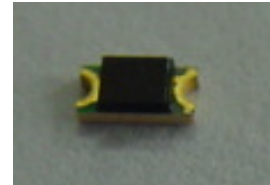




Technical Data Sheet

1206 Package Silicon PIN Photodiode

PD15-21B/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.

Descriptions

- PD15-21B/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 plastic. The device is Spectrally matched to infrared emitting diode.

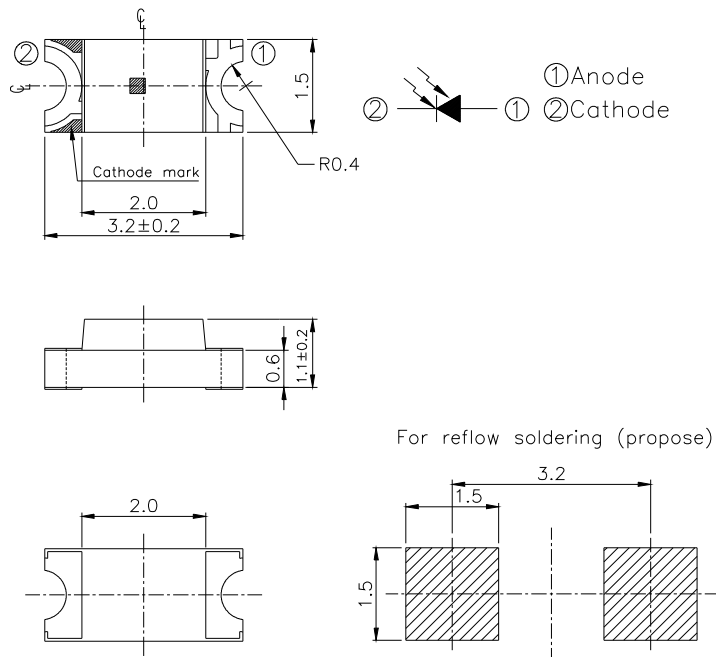
Applications

- High speed photo detector
- Copier
- Game machine

Device Selection Guide

| LED Part No. | Chip | Lens Color |
|--------------|----------|------------|
| | Material | |
| PD15-21B/TR8 | Silicon | Black |

Package Dimensions



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

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 ~ +100 | °C |
| Soldering Temperature *1 | T _{sol} | 260 | °C |
| Power Dissipation at(or below) 25°C Free Air Temperature | P _c | 150 | mW |

Notes: *1:Soldering time ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|--------------------------------|-----------------|-------------------------------------------------|-----|------|------|---------|
| Rang Of Spectral Bandwidth | $\lambda_{0.5}$ | --- | 730 | --- | 1100 | nm |
| Wavelength Of Peak Sensitivity | λ_P | --- | --- | 940 | --- | nm |
| Open-Circuit Voltage | V_{OC} | $E_e=5mW/cm^2$ $\lambda_P=940nm$ | --- | 0.42 | --- | V |
| Short-Circuit Current | I_{SC} | $E_e=1mW/cm^2$ $\lambda_P=875nm$ | --- | 0.8 | --- | μA |
| Reverse Light Current | I_L | $E_e=1mW/cm^2$ $\lambda_P=875nm$ $V_R=5V$ | 0.2 | 0.8 | | μA |
| Dark Current | I_D | $E_e=0mW/cm^2$ $V_R=10V$ | --- | --- | 10 | nA |
| Reverse Breakdown Voltage | B_{VR} | $E_e=0mW/cm^2$ $I_R=100\mu A$ | 32 | 170 | --- | V |
| Total Capacitance | C_t | $E_e=0mW/cm^2$ $f=1MHz$ $V_R=5V$ | --- | 5 | --- | pF |
| Rise Time | t_r | $V_R=5V$ $R_L=1000\Omega$ | --- | 6 | --- | nS |
| Fall Time | t_f | | --- | 6 | --- | |

Typical Electro-Optical Characteristics Curves

Fig.1 Power Dissipation vs. Ambient Temperature

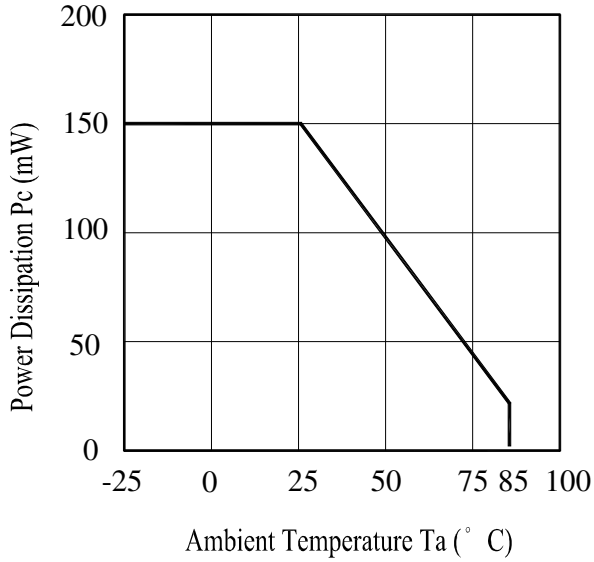


Fig.2 Spectral Sensitivity

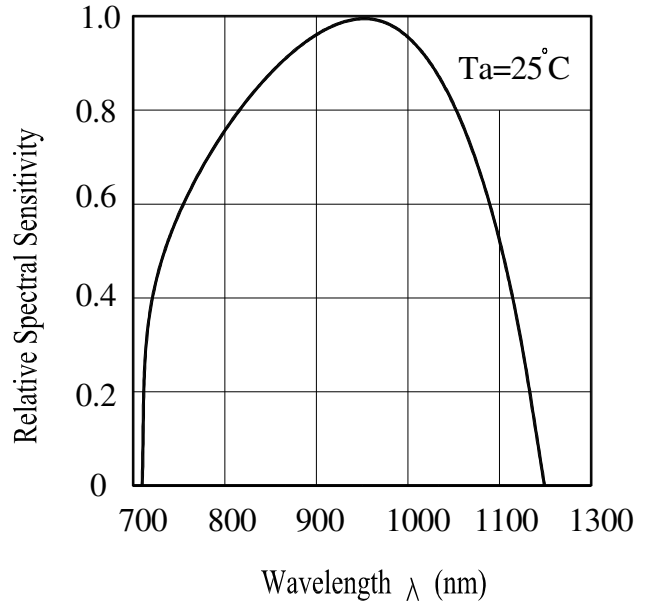


Fig.3 Dark Current vs. Ambient Temperature

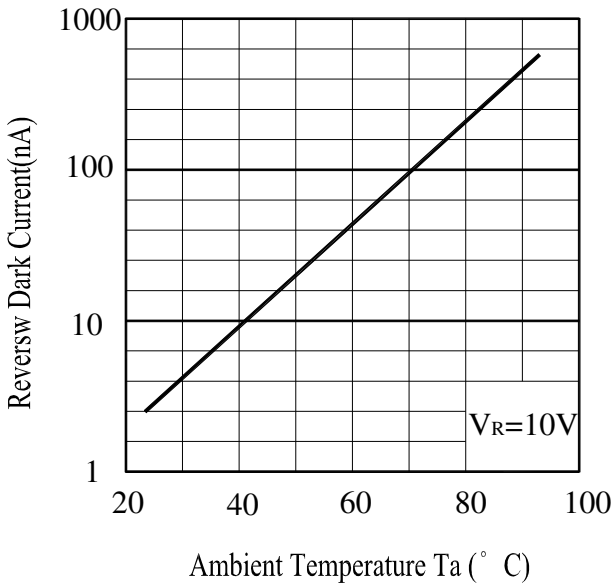
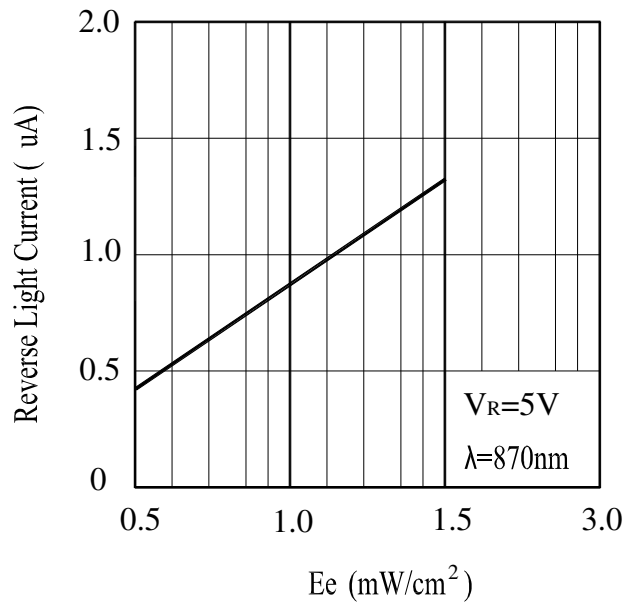


Fig.4 Reverse Light Current vs. E_e



Typical Electro-Optical Characteristics Curves

Fig.5 Terminal Capacitance vs. Reverse Voltage

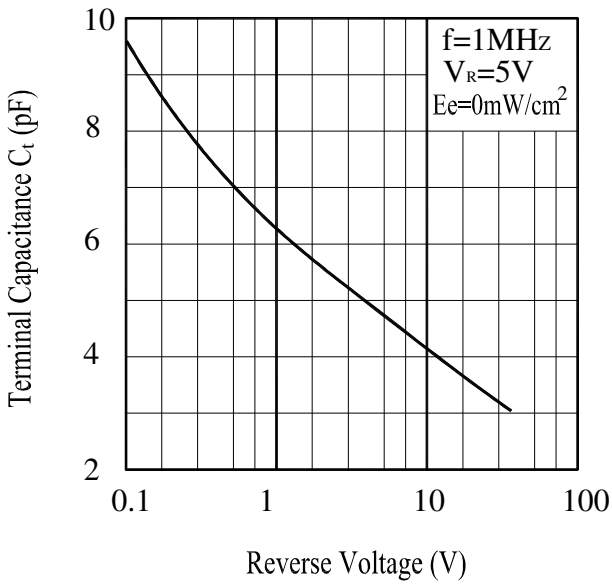
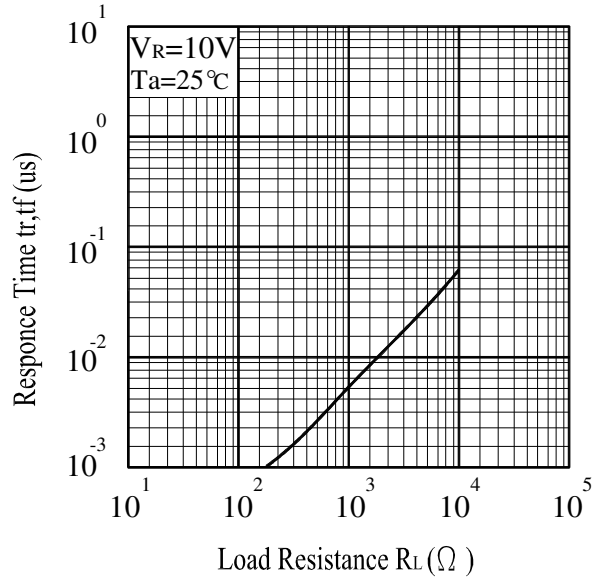


Fig.6 Response Time vs. Load Resistance



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 70%RH or less.

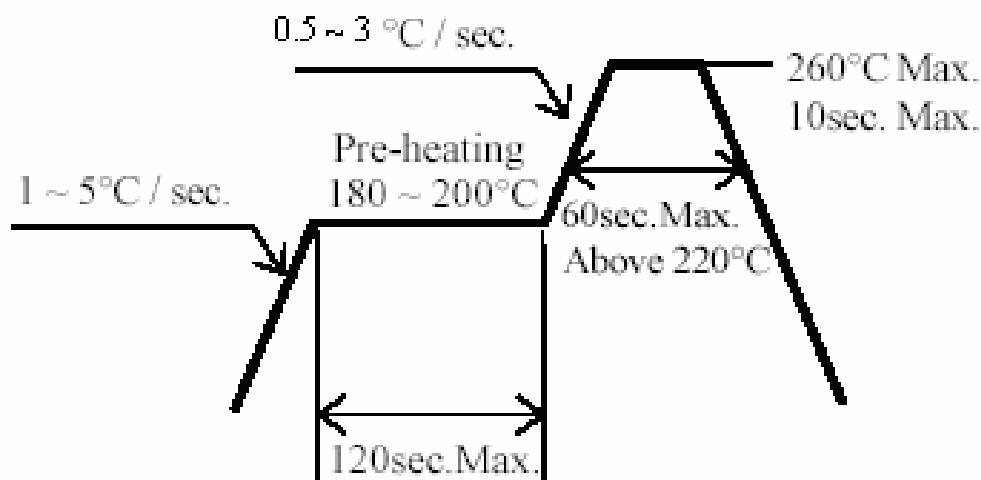
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

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±5°C for 24 hours.

3. Soldering Condition

3.1 Lead solder temperature profile



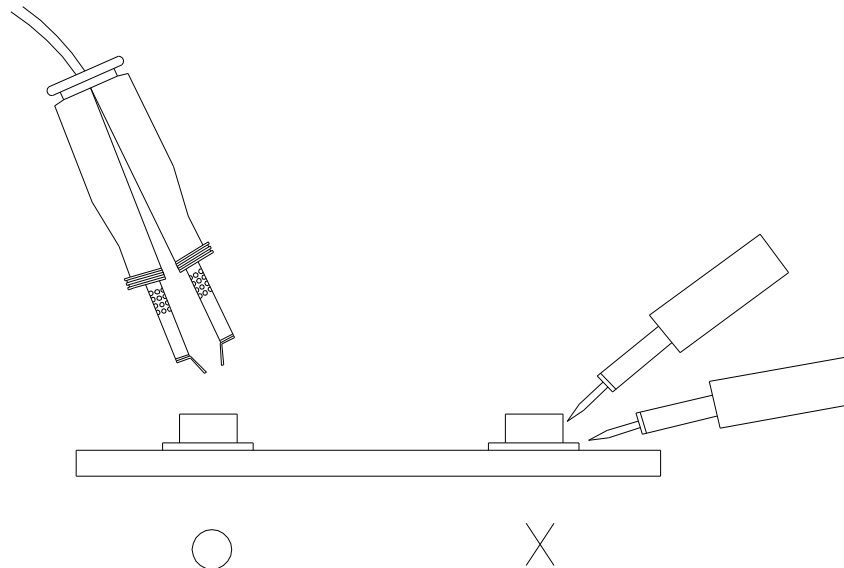
- 3.2 Reflow soldering should not be done more than two times.
- 3.3 When soldering, do not put stress on the LEDs during heating.
- 3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280°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.



Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

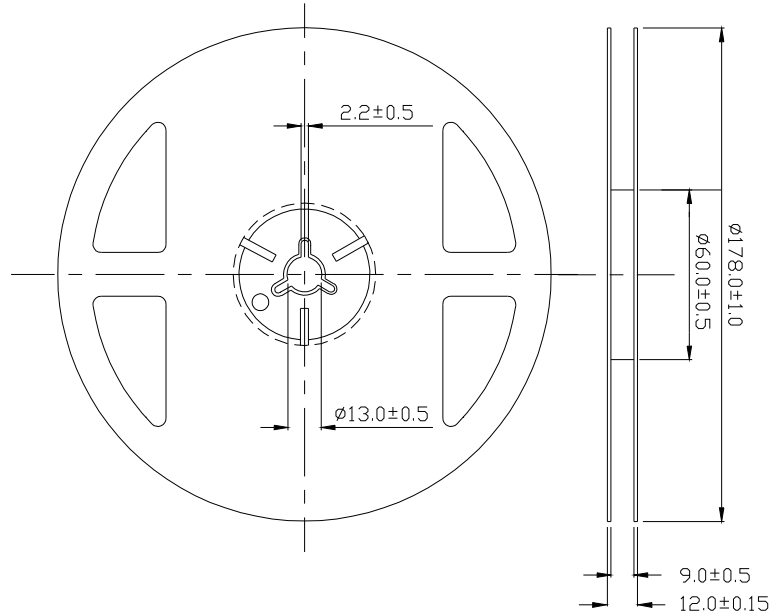
Confidence level : 90%

LTPD : 10%

| NO. | Item | Test Conditions | Test Hours/ Cycles | Sample Sizes | Failure Judgement Criteria | Ac/Re |
|-----|------------------------------------|----------------------------------------------------------------|-----------------------|-----------------|------------------------------------------------------------------------|-------|
| 1 | REFLOW Soldering | TEMP. : 260°C±5°C 10secs | 6Mins | 22pcs | $I_L \leq L \times 0.8$ L : Lower Specification Limit | 0/1 |
| 2 | Temperature Cycle | H : +100°C 15mins ↑ 5mins ↓ L : -40°C 15mins | 50Cycles | 22pcs | | 0/1 |
| 3 | Thermal Shock | H : +100°C 5mins ↑ 10secs ↓ L : -10°C 5mins | 50Cycles | 22pcs | | 0/1 |
| 4 | High Temperature Storage | TEMP. : +100°C | 1000hrs | 22pcs | | 0/1 |
| 5 | Low Temperature Storage | TEMP. : -40°C | 1000hrs | 22pcs | | 0/1 |
| 6 | DC Operating Life | $V_R=5V$ | 1000hrs | 22pcs | | 0/1 |
| 7 | High Temperature/ High Humidity | 85°C / 85% R.H | 1000hrs | 22pcs | | 0/1 |

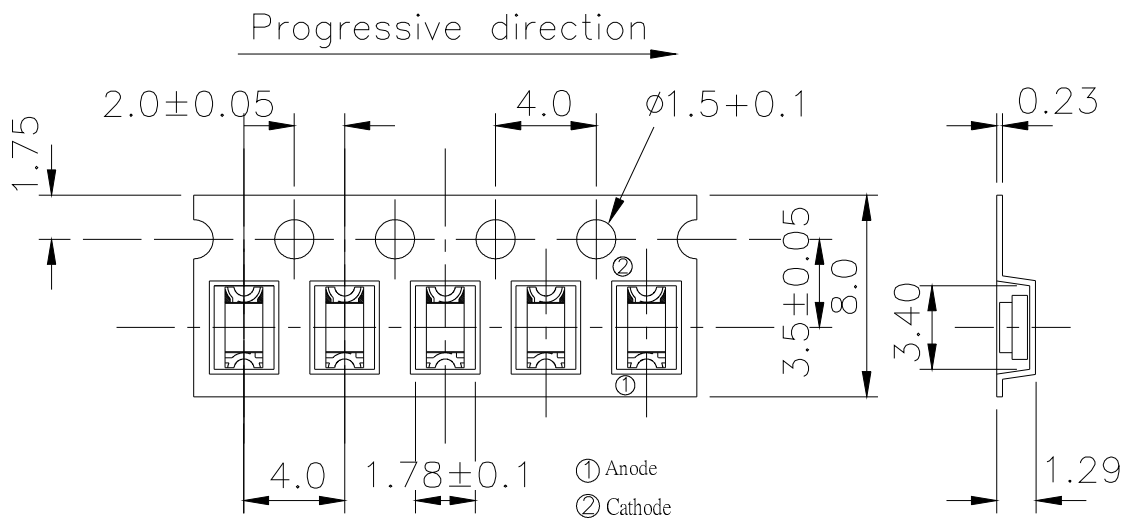
Package Dimensions

1. Reel Dimensions



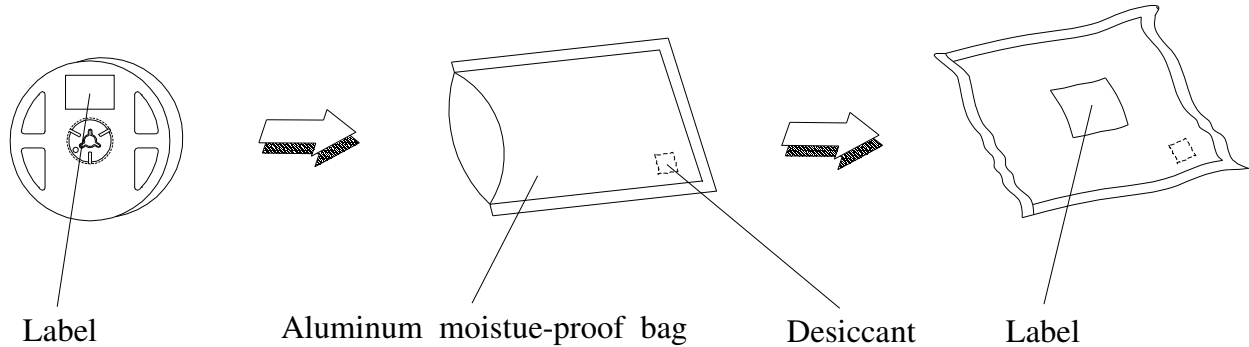
Note: The tolerances unless mentioned is ± 0.1 mm ,Unit = mm

2. Carrier Tape Dimensions:(Quantity: 2000pcs/reel)

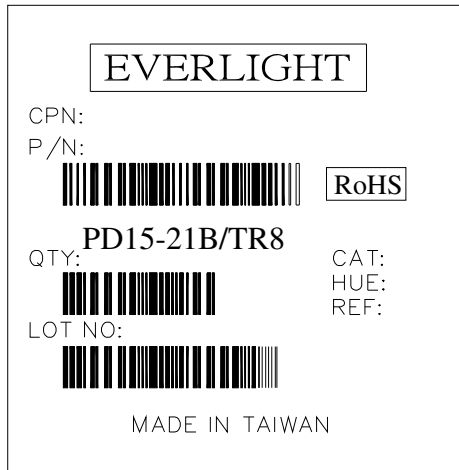


Note: The tolerances unless mentioned is ± 0.1 mm ,Unit = mm

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

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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|-----------------------------------------------|-----------------------------------------------------------------|
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