

## Infrared Pin Photo Diode

0-05-01-18

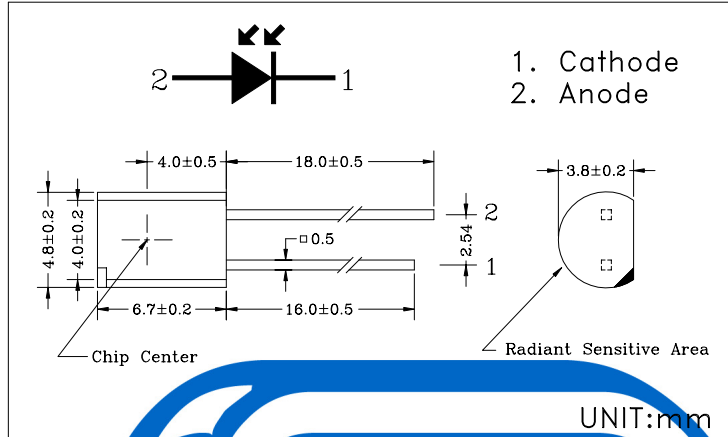
Model No.: DS-PD438B

### 1. General Description:

The DS-PD438B is a high sensitive and high speed photo diode with PIN structure which is incorporated in a black plastic package that serve as a filter for infrared radiation.

The DS-PD438B is a special dark plastic package that cut the visible light and suitable for the detectors of infrared application.

### Dimensions



### 2. Features

- High photo sensitivity.
- Suitable for infrared radiation.
- Low junction capacitance.
- High cut-off frequency.
- Fast switching times.

### 3. Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	PD	150	mW
Reverse Breakdown Voltage	VR	20	V
Operating Temperature	T <sub>opr.</sub>	-25 ~ +65	°C
Storage Temperature	T <sub>stg.</sub>	-30 ~ +85	°C
Soldering Temperature *1	T <sub>sol.</sub>	260	°C

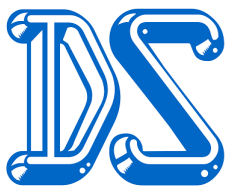
\*1. At the position of 2mm from the bottom face of resin package within 5 second.

### 4. Electro-Optical Characteristics

(Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse Voltage	VR	IR=100μA			5	V
Dark Current	ID	VR=10V, Ev=0		5	30	nA
Open Circuit Voltage	Voc	Ev=1000Lux,		0.35		V
Short Circuit Current	Isc	Ee=5.0mW/cm <sup>2</sup> *2		88		μA
Curve Factor	C.F.		0.55			-
Rise Time	tr			5		nsec
Fall Time	tf			5		nsec
Total Capacitance	Ct	f=1MHz		25		pF
Wavelength	λp			940		nm
Spectral Sensitivity	λ			700 ~ 1050		nm
Temperature Coefficient of Voc	αt			-2.2		mV/°C
Temperature Coefficient of Isc	βt			0.18		%/°C
Half Angle	Δθ			±70		deg.

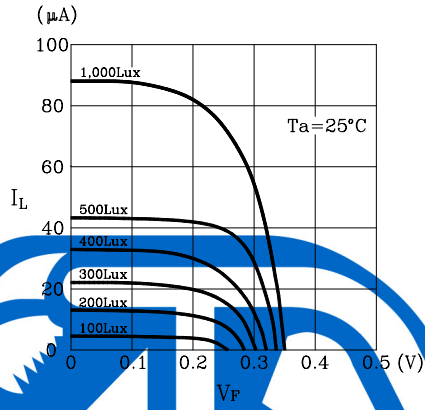
\*2 Ev, Ee are illuminance irradiant by CIE standard light source A (tungsten lamp) at 2856K.



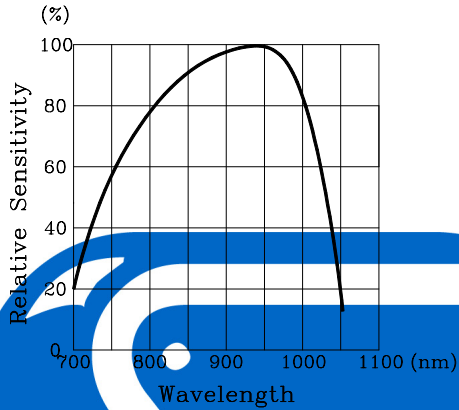
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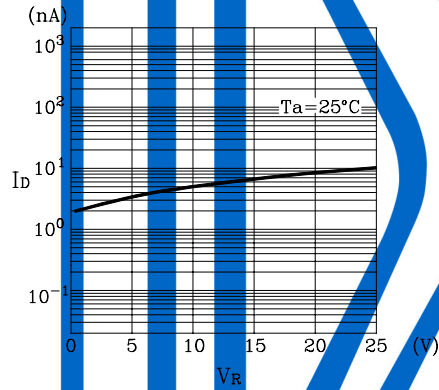
Light Current vs Forward Voltage



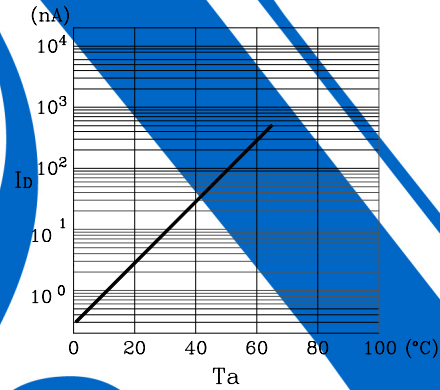
Spectral Distribution



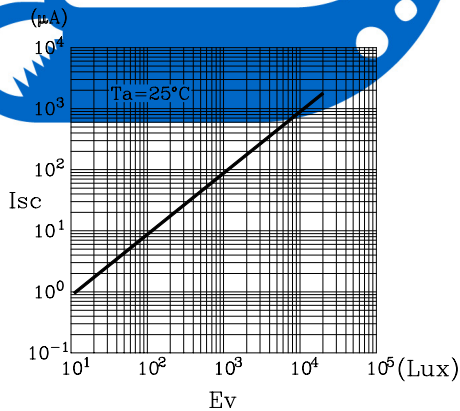
Dark Current vs Reverse Voltage



Dark Current vs Ambient Temperature



Short Circuit Current vs Luminous Incidence



Sensitivity Diagram

