

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.



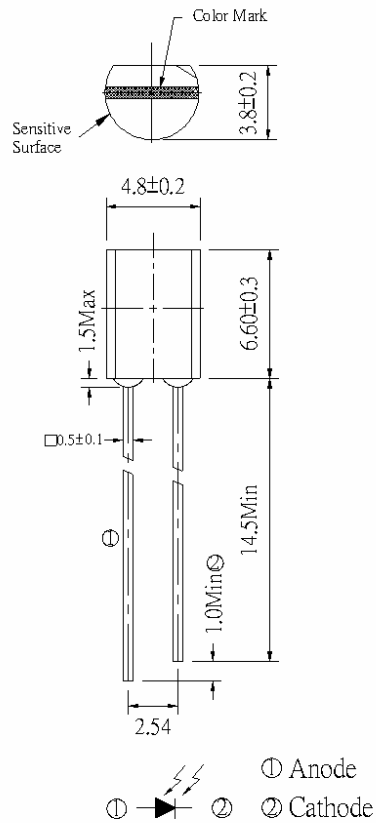
Applications

- 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 ± 0.25 mm

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Units
Reverse Voltage	V_R	32	V
Power Dissipation	P_d	150	mW
Lead Soldering Temperature	T_{sol}	260	$^\circ\text{C}$
Operating Temperature	T_{opr}	$-25 \sim +85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40 \sim +85$	$^\circ\text{C}$

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 λ_p =940nm	---	0.35	---	V
Short- Circuit Current	I _{SC}	Ee=1m W/cm ² λ_p =940nm	---	18	---	μ A
Reverse Light Current	I _L	Ee=1m W/cm ² λ_p =940nm V _R =5V	10.2	18	---	
Dark Current	I _d	Ee=0m W/cm ² V _R =10V	---	5	30	nA
Reverse Breakdown	BV _R	Ee=0m W/cm ² I _R =100 μ A	32	170	---	V
Total Capacitance	C _t	Ee=0m W/cm ² V _R =3V f=1MHZ	---	25	---	pF
Rise/Fall Time	t _r /t _f	V _R =10V R _L =1K Ω	---	50/50	---	nS

Typical Electro-Optical Characteristics Curves

Fig.1 Power Dissipation vs.
Ambient Temperature

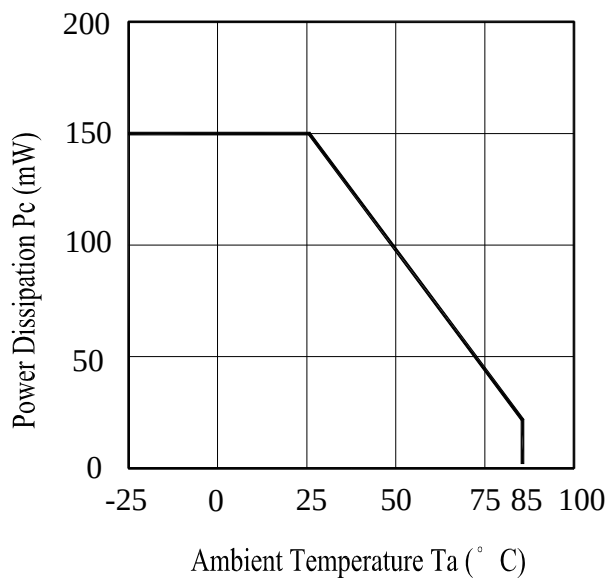


Fig.2 Spectral Sensitivity

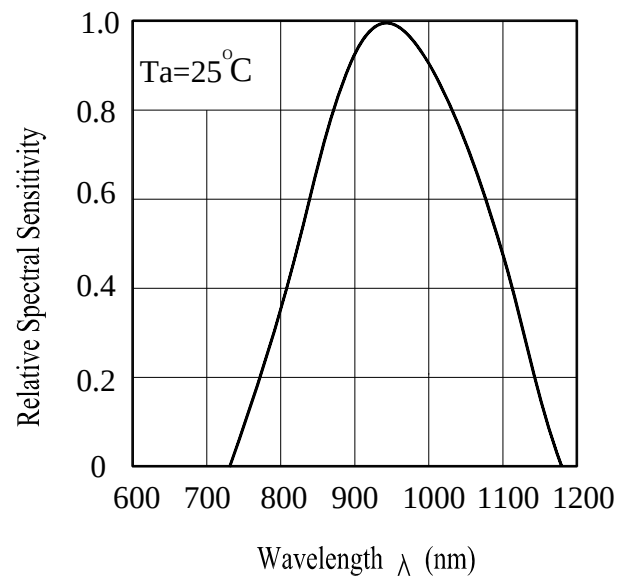


Fig.3 Dark Current vs.
Ambient Temperature

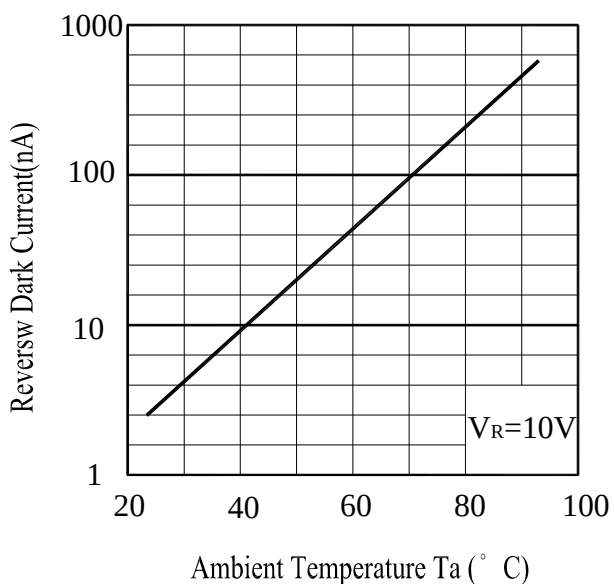
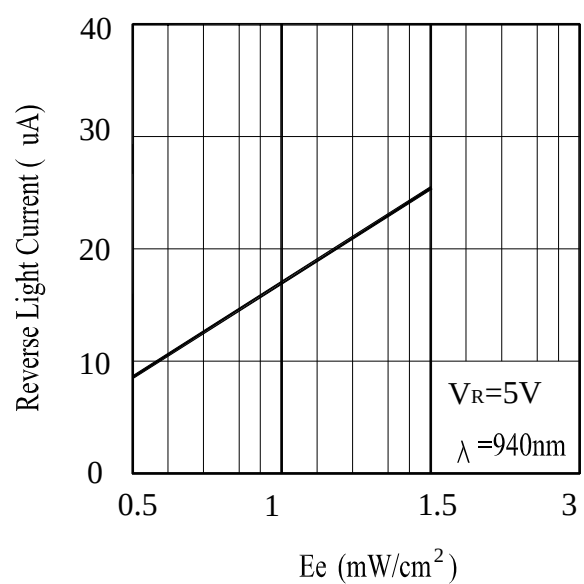


Fig. 4 Reverse Light Current vs.
 E_e



Typical Electro-Optical Characteristics Curves

Fig.5 Terminal Capacitance vs.
Reverse Voltage

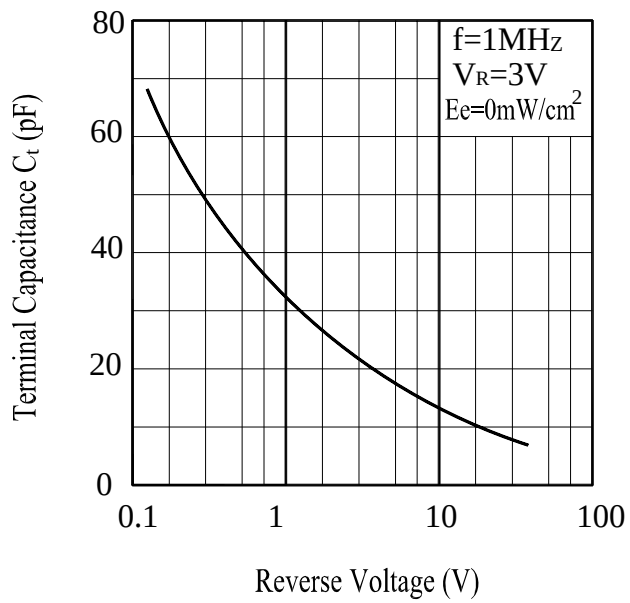
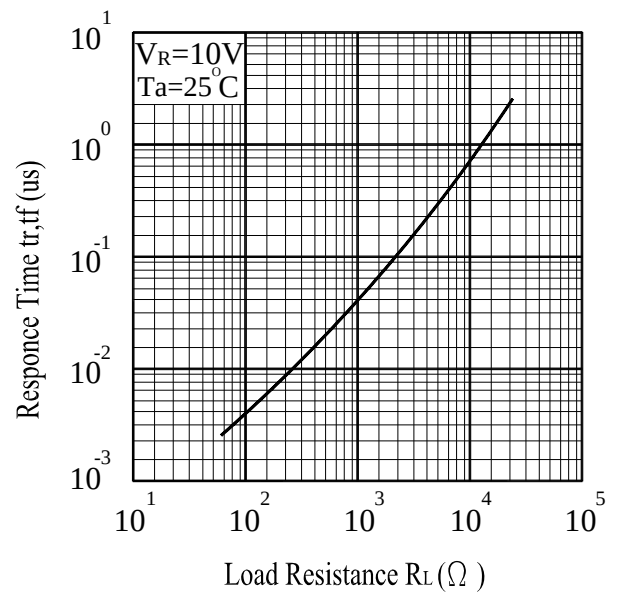


Fig.6 Response Time vs.
Load Resistance



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. : $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$	10secs	22pcs	$I_L \leq L \times 0.8$ L : Lower Specification Limit	0/1
2	Temperature Cycle	H : $+100^{\circ}\text{C}$ 15mins ↓ 5mins L : -40°C 15mins	300Cycles	22pcs		0/1
3	Thermal Shock	H : $+100^{\circ}\text{C}$ 5mins ↓ 10secs L : -10°C 5mins	300Cycles	22pcs		0/1
4	High Temperature Storage	TEMP. : $+100^{\circ}\text{C}$	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : -40°C	1000hrs	22pcs		0/1
6	DC Operating Life	$V_R = 5\text{V}$	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

EVERLIGHT	
CPN:	
P/N:	
	RoHS
PD438B	
QTY:	CAT:
	HUE:
LOT NO:	REF:
	
MADE IN TAIWAN	

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