



**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



- ▶ Ceramic High Power
- ▶ 3939 1.53t Series
- ▶ UV (390-400nm)

**NOQ32S09Z**



Release Date: 10 September 2020 Version: A1.2



### 3939 1.53t Series

**RoHS Compliant**



#### FEATURES:

- **Package:** Ceramic SMT Package with Glass Lens
- **Forward Current:** 1000mA
- **Forward Voltage (typ.):** 4.0V
- **Radiant Power (typ.):** 1800mW@1000mA
- **Colour:** Ultraviolet (UV)
- **Wavelength:** 390-400nm
- **Viewing angle:** 120°
- **Materials:**
  - Die: InGaN
  - Resin: Glass (Water Clear)
  - L/F: Ceramic
- **Operating Temperature:** -40~+80°C
- **Storage Temperature:** -40~+80°C
- **ESD:** 8KV (HBM)
- **Grouping parameters:**
  - Forward Voltage
  - Radiant Power
  - Peak Wavelength
- **Soldering methods:** IR Reflow soldering
- **MSL:** Level 2 according to J-STD020
- **Packing:** 12mm tape with min. 100pcs/reel, ø180mm (7")

#### APPLICATIONS:

- Industrial Curing
- Counterfeit Detection
- Medical Device
- Fluorochemistry
- Bacterial Identification
- Cosmetology
- Magnetic Particle Inspection
- Clean Room Inspection
- Mineralogy

**CHARACTERISTICS:**

## Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Maximum Forward Current	I <sub>MAX</sub>	1000	mA
Pulse Current D=0.01s Duty 1/10	I <sub>P</sub>	1200	mA
Reverse Voltage	V <sub>R</sub>	5	V
Reverse Current @5V	I <sub>R</sub>	10	μA
Electrostatic Discharge (HBM)	ESD	8000	V
Junction Temperature	T <sub>j</sub>	100	°C
Thermal Resistance Junction to Solder Point	R <sub>THJS</sub>	4.5	°C/W
Operating Temperature	T <sub>OPR</sub>	-40~+80	°C
Storage Temperature	T <sub>STG</sub>	-40~+80	°C
Solder Temperature	T <sub>SOL</sub>	260	°C

## Electrical &amp; Optical Characteristics (Ta=25°C)

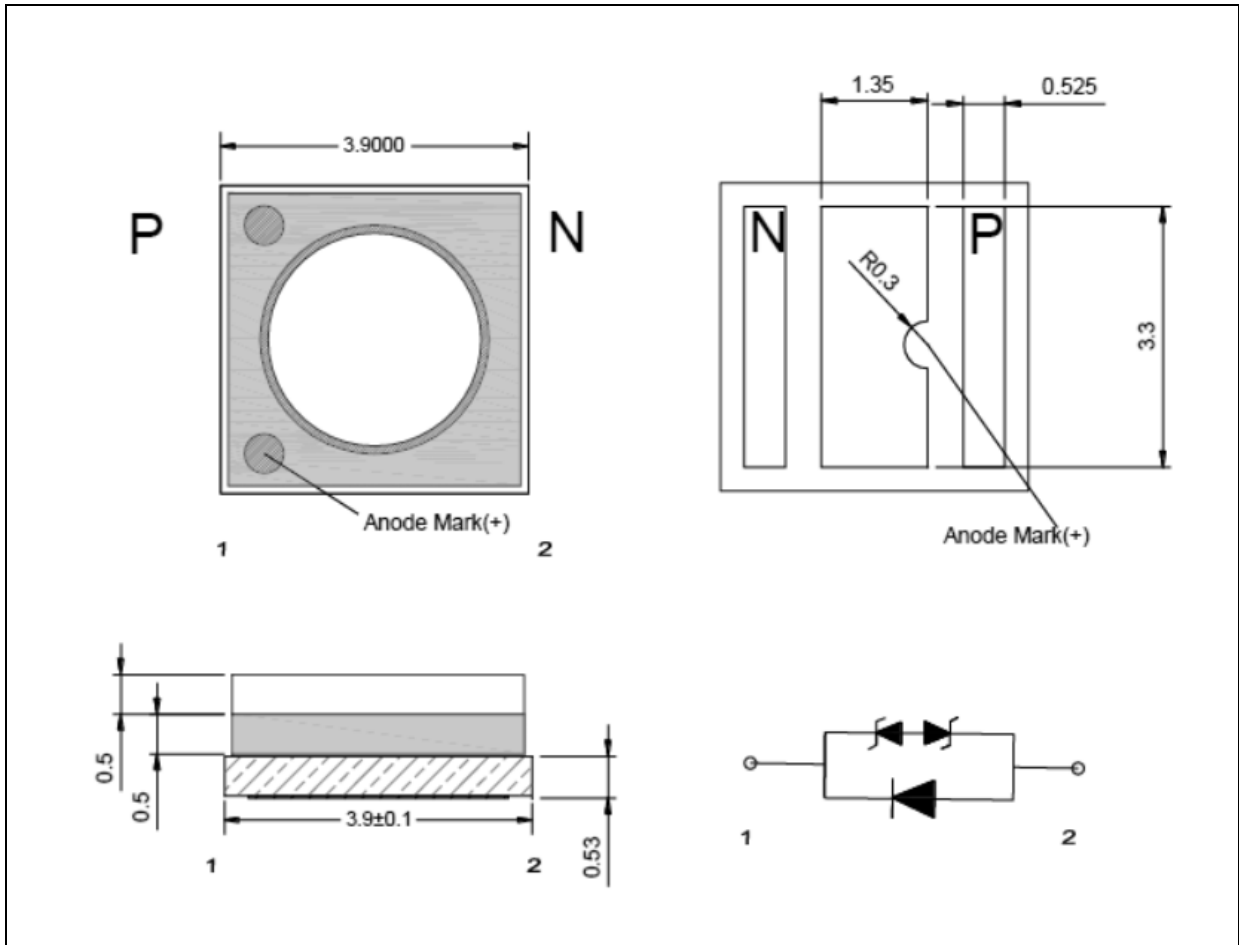
Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	3.1	---	4.8	V	I <sub>F</sub> =1000mA
Radiant Power	P <sub>O</sub>	1600	---	2000	mW	I <sub>F</sub> =1000mA
Peak Wavelength	W <sub>P</sub>	390	---	400	nm	I <sub>F</sub> =1000mA
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	deg	I <sub>F</sub> =1000mA

1. Radiant Power (P<sub>O</sub>) ±10%, Forward Voltage (V<sub>F</sub>) ±0.05V, Wavelength (nm) ±2nm



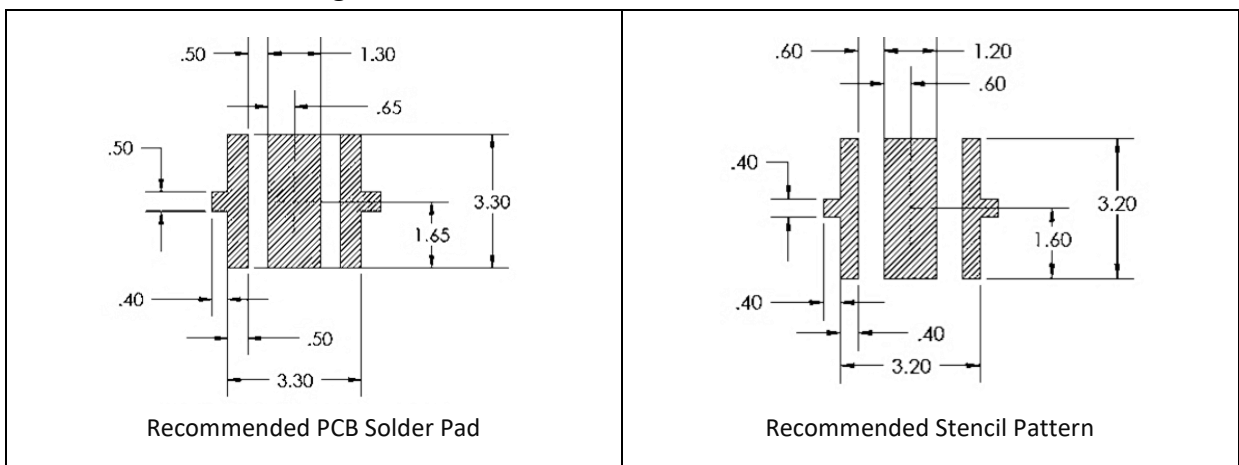
## OUTLINE DIMENSION:

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  $\pm 0.5^\circ$ .



**BINNING GROUPS:**

Forward Voltage Classifications ( $I_F = 1000\text{mA}$ ):

Code	Min.	Max.	Unit
V0	3.0	3.2	V
V1	3.2	3.4	
V2	3.4	3.6	
V3	3.6	3.8	
V4	3.8	4.0	
V5	4.0	4.2	
V6	4.2	4.4	
V7	4.4	4.6	
V8	4.6	4.8	

Radiant Power Classifications ( $I_F = 1000\text{mA}$ ):

Code	Min.	Max.	Unit
C7	1600	1700	mW
C8	1700	1800	
C9	1800	1900	
C10	1900	2000	

Peak Wavelength Classifications ( $I_F = 1000\text{mA}$ ):

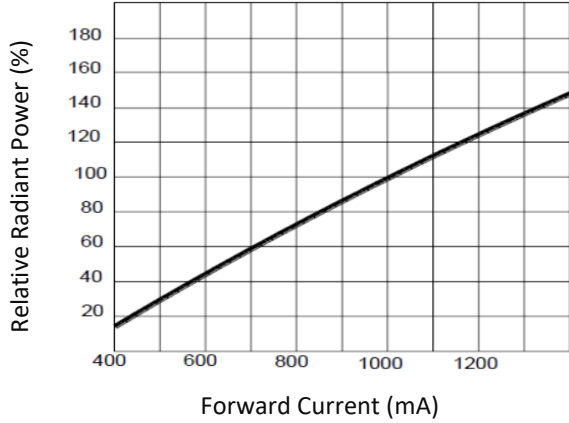
Code	Min.	Max.	Unit
T1	390	395	nm
T2	395	400	



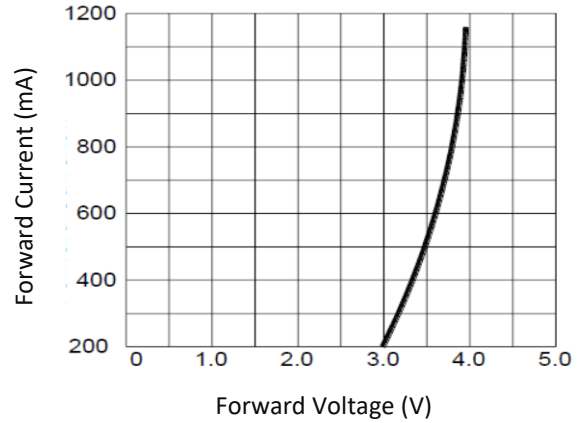
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## ELECTRO-OPTICAL CHARACTERISTICS:

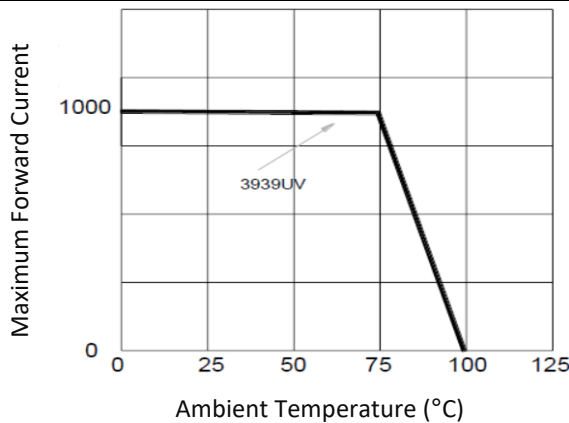
### Relative Power v.s. Forward Current



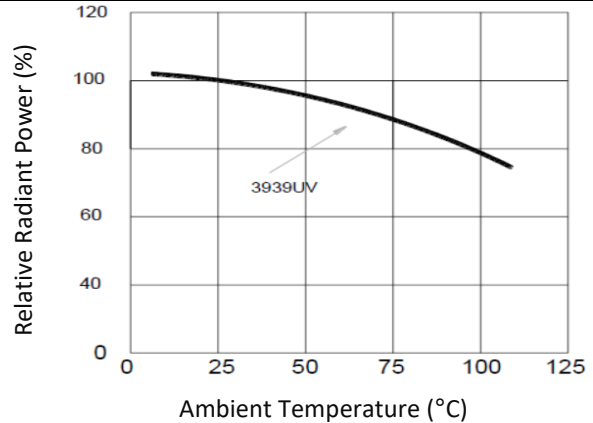
### Forward Current v.s. Forward Voltage



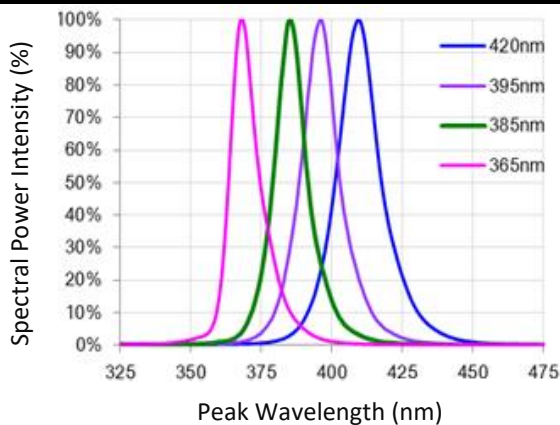
### Forward Current v.s. Ambient Temperature



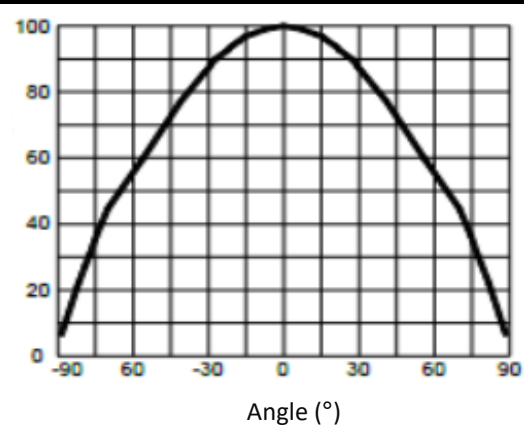
### Radiant Power v.s. Temperature



### Relative Spectral Power Distribution



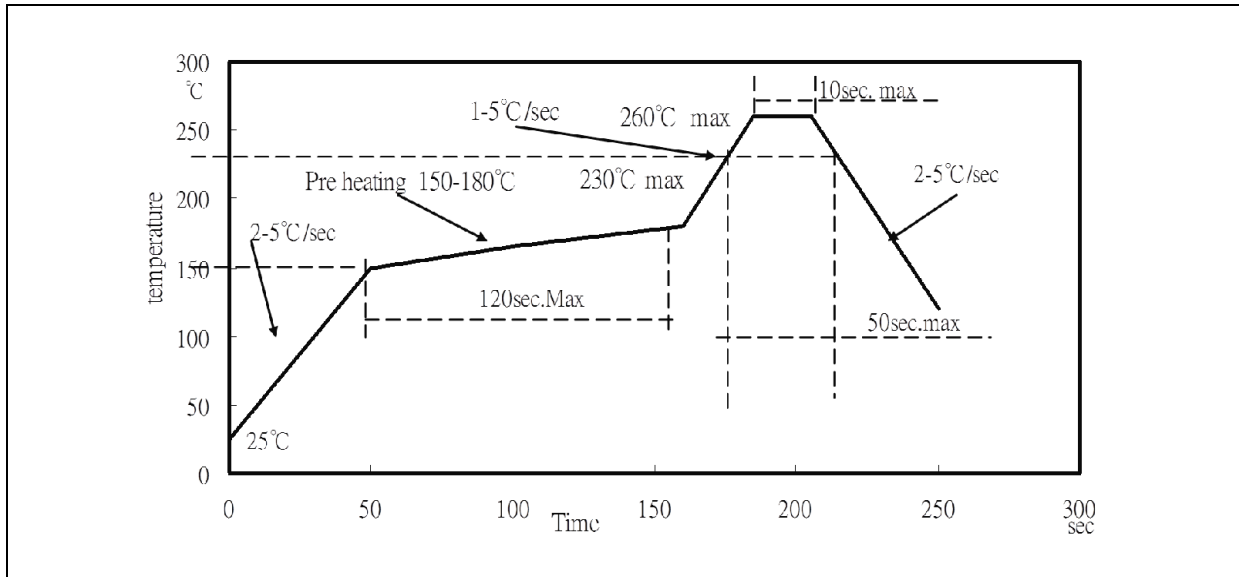
### Directive Radiation





## RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:



Note:

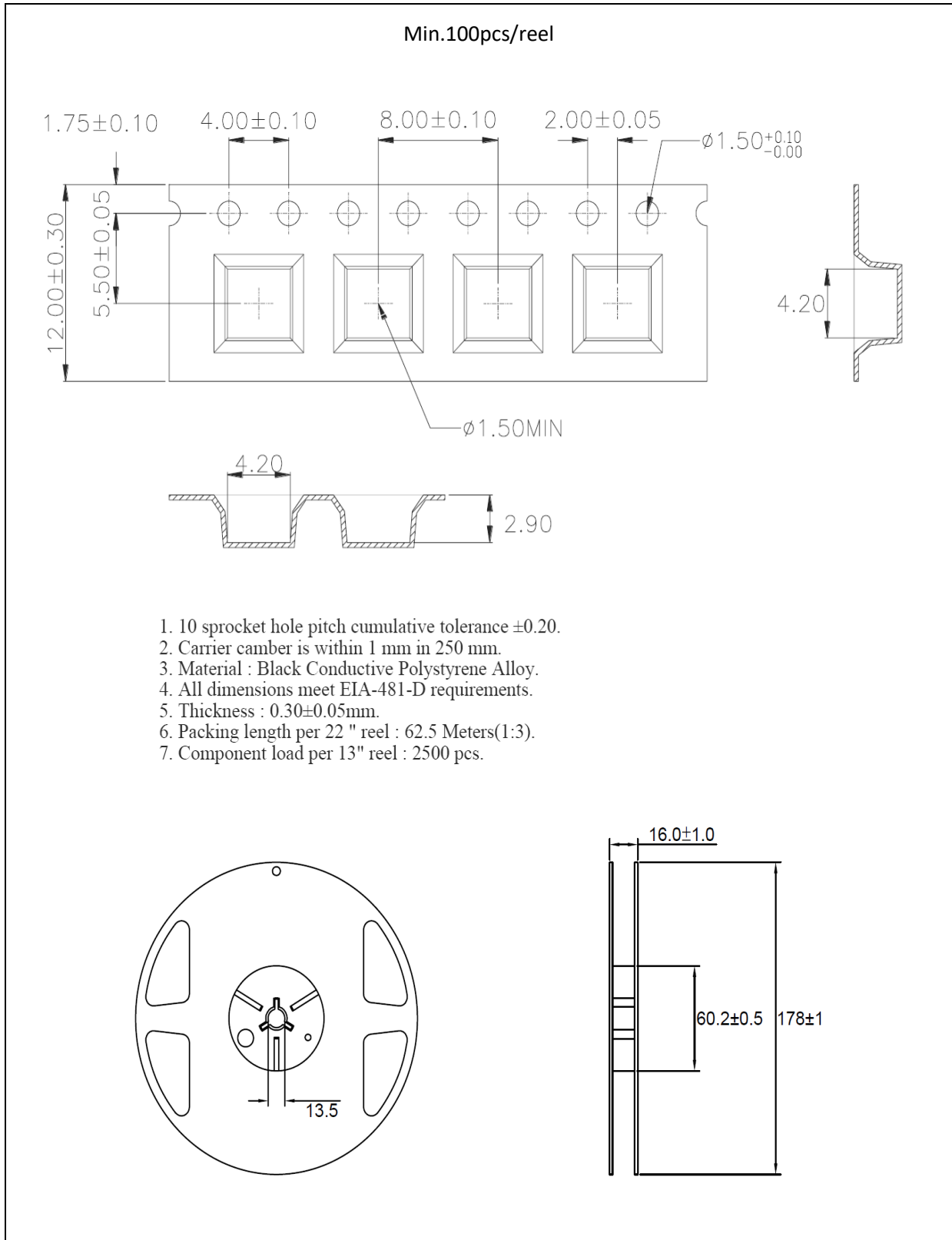
1. Maximum reflow soldering: 2 times.
2. Recommended reflow temperature 240°C. Maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.



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## PACKING SPECIFICATION:

Reel Dimension:





## PRECAUTIONS OF USE:

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### 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 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 follows:

- 65±3°C x 12hrs 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.





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## REVISION RECORD:

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Version	Date	Summary of Revision
A1.0	12/12/2016	Datasheet set-up.
A1.1	23/02/2019	Revise package height and driving current.
A1.2	10/09/2020	Update die parameters.