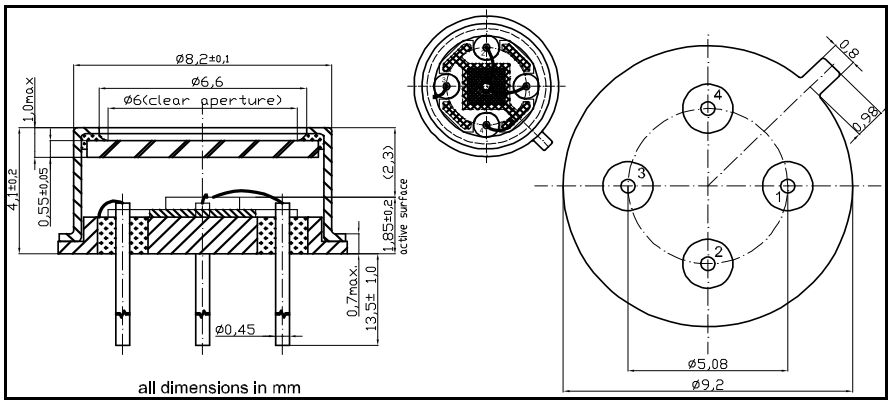
First Sensor

First Sensor APD Data Sheet
Part Description AD800-10 TO
Order # 501233
Version 09-10-15





Features

- ø 800 µm active area
- High QE for λ = 850-1064 nm
- Low noise
- Low slope multiplication curve

Description

Circular active area APD chip with IR enhanced sensitivity. Very low dark current due to guard ring diode. Metal can type hermetic TO5i package with clear glass window.

Application

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

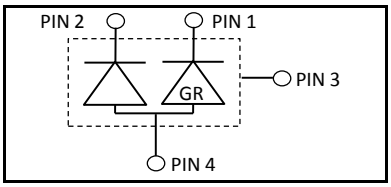
RoHS

2011/65/EU

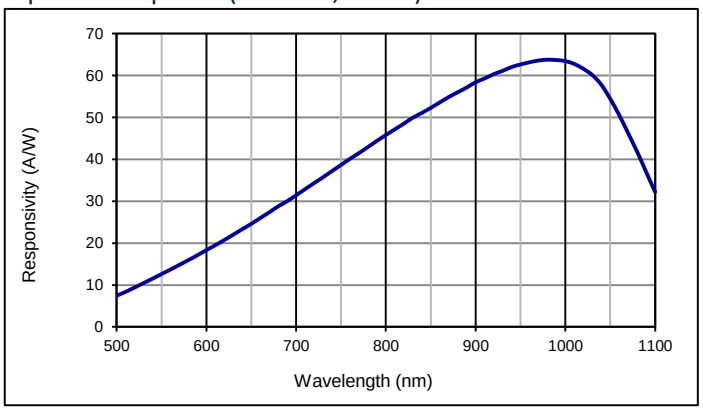
Absolute maximum ratings

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

Schematic



Spectral response (M = 100; 23 °C)



Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area			ø 800		µm
	Active area			0.5		mm²
I_D	Dark current	M = 100		3	25	nA
C	Capacitance	M = 100		1		pF
	Responsivity	M = 100; λ = 905 nm		59		A/W
	Responsivity	M = 100; λ = 1064 nm		49		A/W
t_R	Rise time	M = 100; λ = 1064 nm; R_L = 50 Ω		5		ns
t_R	Cut-off frequency	-3dB		70		MHz
V_{BR}	Breakdown voltage	I_R = 2 µA	220	300	600	V
	Temperature coefficient			3.3		V/K

* please note that depending on operation voltage APD operation at temperatures below -15°C may require sophisticated control circuit.

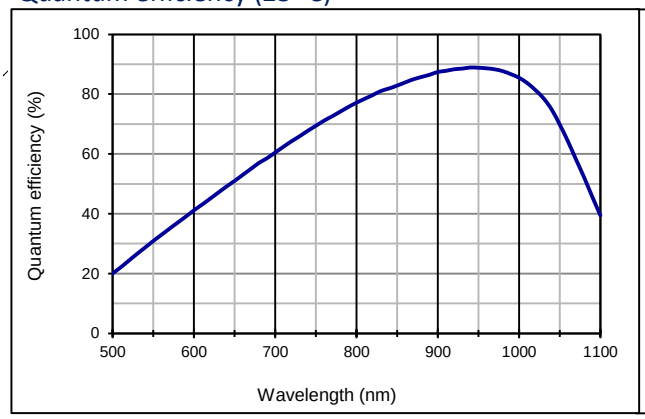
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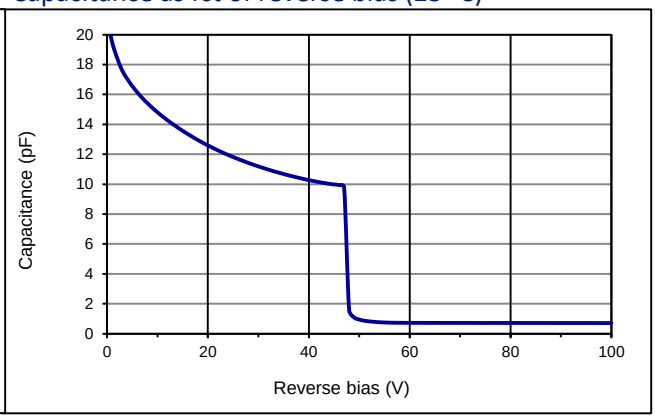
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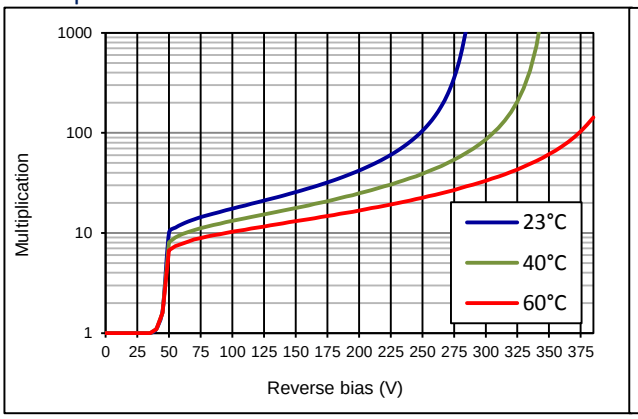
Quantum efficiency (23 °C)



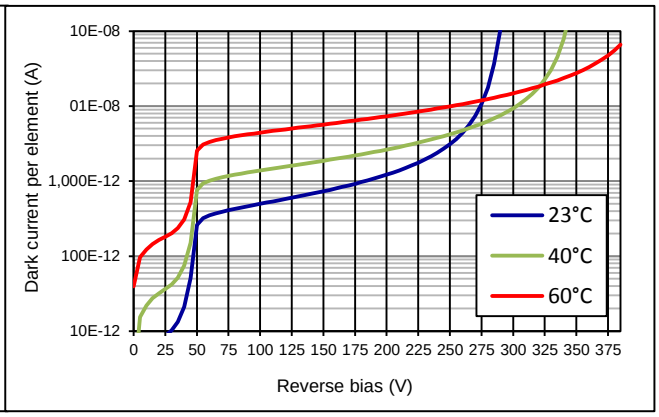
Capacitance as fct of reverse bias (23 °C)



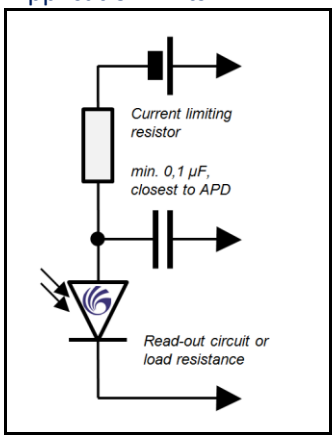
Multiplication as fct of reverse bias



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)

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

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