

**Technical Data Sheet****Power Top View LED****67-31A/RAC-AU2V2B9Z5/2T/AM****Features**

- Pb-free.
- Inner reflector.
- White package.
- Optical indicator.
- P-LCC-3 package.
- Wide viewing angle.
- Colorless clear resin.
- Precondition : Base on JEDEC Level-2.
- ESD : Up to 2KV. (Base JESD22-A114-B)
- The product itself will remain within RoHS compliant version.
- Suitable for vapor-phase reflow, infrared reflow and wave solder processes.

**Descriptions**

- The 67-31A series is available for orange, green, blue and yellow or other color due to the different raw material.
- Base on the package design, the device result in wide view angle.

**Applications**

- Automotive backlighting or indicator : Dashboard, switch, audio and video equipments...etc.
- Backlight : LCD, switches, symbol, mobile phone and illuminated advertising.
- Display for indoor and outdoor application
- Ideal for coupling into light guides.
- Substitution of traditional light
- Optical indicator
- General applications.

**Device Selection Guide**

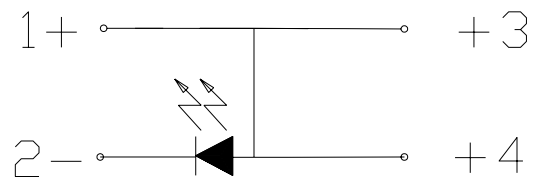
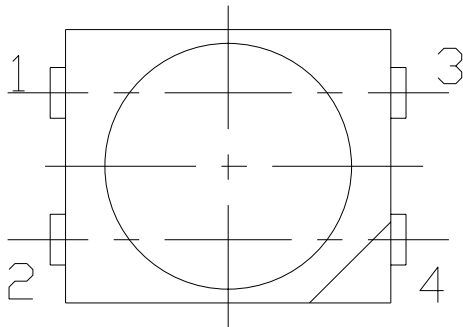
| Chip     | Emitted Color | Resin Color |
|----------|---------------|-------------|
| Material |               |             |
| AlGaInP  | Dark Red      | Water Clear |

## Technical Data Sheet

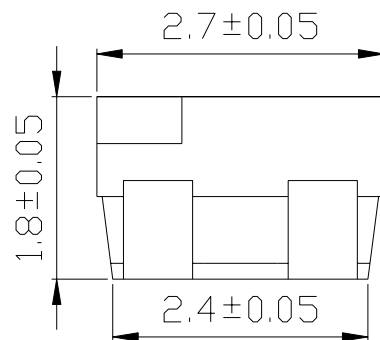
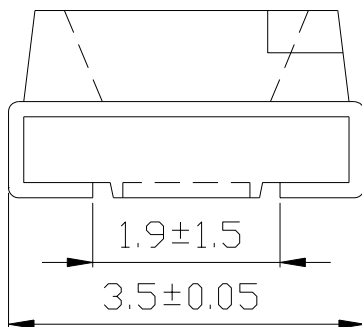
### Power Top View LED

**67-31A/RAC-AU2V2B9Z5/2T/AM**

#### Package Dimensions



Polarity



Note : Tolerances unless dimension  $\pm 0.1$ mm. Unit = mm

**Technical Data Sheet****Power Top View LED****67-31A/RAC-AU2V2B9Z5/2T/AM****Absolute Maximum Ratings (Ta=25°C)**

| Parameter                                 | Symbol              | Rating                                                                      | Unit |
|-------------------------------------------|---------------------|-----------------------------------------------------------------------------|------|
| Reverse Voltage                           | V <sub>R</sub>      | 12                                                                          | V    |
| Forward Current                           | I <sub>F</sub>      | 70                                                                          | mA   |
| Peak Forward Current<br>(Duty 1/10 @1KHz) | I <sub>FP</sub>     | 200                                                                         | mA   |
| Power Dissipation                         | P <sub>d</sub>      | 180                                                                         | mW   |
| Junction Temperature                      | T <sub>j</sub>      | 115                                                                         | °C   |
| Operating Temperature                     | T <sub>opr</sub>    | -40 ~ +100                                                                  | °C   |
| Storage Temperature                       | T <sub>stg</sub>    | -40 ~ +110                                                                  | °C   |
| Thermal resistance                        | R <sub>th J-A</sub> | 500                                                                         | K/W  |
|                                           | R <sub>th J-S</sub> | 300                                                                         | K/W  |
| Soldering Temperature                     | T <sub>sol</sub>    | Reflow Soldering : 260 °C for 10 sec.<br>Hand Soldering : 350 °C for 3 sec. |      |

# Technical Data Sheet

## Power Top View LED

### 67-31A/RAC-AU2V2B9Z5/2T/AM

#### Electro-Optical Characteristics (Ta=25°C)

| Parameter                                 | Symbol                      | Min.  | Typ.  | Max.  | Unit | Condition            |
|-------------------------------------------|-----------------------------|-------|-------|-------|------|----------------------|
| Luminous Intensity                        | I <sub>v</sub>              | 565   | ----- | 1120  | mcd  | I <sub>F</sub> =50mA |
| Viewing Angle                             | 2 θ 1/2                     | ----- | 120   | ----- | deg  | I <sub>F</sub> =50mA |
| Peak Wavelength                           | λ <sub>p</sub>              | ----- | 639   | ----- | nm   | I <sub>F</sub> =50mA |
| Dominant Wavelength                       | λ <sub>d</sub>              | 625.5 | ----- | 637.5 | nm   | I <sub>F</sub> =50mA |
| Spectrum Radiation Bandwidth              | Δλ                          | ----- | 20    | ----- | nm   | I <sub>F</sub> =50mA |
| Forward Voltage                           | V <sub>F</sub>              | 2.15  | ----- | 2.75  | V    | I <sub>F</sub> =50mA |
| Reverse Current                           | I <sub>R</sub>              | ----- | ----- | 10    | μ A  | V <sub>R</sub> =12V  |
| Temperature coefficient of λ <sub>p</sub> | TC <sub>λ<sub>p</sub></sub> | ----- | 0.15  | ----- | nm/K | I <sub>F</sub> =50mA |
| Temperature coefficient of λ <sub>d</sub> | TC <sub>λ<sub>d</sub></sub> | ----- | 0.05  | ----- | nm/K | I <sub>F</sub> =50mA |
| Temperature coefficient of V <sub>F</sub> | TC <sub>V</sub>             | ----- | -3.2  | ----- | mV/K | I <sub>F</sub> =50mA |

#### Notes :

1. Tolerance of Luminous Intensity : ±11%
2. Tolerance of Dominant Wavelength : ±1nm
3. Tolerance of Forward Voltage : ±0.1V

**Technical Data Sheet****Power Top View LED****67-31A/RAC-AU2V2B9Z5/2T/AM****Bin Range of Luminous Intensity**

| Bin | Min | Max  | Unit | Condition           |
|-----|-----|------|------|---------------------|
| U2  | 565 | 715  | mcd  | $I_F = 50\text{mA}$ |
| V1  | 715 | 900  |      |                     |
| V2  | 900 | 1120 |      |                     |

**Bin Range of Dominant Wavelengths**

| Bin Code | Min.  | Max.  | Unit | Condition           |
|----------|-------|-------|------|---------------------|
| E6       | 625.5 | 629.5 | nm   | $I_F = 50\text{mA}$ |
| E7       | 629.5 | 633.5 |      |                     |
| E8       | 633.5 | 637.5 |      |                     |

**Bin Range of Forward Voltage**

| Group | Bin | Min  | Max  | Unit | Condition           |
|-------|-----|------|------|------|---------------------|
| B9    | 2   | 2.15 | 2.35 | V    | $I_F = 50\text{mA}$ |
|       | 3   | 2.35 | 2.55 |      |                     |
|       | 4   | 2.55 | 2.75 |      |                     |

Notes :

1. Tolerance of Luminous Intensity :  $\pm 11\%$
2. Tolerance of Dominant Wavelength :  $\pm 1\text{nm}$
3. Tolerance of Forward Voltage :  $\pm 0.1\text{V}$

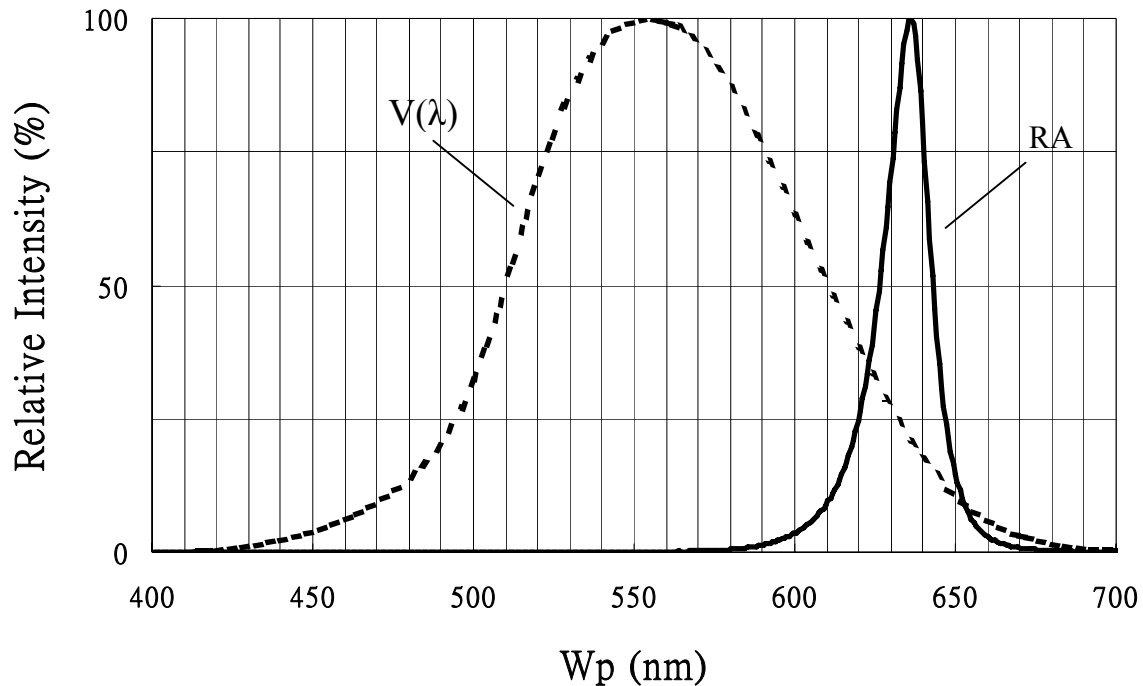
## Technical Data Sheet

### Power Top View LED

#### 67-31A/RAC-AU2V2B9Z5/2T/AM

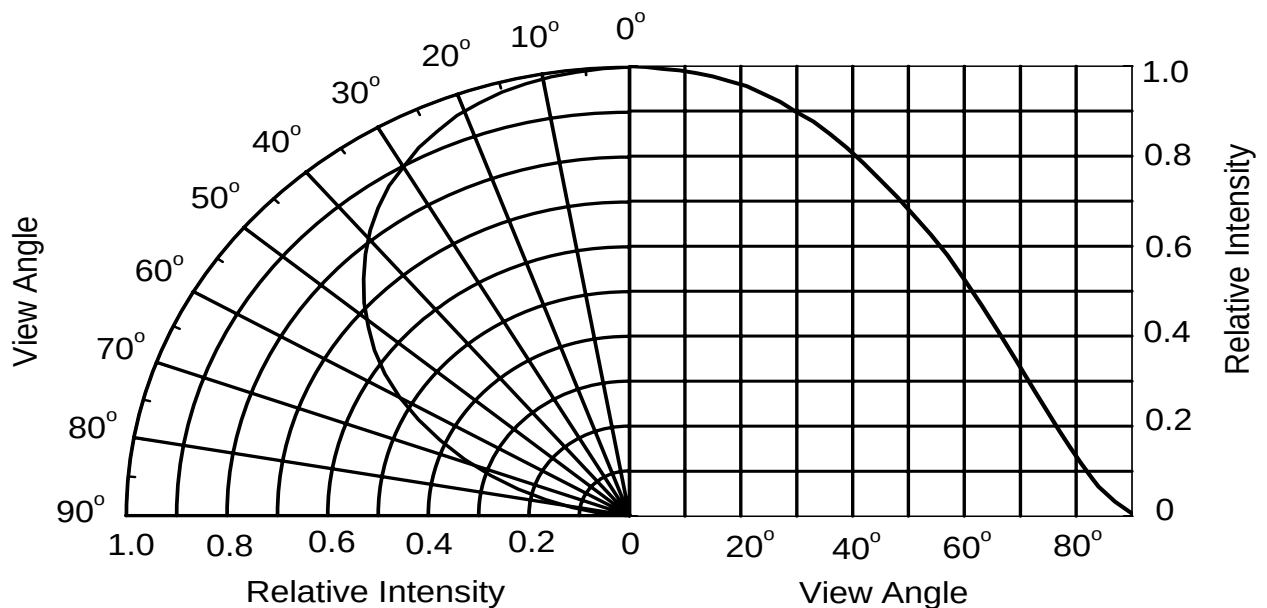
#### Typical Electro-Optical Characteristics Curves

Typical curve of spectral distribution :



Note :  $V(\lambda)$ =Standard eye response curve;  $I_F=50\text{mA}$

#### Diagram characteristics of radiation

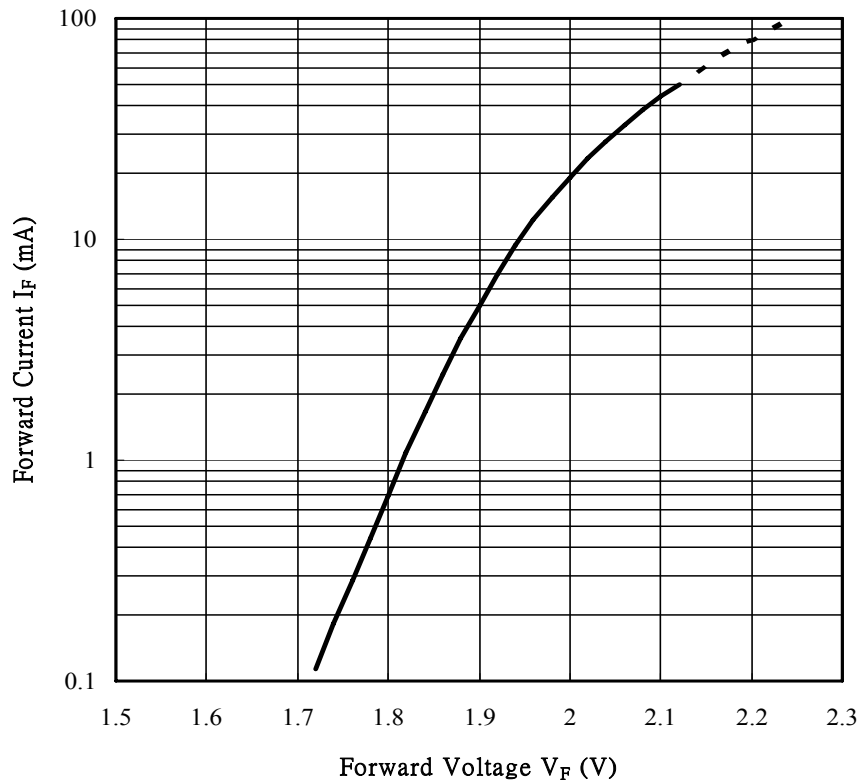


## Technical Data Sheet

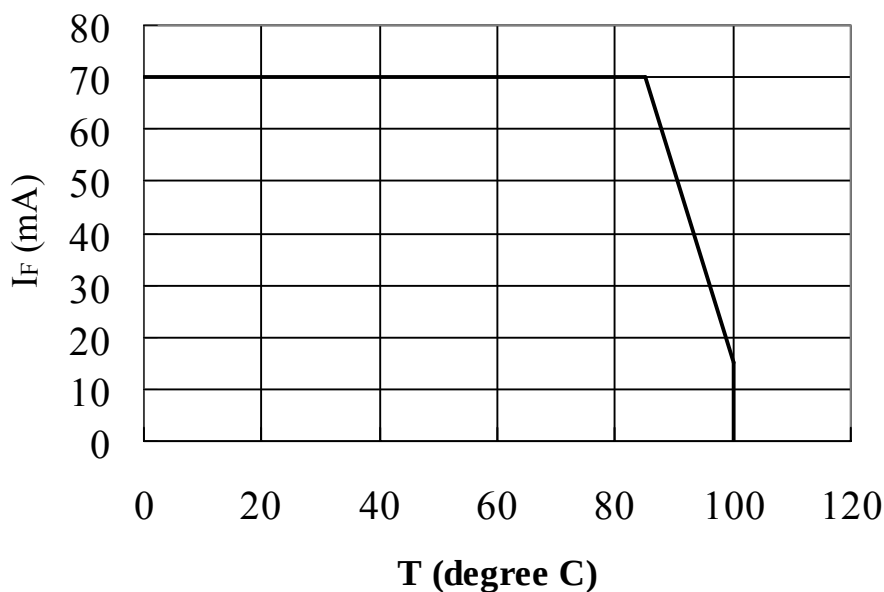
### Power Top View LED

#### 67-31A/RAC-AU2V2B9Z5/2T/AM

#### Forward Current vs. Forward Voltage ( $T_a=25^{\circ}\text{C}$ )



#### Forward current vs. Ambient Temp.

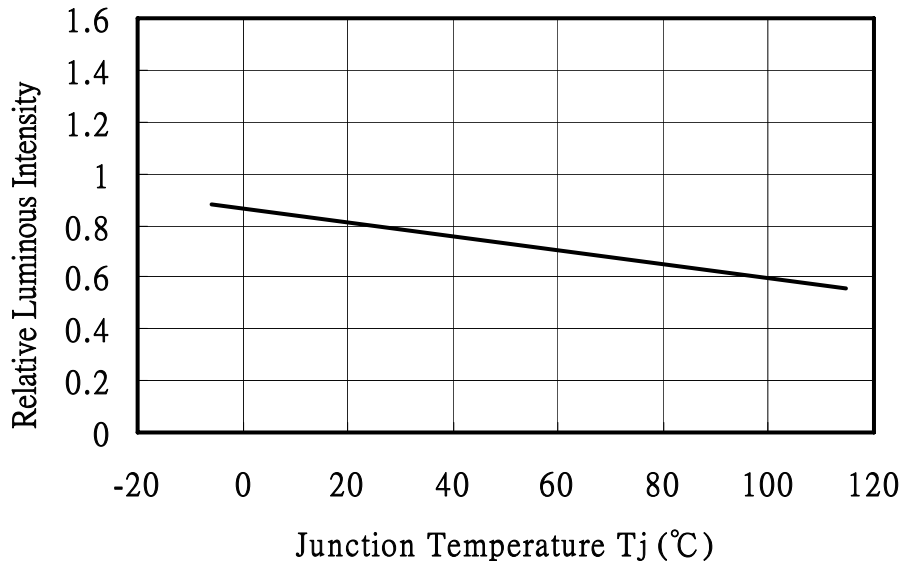


## Technical Data Sheet

### Power Top View LED

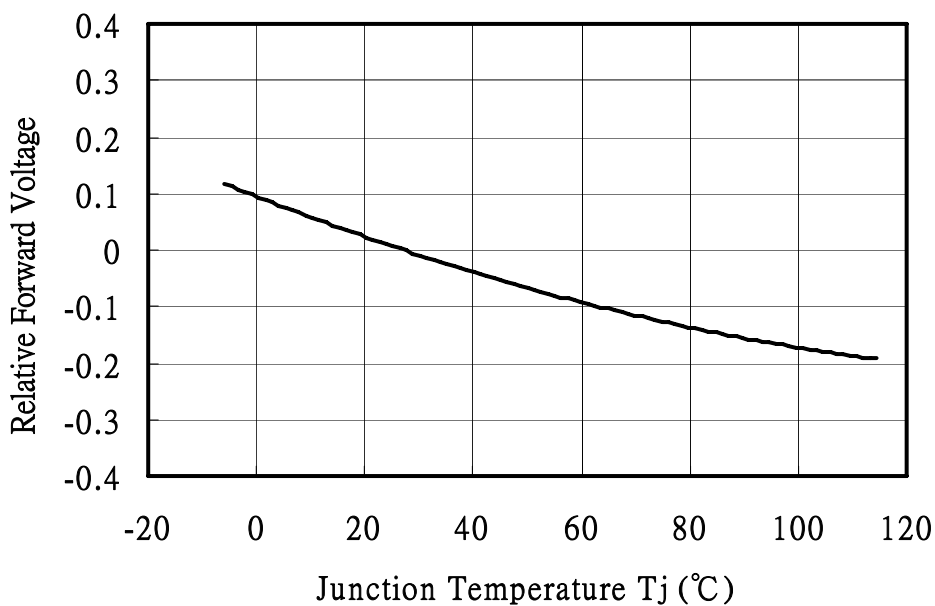
#### 67-31A/RAC-AU2V2B9Z5/2T/AM

##### Relative Luminous Intensity vs. Junction Temperature



Note :  $f(T_j) = I_v / I_v(25^\circ\text{C})$  ;  $I_F=50\text{mA}$

##### Relative Forward Voltage vs. Junction Temperature



Note :  $\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j)$  ;  $I_F=50\text{mA}$



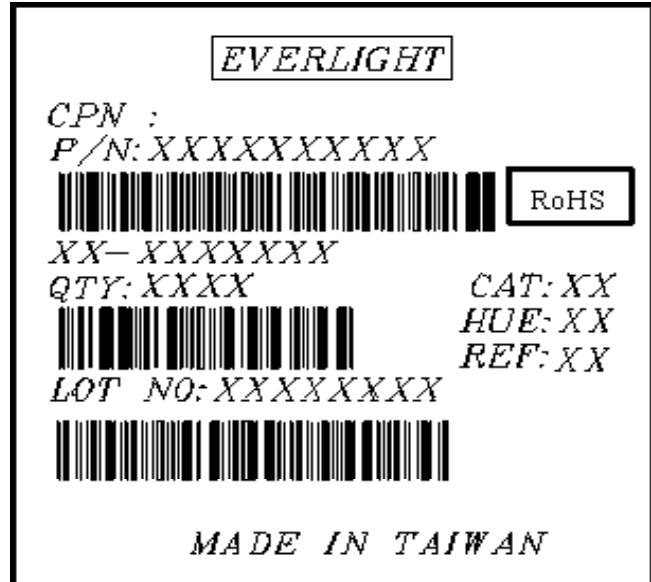
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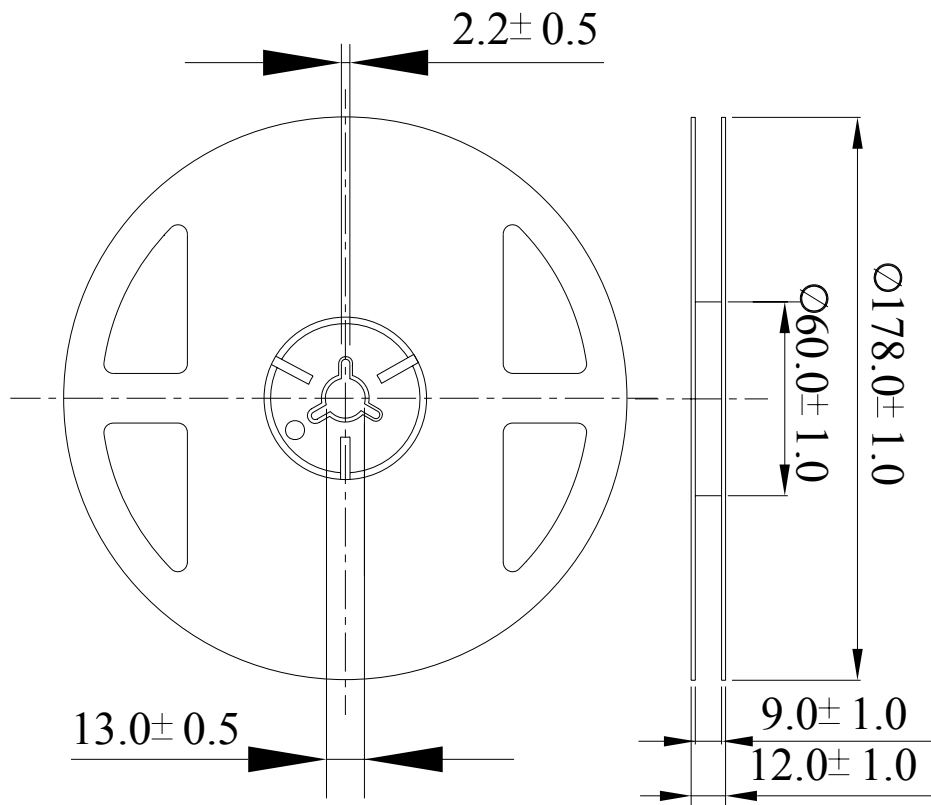
**67-31A/RAC-AU2V2B9Z5/2T/AM**

#### Label explanation

- CPN : Customer's Product Number
- P/N : Product Number
- QTY : Packing Quantity
- CAT : Luminous Intensity Rank
- HUE : Dom. Wavelength Rank
- REF : Forward Voltage Rank
- LOT No : Lot Number



#### Reel Dimensions



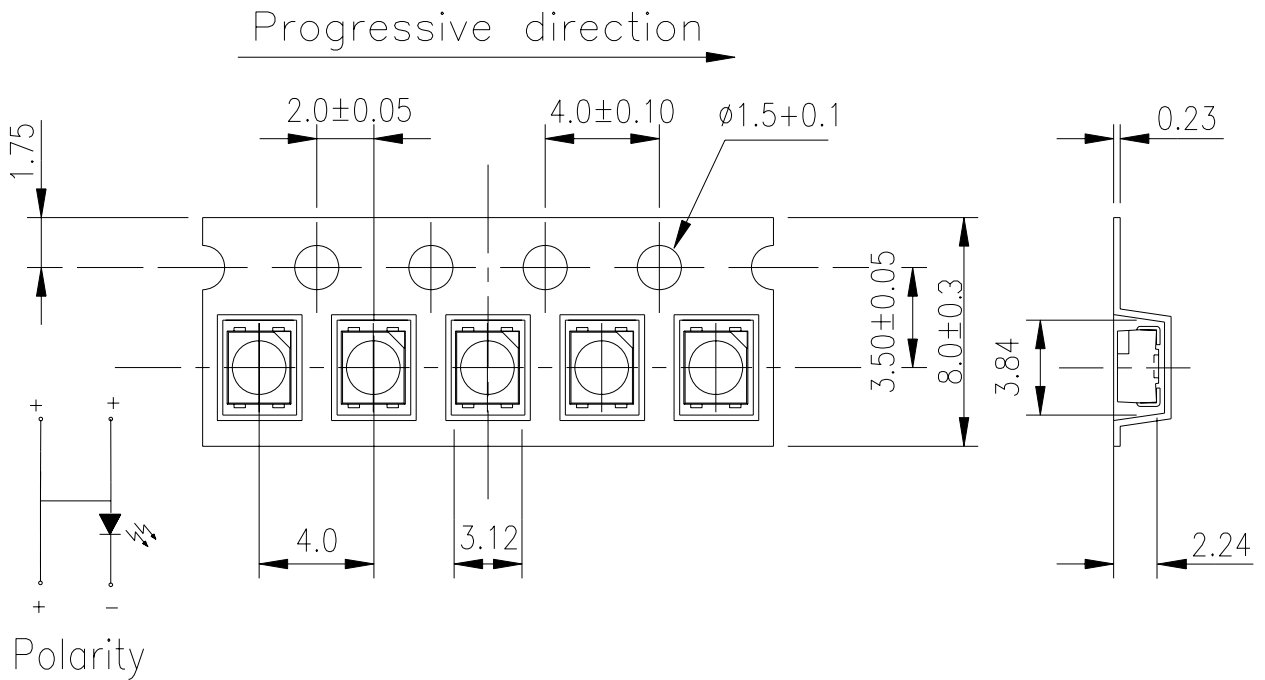
Note : Unit = mm

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### Power Top View LED

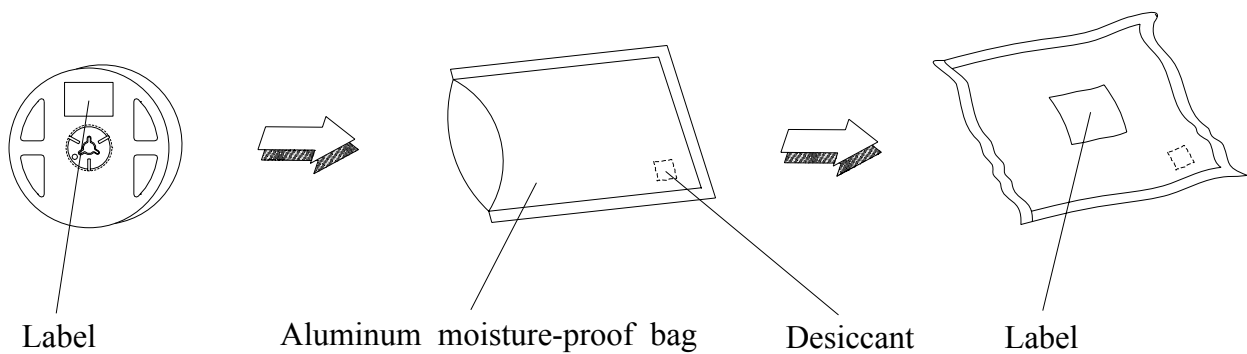
#### 67-31A/RAC-AU2V2B9Z5/2T/AM

**Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel**



Note : Tolerances unless dimension  $\pm 0.1$ mm. Unit = mm

### Moisture Resistant Packaging Process and Materials



## Technical Data Sheet

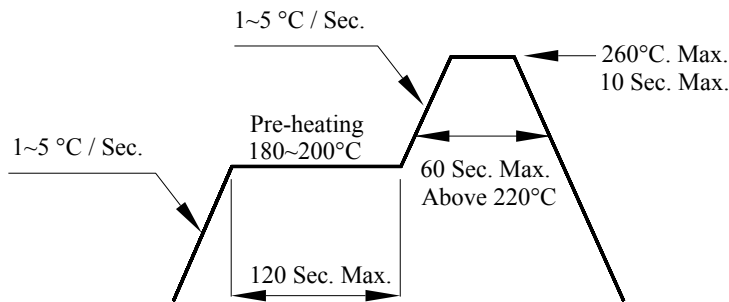
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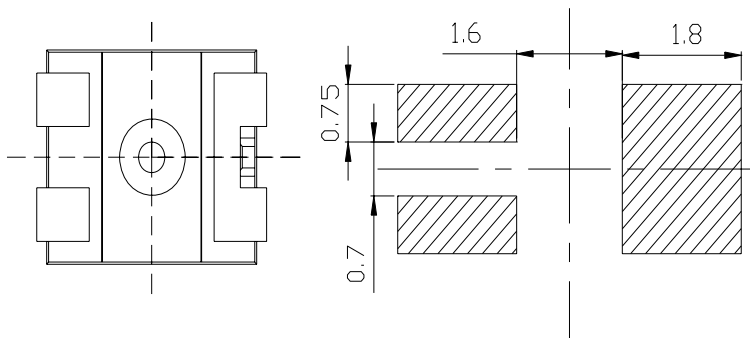
#### Precautions for Use

##### 1. Soldering Condition

##### 1.1 (A) Pb-free solder temperature profile



##### (B) Recommend soldering pad



Note : Tolerances unless dimension  $\pm 0.1$ mm. Unit = mm

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

1.3 When soldering, do not put stress on the LED during heating.

1.4 After soldering, do not warp the circuit board.

##### 2. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change ( Burn out will happen ).

##### 3. Storage

3.1 Do not open moisture proof bag before the products are ready to use.

3.2 Before opening the package: The LED should be kept at 30°C or less and 90%RH or less.



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### Power Top View LED

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#### **67-31A/RAC-AU2V2B9Z5/2T/AM**

3.3 After opening the package: The LED floor life is 1 year under 30°C or less and 60% RH or less. If unused LED remain, it should be stored in moisture proof packages.

3.4 If the moisture absorbent material (silica gel) has faded away or the LED have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

#### 4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.