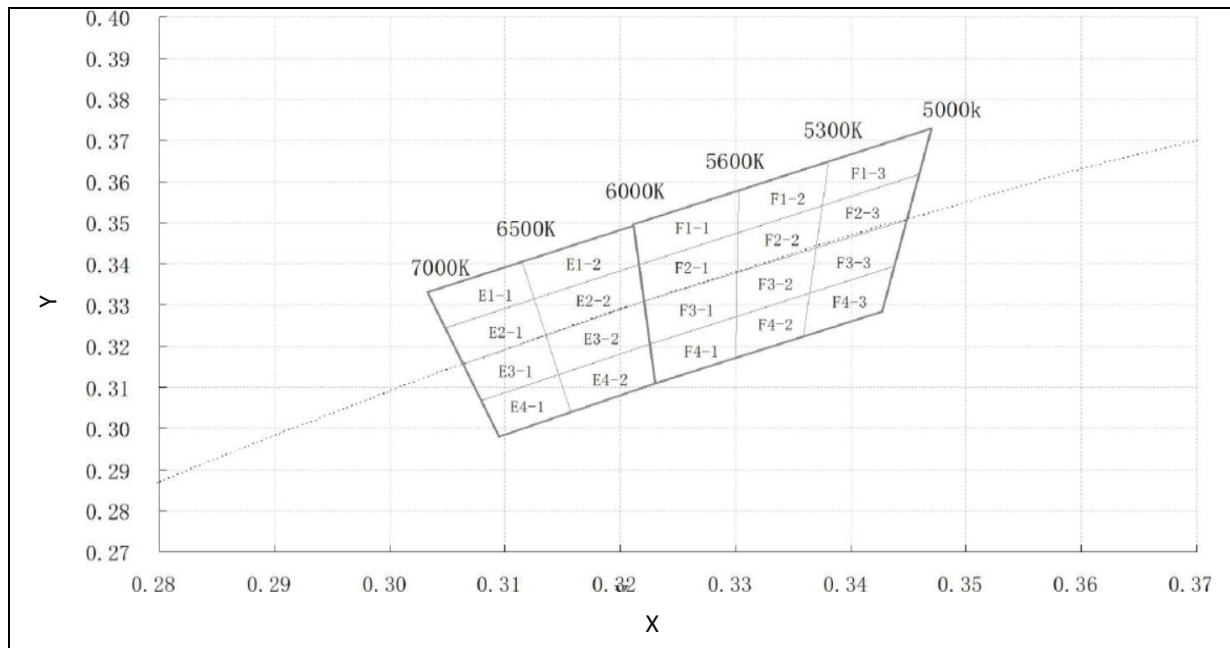


CIE CHROMATICITY DIAGRAM:



Chromaticity Coordinates Classifications ($I_F = 20\text{mA}$):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
E1-1	0.3050	0.3240	0.3130	0.3310	0.3120	0.3410	0.3030	0.3330
E2-1	0.3060	0.3160	0.3140	0.3230	0.3130	0.3310	0.3050	0.3240
E3-1	0.3080	0.3070	0.3150	0.3130	0.3140	0.3230	0.3060	0.3160
E4-1	0.3100	0.2980	0.3160	0.3040	0.3150	0.3130	0.3080	0.3070
E1-2	0.3130	0.3310	0.3230	0.3400	0.3230	0.3490	0.3120	0.3410
E2-2	0.3140	0.3230	0.3230	0.3300	0.3230	0.3400	0.3130	0.3310
E3-2	0.3150	0.3130	0.3230	0.3210	0.3230	0.3300	0.3140	0.3230
E4-2	0.3160	0.3040	0.3230	0.3110	0.3230	0.3210	0.3150	0.3130
F1-1	0.3230	0.3400	0.3300	0.3470	0.3300	0.3570	0.3230	0.3490
F2-1	0.3230	0.3300	0.3300	0.3370	0.3300	0.3470	0.3230	0.3400
F3-1	0.3430	0.3210	0.3300	0.3270	0.3300	0.3370	0.3230	0.3300
F4-1	0.3230	0.3110	0.3300	0.3170	0.3300	0.3270	0.3230	0.3210
F1-2	0.3300	0.3470	0.3370	0.3540	0.3380	0.3650	0.3300	0.3570
F2-2	0.3300	0.3370	0.3370	0.3430	0.3370	0.3540	0.3300	0.3470
F3-2	0.3300	0.3270	0.3370	0.3330	0.3370	0.3430	0.3300	0.3370
F4-2	0.3300	0.3170	0.3370	0.3220	0.3370	0.3330	0.3300	0.3270

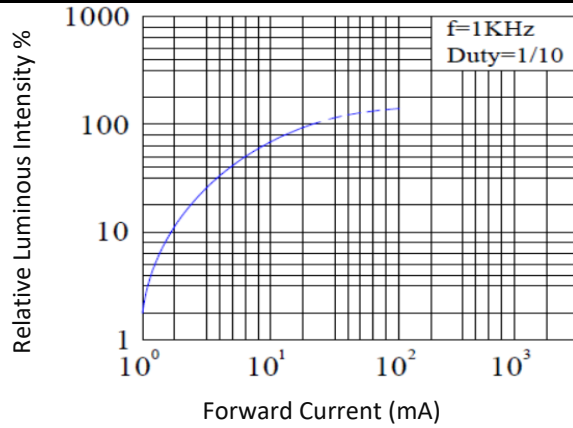


Chromaticity Coordinates Classifications ($I_F = 20\text{mA}$):

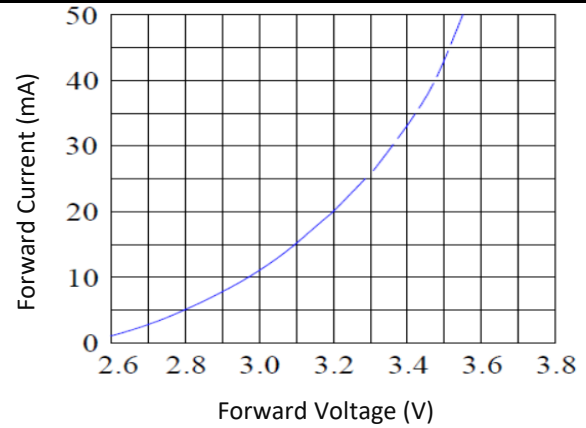
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
F1-3	0.3370	0.3540	0.3460	0.3620	0.3470	0.3730	0.3380	0.3650
F2-3	0.3370	0.3430	0.3450	0.3510	0.3460	0.3620	0.3370	0.3540
F3-3	0.3370	0.3330	0.3440	0.3400	0.3450	0.3510	0.3370	0.3430
F4-3	0.3370	0.3220	0.3430	0.3280	0.3440	0.3400	0.3370	0.3330

ELECTRO-OPTICAL CHARACTERISTICS:

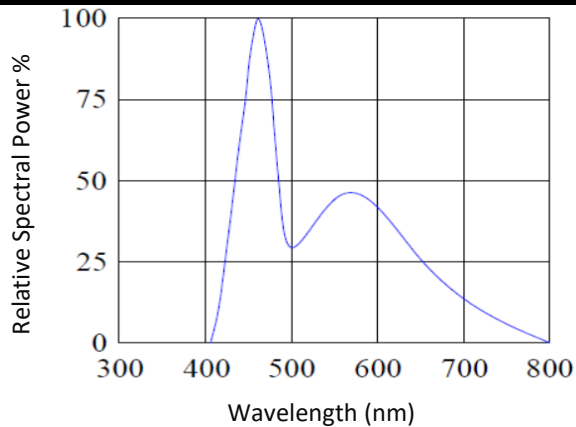
Relative Luminous Intensity v.s. Forward Current



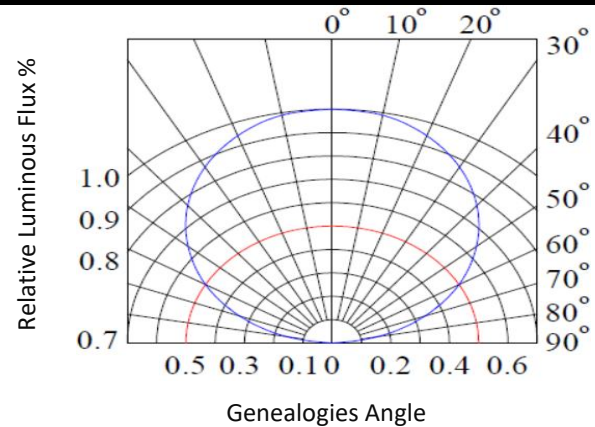
Forward Current v.s. Forward Voltage



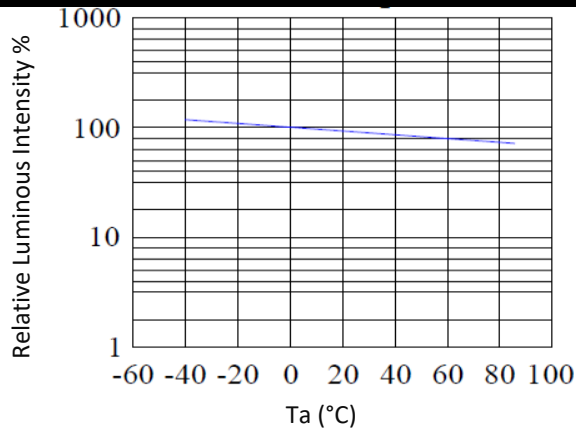
Relative Spectral Power v.s. Wavelength



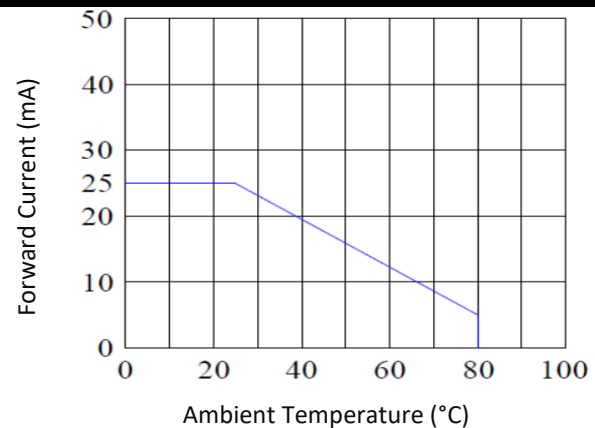
Directive Radiation



Relative Luminous Intensity v.s. Temperature



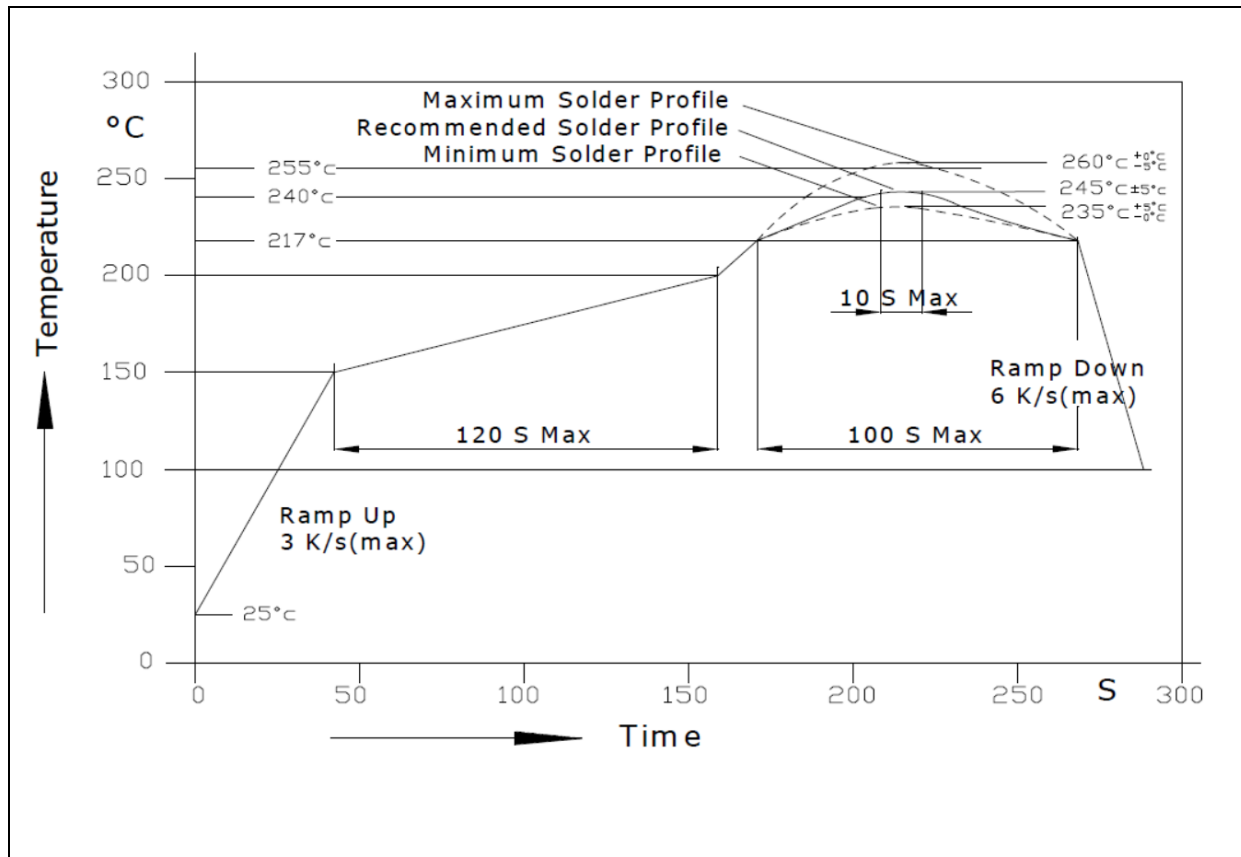
Forward Current Derating Curve





RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



Note:

1. Maximum reflow soldering: 2 times.
2. The recommended reflow temperature is 240°C. The maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

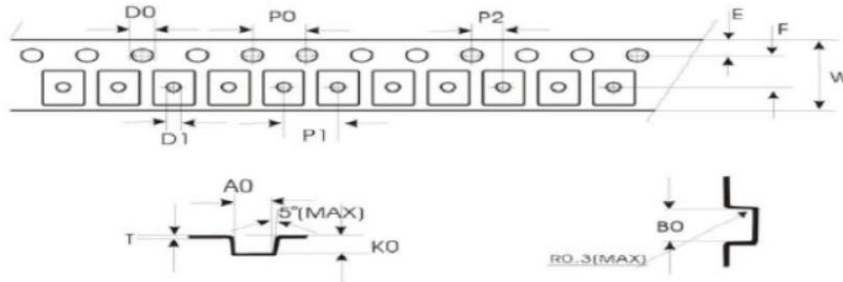


PACKING SPECIFICATION:

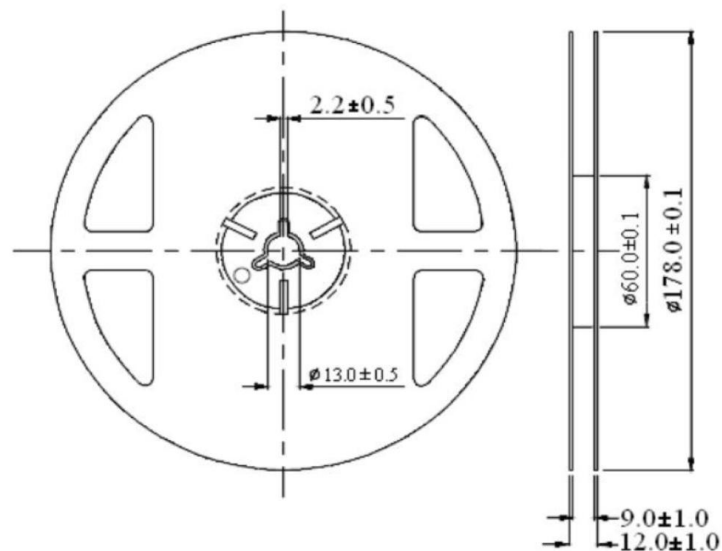
Reel Dimension:

Max.2000pcs/reel

Tape Dimension



Symbol	A0	B0	K0	P0	P1	P2	T
Spec	3.10±0.1	6.45±0.05	2.15±0.05	4.0±0.1	4.0±0.1	2.00±0.05	0.23±0.03
Symbol	E	F	D0	D1	W	10P0	
Spec	1.75±0.10	5.5±0.05	1.5±0.1	1.5±0.1	12±0.1	40.0±0.2	



PRECAUTIONS OF USE:

Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 months at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within 24 hours. Otherwise, they should be kept in a damp-proof box with desiccating agent <10% R.H. and apply baking before use.

Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:

- 65±5°C x 24hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	16/09/2022	Datasheet set-up.
A1.1	03/03/2025	New datasheet format.