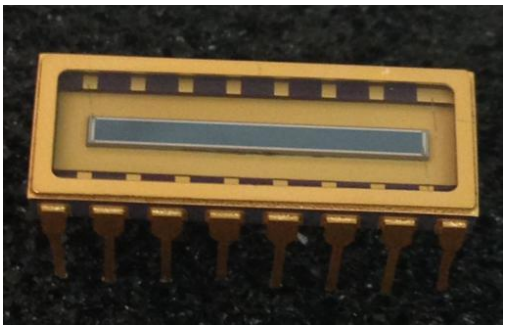
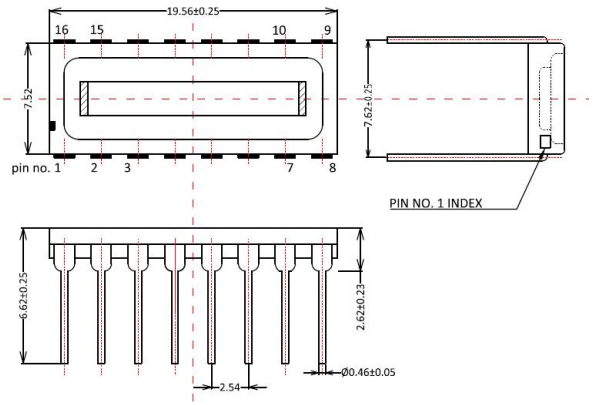
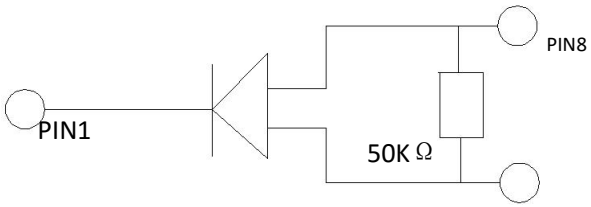
One Direction

Position Sensing Detector

PSD1315







PIN 16

NOTES:

1. All dimension are in millimeters.
2. Tolerance is ±0.25mm unless otherwise specified
3. Specifications are subject to change without notice

Description

The PSD1315 is according to the Lateral Effect Photodiode principle. It is analogue device and displays excellent position resolution under better system signal to noise ratio.

It has low dark current, high linearly in the biased mode. It can also detect the optical power and position of the light sourcing at the same time.

Features

*15mm*1.3mm active area
* High position resolution
* Good responsibility for 650nm laser
* High linearity
* Low dark current

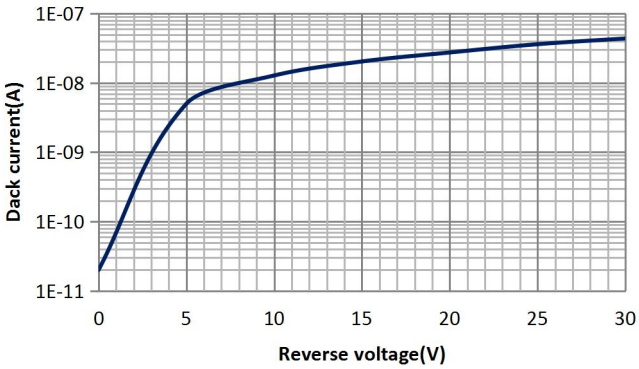
Applications

*Laser beam focusing
*Distance measurement
*triangle distance measurement
*Proximity sensor

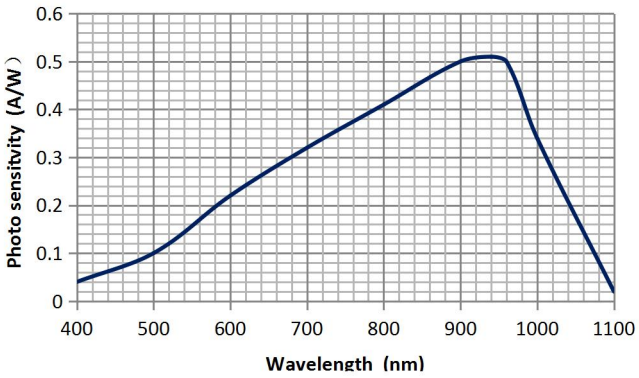
Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Active area	A			1.3*15		mm^2
Dark current	I_D	VR=10mV		20		pA
		VR=10V		12.8		nA
Rise time	t_R	V_R=5V;λ=850nm;R_L=50Ω		120		ns
Thermal drift				20	100	ppm/℃
Recommended spot dia.	φ	Diameter	0.2		14	mm
Reverse breakdown voltage	$V_{(BR)R}$	I_R=10μA Ev=0lx		80		V
Junction Capacitance	C_J	V_R=0V f=1MHz		11.7		pF
		V_R=10V f=1MHz		5.45		
Photo sensitivity	S_R	650nm		0.27		A/W
		940nm		0.51		A/W
Position detection error		λ =650nm;P=0.5μW,spot dia.0.5mm		±0.2	±0.3	%
Noise lim. resolution		λ =650nm;P=0.5μW,spot dia.0.5mm		0.5		μm
Spectral Application Range	λ_{range}		400		1100	nm
Spectral Response-Peak	λ_p			940		nm
Shunt resistance	R_{sh}	V_R=10mV		30		KΩ
Angular Resp 50% Resp Pt	$\theta_{1/2}$			±55		Degrees
Noise Equivalent Power	NEP	V_R =10V λ=940nm		1.25×10^{-13}		$W/Hz^{1/2}$
Specific Detectivity	D*	V_R =10V λ=940nm		5.06×10^{12}		$cm(Hz/W)^{1/2}$

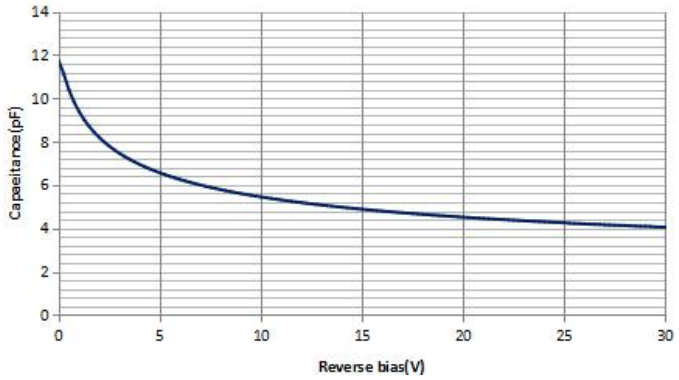
■Dark current vs. reverse voltage



■ Spectral response



■Relative Junction Capacitance VS. Voltage



■Wavelength Dependence of Optical Power