

### 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 ≤ 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> =1K $\Omega$	---	50/50	---	nS

Note:

- Tolerance of Luminous Intensity: ±10%
- Tolerance of Dominant Wavelength: ±1nm
- Tolerance of Forward Voltage: ±0.1V

**Typical Electro-Optical Characteristics Curves**

Fig.1 Power Dissipation vs. Ambient Temperature

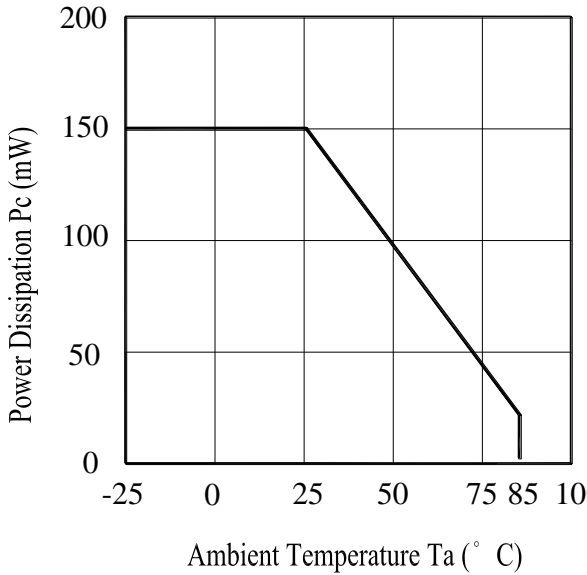


Fig.2 Spectral Sensitivity

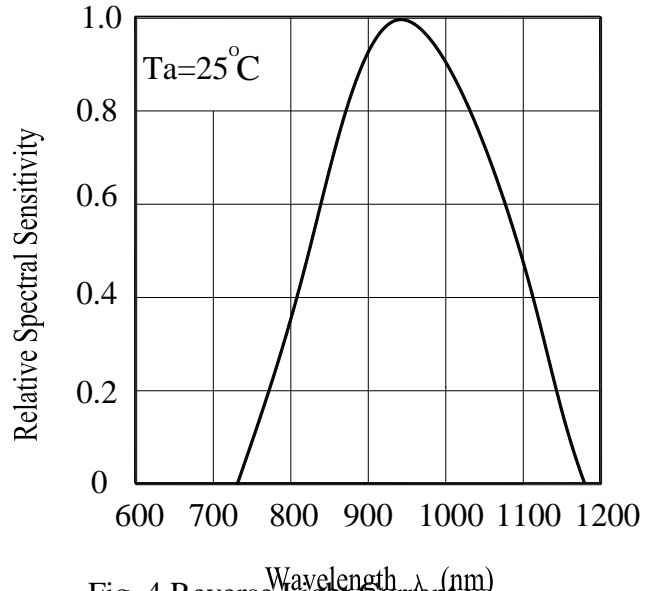


Fig.3 Dark Current vs. Ambient Temperature

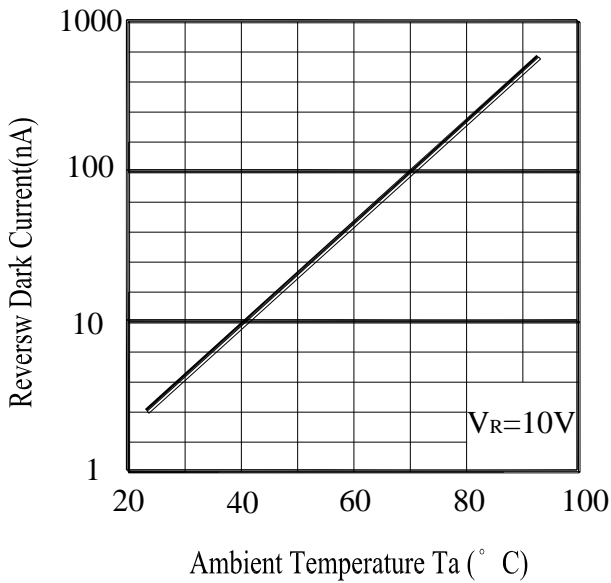
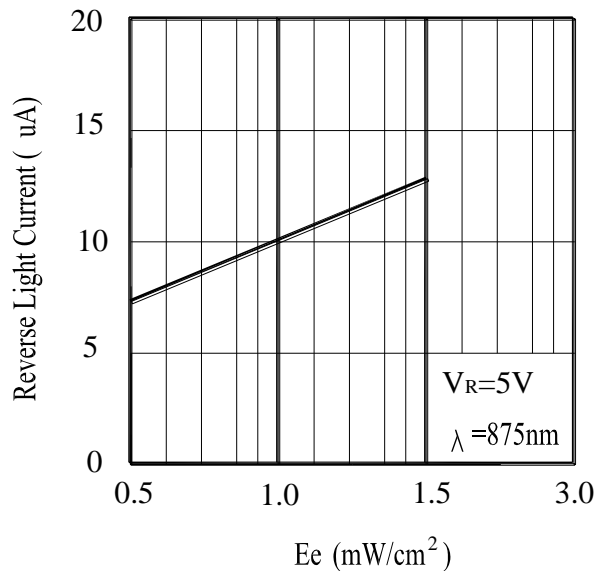


Fig. 4 Reverse Light Current vs. Ee



### Typical Electro-Optical Characteristics Curves

Fig.5 Terminal Capacitance vs.

Reverse Voltage

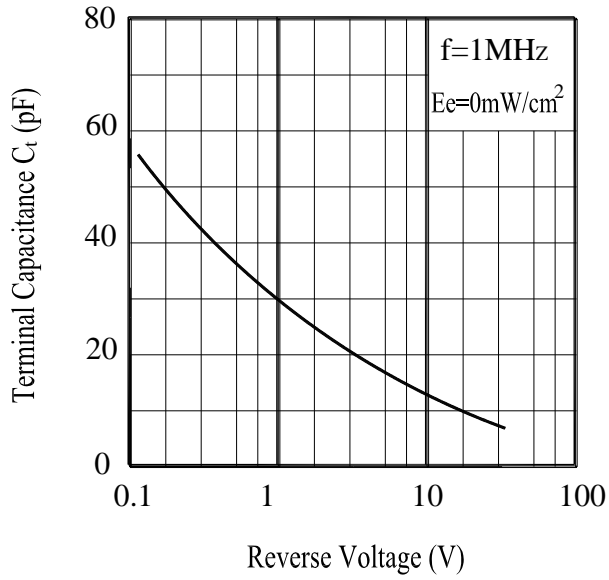
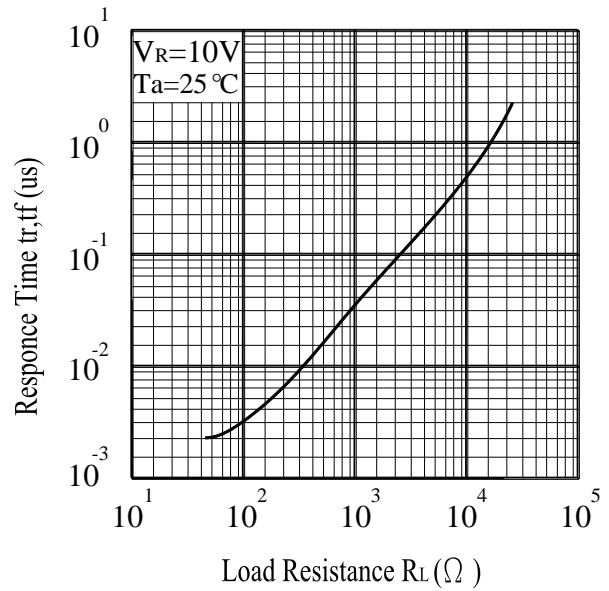
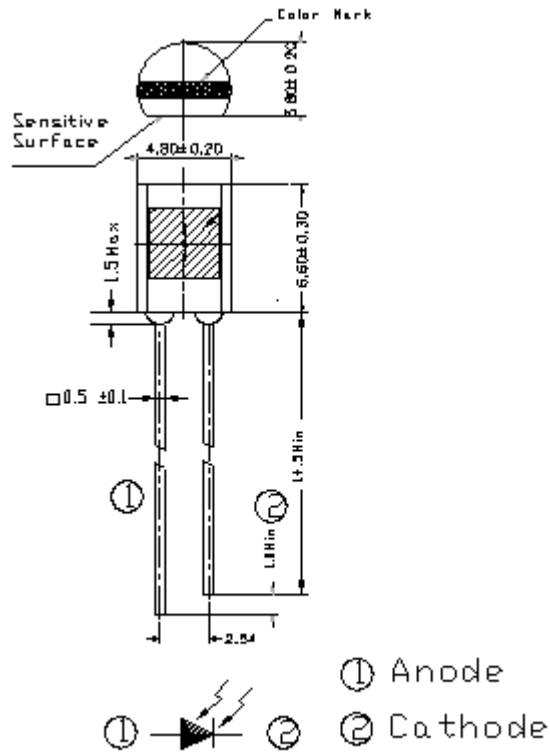


Fig.6 Response Time vs.

Load Resistance



### Package Dimension

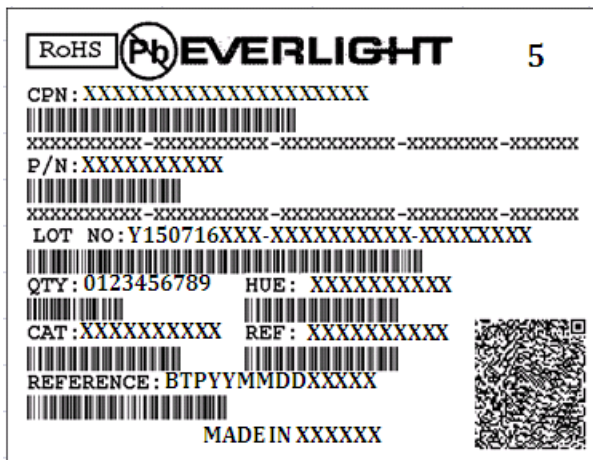


Note: Tolerances unless dimensions  $\pm 0.25$ mm

### 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

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