

### Features

- 50 mm<sup>2</sup> Quadrant PIN detector
- High sensitivity
- Low dark current

### Description

Low dark current quadrant PIN photodiode with 4 x 12 mm<sup>2</sup> active area. Metal can type hermetic TO8S package with clear glass window.

### Application

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

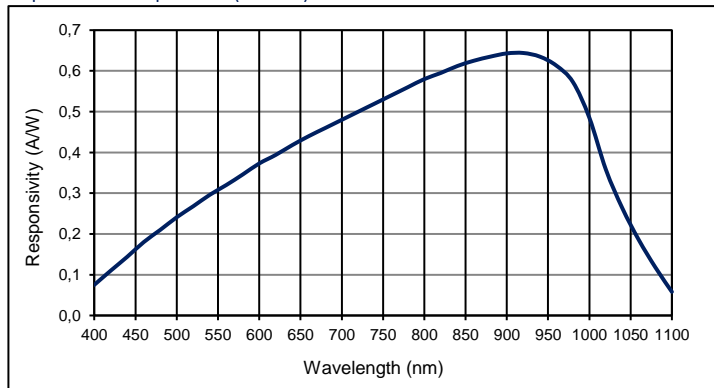
### RoHS

2011/65/EU

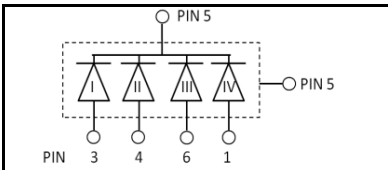
### Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T <sub>STG</sub>	Storage temp	-55	125	°C
T <sub>OP</sub>	Operating temp	-40	100	°C
V <sub>max</sub>	Max reverse voltage		20	V
I <sub>PEAK</sub>	Peak DC current		10	mA

### Spectral response (23 °C)



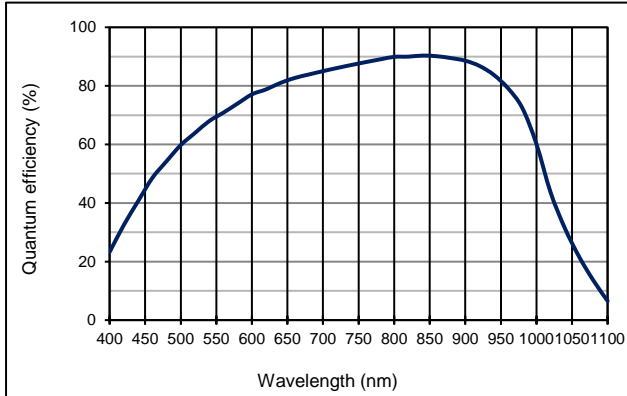
### Schematic



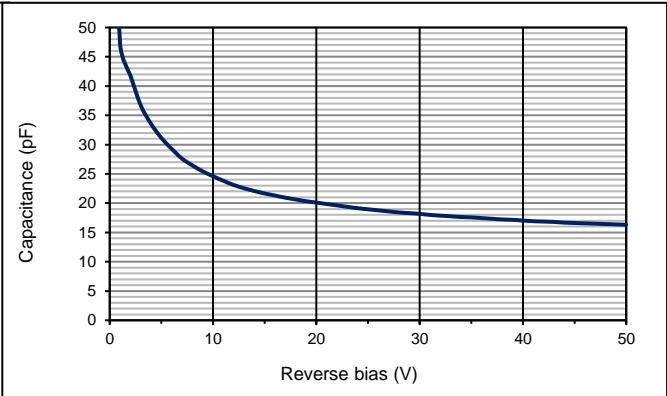
### Electro-optical characteristics @ 23 °C

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 <sup>2</sup>
	Gap	between elements	42			μm
I <sub>D</sub>	Dark current	V <sub>R</sub> = 10 V; per element		2.0	5.0	nA
C	Capacitance	V <sub>R</sub> = 0 V; per element		120		pF
		V <sub>R</sub> = 10 V; per element		20		pF
	Responsivity	λ = 632 nm		0.4		A/W
		λ = 900 nm		0.64		A/W
t <sub>R</sub>	Rise time	V <sub>R</sub> = 0 V; λ = 850 nm; R <sub>L</sub> = 50 Ω		2000		ns
		V <sub>R</sub> = 10 V; λ = 850 nm; R <sub>L</sub> = 50 Ω		40		ns
	Shunt Resistance	V <sub>R</sub> = 5 mV; per element		50		MΩ
	N.E.P.	V <sub>R</sub> = 5 V; λ = 900 nm; per element		4 E-14		W/√Hz
V <sub>BR</sub>	Breakdown voltage	I <sub>R</sub> = 2 μA	20	50		V

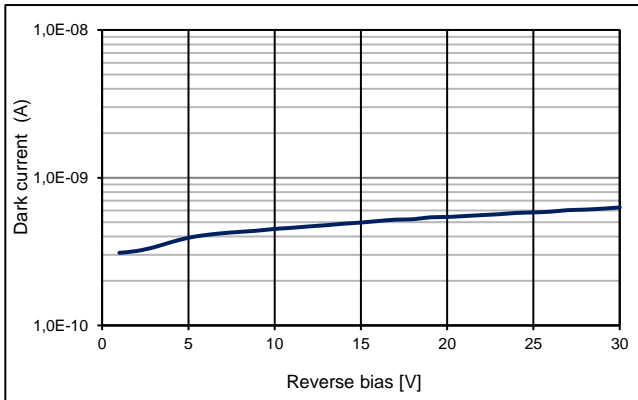
Quantum efficiency (23 °C)



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



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



### 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".

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

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

First Sensor:

[QP50-6-42U-TO8S-H](#) [QP50-6-18U-TO8S-H](#) [3004334](#)