

### 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	$V_R$	32	V
Power Dissipation	$P_d$	150	mW
Lead Soldering Temperature	$T_{sol}$	260	°C
Operating Temperature	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-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	$V_{OC}$	$E_e=5m\text{ W/cm}^2$ $\lambda_p=940nm$	---	0.35	---	V
Short- Circuit Current	$I_{SC}$	$E_e=1m\text{ W/cm}^2$ $\lambda_p=940nm$	---	18	---	$\mu\text{ A}$
Reverse Light Current	$I_L$	$E_e=1m\text{ W/cm}^2$ $\lambda_p=940nm$ $V_R=5V$	10.2	18	---	
Dark Current	$I_d$	$E_e=0m\text{ W/cm}^2$ $V_R=10V$	---	5	30	nA
Reverse Breakdown	$BV_R$	$E_e=0m\text{ W/cm}^2$ $I_R=100\mu\text{ A}$	32	170	---	V
Total Capacitance	$C_t$	$E_e=0m\text{ W/cm}^2$ $V_R=5V$ $f=1MHZ$	---	18	---	pF
Rise/Fall Time	$t_r/t_f$	$V_R=10V$ $R_L=1K\Omega$	---	50/50	---	nS

Note:

Tolerance of Luminous Intensity:  $\pm 10\%$

Tolerance of Dominant Wavelength:  $\pm 1nm$

Tolerance of Forward Voltage:  $\pm 0.1V$

## Typical Electro-Optical Characteristics Curves

Fig.1 Power Dissipation vs.

Ambient Temperature

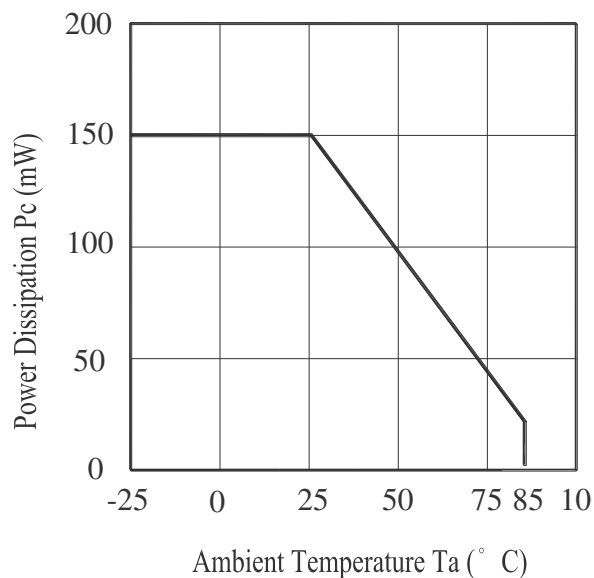


Fig.3 Dark Current vs.

Ambient Temperature

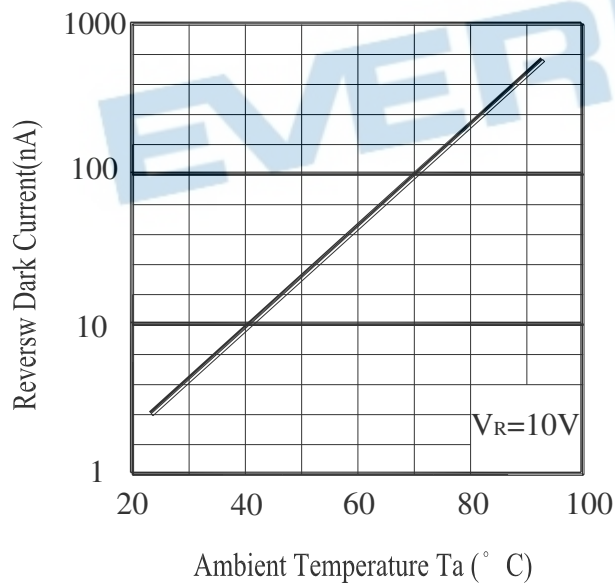


Fig.2 Spectral Sensitivity

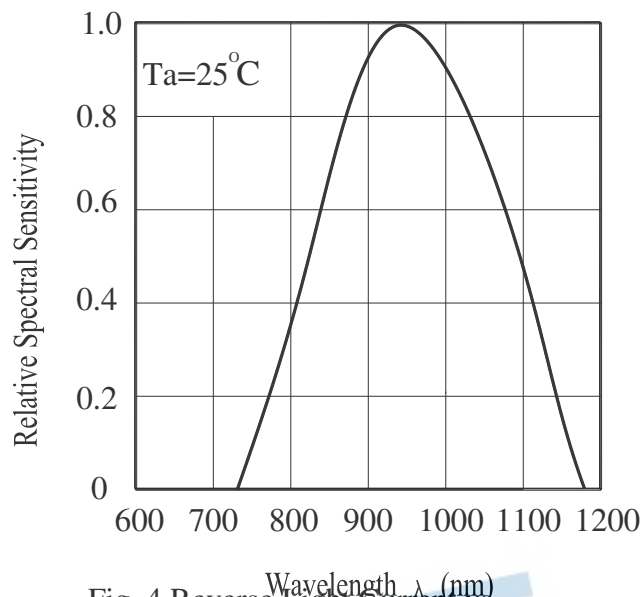
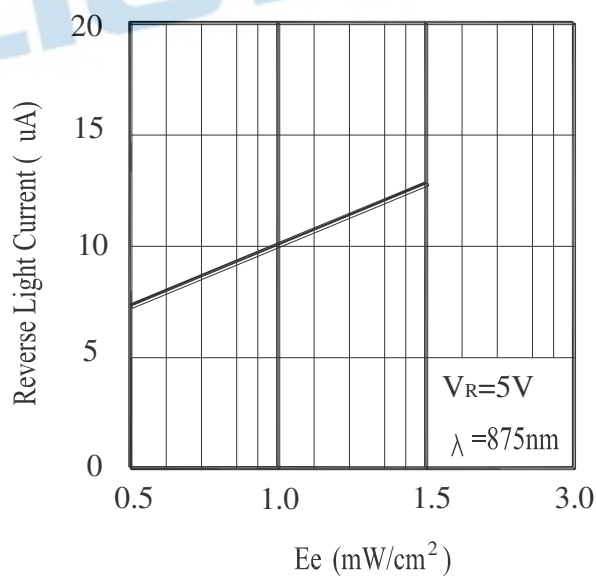


Fig. 4 Reverse Light Current vs.

$E_e$



## Typical Electro-Optical Characteristics Curves

Fig.5 Terminal Capacitance vs.

Reverse Voltage

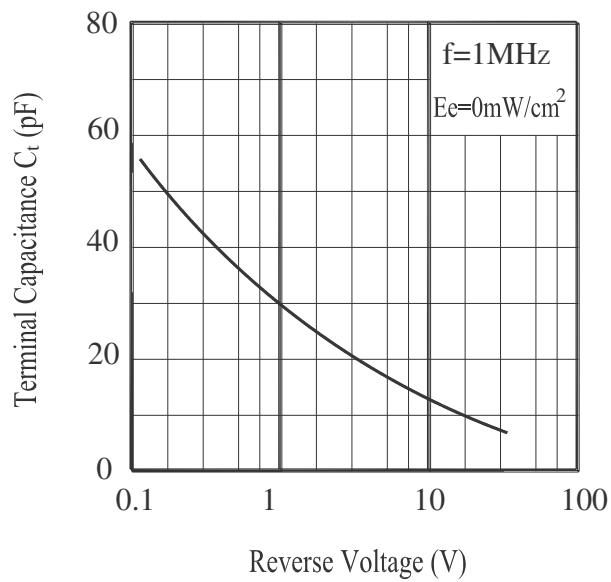
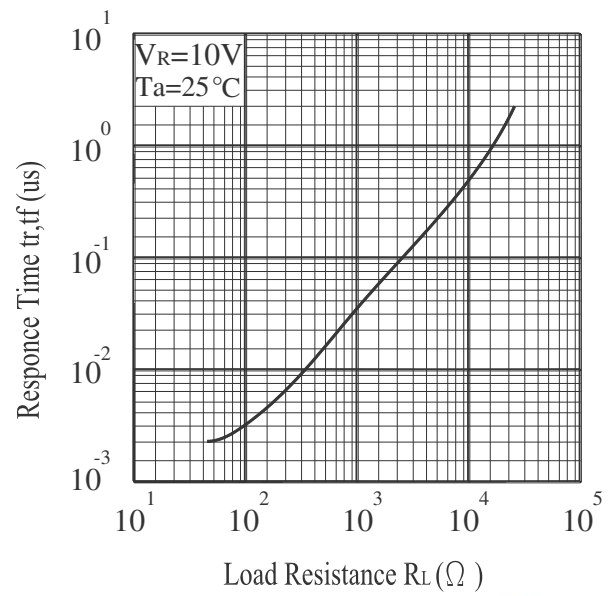


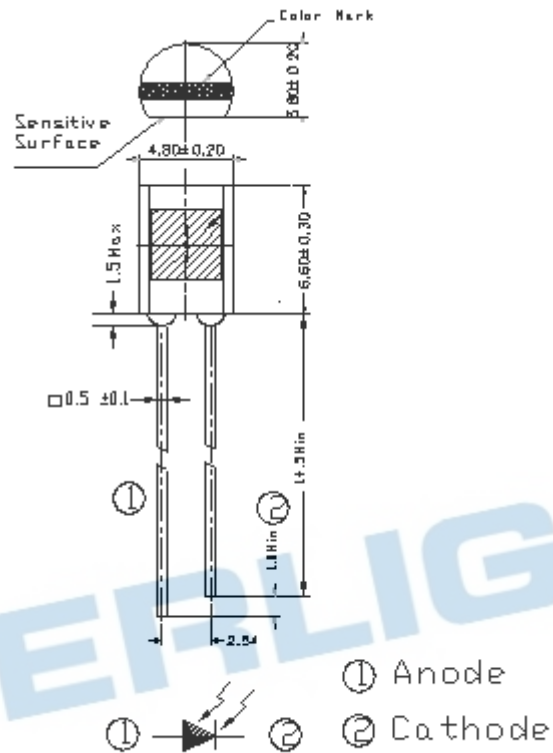
Fig.6 Response Time vs.

Load Resistance



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## Package Dimension



Note: Tolerances unless dimensions  $\pm 0.25\text{mm}$

## Packing Specification

### ■ Packing Quantity

1. 200~500 PCS/1 Bag, 6Bags/1 Inner Carton
2. 10Inner Cartons/1 Outside Carton

## Label Form Specification

RoHS Pb **EVERLIGHT** 5

CPN: XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

P/N: XXXXXXXXXXXX

XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

LOT NO: Y150716XXX-XXXXXXXXXX-XXXXXXXXXX

QTY: 0123456789 HUE: XXXXXXXXXXXX

CAT: XXXXXXXXXXXX REF: XXXXXXXXXXXX

REFERENCE: BTPYYMMDDXXXXX

MADE IN XXXXXX

- 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.
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