

Technical Data Sheet

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.

Descriptions

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.



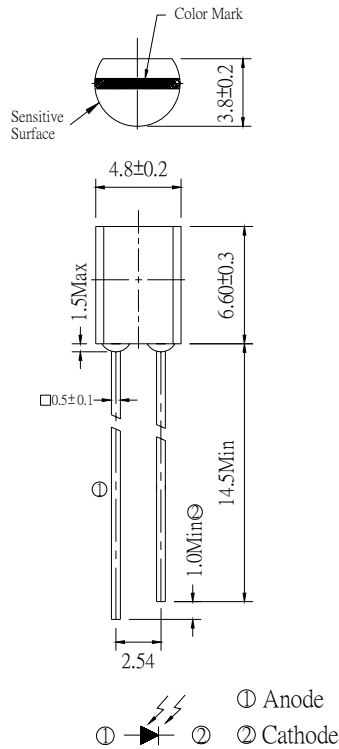
Applications

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

Device Selection Guide

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

Package Dimensions



- Notes:** 1.All dimensions are in millimeters
 2.Tolerances unless dimensions ±0.25mm

Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Rating | Units |
|----------------------------|------------------|-----------|-------|
| Reverse Voltage | V _R | 32 | V |
| Power Dissipation | P _d | 150 | mW |
| Lead Soldering Temperature | T _{sol} | 260 | °C |
| Operating Temperature | T _{opr} | -25 ~ +85 | °C |
| Storage Temperature | T _{stg} | -40 ~ +85 | °C |

Notes: *1:Soldering time ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Units |
|--------------------------------|-----------------|------------------------------------------------------------------------|------|-------|------|---------------|
| Rang of Spectral Bandwidth | $\lambda_{0.5}$ | ----- | 840 | --- | 1100 | nm |
| Wavelength of Peak Sensitivity | λ_p | ----- | --- | 940 | --- | nm |
| Open-Circuit Voltage | V_{OC} | Ee=5m W/cm ² $\lambda_p=940\text{nm}$ | --- | 0.35 | --- | V |
| Short- Circuit Current | I_{SC} | Ee=1m W/cm ² $\lambda_p=940\text{nm}$ | --- | 18 | --- | μA |
| Reverse Light Current | I_L | Ee=1m W/cm ² $\lambda_p=940\text{nm}$ $V_R=5\text{V}$ | 10.2 | 18 | --- | |
| Dark Current | I_d | Ee=0m W/cm ² $V_R=10\text{V}$ | --- | 5 | 30 | nA |
| Reverse Breakdown | BV_R | Ee=0m W/cm ² $I_R=100\mu\text{A}$ | 32 | 170 | --- | V |
| Total Capacitance | C_t | Ee=0m W/cm ² $V_R=3\text{V}$ $f=1\text{MHZ}$ | --- | 25 | --- | pF |
| Rise/Fall Time | t_r/t_f | $V_R=10\text{V}$ $R_L=1\text{K}\Omega$ | --- | 50/50 | --- | nS |

Typical Electro-Optical Characteristics Curves

Fig.1 Power Dissipation vs. Ambient Temperature

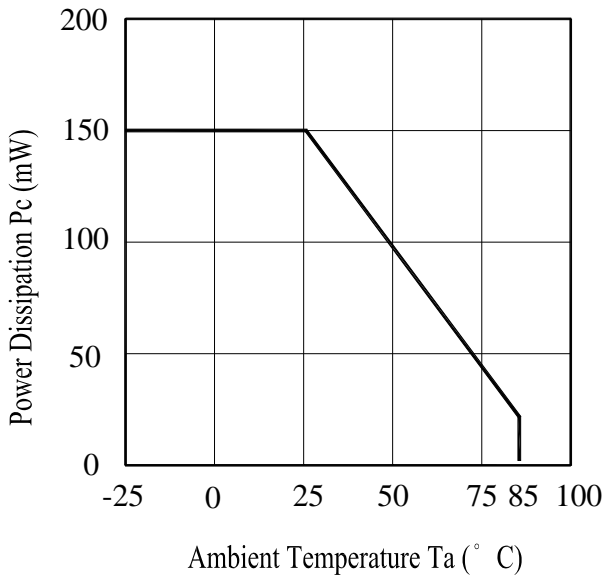


Fig.2 Spectral Sensitivity

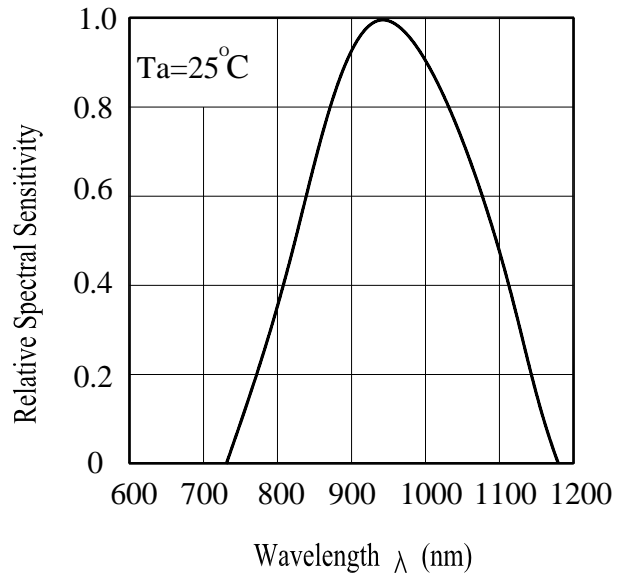


Fig.3 Dark Current vs. Ambient Temperature

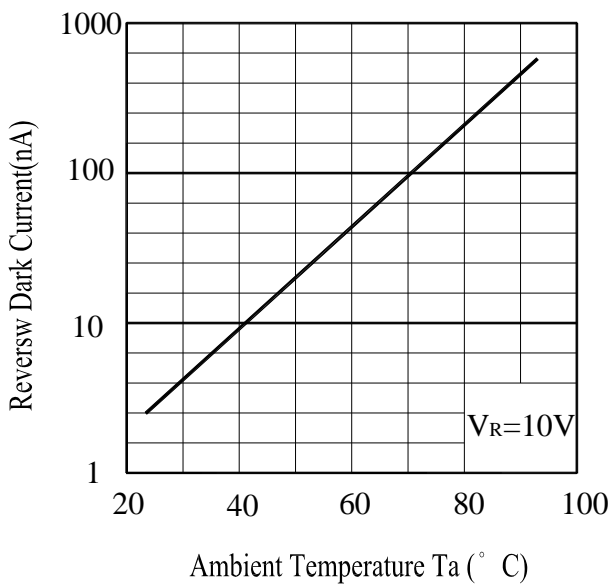
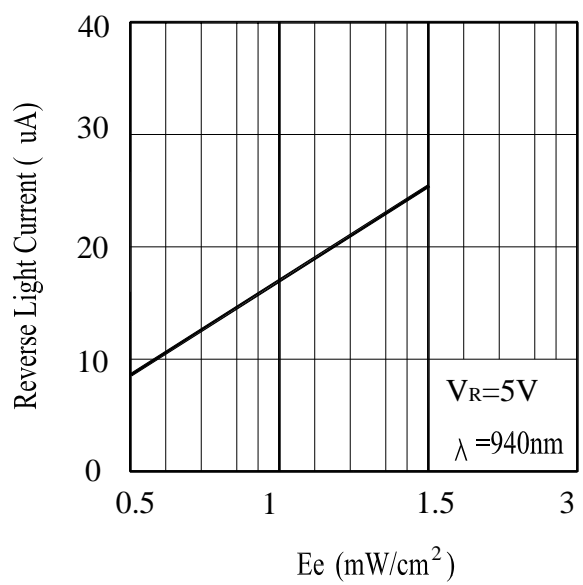


Fig. 4 Reverse Light Current vs. E_e



Typical Electro-Optical Characteristics Curves

Fig.5 Terminal Capacitance vs. Reverse Voltage

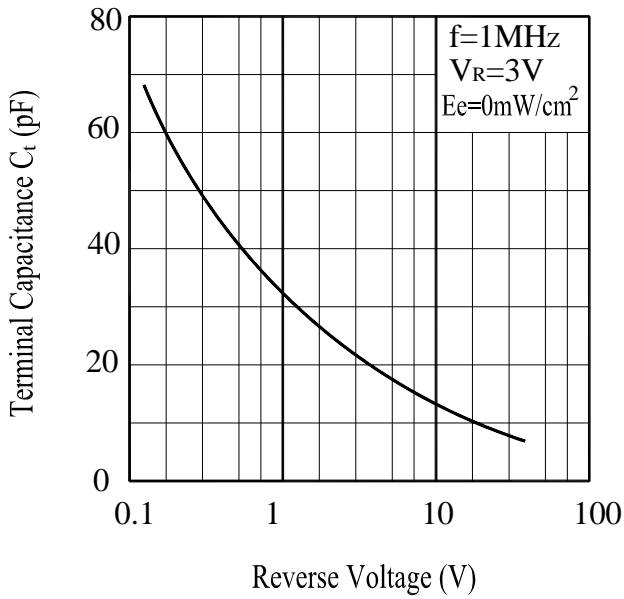
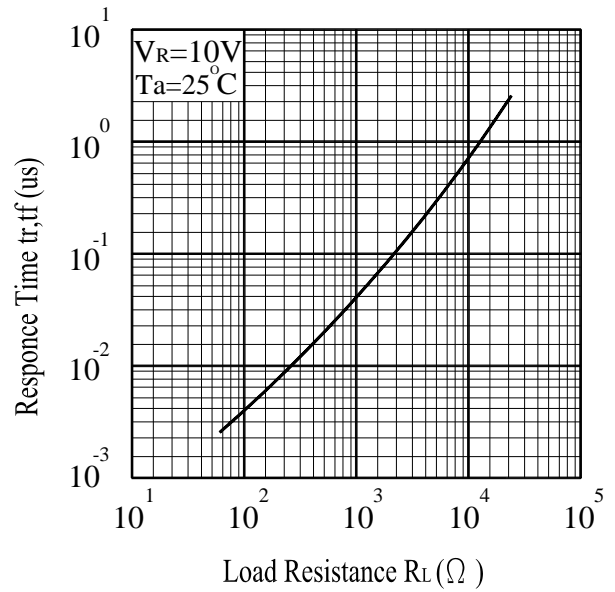


Fig.6 Response Time vs. Load Resistance



Reliability Test Item And Condition

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

Confidence level : 90%

LTPD : 10%

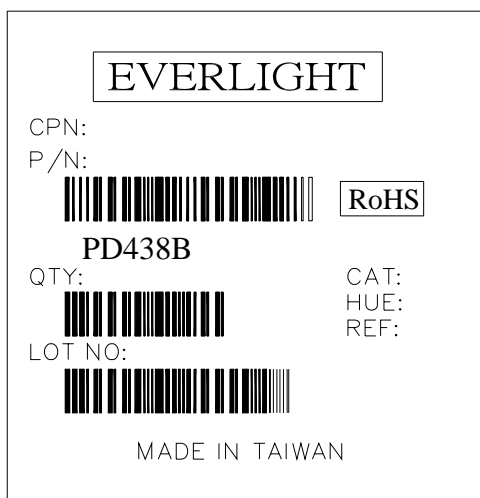
| NO. | Item | Test Conditions | Test Hours/ Cycles | Sample Sizes | Failure Judgement Criteria | Ac/R e |
|-----|------------------------------------|-------------------------------------------------------------|-----------------------|-----------------|------------------------------------------------------------------------|-----------|
| 1 | Solder heat | TEMP. : 260°C±5°C | 10secs | 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 | 300Cycles | 22pcs | | 0/1 |
| 3 | Thermal Shock | H : +100°C 5mins ↑ ↓ 10secs L : -10°C 5mins | 300Cycles | 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 |

Packing Quantity Specification

1.500PCS/1Bag · 6Bags/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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