

QP50-6 TO

Description

Low dark current quadrant PIN photodiode with 4 x 12 mm² active area. Metal can type hermetic TO8S package with clear glass window.

Features

- 50 mm² Quadrant PIN detector
- High sensitivity
- Low dark current

Applications

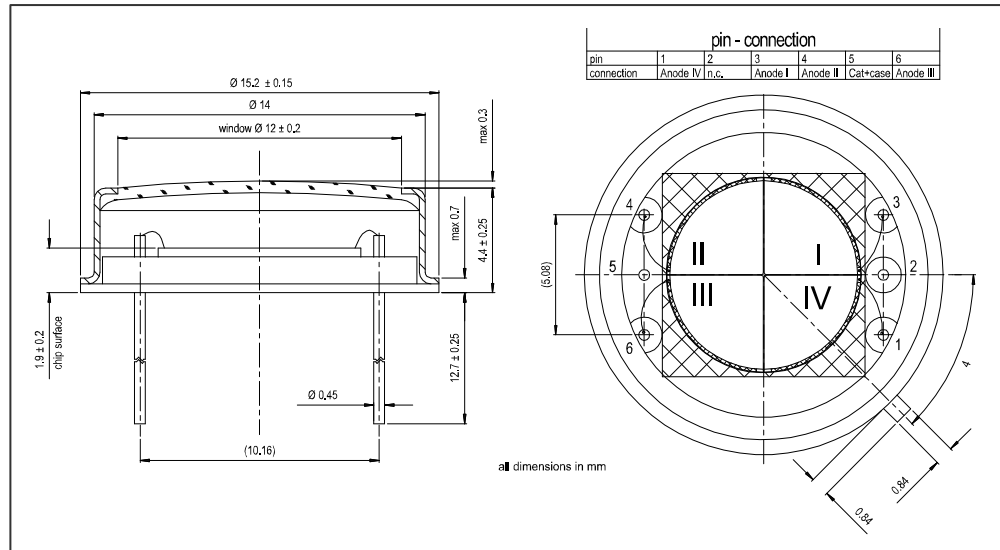
- Laser beam position sensor
- Autocollimators
- Optical tweezers
- Ellipsometers

RoHS

2011/65/EU

2015/863/EU

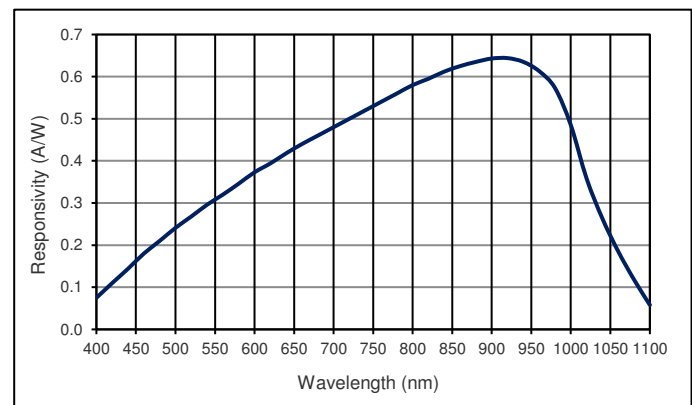
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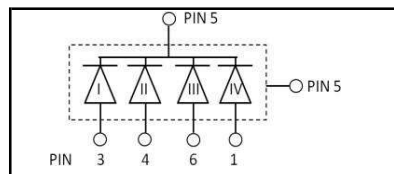
Absolute maximum ratings

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)



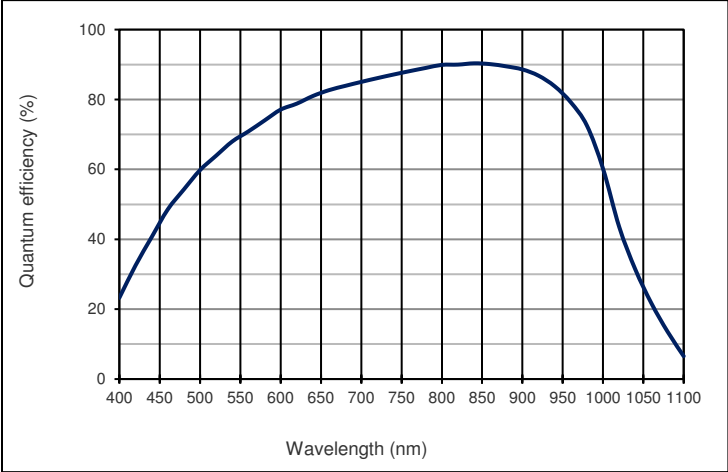
Schematic



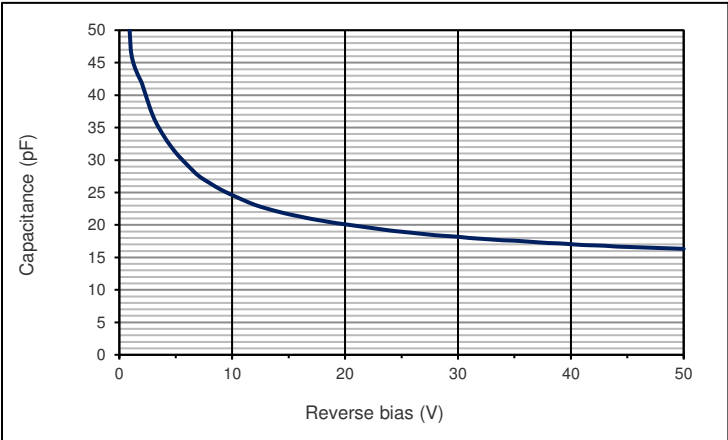
Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Number of elements		4 quadrants			
	Active area		diameter 7980 (total)			μm
	Active area	per element	12			mm ²
	Gap	between elements	42			μm
I_D	Dark current	$V_R = 10$ V; per element		2.0	5.0	nA
C	Capacitance	$V_R = 0$ V; per element		120		pF
		$V_R = 10$ V; per element		20		pF
	Responsivity	$\lambda = 632$ nm		0.4		A/W
		$\lambda = 900$ nm		0.64		A/W
t_R	Rise time	$V_R = 0$ V; $\lambda = 850$ nm; $R_L = 50$ Ω		2000		ns
		$V_R = 10$ V; $\lambda = 850$ nm; $R_L = 50$ Ω		40		ns
	Shunt Resistance	$V_R = 5$ mV; per element		50		MΩ
	N.E.P.	$V_R = 5$ V; $\lambda = 900$ nm; per element		4 E-14		W/√Hz
V_{BR}	Breakdown voltage	$I_R = 2$ μA	20	50		V

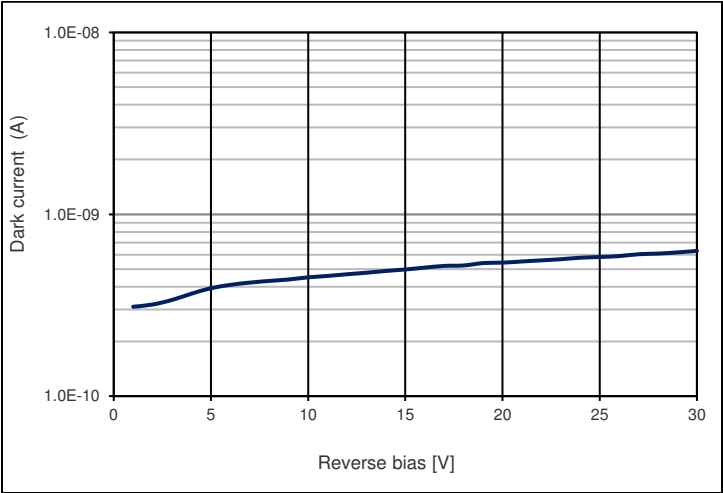
Quantum efficiency (23 °C)



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



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



Optical inspection

Optical inspection according to failure catalogue for optical sensors FK INS 201.

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 vapor.
- 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".

Disclaimer: Due to our strive for continuous improvement, specifications are subject to change within our PCN policy according to JESD46C.

Ordering information (standard configurations)

Description	TE Part Number	MPQ
QP50-6 TO (TO8S)	3004334-F	1000 pcs

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