BRIGHTEK
BRIGHTEK (EUROPE) LIMITED
Brighten Up The World With LED!

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

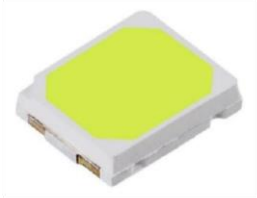
PRODUCT DATASHEET

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

- PLCC2 SMD
- 2835 0.7t
- Natural White (5000K)

Release Date: 07 August 2019 Version: A1.0

N0W49S63



2835 PLCC2 Series

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RoHS Compliant

FEATURES:

- **Package:** PLCC2 Top View White Package
- **Forward Current:** 150mA
- **Forward Voltage (typ.):** 3.1V
- **Luminous Flux (typ.):** 66lm@150mA
- **Colour:** Natural White
- **Colour Temperature (CCT):** 5000K
- **Viewing angle:** 120°
- **Materials:**
  - Die: InGaN
  - Resin: Silicon (Yellow Diffused)
  - Finish: Ag plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Electrostatics Discharge:** 1000V
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - CIE Chromaticity
- **Soldering methods:** Reflow Soldering
- **MSL Level:** MSL3 according to J-STD020
- **Packing:** 8mm tape with Max. 18000/reel, ø355mm/14''

APPLICATIONS:

- General Lighting
- Portable Lighting
- Commercial Lighting
- Indoor Lighting
- Backlight for LCD
- Architectural Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C, RH=60%)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	150	mA
Pulse Forward Current (Duty 1/10, width≤100µS)	I_{PF}	180	mA
Power Dissipation	P_D	495	mW
Reverse Voltage	V_R	5	V
Reverse Current @10V	I_R	10	µA
Junction Temperature	T_j	120	°C
Electrostatic Discharge	ESD	1000	V
Thermal Resistance (Junction to Solder Point)	R_{THJS}	45	°C/W
Operating Temperature	T_{OPR}	-40~+85	°C
Storage Temperature	T_{STG}	-40~+100	°C
Soldering Temperature	T_{SOL}	230 or 260 for 10S	°C
Colour Rendering Index	CRI	80	---

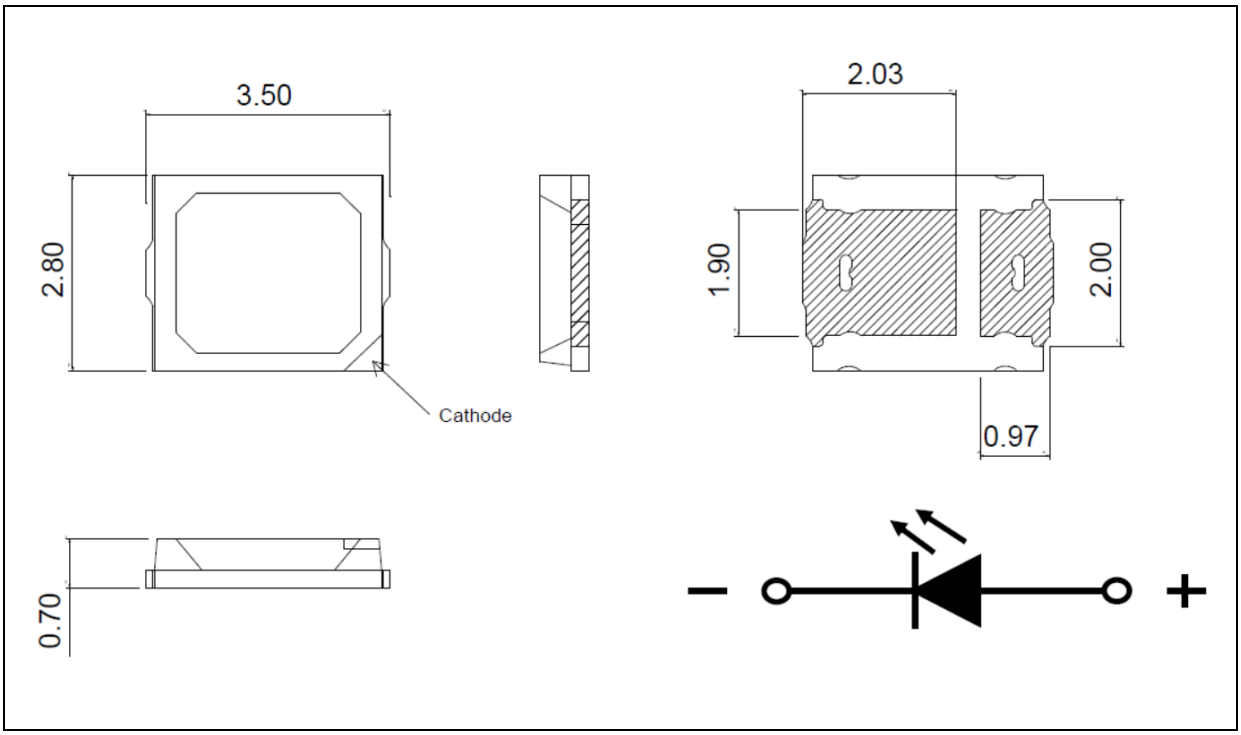
Electrical & Optical Characteristics (Ta=25°C, RH=60%)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.8	---	3.3	V	I_F=150mA
Luminous Flux	Φ_V	60	66	70	lm	I_F=150mA
Chromaticity Coordinates	X	---	0.3507	---	---	I_F=150mA
	Y	---	0.3635	---		
Colour Temperature	CCT	--	5000	---	K	I_F=150mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=150mA

1. Luminous flux (Φ_V) ±10%, Forward Voltage (V_F) ±0.1V

OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

BINNING GROUPS:

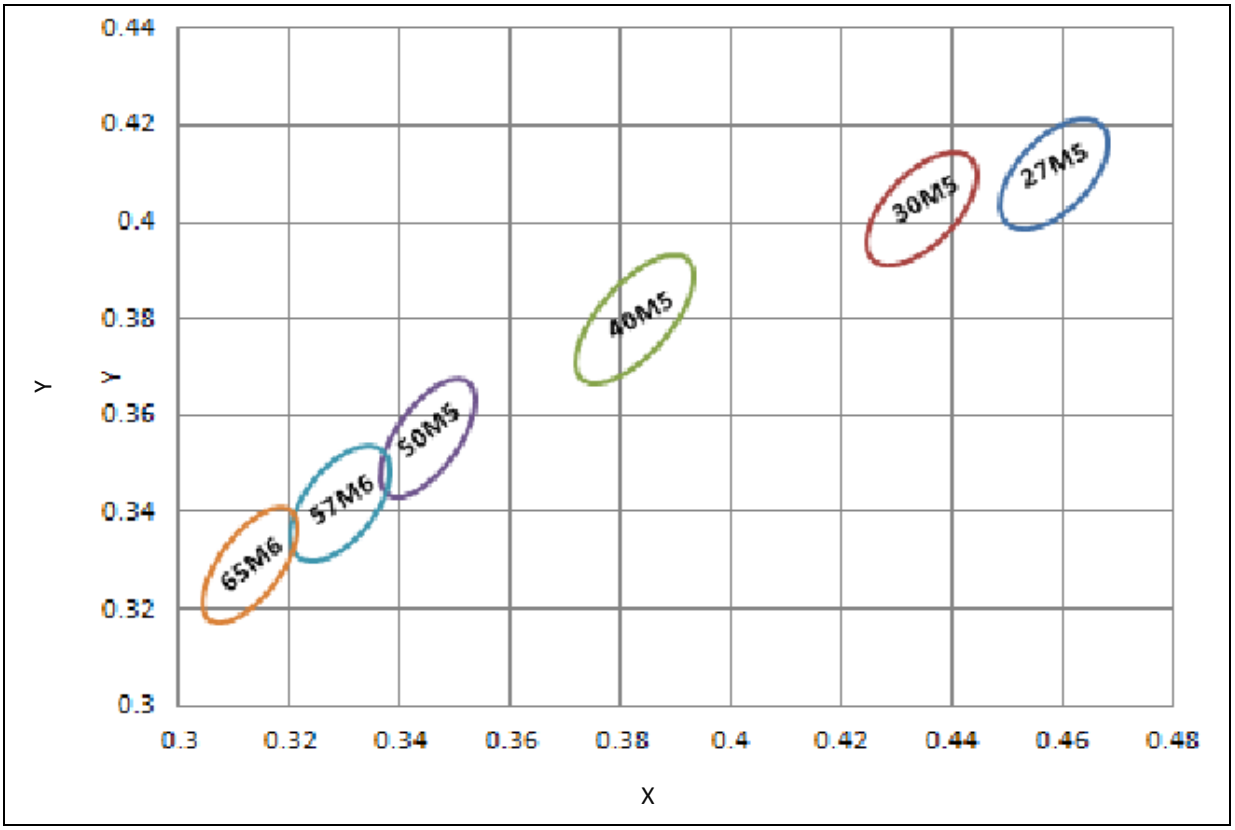
Forward Voltage Classifications (I_F = 150mA):

Code	Min.	Max.	Unit
B1	2.8	2.9	V
C1	2.9	3.0	
D1	3.0	3.1	
E1	3.1	3.2	
F1	3.2	3.3	

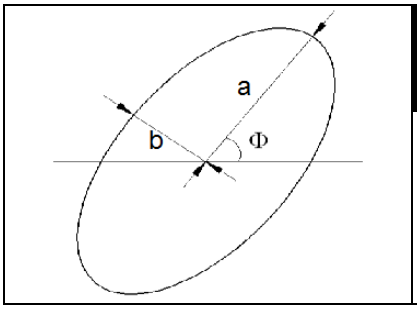
Luminous Flux Classifications (I_F = 150mA):

Code	Min.	Max.	Unit
1R	55	60	lm
1S	60	65	
1T	65	70	

CIE CHROMATICITY DIAGRAM:



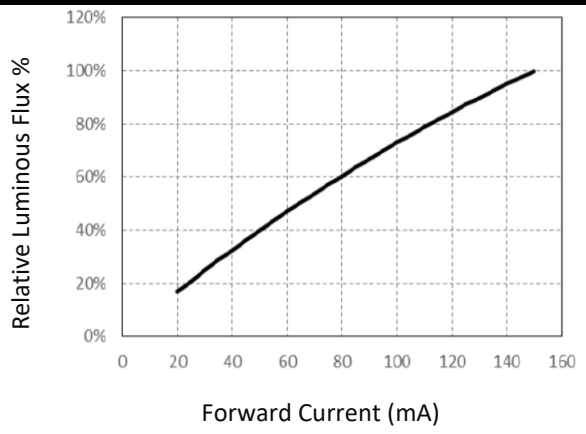
Chromaticity Coordinates Classifications (I_F = 150mA):



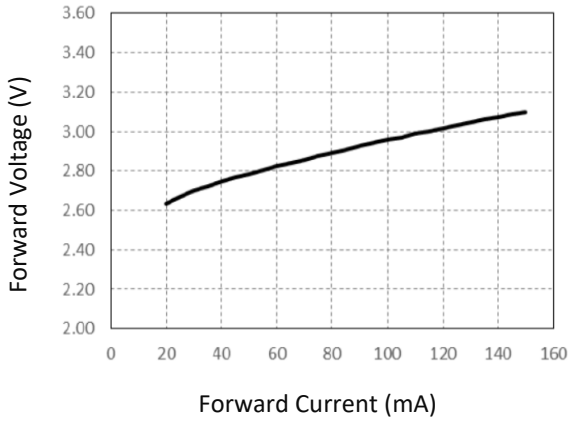
Code	Centre		Radius		Angle
	X	Y	a	b	Φ
50R5	0.3507	0.3635	0.013700	0.00590	59.37

ELECTRO-OPTICAL CHARACTERISTICS:

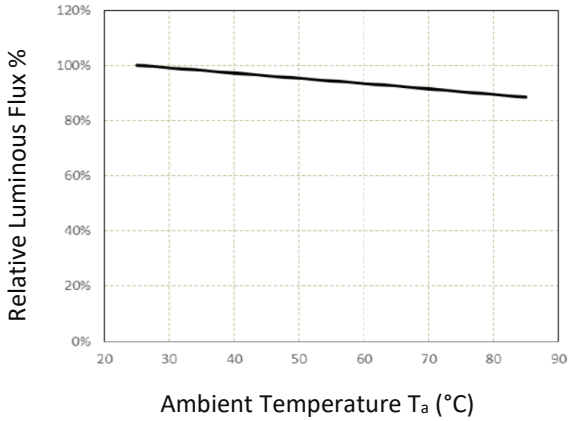
Relative Luminous Flux v.s. Forward Current



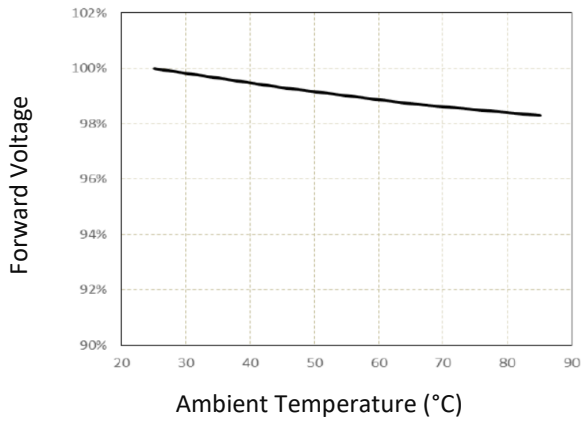
Forward Current v.s. Forward Voltage



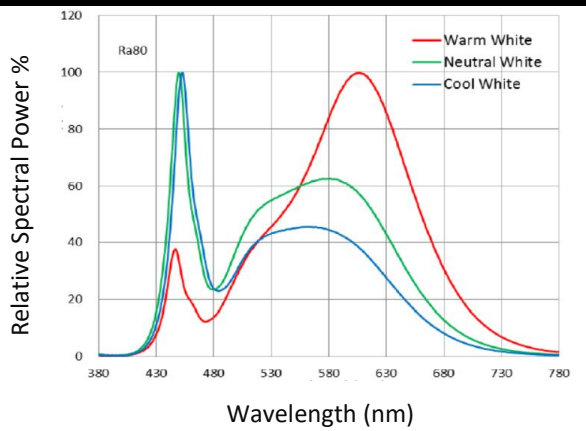
Relative Luminous Flux v.s. Ambient Temp.



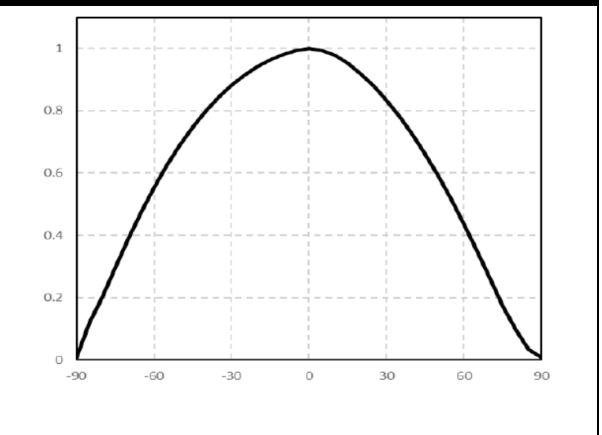
Forward Voltage v.s. Ambient Temp.



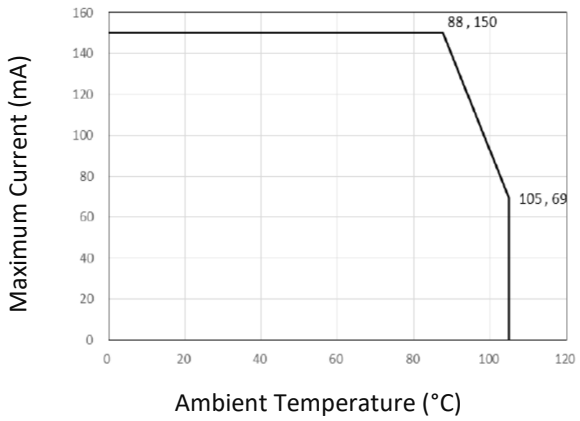
Relative Spectral Power v.s. Wavelength



Directive Radiation

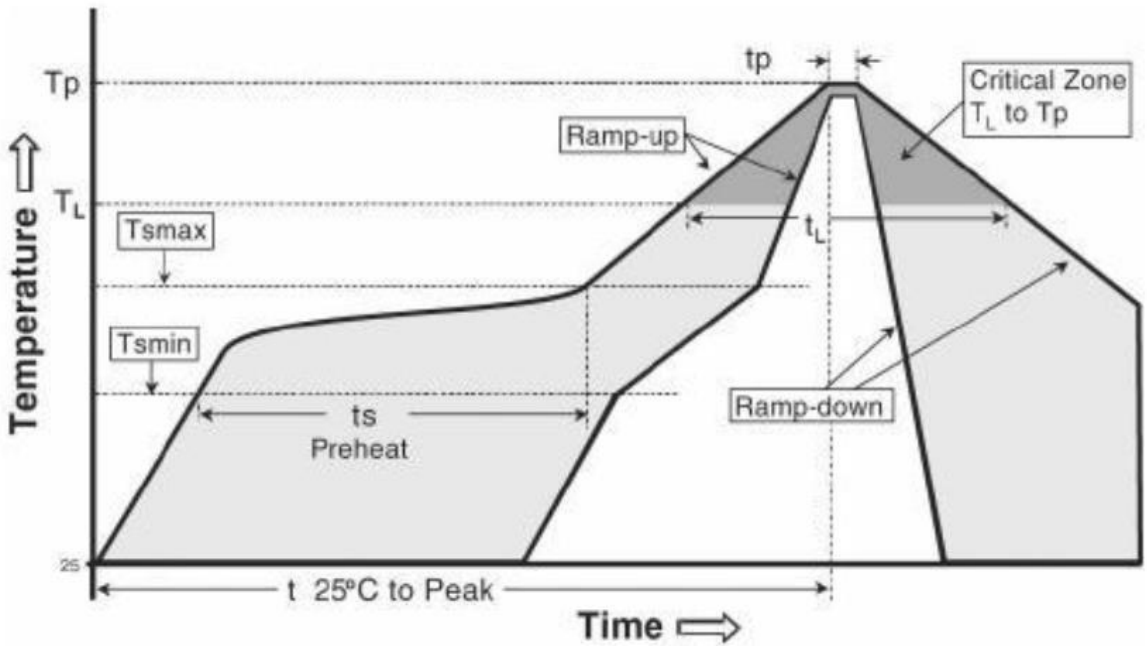


Forward Current Derating Curve



RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



Temperature Min. (T_{smin})	150°C
Temperature Max. (T_{smax})	200°C
Period from T_{smin} to T_{smax}	60-120 seconds
Ramp-up Rate (T_L to T_P)	Max. 3°C/second
Liquidous Temperature (T_L)	217°C
Time Maintained above T_L	60-150 seconds
Peak Package Temperature (T_P)	Max. 260°C
Time within 5°C of the Specified Classification Temperature T_C	Max. 30 seconds
Ramp-down Rate (T_P to T_L)	Max. 6°C/second
Time from 25°C to Peak Temperature	Max. 8 mins

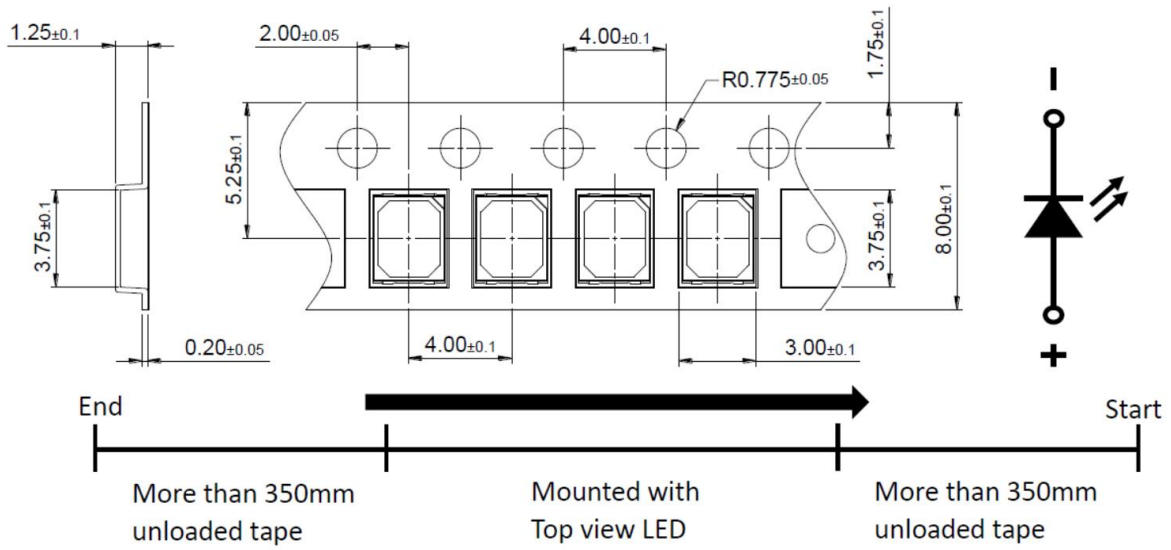
Note:

1. Maximum reflow soldering: 2 times.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.
3. Recommended soldering temperature: 230°C. The maximum soldering temperature should be limited to 260°C for max. 10seconds.

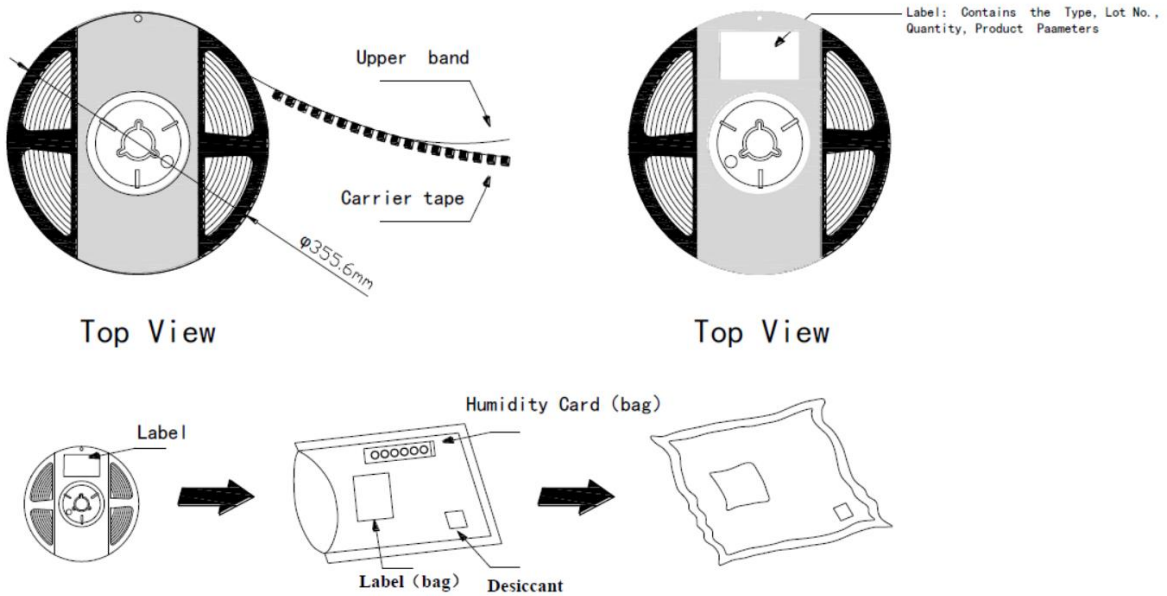
PACKING SPECIFICATION:

Reel Dimension:

Max. 18000pcs/reel



1. Cumulative Tolerance: Cumulative Tolerance/10 pitches to be ±0.2mm



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 a week. Otherwise, they should be kept in a damp-proof box with descanting agent and apply baking.

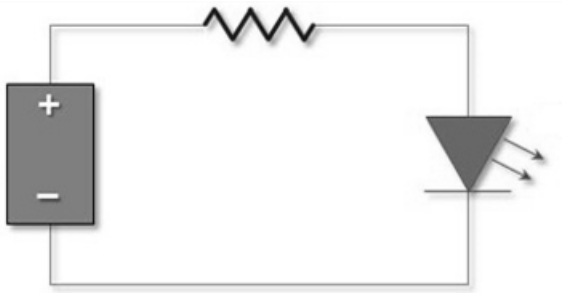
Baking:

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, worktables, 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	07/08/2019	Datasheet set-up.