

### Features

- $\phi 4000 \mu\text{m}$  active area
- High QE for  $\lambda = 850\text{-}1064 \text{ nm}$
- Low noise
- Low slope multiplication curve

### Description

Circular active area APD chip with IR enhanced sensitivity. Low dark current due to guard ring diode. Metal can type hermetic TO8Si package with clear glass window.

### Application

- Pulsed 1064 nm laser detection
- Laser range finding
- Fluorescence detection

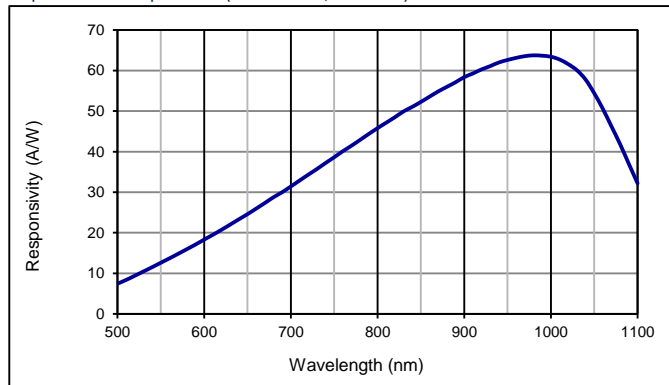
### RoHS

2011/65/EU

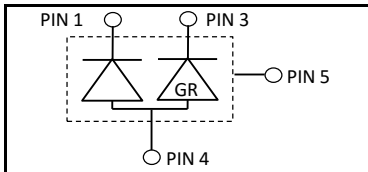
### Absolute maximum ratings

| Symbol     | Parameter                        | Min  | Max  | Unit             |
|------------|----------------------------------|------|------|------------------|
| $T_{STG}$  | Storage temp                     | -55  | 125  | $^\circ\text{C}$ |
| $T_{OP}$   | Operating temp                   | -40* | 100  | $^\circ\text{C}$ |
| $M_{max}$  | Gain ( $I_{P0} = 1 \text{ nA}$ ) | 1000 |      |                  |
| $I_{PEAK}$ | Peak DC current                  |      | 0.25 | mA               |

### Spectral response ( $M = 100$ ; $23 \text{ }^\circ\text{C}$ )



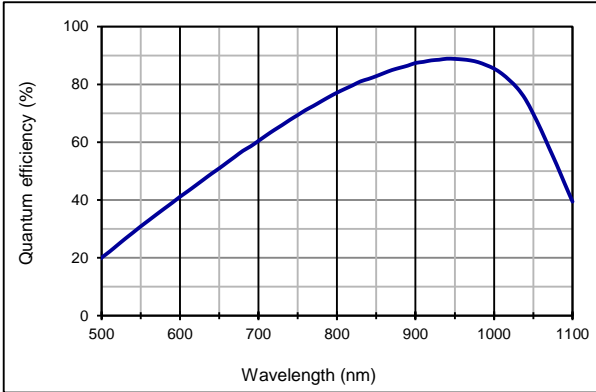
### Schematic



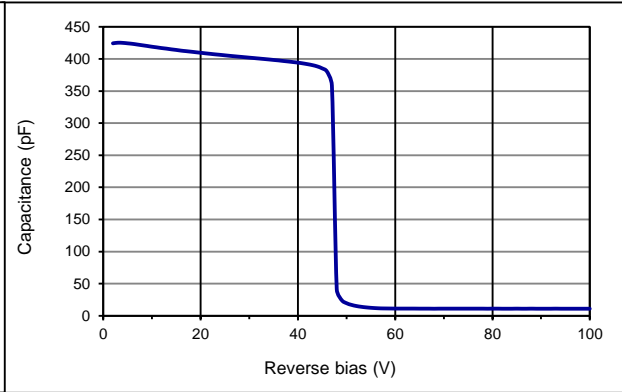
### Electro-optical characteristics @ $23 \text{ }^\circ\text{C}$

| Symbol   | Characteristic          | Test Condition  | Min         | Typ | Max | Unit          |
|----------|-------------------------|---|-------------|-----|-----|---------------|
|          | Active area             |   | $\phi 4000$ |     |     | $\mu\text{m}$ |
|          | Active area             |   | 12.56       |     |     | $\text{mm}^2$ |
| $I_D$    | Dark current            | $M = 100$   |             | 50  | 500 | nA            |
| C        | Capacitance             | $M = 100$   |             | 15  |     | pF            |
|          | Responsivity            | $M = 100$ ; $\lambda = 905 \text{ nm}$                      |             | 59  |     | A/W           |
|          | Responsivity            | $M = 100$ ; $\lambda = 1064 \text{ nm}$                     |             | 49  |     | A/W           |
| $t_R$    | Rise time               | $M = 100$ ; $\lambda = 1064 \text{ nm}$ ; $R_L = 50 \Omega$ |             | 6   |     | ns            |
| $t_R$    | Cut-off frequency       | -3dB  |             | 70  |     | MHz           |
| $V_{BR}$ | Breakdown voltage       | $I_R = 2 \mu\text{A}$                                       | 220         | 300 | 600 | V             |
|          | Temperature coefficient |   |             | 3.3 |     | V/K           |

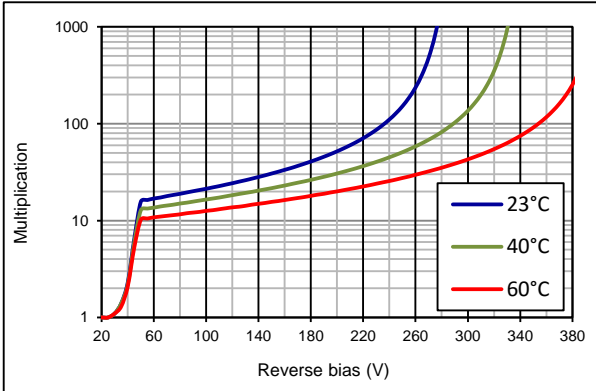
Quantum efficiency (23 °C)



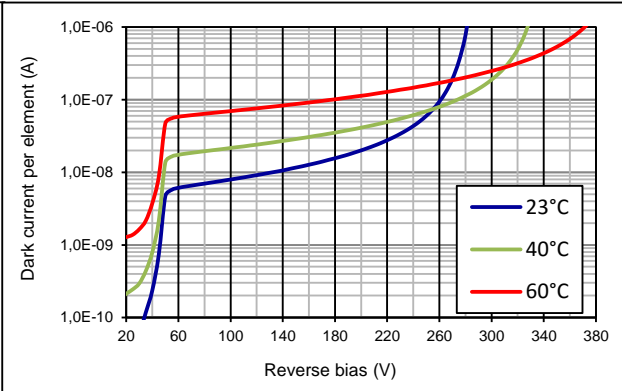
Capacitance as fct of reverse bias (23 °C)



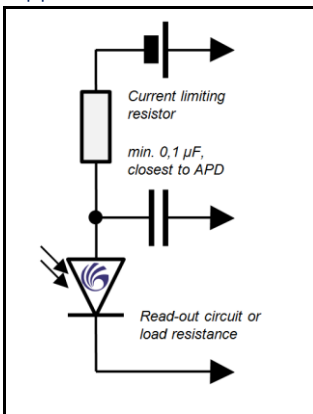
Multiplication as fct of reverse bias



Dark current as fct of reverse bias



Application hints:



- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- Guard ring should be connected to ground
- 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" and application notes for APDs and APD-Arrays

Package dimension:

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