

## DATASHEET

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# 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.

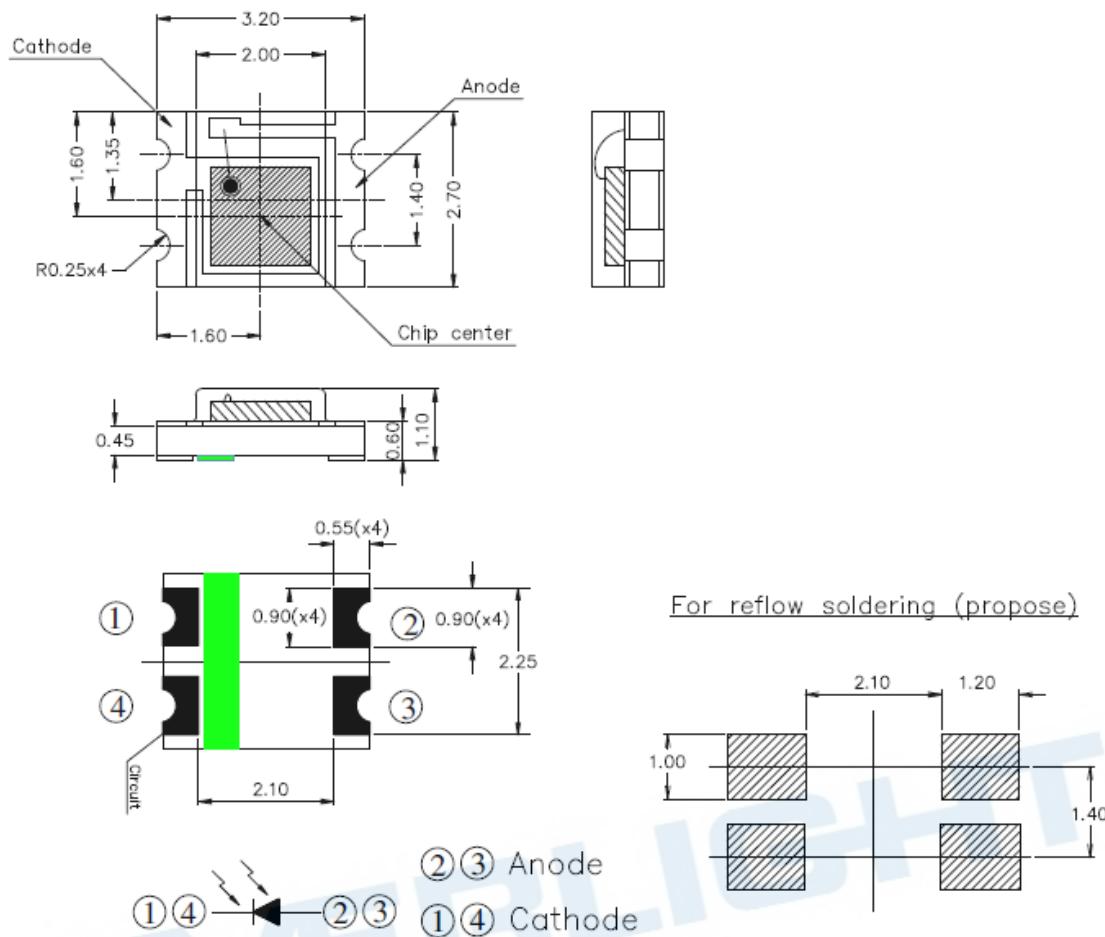
#### Applications

- 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 (Ta=25°C)

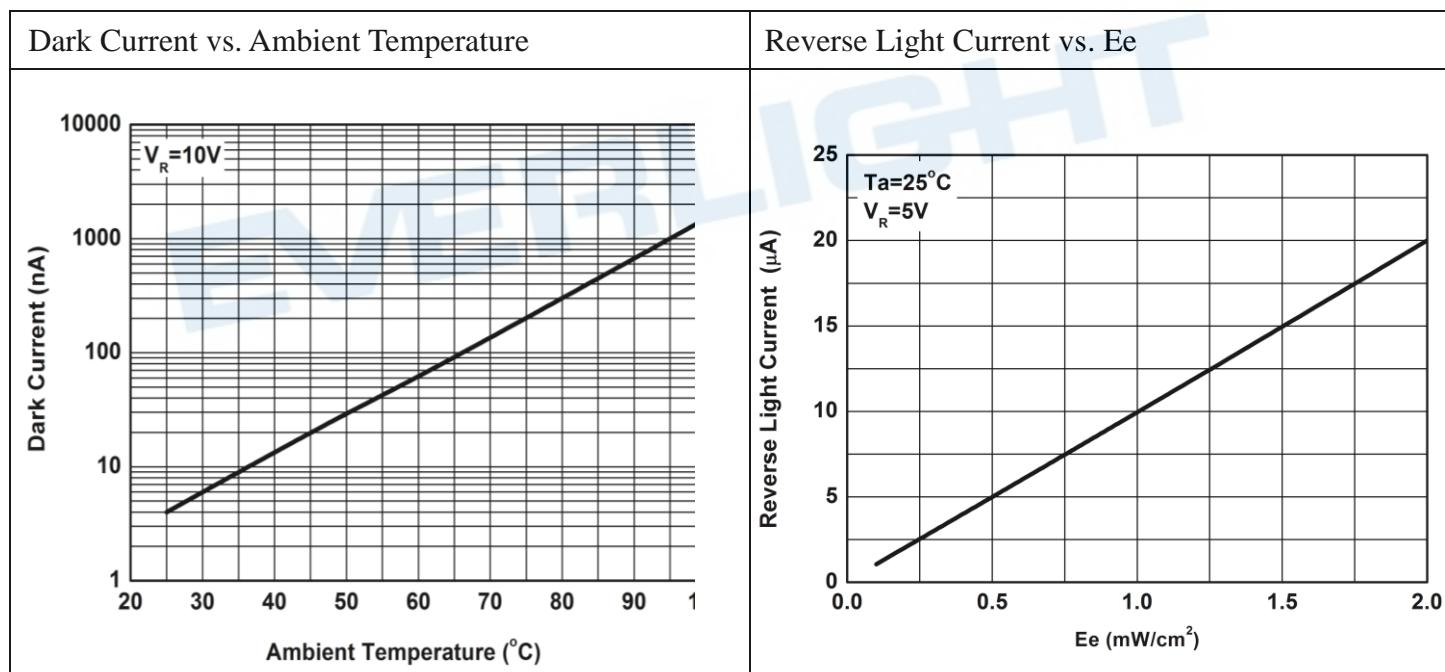
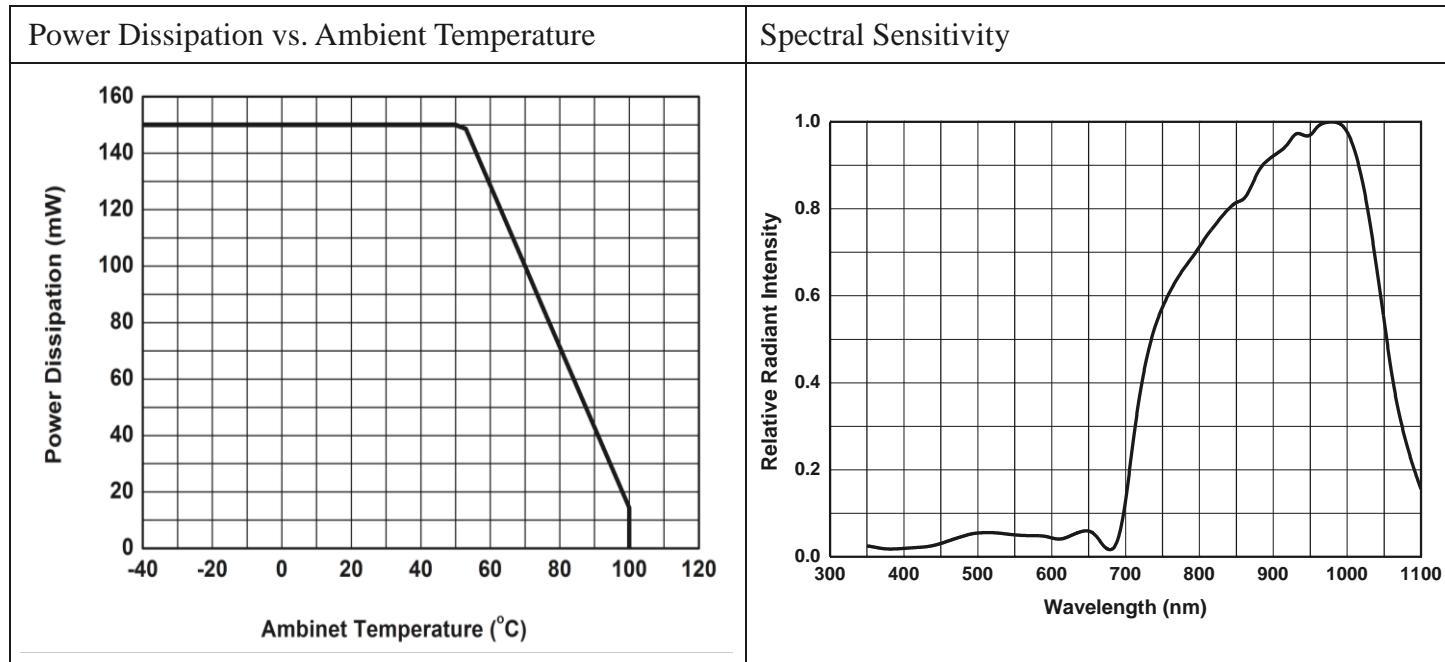
Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	32	V
Operating Temperature	T <sub>opr</sub>	-40 ~ +100	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +100	°C
Soldering Temperature *1	T <sub>sol</sub>	260	°C
Power Dissipation at(or below) 25°C Free Air Temperature	P <sub>c</sub>	150	mW
ESD HBM Level	HBM	Min.2000	V

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

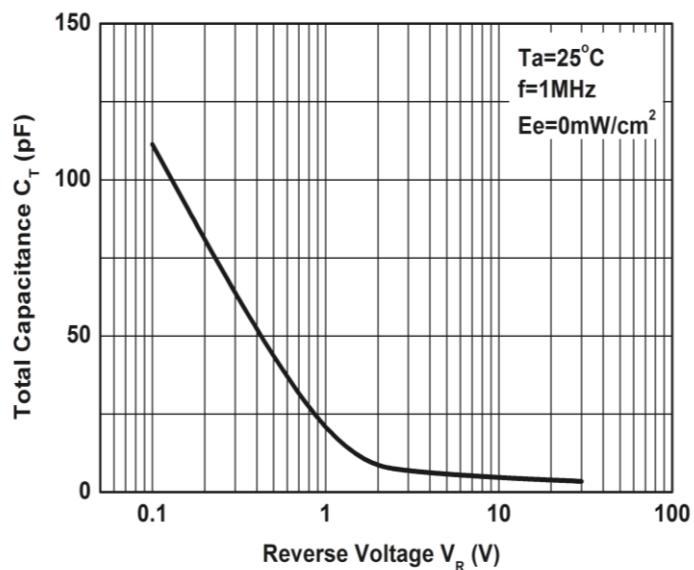
**Electro-Optical Characteristics (Ta=25°C unless specified otherwise)**

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Rang Of Spectral Bandwidth	$\lambda$	730	--	1100	nm	10% of $\lambda_P$
Wavelength Of Peak Sensitivity	$\lambda_P$	--	940	--	nm	--
Open-Circuit Voltage	$V_{OC}$	--	0.41	--	V	$Ee=1mW/cm^2$ $\lambda_P=940nm$
Short-Circuit Current	$I_{SC}$	4.0	--	--	$\mu A$	$Ee=1mW/cm^2$ $\lambda_P=940nm$
Reverse Light Current	$I_L$	4.2	10.0	--	$\mu A$	$Ee=1mW/cm^2$ $\lambda_P=940nm$ $V_R=5V$
Dark Reverse Current	$I_D$	--	--	10	nA	$Ee=0mW/cm^2$ $V_R=10V$
Reverse Breakdown Voltage	$B_{VR}$	32	170	--	V	$Ee=0mW/cm^2$ $I_R=100\mu A$
Total Capacitance	$C_T$	--	6.0	--	pF	$Ee=0mW/cm^2$ $f=1MHz$ $V_R=3V$
View Angle	$2\theta_{1/2}$	--	130	--	deg	$V_R=5V$

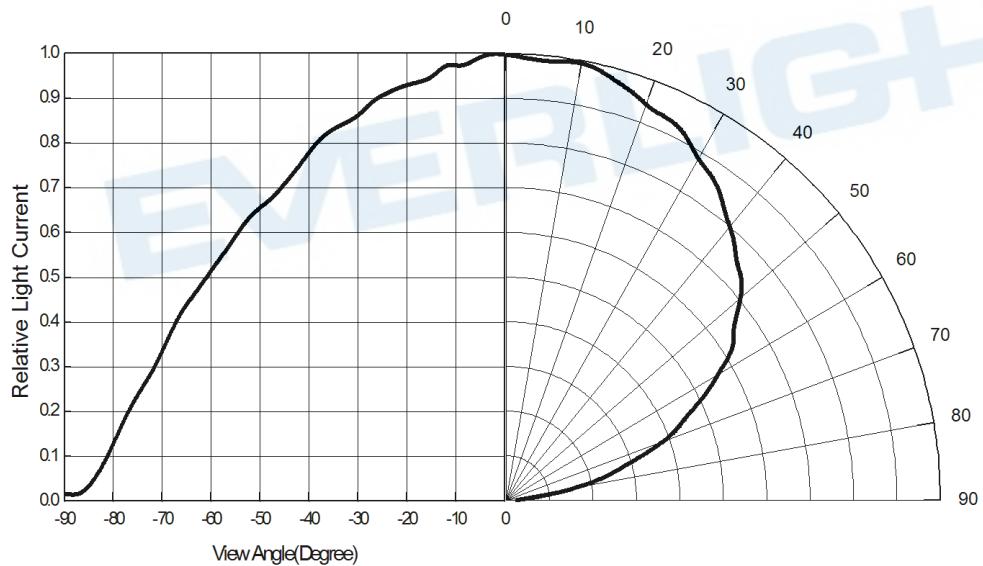
## Typical Electrical/Optical/Characteristics Curves



Terminal Capacitance vs. Reverse Voltage



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 ).

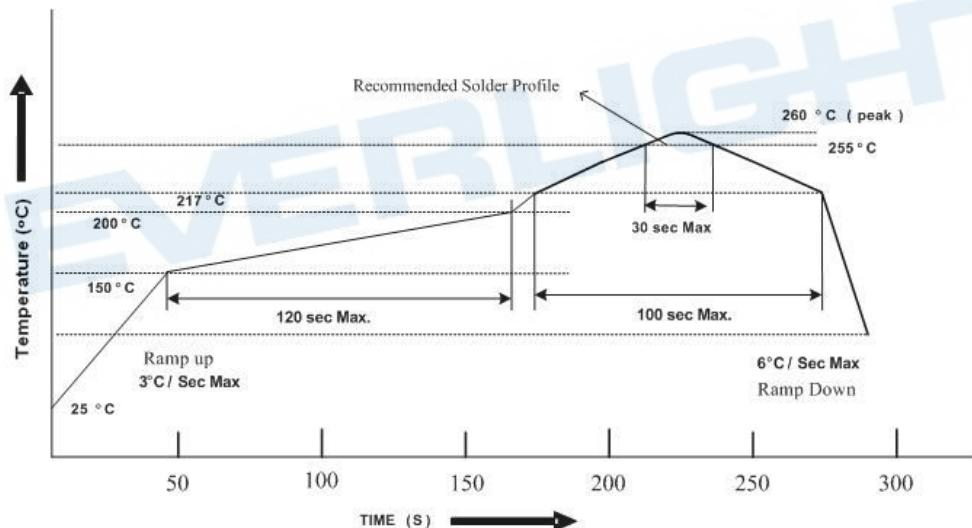
### 2. Storage

- 2.1 Do not open moisture proof bag before the products are ready to use.
- 2.2 Before opening the package, the Photodiode should be kept at 30°C or less and 90%RH or less.
- 2.3 The Photodiode should be used within a year.
- 2.4 After opening the package, the Photodiode should be kept at 30°C or less and 60%RH or less.
- 2.5 The Photodiode should be used within a year (12 months) after opening the package
- 2.6 If the moisture absorbent material (silica gel) has faded away or the Photodiode have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment :  $60 \pm 5^\circ\text{C}$  for Min 24 hours.

### 3. Soldering Condition

#### 3.1 Pb-free solder temperature profile



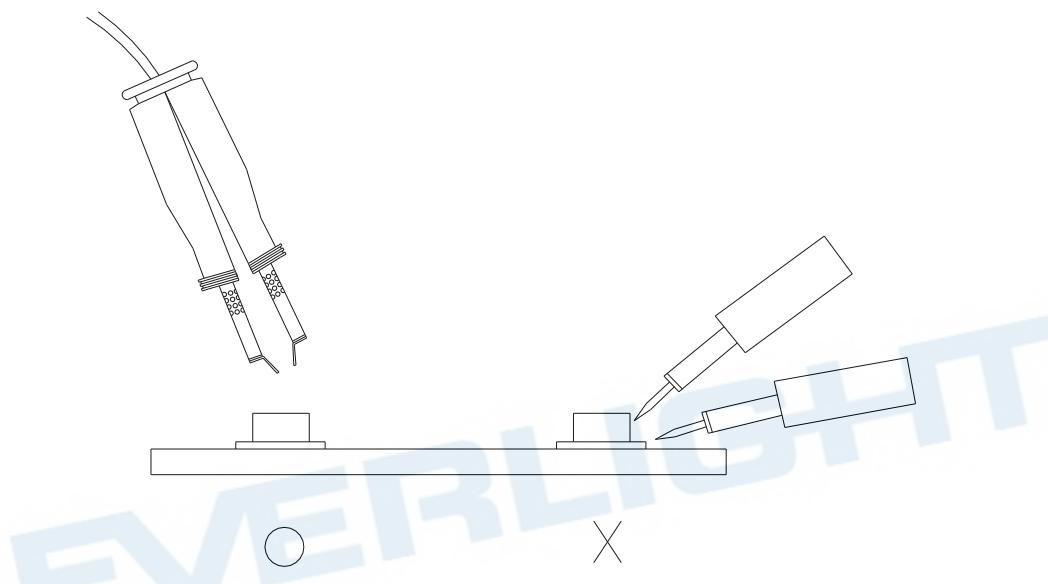
- 3.2 Reflow soldering should not be done more than two times.
- 3.3 When soldering, do not put stress on the Photodiode during heating.
- 3.4 After soldering, do not warp the circuit board.

#### 4. Soldering Iron

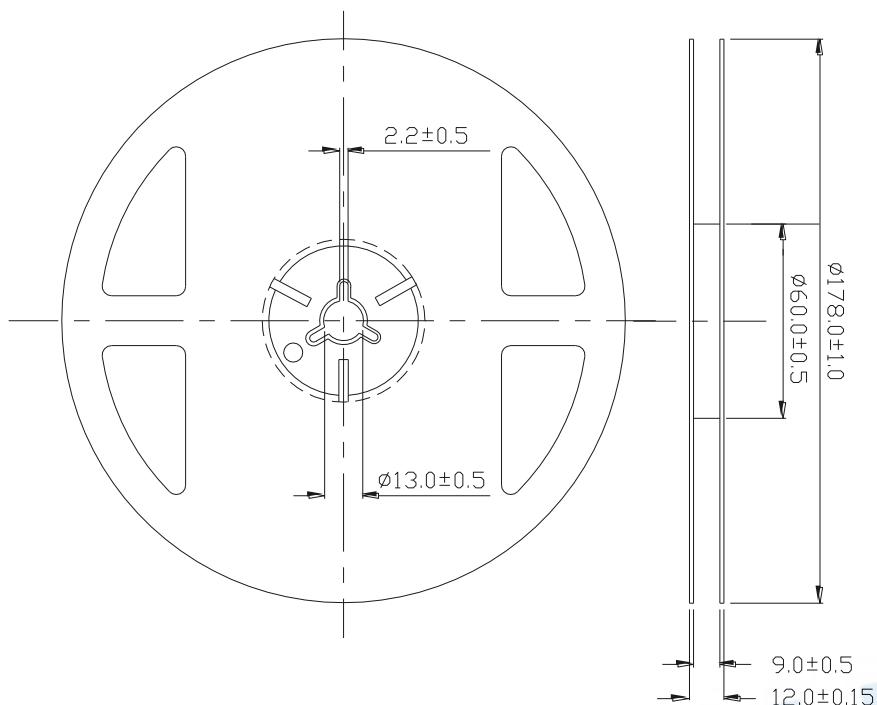
Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

#### 5. Repairing

Repair should not be done after the Photodiode 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 Photodiode will or will not be damaged by repairing.

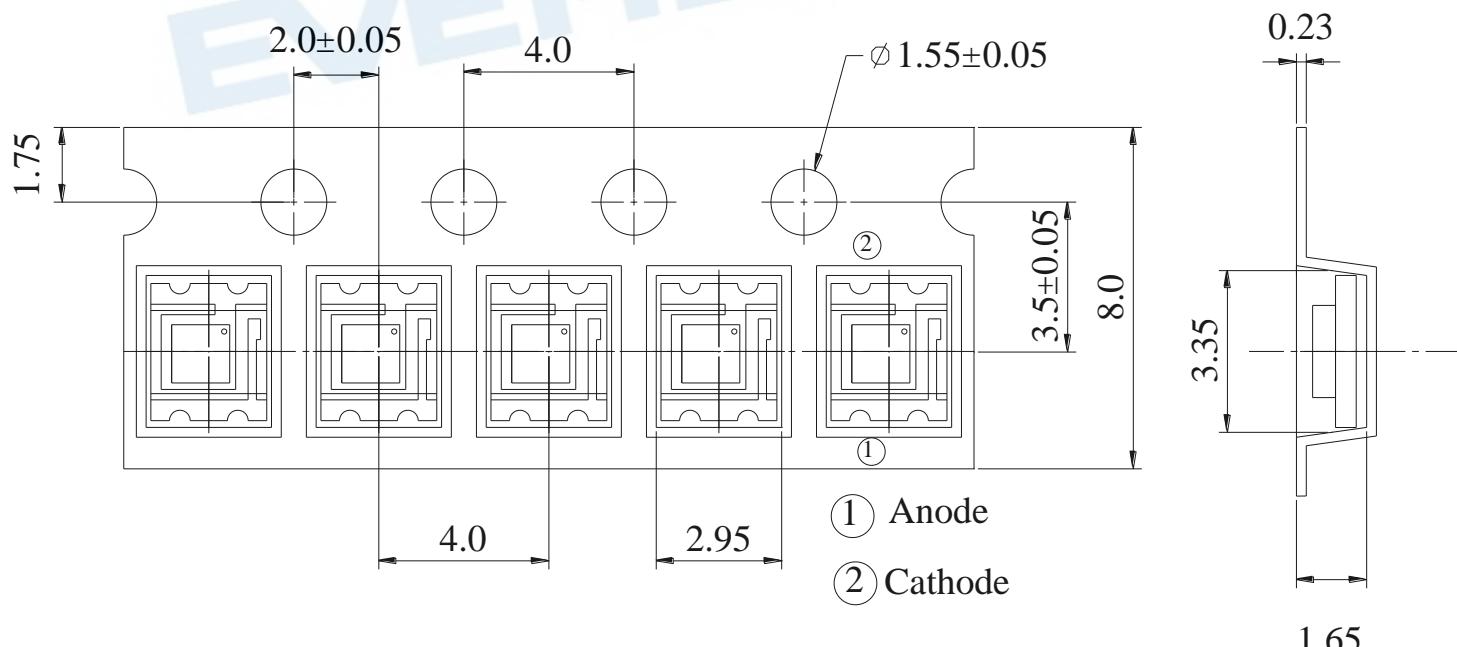


## Package Dimensions



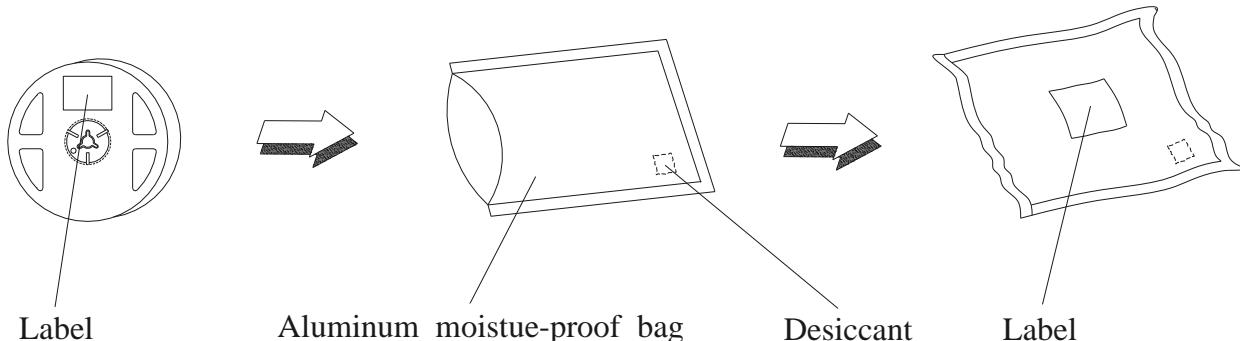
**Note:** The tolerances unless mentioned is  $\pm 0.1\text{mm}$ , Unit = mm

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

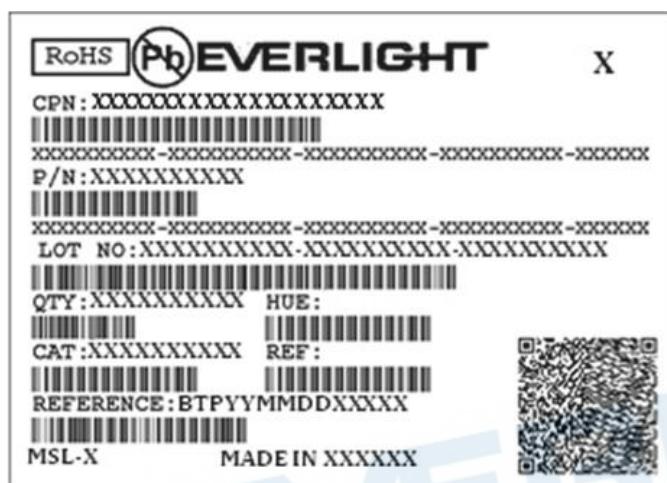


**Note:** The tolerances unless mentioned is  $\pm 0.1\text{mm}$ , Unit = mm

## Packing Procedure



## 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

## DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
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.
4. 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 the 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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