

### Features

- APD with 0.008 mm<sup>2</sup> active area
- Slow multiplication curve
- QE > 80% @ 750 nm-910 nm
- Fast rise time, low noise
- Optimum gain: 50-60

### Description

Circular active area APD chip with NIR enhanced sensitivity. Metal can type hermetic TO52 package with clear glass window. Two TO52 types available.

### Application

- Laser range finder
- High speed photometry
- High speed optical communications
- Medical equipment

### RoHS

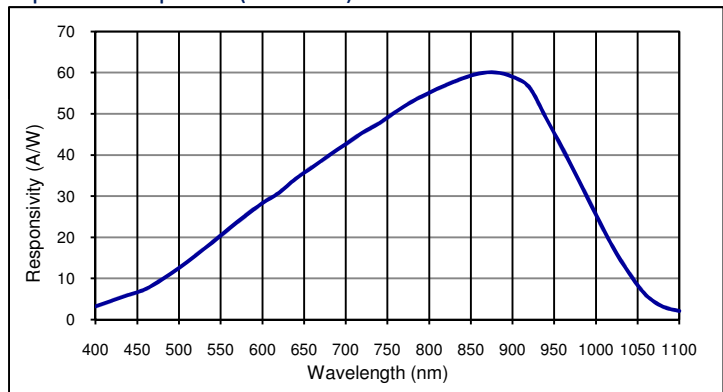
2002/95/EC



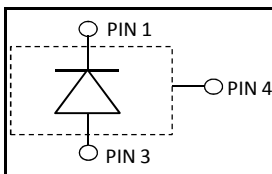
### Absolute maximum ratings

| Symbol            | Parameter                     | Min | Max  | Unit |
|-------------------|-------------------------------|-----|------|------|
| T <sub>STG</sub>  | Storage temp                  | -55 | 125  | °C   |
| T <sub>OP</sub>   | Operating temp                | -40 | 100  | °C   |
| M <sub>max</sub>  | Gain (I <sub>PO</sub> = 1 nA) | 200 |      |      |
| I <sub>PEAK</sub> | Peak DC current               |     | 0.25 | mA   |

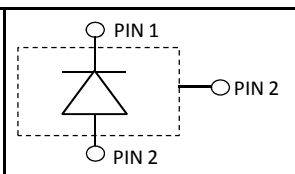
### Spectral response (M = 100)



### Schematic 500010



### Schematic 501195



### Electro-optical characteristics @ 23°C

| Symbol          | Characteristic          | Test Condition   | Min          | Typ | Max  | Unit            |
|-----------------|-------------------------|--|--------------|-----|------|-----------------|
|                 | Active area             |  | diameter 100 |     |      | μm              |
|                 | Active area             |  | 0.00785      |     |      | mm <sup>2</sup> |
| I <sub>D</sub>  | Dark current            | M = 100  |              | 0.1 | 0.5  | nA              |
| C               | Capacitance             | M = 100  |              | 0.2 |      | pF              |
|                 | Responsivity            | M = 100; λ = 905 nm  | 52           | 58  | 60   | A/W             |
| t <sub>R</sub>  | Rise time               | M = 100; λ = 905 nm; R <sub>L</sub> = 50 Ω                 | 0.5          |     |      | ns              |
|                 | Cut-off frequency       | -3dB   | 0.7          |     |      | GHz             |
| V <sub>BR</sub> | Breakdown voltage       | I <sub>R</sub> = 2 μA, V <sub>BR</sub> - binning available | 160          |     | 240  | V               |
|                 | Temperature coefficient | Change of V <sub>BR</sub> with temperature                 | 1.25         |     | 1.55 | V/K             |
|                 | Excess noise factor     | M = 100  |              | 2.5 |      |                 |
|                 | Excess noise index      | M = 100  |              | 0.2 |      |                 |

#### European, International Sales:

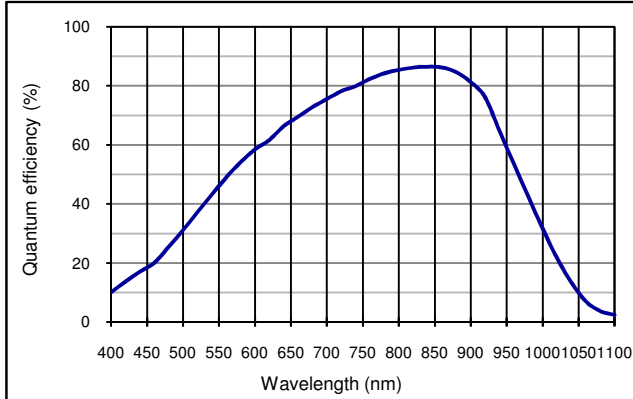
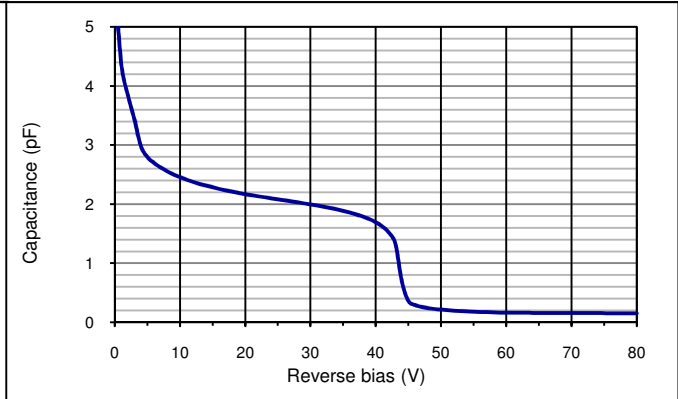
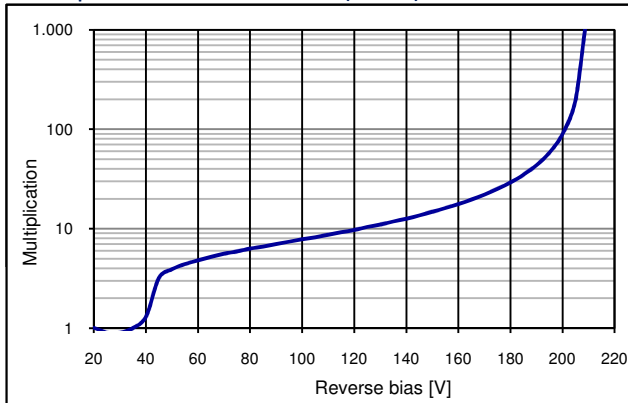
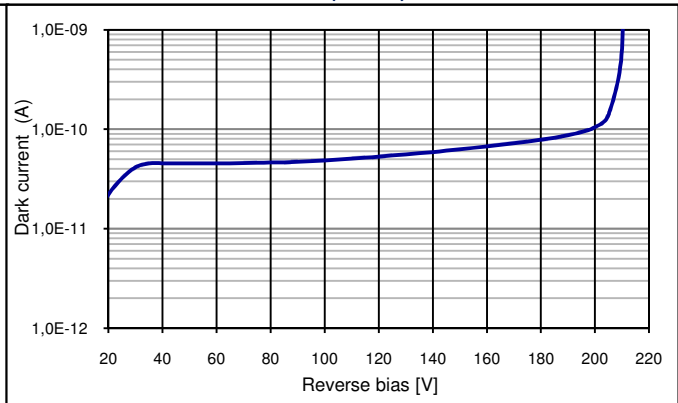
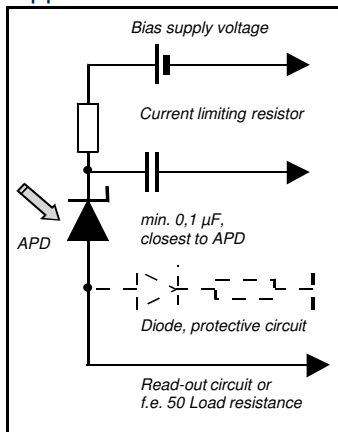


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**Quantum efficiency (23 °C)**

**Capacitance as fct of reverse bias (23 °C)**

**Multiplication as fct of bias (23 °C)**

**Dark current as fct of bias (23 °C)**

**Application hints:**


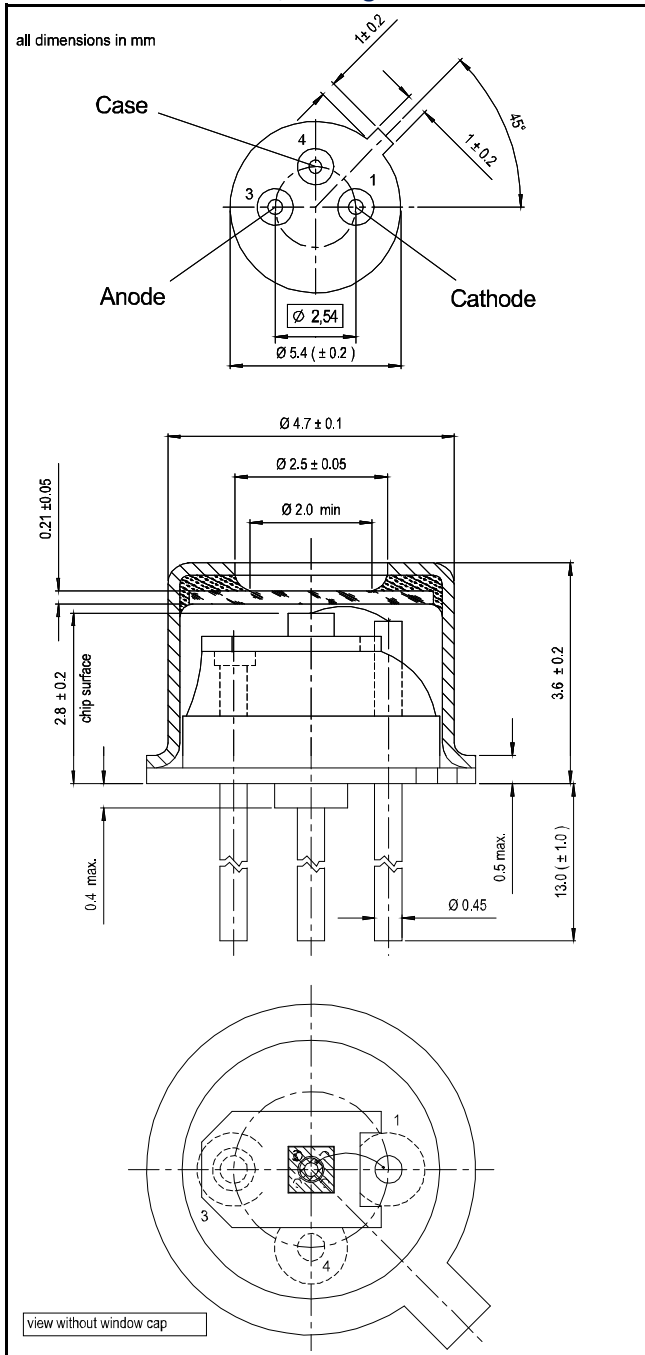
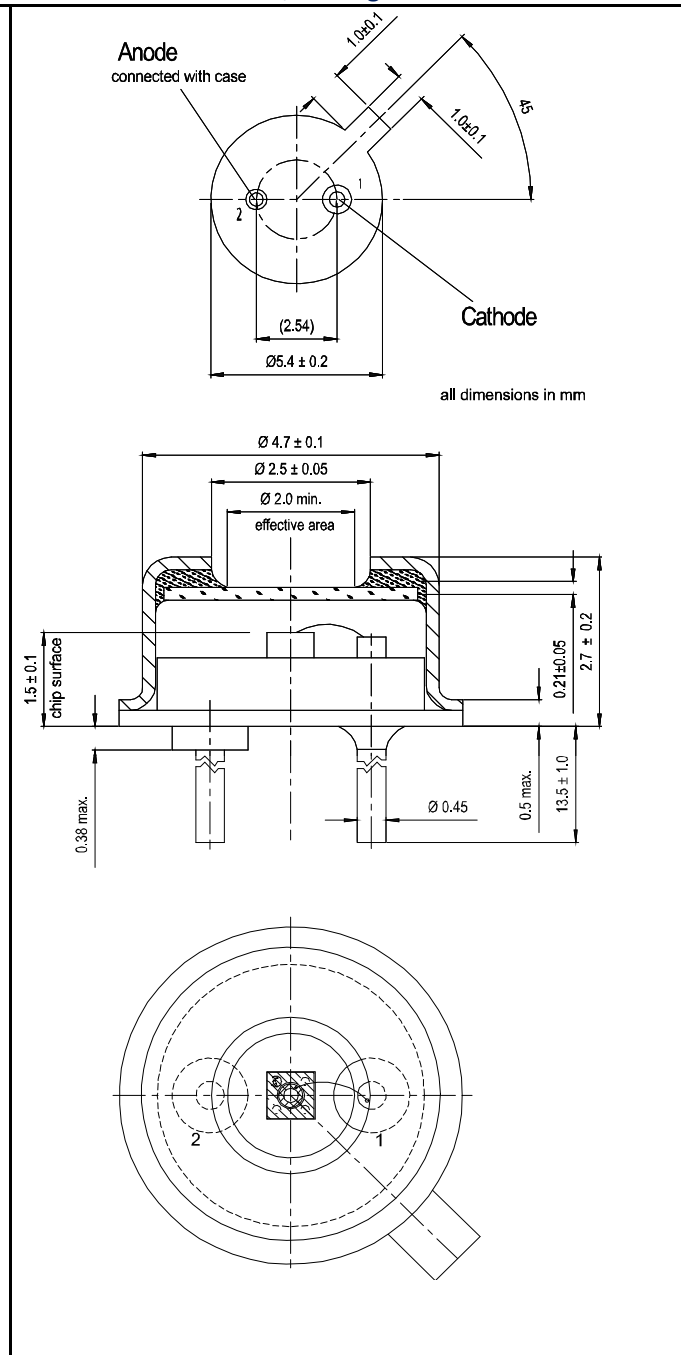
- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- For low light level applications blocking of ambient light should be used
- For high gain applications bias voltage should be temperature compensated
- Please consider basic ESD protection while handling
- Use low noise read-out - IC
- For further questions please refer to document "Instructions for handling and processing"
- Optimum gain: 50-60

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**Order number 500010, Package: TO52S1**

**Order number 501195, Package: TO52S3**

**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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