BRIGHTEK

BRIGHTEK (EUROPE) LIMITED

Brighten Up The World With LED!

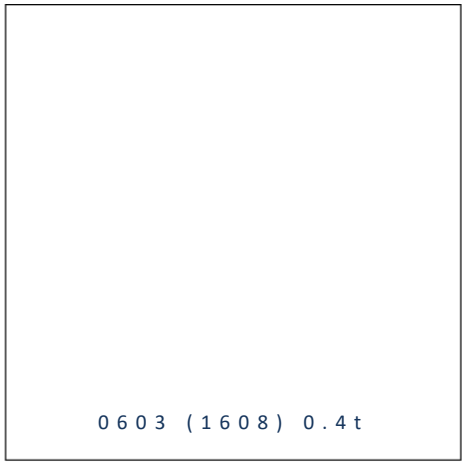
ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

PRODUCT DATASHEET

- ▶ CHIP LED
- ▶ 0603 (1608) 0.4t
- ▶ Sky White (9000K)

Release Date: 17 July 2018 Version: A1.1

N0W29S24-10MA



0603 (1608) 0.4t

RoHS Compliant

FEATURES:

- **Package:** CHIP / PCB Top View SMD Package
- **Forward Current:** 10mA
- **Forward Voltage (typ.):** 3.0V
- **Luminous Intensity (typ.):** 360mcd@10mA
- **Colour:** Sky White
- **Colour Temperature (CCT):** 9000K
- **Viewing angle:** 140°
- **Materials:**
  - Die: InGaN
  - Resin: Silicon (Yellow Diffused)
  - L/T Finish: Au plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Intensity
  - CIE Chromaticity
- **Soldering methods:** Reflow Soldering
- **Preconditioning:** MSL2a according to JEDEC
- **Packing:** 8mm tape with max. 4000/reel, ø180mm (7'')

APPLICATIONS:

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

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	30	mA
Pulse Forward Current (Duty 1/10, width 0.1ms)	I_{PF}	100	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Power Dissipation	P_D	100	mW
Junction Temperature	T_j	110	°C
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C
Electrostatics Discharge (HBM)	ESD	1000	V
Soldering Temperature	T_{SOL}	260	°C

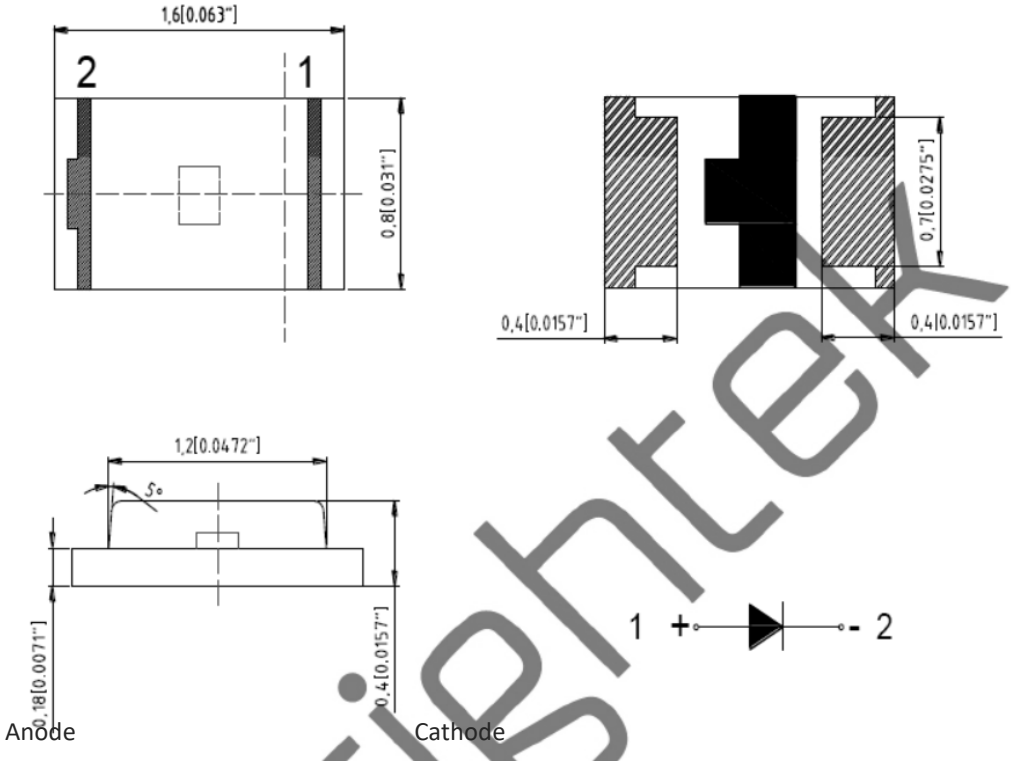
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.5	---	3.4	V	I_F=10mA
Luminous Intensity	Φ_V	250	360	---	mcd	I_F=10mA
Chromaticity Coordinates	X	---	0.288	---	---	I_F=10mA
	Y	---	0.284	---		
Colour Temperature	CCT	---	9000	---	K	I_F=10mA
Viewing Angle	$2\theta_{1/2}$	---	140	---	deg	I_F=10mA

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

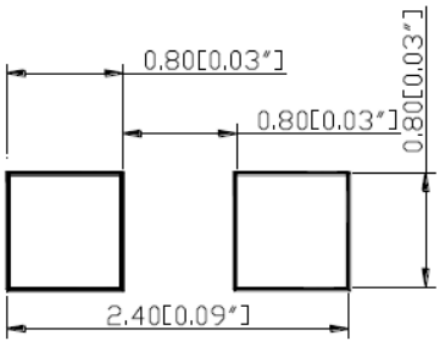
OUTLINE DIMENSION:

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°.

BINNING GROUPS:

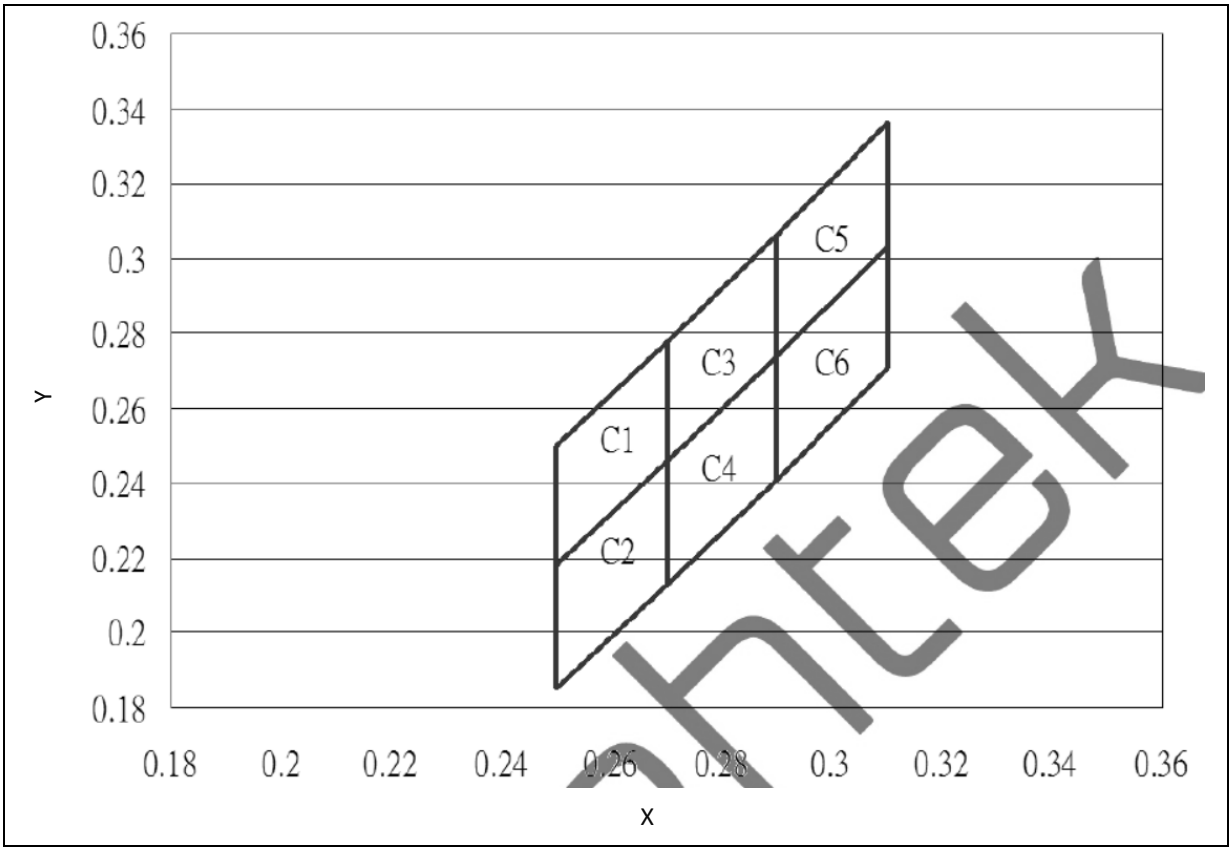
Forward Voltage Classifications (I_F = 10mA):

Code	Min.	Max.	Unit
E	2.5	2.8	V
F	2.8	3.1	
G	3.1	3.4	

Luminous Intensity Classifications (I_F = 10mA):

Code	Min.	Max.	Unit
N	250	320	mcd
O	320	400	
P	400	500	
Q	500	630	

CIE CHROMATICITY DIAGRAM:

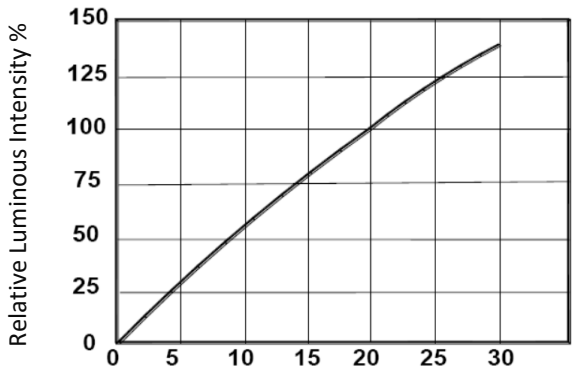


Chromaticity Coordinates Classifications (I_F = 10mA):

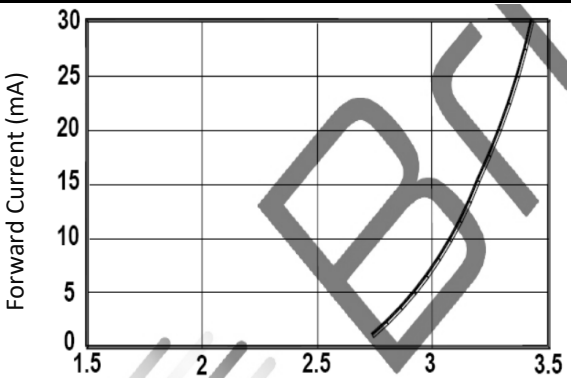
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
C1	0.270	0.278	0.250	0.250	0.250	0.218	0.270	0.246
C2	0.270	0.246	0.250	0.218	0.250	0.185	0.270	0.213
C3	0.290	0.306	0.270	0.278	0.270	0.246	0.290	0.274
C4	0.290	0.274	0.270	0.246	0.270	0.213	0.290	0.241
C5	0.310	0.336	0.290	0.306	0.290	0.274	0.310	0.303
C6	0.310	0.303	0.290	0.274	0.290	0.241	0.310	0.271

ELECTRO-OPTICAL CHARACTERISTICS:

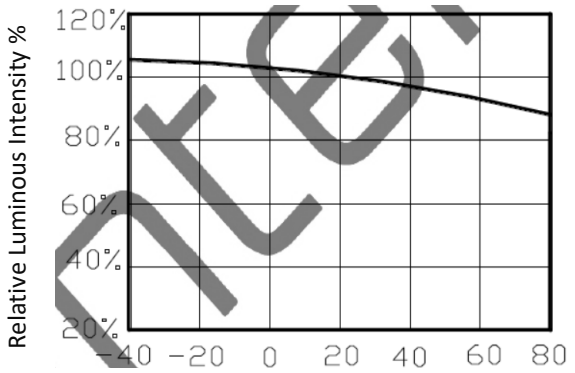
Relative Luminous Intensity v.s. Forward Current



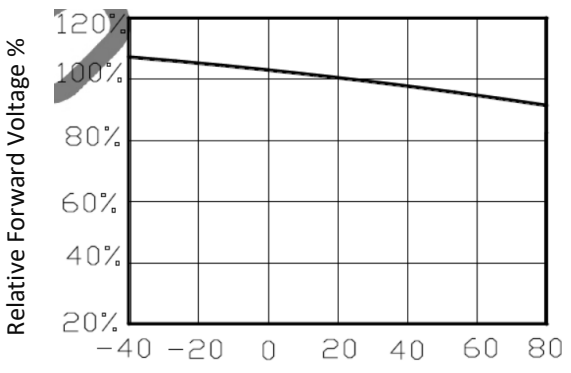
Forward Voltage v.s. Forward Current



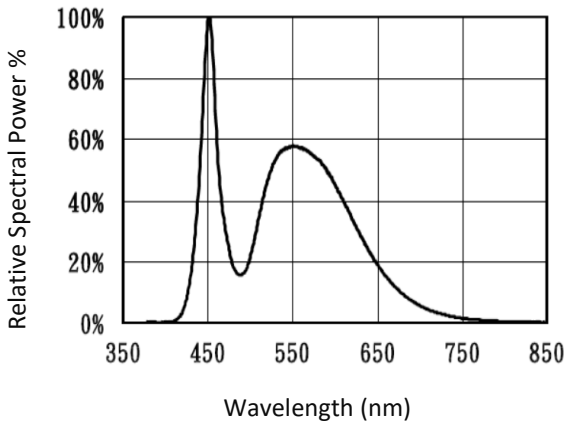
Relative Luminous Intensity v.s. Ambient Temp.



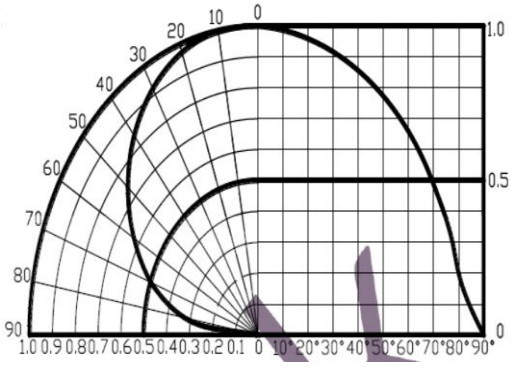
Relative Forward Voltage v.s. Ambient Temp.

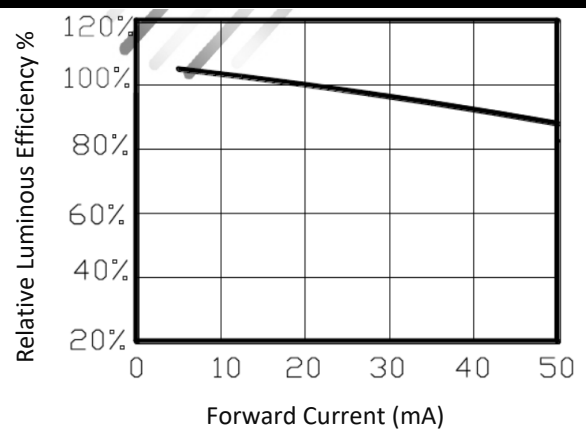
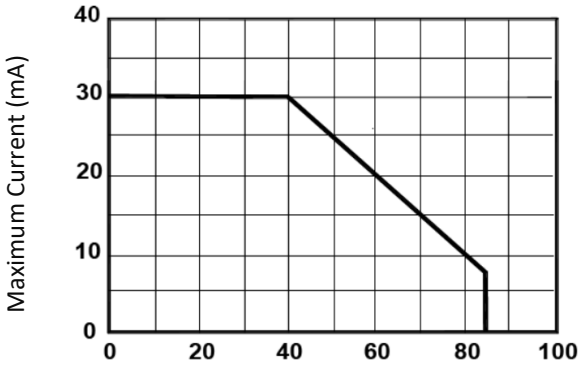


Relative Spectral Power v.s. Wavelength



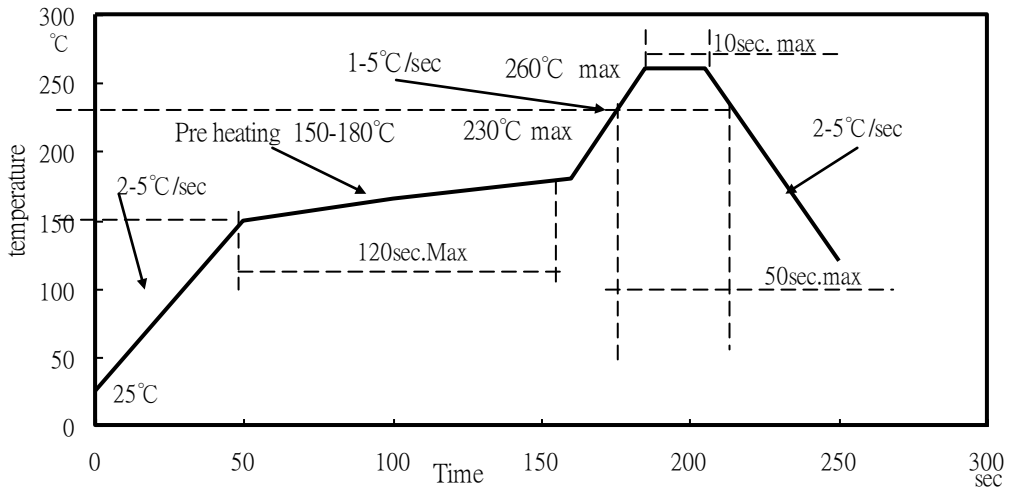
Directive Radiation



Relative Emission Efficiency v.s. Forward Current	Forward Current Derating Curve
	

RECOMMENDED SOLDERING PROFILE:

IR Reflow Lead-free Solder:



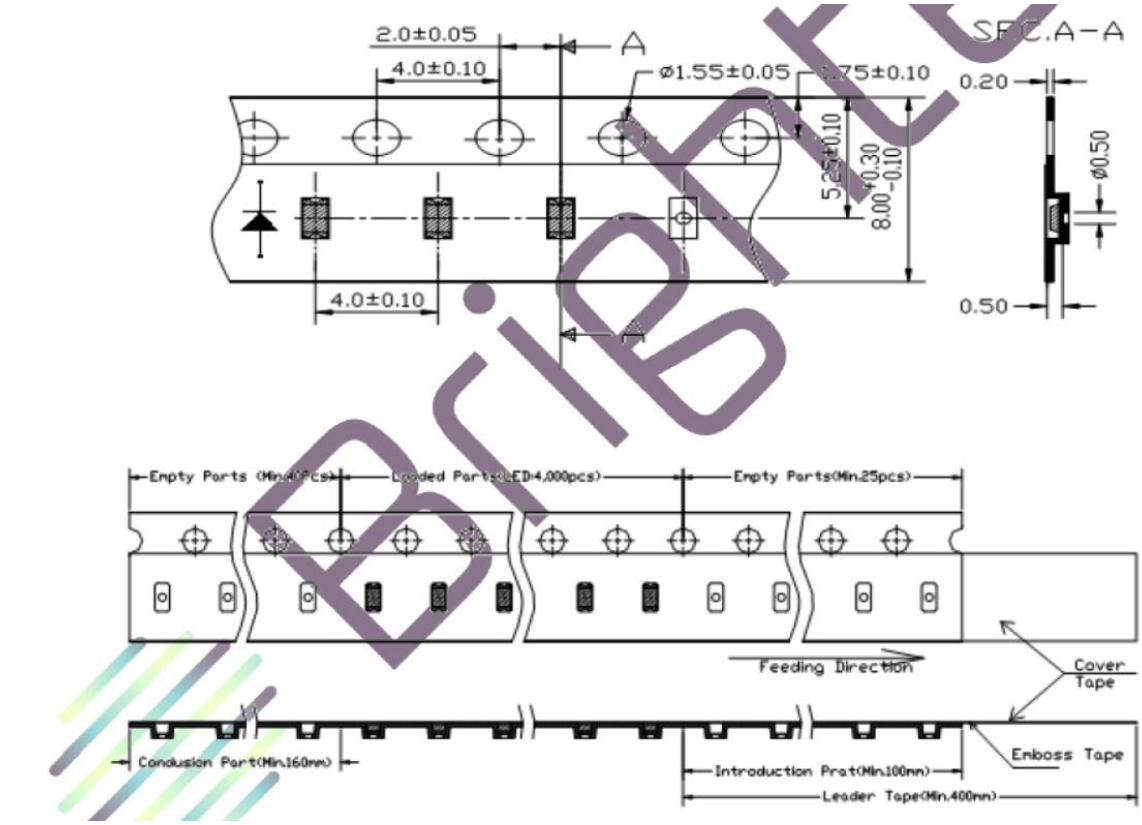
Note:

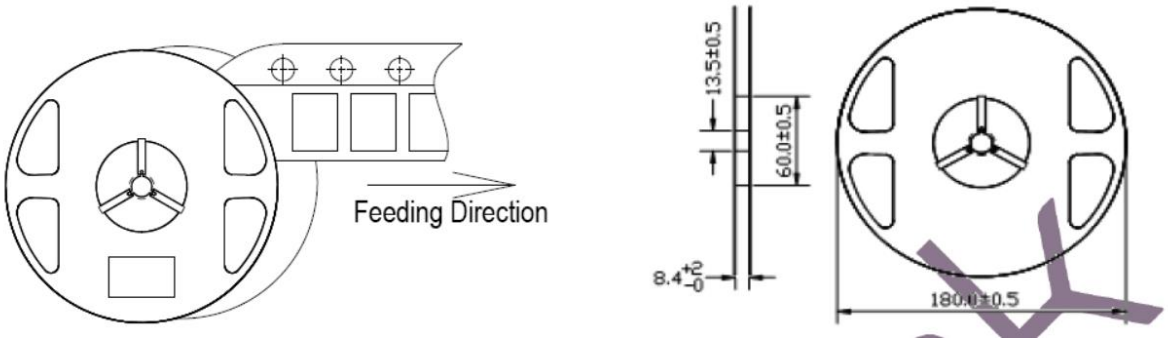
1. Maximum reflow soldering: 3 times.
2. Recommended reflow temperature: 240°C. Maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:

Max. 4000pcs/reel





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 and apply baking at 60°C±5°C for 15hrs before use.

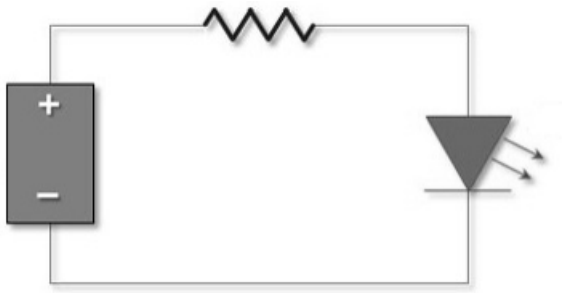
Baking:

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:

- 60±3°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.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	23/07/2017	Datasheet set-up.
A1.1	17/07/2018	Add suffix -10MA.