

## 4.8mm Semi-Lens Silicon PIN Photodiode PD438B

### Features

- Fast response times
- High photo sensitivity
- Small junction capacitance
- Pb free
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH

### Description

- PD438B is a high speed and sensitive PIN photodiode in a cylindrical side view plastic package. The epoxy package itself is an IR filter , spectrally matched to IR emitter.

### Applications

- High speed photo detector
- Camera
- Optoelectronic switch
- VCRs , Video camera

## Device Selection Guide

| Chip Materials | Lens Color |
|----------------|------------|
| Silicon        | Black      |

## Absolute Maximum Ratings (Ta=25°C)

| Parameter                 | Symbol    | Rating     | Unit |
|---------------------------|-----------|------------|------|
| Reverse Voltage           | $V_R$     | 32         | mA   |
| Power Dissipation         | $P_d$     | 150        | mW   |
| Operating Temperature     | $T_{opr}$ | -40 ~ +85  | °C   |
| Storage Temperature       | $T_{stg}$ | -40 ~ +100 | °C   |
| Soldering Temperature(*1) | $T_{sol}$ | 260        | °C   |

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

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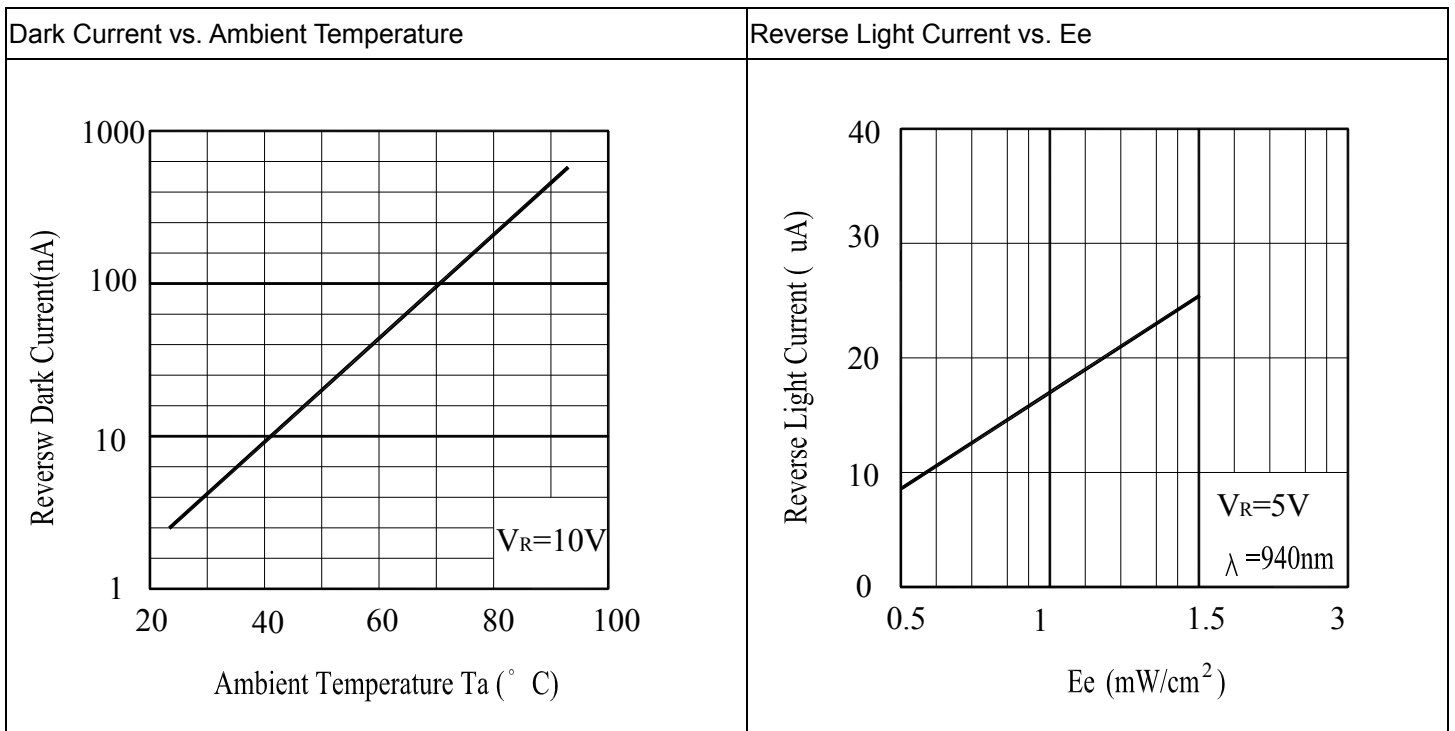
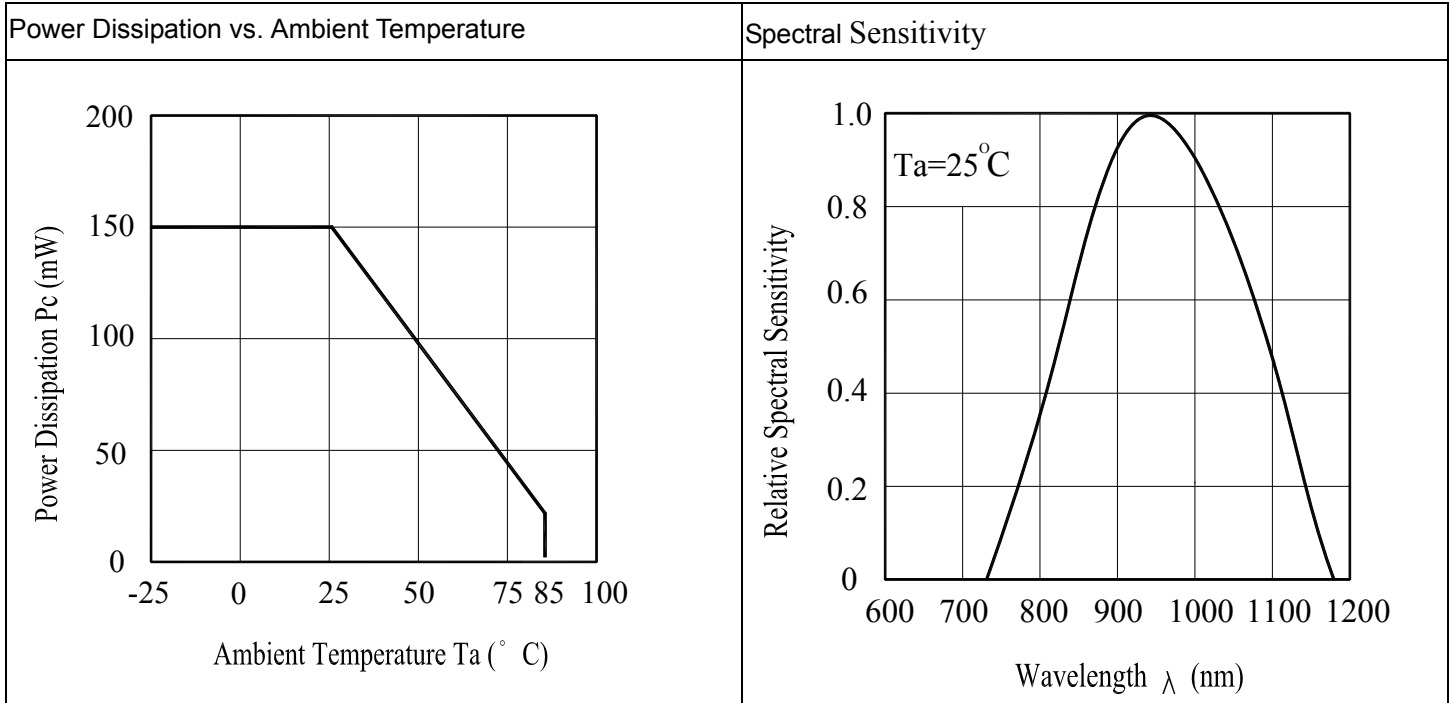
**Electro-Optical Characteristics (Ta=25°C)**

| Parameter                      | Symbol          | Min.  | Typ.  | Max.  | Unit          | Condition  |
|--------------------------------|-----------------|-------|-------|-------|---------------|--|
| Rang of Spectral Bandwidth     | $\lambda_{0.5}$ | 400   | ----- | 1100  | nm            | -----  |
| Wavelength of Peak Sensitivity | $\lambda_p$     | ----- | 940   | ----- | nm            | -----  |
| Open-Circuit Voltage           | VOC             | ----- | 0.35  | ----- | V             | Ee=5m W/cm2<br>$\lambda_p=940\text{nm}$          |
| Short- Circuit Current         | ISC             | ----- | 18    | ----- | $\mu\text{A}$ | Ee=1m W/cm2<br>$\lambda_p=940\text{nm}$          |
| Reverse Light Current          | $I_L$           | 10.2  | 18    | ----- | $\mu\text{A}$ | Ee=1m W/cm2<br>$\lambda_p=940\text{nm}$<br>VR=5V |
| Dark Current                   | $I_d$           | ----  | 5     | 30    | nA            | Ee=0m W/cm2<br>VR=10V                            |
| Reverse Breakdown              | BVR             | 32    | 170   | ----- | V             | Ee=0m W/cm2<br>IR=100 $\mu\text{A}$              |
| Total Capacitance              | Ct              | ----  | 25    | ----  | pF            | Ee=0m W/cm2<br>VR=3V<br>f=1MHZ                   |
| Rise/Fall Time                 | tr/tf           | ----  | 50/50 | ----  | nS            | VR=10V<br>RL=1K $\Omega$                         |

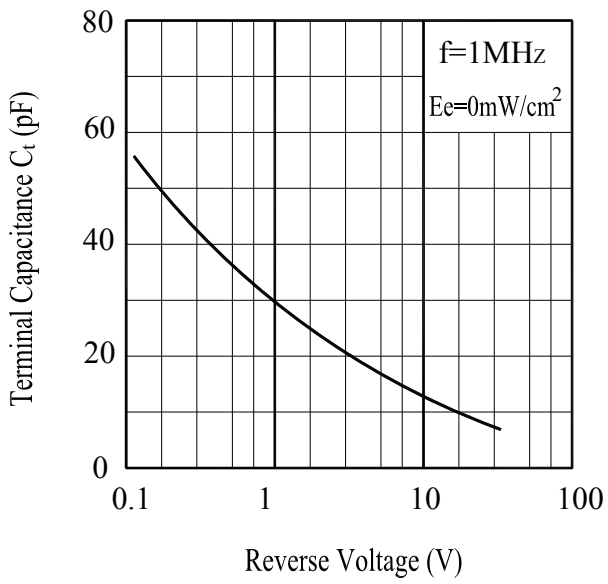
Note:

- Tolerance of Luminous Intensity:  $\pm 10\%$
- Tolerance of Dominant Wavelength:  $\pm 1\text{nm}$
- Tolerance of Forward Voltage:  $\pm 0.1\text{V}$

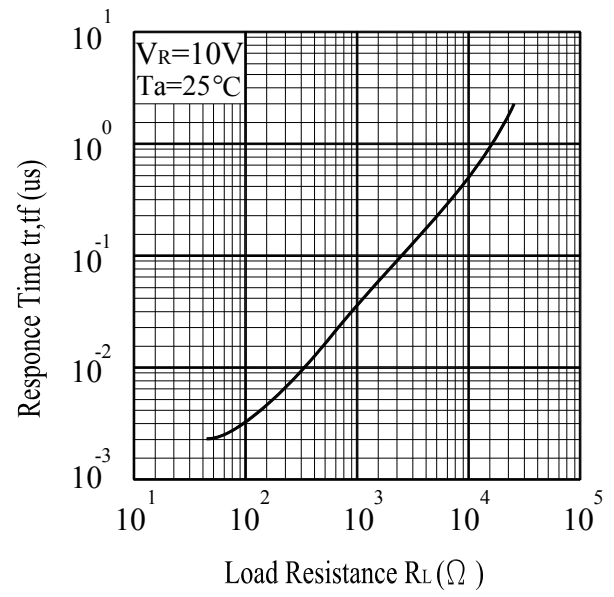
Typical Electro-Optical Characteristics Curves



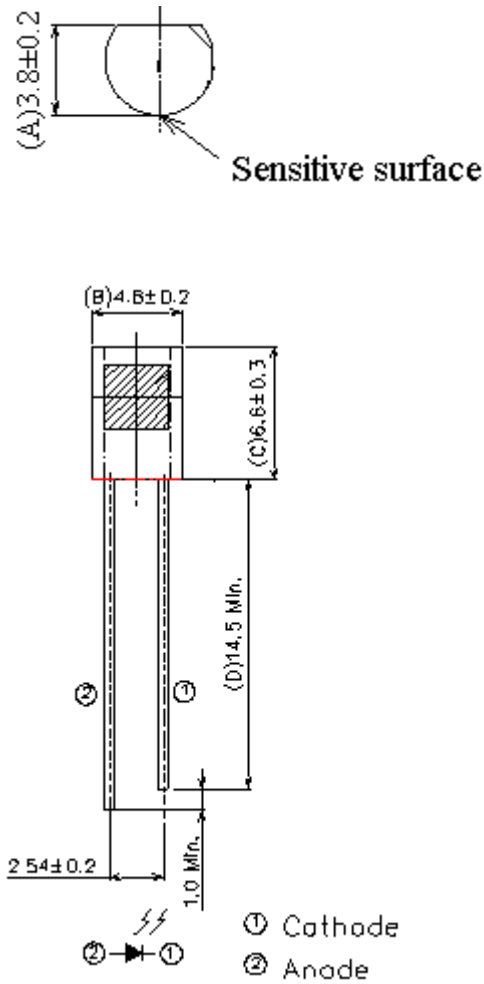
Terminal Capacitance vs. Reverse Voltage



Response Time vs. Load Resistance



## Package Dimension

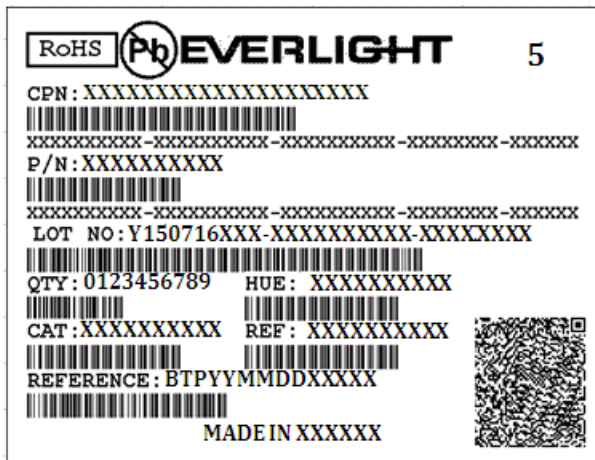


Note: Tolerances unless dimensions  $\pm 0.25$ mm

### Packing Specification

- Packing Quantity
- 1. 500 PCS/1 Bag, 6Bags/1 Inner Carton
- 2. 10Inner Cartons/1 Outside Carton

### Label Form Specification



- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- Reference: Identify Label Number

### Notes:

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