

## Product Description

- The 0805 SMD LED is much smaller, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- These LEDs have high reliability performance and are designed to work under a wide range of environmental conditions.
- Besides, lightweight makes them ideal for miniature applications. etc.

## Features

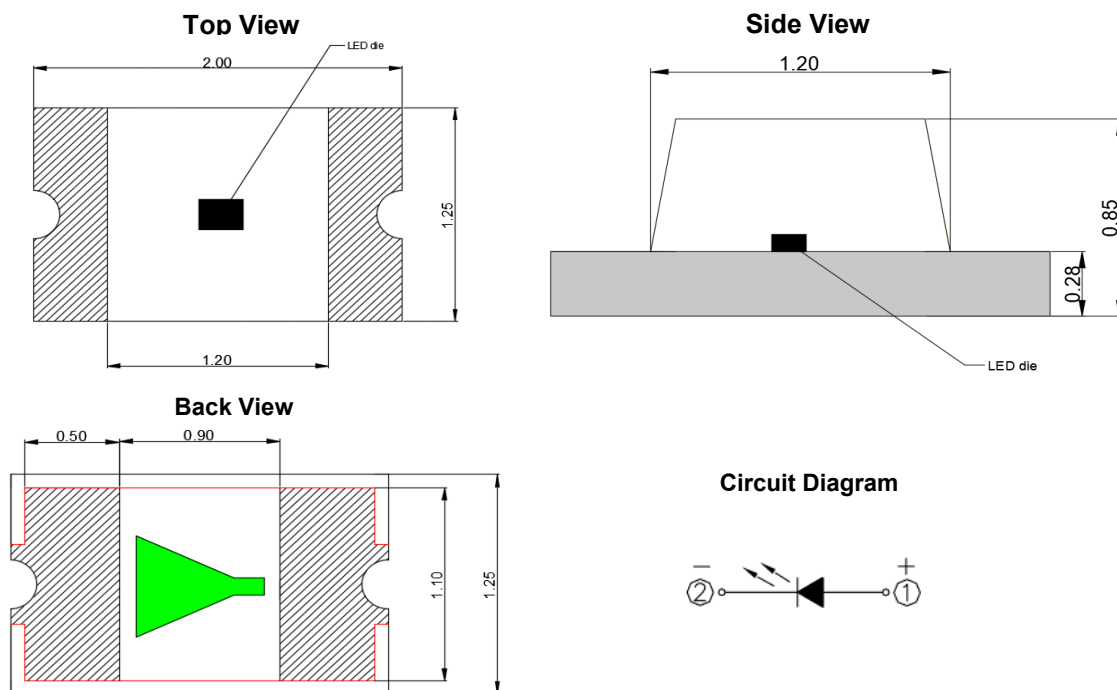
- Size(mm): 2.0\*1.25\*0.85mm
- Compatible with automatic placement equipment
- Moisture Sensitivity Level: 3
- Color type: Red
- Viewing Angle:120°
- Pb-free
- RoHS and REACH compliant

## Applications

- Backlighting in dashboard and switch.
- Digital display for household appliance
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD
- General use

## MECHANICAL DIMENSIONS

All dimensions are in mm.



### Remark

The tolerance of all dimensions above is 0.1mm.



## ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

| Items                 | Symbol    | Absolute Maxium Rating | Unit             |
|-----------------------|-----------|------------------------|------------------|
| Forward current       | $I_F$     | 20                     | mA               |
| Peak Forward Crurrent | $I_{FP}$  | 60                     | mA               |
| Reverse voltage       | $V_R$     | 5                      | V                |
| Power dissipation     | $P_D$     | 60                     | mW               |
| Operating temperature | $T_{opr}$ | -40 ~+85               | $^\circ\text{C}$ |
| Storage temperature   | $T_{stg}$ | -40~+100               | $^\circ\text{C}$ |

**Remark:** 1/10 Duty cycle, 0.1ms pulse width.

## TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

| Charateristics           | Symbol          | Condition         | Unit          | Minimum | Typical |
|--------------------------|-----------------|-------------------|---------------|---------|---------|
| Forward Volatge          | $V_F$           | $I_F=10\text{mA}$ | V             |         | 2.1     |
| Reverse Current          | $V_R$           | $V_R=5\text{V}$   | $\mu\text{A}$ |         | <1      |
| Viewing Angle            | $2\theta_{1/2}$ | $I_F=10\text{mA}$ |               |         | 120     |
| Luminous intensity       | $I_V$           | $I_F=10\text{mA}$ | mcd           | 48      |         |
| Spectral Line Half-Width | $\Delta\lambda$ | $I_F=10\text{mA}$ | nm            |         | 20      |
| Dominant Wavelength      | $\lambda_d$     | $I_F=10\text{mA}$ | nm            | 615     |         |
| Peak Wavelength          | $\lambda_p$     | $I_F=10\text{mA}$ | nm            |         | 635     |

\* Continuous reverse voltage can cause LED damage.



## INTENSITY BIN LIMIT

| Red (10mA) |           |           |
|------------|-----------|-----------|
| Bin code   | Min.(mcd) | Max.(mcd) |
| RM1        | 48        | 58        |
| RM2        | 58        | 70        |
| RM3        | 70        | 85        |
| RM4        | 85        | 100       |
| RM5        | 100       | 120       |

\*Tolerance of measurement of luminous intensity is  $\pm 10\%$ .

## VOLTAGE BIN LIMIT

| Red (10mA) |         |         |
|------------|---------|---------|
| Bin code   | Min.(V) | Max.(V) |
| RV1        | 1.8     | 1.9     |
| RV2        | 1.9     | 2       |
| RV3        | 2       | 2.1     |
| RV4        | 2.1     | 2.2     |
| RV5        | 2.2     | 2.3     |
| RV6        | 2.3     | 2.4     |

\*Tolerance of measurement of voltage is  $\pm 0.05V$ .

## Color BIN LIMIT

| Red (10mA) |          |          |
|------------|----------|----------|
| Bin code   | Min.(nm) | Max.(nm) |
| RD1        | 615      | 618      |
| RD2        | 618      | 621      |
| RD3        | 621      | 624      |
| RD4        | 624      | 627      |
| RD5        | 627      | 630      |

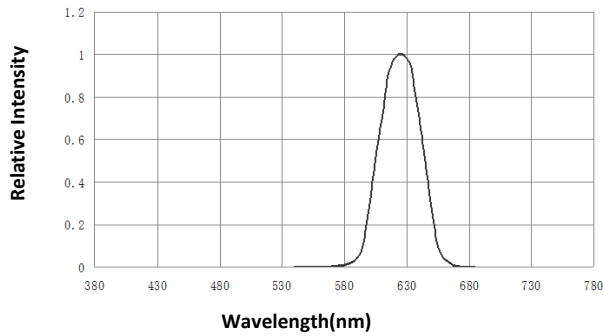
\*Tolerance of measurement of wavelength is  $\pm 1nm$



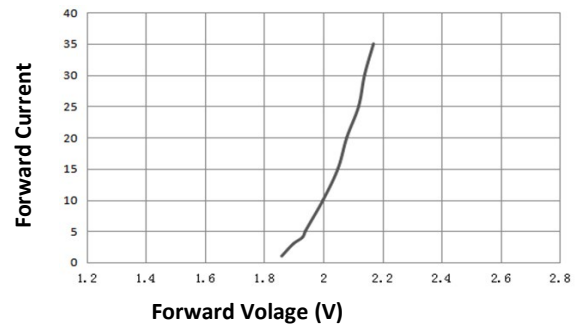
## TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURES( $T_a=25^{\circ}\text{C}$ )

The data below are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

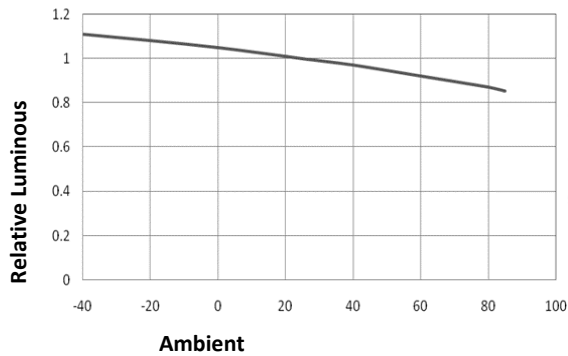
**Spectrum Distribution**



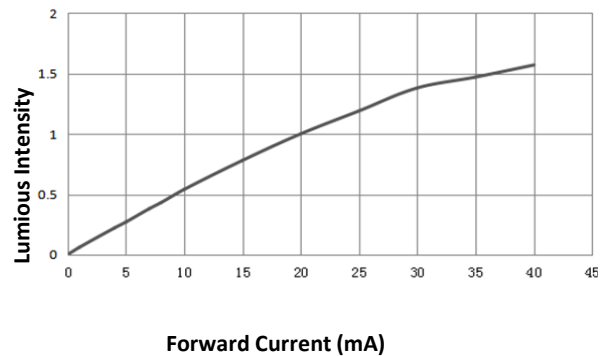
**Forward Current vs. Forward Voltage**



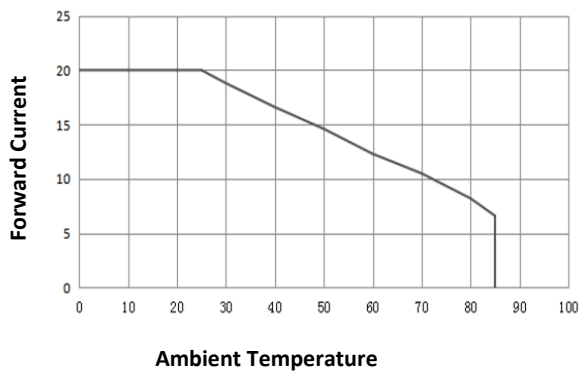
**Luminous Intensity vs. Ambient Temperature**



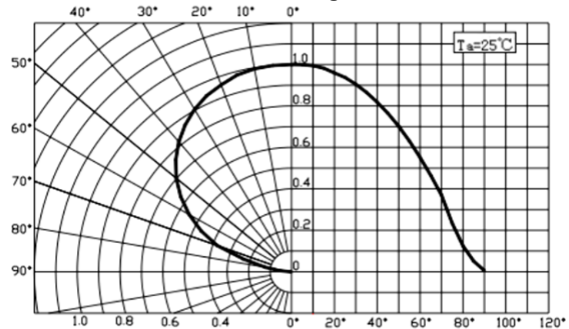
**Luminous Intensity vs. Forward Current**



**Forward Current Derating**

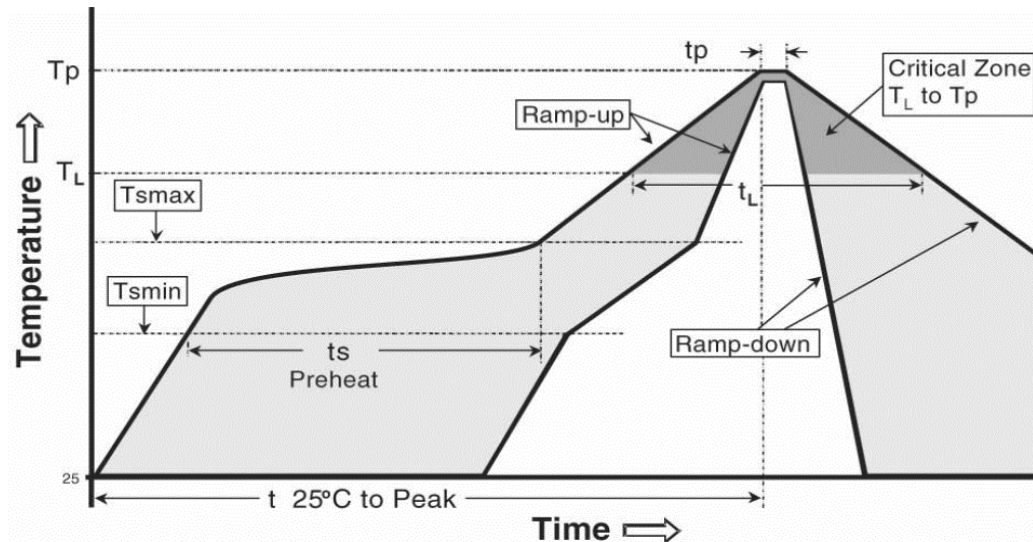


**Radiation Diagram**



## REFLOW SOLDERING

- The CHIP LED is rated as a MSL3 as general request product.
- The recommended floor life out of bag is 24hrs.
- The temperature profile is as below.



| IPC/JEDEC J-STD-020C  |                  |
|---|------------------|
| Profile Feature   | Pb-Free Assembly |
| Average ramp-up rate(Tsmax to Tp)                           | 3°C/second max.  |
| Preheat   |                  |
| - Temperature Min(Tsmin)                                    | 150°C            |
| - Temperature Max(Tsmax)                                    | 200°C            |
| - Time(Tsmin to Tsmax)                                      | 60-180 seconds   |
| Time maintied above   |                  |
| - Temperature(T <sub>L</sub> )                              | 217°C            |
| - Time(T <sub>L</sub> )                                     | 60-150 seconds   |
| Peak Temperature(Tp)  | 260°C            |
| Time within 5°C of actual peak Temperature(tp) <sup>2</sup> | 20-40 seconds    |
| Ramp-down Rate  | 6°C/second max.  |
| Time 25°C to peak Temperature                               | 8 minutes max.   |



## Moisture Sensitivity

- Beking recommends keeping CHIP LEDs in the provided, resealable moisture-barrier packaging (MBP) until immediately prior to soldering. Unopened MBPs that contain CHIP LEDs do not need special storage for moisture sensitivity.
- Once the MBP is opened, CHIP LEDs may be stored as MSL 3 per IPC/JEDEC J-STD-020C, meaning they have one year of floor life in conditions of  $\leq 30\text{ }^{\circ}\text{C}/60\%$  relative humidity (RH). Regardless of the storage condition, Beking LED recommends sealing any unsoldered CHIP LEDs in the original MBP.

## Handling

- The packaging sizes of these SMD products are very small. Users are required to handle with care.
- To avoid damaging the product's surface and interior device, it is recommended to choose a

## Repairing

Repair should not be recommended after SMT production. When repairing is needed, a double-head soldering iron should be used (as below figure). It should be assured before handing whether the electrical and optical characteristics of the LEDs will or will not be damaged by

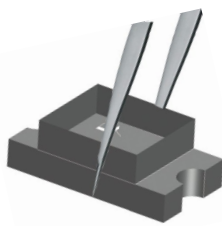


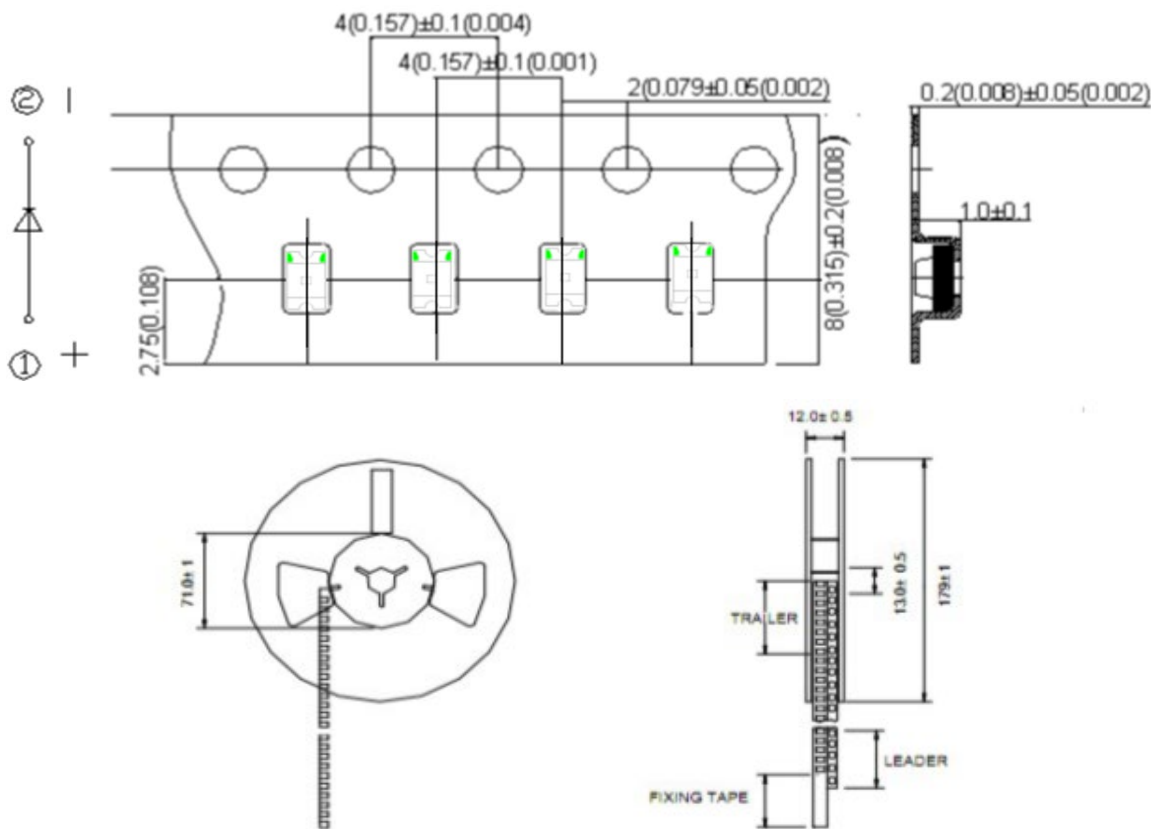
Fig.1 Pickig up a LED using an tweezer with care



Fig2. Repairing using a double-head soldering iron

## PACKING

Carrier Tape Dimensions: Loaded quantity 3000pcs per reel.



All dimensions are in millimeters.

Tolerance of measurement of all dimensions is  $\pm 0.1\text{mm}$

