

**Technical Data Sheet****Reverse Package Top LEDs****67-21SUBC/S400-XX/TR10****Features**

- P-LCC-2 package.
- White package.
- Optical indicator.
- Colorless clear window.
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- Computable with automatic placement equipment.
- Available on tape and reel (12mm Tape).
- Pb-free.
- The product itself will remain within RoHS compliant version.

**Descriptions**

- The 67-21 series is available in soft orange, green, blue and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

**Applications**

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- Light pipe application.
- General use.

**Device Selection Guide**

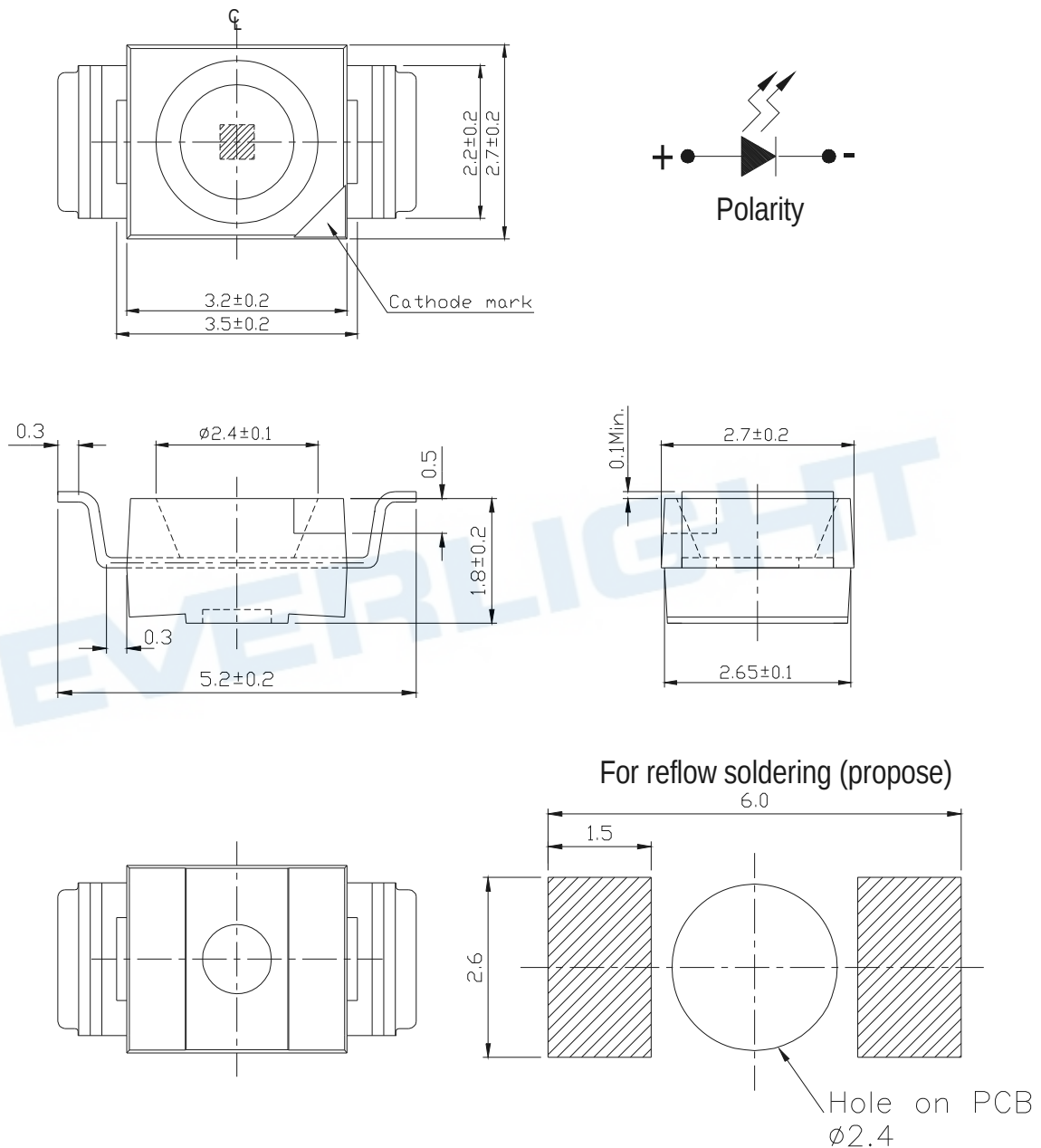
| Chip     | Emitted Color | Resin Color |
|----------|---------------|-------------|
| Material |               |             |
| InGaN    | Blue          | Water Clear |

## Technical Data Sheet

### Reverse Package Top LEDs

#### 67-21SUBC/S400-XX/TR10

#### Package Dimensions



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm ,Unit = mm

**Technical Data Sheet****Reverse Package Top LEDs****67-21SUBC/S400-XX/TR10****Absolute Maximum Ratings (Ta=25°C)**

| Parameter                    | Symbol           | Rating                                                                      | Unit |
|------------------------------|------------------|-----------------------------------------------------------------------------|------|
| Reverse Voltage              | V <sub>R</sub>   | 5                                                                           | V    |
| Forward Current              | I <sub>F</sub>   | 25                                                                          | mA   |
| Operating Temperature        | T <sub>opr</sub> | -40 ~ +85                                                                   | °C   |
| Storage Temperature          | T <sub>stg</sub> | -40 ~ +90                                                                   | °C   |
| Electrostatic Discharge(HBM) | ESD              | 150                                                                         | V    |
| Power Dissipation            | P <sub>d</sub>   | 110                                                                         | mW   |
| Peak Forward Current         | I <sub>FP</sub>  | 100                                                                         | mA   |
| Soldering Temperature        | T <sub>sol</sub> | Reflow Soldering : 260 °C for 10 sec.<br>Hand Soldering : 350 °C for 3 sec. |      |

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#### Electro-Optical Characteristics (Ta=25℃)

| Parameter                    | Symbol         | *Chip Rank. | Min.  | Typ.  | Max.  | Unit | Condition            |
|------------------------------|----------------|-------------|-------|-------|-------|------|----------------------|
| Luminous Intensity           | Iv             | A4          | 42.5  | 48.0  | ----- | mcd  | I <sub>F</sub> =20mA |
|                              |                | A5          | 53.0  | 58.5  |       |      |                      |
|                              |                | A6          | 64.0  | 70.5  |       |      |                      |
|                              |                | X8          | 88.0  | 100   |       |      |                      |
|                              |                | X9          | 105   | 135   |       |      |                      |
|                              |                | X10         | 126   | 140   |       |      |                      |
| Viewing Angle                | 2θ 1/2         | -----       | ----- | 120   | ----- | deg  | I <sub>F</sub> =20mA |
| Peak Wavelength              | λ <sub>p</sub> | -----       | ----- | 468   | ----- | nm   | I <sub>F</sub> =20mA |
| Dominant Wavelength          | λ <sub>d</sub> | -----       | ----- | 470   | ----- | nm   | I <sub>F</sub> =20mA |
| Spectrum Radiation Bandwidth | Δλ             | -----       | ----- | 35    | ----- | nm   | I <sub>F</sub> =20mA |
| Forward Voltage              | V <sub>F</sub> | -----       | ----- | 3.5   | 3.7   | V    | I <sub>F</sub> =20mA |
| Reverse Current              | I <sub>R</sub> | -----       | ----- | ----- | 50    | μA   | V <sub>R</sub> =5V   |

#### \*67-21SUBC/S400-XX/TR10



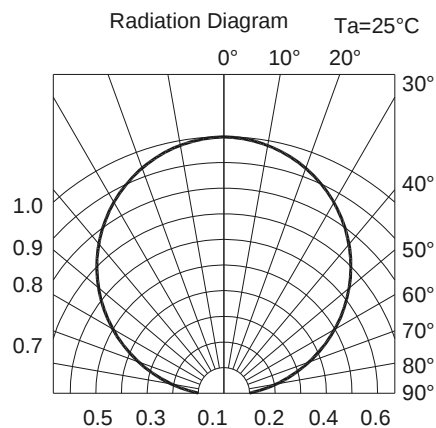
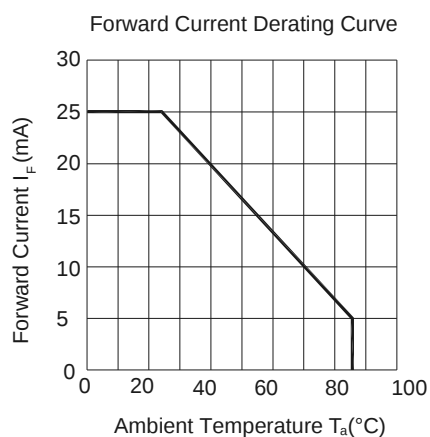
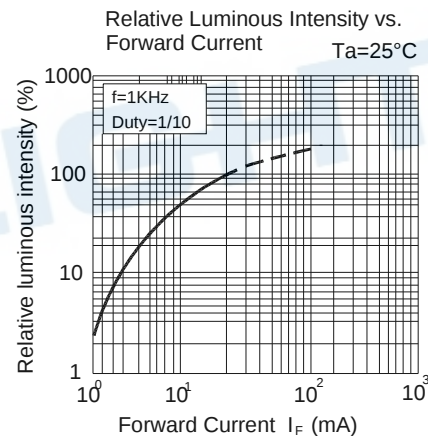
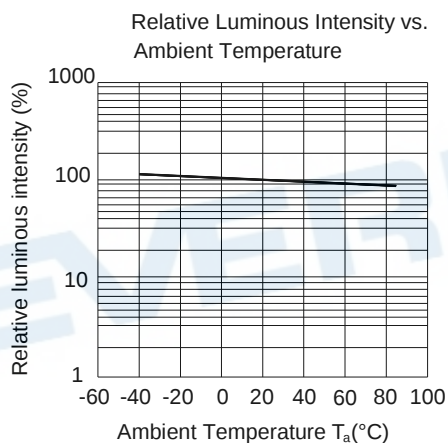
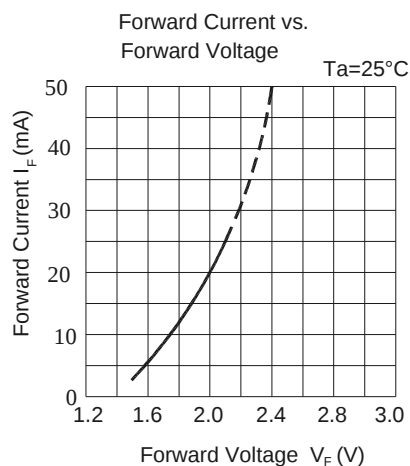
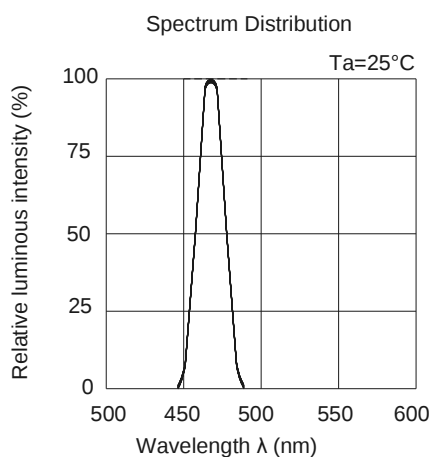
**Chip  
Rank**

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### 67-21SUBC/S400-XX/TR10

#### Typical Electro-Optical Characteristics Curves

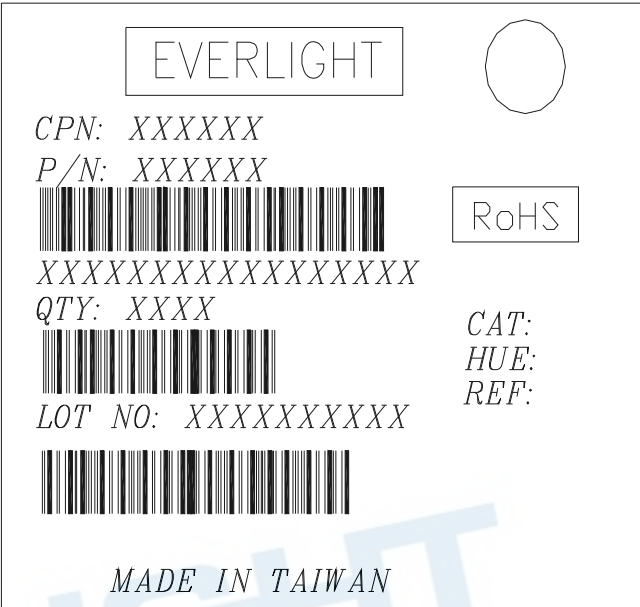


Technical Data Sheet  
Reverse Package Top LEDs

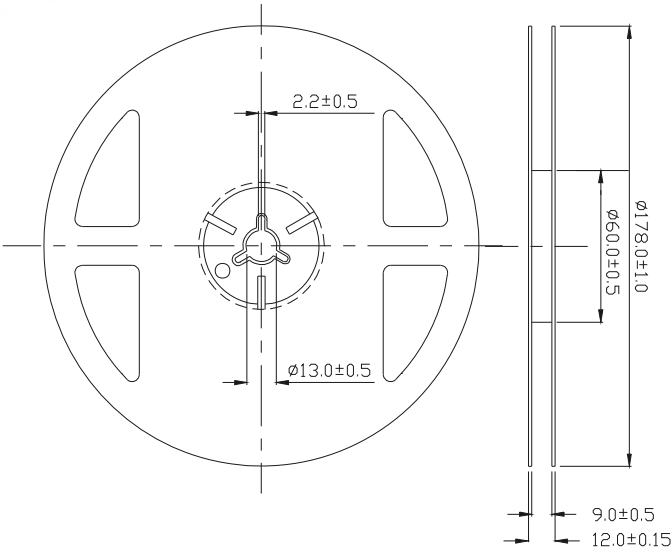
**67-21SUBC/S400-XX/TR10**

Label Explanation

- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank



Reel Dimensions



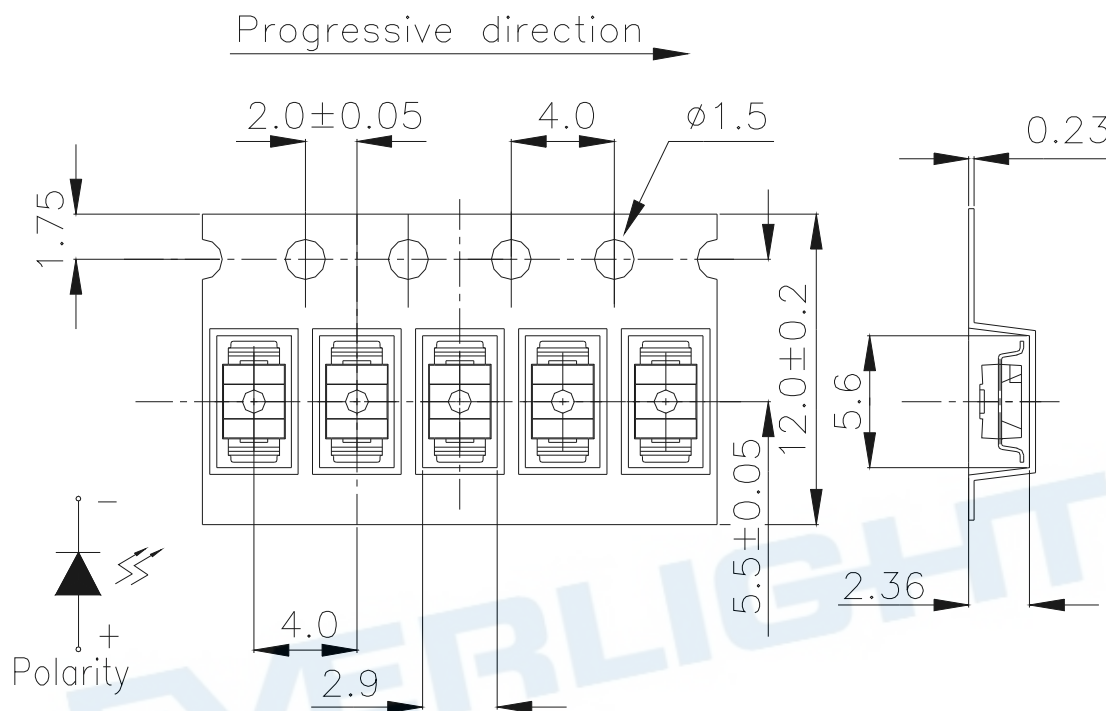
**Note:** Tolerance unless mentioned is ±0.1mm; Unit = mm

## Technical Data Sheet

### Reverse Package Top LEDs

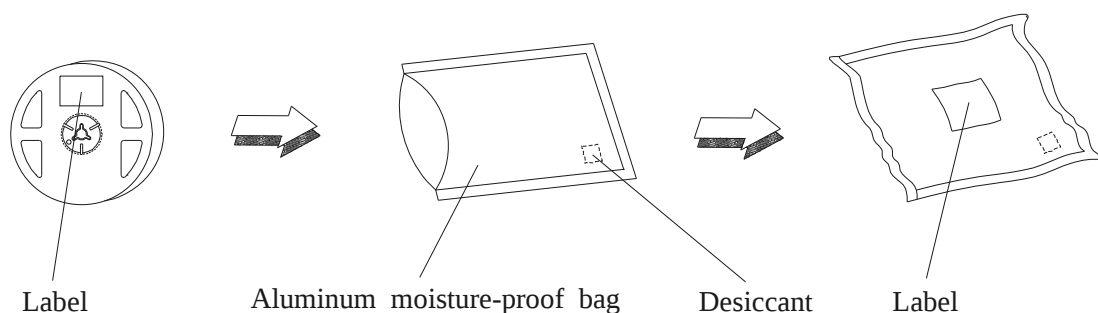
**67-21SUBC/S400-XX/TR10**

**Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.**



**Note:** Tolerance unless mentioned is ±0.1mm; Unit = mm

### Moisture Resistant Packaging



**Technical Data Sheet****Reverse Package Top LEDs****67-21SUBC/S400-XX/TR10****Reliability Test Items and Conditions**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

| No. | Items                            | Test Condition                                 | Test Hours/Cycles | Sample Size | Ac/Re |
|-----|----------------------------------|------------------------------------------------|-------------------|-------------|-------|
| 1   | Reflow Soldering                 | Temp. : 260°C±5°C<br>Min. 5sec.                | 6 Min.            | 22 PCS.     | 0/1   |
| 2   | Temperature Cycle                | H : +100°C 15min<br>∫ 5 min<br>L : -40°C 15min | 300 Cycles        | 22 PCS.     | 0/1   |
| 3   | Thermal Shock                    | H : +100°C 5min<br>∫ 10 sec<br>L : -10°C 5min  | 300 Cycles        | 22 PCS.     | 0/1   |
| 4   | High Temperature Storage         | Temp. : 100°C                                  | 1000 Hrs.         | 22 PCS.     | 0/1   |
| 5   | Low Temperature Storage          | Temp. : -40°C                                  | 1000 Hrs.         | 22 PCS.     | 0/1   |
| 6   | DC Operating Life                | I <sub>F</sub> = 20 mA                         | 1000 Hrs.         | 22 PCS.     | 0/1   |
| 7   | High Temperature / High Humidity | 85°C / 85%RH                                   | 1000 Hrs.         | 22 PCS.     | 0/1   |

**Technical Data Sheet****Reverse Package Top LEDs****67-21SUBC/S400-XX/TR10****Precautions for Use****1. Over-current-proof**

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

**2. Storage**

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

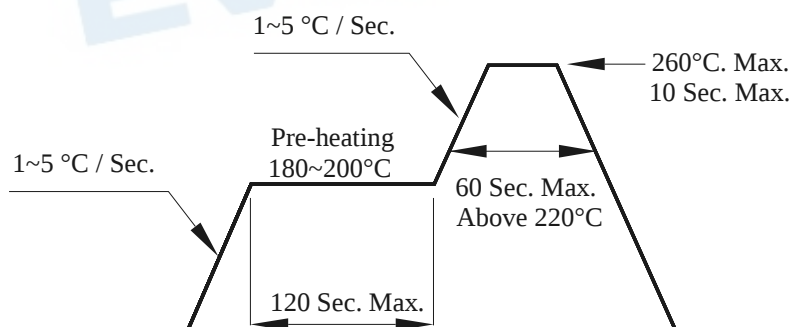
2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 1 year under 30 deg C or less and 60% RH or less.

If unused LEDs remain, it should be stored in moisture proof packages.

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

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

**3. Soldering Condition****3.1 Pb-free solder temperature profile**

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

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

3.4 After soldering, do not warp the circuit board.

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### Reverse Package Top LEDs

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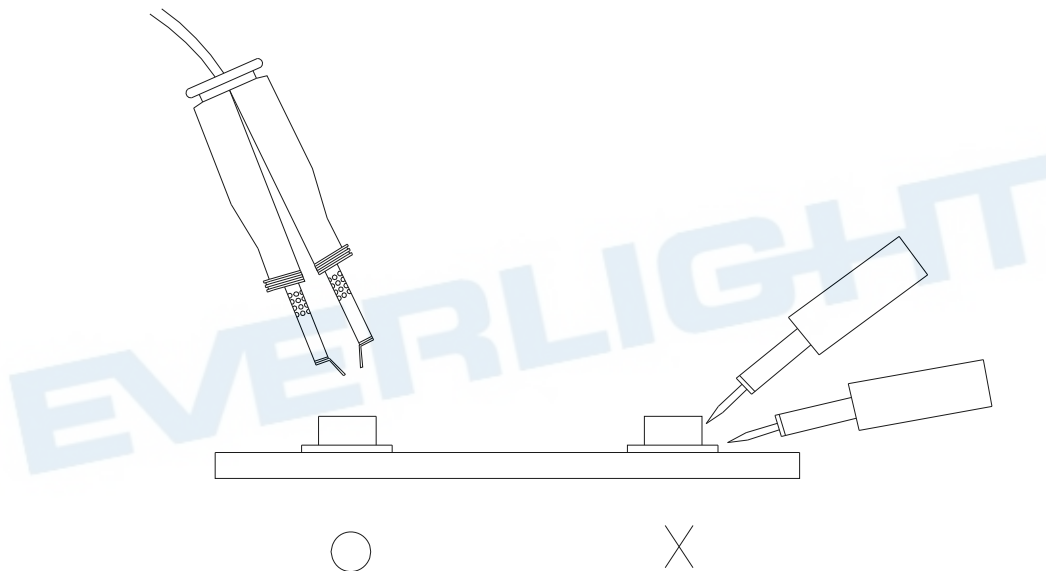
#### 67-21SUBC/S400-XX/TR10

#### 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.

#### 5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



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2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
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