



**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



- ▶ EMC 2-PIN SMD
- ▶ 2016 0.52t Series
- ▶ Yellow (590nm)

NOY20S38



Release Date: 21 November 2022 Version: A1.2



### 2016 0.52t Series

**RoHS**  
Compliant



#### FEATURES:

- **Package:** TOP View EMC White SMT Package
- **Forward Current:** 40mA
- **Forward Voltage (typ.):** 2.3V
- **Luminous Flux (typ.):** 5lm@40mA
- **Colour:** Yellow
- **Wavelength:** 585-600nm
- **Viewing angle:** 120°
- **Materials:**
  - Die: AlInGaP
  - Resin: Silicon (Water Clear)
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - Dominant Wavelength
- **Soldering methods:** Reflow
- **MSL Level:** 3 according to J-STD020
- **Packing:** 8mm tape with Max.5000/reel, ø165mm (6.5")

#### APPLICATIONS:

- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Architectural Lighting

## CHARACTERISTICS:

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

Parameter	Symbol	Ratings	Unit
DC Forward Current	I <sub>F</sub>	50	mA
Pulse Forward Current (width≤100μS; duty≤1/10)	I <sub>FP</sub>	75	mA
Power Dissipation	P <sub>D</sub>	130	mW
Reverse Voltage	V <sub>R</sub>	5	V
Reverse Current @5V	I <sub>R</sub>	10	μA
Junction Temperature	T <sub>j</sub>	110	°C
Electrostatic Discharge (HBM: MIL-STD-883 C 2)	ESD	1000	V
Operating Temperature	T <sub>OPR</sub>	-40~+85	°C
Storage Temperature	T <sub>STG</sub>	-40~+105	°C
Soldering Temperature (10s)	T <sub>SOL</sub>	260	°C

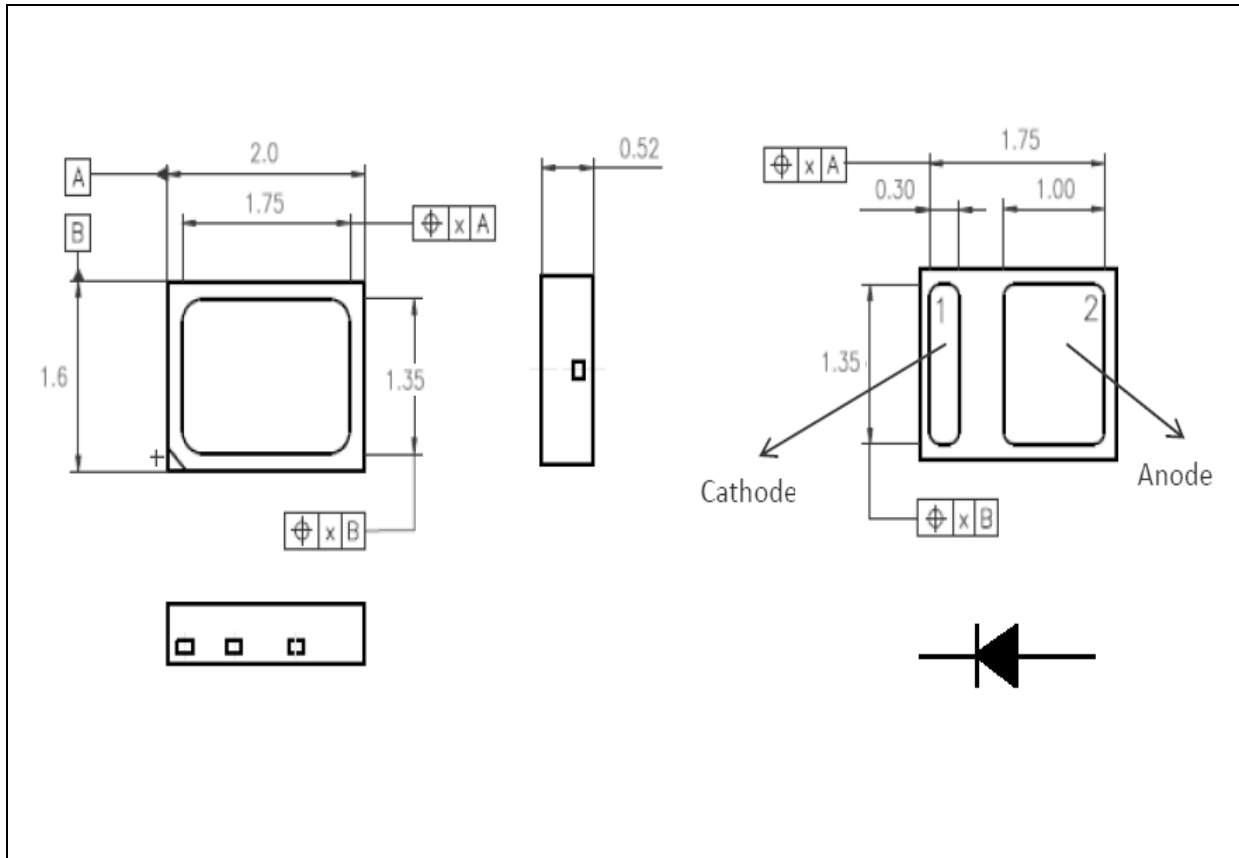
### Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	1.8	2.3	2.6	V	I <sub>F</sub> =40mA
Luminous Flux	Φ <sub>V</sub>	2	5	---	lm	I <sub>F</sub> =40mA
Dominant Wavelength	λ <sub>D</sub>	585	---	600	nm	I <sub>F</sub> =40mA
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	deg	I <sub>F</sub> =40mA

1. Luminous flux (Φ<sub>V</sub>) ±7%, Forward Voltage (V<sub>F</sub>) ±0.1V

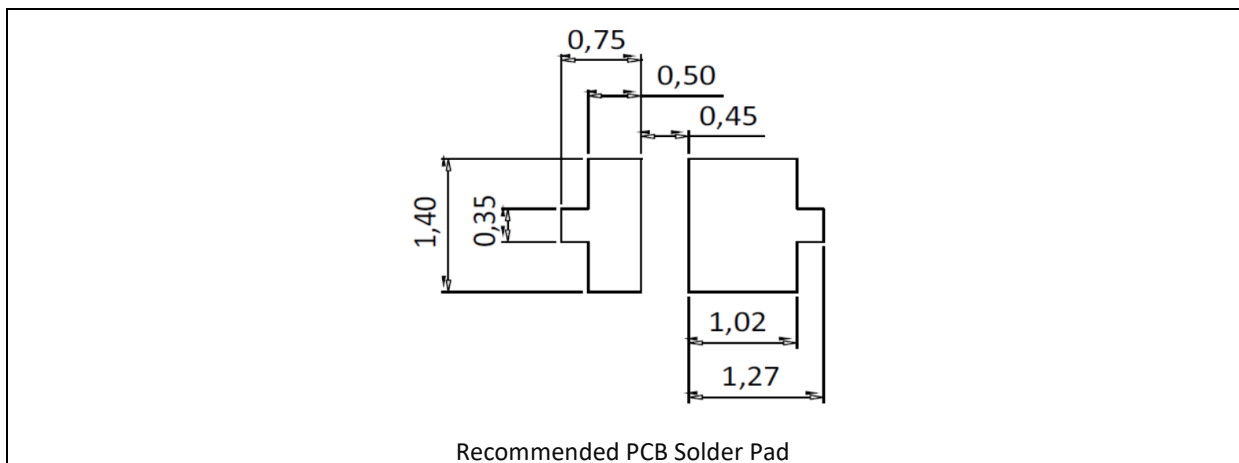
## OUTLINE DIMENSION:

Package Dimension:



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

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.1$ mm with angle tolerance  $\pm 0.5^\circ$ .

**BINNING GROUPS:**


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 Forward Voltage Classifications ( $I_F = 40\text{mA}$ ):

Code	Min.	Max.	Unit
V1820	1.8	2.0	V
V2022	2.0	2.2	
V2224	2.2	2.4	
V2426	2.4	2.6	

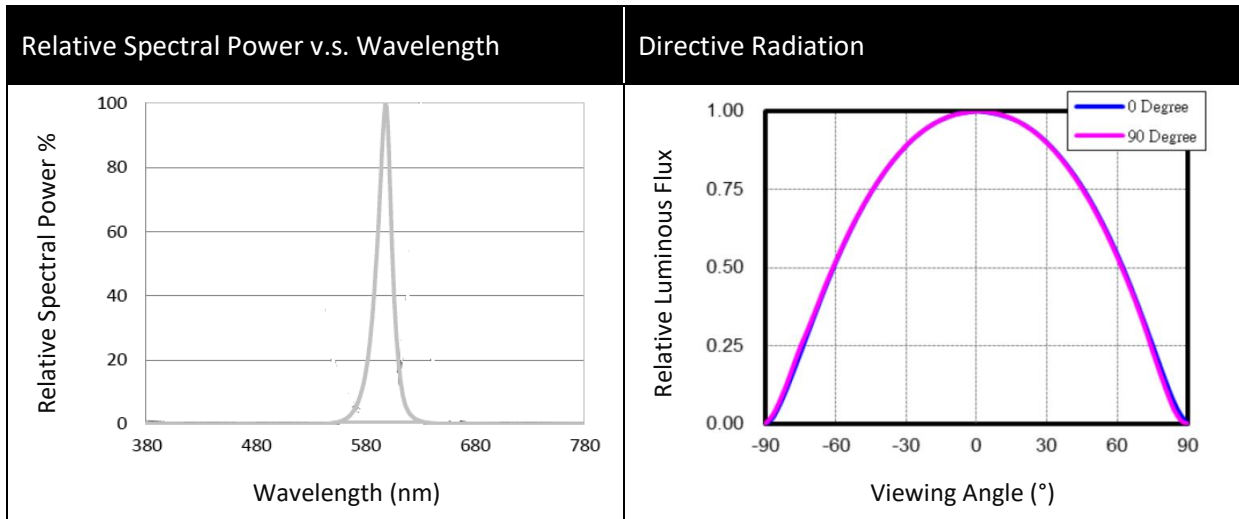
 Luminous Flux Classifications ( $I_F = 40\text{mA}$ ):

Code	Min.	Max.	Unit
AB	2	4	lm
AC	4	6	
AD	6	8	

 Dominant Wavelength Classifications ( $I_F = 40\text{mA}$ ):

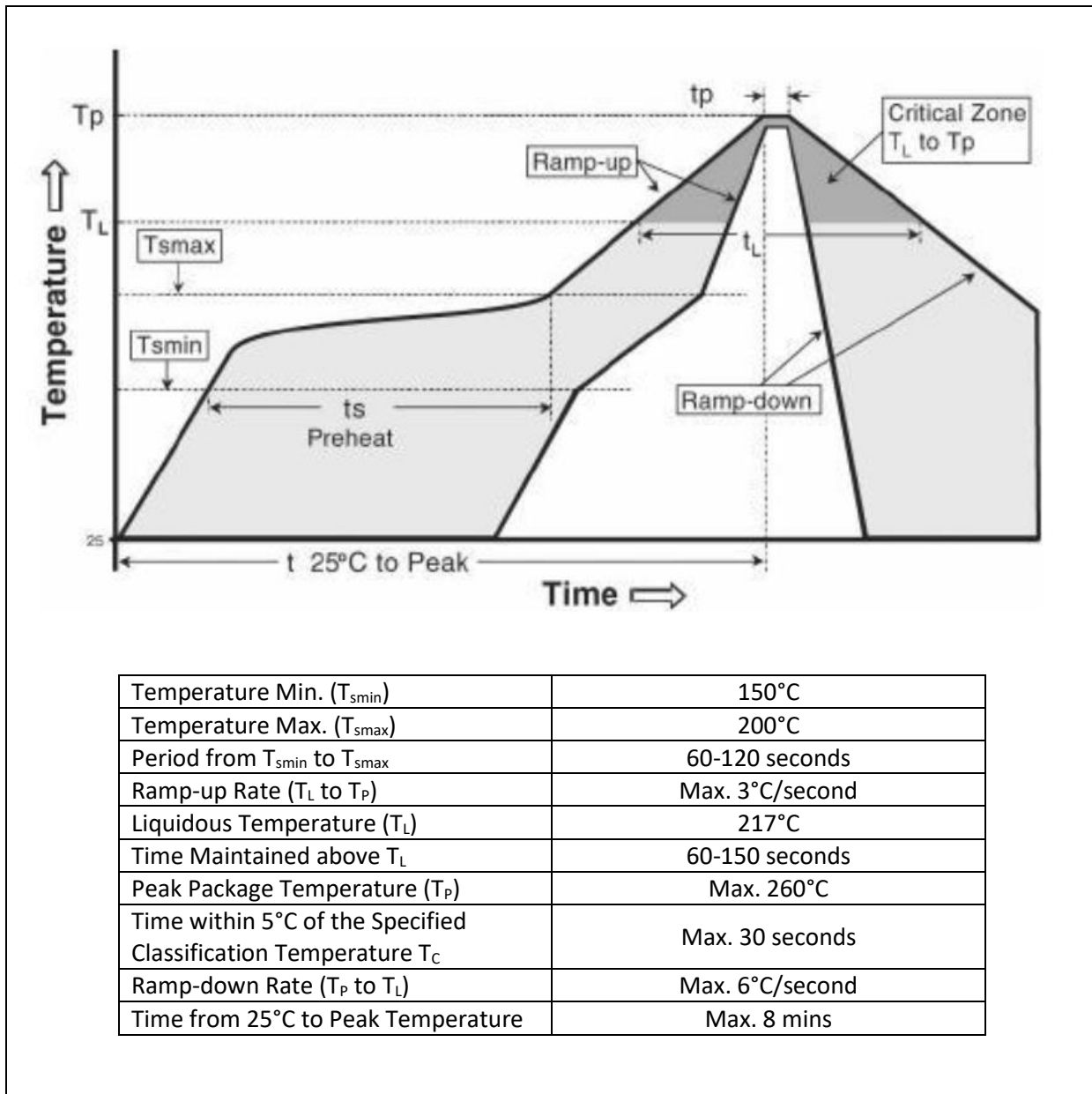
Code	Min.	Max.	Unit
Y1	585	590	nm
Y2	590	595	
Y3	595	600	

**ELECTRO-OPTICAL CHARACTERISTICS:**



## RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:

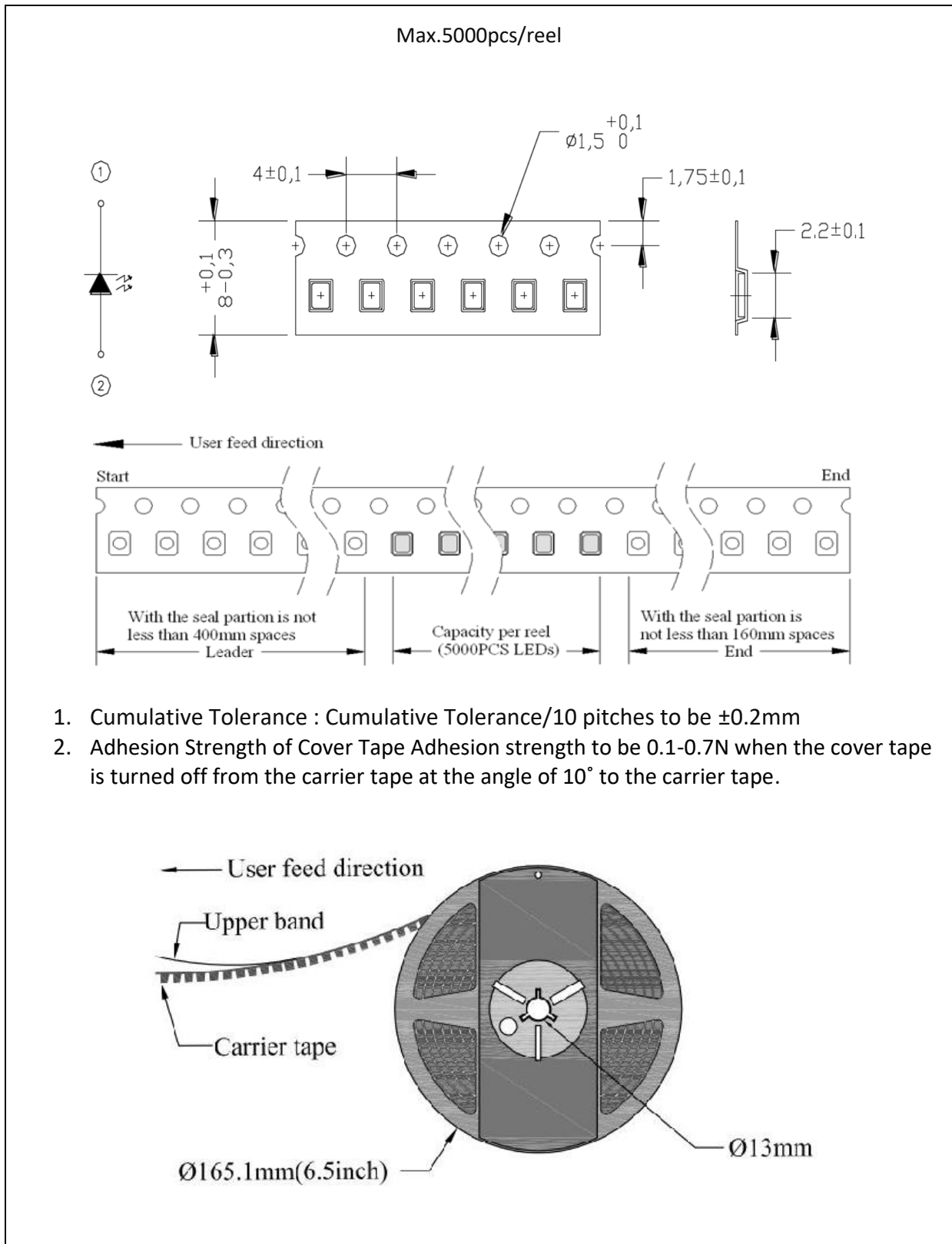


Note:

1. Maximum reflow soldering: 2 times within 24 hours.
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:



## 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.

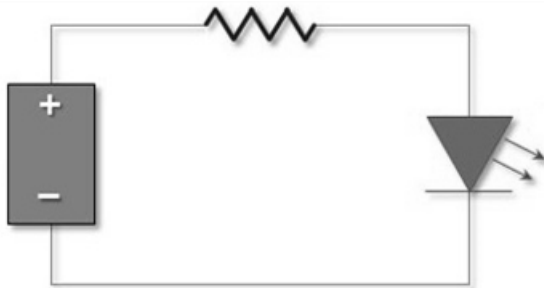
### Baking:

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 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-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.



**REVISION RECORD:**

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Version	Date	Summary of Revision
A1.0	14/12/2016	Datasheet set-up.
A1.1	10/05/2017	Revise spectrum graphic.
A1.2	21/11/2022	Update bin tables.