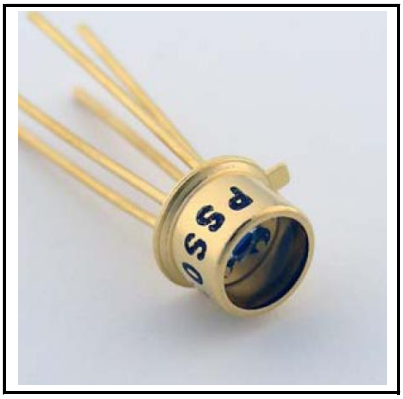
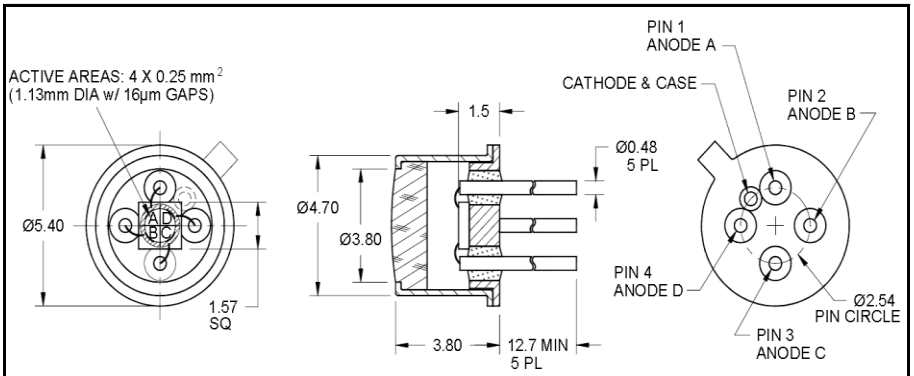
First Sensor





Features

- 1 mm² Quadrant PIN detector
- High sensitivity
- Small gap
- Low dark current

Description

Low dark current circular active area quadrant PIN photodiode with 4 x 0.25 mm² active area. Metal can type hermetic TO52 package with clear glass window.

Application

- Laser beam position sensor
- Autocollimators
- Optical tweezers
- Ellipsometers

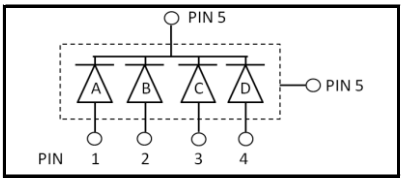
RoHS

2011/65/EU

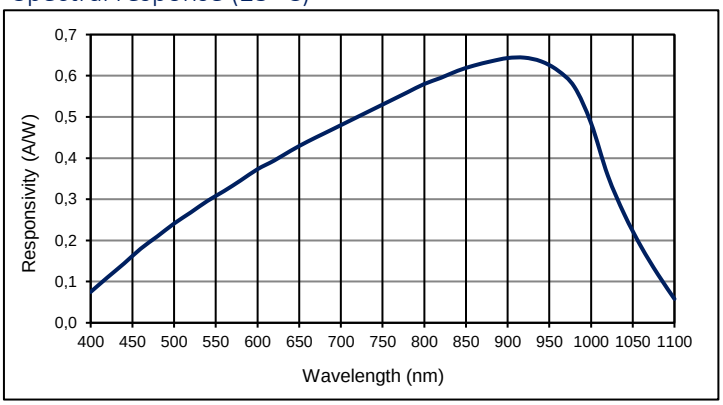
Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-55	125	°C
T_{OP}	Operating temp	-40	100	°C
V_{max}	Max reverse voltage		50	V
I_{PEAK}	Peak DC current		10	mA

Schematic



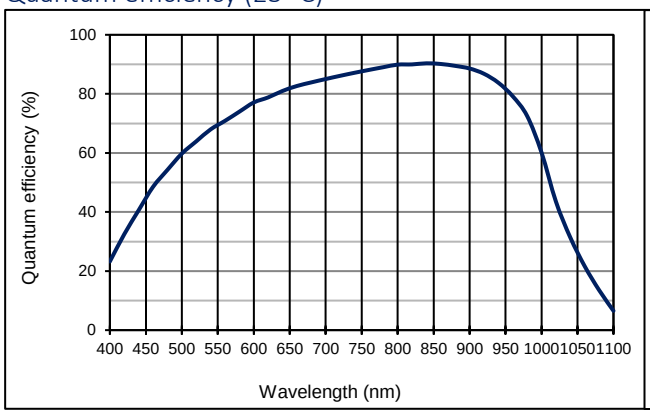
Spectral response (23 °C)



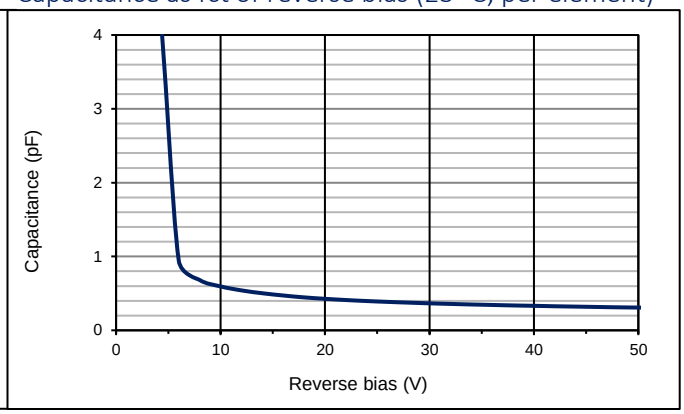
Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Number of elements			4 quadrants		
	Active area			diameter 1130 (total)		µm
	Active area	per element		0.25		mm²
	Gap	between elements		16		µm
I_D	Dark current	V_R = 10 V; per element		0.1	0.5	nA
C	Capacitance	V_R = 0 V; per element		5		pF
		V_R = 10 V; per element		0.75		pF
	Responsivity	λ = 632 nm		0.4		A/W
		λ = 900 nm		0.64		A/W
t_R	Rise time	V_R = 0 V; λ = 850 nm; R_L = 50 Ω		2000		ns
		V_R = 10 V; λ = 850 nm; R_L = 50 Ω		20		ns
		V_R = 80 V; λ = 850 nm; R_L = 50 Ω		10		ns
	Shunt Resistance	V_R = 5 mV; per element	500	1000		MΩ
	N.E.P.	V_R = 5 V; λ = 900 nm; per element		9 E-15		W/√Hz
V_{BR}	Breakdown voltage	I_R = 2 µA	50	100		V

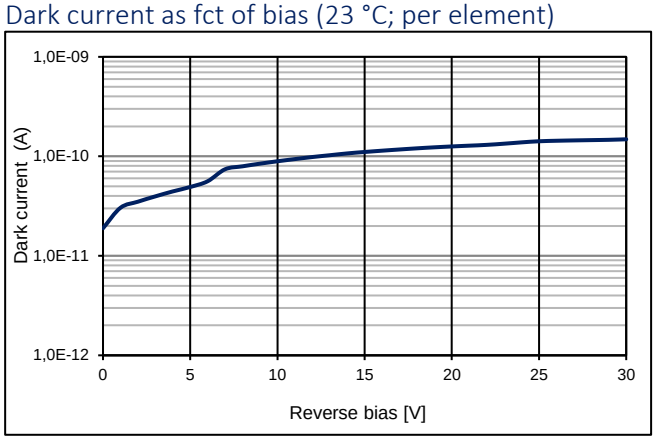
Quantum efficiency (23 °C)



Capacitance as fct of reverse bias (23 °C; per element)



Dark current as fct of bias (23 °C; per element)



Package dimension:

Small quantities: Foam pad, boxed (12 cm x 16.5 cm)

Handling precautions:

- Soldering temperature max. 260 °C for 10 s. The device must be protected against solder flux vapour.
- Minimum pin length is 2 mm.
- For ESD protection standard precautionary measures are sufficient.
- For further questions please refer to document "Instructions for handling and processing".