



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 SMD
- ▶ 5050 0.7t
- ▶ Cool White (5700K) / Warm White (2700K)

N0D62S17



Release Date: 04 September 2022 Version: A1.0



5050 EMC Series

5050 EMC Series

RoHS
Compliant



FEATURES:

- **Package:** Top View Dual Colour EMC Package
- **Forward Current:** 150/150mA* (*in order of Cool/Warm White)
- **Forward Voltage (typ.):** 24.7/24.7V
- **Luminous Flux (typ.):** 610/555lm@150mA
- **Colour:** Cool White/Warm White
- **Colour Temperature (CCT):** 5700/2700K
- **Viewing angle:** 120°
- **Materials:**
 - Die: InGaN/InGaN
 - Resin: Silicon (Yellow Diffused)
 - Package: EMC
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+105°C
- **Grouping parameters:**
 - Forward Voltage
 - Luminous Flux
 - CIE Chromaticity
- **Soldering methods:** Reflow Soldering
- **MSL Level:** MSL3 according to J-STD020
- **Packing:** 12mm tape with max.2000/reel, ø178mm (7")

APPLICATIONS:

- Streetlight
- Tunnel Light
- General Lighting
- Portable Lighting
- Commercial Lighting
- Indoor Lighting
- Decorative Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I _F	180/180*	mA
Pulse Forward Current (Duty 1/10, width≤100μS)	I _{PF}	240	mA
Power Dissipation	P _D	4680	mW
Reverse Voltage	V _R	5	V
Reverse Current @10V	I _R	10	μA
Junction Temperature	T _j	120	°C
Thermal Resistance (Junction to Solder Point)	R _{THJSP}	6	°C/W
Operating Temperature	T _{OPR}	-40~+105	°C
Storage Temperature	T _{STG}	-40~+105	°C
Soldering Temperature	T _{SOL}	230/260 for 10S	°C
Colour Rendering Index	CRI	70/70	---

*in order of Cool White/Warm White

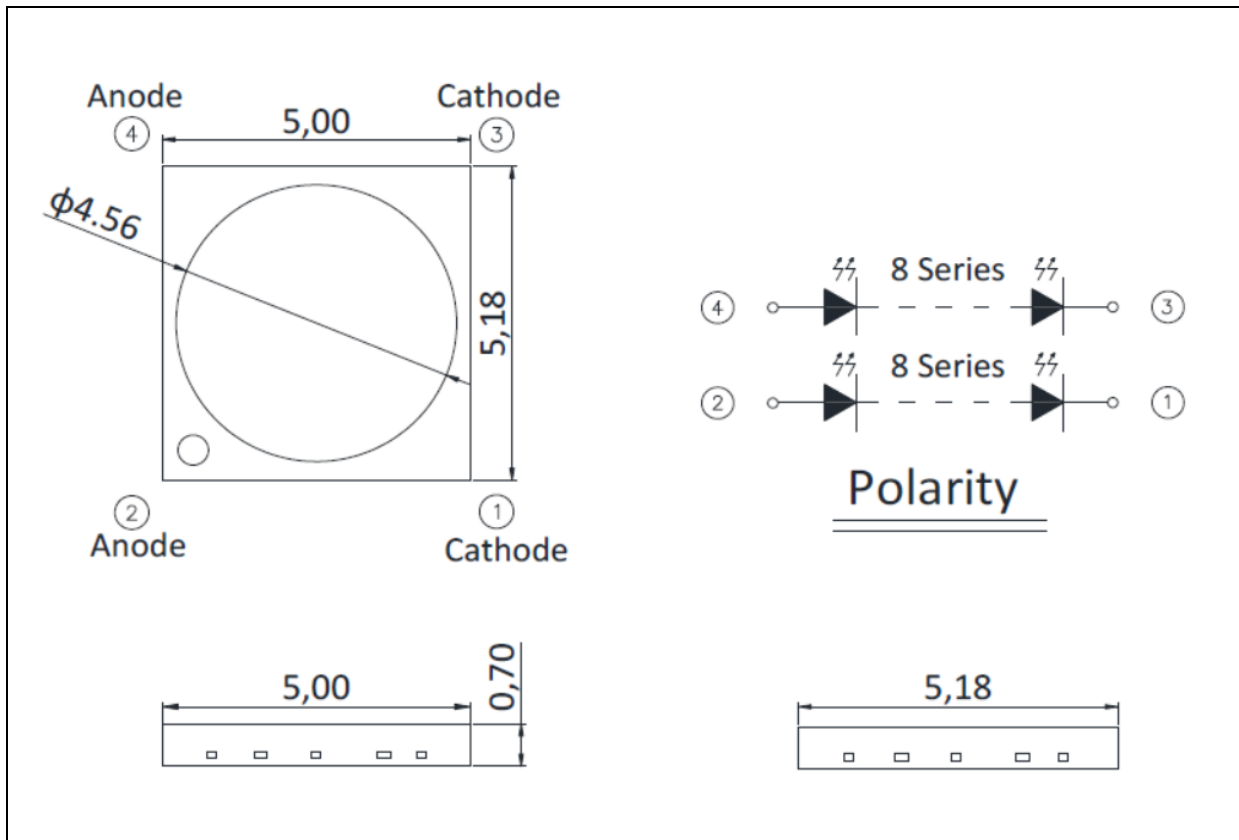
Electrical & Optical Characteristics (Ta=25°C, RH=60%)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V _F	22.0/22.0*	24.7/24.7	26.0/26.0	V	I _F =150mA
Luminous Flux	Φ _V	550/500	610/555	750/700	lm	I _F =150mA
Chromaticity Coordinates	X	---	0.3290/0.4582	---	---	I _F =150mA
	Y	---	0.3417/0.4099	---		
Colour Temperature	CCT	---/---	5700/2700	---/---	K	I _F =150mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =150mA

1. Luminous flux (Φ_V) ±7%, Forward Voltage (V_F) ±0.1V
2. *in order of Cool White/Warm White

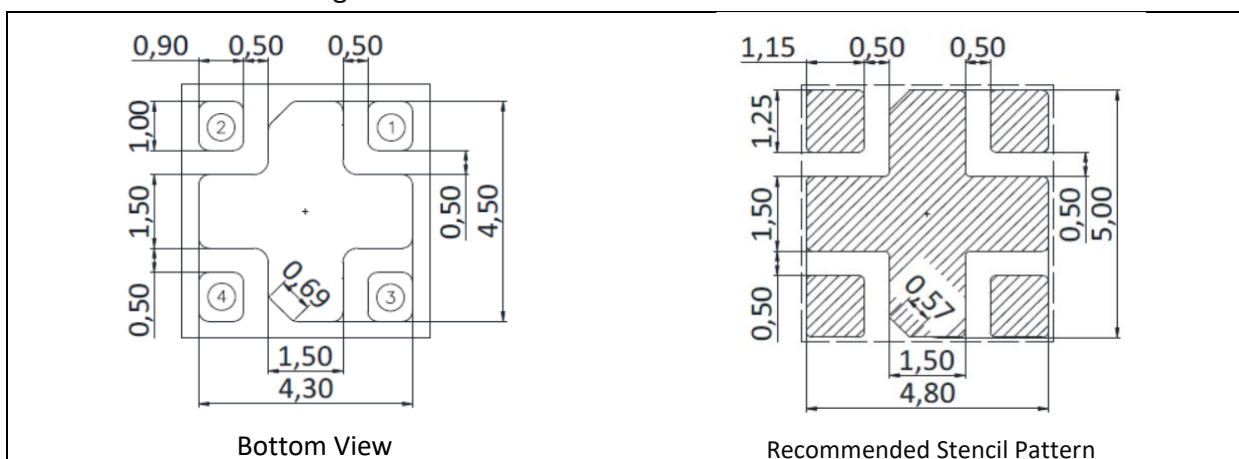
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.2\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



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



BINNING GROUPS:

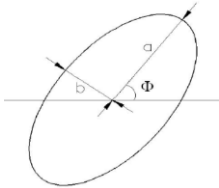
Forward Voltage Classifications ($I_F = 150\text{mA}$):

Code		Min.	Max.	Unit
Cool White / Warm White	6D	22	24	V
	6E	24	26	

Luminous Flux Classifications ($I_F = 150\text{mA}$):

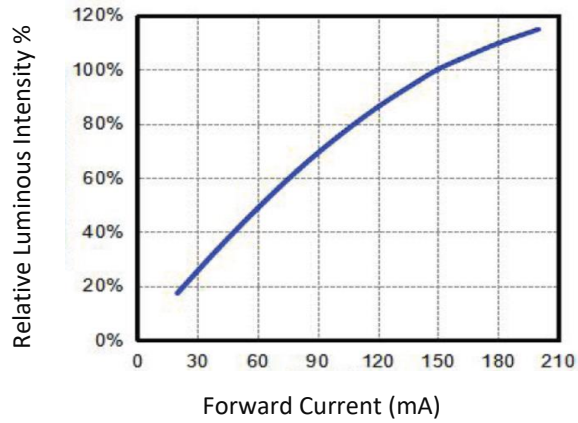
Code		Min.	Max.	Unit
Cool White / Warm White	GL	500	550	lm
	GM	550	600	
	GN	600	650	
	GP	650	700	
	GQ	700	750	

Chromaticity Coordinates Classifications ($I_F = 20\text{mA}$):

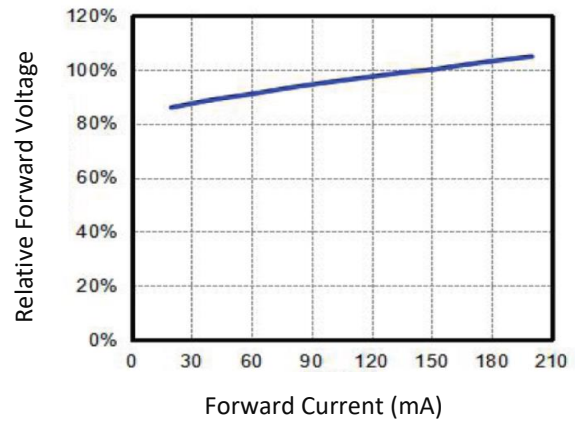
	Code	Centre		Radius		Angle
		X	Y	a	b	Φ
	57M5	0.3290	0.3417	0.011175	0.005500	58.35
	27M5	0.4582	0.4099	0.013500	0.007000	53.42

ELECTRO-OPTICAL CHARACTERISTICS:

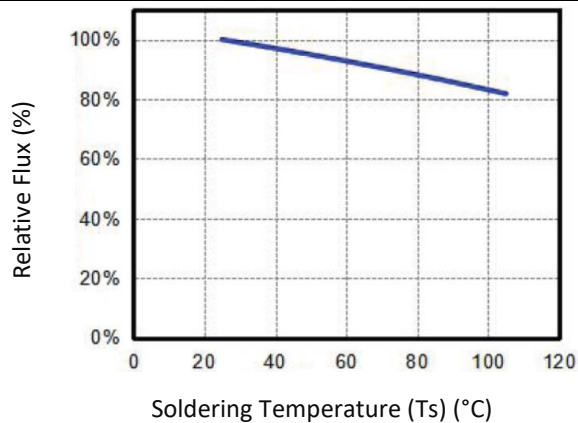
Relative Luminous Intensity v.s. Forward Current



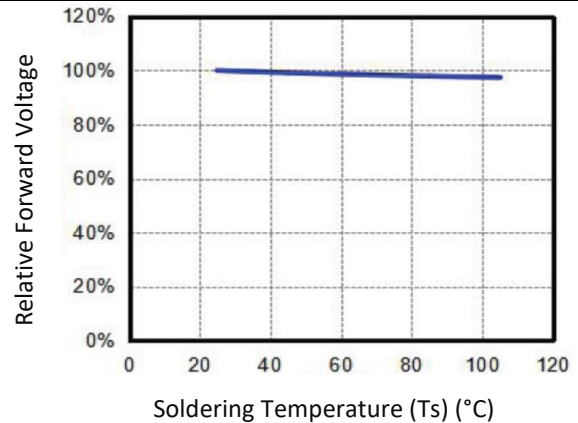
Forward Current v.s. Relative Forward Voltage



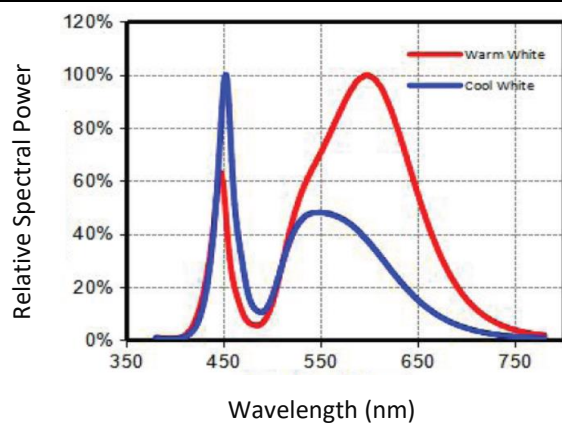
Relative Flux v.s. Soldering Temperature



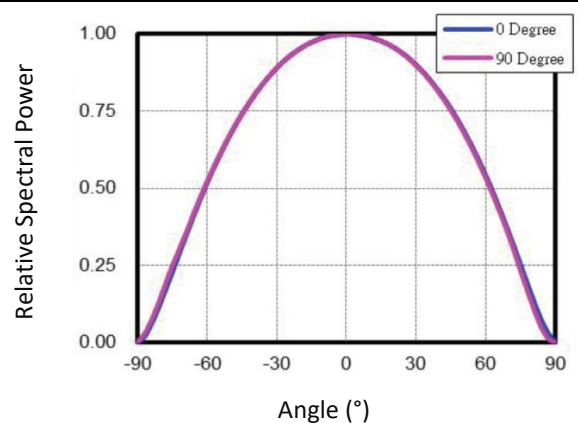
Forward Voltage v.s. Soldering Temperature



Luminous Spectrum



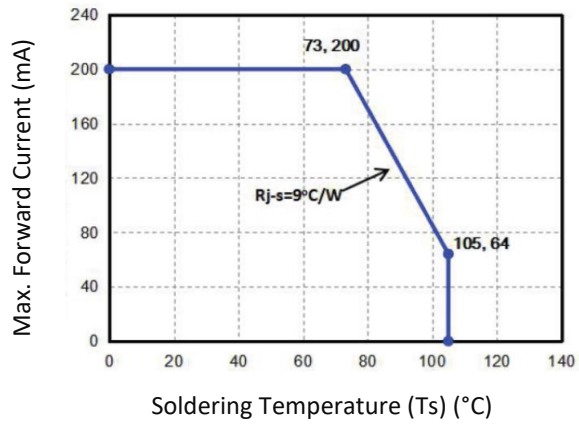
Directive Radiation





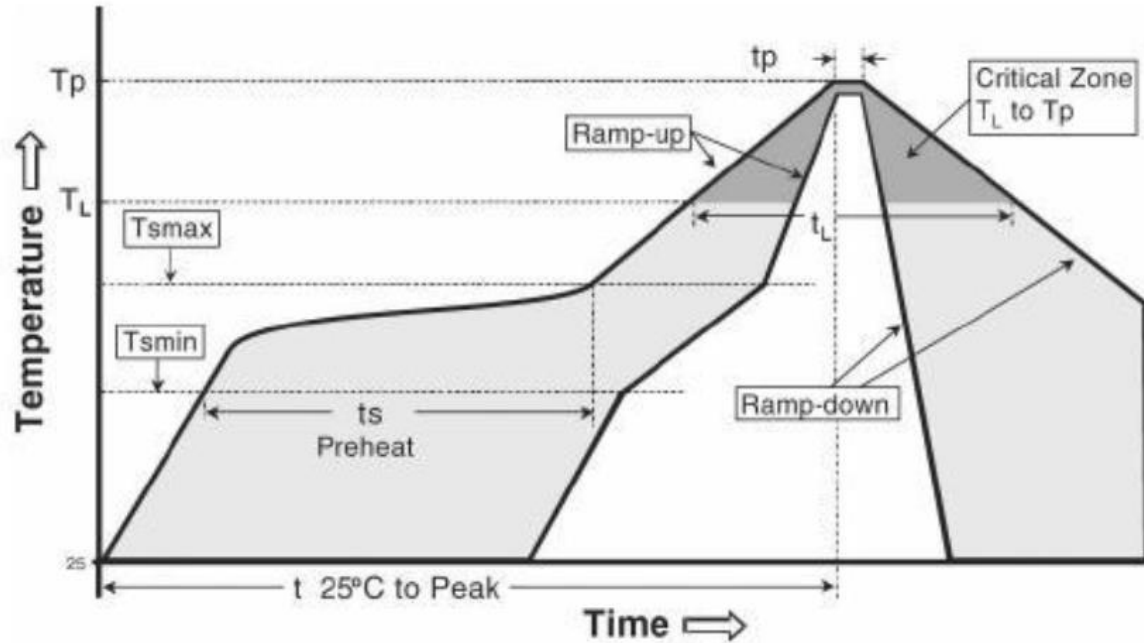
ELECTRO-OPTICAL CHARACTERISTICS:

Soldering Temperature v.s. Max. Current



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

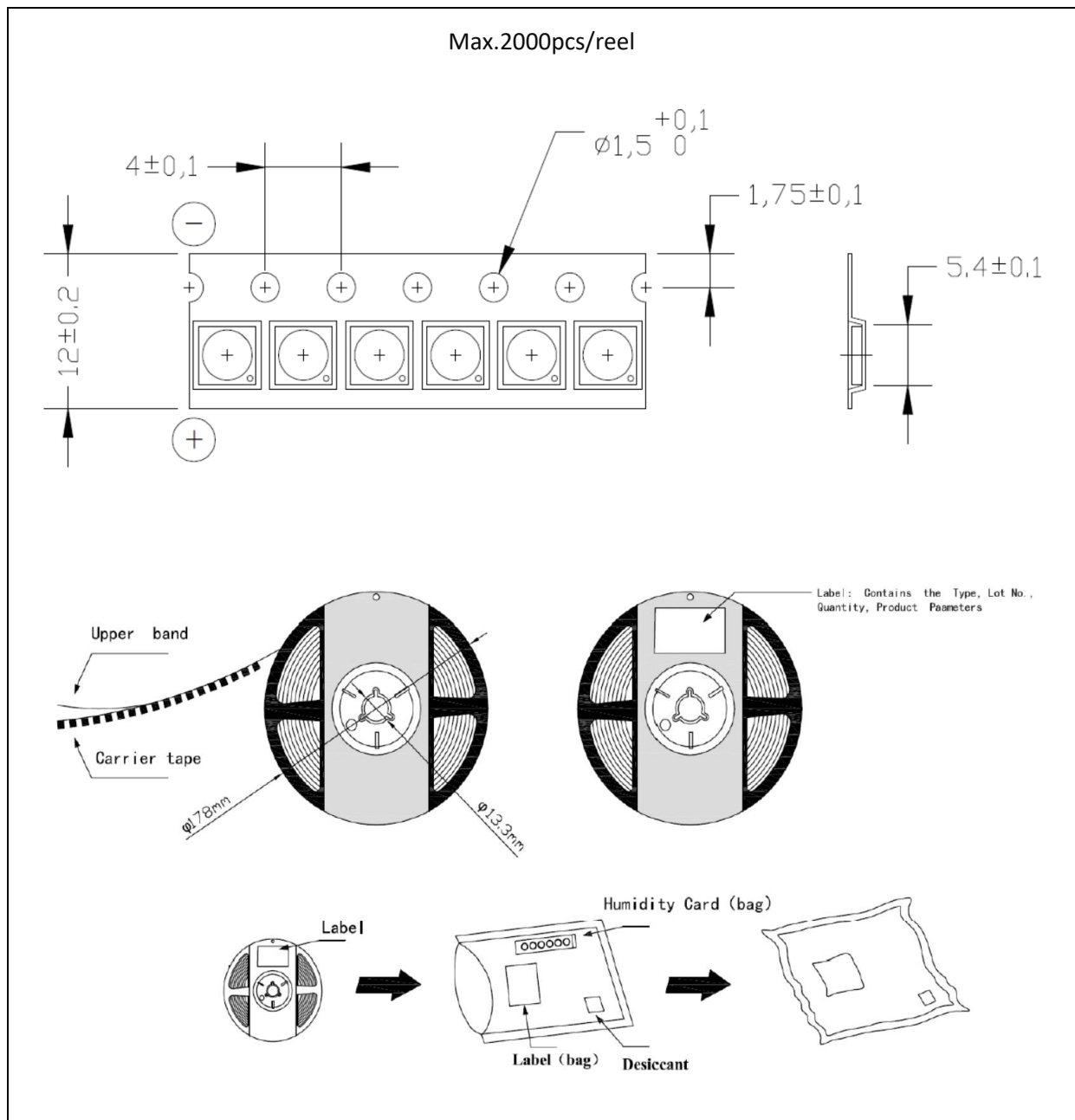
Note:

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:



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 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±5°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:

Version	Date	Summary of Revision
A1.0	04/09/2022	Datasheet set-up.