

## SMD 3030 White Frame MC-S3030WH

### 1. SPECIFICATIONS

#### 1.1 Absolute Maximum Ratings (Ta=25°C)

| Item                  | Symbol           | Absolute Maximum Rating |             |             | Unit |
|-----------------------|------------------|-------------------------|-------------|-------------|------|
|                       |                  | Red                     | Green       | Blue        |      |
| Forward Current       | I <sub>F</sub>   | 30                      | 30          | 30          | mA   |
| Pulse Forward Current | I <sub>FP</sub>  | 100                     | 100         | 100         | mA   |
| Reverse Voltage       | V <sub>R</sub>   | 5                       | 5           | 5           | V    |
| Power dissipation     | P <sub>D</sub>   | 66.3                    | 99.6        | 99.6        | mW   |
| Operating Temperature | T <sub>opr</sub> | -30 to +85              | -30 to +85  | -30 to +85  | °C   |
| Storage Temperature   | T <sub>stg</sub> | -40 to +100             | -40 to +100 | -40 to +100 | °C   |

\* I<sub>FP</sub> conditions with pulse width ≤10ms and duty cycle ≤10%.

#### 1.2 Optical and Electrical Characteristics (Ta=25°C)

| Item               | Symbol         | Condition            | Red         |      | Green       |      | Blue        |      | Unit |
|--------------------|----------------|----------------------|-------------|------|-------------|------|-------------|------|------|
|                    |                |                      | Min         | Max  | Min         | Max  | Min         | Max  |      |
| Forward Voltage    | V <sub>F</sub> | I <sub>F</sub> =20mA | 1.75        | 2.45 | 2.75        | 3.65 | 2.75        | 3.65 | V    |
| Reverse Current    | I <sub>R</sub> | V <sub>R</sub> =5V   | --          | 1    | --          | 1    | --          | 1    | μA   |
| Wavelength         | λ <sub>D</sub> | I <sub>F</sub> =20mA | 618         | 627  | 521         | 530  | 465         | 474  | nm   |
|                    |                |                      | 3nm per Bin |      | 3nm per Bin |      | 3nm per Bin |      |      |
| Luminous Intensity | I <sub>V</sub> | I <sub>F</sub> =20mA | 500         | 750  | 900         | 1200 | 190         | 350  | mcd  |
|                    |                |                      | Typ.650     |      | Typ.1050    |      | Typ.220     |      |      |

\* Each Bin: I<sub>V</sub>(Max):I<sub>V</sub>(Min) ≤1.2.

\* Tolerance of measurements of the Forward Voltage is ±0.05V.

\* Tolerance of measurements of the Luminous Intensity is ±5%.

\* Tolerance of measurements of the Wavelength is ±0.5nm.

## 2. RELIABILITY

### 2.1 Test Items and Results

| Test Item                                       | Standard Test Method     | Test Conditions                                     | Test Duration | Units Failed/Tested |
|---|--------------------------|---|---------------|---------------------|
| Resistance to Soldering Heat (Reflow Soldering) | JEITA ED-4701<br>300 301 | Tsld=260°C,10sec.<br>Precondition:30°C 70%RH,168hrs | 2times        | 0/100               |
| Temperature Cycle                               |                          | -65°C~150°C<br>15min. 15min. (30min./cycle)         | 200cycles     | 0/100               |
| Temperature Cycle                               | JEITA ED-4701<br>100 105 | -40°C~25°C~100°C~25°C<br>30min. 5min. 30min. 5min   | 100cycles     | 0/100               |
| Moisture Resistance (Cyclic)                    | JEITA ED-4701<br>200 203 | 25°C~65°C~-10°C<br>90%RH, 24hr per cycle            | 10cycles      | 0/100               |
| High Temperature Storage                        | JEITA ED-4701<br>200 201 | Ta=100°C  | 500hrs        | 0/100               |
| Temperature Humidity Storage                    |                          | Ta=85°C,RH=85%                                      | 500hrs        | 0/100               |
| Low Temperature Storage                         | JEITA ED-4701<br>200 202 | Ta=-40°C  | 500hrs        | 0/100               |
| Room Temperature Operating Life                 |                          | Ta=25°C, I <sub>F</sub> =15mA                       | 1000hrs       | 0/10                |
| Temperature Humidity Operating Life             |                          | Ta=85°C,RH=85%<br>I <sub>F</sub> =15mA              | 500hrs        | 0/10                |
| Low Temperature Operating Life                  |                          | Ta=-30°C, I <sub>F</sub> =15mA                      | 1000hrs       | 0/10                |

NOTES:

Measurements are performed after allowing the LEDs to return to room temperature.

### 2.2 Criteria for Judging Damage

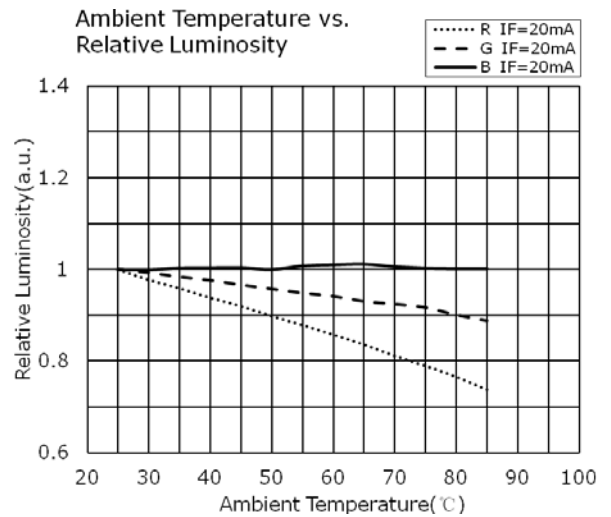
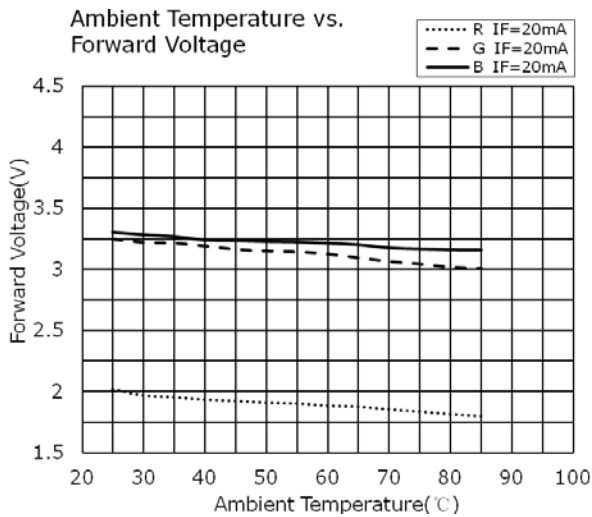
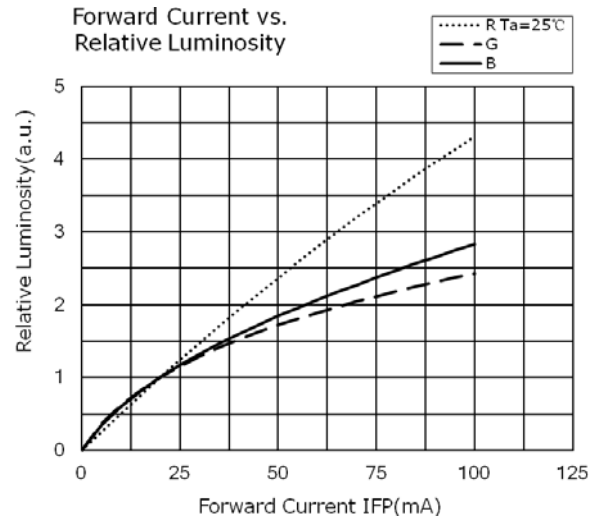
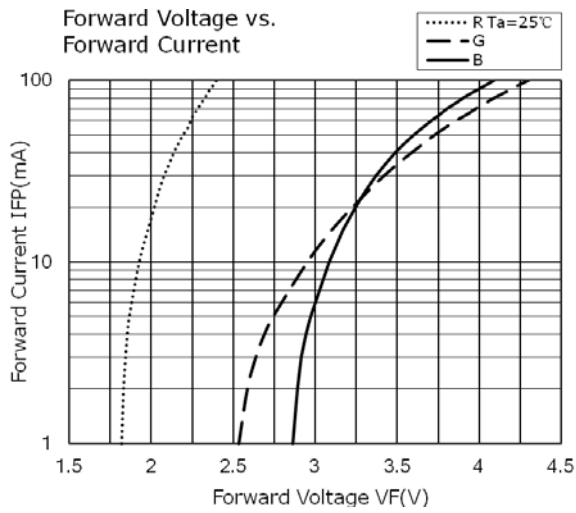
| Item               | Symbol         | Test Conditions      | Criteria for Judgement |            |
|--------------------|----------------|----------------------|------------------------|------------|
|                    |                |                      | Min.                   | Max.       |
| Forward Voltage    | V <sub>F</sub> | I <sub>F</sub> =20mA | -                      | U.S.L.×1.1 |
| Reverse Current    | I <sub>R</sub> | V <sub>R</sub> =5V   | -                      | U.S.L.×2.0 |
| Luminous Intensity | I <sub>V</sub> | I <sub>F</sub> =20mA | L.S.L. ×0.8            | -          |

U.S.L.: Upper Standard Level

L.S.L.: Lower Standard Level

### 3. TYPICAL ELECTRICAL CHARACTERISTICS CURVES

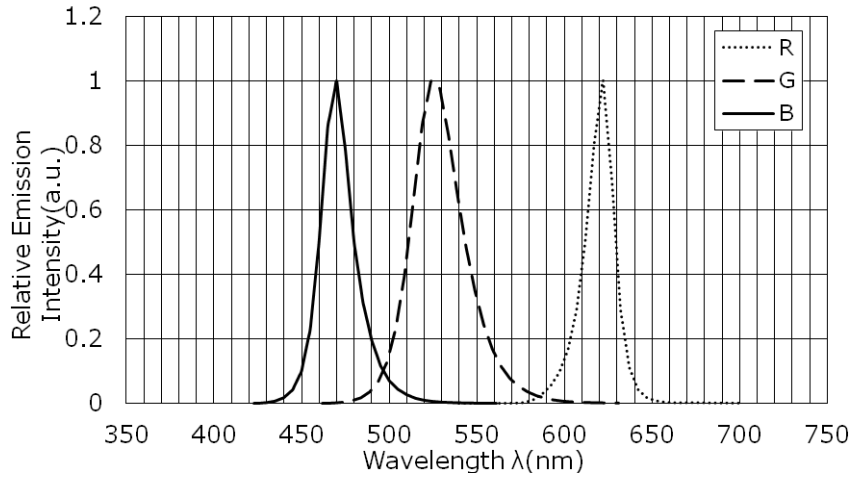
All characteristics shown are for reference only and are not guaranteed.



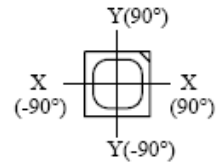
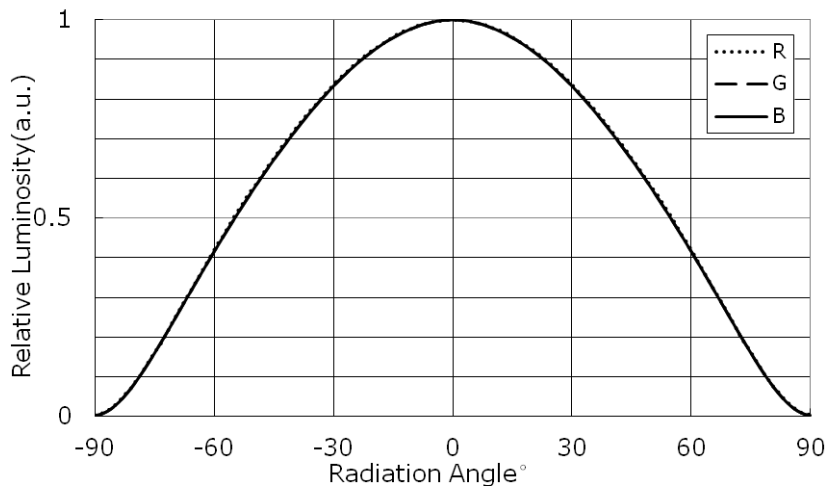
## 4. TYPICAL OPTICAL CHARACTERISTICS CURVES

All characteristics shown are for reference only and are not guaranteed.

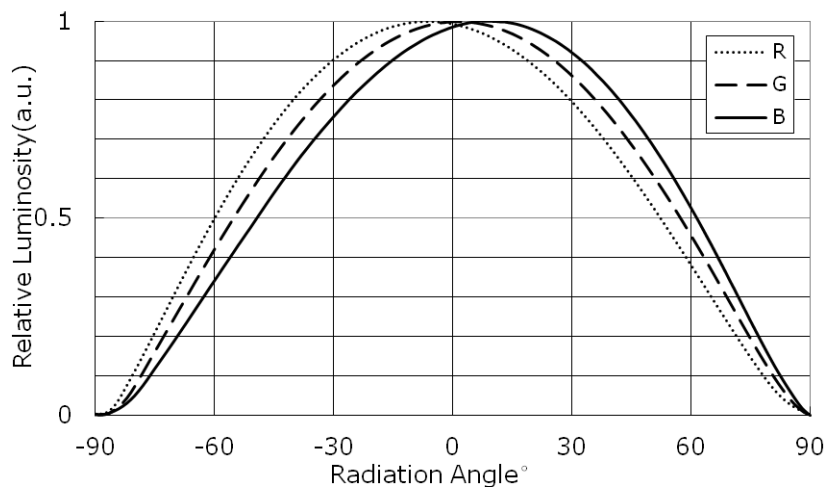
Spectrum



Directivity X-X



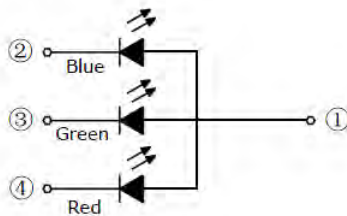
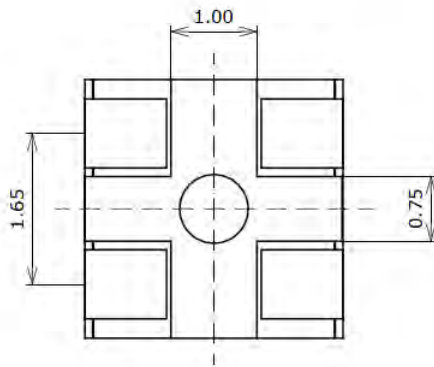
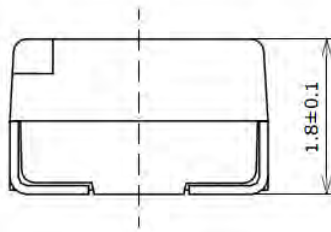
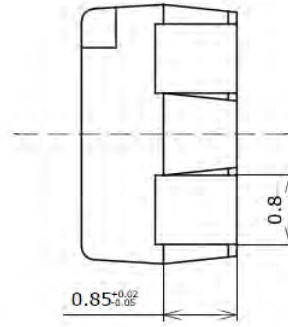
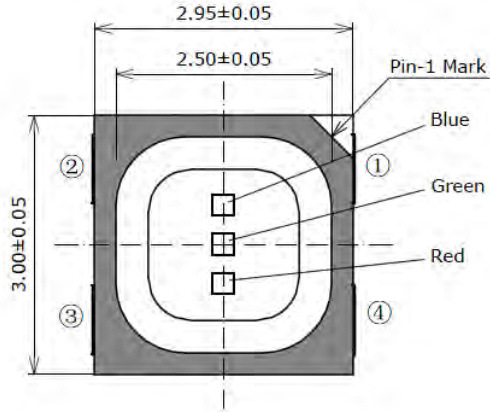
Directivity Y-Y



## 5. OUTLINE DIMENSIONS AND MATERIALS

This product complies with RoHS Directive.

(Unit: mm, Tolerance:  $\pm 0.2$ )

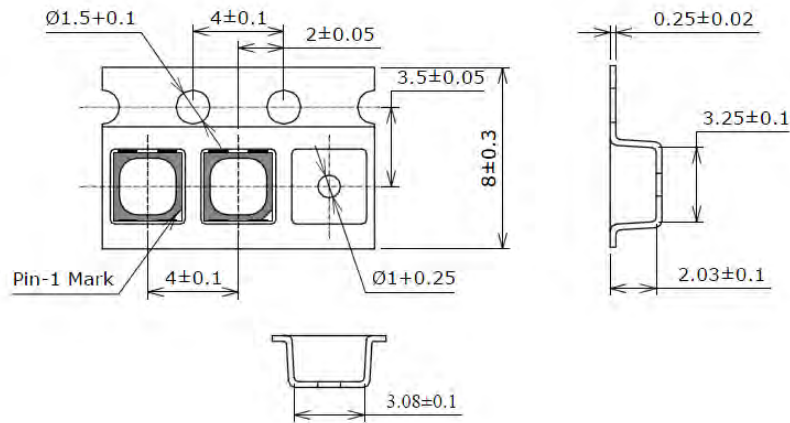


| Item                          | Description                  |
|-------------------------------|------------------------------|
| Package Materials             | White Heat-Resistant Polymer |
| Package Upper Surface Color   | Black                        |
| Encapsulating Resin Materials | Epoxy Resin(With diffuser)   |
| Electrodes Materials          | Ag-plated Copper Alloy       |

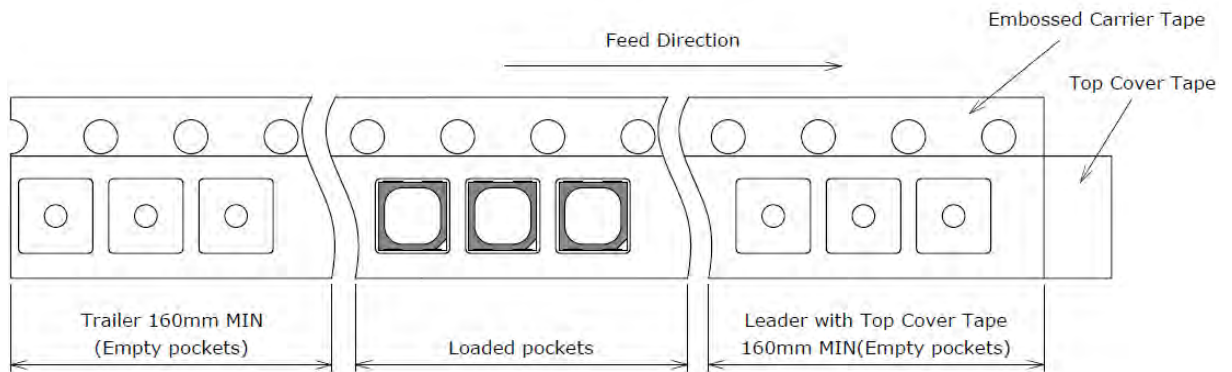
## 6. TAPE AND REEL DIMENSIONS

Tape:

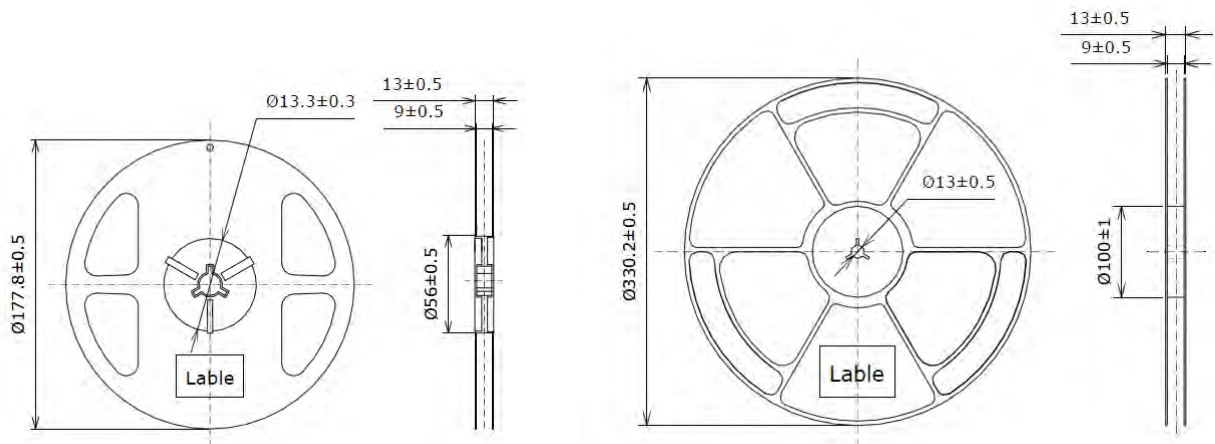
(Unit: mm)



Trailer and Leader:



Reel:



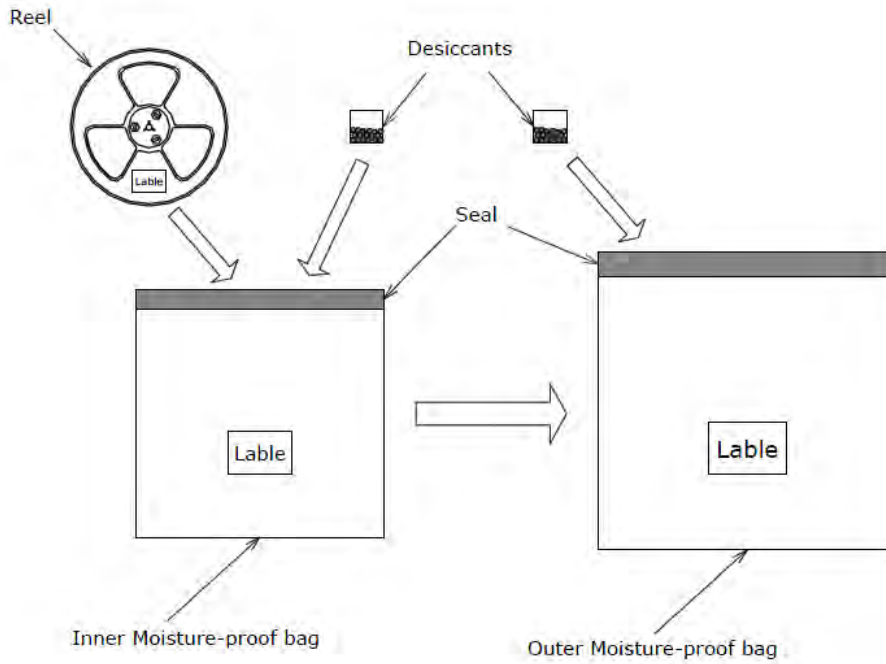
Quantity per reel=2000pcs

Quantity per reel=7500pcs

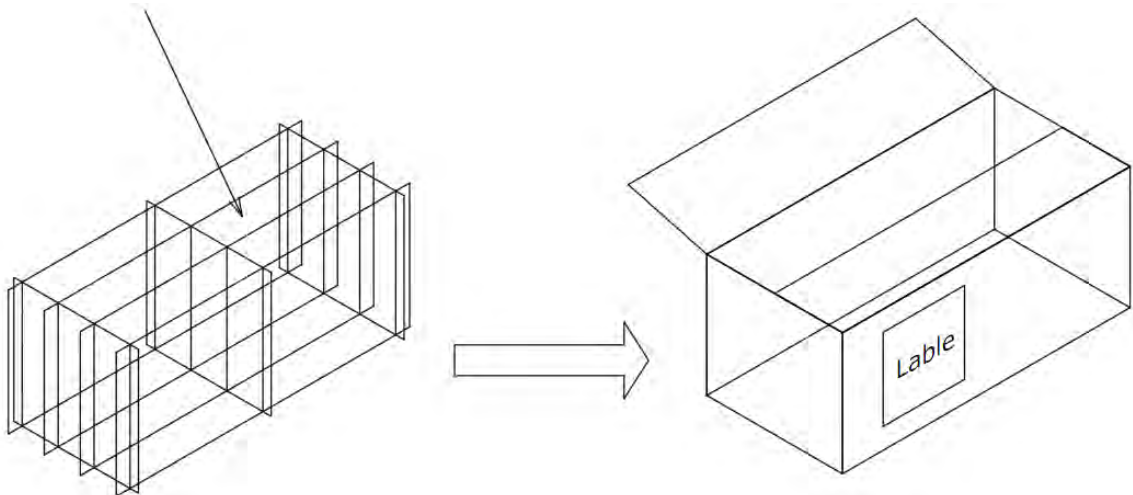
## 7. PACKAGING – TAPE & REEL

Reels are shipped with desiccants in heat-sealed inner moisture-proof bags.

Inner moisture-proof bags are shipped with desiccants in heat-sealed outer moisture-proof bags.



Outer moisture-proof bags are packed in cardboard boxes with corrugated partitions.



- 
- \* The Label shows: P/O NO., TYPE, QTY, IV, VF, WLD.
  - \* Products shipped on tape and reel are packed in moisture-proof bag.  
They are shipped in cardboard boxes to protect them from external forces during transportation.
  - \* Do not drop or shock the box. It may damage the products.
  - \* Do not expose to water, the box is not water-resistant.
  - \* Using an original packaging material or equivalent in transit is recommended.

## 8. MOISTURE PROOF PACKAGE

- When moisture is absorbed into the SMT package it may vaporize and expand during soldering. There is a possibility that this can cause exfoliation of the contacts and damage the optical characteristics of the LEDs. For this reason, the moisture proof package is used to keep moisture to a minimum in the package.
- The moisture proof package is made absorbent material (silica gel desiccants) is inserted into the aluminium moisture proof bag.
- The silica gel desiccants change from blue to red if moisture had penetrated bags.

## 9. STORAGE CONDITIONS

- Before opening the package:  
The LEDs should be kept at 30°C or less and 60%RH or less.  
The LEDs should be used within 6 months.  
When storing the LEDs, moisture proof packaging with absorbent material (silica gel desiccants) is recommended.
- After opening the package:  
After this bag is opened, devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing Must be:
  - a) Mounted within 24 hours at factory condition of  $\leq 30^{\circ}\text{C} / 60\%RH$ .
  - b) If unused LEDs remain, they should be stored in the moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel desiccants). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again. Stored at  $\leq 20\%RH$ .
- If the moisture absorbent material (silica gel desiccants) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following condition. Baking treatment: more than 24 hours at 65°C and  $< 10\%RH$ .
- Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.

## 10. STATIC ELECTRICITY

- Static electricity or surge voltage damages the LEDs.  
It is recommended that a wrist band or an anti-electrostatic glove be used when handing the LEDs.
- All devices equipment and machinery must be properly grounded. It is recommended that precautions be taken against surge voltage to the equipment that mounts the LEDs.