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

- PLCC6 SMD
- 5050 1.6t Series
- Cool White (6300K)

Release Date: 07 March 2016 Version: A1.0

N0W28S54Z

5050 1.6t Series

5050 1.6t Series

RoHS Compliant

FEATURES:

- **Package:** PLCC2 White SMD Package
- **Forward Current:** 20mA*3
- **Forward Voltage (typ.):** 3.2V
- **Luminous Flux (typ.):** 21.7lm/6900mcd@60mA
- **Colour:** Cool White
- **Colour Temperature (CCT):** 6300K
- **Viewing angle:** 120°
- **Materials:**
  - Die: InGaN
  - Resin: Silicon (Yellow Diffused)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+80°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Intensity
  - CIE Chromaticity
- **Soldering methods:** Reflow Soldering
- **MSL Level:** MSL3 according to JEDEC
- **Packing:** 12mm tape with 1000/reel, ø180mm (7'')

APPLICATIONS:

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

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CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I_F	30*3	mA
Pulse Forward Current (duty 1/10, pulse 0.1mS)	I_{PF}	100*3	mA
Reverse Voltage	V_R	5	V
Reverse Current @5V	I_R	10	μA
Junction Temperature	T_j	110	°C
Operating Temperature	T_{OPR}	-40~+80	°C
Storage Temperature	T_{STG}	-40~+100	°C
Colour Rendering Index	CRI	80 (typ)	---

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V_F	2.8	3.2	3.8	V	I_F=20mA*3
Luminous Intensity	I_V	6000	6900	10100	mcd	I_F=20mA*3
Luminous Flux	Φ_V	---	21.7	---	lm	I_F=20mA*3
Chromaticity Coordinates	X	---	0.3180	---	---	I_F=20mA*3
	Y	---	0.3270	---		
Colour Temperature	CCT	6000	6300	6650	K	I_F=20mA*3
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	I_F=20mA*3

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

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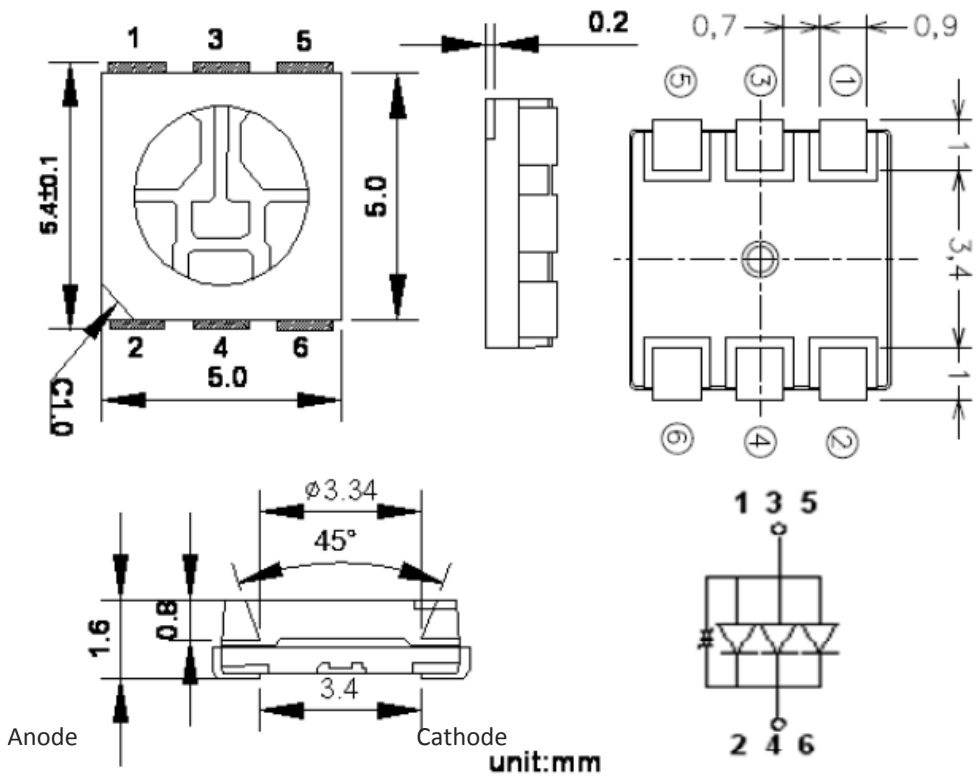
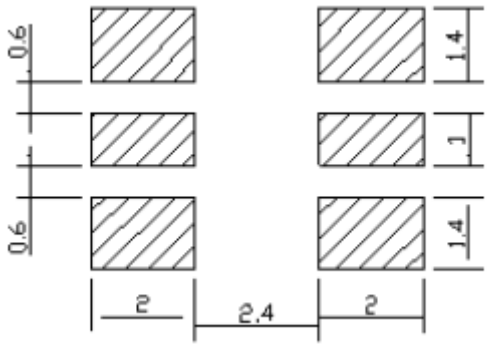
OUTLINE DIMENSION:

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 = 20mA*3):

Code	Min.	Max.	Unit
B	2.8	2.9	V
C	2.9	3.0	
D	3.0	3.1	
E	3.1	3.2	
F	3.2	3.3	
G	3.3	3.4	
H	3.4	3.5	
I	3.5	3.6	
J	3.6	3.7	
K	3.7	3.8	

Luminous Intensity Classifications (I_F = 20mA*3):

Code	Min.	Max.	Unit
22	6000	7800	mcd
23	7800	10100	

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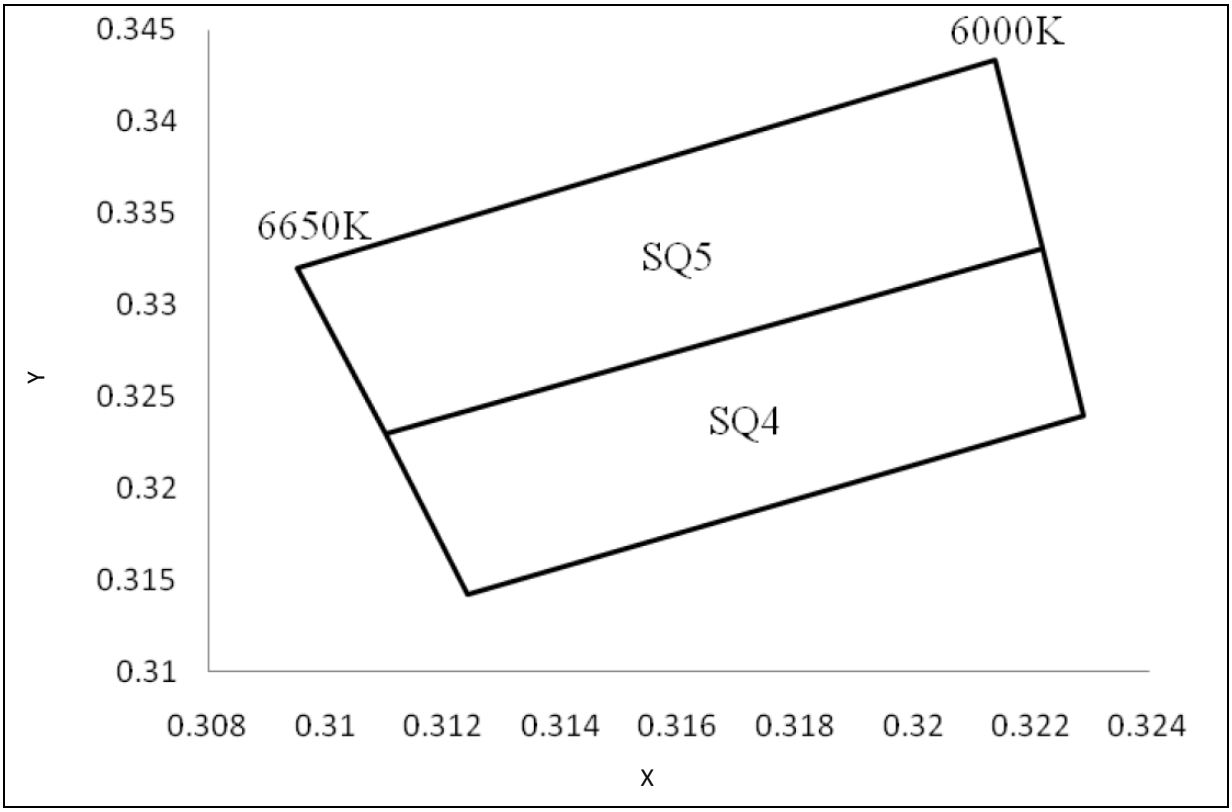
CIE CHROMATICITY DIAGRAM:



Chromaticity Coordinates Classifications (I_F = 20mA*3):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
SQ4	0.3110	0.3230	0.3124	0.3142	0.3229	0.3240	0.3222	0.3331
SQ5	0.3095	0.3320	0.3110	0.3230	0.3222	0.3331	0.3214	0.3434

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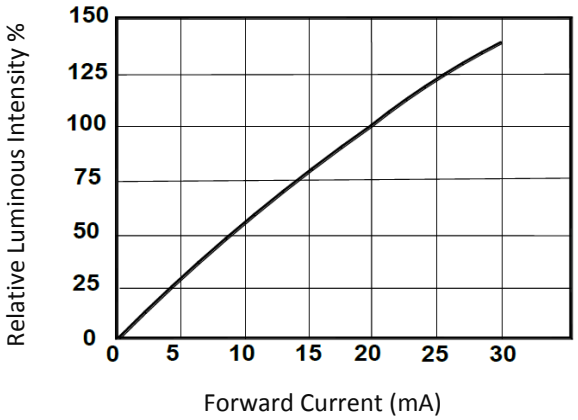
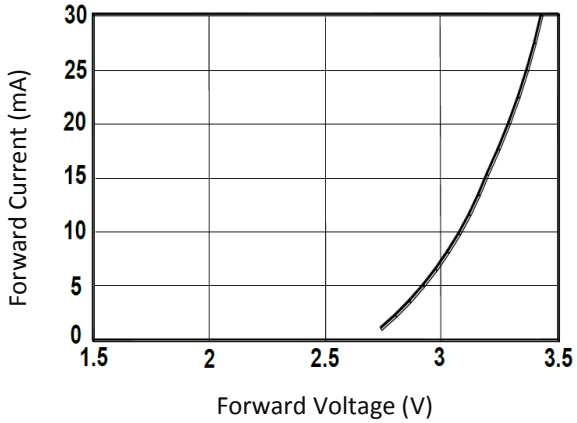
ELECTRO-OPTICAL CHARACTERISTICS:

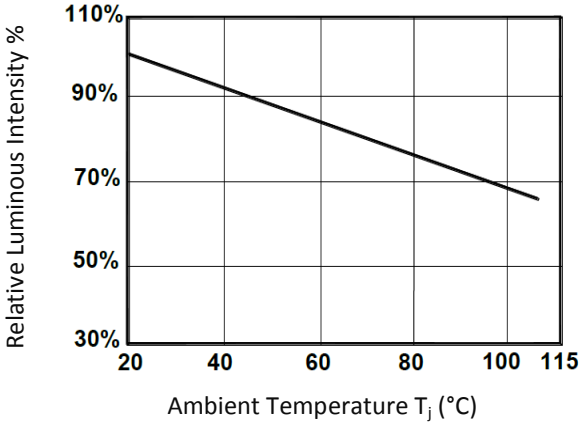
Relative Luminous Intensity v.s. Forward Current



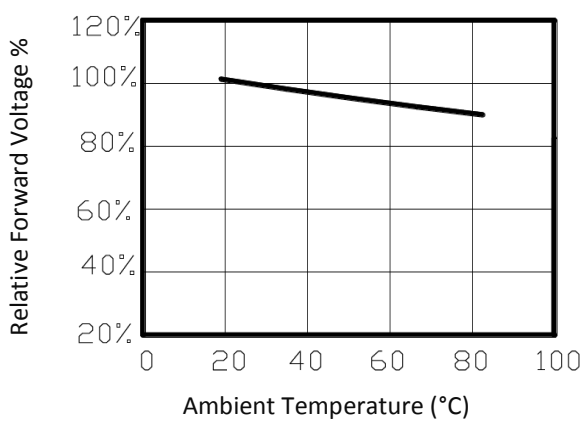
Forward Current v.s. Forward Voltage



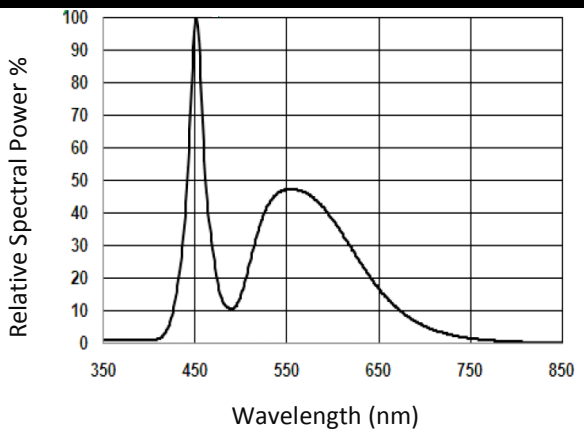
Relative Luminous Intensity v.s. Ambient Temp.



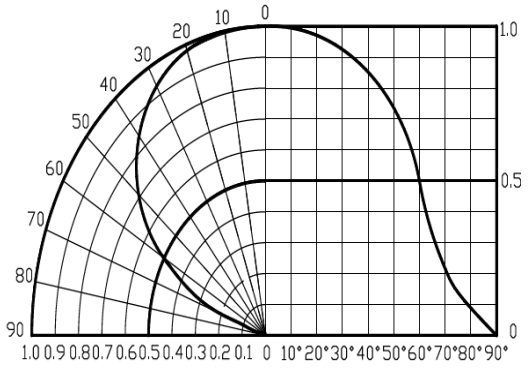
Relative Forward Voltage v.s. Ambient Temp.



Relative Spectral Power v.s. Wavelength



Directive Radiation



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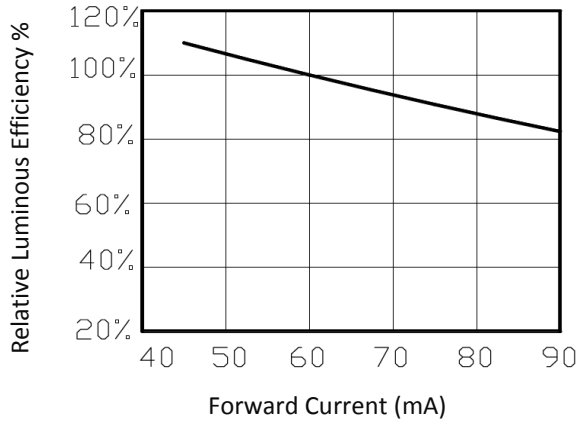
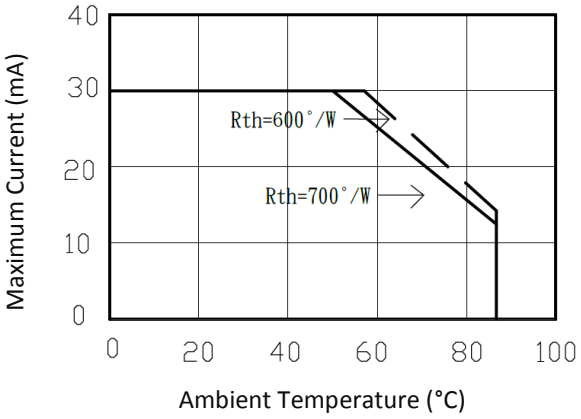
Relative Emission Efficiency v.s. Forward Current	Forward Current Derating Curve
	

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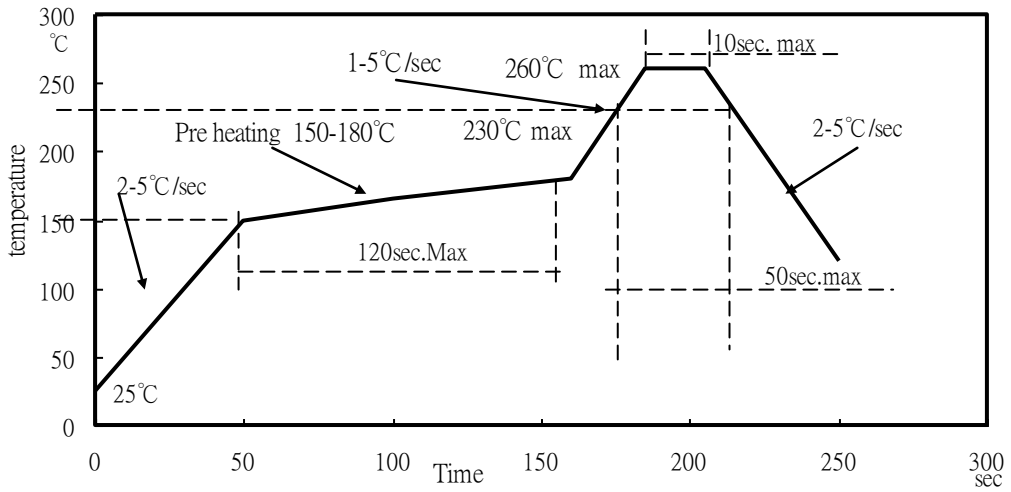
RECOMMENDED SOLDERING PROFILE:

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.

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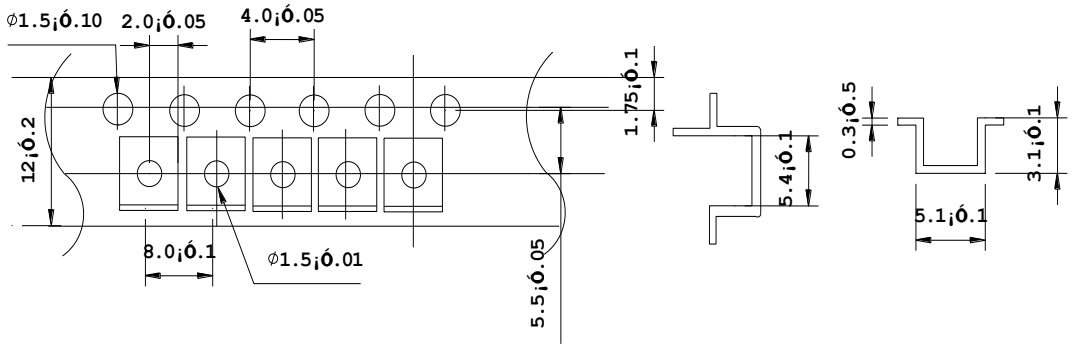
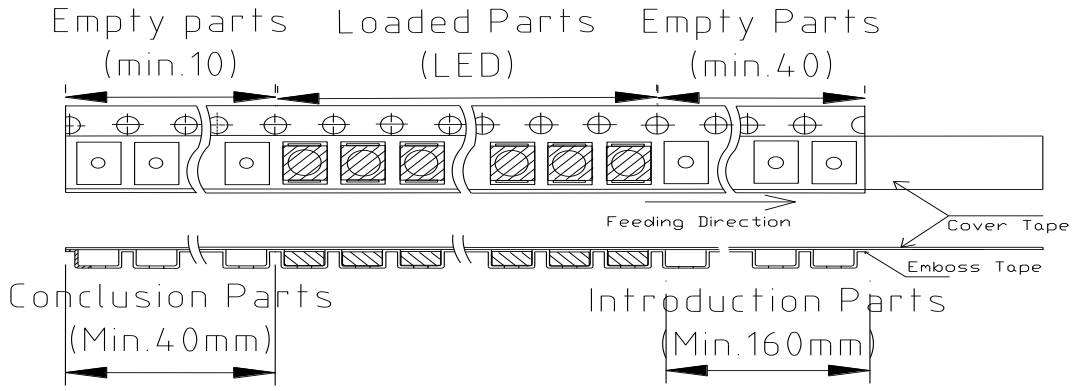
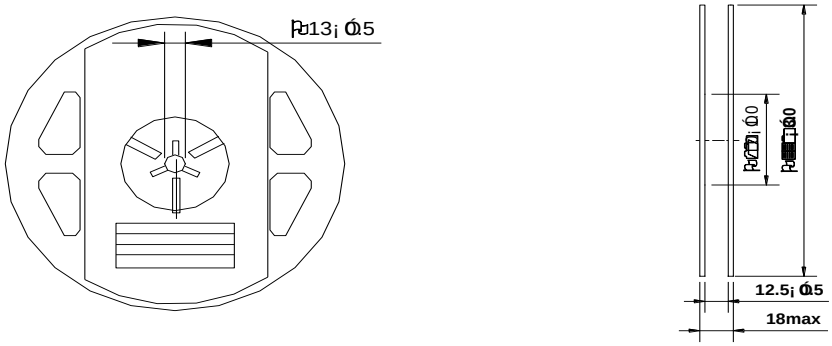
PACKING SPECIFICATION:

Reel Dimension:

1000pcs/reel







Note: 01.The tolerance unless mentioned is ±0.2mm.
02.The measured unit is "mm".

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

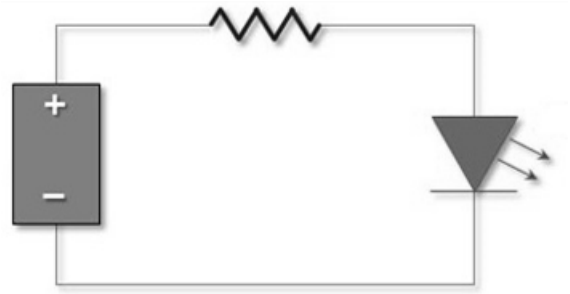
Baking:

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:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 100±3°C x 2hrs, bulk (loose) package.
- 130±3°C x 30min, bulk (loose) 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	07/03/2016	Datasheet set-up.

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