

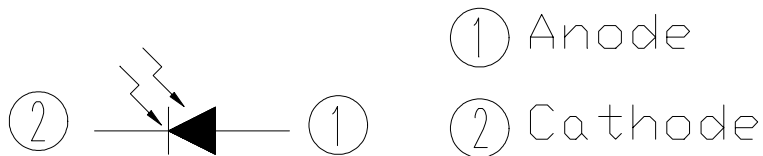
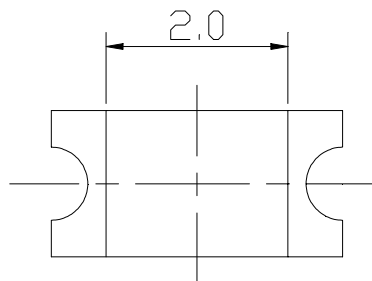
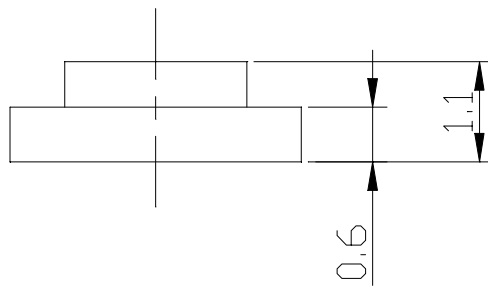
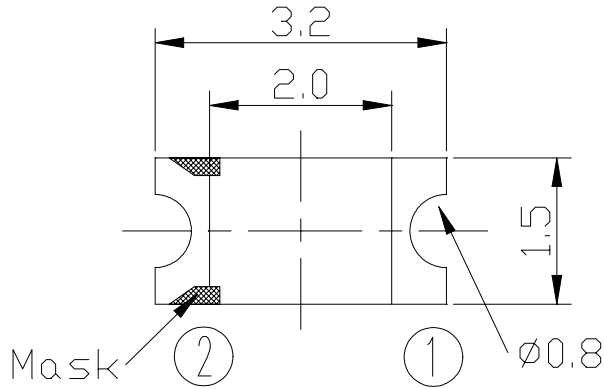


EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DPD-015-057 REV: 1.0

MODEL NO: PD15-21C ECN: _____ Page: 1/7

Package Dimensions:



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©Notes :

- 1.All dimensions are in millimeter.
- 2.General Tolerance: $\pm 0.25\text{mm}$
- 2.Lead spacing is measured where the lead emerge from the package .
- 4.Lens color : Water Clear.
- 5.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 6.These specification sheets include materials protected under copyright of EVERLIGHT corporation . Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.
- 7.When using this product , please observe the absolute maximum ratings and the instructions for use 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.

Description

PD15-21C is a high speed and high sensitive PIN photodiode in miniature SMD which is molder in a water clear with flat top view lens.The device is spectrally matched with the infrared emitting diode.

Features

- High photo sensitivity
- Fast response time
- Small junction capacitance

Applications

- High speed photo detector
- Optoelectronic swithces
- Game machines



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Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Rating | Unit |
|--|-----------|-----------|------|
| Reverse Voltage | V_R | 33 | V |
| Power Dissipation | P_d | 150 | mW |
| Lead Soldering Temperature (1/16 inch from body for 5 sec.) | T_{sol} | 260 | °C |
| Operating Temperature Range | T_{opr} | -25 to+85 | °C |
| Storage Temperature Range | T_{stg} | -40 to+85 | °C |

Electro Optical Characteristics (Ta=25°C)

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|--------------------------------|-----------------|-----|------|------|---------|---|
| Rang of Spectral Bandwidth | $\lambda_{0.5}$ | 400 | | 1200 | nm | ----- |
| Wavelength of Peak Sensitivity | λ_p | | 980 | | nm | ----- |
| Open-Circuit Voltage | V_{oc} | | 0.42 | | V | $E_e=5m W/c m^2$ |
| Short-Circuit Current | I_{sc} | | 2.8 | | μA | $\lambda_p=940nm$ |
| Reverse Light Current | I_L | | 3.0 | | μA | $E_e=5m W/c m^2$ $\lambda_p=940nm, V_R=5V$ |
| Dark Current | I_d | | | 10 | nA | $E_e=0m W/c m^2$ $V_R=10V$ |
| Reverse Breakdown Voltage | BV_R | 33 | 170 | | V | $E_e=0m W/c m^2$ $I_R=100\mu A$ |
| Terminal Capacitance | C_t | | 5 | | pF | $E_e=0m W/c m^2$ $V_R=5V, f=1MHz$ |
| Rise/Fall Time | t_r/t_f | | 6/6 | | nS | $V_R=10V$ $R_L=1K\Omega$ |



Typical Electrical/Optical/Characteristics Curves

Fig. 1 Power Dissipation vs. Ambient Temperature

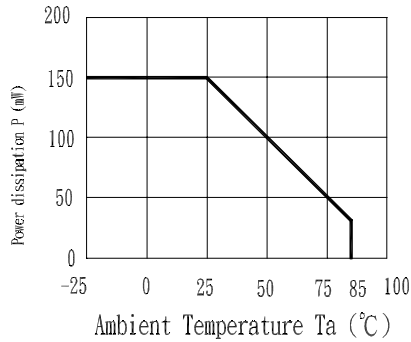


Fig. 2 Spectral Sensitivity

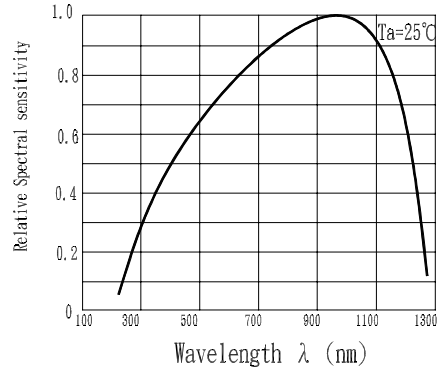


Fig. 3 Dark Current vs. Ambient Temperature

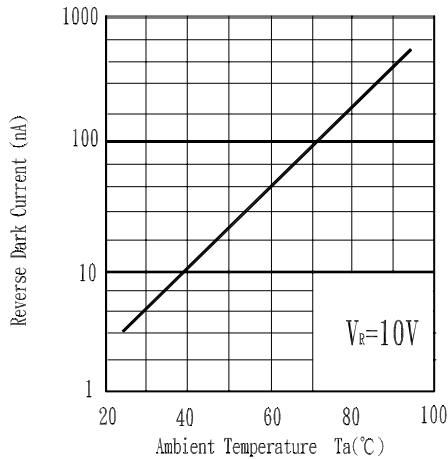


Fig. 4 Reverse Light Current vs. E_e

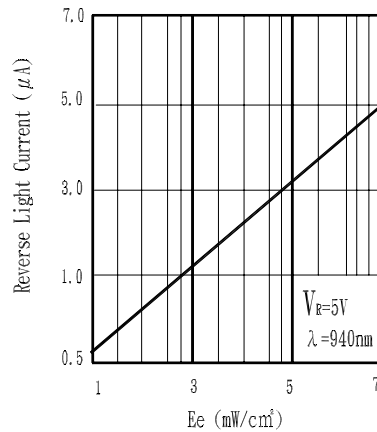


Fig. 5 Terminal Capacitance vs. Reverse Voltage

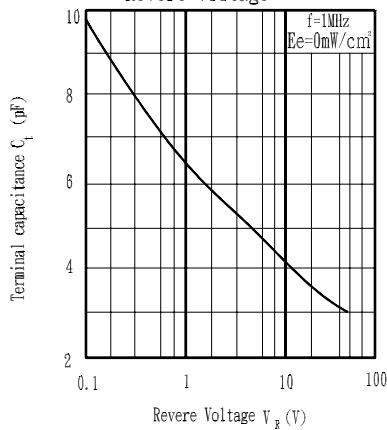
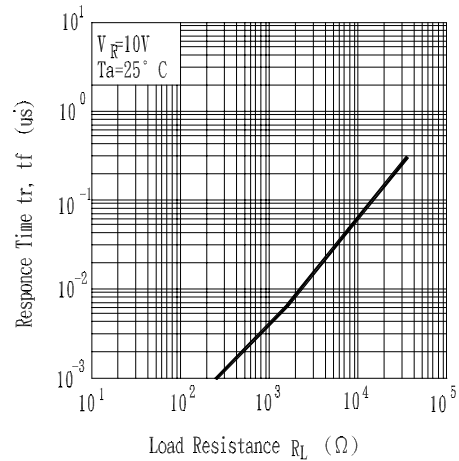


Fig. 6 Response Time vs. Load Resistance





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Reliability

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

Confidence level : 90%

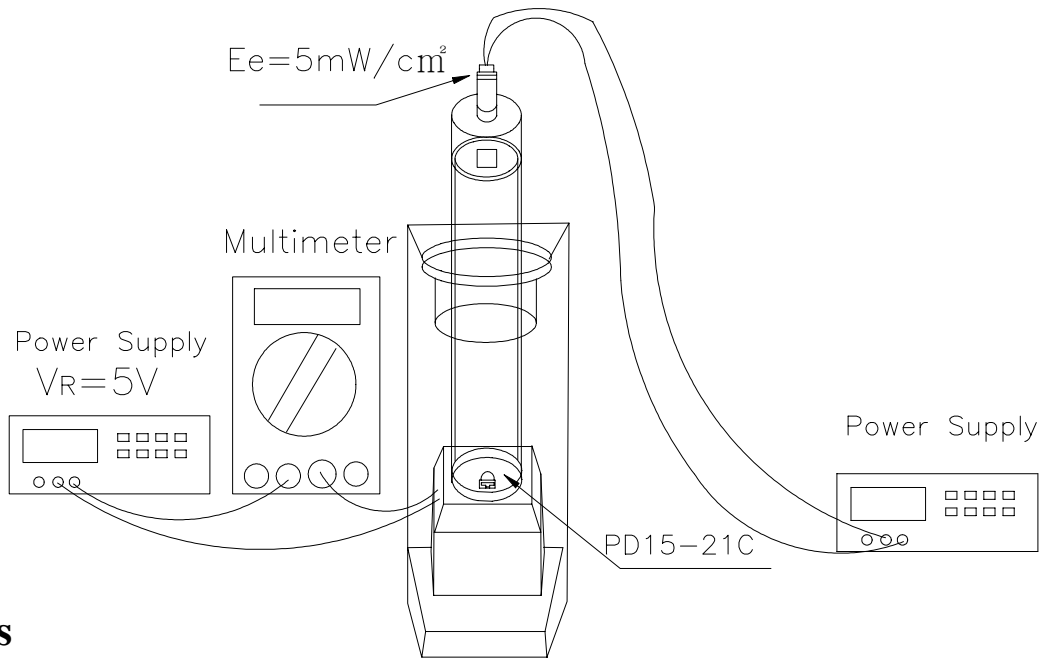
LTPD : 10%

| Test Items | Test Conditions | Failure Judgement Criteria | Samples(n) |
|--------------------------------|---|--|--|
| | | | Defective(c) |
| Operation life | $V_R=5V$, $T_a : 25^\circ C$ 1000hrs | $I_L \leq L \times 0.8$ L : Lower specification limit | n =22 , c=0 |
| Temperature cycle | 1cycle $-55^\circ C$ to $+25^\circ C$ to $+85^\circ C$ (30min) (5min) (30min) 50 cycle test | | n =22 , c=0 |
| Thermal shock | $-10^\circ C$ to $+100^\circ C$ (5min) (10sec) (5min) 50cycle test | | n =22 , c=0 |
| High temperature storage | Temp : $+100^\circ C$ 1000hrs | | n =22 , c=0 |
| Low temperature storage | Temp : $-55^\circ C$ 1000hrs | | n =22 , c=0 |
| High temperature High humidity | $T_a : 85^\circ C$ RH : 85% 1000hrs | | n =22 , c=0 |
| Solderability | Temp : $230 \pm 5^\circ C$ 5sec 2mm Form the bottom of the package. | | More than 90% of Lead to be covered by soldering |

Test Method For Reverse Light Current

Condition : $E_e=5mW/cm^2$, $V_R=5V$

Test Item : Reverse Light Current (unit : μA)



Supplements

1.Parts

(1) Chip

| Type | Material | Wavelength of Peak Sensitivity |
|------|----------|--------------------------------|
| PD | Silicon | 980nm |

(2) Material

| Type | Lead Frame | Wire | Package |
|----------|------------|------|---------|
| Material | BT | Gold | Epoxy |



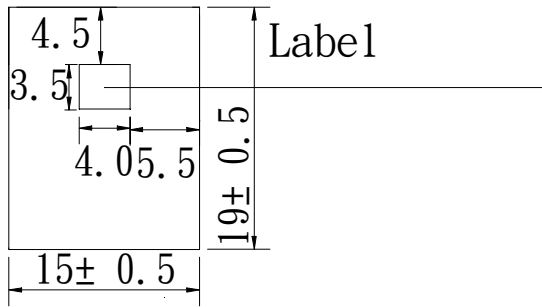
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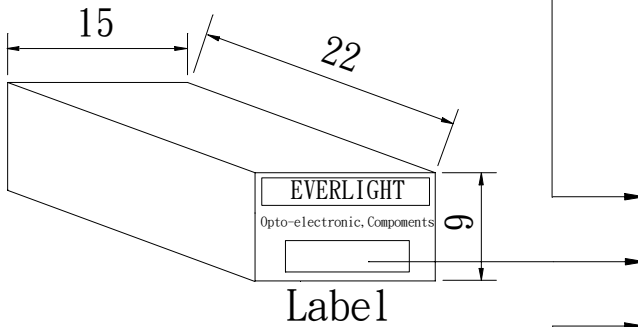
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Packing Specifications

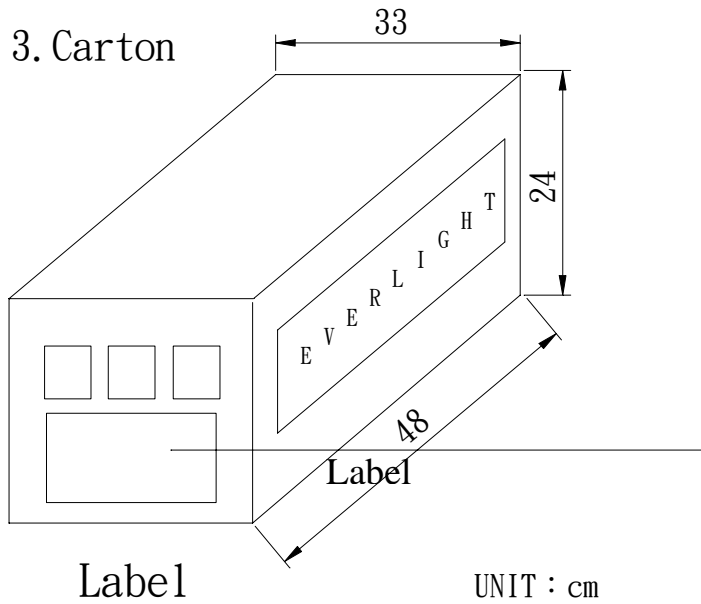
1. Bag



2. Box



3. Carton



- 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

Packing Quantity Specification

- 1.1000Pcs/1Bag , 10Bags/1Box
- 2.10Boxes/1Carton