BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED !

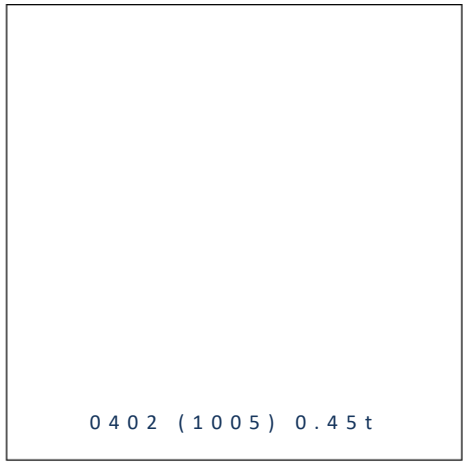
ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ▶ PCB/CHIP LED
- ▶ 0402 (1005) 0.45t
- ▶ Sky White (Ice Blue)

Release Date: 23 April 2025 Version: A1.1

N0W70S58-5MA



0402 (1005) 0.45t

0402 (1005) 0.45t

RoHS Compliant

FEATURES:

- **Package:** CHIP / PCB Top View SMD Package
- **Forward Current:** 5mA
- **Forward Voltage (typ.):** 3.0V
- **Luminous Intensity (typ.):** 285mcd@5mA
- **Colour:** Sky White
- **Chromaticity Coordinates (typ.):** X=0.2500; Y=0.2350
- **Viewing Angle:** 120°
- **Materials:**
  - Resin: Epoxy (Yellow Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+85°C
- **Grouping Parameters:**
  - Forward Voltage
  - Luminous Intensity
  - CIE Chromaticity
- **Soldering Methods:** Reflow Soldering
- **MSL Level:** 3 according to JEDEC
- **Packing:** 8mm tape with max.5000/reel, ø178mm (7'')

APPLICATIONS:

- Signal Light
- Back Light
- Indication Light
- Indoor Decoration
- 3C Electronics

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CHARACTERISTICS:

Absolute Maximum Characteristics (T_a=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	20	mA
Pulse Forward Current Duty Factor 10%; Frequency 1kHz	I_{FP}	100	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Power Dissipation	P_D	72	mW
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+85	°C
Electrostatics Discharge (HBM)	ESD	1000	V
Soldering Temperature	T_{SOL}	260	°C

Electrical & Optical Characteristics (T_a=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.5	2.9	3.1	V	I_F=5mA
Luminous Intensity	Φ_V	225	285	450	mcd	I_F=5mA
Chromaticity Coordinates	X	---	0.2500	---	---	I_F=5mA
	Y	---	0.2350	---		
Colour Temperature	CCT	---	35000	---	K	I_F=5mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=5mA

1. Luminous Intensity (Φ_V) ±10%, Forward Voltage (V_F) ±0.1V, Viewing angle($2\theta_{1/2}$) ±5%, Coordinate (X, Y) ±0.006

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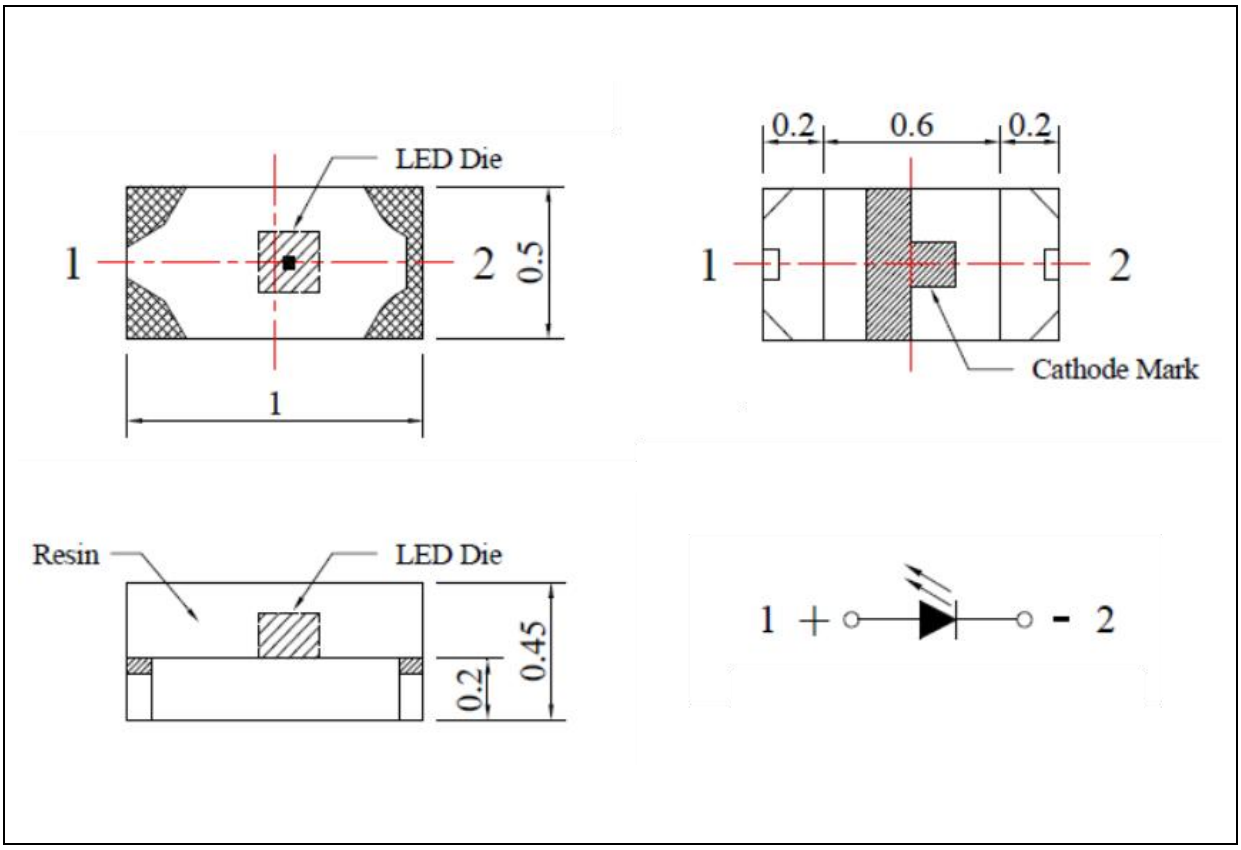
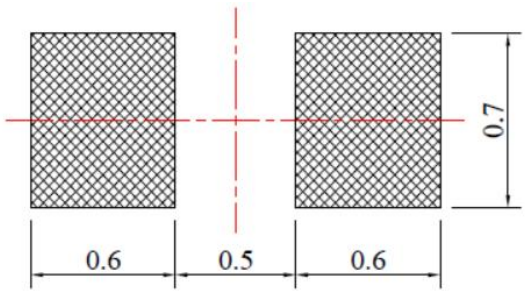
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.13mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



Recommended PCB Solder Pad

1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

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BINNING GROUPS:

Forward Voltage Classifications (I_F = 5mA):

Code	Min.	Max.	Unit
0	2.5	2.6	V
1	2.6	2.7	
2	2.7	2.8	
3	2.8	2.9	
4	2.9	3.0	
5	3.0	3.1	

Luminous Intensity Classifications (I_F = 5mA):

Code	Min.	Max.	Unit
M2	225	285	mcd
N1	285	360	
N2	360	450	

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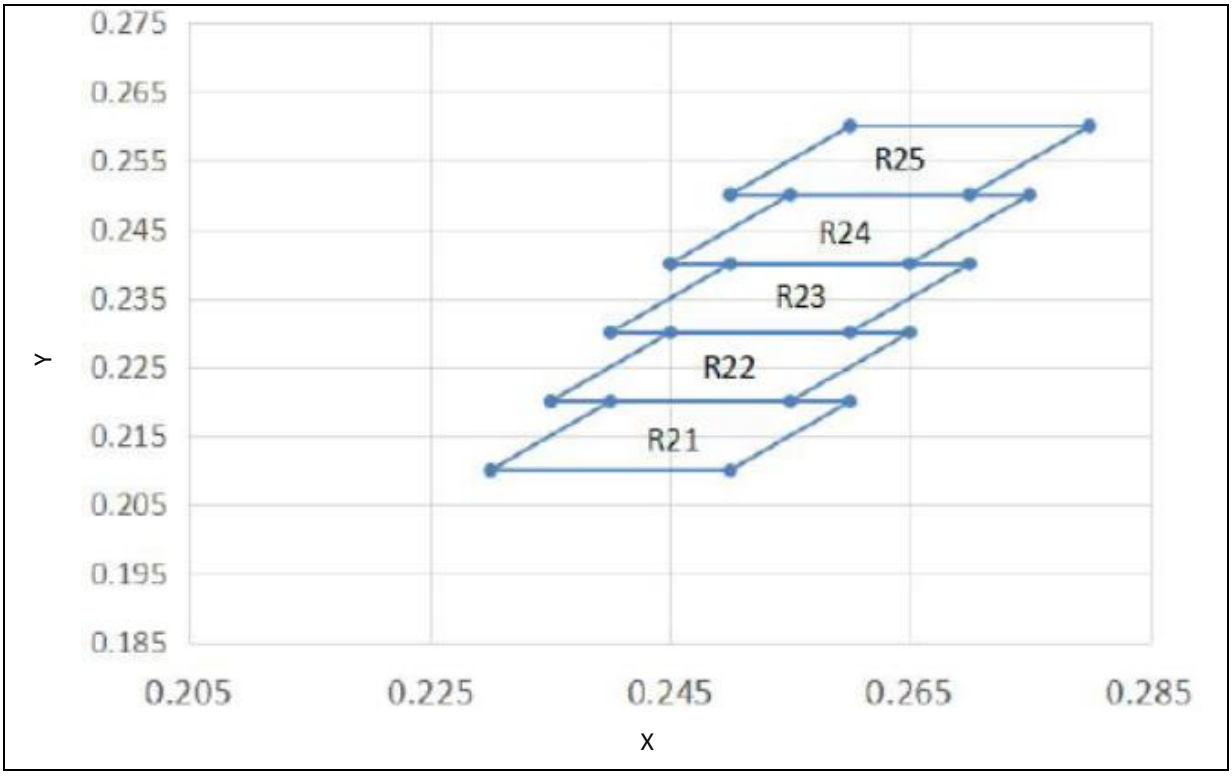
CIE CHROMATICITY DIAGRAM:



Chromaticity Coordinates Classifications (I_F = 5mA):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
R21	0.2300	0.2100	0.2400	0.2200	0.2600	0.2200	0.2500	0.2100
R22	0.2350	0.2200	0.2450	0.2300	0.2650	0.2300	0.2550	0.2200
R23	0.2400	0.2300	0.2500	0.2400	0.2700	0.2400	0.2600	0.2300
R24	0.2450	0.2400	0.2550	0.2500	0.2750	0.2500	0.2650	0.2400
R25	0.2500	0.2500	0.2600	0.2600	0.2800	0.2600	0.2700	0.2500

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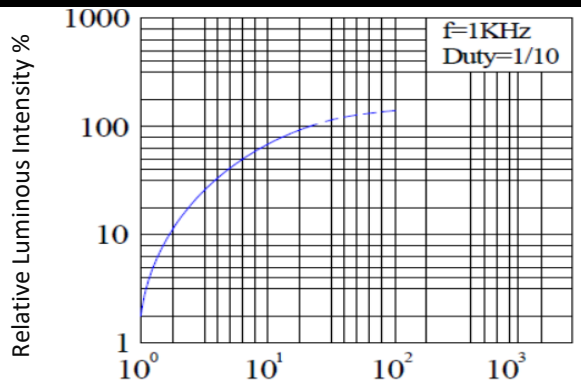
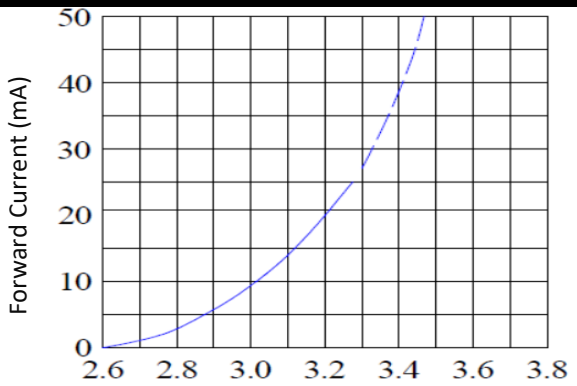
ELECTRO-OPTICAL CHARACTERISTICS:

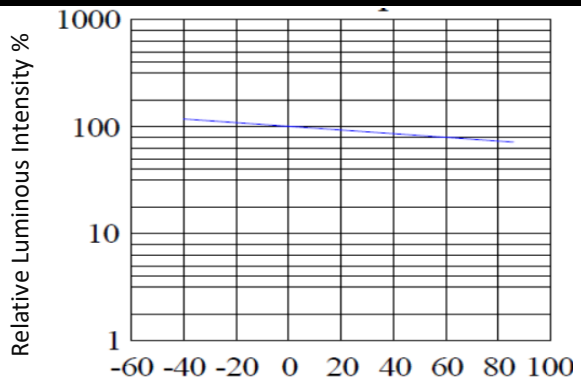
Relative Luminous Intensity v.s. Forward Current



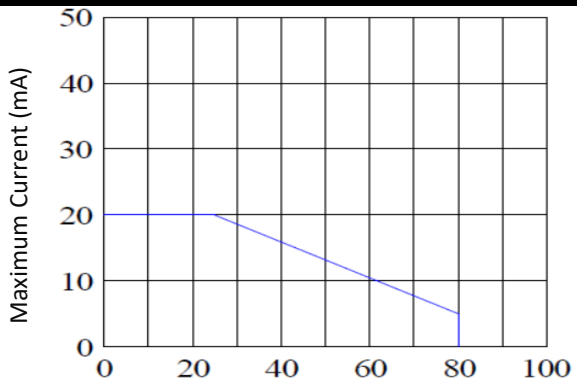
Forward Voltage v.s. Forward Current



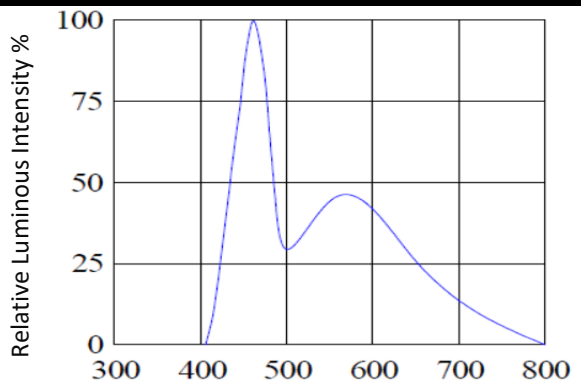
Relative Luminous Intensity v.s. Ambient Temp.



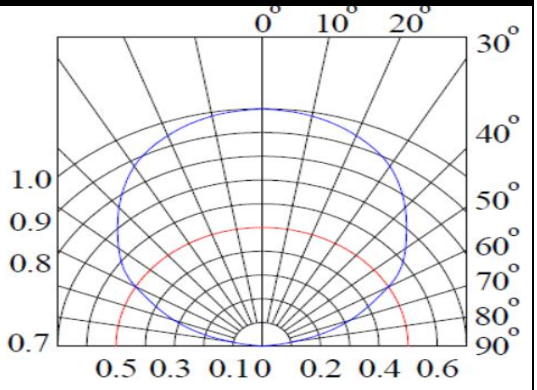
Forward Current Derating Curve



Relative Luminous Intensity v.s. Wavelength



Directive Radiation



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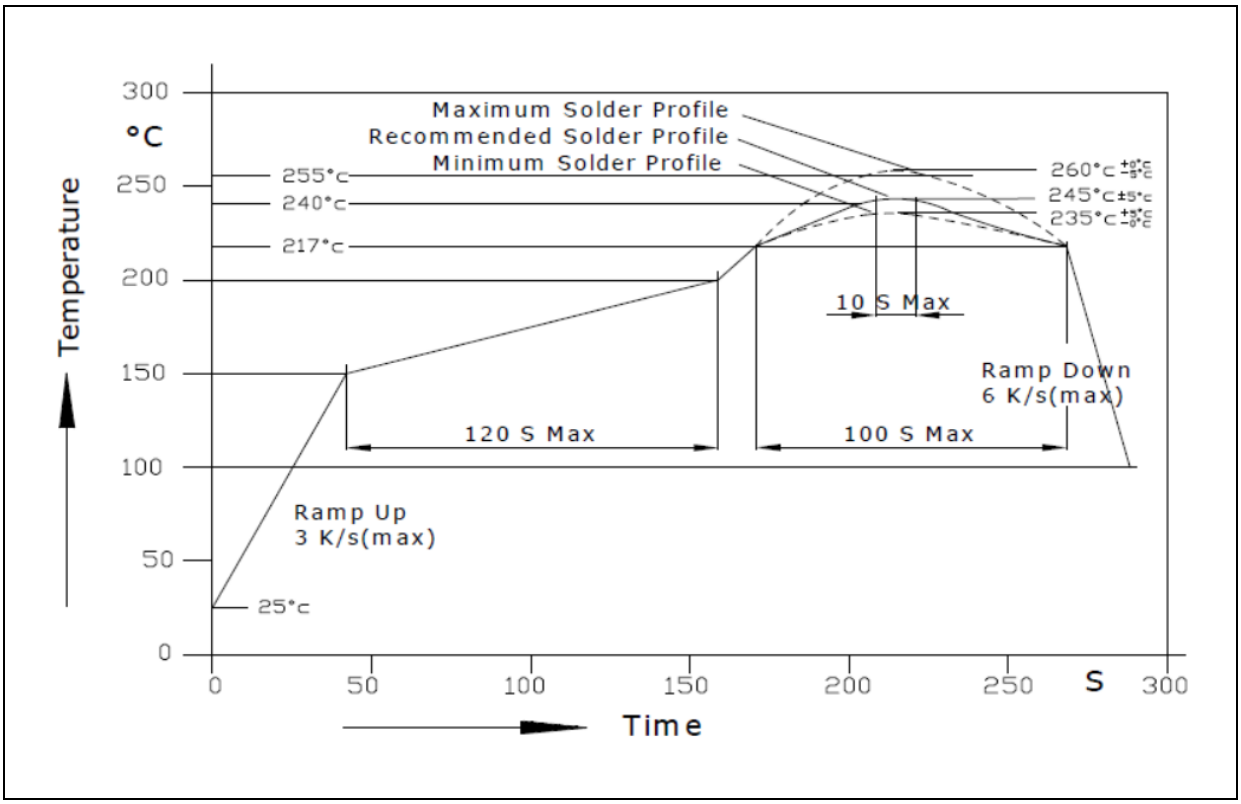
RECOMMENDED SOLDERING PROFILE:

IR Reflow Lead-free Solder:



Note:

1. Maximum reflow soldering: 2 times.
2. Recommended reflow temperature: 240°C. 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.

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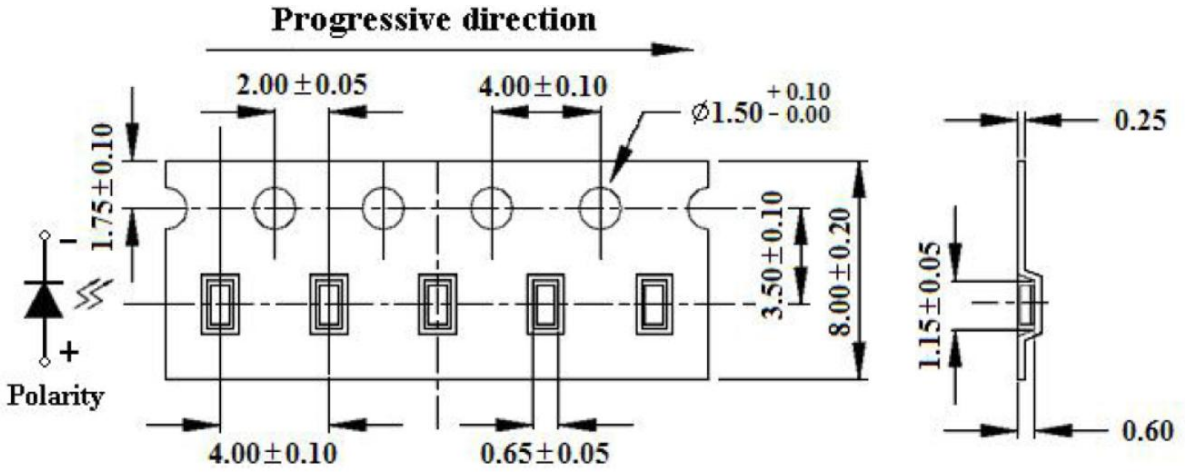
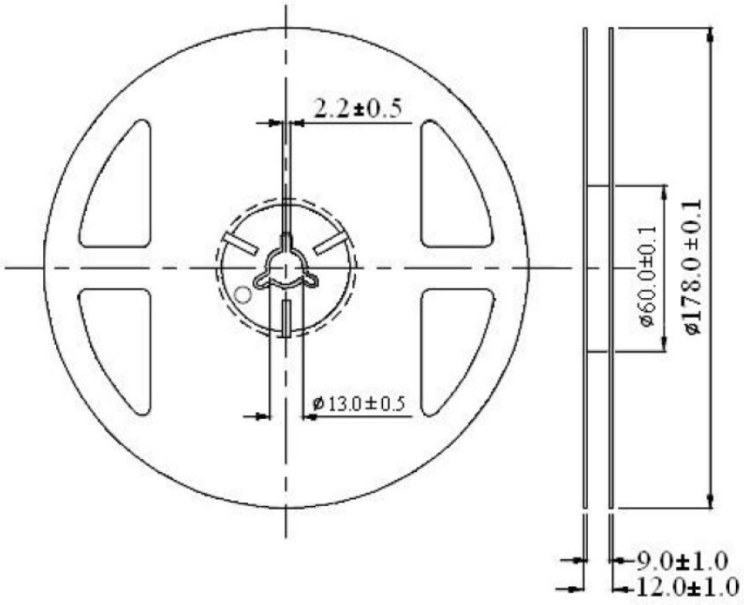
PACKING SPECIFICATION:

Reel Dimension:

Max.5000pcs/reel





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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 month at 5°C~30°C and <60% R.H.

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

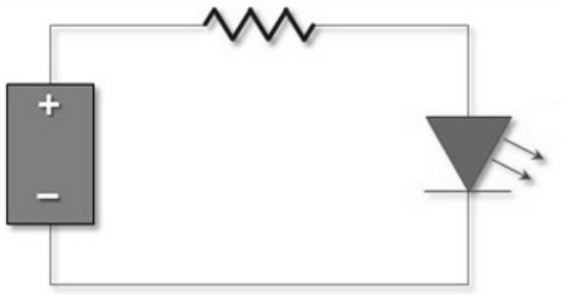
Baking:

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-electrosatic glove is recommended when handing 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.

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REVISION RECORD:

Version	Date	Summary of Revision
A1.0	22/03/2022	Datasheet set-up.
A1.1	23/04/2025	New datasheet format.

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