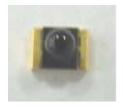


DATASHEET

1.8mm Round Subminiature Silicon PIN Photodiode PD42-21B/TR8



Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Package in 12mm tape on 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

PD42-21B/TR8 is a high speed and high sensitive PIN
photodiode in miniature spherical top view lens SMD
package and it is molded in a black plastic .The device
is spectrally matched with the infrared emitting diode.

Applications

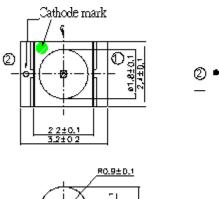
- High speed photo detector
- Copier
- Game machine
- Infrared applied system

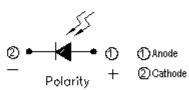
Device Selection Guide

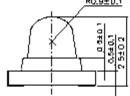
Part Category	Chip Material	Lens Color
PD	Silicon	Black

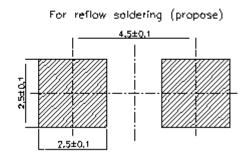


Package Dimensions









2 0± 0.1

Notes: 1.All dimensions are in millimeters

- 2.Tolerances unless dimensions ±0.1mm
- 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	Unit	
Reverse Voltage	V_R	32	V	
Operating Temperature	T_{opr}	-25 ~ +85	$^{\circ}\!\mathbb{C}$	
Storage Temperature	T_{stg}	-40 ~ +85	$^{\circ}\!\mathbb{C}$	
Soldering Temperature *1	T_{sol}	260	$^{\circ}$	
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	Тур	Max	Unit
Rang Of Spectral Bandwidth	λ _{0.5}		730		1100	nm
Wavelength Of Peak Sensitivity	λp			940		nm
Open-Circuit Voltage	V _{OC}	Ee=5mW /cm ² λ P=940nm		0.42		V
Short-Circuit Current	I_{SC}	$Ee=1mW/cm^2$ $\lambda_{P}=875nm$		4.0		μ A
Reverse Light Current	I_L	$Ee=1mW/cm^{2}$ $\lambda_{P}=875nm$ $V_{R}=5V$	2.0	4.0		μ A
Dark Current	I_D	$Ee=0mW/cm^2$ $V_R=10V$			10	nA
Reverse Breakdown Voltage	V_{BR}	$Ee=0mW/cm^2$ $I_R=100 \mu A$	32	170		V



Typical Electro-Optical Characteristics Curves

Fig.1 Spectral Sensitivity

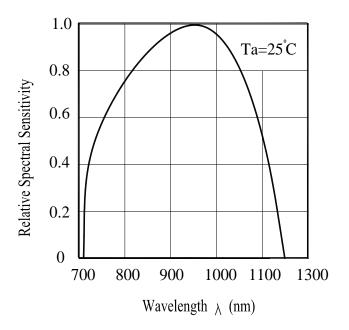
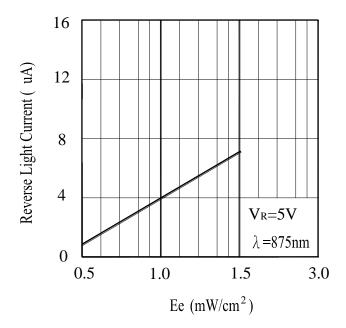


Fig.2 Reverse Light Current vs Ee





Precautions For Use

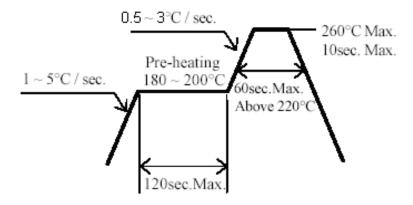
1. Over-current-proof

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

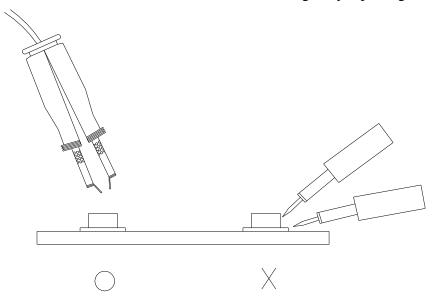


4. Soldering Iron

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.

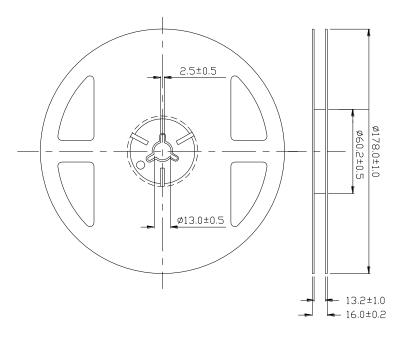
5.Repairing

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.



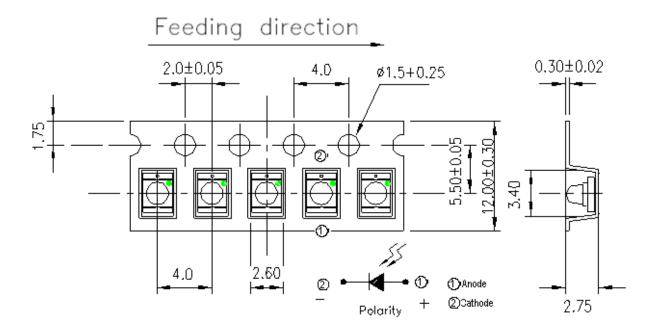


Package Specification



Note: The tolerances unless mentioned is ± 0.1 mm, Unit = mm

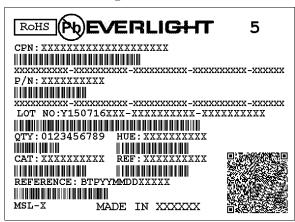
Carrier Tape Dimensions:(Quantity: 1000pcs/reel)



Note: The tolerances unless mentioned is ± 0.1 mm, Unit = mm



Label Form Specification



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.
- 5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
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 Please contact authorized Everlight sales agent for special application request.

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