



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES

Part Number: KA-5630VB38Z4S

Blue

## Features

- Size (mm): 5.6 x 3.0 x 0.77
- Suitable for all SMD assembly and solder process.
- Available on tape and reel.
- White SMD package, silicone resin.
- Moisture sensitivity level : level 2a.
- RoHS compliant.

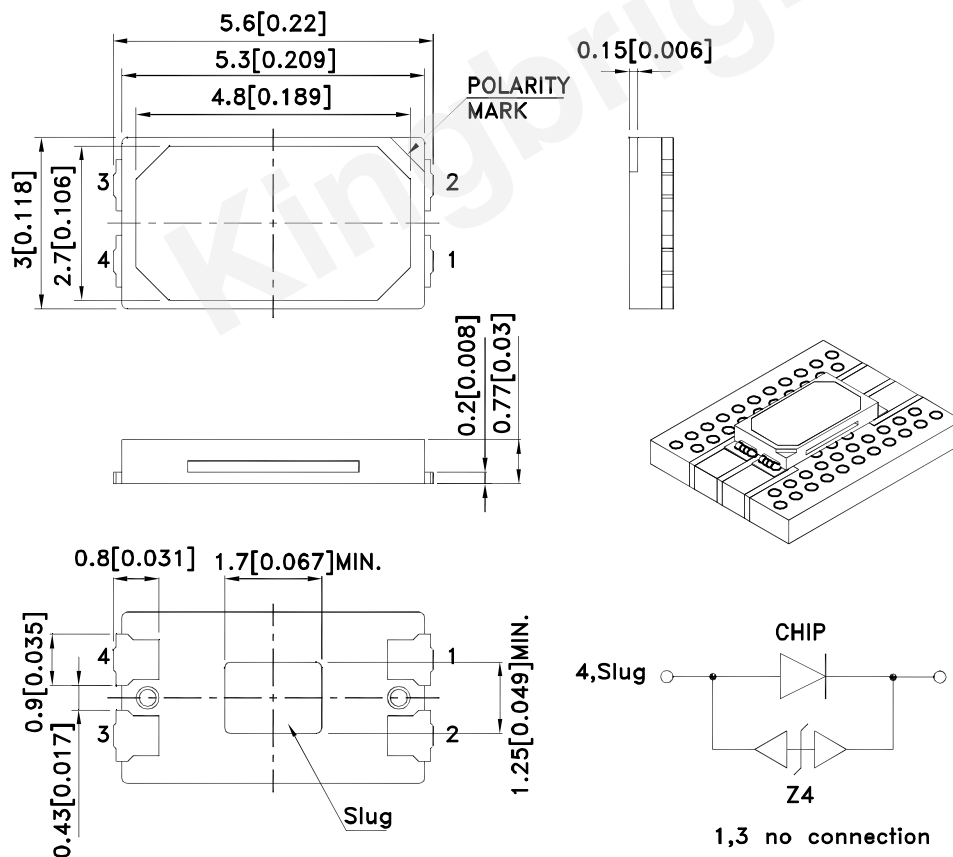
## Descriptions

- The Blue source color devices are made with InGaN on Sapphire-substrate 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.

## Applications

- LCD TV / Monitor Backlight.
- Architectural lighting.
- Decorative lighting.

## Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01")$  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.

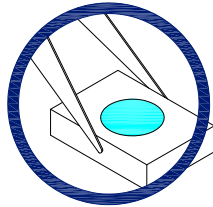


## Handling Precautions

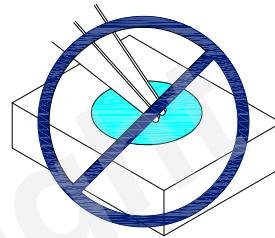
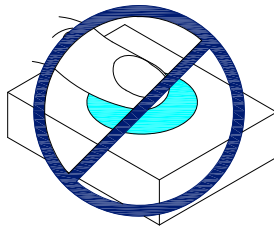
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

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.

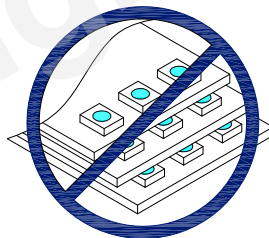
1. Handle the component along the side surfaces by using forceps or appropriate tools.



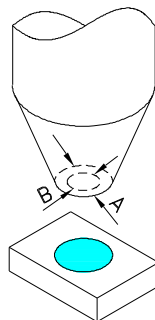
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



- 4.1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
- 4.2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
- 4.3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



5. As silicone encapsulation is permeable to gases, some corrosive substances such as  $H_2S$  might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.

## Selection Guide

| Part No.       | Emitting Color (Material) | Lens Type   | $\Phi_v$ (lm) [2]<br>@ 120mA |      |      |      | Viewing Angle [1] |
|----------------|---------------------------|-------------|------------------------------|------|------|------|-------------------|
|                |                           |             | Code.                        | Min. | Max. | Typ. | 2 $\theta$ 1/2    |
| KA-5630VB38Z4S | Blue (InGaN)              | Water Clear | A11                          | 2.9  | 3.5  | 4    | 120°              |
|                |                           |             | A12                          | 3.5  | 4.2  |      |                   |
|                |                           |             | A13                          | 4.2  | 5    |      |                   |
|                |                           |             | A14                          | 5    | 6    |      |                   |

### Notes:

1.  $\theta$ 1/2 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. LEDs are binned according to their luminous flux.
4. Luminous flux value is traceable to CIE127-2007 standards.

## Absolute Maximum Ratings at T<sub>A</sub>=25°C

| Parameter   | Symbol              | Value       | Unit |
|---|---------------------|-------------|------|
| Power Dissipation                                 | P <sub>D</sub>      | 570         | mW   |
| Junction Temperature [1]                          | T <sub>J</sub>      | 110         | °C   |
| Operating Temperature                             | T <sub>op</sub>     | -40 To +100 | °C   |
| Storage Temperature                               | T <sub>stg</sub>    | -40 To +110 | °C   |
| DC Forward Current [1]                            | I <sub>F</sub>      | 150         | mA   |
| Reverse Voltage                                   | V <sub>R</sub>      | 5           | V    |
| Peak Forward Current [2]                          | I <sub>FM</sub>     | 270         | mA   |
| Thermal Resistance [1]<br>(Junction/ambient)      | R <sub>th j-a</sub> | 140         | °C/W |
| Thermal Resistance [1]<br>(Junction/solder point) | R <sub>th j-s</sub> | 25          | °C/W |
| Electrostatic Discharge Threshold (HBM)           |                     | 8000        | V    |

### Notes:

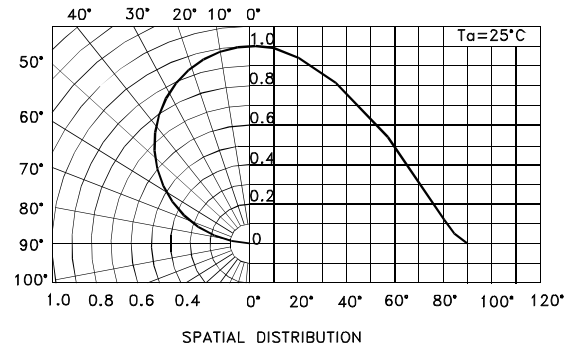
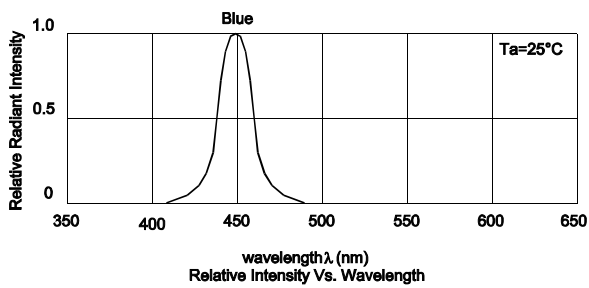
1. R<sub>th(j-a)</sub> Results from mounting on PC board FR4 (pad size≥16 mm<sup>2</sup> per pad)
2. 1/10 Duty Cycle, 0.1ms Pulse Width.
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and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

## Electrical / Optical Characteristics at T<sub>A</sub>=25°C

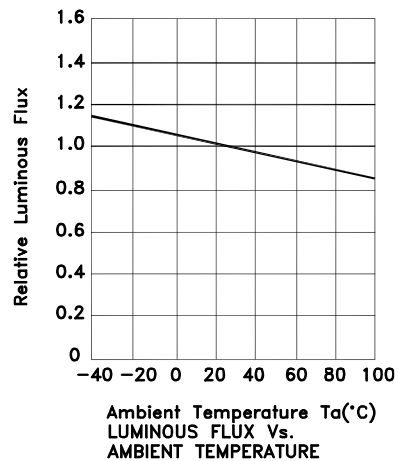
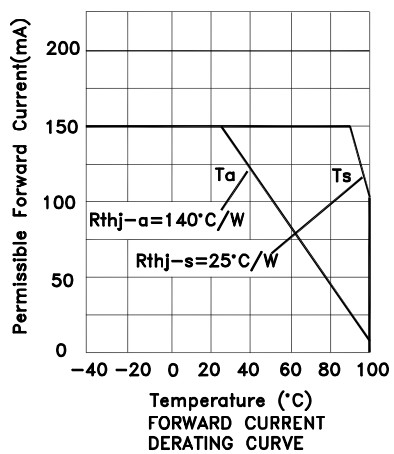
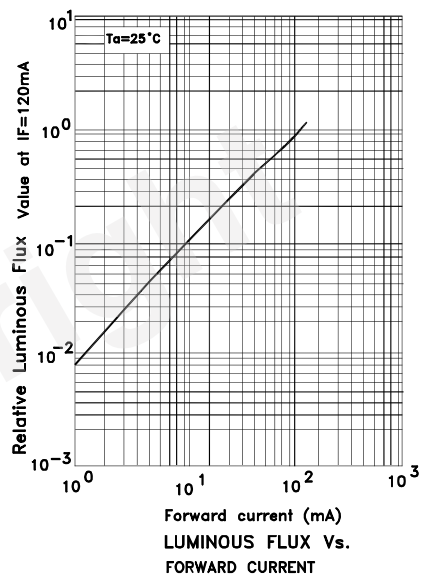
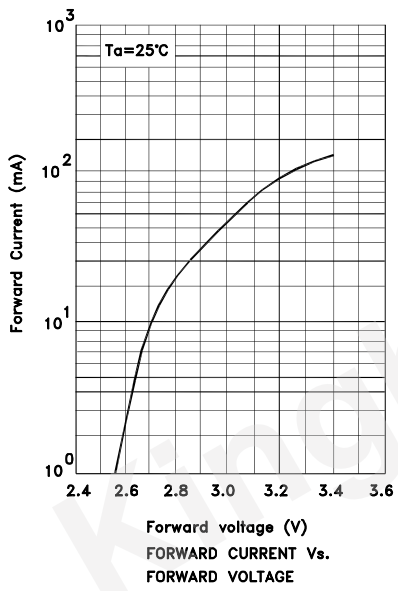
| Parameter   | Symbol                | Value |      | Unit   |
|---|-----------------------|-------|------|--------|
|   |                       | Typ.  | Max. |        |
| Wavelength at peak emission I <sub>F</sub> =120mA   | $\lambda_{peak}$      | 445   |      | nm     |
| Dominant Wavelength I <sub>F</sub> =120mA   | $\lambda_{dom}$ [1]   | 450   |      | nm     |
| Spectral bandwidth at 50% $\Phi_{REL MAX}$ I <sub>F</sub> =120mA                            | $\Delta\lambda_{1/2}$ | 25    |      | nm     |
| Forward Voltage I <sub>F</sub> =120mA   | V <sub>F</sub> [2]    | 3.3   | 3.8  | V      |
| Allowable Reverse Current   | I <sub>R</sub>        |       | 85   | mA     |
| Temperature coefficient of $\lambda_{peak}$<br>I <sub>F</sub> =120mA, -10 ° C ≤ T ≤ 100 ° C | TC $\lambda_{peak}$   | 0.12  |      | nm/° C |
| Temperature coefficient of $\lambda_{dom}$<br>I <sub>F</sub> =120mA, -10 ° C ≤ T ≤ 100 ° C  | TC $\lambda_{dom}$    | 0.1   |      | nm/° C |
| Temperature coefficient of V <sub>F</sub><br>I <sub>F</sub> =120mA, -10 ° C ≤ T ≤ 100 ° C   | TC <sub>V</sub>       | -3.2  |      | mV/° C |

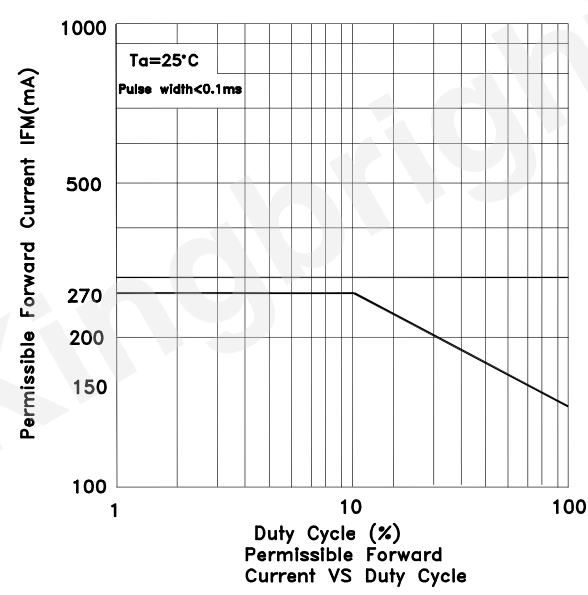
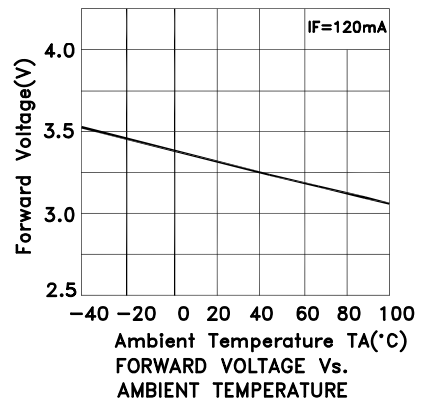
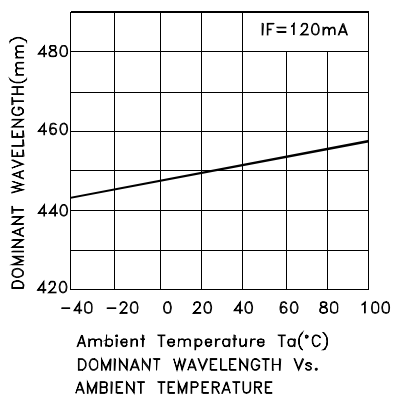
### Notes:

- 1.The dominant Wavelength ( $\lambda_d$ ) above is the setup value of the sorting machine. (Tolerance  $\lambda_d$  : ±1nm. )
- 2.Forward Voltage: +/-0.1V.
- 3.Wavelength value is traceable to CIE127-2007 standards.
- 4.Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.



## Blue KA-5630VB38Z4S

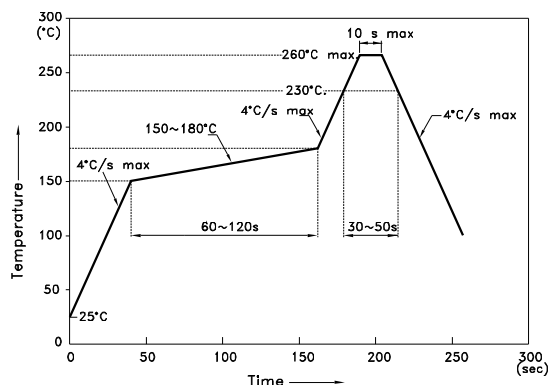




## KA-5630VB38Z4S

Reflow soldering is recommended and the soldering profile is shown below.  
Other soldering methods are not recommended as they might cause damage to the product.

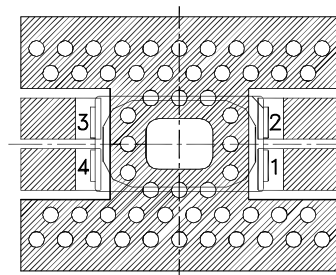
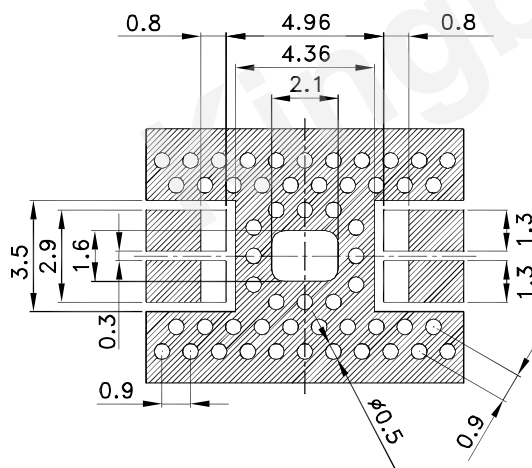
Reflow Soldering Profile For Lead-free SMT Process.



### NOTES:

1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

## Recommended Soldering Pattern (Units : mm; Tolerance: $\pm 0.1$ )



▨ Solder resist

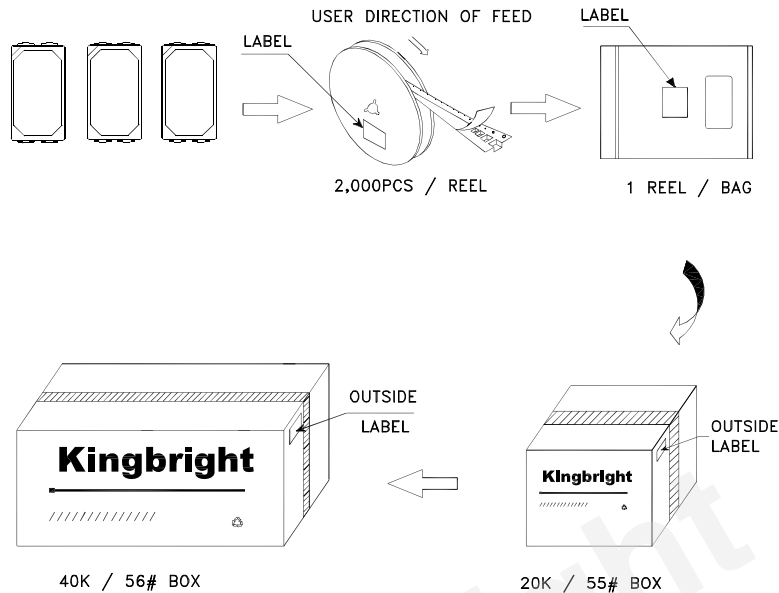
### 0.8mm FR4-Based Boards


For both the open via PTH and filled and capped via design, the finished hole diameter is 0.5mm. A smaller diameter will lead to an increase of thermal resistance. The recommended distance between two holes is 0.4 mm. This results in a minimal pitch of 0.9mm between the vias.



## PACKING & LABEL SPECIFICATIONS

KA-5630VB38Z4S



|   |  |
|---|--|
| <b>Kingbright</b>   |  |
| P/NO: KA-5630xxx  |  |
| QTY: 2,000 pcs  | Q.C. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Q C<br/>xx xx xxxx<br/>PASSED</span> |
| S/N: XXXX   |  |
| CODE: XXX   |  |
| LOT NO:   |  |
| <br>xxxxxxxxxxxxxxxxxxxxxxxx |  |
| RoHS Compliant  |  |

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