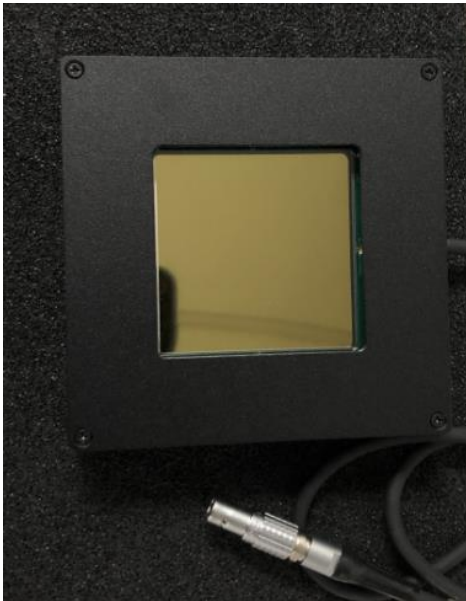


## Two-dimensional PSD



### Description

Tetra-lateral position sensing detector PSD5050-IM is Manufactured with one single resistive layer for two Dimensional measurements. It feature a common cathode And four anodes for this two dimensional position sensing.

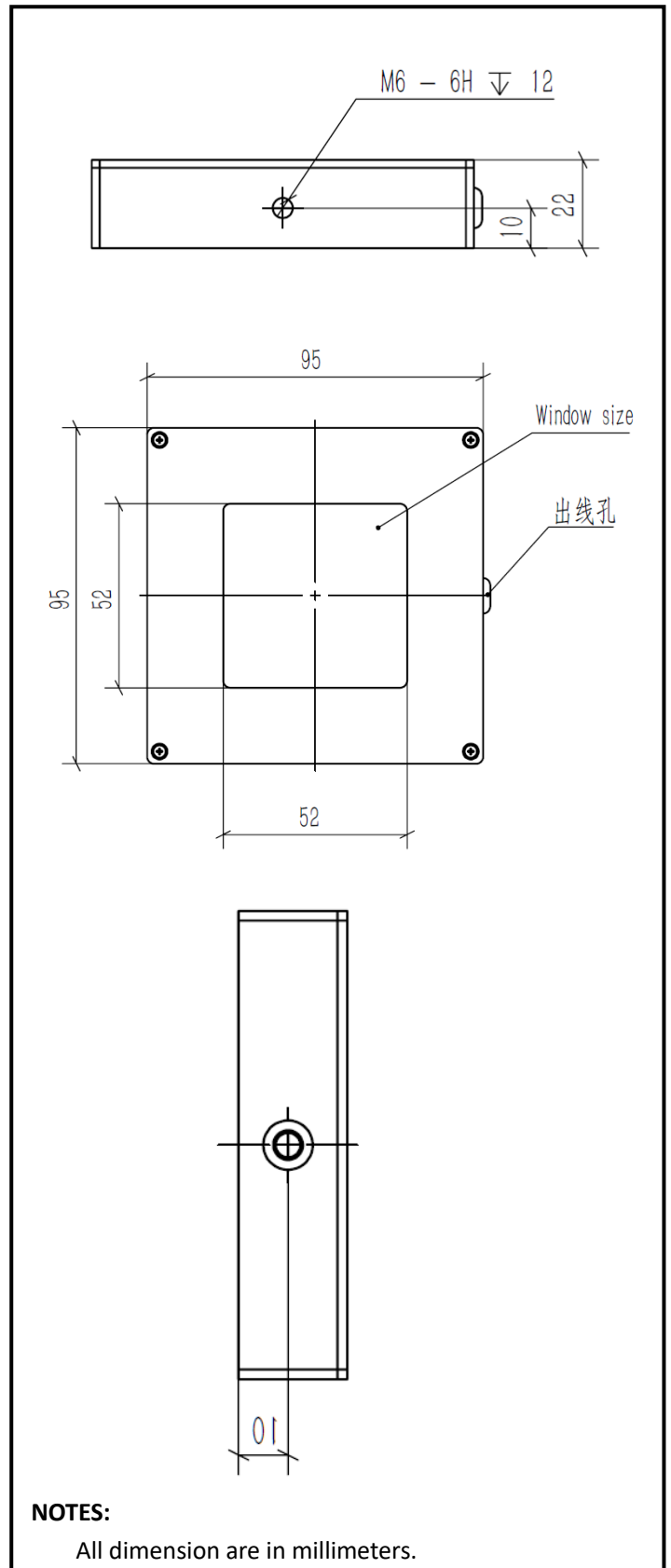
It offers high response uniformity, low dark current, and Good position linearity over 80% of the sensing area.

### Features

- \* High responsibility for IR laser.
- \* High dynamic range
- \* Operating temperature is from -40 to +80°C
- \* Storage temperature is from -40 to +100°C

### Applications

- \* Tool alignment and control
- \* Leveling measurements
- \* Angular measurements
- \* Automatic range finder systems
- \* 3 Dimensional vision



## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Sensor Type			Pincushion Tetra Lateral Senaor			
Wavelength Range	$\lambda$		400-1100			nm
Sensor Size(active area)	A		52*52			mm <sup>2</sup>
Recommended Spot Size			$\phi 0.2-\phi 40$			mm
Absolute Position Detection Error(mm)		$\lambda=900\text{nm}, V_R=5V, A \text{ area}$	50			$\mu\text{m}$
		$\lambda=900\text{nm}, V_R=5V, B \text{ area}$	260			$\mu\text{m}$
Position resolution	$\Delta R$	$I_o=1\mu\text{A}, B=1\text{KHz}$	5			$\mu\text{m}$
Incident power density	$I_{st}$	$V_R=5V, R_L=1\text{K}\Omega$	10			mw/cm <sup>2</sup>
Interelectrode Resistance	R	$U_{br}=0.1V$	45			k $\Omega$
Temp. Range	$T_e$		-40~+80			°C
Dark current	$I_D$	$V_R=0V$		0.17	5	nA
		$V_R=6V$		930	1000	
Breakdown voltege	$U_{br}$	$I_R=10\mu\text{A}$		200		V
Rise time	$t_R$	$V_R=15V, 650\text{nm}, 50 \Omega$		20		$\mu\text{s}$
Junction Capacitance	$C_j$	$V_R=0V, f=1\text{kHz}$		26		nF
		$V_R=6V, f=1\text{kHz}$		4.8		
Photo sensitivity	$S_R$	$\lambda=650\text{nm}$		0.45		A/W
		$\lambda=900\text{nm}$		0.58		

### Coverision Formula:

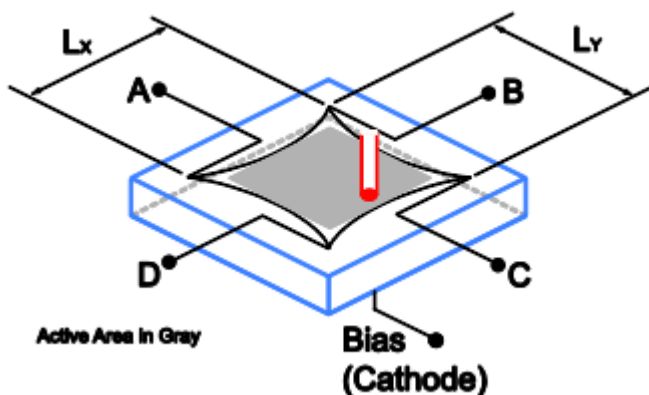
$$\Delta x = (A + D) - (B + C)$$

$$\Delta y = (A + B) - (C + D)$$

$$SUM = (A + B + C + D)$$

$$x = Lx(\Delta x) / 2 SUM ;$$

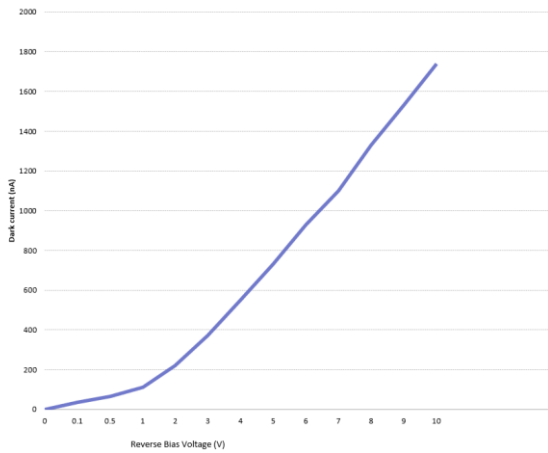
$$y = Ly (\Delta y) / 2 SUM$$



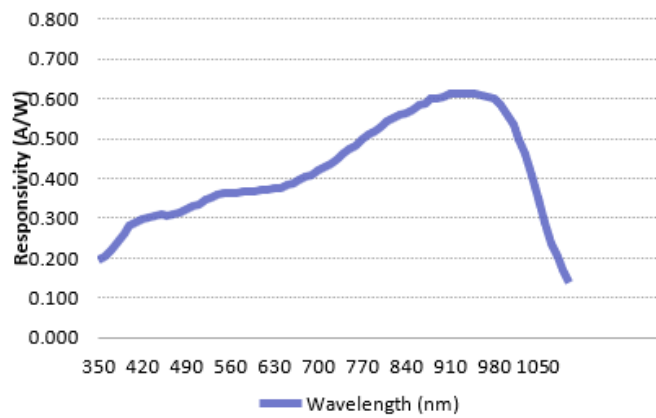
Information in this technical datasheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject change without notice



## ■ Dark current vs. reverse voltage

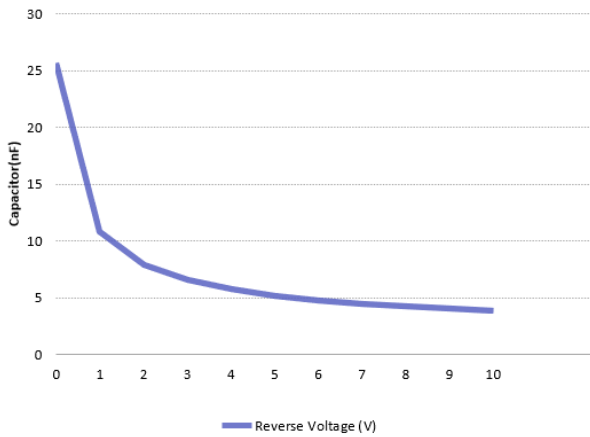


## ■ Spectral response



## ■ Relative Junction Capacitance

### VS. Voltage



Information in this technical datasheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject change without notice

OTRON ELECTRONIC TECHNOLOGY CO., LTD

TEL:+86-21-54971821

FAX:+86-21-54971823

Email: [otron.sensor@gmail.com](mailto:otron.sensor@gmail.com)

[Http://www.e-otron.com](http://www.e-otron.com)