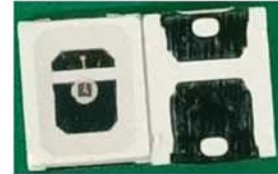


### **Features**

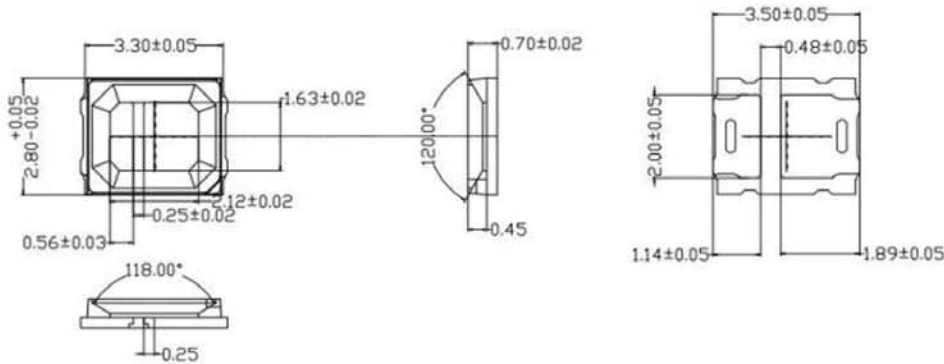
- SMD LED
- Dimensions: 3.5mm×2.80mm×H0.70mm
- Color : 940nm LED
- Lens: Water Clear Epoxy
- Chip Material: AlGaAs
- Chip Dimension: 355um×355um
- Number of Chips: 1pcs
- High reliability, High radiant intensity
- Low forward voltage
- RoHS Compliant



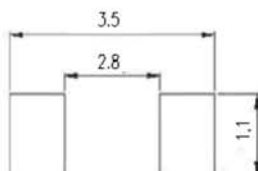
### **Applications**

- Black Light
- Indicators Light
- Medical Appliances

### **Package Outline Dimensions**



### **Suggest Soldering Pad Dimensions**



### **Notes:**

The tolerances unless dimensions are ±0.1mm.

**Absolute Maximum Ratings (Tc=25C)**

| Parameter                            | Symbol | Rating      | Unit  |
|--------------------------------------|--------|-------------|-------|
| Power Dissipation                    | Pd     | 25          | mW    |
| Pulse Forward Current                | IFP    | 20          | mA    |
| Forward Current                      | IF     | 20          | mA    |
| Reverse Voltage                      | VR     | 5           | V     |
| Junction Temperature                 | Tj     | 100         | °C    |
| Operating Temperature                | Topr   | -40 ~ +80   | °C    |
| Storage Temperature Range            | Tstg   | -40 ~ + 100 | °C    |
| Soldering Temperature                | Tsol   | 240         | °C    |
| Electro- Static- Discharge( HBM)     | ESD    | 2500        | V     |
| Service life under normal conditions | Time   | 30000       | H     |
| Warranty                             | Time   | 2           | Years |
| Antistatic bag                       | Piece  | 5000        | Bag   |

Notes: 1. The products are sensitive to static electricity and must be carefully taken when handling products.

2. Pulse Forward Current Condition: Duty 1% and Pulse Width=10us.

3. Soldering Condition: soldering condition must be completed with 3 seconds at 260°C

**Electrical Optical Characteristics(Tc=25C)**

| Parameter         | Symbol          | Min | Typ | Max | Unit  | Test Condition |
|-------------------|-----------------|-----|-----|-----|-------|----------------|
| Forward Voltage   | VF              | 1.2 | 1.3 | 1.4 | V     | IF=20mA        |
| Radiant Intensity | IE              | 3   | 10  |     | mw/sr | IF=20mA        |
| Peak Wavelength   | $\lambda P$     | 940 | 945 | 950 | nm    | IF=20mA        |
| Half Width        | $\Delta\lambda$ | 940 | 950 | 960 | nm    | IF=20mA        |
| Viewing Angle     | 2 $\theta$ 1/2  | 75  | 85  | 95  | deg   | IF=20mA        |
| Reverse Current   | IR              | -   | -   | 5   | uA    | VR= 5V         |

Notes: 1. Tolerance of Luminous Intensity  $\pm 11\%$

2. Tolerance of Forward Voltage  $\pm 0.05V$

**Bin Code****IV Rank@IF=20mA**

| Rank | Min | Max | Unit  |
|------|-----|-----|-------|
| IV   | 1   | 1.5 | mw/sr |
|      | 1.5 | 2   |       |

**VF Rank@IF=20mA**

| Rank | Min | Max | Unit |
|------|-----|-----|------|
| VF   | 1.2 | 1.3 | V    |
|      | 1.3 | 1.4 |      |

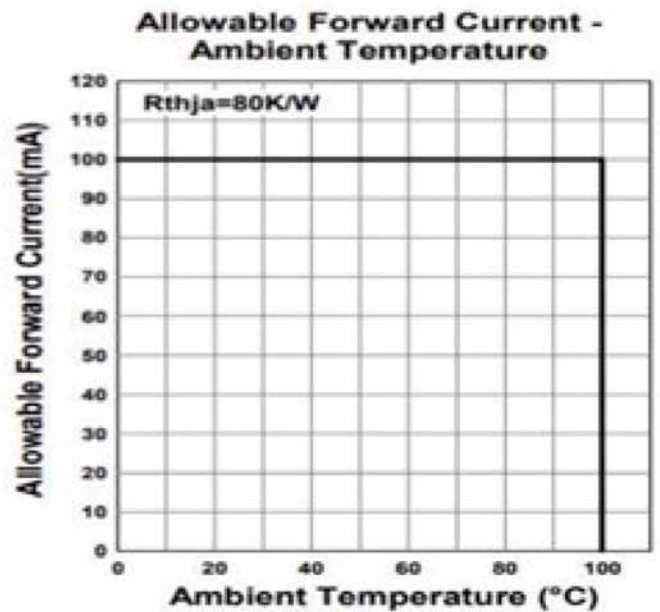
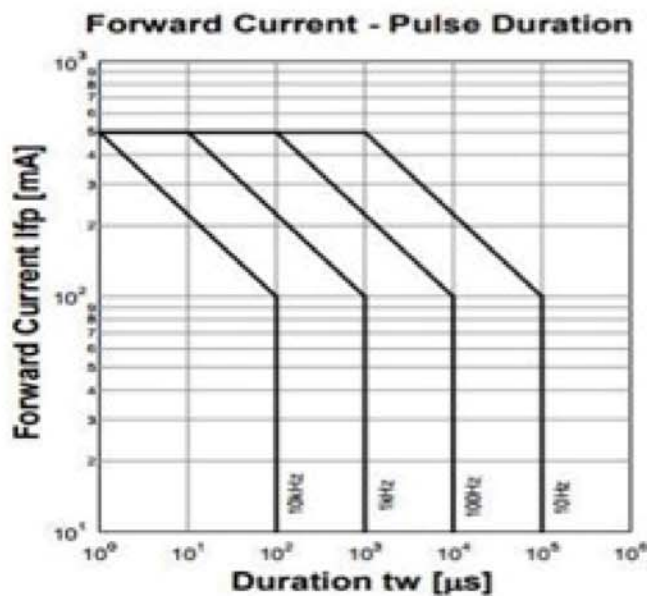
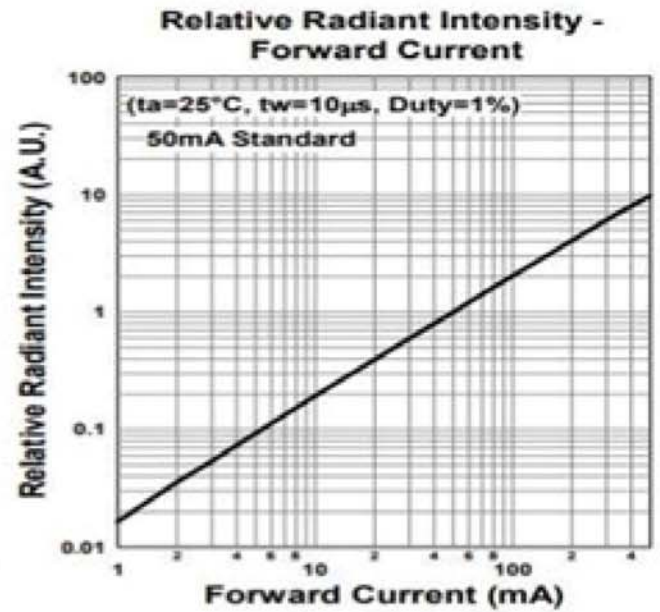
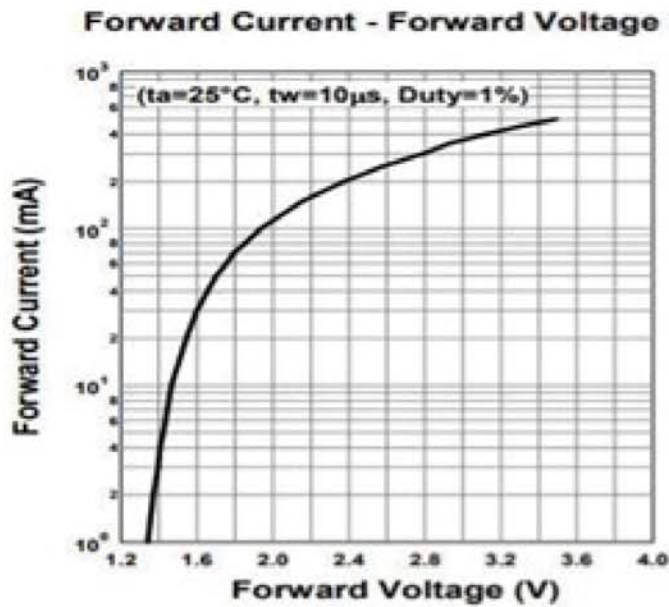
**Wp Rank@IF=20mA**

| Rank | Min | Max | Unit |
|------|-----|-----|------|
| Wp   | 940 | 945 | nm   |
|      | 845 | 950 |      |

Notes:

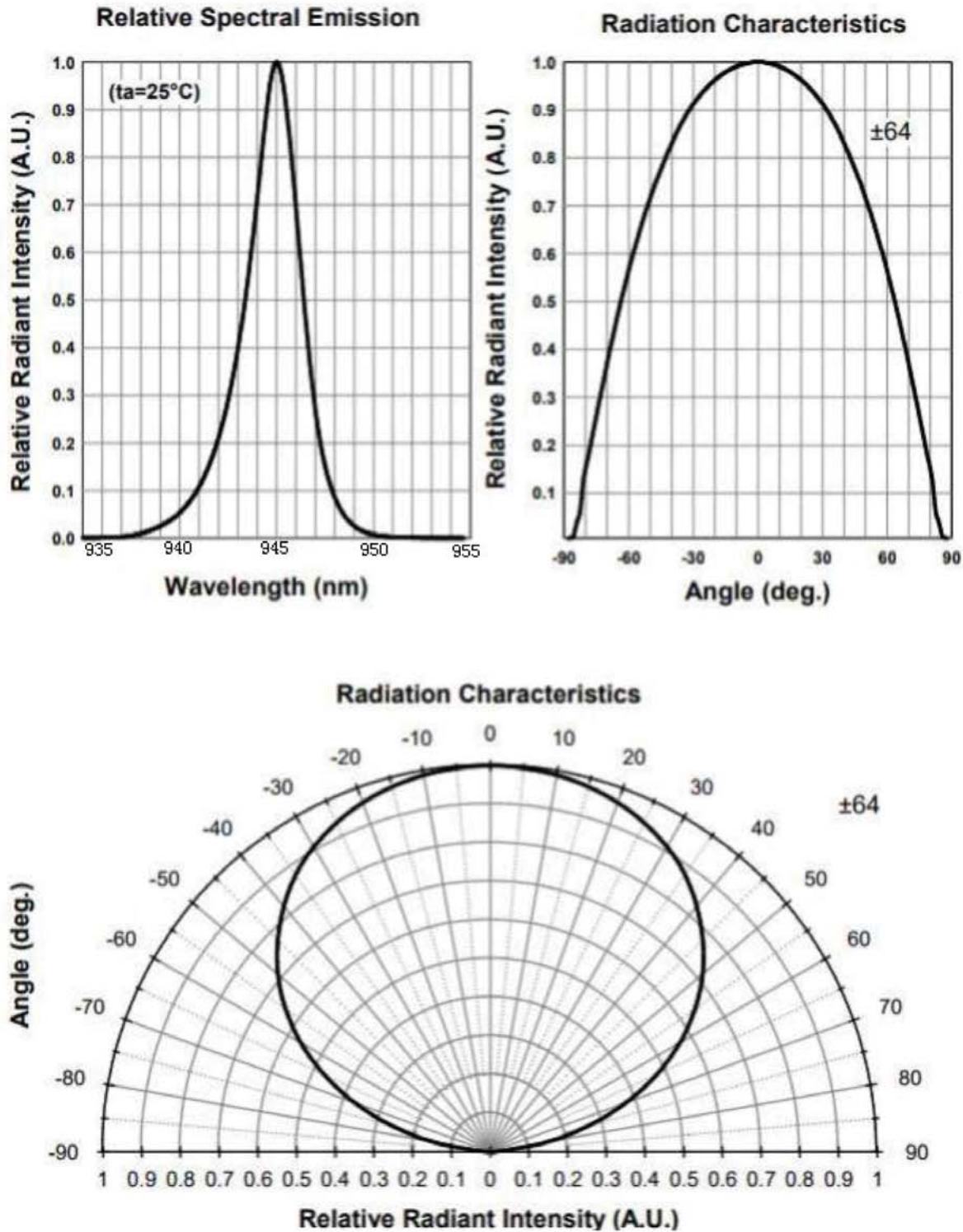
Tolerances:  $\pm 15\%$

# Typical Electro-Optical Characteristics Curve

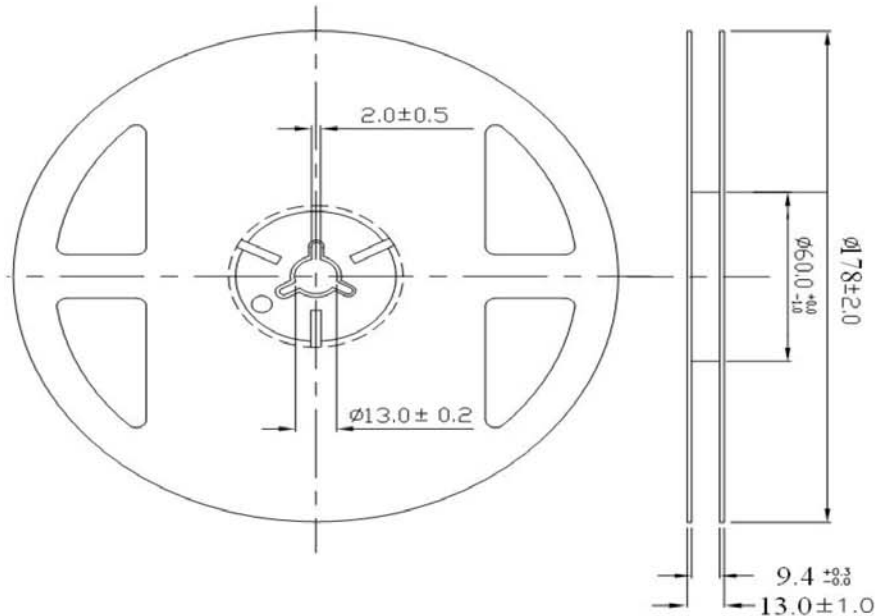




## Typical Electro-Optical Characteristics Curve



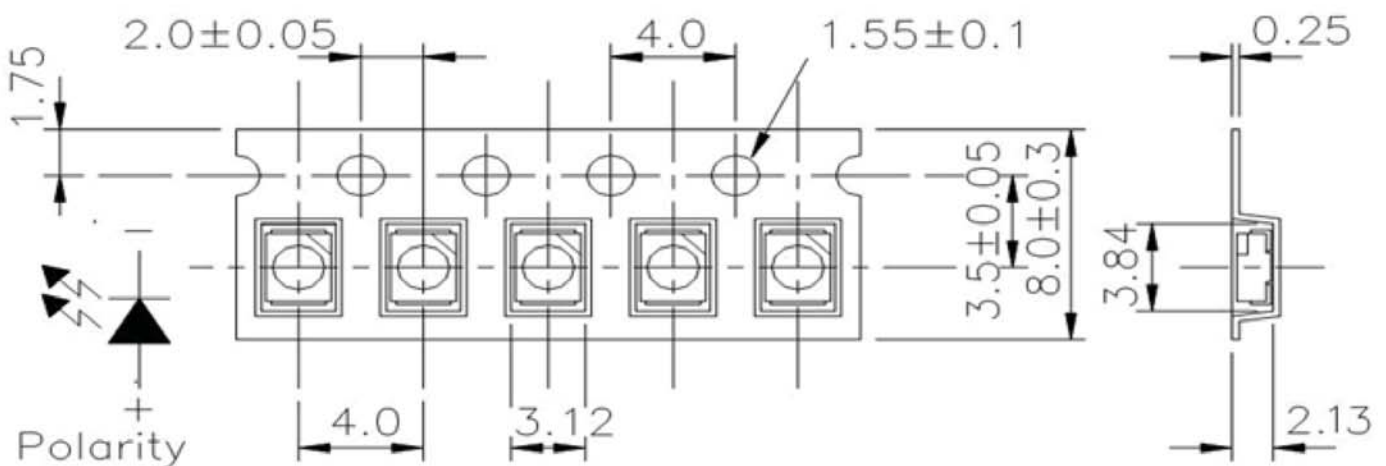
## Reel Dimensions



Notes:

The tolerances unless dimensions are:  $\pm 0.1\text{mm}$

## Carrier Tape Dimensions: Loaded Quantity 4,000pcs Per Reel



Notes:

The tolerances unless dimensions are:  $\pm 0.1\text{mm}$

**Reliability Test Items and Conditions**

| Test Item                              | Reference                 | Test Conditions                             | Time      | Quantity | Criterion |
|----------------------------------------|---------------------------|---------------------------------------------|-----------|----------|-----------|
| Thermal Shock                          | JIS-C7021 A-4             | 100°C± 5°C 15min<br>↓ t<br>-40°C± 5°C 15min | 200cycles | 22       | 0/22      |
| High Temperature Storage               | JEITA ED- 4701<br>200 201 | Ta= 1 0 0 C                                 | 1000h     | 22       | 0/22      |
| Low Temperature Storage                | JEITA ED- 4701<br>200 202 | Ta= - 4 0 C                                 | 1000h     | 22       | 0/22      |
| High Temperature High Humidity Storage | JIS-C7021 B-11            | Ta= 8 5 C, RH= 8 5 %                        | 1000h     | 22       | 0/22      |
| Resistance to Soldering Heat           | GB/T 4937                 | Tsol*=(260± 5)C<br>10secs.                  | 2times    | 22       | 0/22      |
| Life Test                              | JESD22-A108               | Ta= 2 5 C± 5 C<br>IF= 5mA                   | 1000h     | 22       | 0/22      |
| High Temperature Life Test             | JESD22-A108               | Ts= 5 5 C± 5 C                              | 1000h     | 22       | 0/22      |

**Criteria for Judging the Damage**

| Item               | Symbol   | Test Condition | Failure Criteria |            |
|--------------------|----------|----------------|------------------|------------|
|                    |          |                | MIN              | MAX        |
| Forward Voltage    | VF (V)   | IF= 20mA       | ...              | U.S.L*1. 1 |
| Reverse Current    | IR (uA)  | VR= 5V         | ...              | 5uA        |
| Luminous Intensity | IV (mcd) | IF= 20mA       | L.S.L*0.7        | ...        |

\* Note: 1. USL: Upper Specification Level

2. LSL: Lower Specification Level



## **Precautions of 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 Don't open moisture proof bag before the products are ready to use.

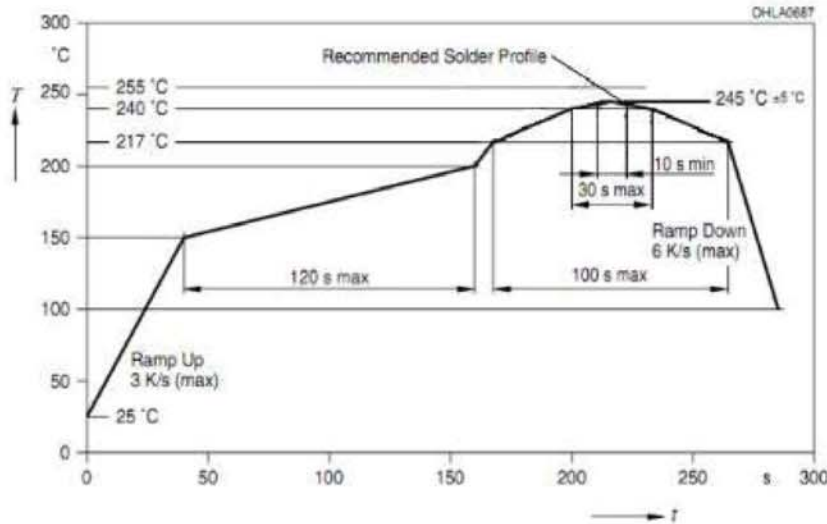
2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 1 year under 30°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



## Reflow soldering profile for LEAD-FREE SMD process



### Notes:

1. Don't cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product

### Soldering Iron

When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds

The hand solder should be done only one times

### 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 in advance whether the characteristics of LEDS will or will not be damaged by repairing.

