

## DATASHEET

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### PD438B/S46

#### 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



#### Descriptions

PD438B/S46 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	
PD438B/S46	Silicon	Black

### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Reverse Voltage	V <sub>R</sub>	32	V
Power Dissipation	P <sub>d</sub>	150	mW
Lead Soldering Temperature	T <sub>sol</sub>	260	°C
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +100	°C

Notes: \*1:Soldering time  $\leq$  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	$\lambda_p$	-----	---	940	---	nm
Open-Circuit Voltage	V <sub>OC</sub>	Ee=5m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	0.35	---	V
Short- Circuit Current	I <sub>SC</sub>	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$	---	18	---	$\mu\text{ A}$
Reverse Light Current	I <sub>L</sub>	Ee=1m W/cm <sup>2</sup> $\lambda_p=940\text{nm}$ V <sub>R</sub> =5V	10.2	18	---	
Dark Current	I <sub>d</sub>	Ee=0m W/cm <sup>2</sup> V <sub>R</sub> =10V	---	5	30	nA
Reverse Breakdown	BV <sub>R</sub>	Ee=0m W/cm <sup>2</sup> I <sub>R</sub> =100 $\mu\text{ A}$	32	170	---	V
Total Capacitance	C <sub>t</sub>	Ee=0m W/cm <sup>2</sup> V <sub>R</sub> =5V f=1MHZ	---	18	---	pF
Rise/Fall Time	t <sub>r</sub> /t <sub>f</sub>	V <sub>R</sub> =10V R <sub>L</sub> =1KΩ	---	50/50	---	nS

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

Fig.1 Power Dissipation vs.  
Ambient Temperature

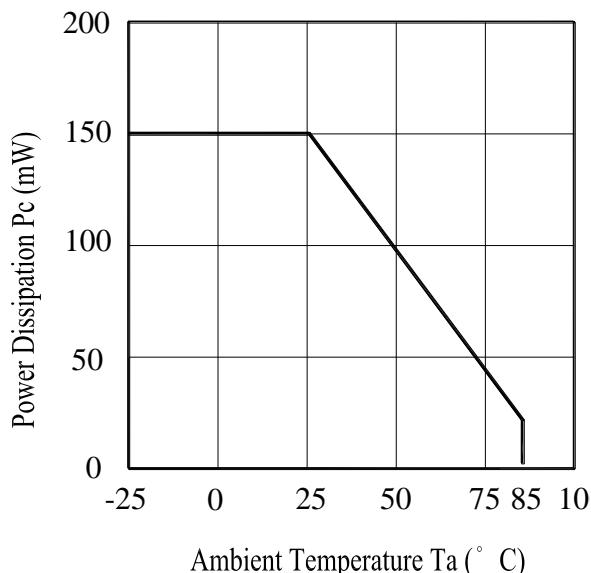


Fig.3 Dark Current vs.  
Ambient Temperature

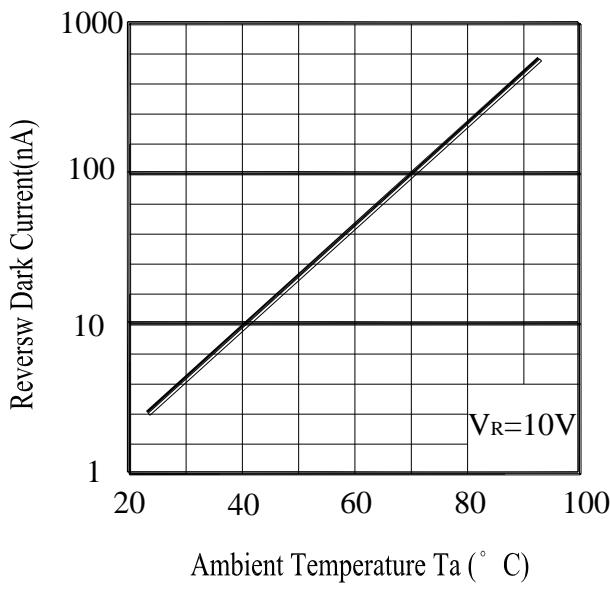


Fig.2 Spectral Sensitivity

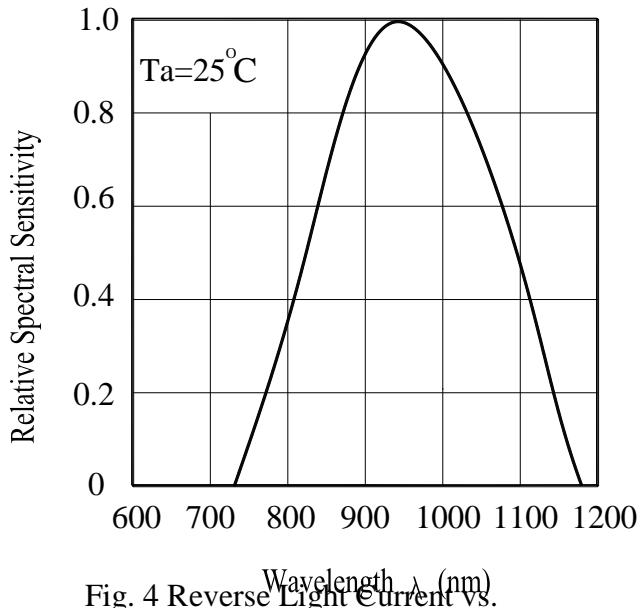
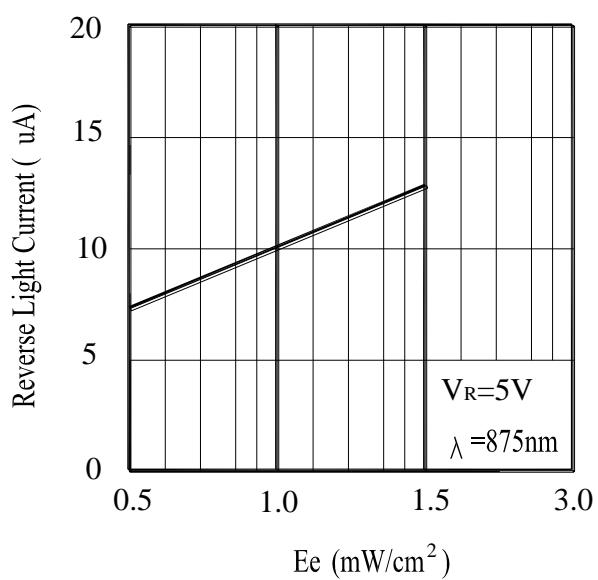
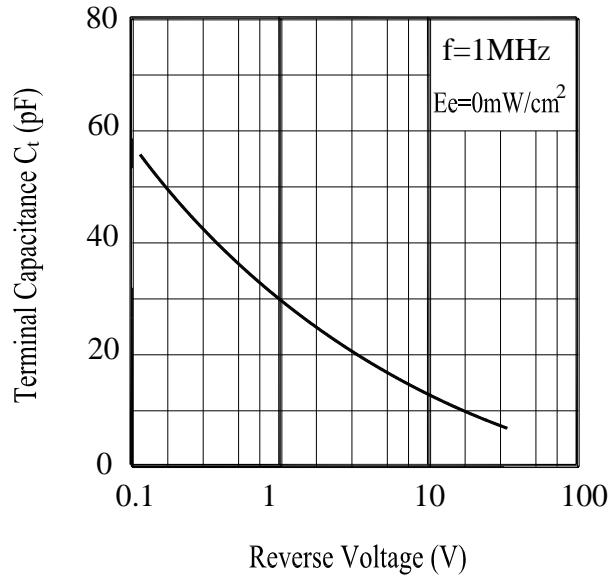
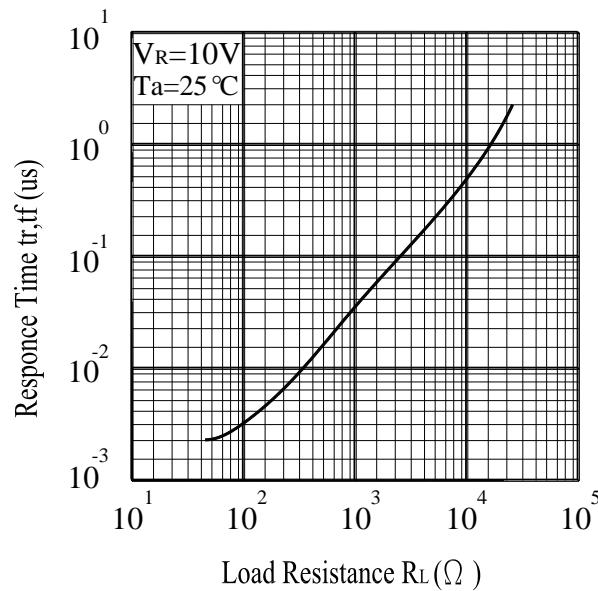
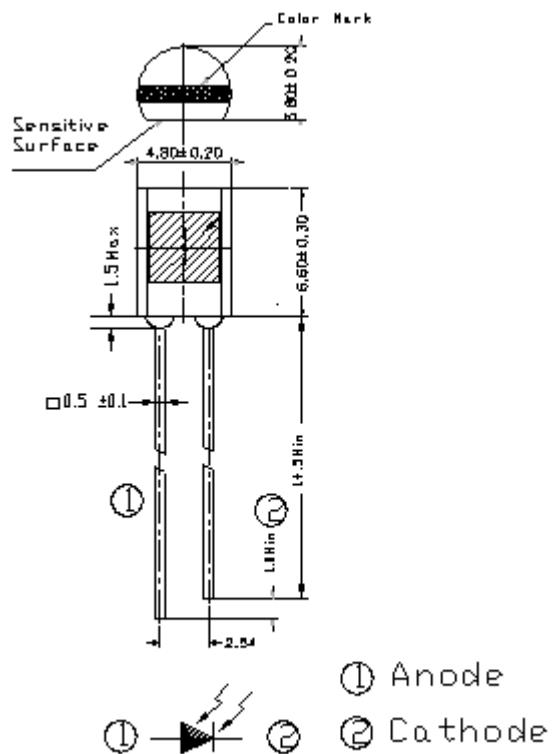


Fig. 4 Reverse Light Current vs.  
Ee



**Typical Electro-Optical Characteristics Curves**Fig.5 Terminal Capacitance vs.  
Reverse VoltageFig.6 Response Time vs.  
Load Resistance

## Package Dimension



Note: Tolerances unless dimensions  $\pm 0.25$ mm

### Packing Specification

#### ■ Packing Quantity

1. 200~500 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

### DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. 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 the 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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