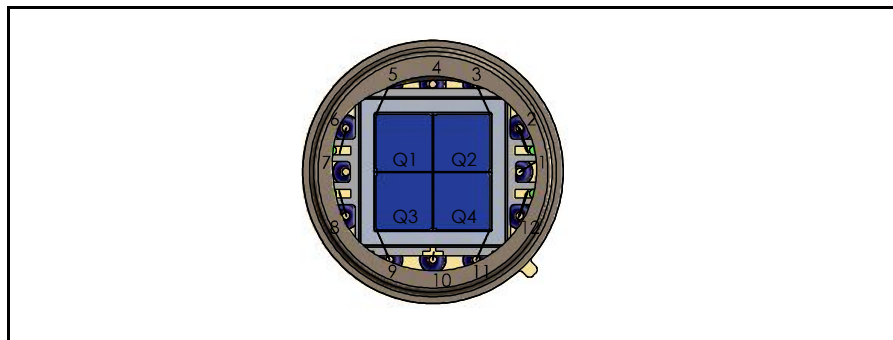
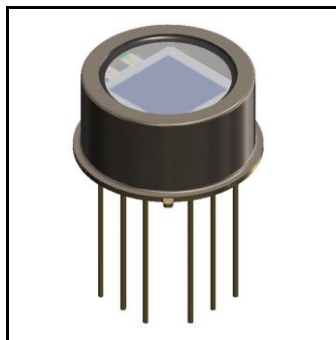




## Features

- Quadrant detector
- Low dark current
- Fast rise time, low capacitance
- High QE at 1064 nm
- Including heater and temperature sensor

## Description

Square active area quadrant PIN detector with 4 x 11 mm<sup>2</sup> active area and 70 µm gaps, optimized for 1064 nm. Metal can type hermetic, isolated TO package with ceramic heater and flat clear glass window.

## Application

- 1064 nm laser detection
- High speed photometry
- NIR pulsed light sensor

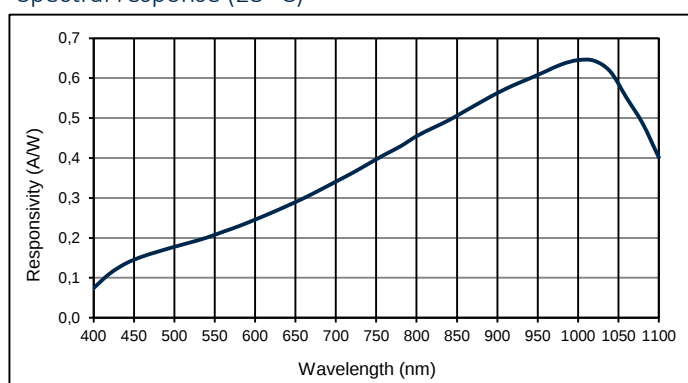
## RoHS

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 | 85  | °C   |
| V <sub>OP</sub>   | Operating voltage |     | 250 | V    |
| I <sub>PEAK</sub> | Peak DC current   |     | 10  | mA   |
| p                 | Outside pressure  |     | 2   | bar  |

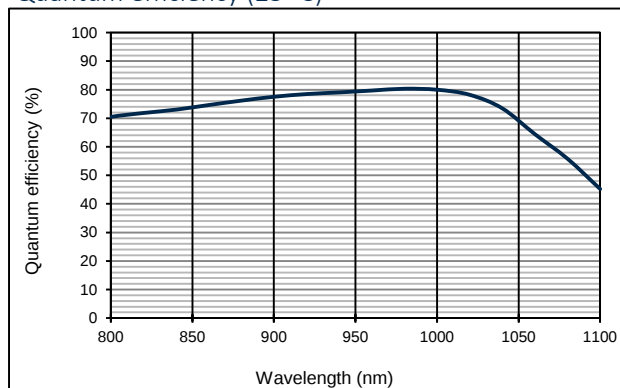
## Spectral response (23 °C)



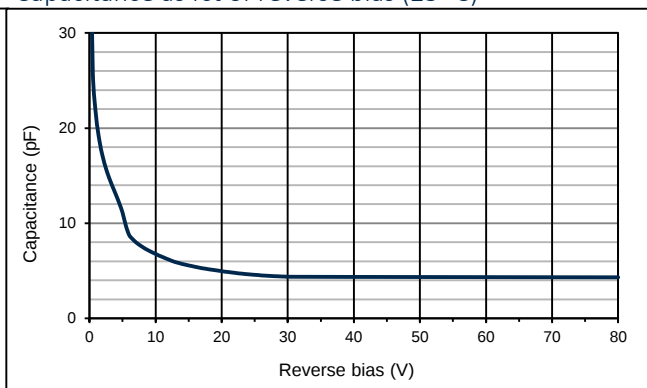
## Electro-optical characteristics @ 23 °C

| Symbol          | Characteristic          | Test Condition                                             | Min                 | Typ     | Max   | Unit            |
|-----------------|-------------------------|------------------------------------------------------------|---------------------|---------|-------|-----------------|
|                 | Active area             | number of elements: 4 quadrants                            | 6690 x 6690 (total) |         |       | µm              |
|                 |                         | per element                                                | 10.96               |         |       | mm <sup>2</sup> |
|                 | Gap                     | between elements                                           | 70                  |         |       | µm              |
| I <sub>D</sub>  | Dark current            | V <sub>R</sub> = 150 V, per element                        |                     | 8       | 15    | nA              |
| C               | Capacitance             | V <sub>R</sub> = 150 V, per element                        |                     | 5       | 6     | pF              |
|                 | Responsivity            | V <sub>R</sub> = 150 V; λ = 1064 nm; R <sub>L</sub> = 50 Ω | 0.42                | 0.48    | 0.65  | A/W             |
| t <sub>R</sub>  | Rise time               | V <sub>R</sub> = 180 V; λ = 1064 nm; R <sub>L</sub> = 50 Ω |                     | 10      |       | ns              |
|                 |                         | 180 V; 1064 nm; TIA terminated (R <sub>L</sub> = 1 Ω)      |                     | 5.5     |       | ns              |
| V <sub>BR</sub> | Breakdown voltage       | I <sub>R</sub> = 2 µA                                      | 250                 |         |       | V               |
|                 | Temperature coefficient | Change of I <sub>PH</sub> with temperature                 |                     | 1.07    |       | %/K             |
|                 | Cross talk              | V <sub>R</sub> = 150 V; λ = 1064 nm; R <sub>L</sub> = 50 Ω |                     | 0.5     | 2     | %               |
|                 | Heating time            | 23°C to 70°C with 21V power supply                         | 1                   | 2       | 3     | s               |
|                 | Heater resistance       | 23°C                                                       | 36                  | 40      | 44    | Ω               |
|                 | Temperature sensor      | PTC, TK = 3500 ± 200 ppm/K                                 | 9950                | 10000   | 10050 | Ω               |
|                 | N.E.P.                  | V <sub>R</sub> = 150 V, λ = 1064 nm                        |                     | 1.1E-13 |       | W/√Hz           |
| FOV             | Field of view           |                                                            | ± 55                |         |       | °               |

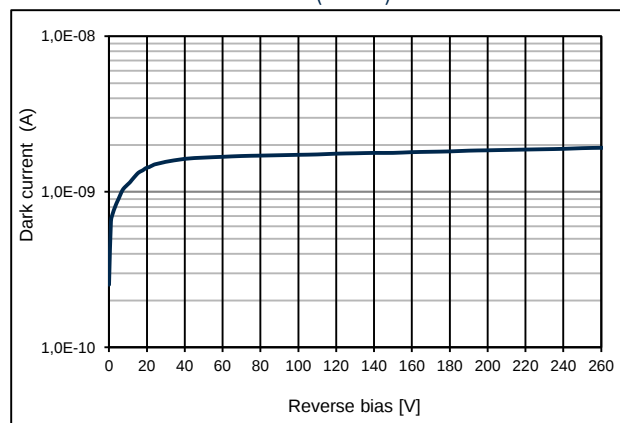
Quantum efficiency (23 °C)



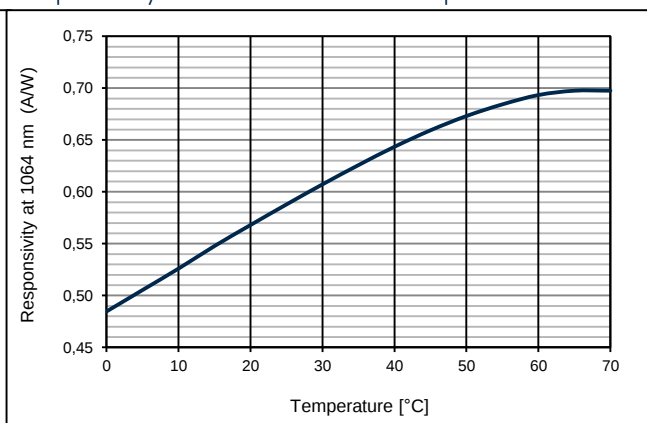
Capacitance as fct of reverse bias (23 °C)



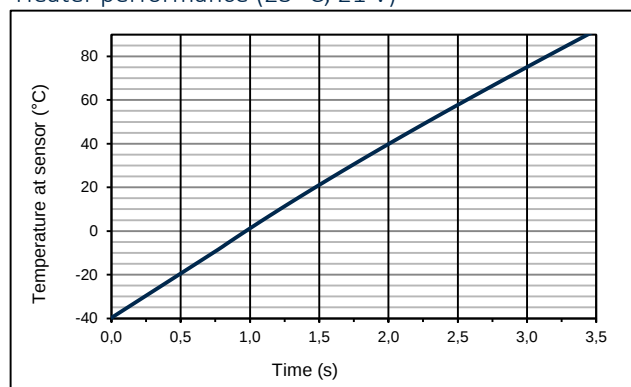
Dark current as fct of bias (23 °C)



Responsivity at 1064 nm as fct of temperature



Heater performance (23 °C, 21 V)



## Package dimension:

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

## Source of origin:

This detector and its components are manufactured in Germany.

|            |      | pin assignment |    |       |    |                |       |                |    |                |    |          |  |
|------------|------|----------------|----|-------|----|----------------|-------|----------------|----|----------------|----|----------|--|
| pin        | 1    | 2              | 3  | 4     | 5  | 6              | 7     | 8              | 9  | 10             | 11 | 12       |  |
| connection | case | heater 1       | Q2 | n. c. | Q1 | temp. sensor 1 | n. c. | temp. sensor 2 | Q3 | common cathode | Q4 | heater 2 |  |

Technical drawing of the 12-pin package showing top, cross-section, and bottom views with dimensions and pin assignments.

**Top View:** Circular package with diameter  $\phi 15,25$ . Pin 12 is at the top. Pins 1-11 are arranged in a circle. Dimensions:  $10,16$  (pin pitch),  $5,08$  (radius to pin center),  $R0,2 \text{ max.}$ ,  $R0,3 \text{ max.}$ ,  $0,8 \pm 0,10$ ,  $45^\circ$ .

**Cross-section View (A-A):** Shows the internal structure. Dimensions:  $\phi 13,96$  (outer diameter),  $\phi 11,1$  (inner diameter),  $10,16 \text{ min.}$  (chip width),  $5,55 \pm 0,30$  (chip surface),  $(0,5 \text{ glass})$  (glass layer),  $7,07 \pm 0,20$  (total height),  $13,2 \pm 0,50$  (lead height),  $12 \times \phi 0,45^{+0,03}_{-0,04}$  (leads),  $\phi 0,3$  (lead diameter),  $\phi 0,2$  A (lead diameter),  $\phi 13,35$  (base diameter).

**Bottom View:** Shows the chip active area. Dimensions:  $4 \times 3,31$  (chip active area),  $\phi 0,1$  A (lead diameter).

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