

## Technical Data Sheet

### Silicon PIN Photodiode

#### PD15-22B/TR8

#### Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Pb free
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)

#### Description

• PD15-22B/TR8 is a high speed and high sensitive. PIN photodiode in miniature flat top view lens SMD package and it is molded in a black plastic. The device is Spectrally matched to visible and infrared emitting diode.

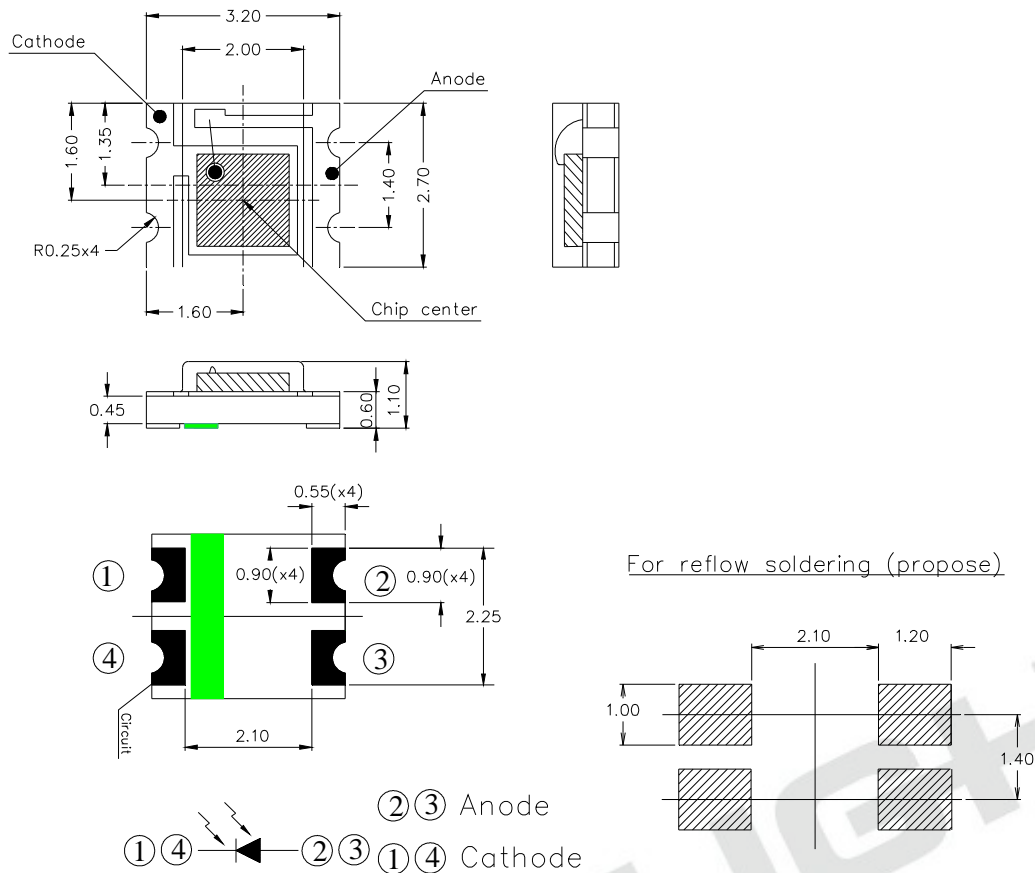
#### Applications

- High speed photo detector
- Copier
- Game machine

#### Device Selection Guide

| Device No.   | Chip Material | Lens Color |
|--------------|---------------|------------|
| PD15-22B/TR8 | Silicon       | Black      |

## Package Dimensions



**Notes:** 1.All dimensions are in millimeters  
2.Tolerances unless dimensions  $\pm 0.1\text{mm}$

## Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

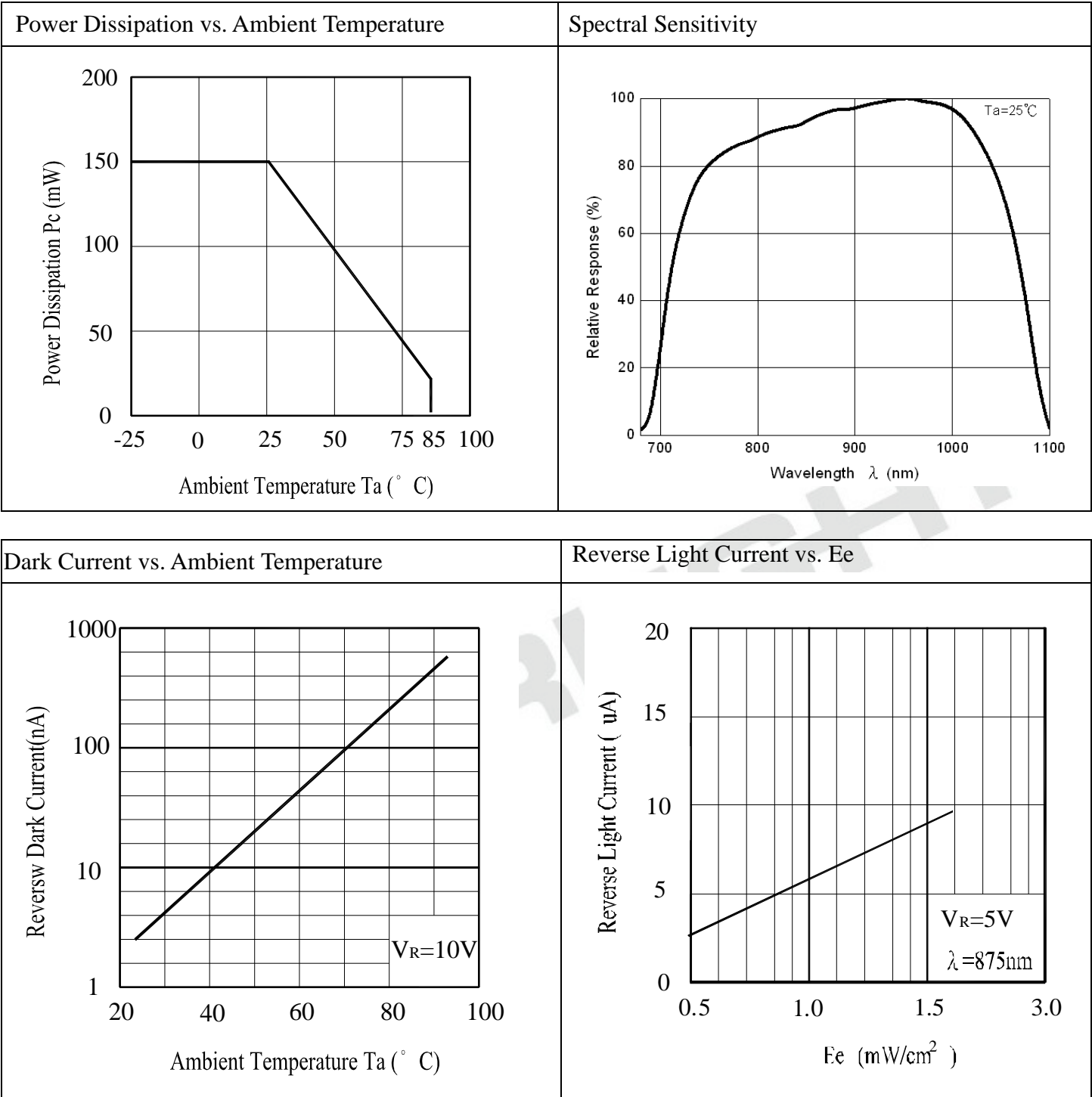
| Parameter                      | Symbol    | Rating          | Unit |
|--------------------------------|-----------|-----------------|------|
| Reverse Voltage                | $V_R$     | 32              | V    |
| Operating Temperature          | $T_{opr}$ | $-40 \sim +85$  |      |
| Storage Temperature            | $T_{stg}$ | $-40 \sim +100$ |      |
| Soldering Temperature *1       | $T_{sol}$ | 260             |      |
| Power Dissipation at(or below) | $P_c$     | 150             | mW   |
| ESD HMB Level                  | HMB       | Min.2000        | V    |

**Notes:** \*1:Soldering time 5 seconds.

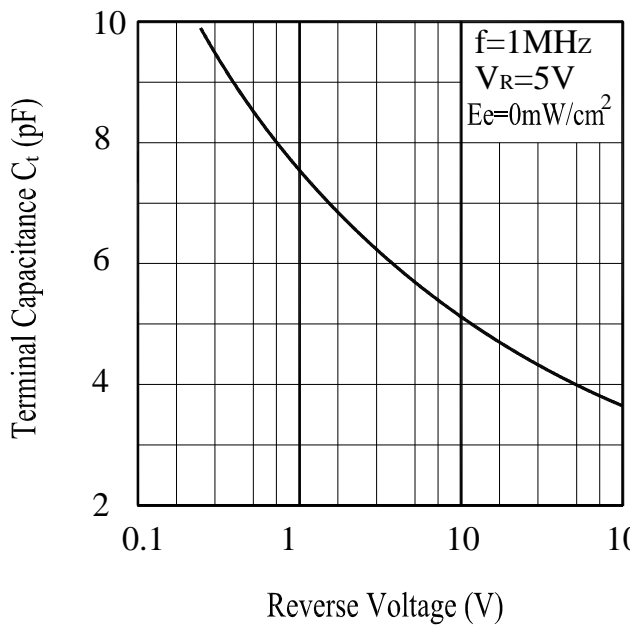
Electro-Optical Characteristics (Ta=25 °C)

| Parameter                      | Symbol          | Min. | Typ. | Max. | Unit    | Condition                                       |
|--------------------------------|-----------------|------|------|------|---------|-------------------------------------------------|
| Rang Of Spectral Bandwidth     |                 | 730  | ---  | 1100 | nm      | 10% of $\lambda_p$                              |
| Wavelength Of Peak Sensitivity | $\lambda_p$     | ---  | 940  | ---  | nm      | ---                                             |
| Open-Circuit Voltage           | $V_{OC}$        | ---  | 0.41 | ---  | V       | $E_e=5mW/cm^2$<br>$\lambda_p=940nm$             |
| Short-Circuit Current          | $I_{SC}$        | 4.0  | 6.5  | ---  | $\mu A$ | $E_e=1mW/cm^2$<br>$\lambda_p=875nm$             |
| Reverse Light Current          | $I_L$           | 4.2  | 6.5  | ---  | $\mu A$ | $E_e=1mW/cm^2$<br>$\lambda_p=875nm$<br>$V_R=5V$ |
| Dark Reverse Current           | $I_D$           | ---  | ---  | 10   | nA      | $E_e=0mW/cm^2$<br>$V_R=10V$                     |
| Reverse Breakdown Voltage      | $B_{VR}$        | 32   | 170  | ---  | V       | $E_e=0mW/cm^2$<br>$I_R=100 \mu A$               |
| Rise Time                      | $t_r$           | ---  | 10   | ---  | nS      | $V_R=5V$<br>$R_L=1000$                          |
| Fall Time                      | $t_f$           | ---  | 10   | ---  |         |                                                 |
| View Angle                     | $2\theta_{1/2}$ | ---  | 130  | ---  | deg     | $V_R=5V$                                        |

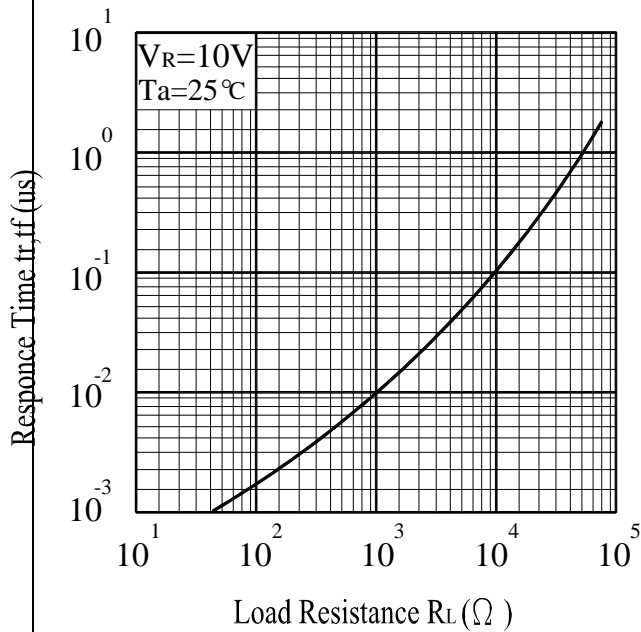
Typical Electrical/Optical/Characteristics Curves



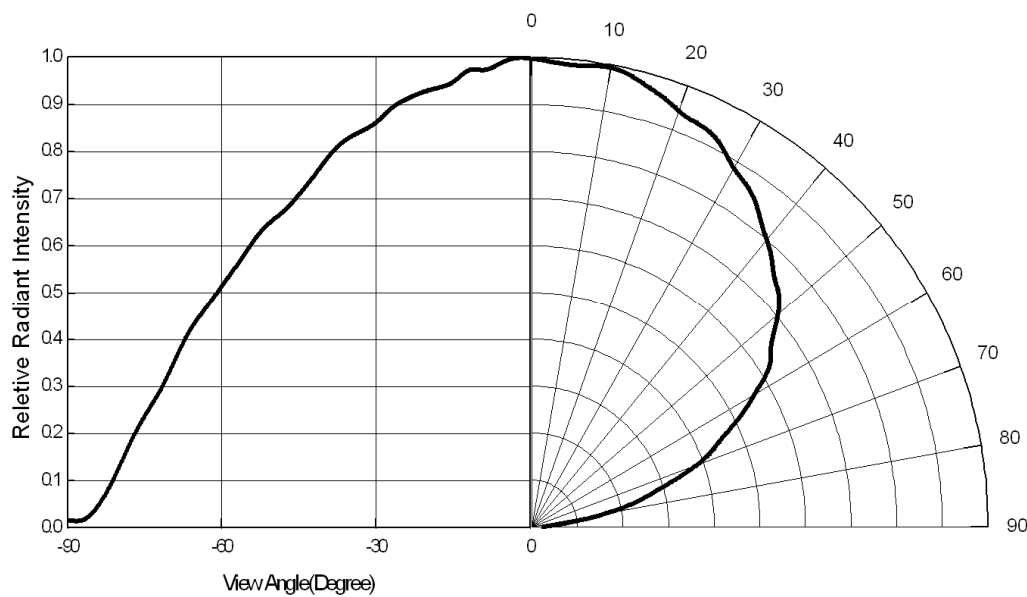
Terminal Capacitance vs. Reverse Voltage



Response Time vs. Load Resistance



Relative Light Current vs. Angular Displacement



## ● 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 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30 °C or less and 60%RH or less.

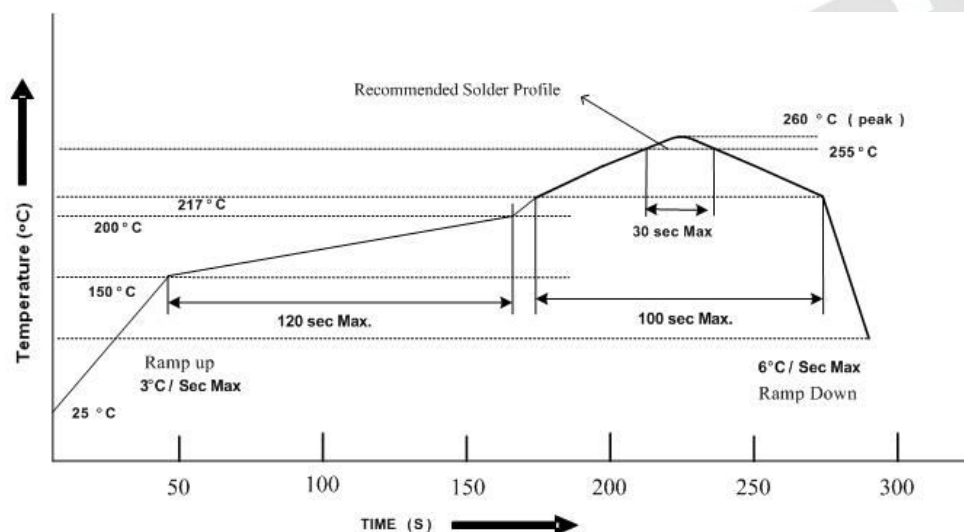
2.5 The LEDs should be used within 168 hours (7 days) after opening the package

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 :  $60 \pm 5$  °C for Min 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.

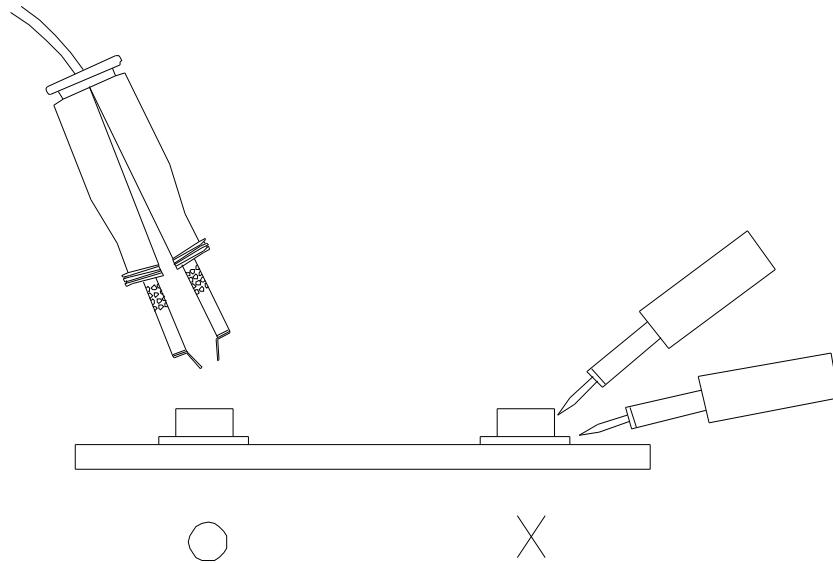
3.4 After soldering, do not warp the circuit board.

#### 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.



Technical drawing of a circular mechanical part, showing a top view and a side view. The top view is a circle with a central feature and four curved slots. The side view shows the profile of the part with dimensions for thickness and radii.

**Top View Dimensions:**

- Overall diameter:  $\phi 178.0 \pm 1.0$
- Inner circular feature diameter:  $\phi 60.0 \pm 0.5$
- Distance from center to the start of the curved slots:  $2.2 \pm 0.5$
- Distance from center to the end of the curved slots:  $\phi 13.0 \pm 0.5$

**Side View Dimensions:**

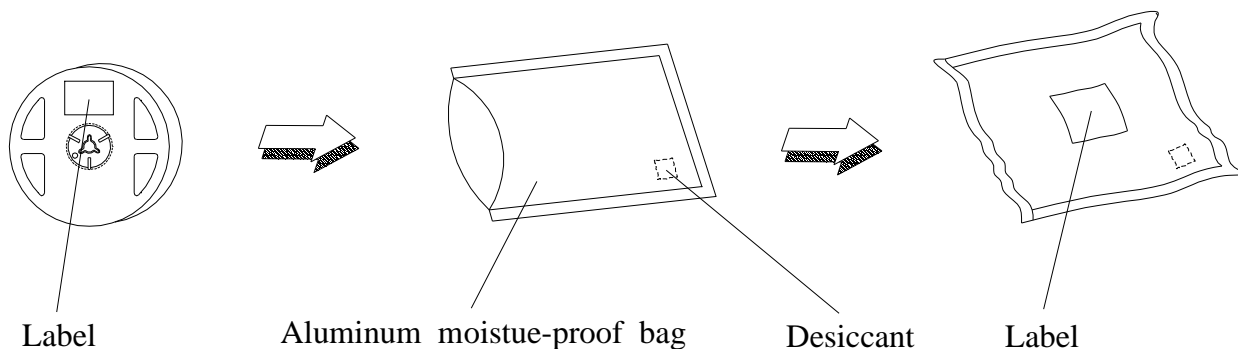
- Overall thickness:  $9.0 \pm 0.5$
- Radius of the outer edge:  $12.0 \pm 0.15$

## 2. Carrier Tape Dimensions:(Quantity: 3000pcs/reel)





## Packing Procedure



## Label Form Specification

|                                                |                                     |      |
|------------------------------------------------|-------------------------------------|------|
|                                                | <b>EVERLIGHT</b>                    |      |
| CPN :<br>P/N : XXXXXXXXXXXXX<br>XXXXXXXXXXXXXX |                                     | RoHS |
| QTY : XXX<br>XXXXXXXXXXXXXX                    | CAT : XXX<br>HUE : XXX<br>REF : XXX |      |
| LOT NO : XXXXXXXXX<br>XXXXXXXXXXXXXX           |                                     |      |
| Reference : XXXXXXXX<br>XXXXXXXXXXXXXX         |                                     |      |

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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