



## AA4008VRBB1S 4.0 x 0.8 mm Right Angle SMD Chip LED Lamp

### DESCRIPTIONS

- The Blue source color devices are made with InGaN Light Emitting Diode
- Electrostatic discharge and power surge could damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

### FEATURES

- 4.0 x 1.4 x 0.8 mm right angle SMD LED, 0.8 mm thickness
- Low power consumption
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- RoHS compliant

### APPLICATIONS

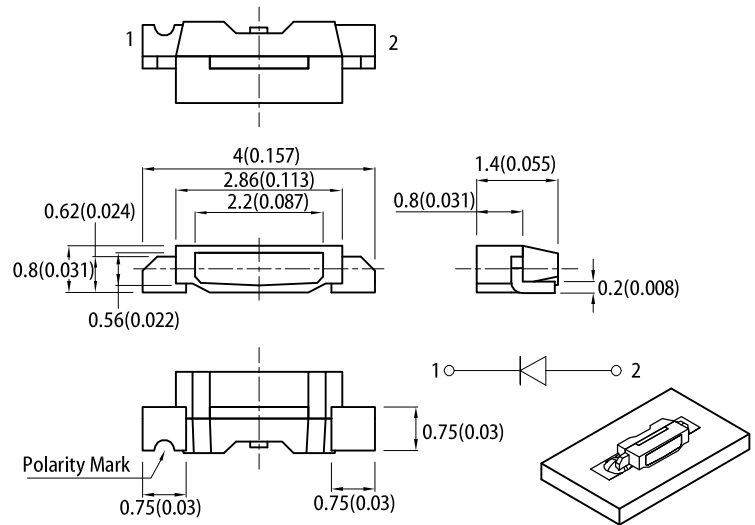
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

### ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

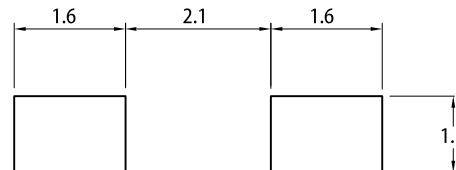


### PACKAGE DIMENSIONS



### RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1(0.004") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

### SELECTION GUIDE

Part Number	Emitting Color (Material)	Iv (mcd) @ 20mA <sup>[2]</sup>		Viewing Angle <sup>[1]</sup>
		Min.	Typ.	2θ1/2
AA4008VRBB1S	■ Blue (InGaN)	700	1300	120°

Notes:  
 1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.  
 2. Luminous intensity / luminous flux: +/-15%.  
 3. Luminous intensity value is traceable to CIE127-2007 standards.

**ELECTRICAL / OPTICAL CHARACTERISTICS at T<sub>A</sub>=25°C**

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Chromaticity Coordinates x I <sub>F</sub> = 20mA	x <sup>[1]</sup>	Blue	0.17	-	-
Chromaticity Coordinates y I <sub>F</sub> = 20mA	y <sup>[1]</sup>	Blue	0.22	-	-
Capacitance	C	Blue	100	-	pF
Forward Voltage I <sub>F</sub> = 20mA	V <sub>F</sub> <sup>[2]</sup>	Blue	3.3	4.0	V
Reverse Current (V <sub>R</sub> = 5V)	I <sub>R</sub>	Blue	-	50	uA
Temperature Coefficient of x I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>x</sub>	Blue	-0.16	-	10 <sup>-3</sup> /°C
Temperature Coefficient of y I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>y</sub>	Blue	-0.18	-	10 <sup>-3</sup> /°C
Temperature Coefficient of V <sub>F</sub> I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>V</sub>	Blue	-3.0	-	mV/°C

## Notes:

1. Measurement tolerance of the chromaticity coordinates is ± 0.01.
2. Forward voltage: ±0.1V.
3. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

**ABSOLUTE MAXIMUM RATINGS at T<sub>A</sub>=25°C**

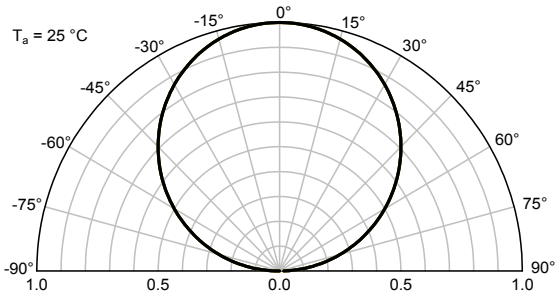
Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	120	mW
Reverse Voltage	V <sub>R</sub>	5	V
Junction Temperature	T <sub>j</sub>	115	°C
Operating Temperature	T <sub>op</sub>	-40 to +85	°C
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C
DC Forward Current	I <sub>F</sub>	30	mA
Peak Forward Current	I <sub>FM</sub> <sup>[1]</sup>	100	mA
Electrostatic Discharge Threshold (HBM)	-	250	V
Thermal Resistance (Junction / Ambient)	R <sub>th JA</sub> <sup>[2]</sup>	305	°C/W
Thermal Resistance (Junction / Solder point)	R <sub>th JS</sub> <sup>[2]</sup>	165	°C/W

## Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. R<sub>th JA</sub>, R<sub>th JS</sub> Results from mounting on PC board FR4 (pad size ≥ 16 mm<sup>2</sup> per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

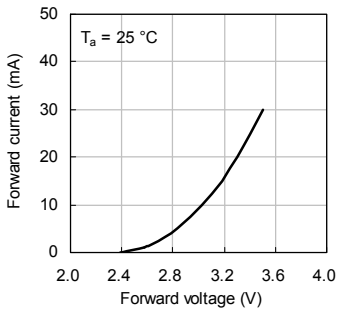
### TECHNICAL DATA

#### SPATIAL DISTRIBUTION

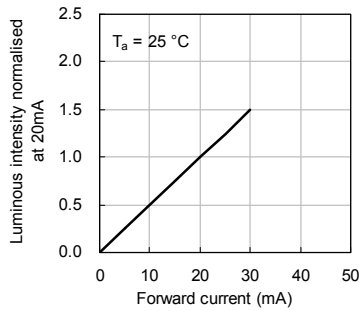


### BLUE

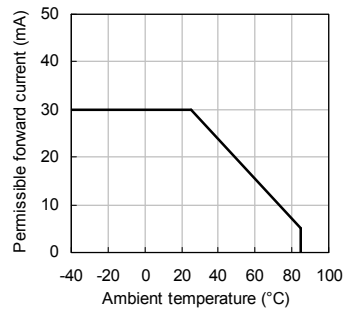
Forward Current vs. Forward Voltage



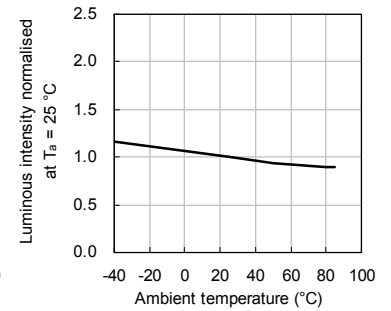
Luminous Intensity vs. Forward Current



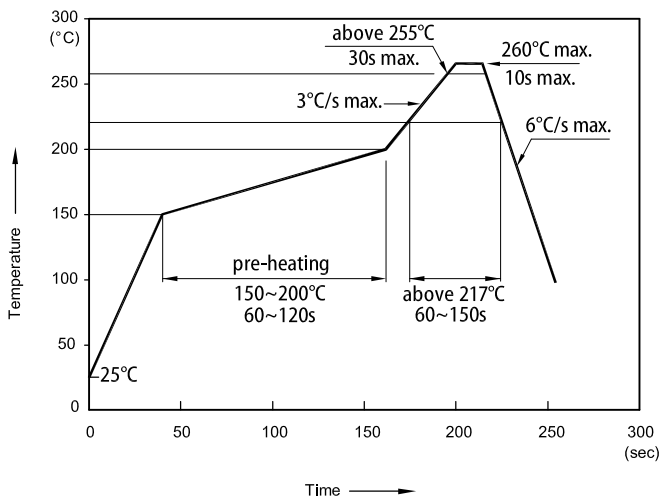
Forward Current Derating Curve



Luminous Intensity vs. Ambient Temperature

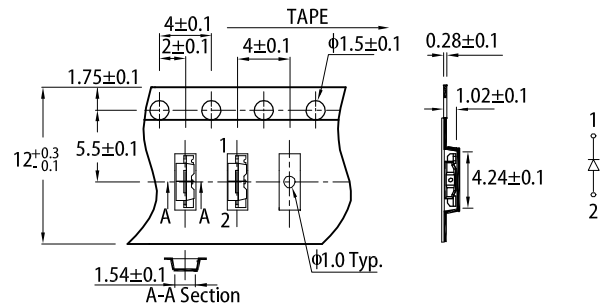


#### REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

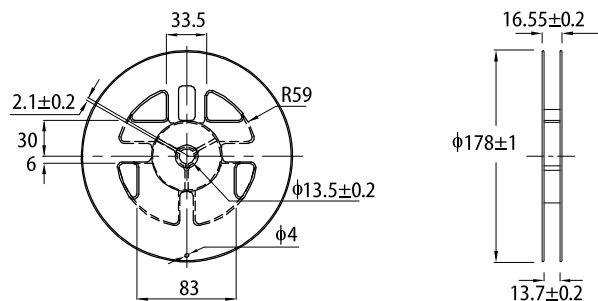


- Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
  2. The maximum number of reflow soldering passes is 2 times.
  3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

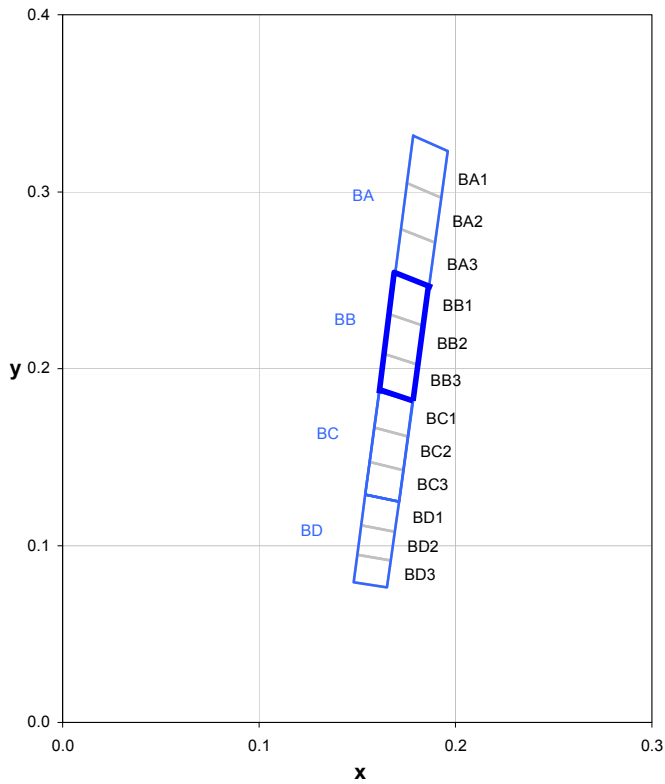
#### TAPE SPECIFICATIONS (units : mm)



#### REEL DIMENSION (units : mm)



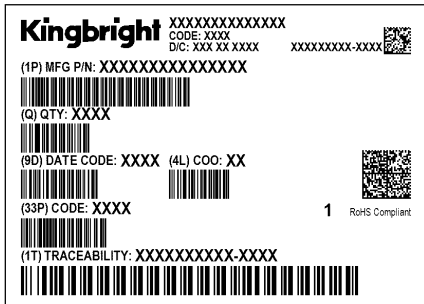
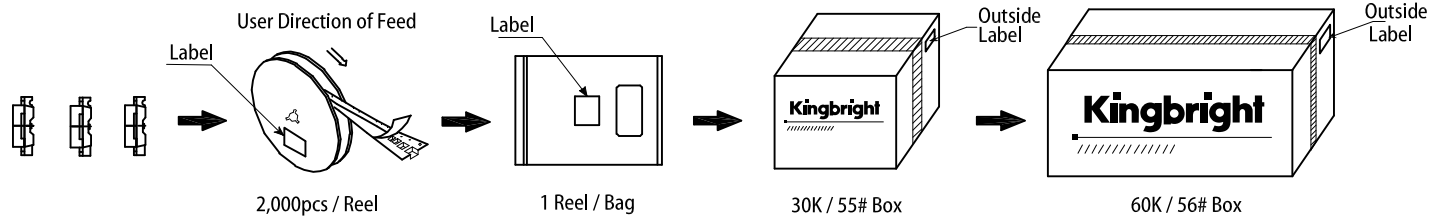
**CIE CHROMATICITY DIAGRAM**



*Notes:*  
 Shipment may contain more than one chromaticity regions.  
 Orders for single chromaticity region are generally not accepted.  
 Measurement tolerance of the chromaticity coordinates is  $\pm 0.01$ .

	x	y		x	y
BA1	0.1786	0.3318	BB1	0.1693	0.2543
	0.1754	0.3048		0.1665	0.2308
	0.1928	0.2964		0.1837	0.2241
	0.1961	0.3228		0.1866	0.2471
BA2	0.1754	0.3048	BB2	0.1665	0.2308
	0.1723	0.2790		0.1638	0.2084
	0.1896	0.2712		0.1810	0.2022
	0.1928	0.2964		0.1837	0.2241
BA3	0.1723	0.2790	BB3	0.1638	0.2084
	0.1693	0.2543		0.1612	0.1870
	0.1866	0.2471		0.1783	0.1814
	0.1896	0.2712		0.1810	0.2022
BC1	0.1612	0.1870	BD1	0.1542	0.1288
	0.1587	0.1666		0.1521	0.1114
	0.1758	0.1615		0.1691	0.1077
	0.1783	0.1814		0.1712	0.1247
BC2	0.1587	0.1666	BD2	0.1521	0.1114
	0.1564	0.1473		0.1501	0.0948
	0.1735	0.1427		0.1670	0.0917
	0.1758	0.1615		0.1691	0.1077
BC3	0.1564	0.1473	BD3	0.1501	0.0948
	0.1542	0.1288		0.1482	0.0791
	0.1712	0.1247		0.1651	0.0765
	0.1735	0.1427		0.1670	0.0917

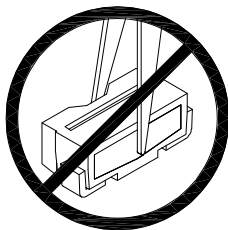
## PACKING & LABEL SPECIFICATIONS



## HANDLING PRECAUTIONS

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

1. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.
2. As silicone encapsulation is permeable to gases, some corrosive substances such as H<sub>2</sub>S might corrode silver plating of lead frame. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.



## PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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