DATA SHEET

Revise History

Rev.	Descriptions	Date	Page
1.0	-	23-10-2009	-
2.0	Renew form	15-12-2015	-
2.1	Renew form	10-11-2018	-
2.2	Renew form	27-12-2021	-
2.3	Renew form	23-10-2023	-
2.4	Renew form	10-12-2024	-

Features

- ●Long operating life.
- ●Low Power Consumption.
- ●Wide Viewing Angle.
- ●Low voltage DC operated.
- ●RoHS Compliant.
- ●Moisture sensitivity level: 5a.

Application

- ●Backlight,Status indicator,Home and smart appliances.

Part Number	Dice Material	Emitted Color	Lens Color
IE-4008B-ST-R-CE	InGaN	Blue	Water Clear

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Forward Voltage	VF	2.70	3.00	3.40	V	IF=20mA
Luminous Intensity *1	IV	200	-	500	mcd	
Radiation Bandwidth	△λ	-	25	-	nm	
Color Rendering Index	Ra	-	-	-	-	
CIE Coordinates	x,y	-				
Peak Wavelength	λp	-	471	-	nm	
Dominant Wavelength	λd	460	465	475	nm	
Viewing Angle *2	2θ1/2	-	120	-	deg	
Reverse Current	IR	-	-	10	uA	VR=5V

Notes :

1.A Luminous Intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

2.2θ1/2 is the o-axis angle where the luminous intensity is 1⁄2 the peak intensity.

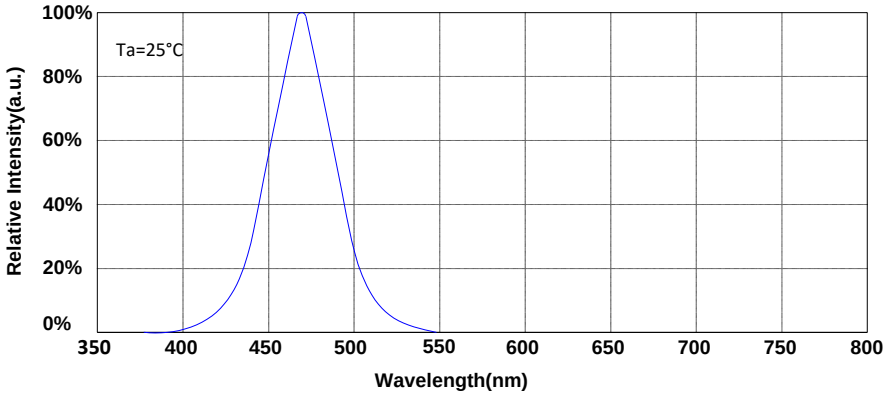
Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Max.	Unit
		Blue	
Power Dissipation	P_d	102	mW
Peak Forward Current*1	I_{FP}	100	mA
Forward Current	I_F	30	mA
Operating Temperature Range	T_{opr}	-40to+85	°C
Storage Temperature Range	T_{stg}	-40to+90	°C
Reflow Soldering	T_{sld}	260°C for 5 secs	

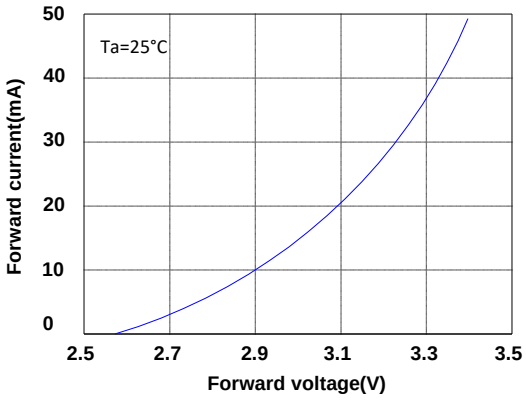
Notes 1.Duty Factor=10%, Frequency=1kHz.

Optical & Electrical Characteristics Curves

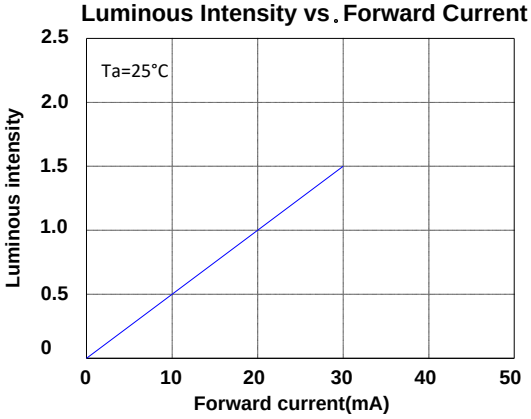
Relative Intensity vs.Wavelength



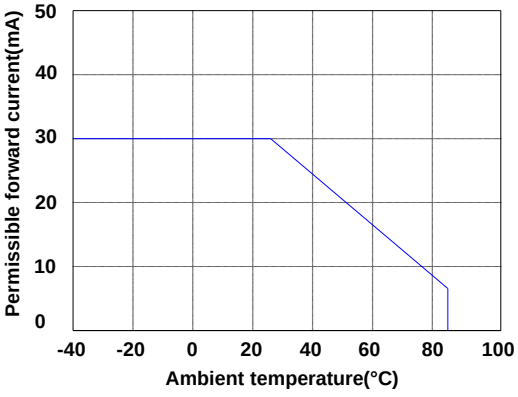
Forward Current vs.Forward Voltage



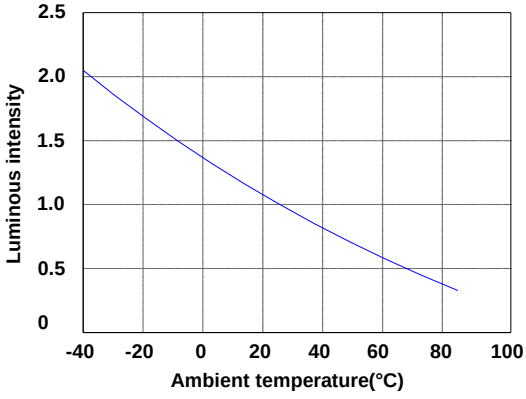
Luminous Intensity vs. Forward Current



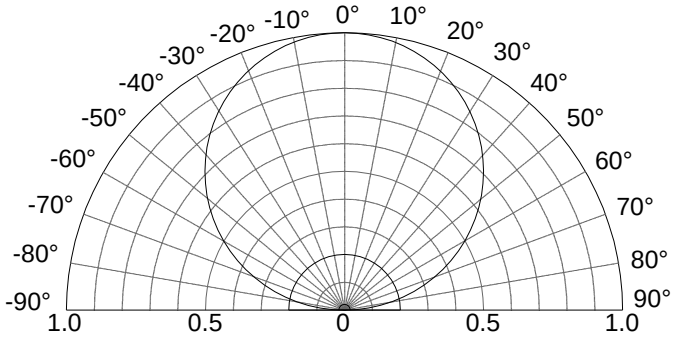
Forward Current Derating Curve



Luminous Intensity vs.Ambient Temperaturs



Spatial Distriution



Electro-Optical Characteristics Bin Limits

Bin Range Of Wavelength

Bin Code	Min.	Max.	Condition
B1	460	463	IF=20mA
B2	463	466	
B3	466	469	
B4	469	472	
B5	472	475	

Bin Range Of Luminous Intensity

Bin Code	Min.	Max.	Condition
L1	200	350	IF=20mA
L2	350	500	
L3	-	-	
L4	-	-	
L5	-	-	

Bin Range Of Forward Voltage

Bin Code	Min.	Max.	Condition
V1	2.7	2.8	IF=20mA
V2	2.8	2.9	
V3	3.0	3.1	
V4	3.1	3.2	
V5	3.2	3.3	
V6	3.3	3.4	
V7	-	-	
V8	-	-	

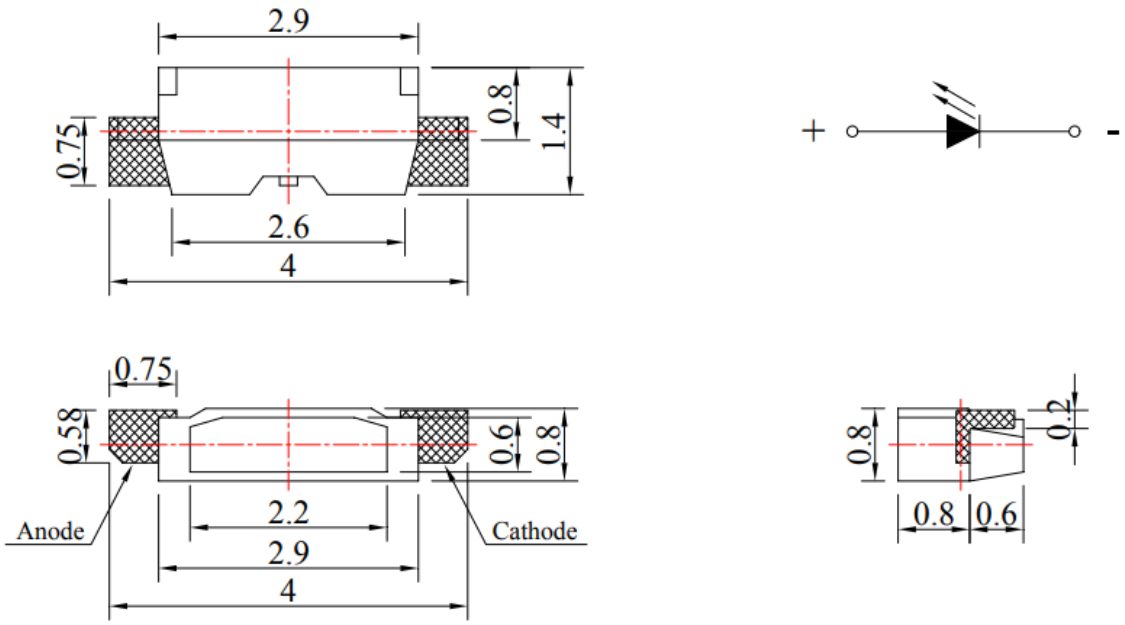
Notes:

1.Luminous Intensity measurement tolerance: ±10%.

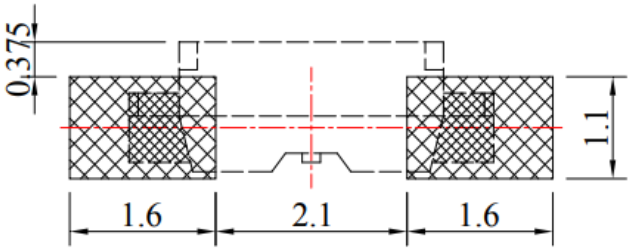
2.Wavelength measurement tolerance: ±1nm.

3.Forward voltage measurement tolerance: ±0.1V.

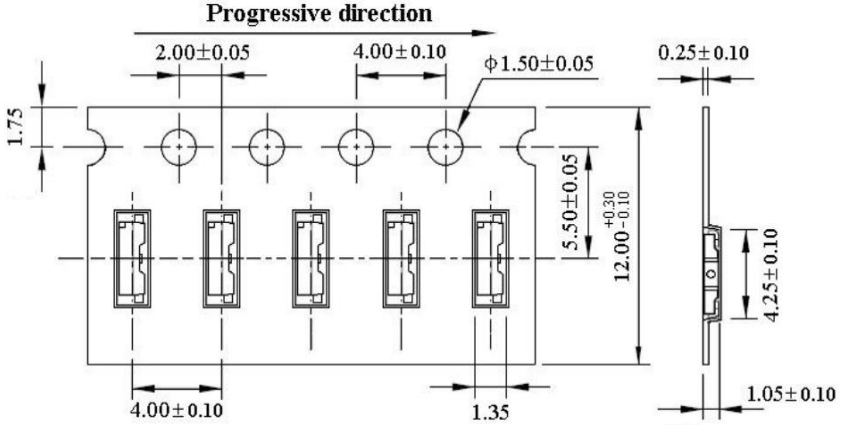
Package Dimension (Unit:mm,Tolerance:±0.20mm)



Recommended Soldering Pad Design (Unit:mm,Tolerance:±0.10mm)

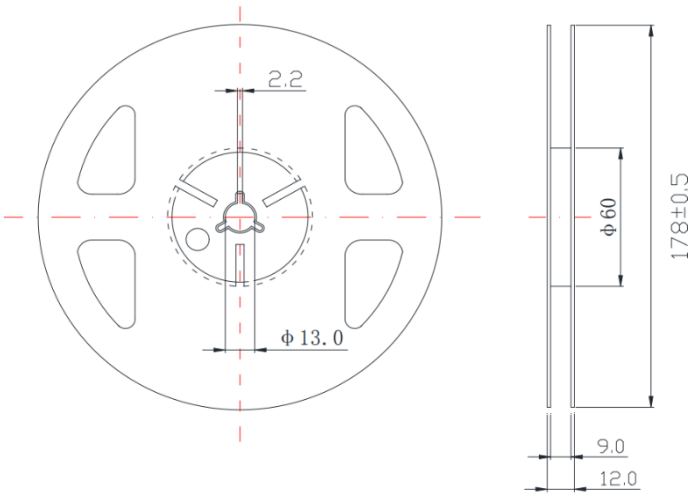


Carrier Tape Dimensions(Unit:mm,Tolerance:±0.10mm)

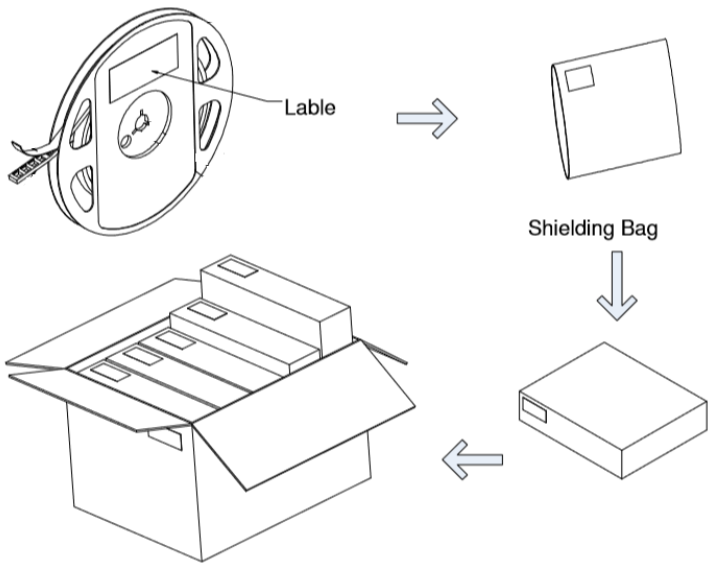


●Loaded quantity 3000 pcs per reel.

Reel Dimensions (Unit:mm,Tolerance: ±0.25mm)

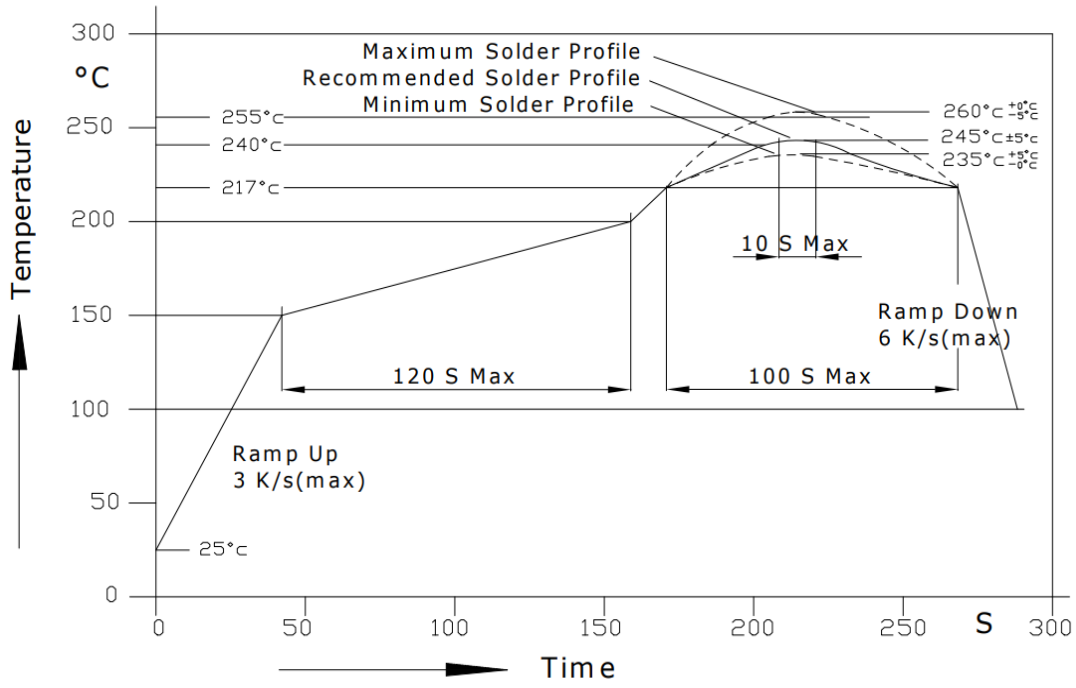


Packaging method



SMT Reflow Soldering Instructions

Pb-free solder temperature profile



●Reflow soldering should not be done more than two times.

●When soldering, do not put stress on the LEDs during heating.

●After soldering, do not warp the circuit board.

●Recommended soldering conditions:

Reflow soldering		Soldering iron	
Pre-heat	150~200°C	Temperature	300°C Max.
Pre-heat time	120 sec. Max.	Soldering time	3 sec. Max.
Peak temperature	260°C Max.		(one time only)
Soldering time	10 sec. Max.(Max. two times)		

Precautions

1. Storage：

●Moisture proof and anti-electrostatic package with moisture absorbent material is used, to keep moisture to aminimum.

●Before opening the package, the product should be kept at 30°C or less and humidity less than 60% RH, and beused within a year.

●After opening the package, the product should be stored at 30°C or less and humidity less than 10%RH. It is recommended that the product be operated at the workshop condition of 30℃ or less and humidity less than 60%RH.

●If the moisture absorbent material has fade away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition: (70±5) ℃ for 24 hours.

2. Static Electricity：

●Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual characteristic such as the forward voltage becomes lower, or the LEDs do not light at the low current. All devices, equipment and machinery must be properly grounded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs.

3. Vulcanization

●LED curing is due to sulfur being in bracket and the +1 price of silver in the chemical reaction generated Ag2S in the process. It will lead to the capacity of reflecting of silver layer reducing, light color temperature drift and serious decline ,seriously affecting the performance of the product.So we should take corresponding measures to avioding vulcanization, such as to avoid using sulphur volatile substances and keeping away from high sulphur content of the material.

4. Handling Precautions :

● Handle the component along the side surfaces by using forceps or appropriate tools.

●Do not directly touch or handle the epoxy resin lens surface. It may damage the internal circuitry.

●Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the epoxy resin lens or damagethe internal circuitry.