

## Silicon PIN Photodiode

### OSD0510-IC



## Description

The OSD0510-IC is high-speed, high sensitivity PIN silicon Photodiode mounted in ceramic package with resin Coating, permits wide response.

## Features

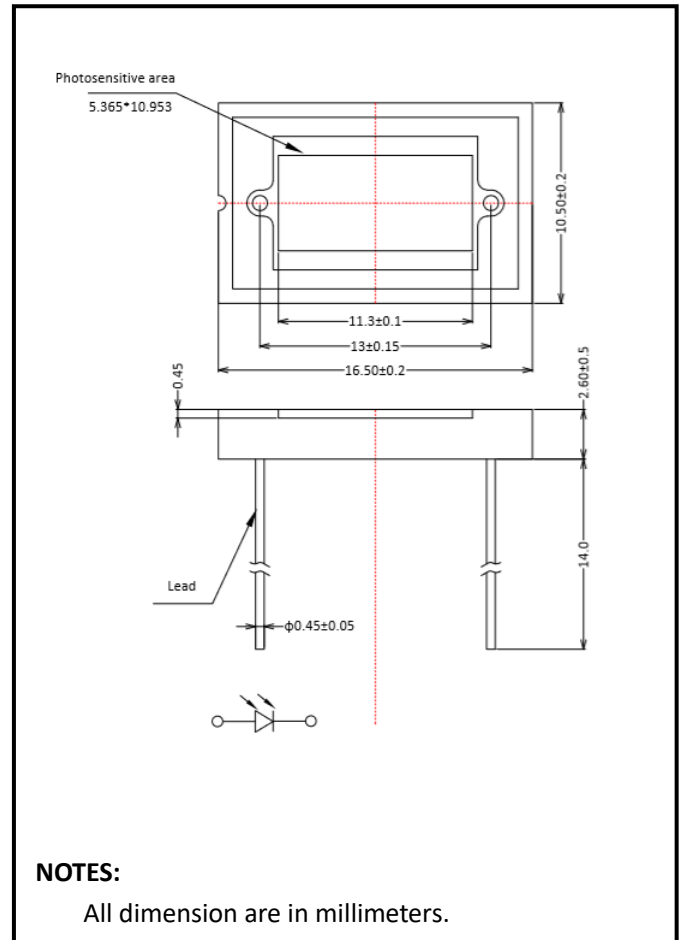
- \* High speed response
- \* Wide angular response
- \* High reliability in demanding environments
- \* Operating temperature is from  $-40$  to  $+80^{\circ}\text{C}$
- \* Storage temperature is from  $-40$  to  $+100^{\circ}\text{C}$
- \* soldering temperature is  $260^{\circ}\text{C}$  @Max.5 seconds at the position of 2mm from the PIN legs.

## General Ratings

- \* Type Silicon Photodiode
- \* High linearity
- \* Low cost
- \* Low dark current

## Applications

- \* Laser beam alignment
- \* Edge & hole detection
- \* IR/ Laser light Monitoring
- \* Position sensing
- \* Optical switch
- \* Spectro photometers



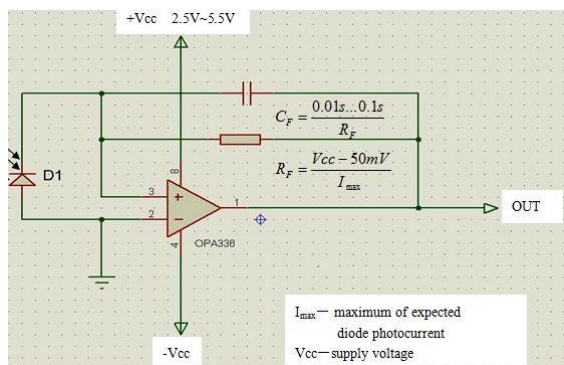
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## Absolute Maximum Ratings (Ta=25°C)

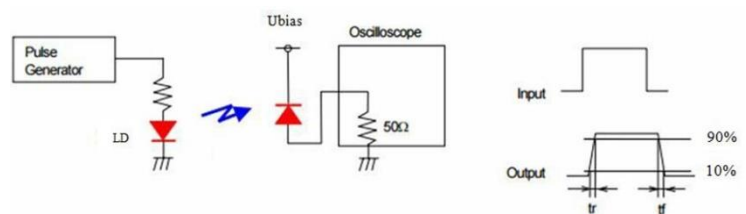
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Chip size	Size			5.715*11.303		mm <sup>2</sup>
Active area	A			5.365*10.953		mm <sup>2</sup>
Short circuit Current	I <sub>sc</sub>	V <sub>R</sub> =5V, E <sub>v</sub> =100lux f <sub>c</sub> =2856k*		75		μA
Isc Temperature Coefficient	TC I <sub>sc</sub>	2856k		1.1		%/°C
Open Circuit Voltage	V <sub>oc</sub>	V <sub>R</sub> =5V, E <sub>v</sub> =5mw/cm <sup>2</sup> f <sub>c</sub> =2856k*		350		mV
Voc Temperature Coefficient	TC Voc	2856k		-2.2		mV/°C
Dark current	I <sub>d</sub>	V <sub>R</sub> =100mV		15		nA
		V <sub>R</sub> =10V		1		
Cut frequency	f <sub>c</sub>	V <sub>R</sub> =10V;λ=635nm;R <sub>L</sub> =50Ω		15		MHz
Temp coefficient of I <sub>d</sub>	T <sub>CI<sub>d</sub></sub>			0.18		times/°C
Reverse breakdown voltage	V <sub>(BR)R</sub>	I <sub>R</sub> =100μA E <sub>v</sub> =0lx	60			V
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> =0V f=1MHz		48		pF
		V <sub>R</sub> =10V f=1MHz		80		
Photo sensitivity	S <sub>R</sub>	650nm		0.38		A/W
		940nm		0.64		
Spectral Application Range	λ <sub>range</sub>		400		1100	nm
Spectral Response-Peak	λ <sub>p</sub>			940		nm
Shunt resistance	R <sub>sh</sub>	V <sub>R</sub> =10mV		0.5		GΩ
Rsh Temperature Coefficient	TC R <sub>sh</sub>	E <sub>v</sub> =100lx, V <sub>R</sub> =10mV		0.18		%/°C
Angular Resp 50% Resp Pt	θ <sub>1/2</sub>			±55		Degrees
Noise Equivalent Power	NEP	V <sub>R</sub> =10V λ=940nm		2.58×10 <sup>-14</sup>		W/Hz <sup>1/2</sup>
Specific Detectivity	D*	V <sub>R</sub> =10V λ=940nm		1.67×10 <sup>13</sup>		cm(Hz/W) <sup>1/2</sup>

\* E<sub>v</sub>: Illuminance by CIE standard light source A (tungsten lamp)

### ■ Typical application circuit



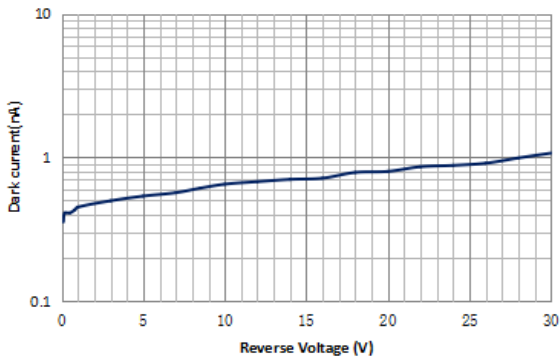
### \*\* Response time measurement Circuit:



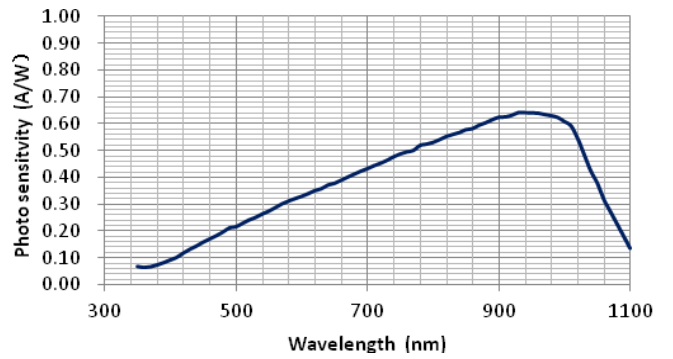
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## ■ Dark current vs. reverse voltage

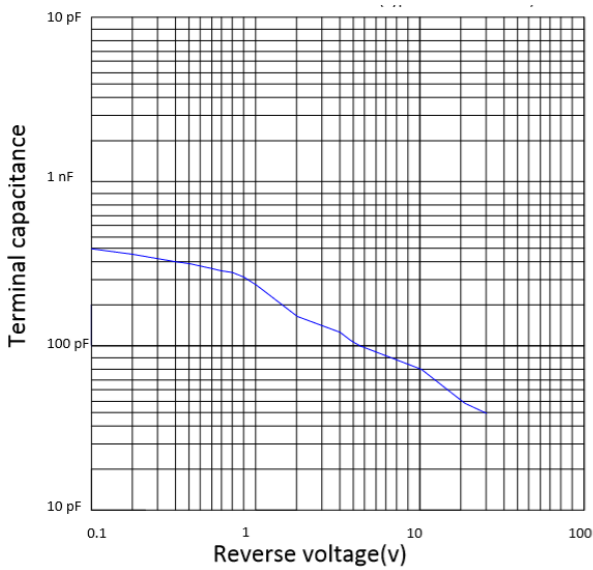


## ■ Spectral response

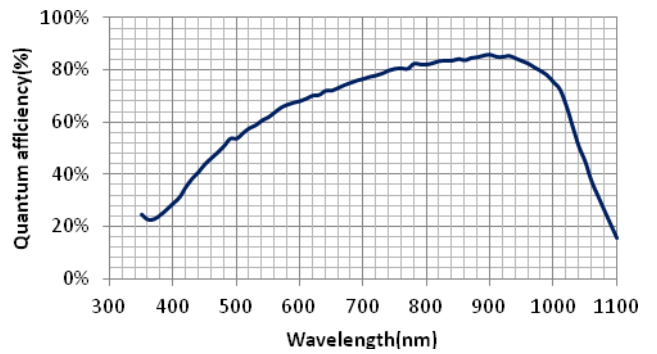


## ■ Relative Junction Capacitance

VS. Voltage



## ■ Quantum efficiency



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