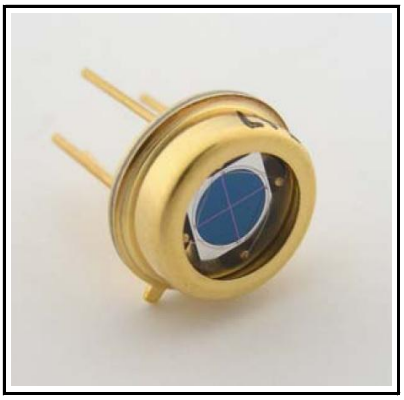
First Sensor

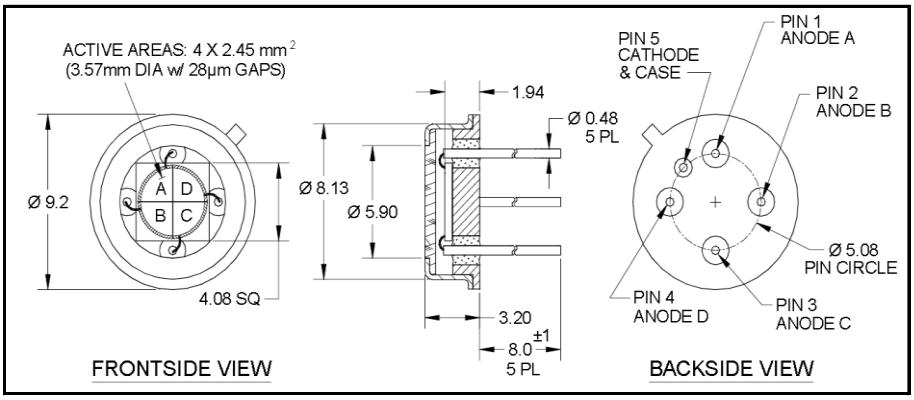
First Sensor QP Data Sheet

Part Description QP10-6 TO

Order # 501256

Version 24-11-11





Features

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

Description

Low dark current circular active area quadrant PIN photodiode with 4 x 2.45 mm² active area. Metal can type hermetic TO5 package with clear glass window.

Application

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

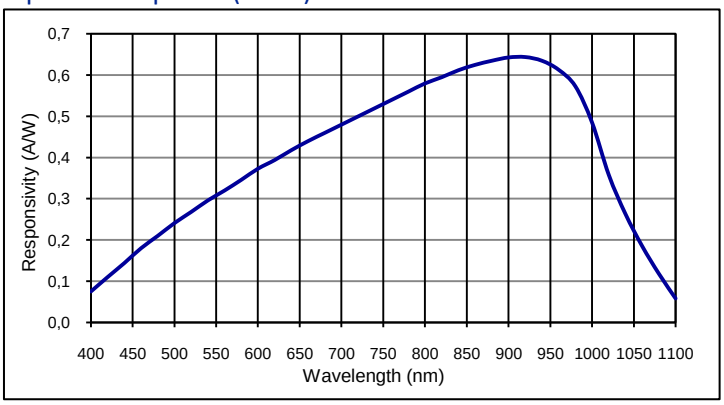
RoHS

2002/95/EC

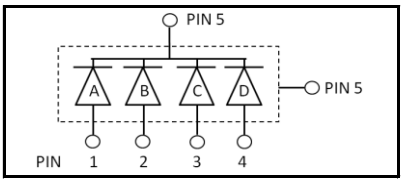
Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-55	125	°C
T_{OP}	Operating temp	-40	100	°C
V_{max}	Max reverse voltage		20	V
I_{PEAK}	Peak DC current		10	mA

Spectral response (23 °C)



Schematic



Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Number of elements			4 quadrants		
	Active area			diameter 3570 (total)		µm
	Active area	per element		2.45		mm²
	Gap	between elements		28		µm
I_D	Dark current	V_R = 10 V; per element		0.4		nA
C	Capacitance	V_R = 0 V; per element		30		pF
		V_R = 10 V; per element		5		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		250		MΩ
	N.E.P.	V_R = 5 V; λ = 900 nm; per element		1.8 E-14		W/√Hz
V_{BR}	Breakdown voltage	I_R = 2 µA	20	50		V

European, International Sales:

First Sensor

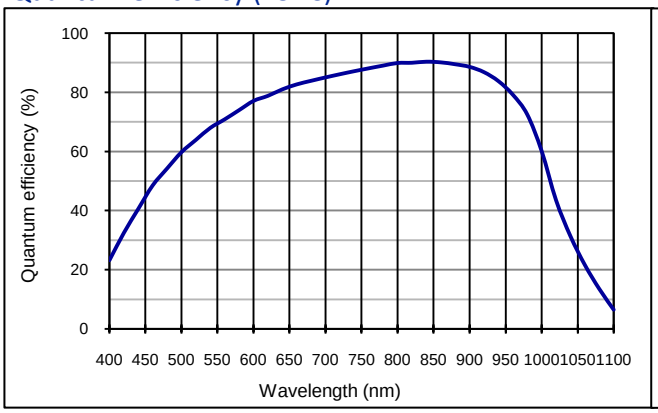
First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:

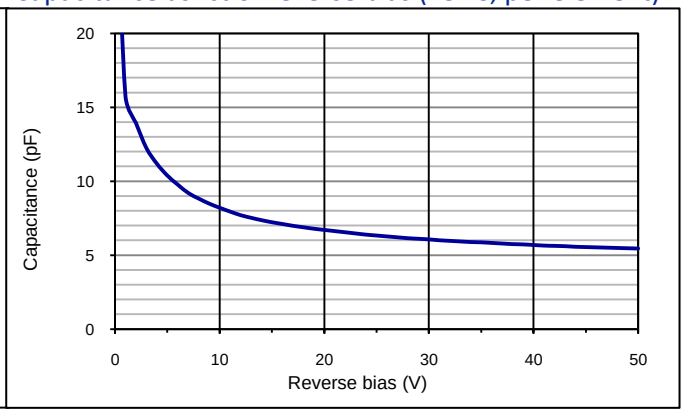
First Sensor

First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

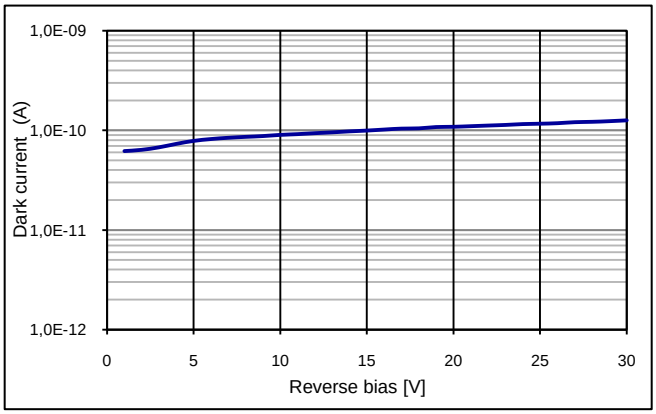
Quantum efficiency (23 °C)



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".

European, International Sales:

First Sensor AG
Peter-Behrens-Strasse 15
12459 Berlin
Germany
T +49 30 6399 2399
F +49 30 639923-752
sales.opto@first-sensor.com

USA:

First Sensor Inc.
5700 Corsa Avenue #105
Westlake Village
CA 91362 USA
T +1 818 706 3400
F +1 818 889 7053
sales.us@first-sensor.com

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Authorized Distributor

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First Sensor:
QP10-6-TO5