DATASHEET

# IRR60-48C/TR8

## Features

- Compatible with infrared and vapor phase reflow solder process.
- Compatible with automatic placement equipment.
- Bi-color LED wavelength. (660nm, 905nm)
- Pb free
- The product itself will remain within RoHS compliant version.

## Descriptions

- IRR60-48C/TR8 is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic with flat top view lens.
  The device is spectrally matched with silicon photodiode and phototransistor.

## Applications

- Sensor
- Oximeter

## Device Selection Guide

| LED Part No. | Chip Material | Lens Color |
|---|---|---|
| IRR60-48C/TR8 | GaAlAs | Water clear |



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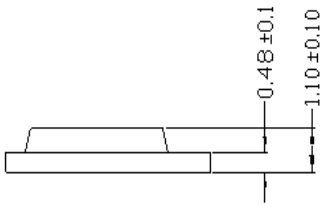
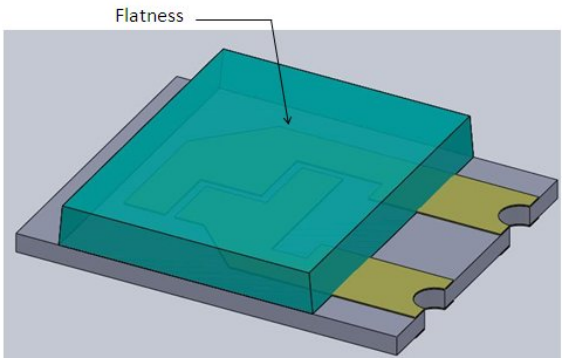
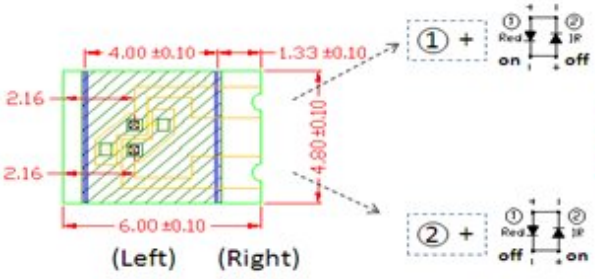
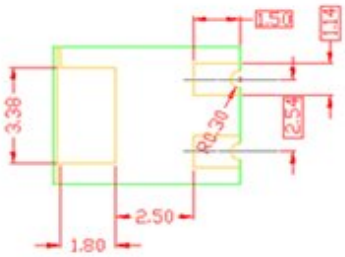



Top view

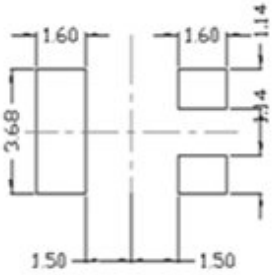



Bottom view




solder pattern




**Notes:** 1.All dimensions are in millimeters
2.Tolerances unless dimensions ±0.1mm

## Absolute Maximum Ratings (Ta=25℃)

| Parameter | Symbol | Rating | | Unit |
|---|---|---|---|---|
| | | 660nm(Red) | 905nm(IR) | |
| Continuous Forward Current | $I_F$ | 50 | | mA |
| Peak Forward Current *1 | $I_{FP}$ | 500 | | mA |
| Reverse Voltage | $V_R$ | 5 | | V |
| Operating Temperature | $T_{opr}$ | -25~ +85 | | ℃ |
| Storage Temperature | $T_{stg}$ | -25~ +85 | | ℃ |
| Soldering Temperature *3 | $T_{sol}$ | 260 | | ℃ |
| Power Dissipation at(or below) 25℃Free Air Temperature | $P_d$ | 110 | 80 | mW |
| Temperature resistance junction ambient | Rthj-a | 550 | | K/W |

**Notes:** *1:$I_{FP}$ Conditions--Pulse Width≦100 μs and Duty≦1%.
*2:Soldering time≦5 seconds.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## Electro-Optical Characteristics (Ta=25℃)

| Parameter | Symbol | | Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Radiant Intensity | $I_E$ | Red | $I_F$=20mA | 0.5 | 1.6 | -- | mW /sr |
| | | IR | | 0.5 | 0.9 | -- | |
| Peak Wavelength | λ p | Red | $I_F$=20mA | 657 | 660 | 663 | nm |
| | | IR | | 895 | 905 | 915 | |
| Spectral Bandwidth | Δ λ | Red | $I_F$=20mA | -- | 20 | -- | nm |
| | | IR | | -- | 60 | -- | |
| Forward Voltage | $V_F$ | Red | $I_F$=20mA | 2.0 | 2.2 | 2.6 | V |
| | | IR | | 1.2 | 1.4 | 1.8 | |
| Reverse Current | $I_R$ | Red | $V_R$=5V | -- | -- | 10 | μ A |
| | | IR | | -- | -- | 10 | |
| View Angle | 2 θ 1/2 | Red | $I_F$=20mA | -- | 125 | -- | deg |
| | | IR | | -- | 145 | -- | |





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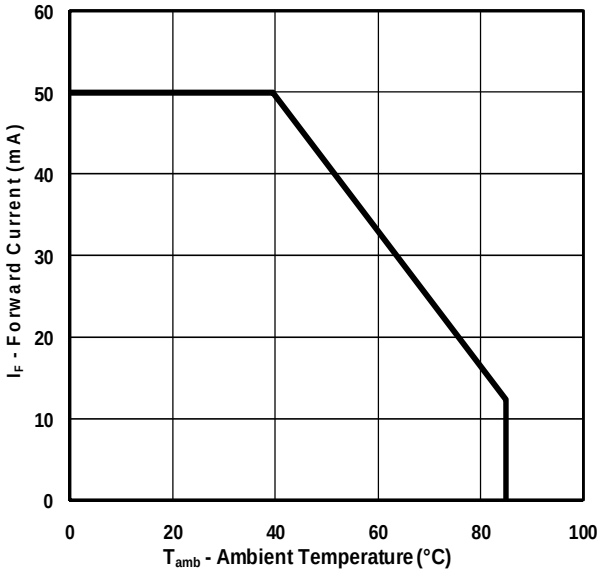
## Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs.
Ambient Temperature

**Red**




**IR**

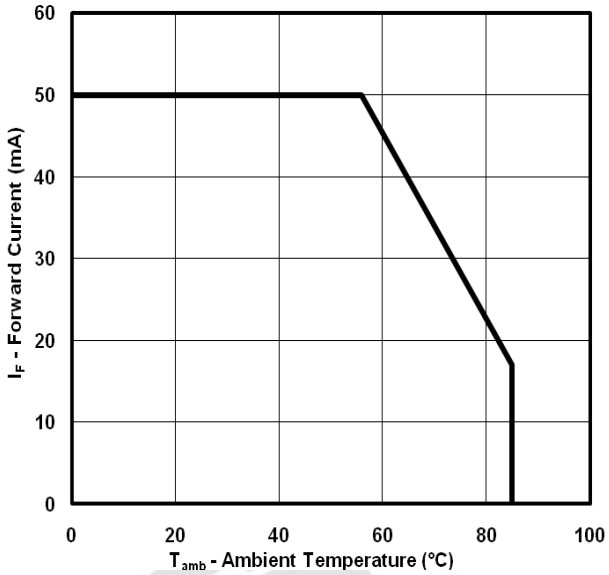
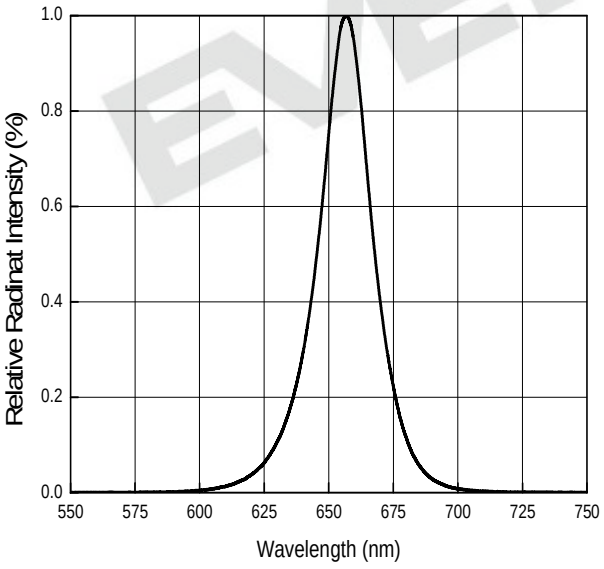
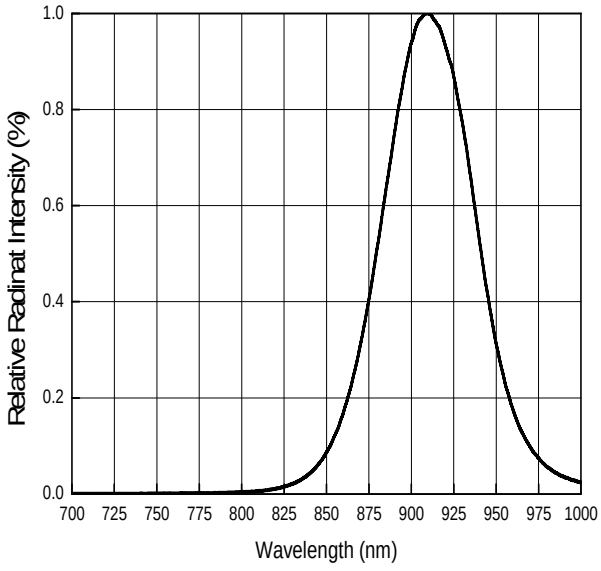



Fig.2 Spectral Distribution

**Red**




**IR**





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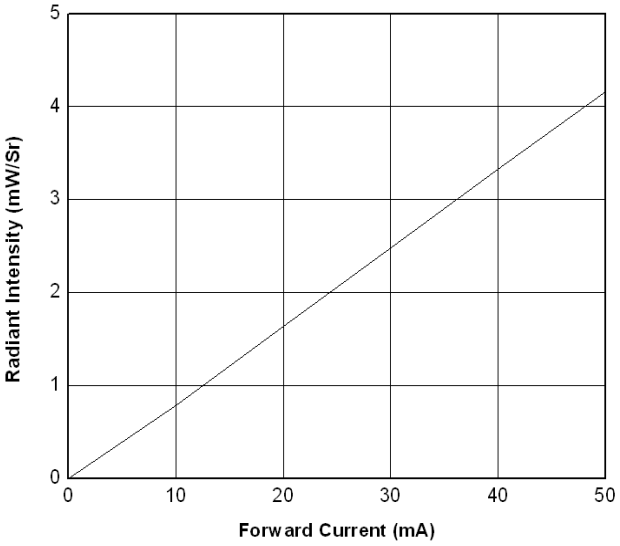
## Typical Electro-Optical Characteristics Curves

Fig.3 Radiant Intensity vs.
Forward Current

**Red**




**IR**

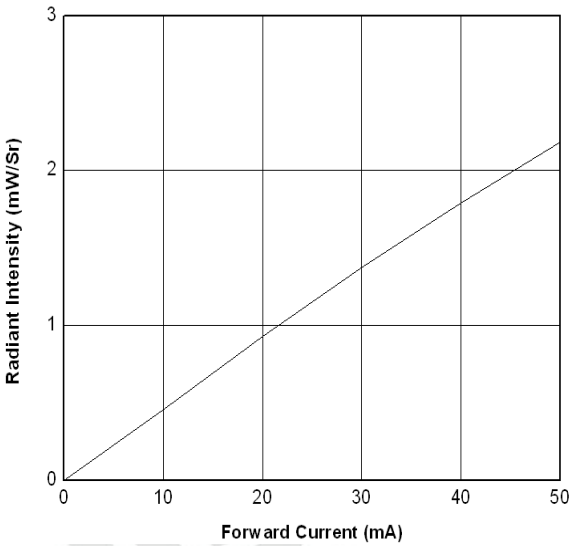
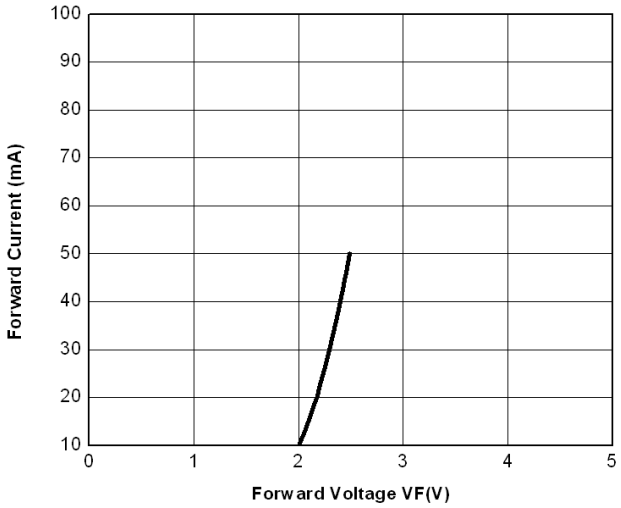
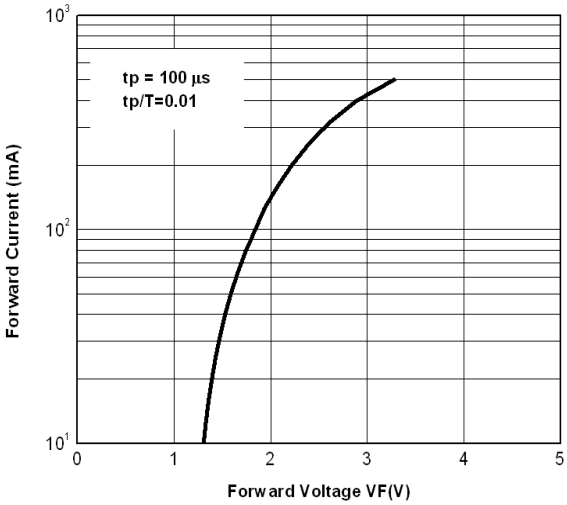



Fig.4 Forward Current vs.
Forward Voltage

**Red**




**IR**





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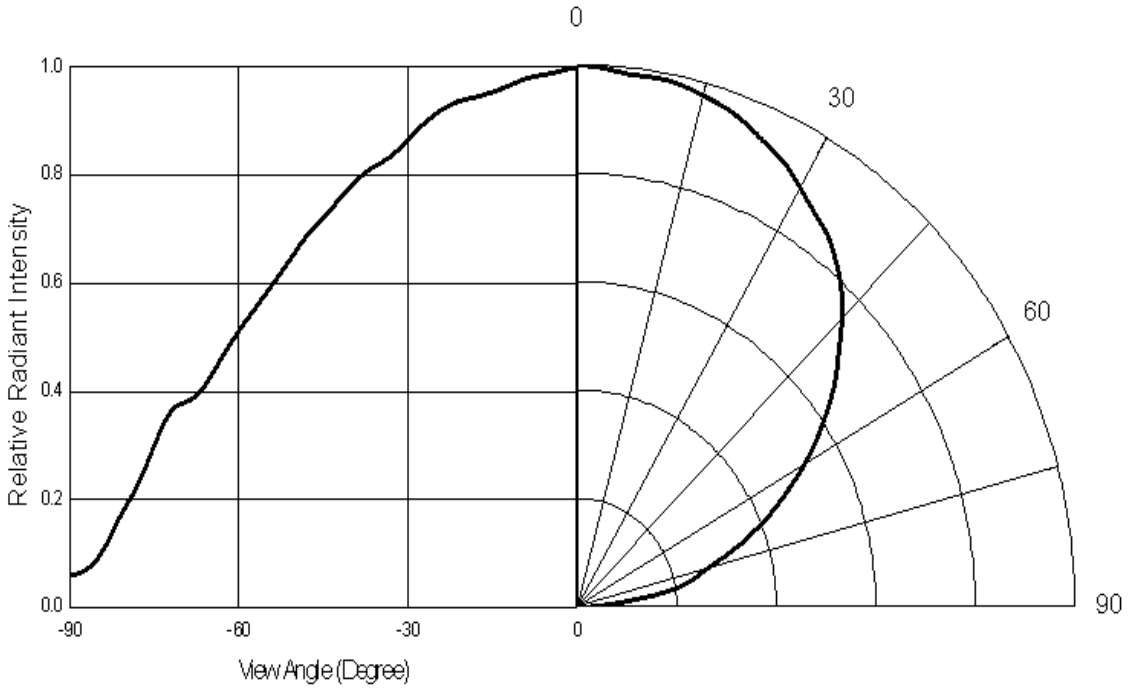
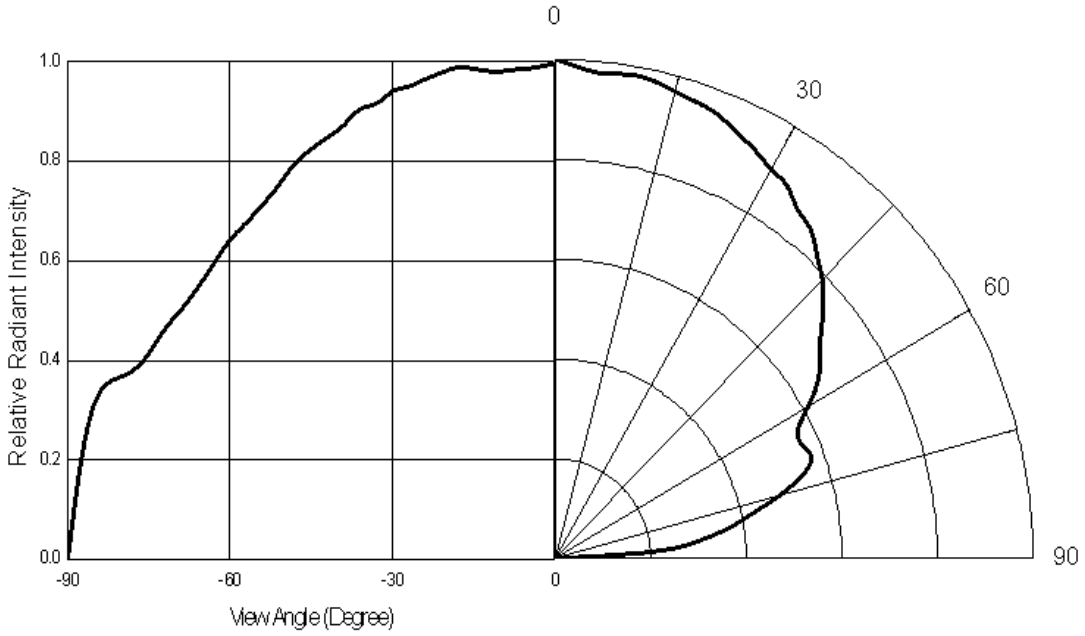
## Typical Electro-Optical Characteristics Curves

Fig.5 Relative Radiant Intensity vs.
Angular Displacement

**Red**




**IR**





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## 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℃ or less and 90%RH or less.

2.3 The LEDs should be used within a year.

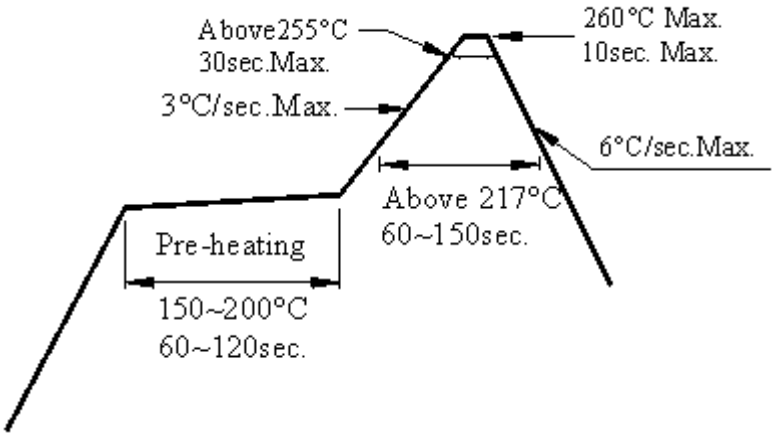
2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

2.5 The LEDs should be used within 72hours (3days) after opening the package.

2.6 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℃ 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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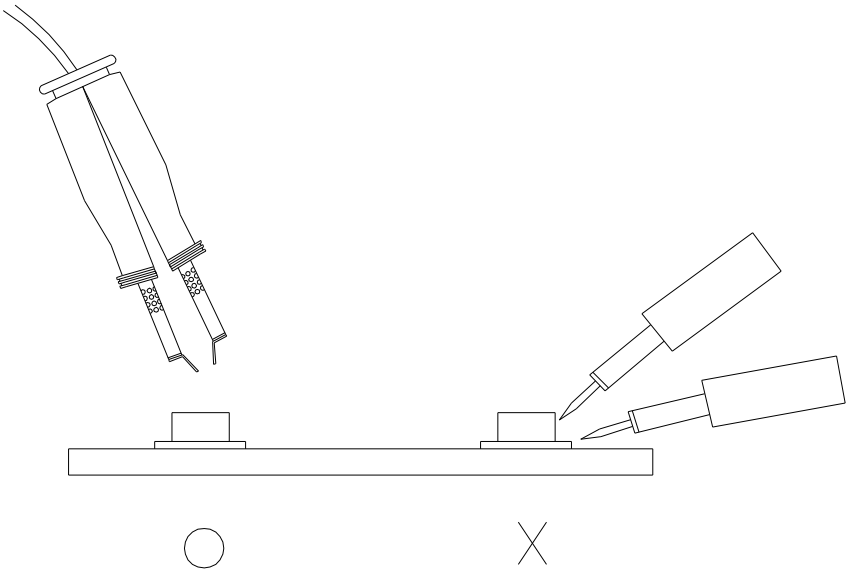
4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350℃ 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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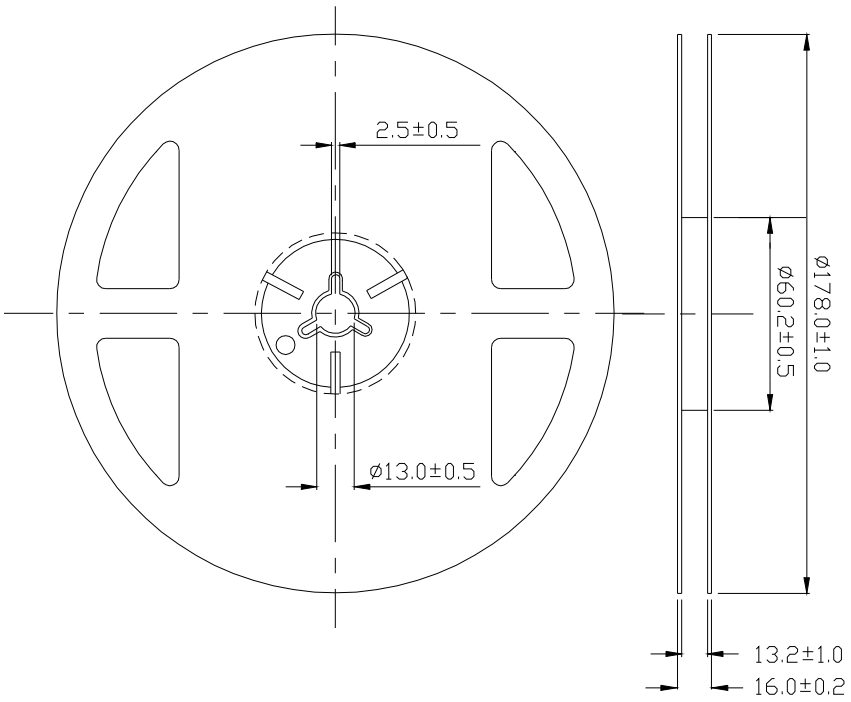
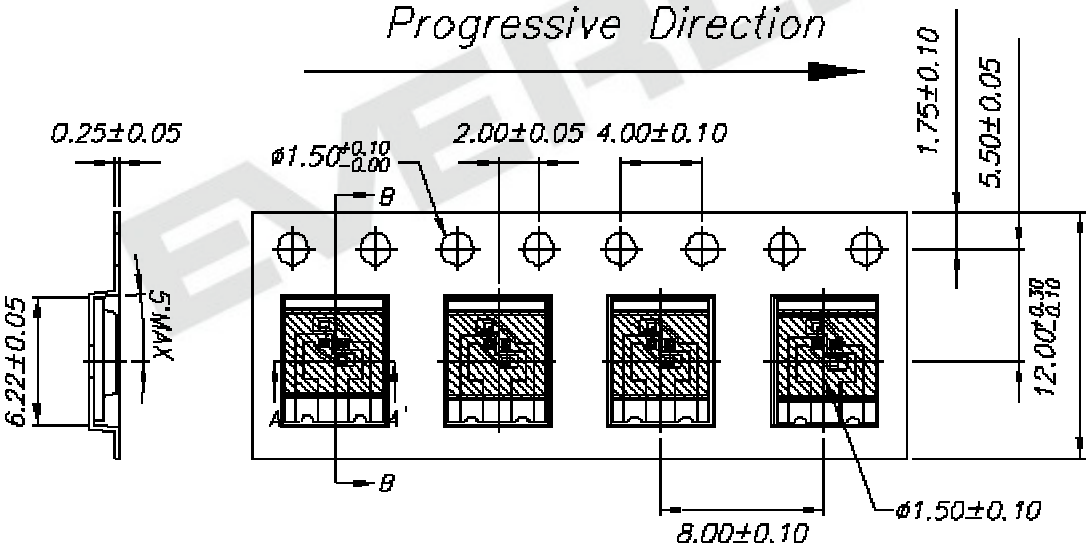
## Package Dimensions




**Carrier Tape Dimensions: Loaded quantity 1000 PCS per reel.**




**Note: 1. Dimensions are in millimeters**

**2. The tolerances unless mentioned is ±0.1mm**





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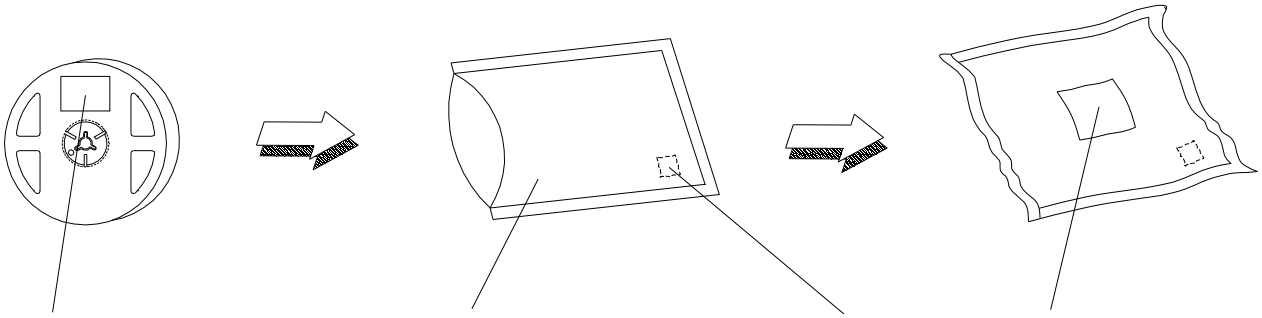
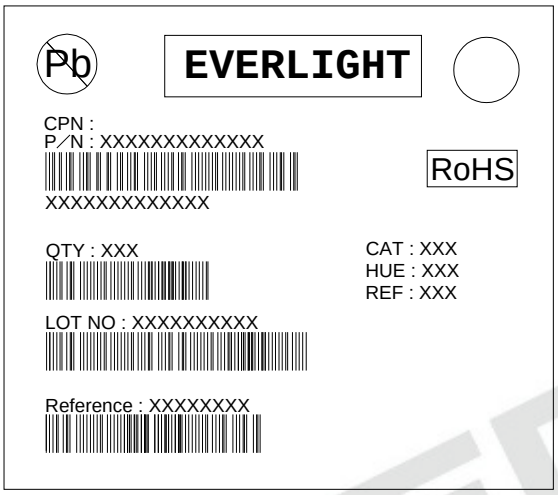
## Moisture Resistant Packaging




## Label Form Specification




CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place

## Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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