

Features

- 7.56 mm<sup>2</sup> wavelength sensitive detector
- Two stacked p-n-junctions
- Operating range 450 - 950 nm

Description

Wavelength sensitive square active area PIN photodiode with 7.56 mm<sup>2</sup> active area. Metal can type hermetic TO5(i) package with clear glass window.

Application

- Precision photometry
- Analytical instruments
- Medical equipment
- Wavelength determination for monochromatic light

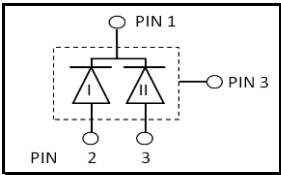
RoHS

2011/65/EU

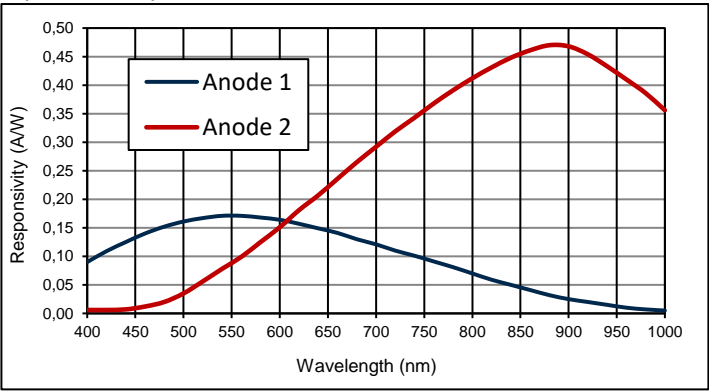
Absolute maximum ratings

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		5	V
I <sub>PEAK</sub>	Peak DC current		10	mA

Schematic



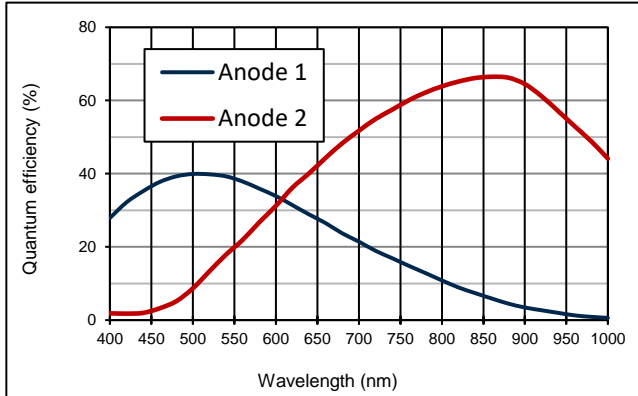
Spectral response (23 °C)



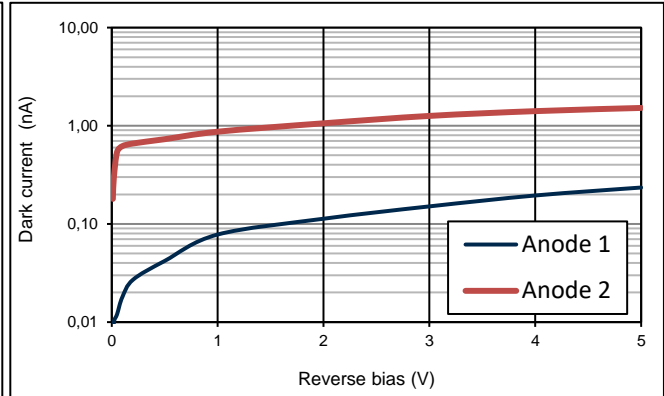
Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area		2750 x 2750			µm
	Active area		7.56			mm <sup>2</sup>
I <sub>D</sub>	Dark current	V <sub>R</sub> = 5 V		10		nA
C	Capacitance	Diode 1; V <sub>R</sub> = 0 V		1		nF
		Diode 2; V <sub>R</sub> = 0 V		100		pF
	Responsivity	Diode 1; λ = 550 nm		0.2		A/W
		Diode 2; λ = 890 nm		0.45		A/W
t <sub>R</sub>	Rise time	Diode 1; V <sub>R</sub> = 0 V; λ = 850 nm; R <sub>L</sub> = 1 kΩ		10		µs
		Diode 2; V <sub>R</sub> = 0 V; λ = 850 nm; R <sub>L</sub> = 1 kΩ		1		µs
	Shunt Resistance	Diode 1; V <sub>R</sub> = 10 mV		2000		MΩ
		Diode 2; V <sub>R</sub> = 10 mV		100		MΩ
V <sub>BR</sub>	Breakdown voltage	I <sub>R</sub> = 2 µA	5	10		V

Quantum efficiency (23 °C)



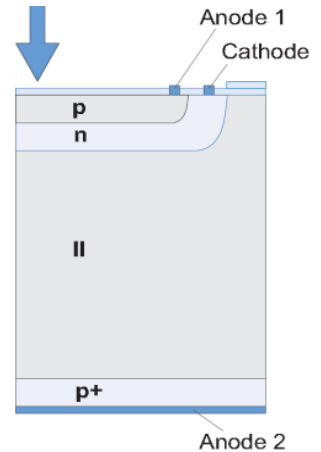
Dark current as fct of bias (23 °C)



## Special characteristics:

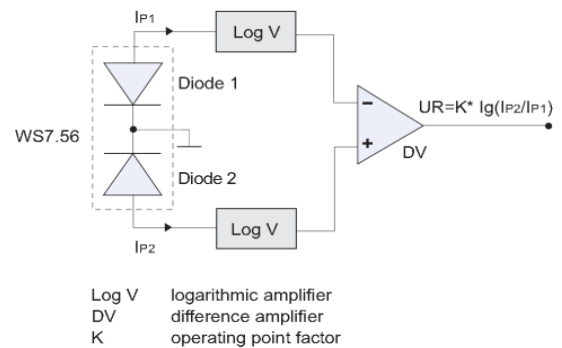
The WS7.56 wavelength sensor has two p-n junctions constructed vertically on a common silicon substrate.

The upper and lower diode have an enhanced blue and red response, respectively. Absorbed radiation between 450 and 900 nm generates two photocurrents proportional to the wavelength of the incident light. The quotient of the signals is independent of light level up to the saturation point. The wavelength of monochromatic light or the spectral density peak of polychromatic light can therefore be determined.



## Application hints:

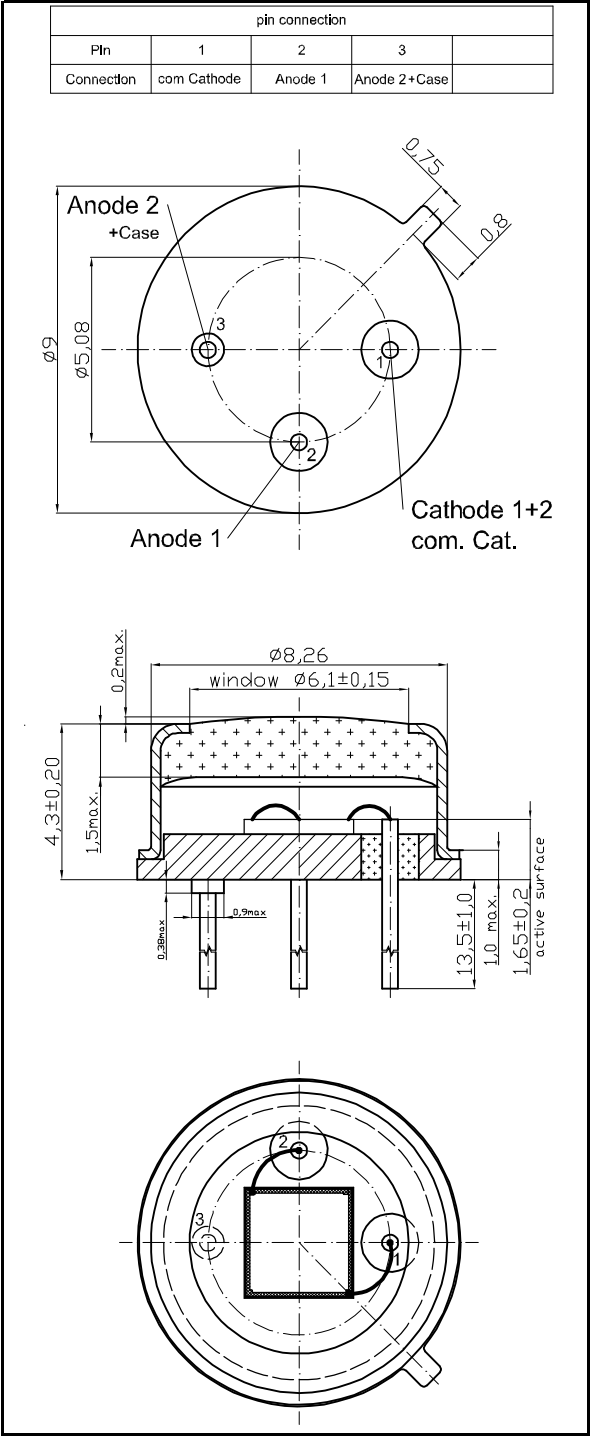
During photovoltaic operation ( $V_{rev} = 0$  V) the quotient of photocurrents from anode 1 and anode 2 is constant for up to 150  $\mu$ W irradiated power. This range can be increased to up to 3 mW when the reverse bias is raised. A recommended application circuit is shown to the right.



## 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".

Order number 3001222, Package: TO5



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

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

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First Sensor:

[3001222](#)