



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



- ▶ PCB / CHIP LED
- ▶ 0402 (1005) 0.48t
- ▶ Warm White (3000K)

NOW58S19-5MA



Release Date: 25 October 2021 Version: A1.1



0402 (1005) Series

0402 (1005) Series

RoHS
Compliant



FEATURES:

- **Package:** PCB / CHIP White SMT Package
- **Forward Current:** 5mA
- **Forward Voltage (typ.):** 2.8V
- **Luminous Intensity (typ.):** 160mcd@5mA
- **Colour:** Warm White
- **CCT (typ.):** 2960K
- **Viewing angle:** 130°
- **Materials:**
 - Die: InGaN
 - Resin: Epoxy (Yellow Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD:** 500V
- **Grouping parameters:**
 - Forward voltage
 - Luminous intensity
 - CIE Chromaticity
- **Soldering methods:** IR Reflow soldering; wave soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 8mm tape with max.3000/reel, ø180mm (7")

APPLICATIONS:

- LCD Backlighting
- Indication Light
- 3C Consumer Goods
- Keyboard Light

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I _F	5	mA
Peak Forward Current Duty 1/10@10KHz	I _{FP}	100	mA
Reverse Current @5V	I _R	50	μA
Power Dissipation	P _D	15.5	mW
Electrostatic Discharge	ESD	500	V
Operating Temperature	T _{OPR}	-40~+85	°C
Storage Temperature	T _{STG}	-40~+100	°C

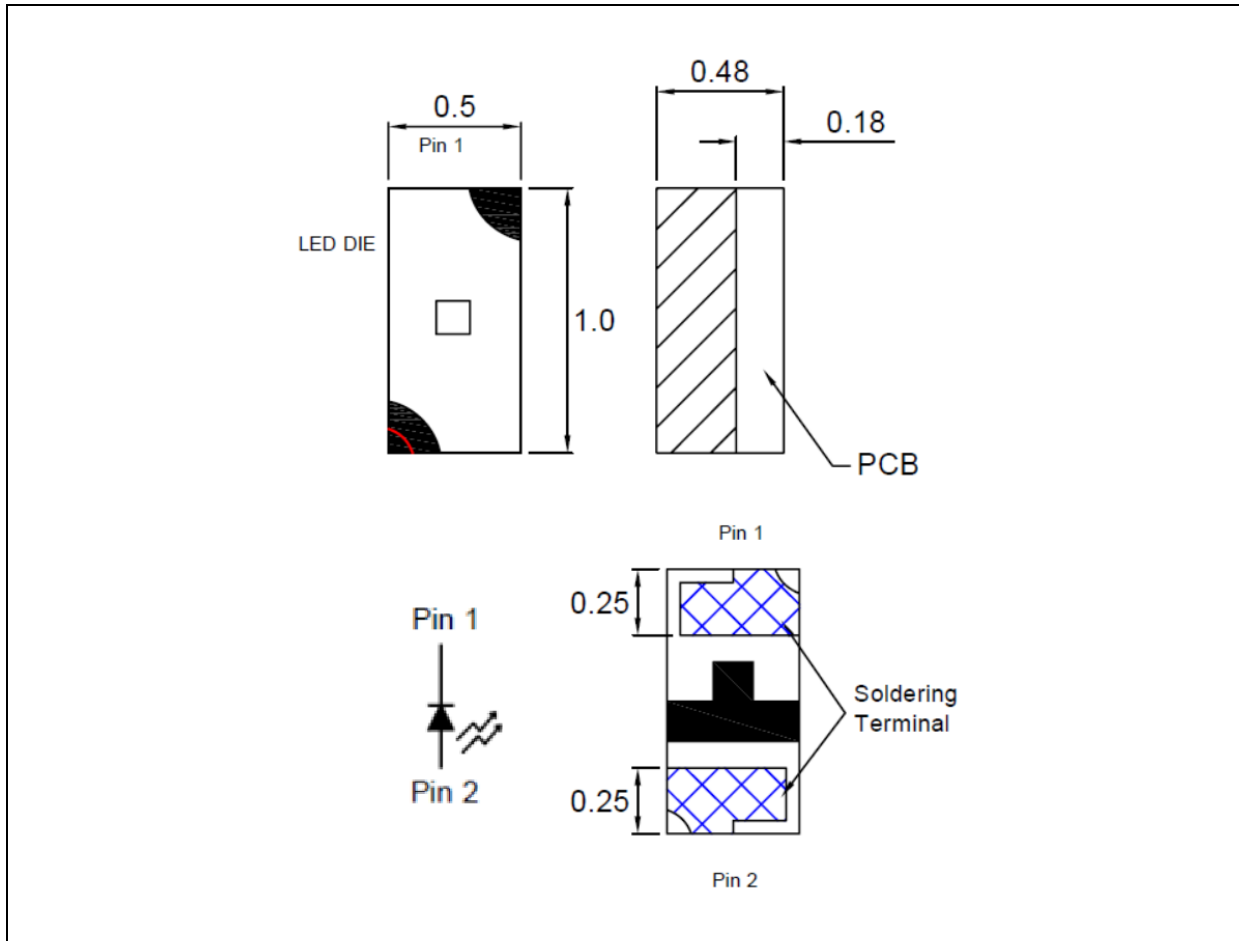
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V _F	2.4	---	3.1	V	I _F =5mA
Luminous Intensity	I _v	80	160	---	mcd	I _F =5mA
Chromaticity Coordinates	X	0.4100	---	0.4870	---	I _F =5mA
	Y	0.3740	---	0.4540		
Colour Temperature	CCT	2670	3000	3250	K	I _F =5mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =5mA

1. Luminous intensity (I_v) ±15%, Forward Voltage (V_F) ±0.1V, Viewing angle(2θ_{1/2}) ±5%, CRI ±3

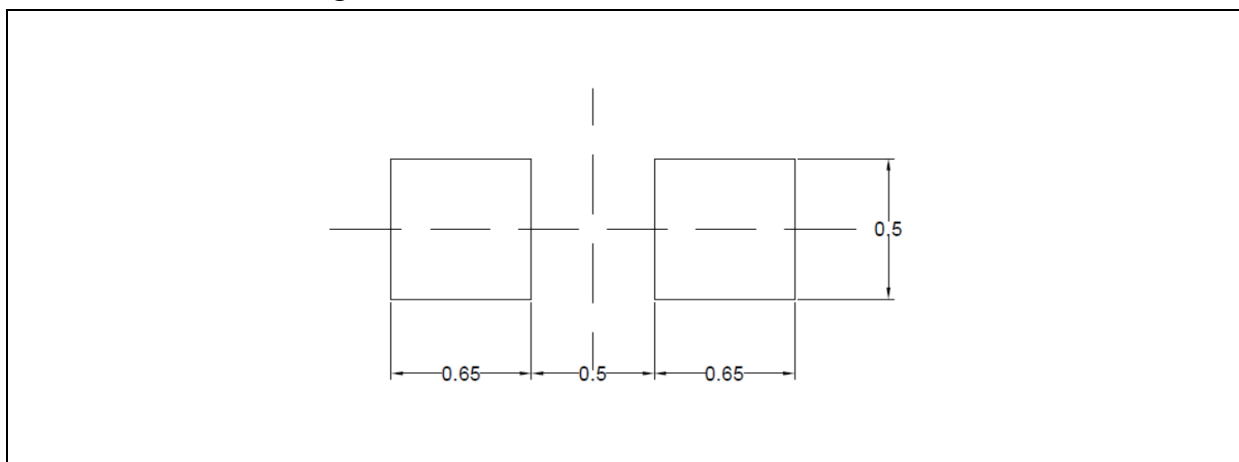
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ± 0.1 mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



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

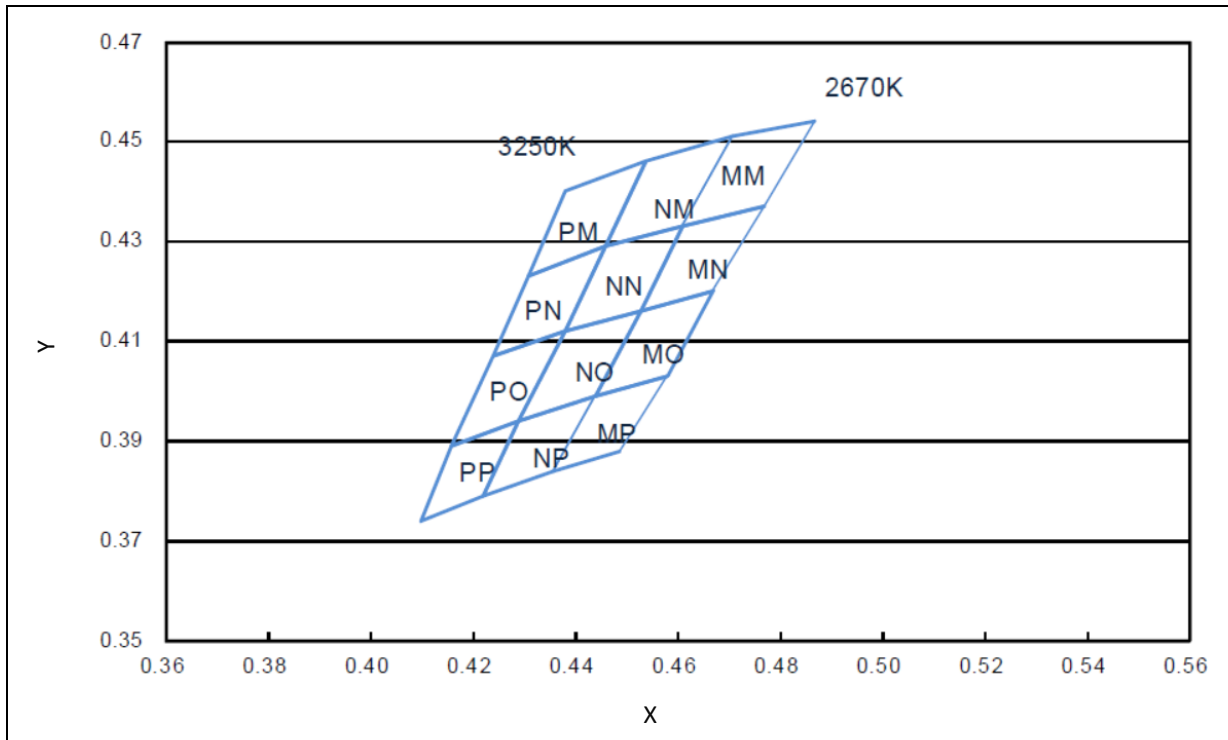
BINNING GROUPS:

 Forward Voltage Classifications ($I_F = 5\text{mA}$):

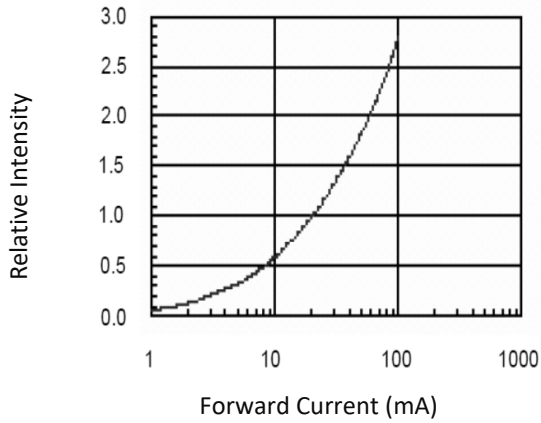
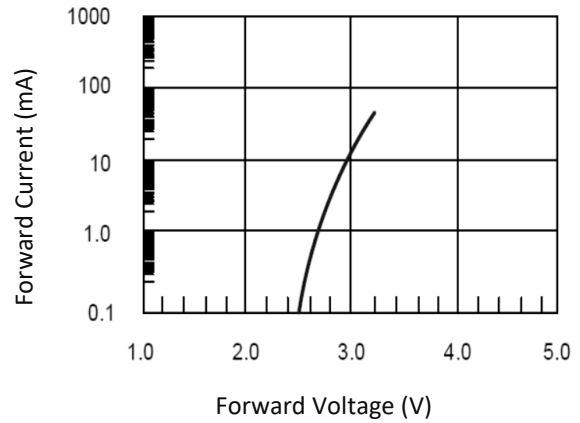
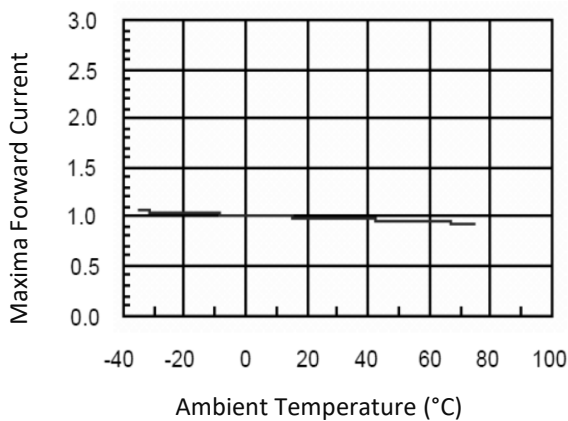
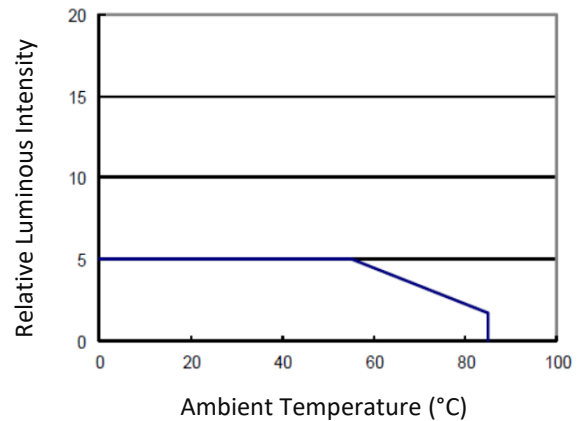
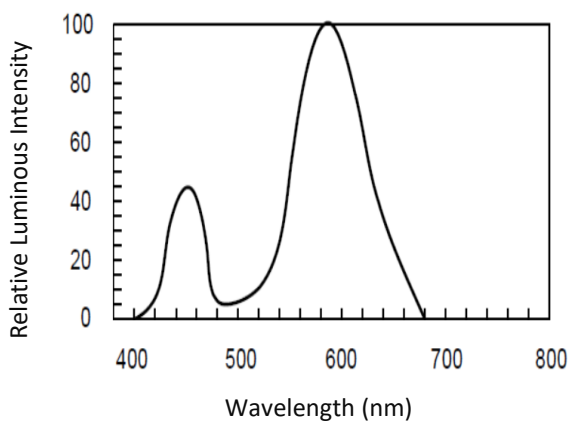
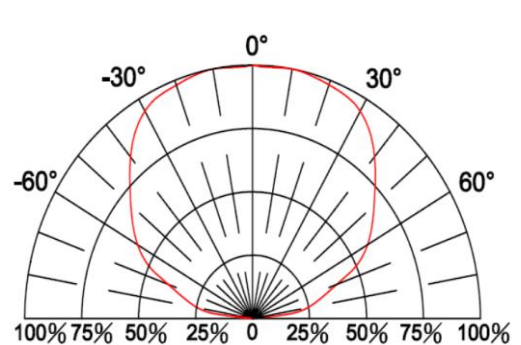
Code	Min.	Max.	Unit
1	2.4	2.5	V
2	2.5	2.6	
3	2.6	2.7	
4	2.7	2.8	
5	2.8	2.9	
6	2.9	3.0	
7	3.0	3.1	

 Luminous Intensity Classifications ($I_F = 5\text{mA}$):

Code	Min.	Max.	Unit
Q	80	125	mcd
R	125	200	
S	200	320	

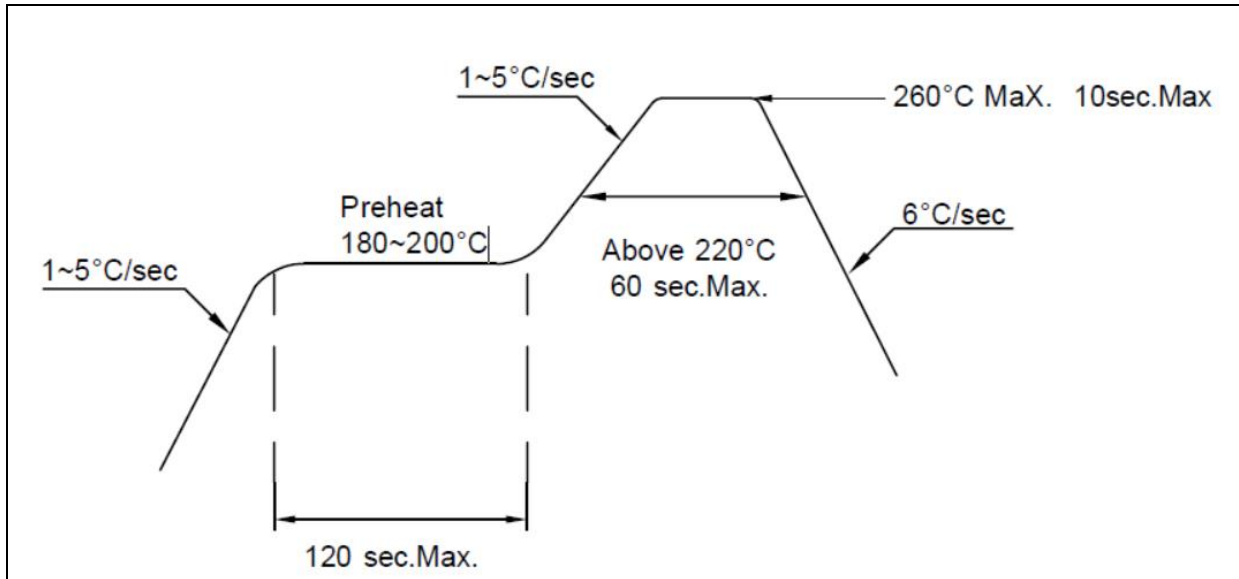
CIE CHROMATICITY DIAGRAM:

Chromaticity Coordinates Classifications ($I_F = 5\text{mA}$):

	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
PP	0.4290	0.3940	0.4160	0.3890	0.4100	0.3740	0.4220	0.3790
PO	0.4240	0.4070	0.4160	0.3890	0.4290	0.3940	0.4380	0.4120
PN	0.4310	0.4230	0.4240	0.4070	0.4380	0.4120	0.4460	0.4290
PM	0.4380	0.4400	0.4310	0.4230	0.4460	0.4290	0.4540	0.4460
NP	0.4440	0.3990	0.4290	0.3940	0.4220	0.3790	0.4360	0.3840
NO	0.4380	0.4120	0.4290	0.3940	0.4440	0.3990	0.4530	0.4160
NN	0.4460	0.4290	0.4380	0.4120	0.4530	0.4160	0.4610	0.4330
NM	0.4540	0.4460	0.4460	0.4290	0.4610	0.4330	0.4710	0.4510
MP	0.4580	0.4030	0.4440	0.3990	0.4360	0.3840	0.4490	0.3880
MO	0.4530	0.4160	0.4440	0.3990	0.4580	0.4030	0.4670	0.4200
MN	0.4610	0.4330	0.4530	0.4160	0.4670	0.4200	0.4770	0.4370
MM	0.4710	0.4510	0.4610	0.4330	0.4770	0.4370	0.4870	0.4540

ELECTRO-OPTICAL CHARACTERISTICS:
Relative Intensity v.s. Forward Current

Forward Current v.s. Forward Voltage

Forward Current v.s. Temperature

Luminous Intensity v.s. Temperature

Luminous Spectrum

Directive Radiation


RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:

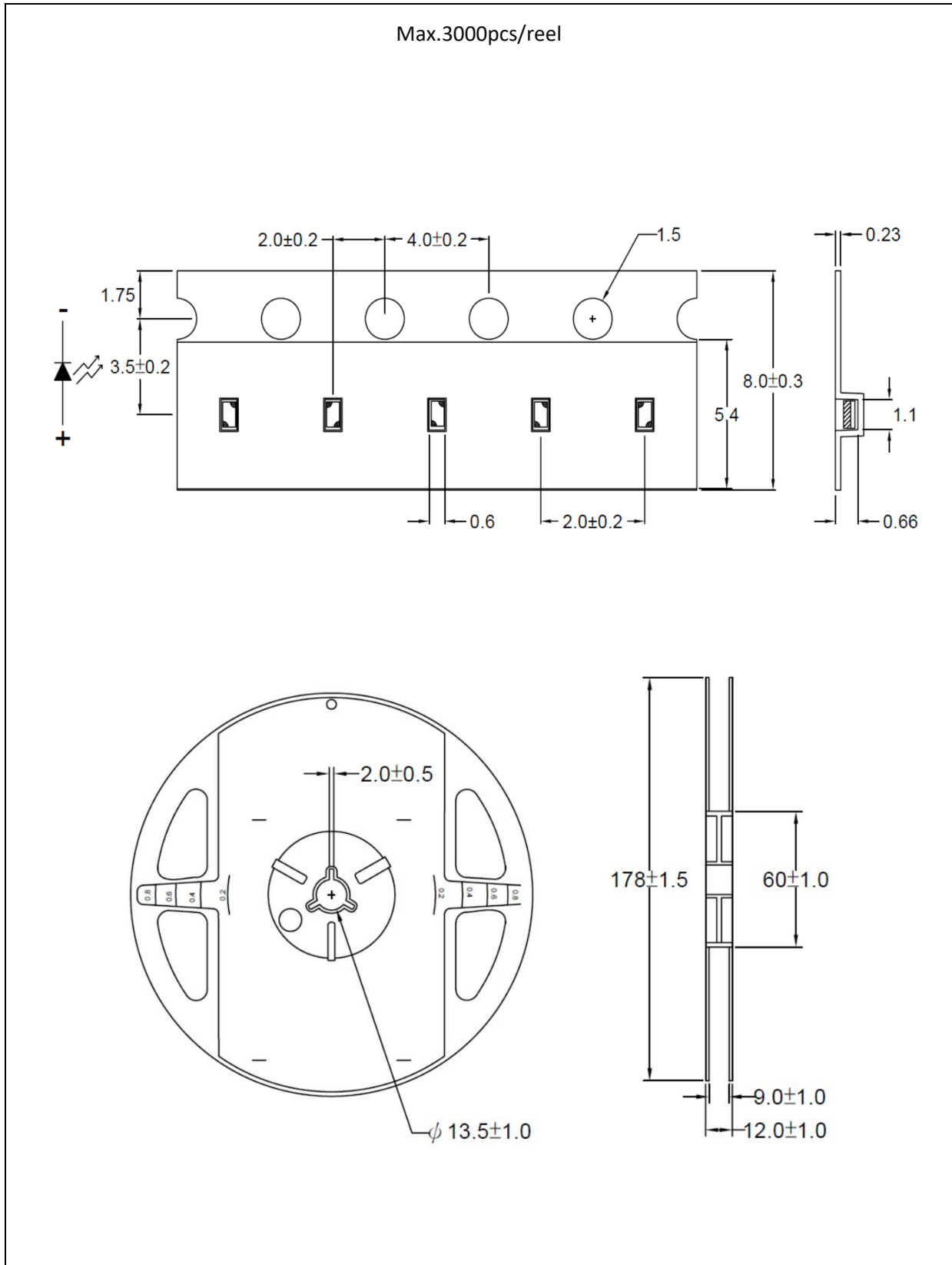


Note:

1. Maximum reflow soldering: 2 times.
2. 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.

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.

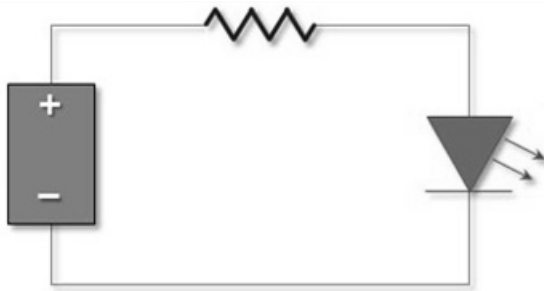
Baking:

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±3°C x 72hrs 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 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	03/01/2020	Datasheet set-up.
A1.1	25/10/2021	New datasheet format.