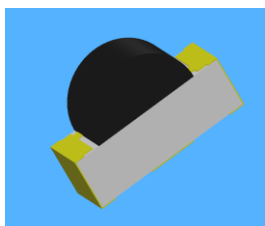


Chip Photodiode with Right Angle Lens

PD12-21B/TR8



Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Package in 8mm tape in "7" diameter reel
- 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).

Descriptions

- PD12-21B/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 epoxy. The device is spectrally matched to infrared emitting diode.

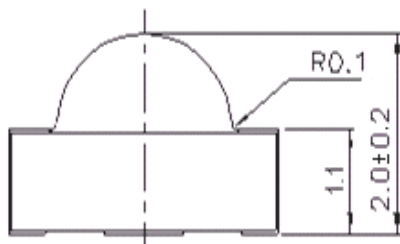
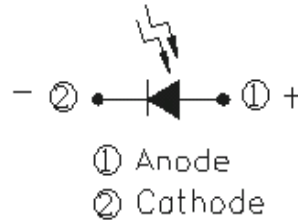
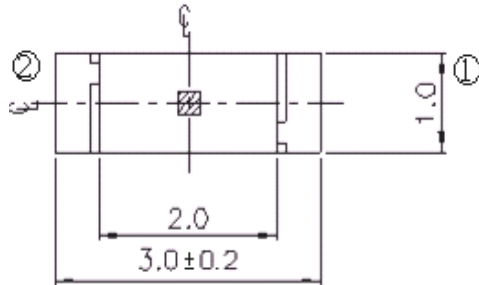
Applications

- High speed photo detector
- Copier
- Game machine

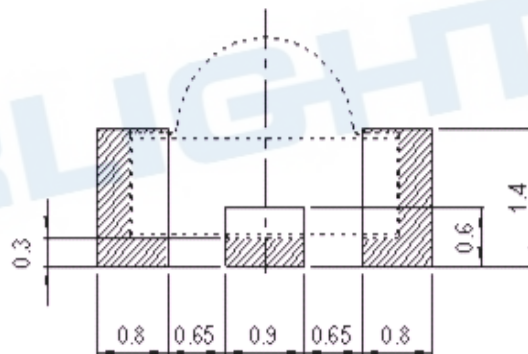
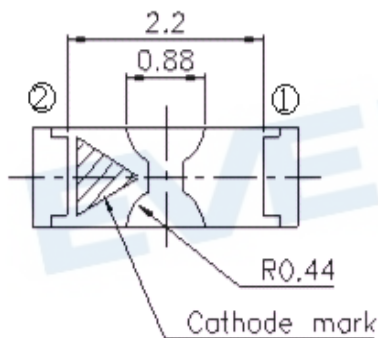
Device Selection Guide

Part Category	Chip Material	Lens Color
PD	Silicon	Black

Package Dimensions



For reflow soldering (propose)

**Notes:** 1.All dimensions are in millimeters2.Tolerances unless dimensions $\pm 0.1\text{mm}$

3.Suggested pad dimension is just for reference only.

Please modify the pad dimension based on individual need.

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Reverse Voltage	V_R	32	V
Operating Temperature	T_{opr}	-25 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +85	°C
Soldering Temperature *1	T_{sol}	260	°C
Power Dissipation at (or below) 25°C Free Air Temperature	P_d	150	mW

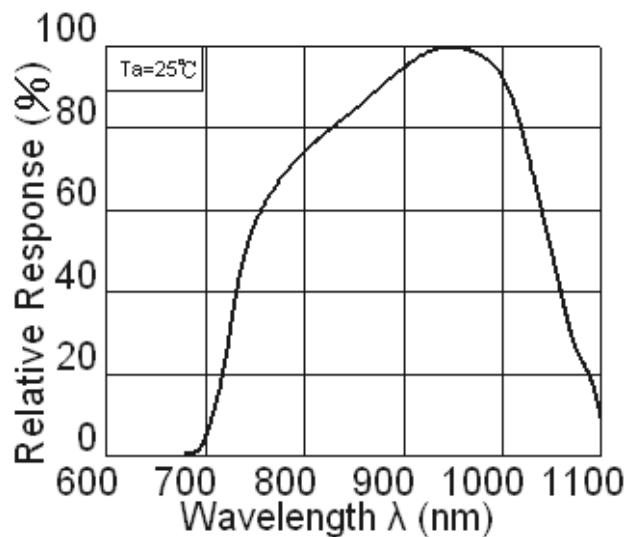
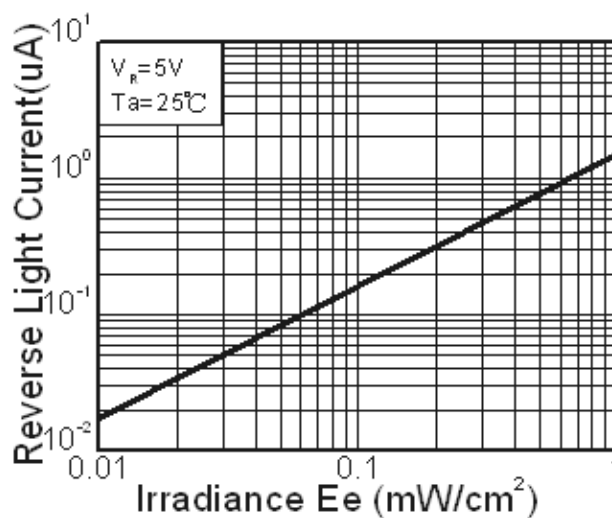
Notes: *1: Soldering time ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Range Of Spectral Bandwidth	$\lambda_{0.5}$	---	730	---	1050	nm
Wavelength Of Peak Sensitivity	λ_P	---	---	940	---	nm
Open-Circuit Voltage	V_{OC}	$E_e=1\text{mW/cm}^2$ $\lambda_P=940\text{nm}$	---	0.42	---	V
Short-Circuit Current	I_{SC}	$E_e=1\text{mW/cm}^2$ $\lambda_P=940\text{nm}$	---	1.3	---	μA
Reverse Light Current	I_L	$E_e=1\text{mW/cm}^2$ $\lambda_P=940\text{nm}$ $V_R=5\text{V}$	0.7	1.5	---	μA
Dark Current	I_D	$E_e=0\text{mW/cm}^2$ $V_R=10\text{V}$	---	---	10	nA
Reverse Breakdown Voltage	V_{BR}	$E_e=0\text{mW/cm}^2$ $I_R=100\mu\text{A}$	33	170	---	V

Typical Electro-Optical Characteristics Curves

Fig.1 Spectral Sensitivity

Fig.2 Reverse Light Current vs. E_e 

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.

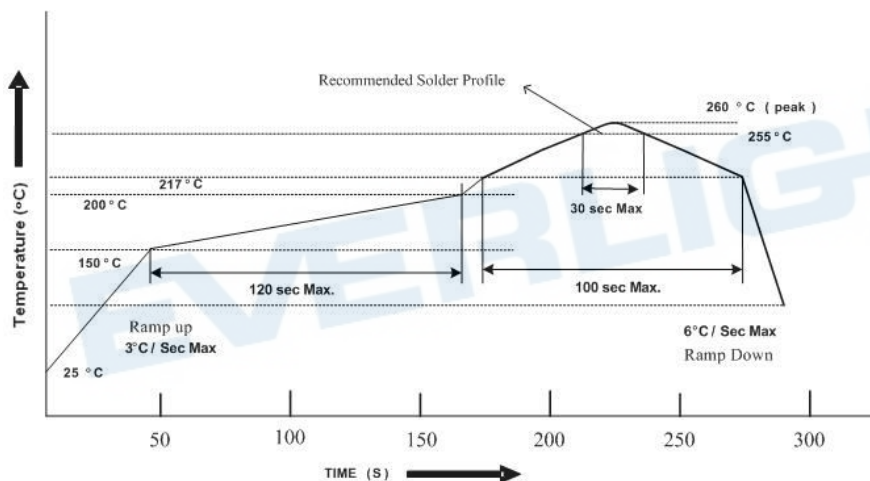
2.2 After opening the package: The LEDs should be kept at 30°C or less and 60%RH or less.

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

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 : $60\pm5^{\circ}\text{C}$ 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.

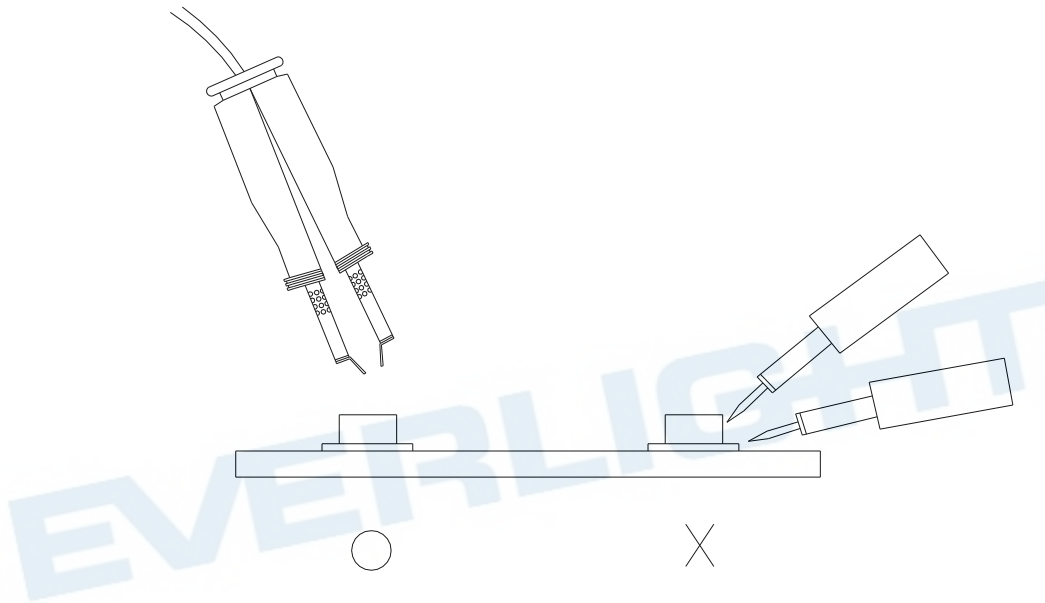
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

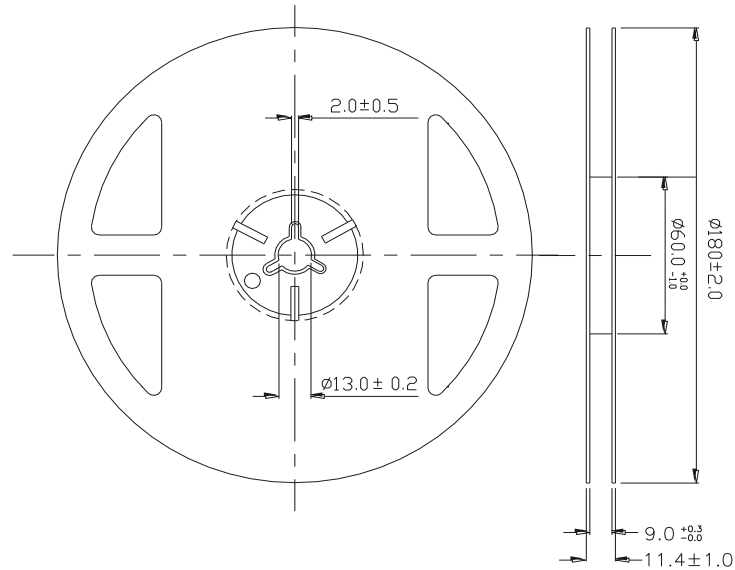
Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of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

5. Repairing

Repair should not be done after the 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.

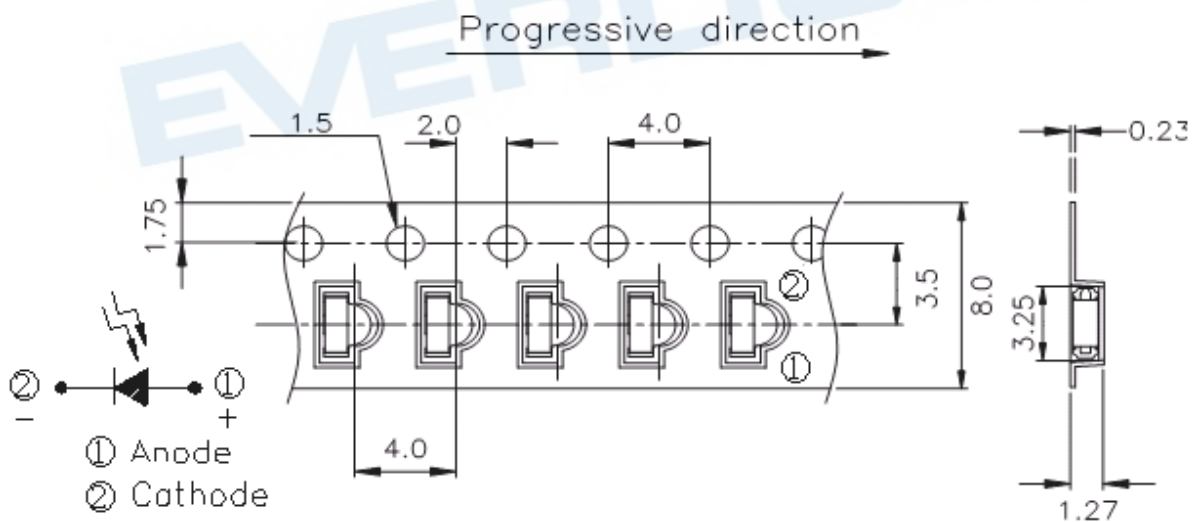


Package Dimensions



Note: The tolerances unless mentioned are ± 0.1 mm, Unit: mm

Carrier Taping Dimensions: Loaded Quantity 2000PCS/Reel



Note: The tolerances unless mentioned are ± 0.1 mm, Unit: mm

Label Form Specification

RoHS	Pb	EVERLIGHT	5
CPN: XXXXXXXXXXXXXXXXXXXX			
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX			
P/N: XXXXXXXXXXXX			
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX			
LOT No: Y150716XXX-XXXXXXXXXX-XXXXXXXXXX			
QTY: 0123456789 HUE: XXXXXXXXXXXX			
CAT: XXXXXXXXXXXX REF: XXXXXXXXXXXX			
REFERENCE: BTPYYMDDXXXXX			
MSL-X MADE IN XXXXXX			

CPN: Customer's Production Number

P/N : Production Number

LOT No: Lot Number

QTY: Packing Quantity

HUE: Peak Wavelength

CAT: Ranks

REF: Reference

MSL-X: MSL Level

Made In: Manufacture 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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6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.

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