



## Technical Data Sheet

### 3mm Silicon PIN Photodiode T-1

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#### PD204-6C/L3

#### Features

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

#### Descriptions

PD204-6C/L3 is a high speed and high sensitive PIN photodiode in a standard 3 $\Phi$  plastic package. Due to its water clear epoxy the device is sensitive to visible and infrared radiation.



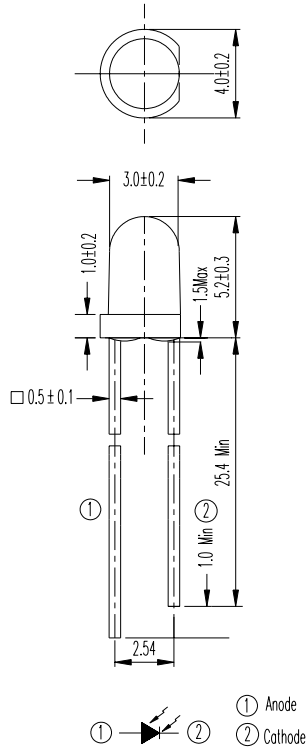
#### Applications

- Automatic door sensor
- Camera
- Game machine
- High speed photo detector

#### Device Selection Guide

| LED Part No. | Chip     | Lens Color  |
|--------------|----------|-------------|
|              | Material |             |
| PD           | Silicon  | Water clear |

**Package Dimensions**



- Notes:** 1.All dimensions are in millimeters  
 2.Tolerances unless dimensions  $\pm 0.25\text{mm}$

**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                                       | $T_{sol}$ | 260       | °C    |
| Power Dissipation at(or below)<br>25°C Free Air Temperature | $P_c$     | 150       | mW    |

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

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

| Parameter                      | Symbol          | Condition   | Min | Typ  | Max  | Unit          |
|--------------------------------|-----------------|---|-----|------|------|---------------|
| Rang Of Spectral Bandwidth     | $\lambda_{0.5}$ | ---   | 400 | ---  | 1100 | nm            |
| Wavelength Of Peak Sensitivity | $\lambda_p$     | ---   | --- | 940  | ---  | nm            |
| Open-Circuit Voltage           | $V_{OC}$        | Ee=5mW/cm <sup>2</sup><br>$\lambda_p=940\text{nm}$                    | --- | 0.44 | ---  | V             |
| Short- Circuit Current         | $I_{SC}$        | Ee=1mW/cm <sup>2</sup><br>$\lambda_p=940\text{nm}$                    | --- | 10   | ---  | $\mu\text{A}$ |
| Reverse Light Current          | $I_L$           | Ee=1mW/cm <sup>2</sup><br>$\lambda_p=940\text{nm}$<br>$V_R=5\text{V}$ | --- | 10   | ---  | $\mu\text{A}$ |
| Reverse Dark Current           | $I_D$           | Ee=0mW/cm <sup>2</sup><br>$V_R=10\text{V}$                            | --- | ---  | 10   | nA            |
| Reverse Breakdown Voltage      | $B_{VR}$        | Ee=0mW/cm <sup>2</sup><br>$I_R=100\mu\text{A}$                        | 32  | 170  | ---  | V             |
| Total Capacitance              | $C_t$           | Ee=0mW/cm <sup>2</sup><br>$V_R=5\text{V}$<br>$f=1\text{MHz}$          | --- | 10   | ---  | pF            |
| Rise Time                      | $t_r$           | $V_R=10\text{V}$<br>$R_L=100\Omega$                                   | --- | 10   | ---  | nS            |
| Fall Time                      | $t_f$           |   | --- | 10   | ---  |               |

**Typical Electro-Optical Characteristics Curves**

Fig.1 Power Dissipation vs. Ambient Temperature

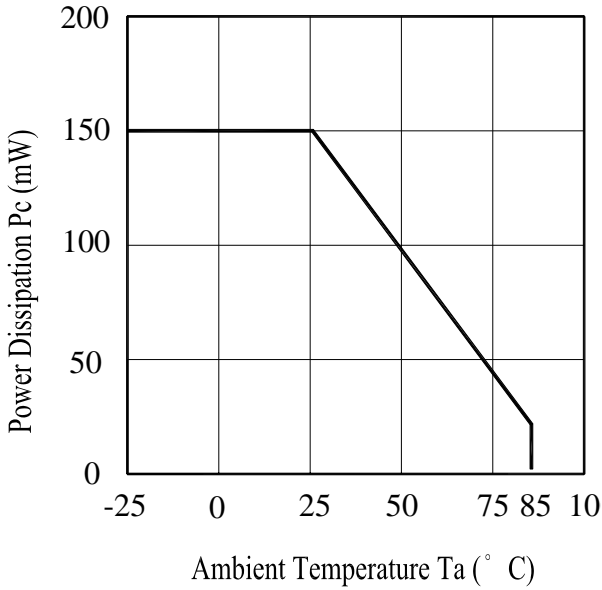


Fig.2 Spectral Sensitivity

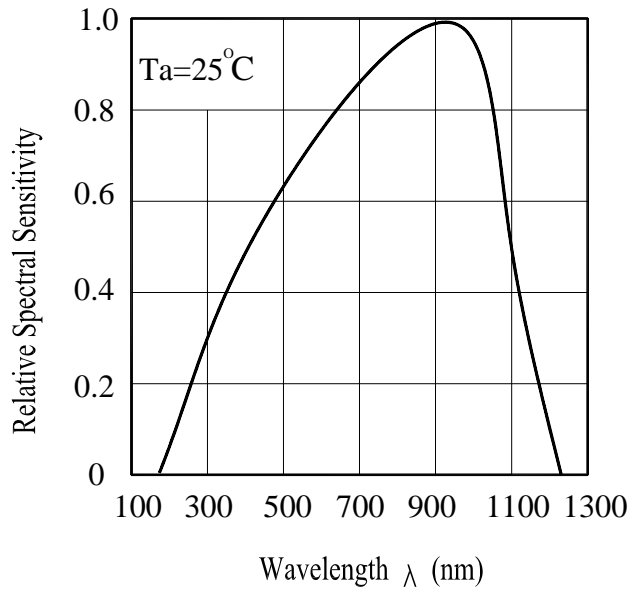


Fig.3 Dark Current vs. Ambient Temperature

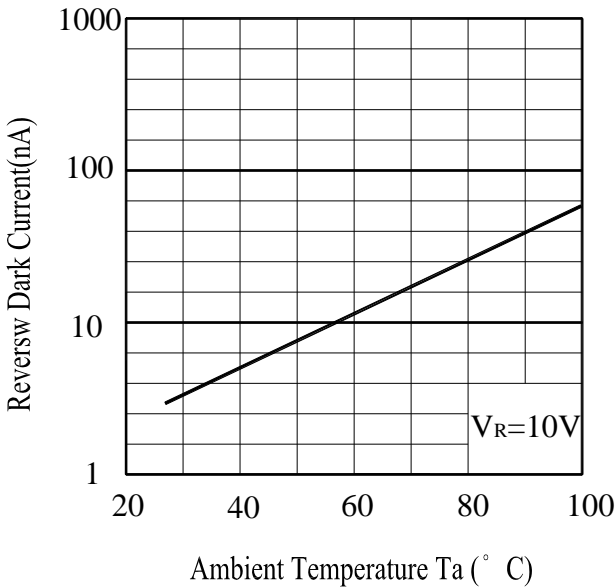
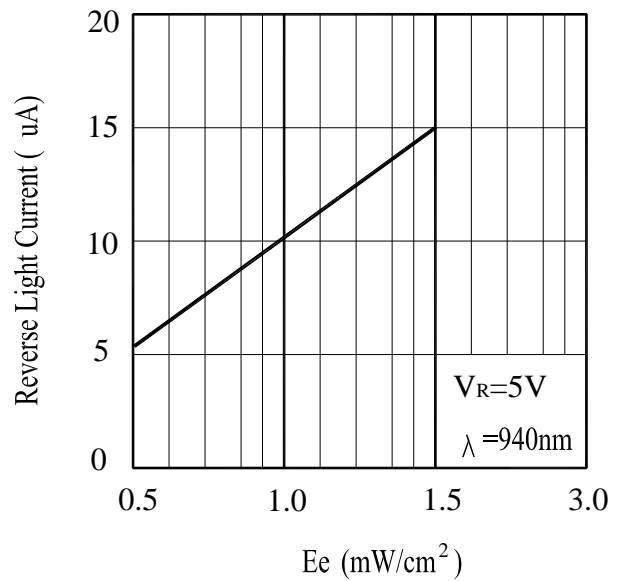


Fig. 4 Reverse Light Current vs.  $E_e$



**Typical Electro-Optical Characteristics Curves**

Fig.5 Terminal Capacitance vs.

Reverse Voltage

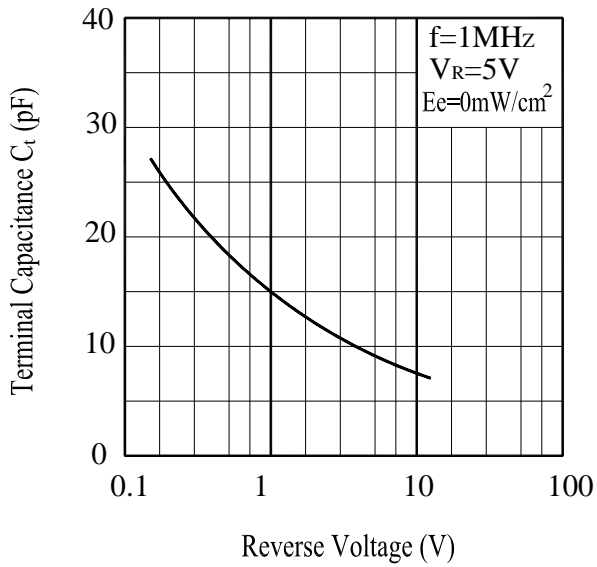
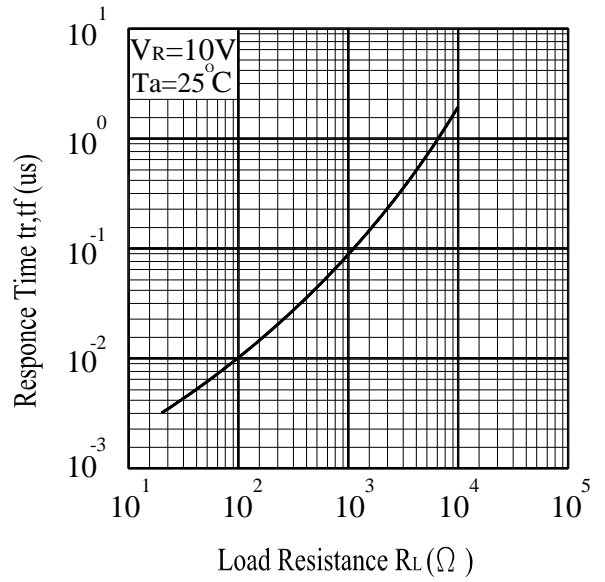


Fig.6 Response Time vs.

Load Resistance



**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/<br>Cycles | Sample<br>Sizes | Failure<br>Judgement<br>Criteria         | Ac/Re |
|-----|------------------------------------|--|-----------------------|-----------------|--|-------|
| 1   | Solder Heat                        | TEMP. : 260°C±5°C  | 10secs                | 22pcs           |  | 0/1   |
| 2   | Temperature Cycle                  | H : +100°C    15mins<br><div style="text-align: center;"> <math>\updownarrow</math><br/>                     5mins<br/> <math>\updownarrow</math><br/>                     15mins                 </div> L : -40°C    15mins | 50Cycles              | 22pcs           | $I_L \leq L \times 0.8$<br><br>L : Lower | 0/1   |
| 3   | Thermal Shock                      | H : +100°C    5mins<br><div style="text-align: center;"> <math>\updownarrow</math><br/>                     10secs<br/> <math>\updownarrow</math><br/>                     5mins                 </div> L : -10°C    5mins   | 50Cycles              | 22pcs           | Specification<br>Limit                   | 0/1   |
| 4   | High Temperature<br>Storage        | TEMP. : +100°C   | 1000hrs               | 22pcs           |  | 0/1   |
| 5   | Low Temperature<br>Storage         | TEMP. : -40°C  | 1000hrs               | 22pcs           |  | 0/1   |
| 6   | DC Operating Life                  | $V_R=5V$   | 1000hrs               | 22pcs           |  | 0/1   |
| 7   | High Temperature/<br>High Humidity | 85°C / 85% R.H   | 1000hrs               | 22pcs           |  | 0/1   |

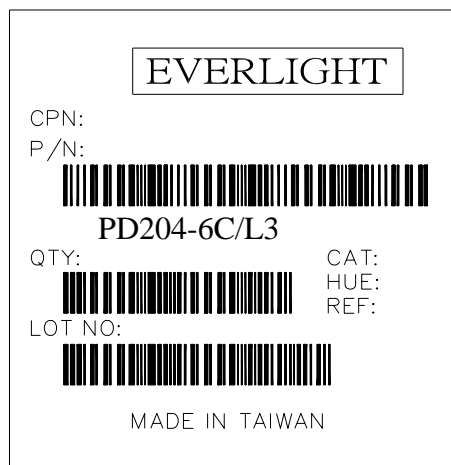


## Packing Quantity Specification

1.1000PCS/1Bag · 4Bags/1Box

2.10Boxes/1Carton

## 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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