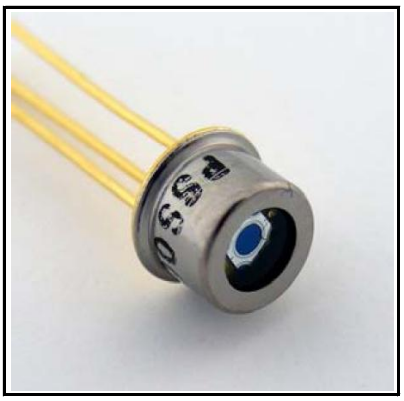
First Sensor

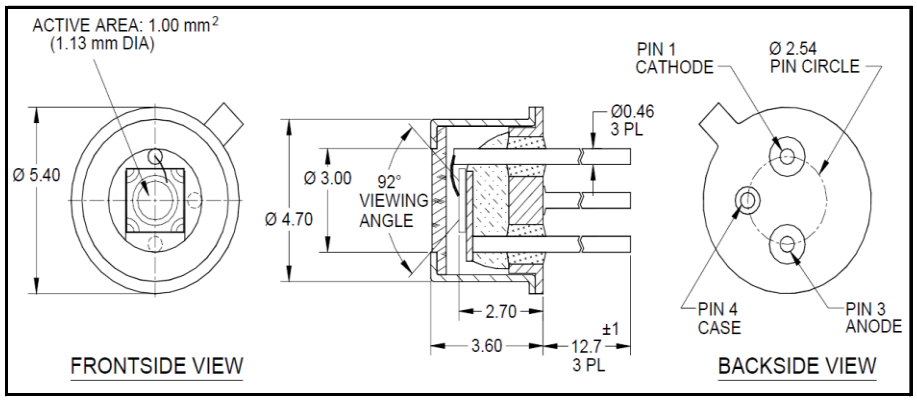
First Sensor APD Data Sheet

Part Description AD1100-8 TO

Order # 501117

Version 20-06-11





Features

- APD with 1.0 mm² active area
- 1130 µm diameter active area
- High gain at low bias voltage
- Fast rise time, low capacitance
- Optimum gain: 50-60

Description

Circular active area APD chip with 1130 µm diameter. Metal can type hermetic TO52 package with clear glass window.

Application

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

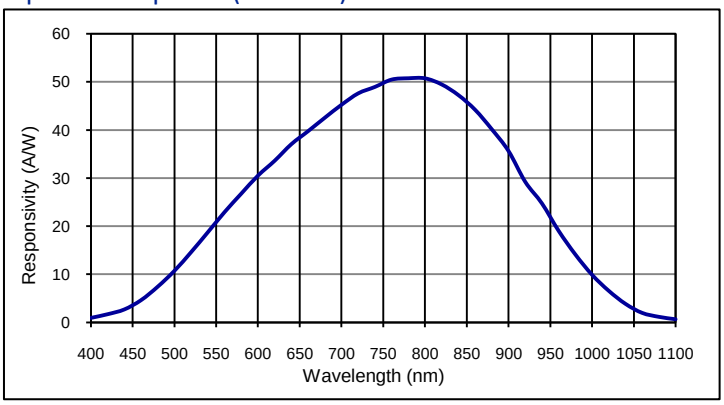
RoHS

2002/95/EC

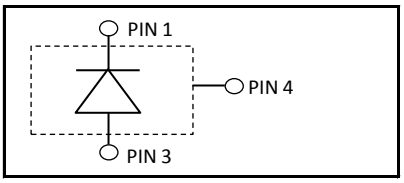
Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-55	125	°C
T_{OP}	Operating temp	-40	100	°C
M_{max}	Gain (I_{P0} = 1 nA)	200		
I_{PEAK}	Peak DC current		0.25	mA

Spectral response (M = 100)



Schematic



Electro-optical characteristics @ 23 °C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area			diameter 1130		µm
	Active area			1.0		mm²
I_D	Dark current	M = 100		4.0	8.0	nA
C	Capacitance	M = 100		8.0		pF
	Responsivity	M = 100; λ = 800 nm	45	50		A/W
t_R	Rise time	M = 100; λ = 905 nm; R_L = 50 Ω		1.0		ns
	Cut-off frequency	-3dB		0.35		GHz
V_{BR}	Breakdown voltage	I_R = 2 µA, V_{BR} - binning available	80	150	240	V
	Temperature coefficiant	Change of V_{BR} with temperature		0.45		V/K
	Excess noise factor	M = 100		2.2		
	Excess noise index	M = 100		0.2		

European, International Sales:

First Sensor

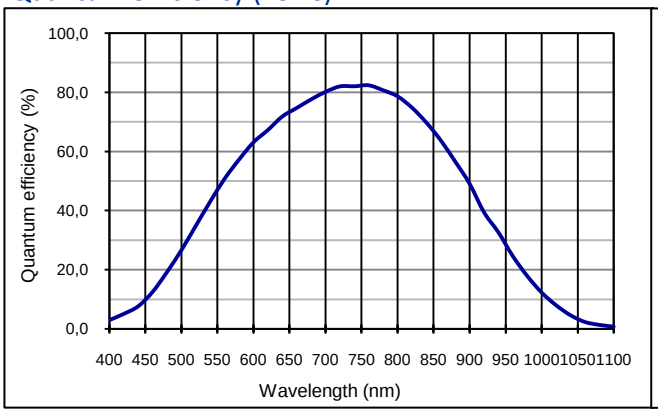
First Sensor AG
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12459 Berlin
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sales.opto@first-sensor.com

USA:

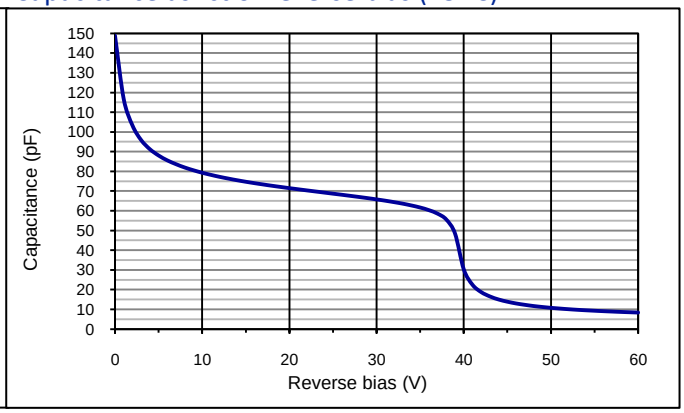
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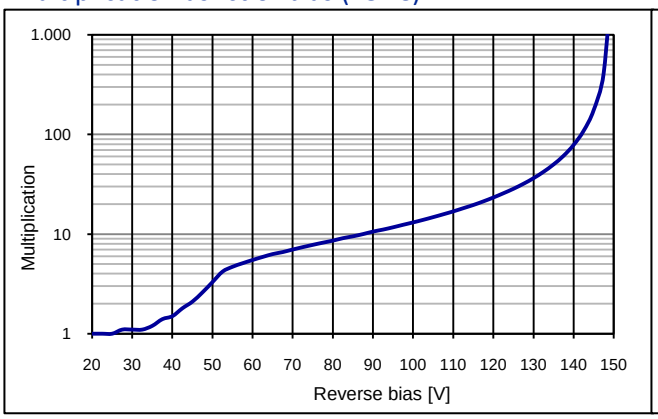
Quantum efficiency (23 °C)



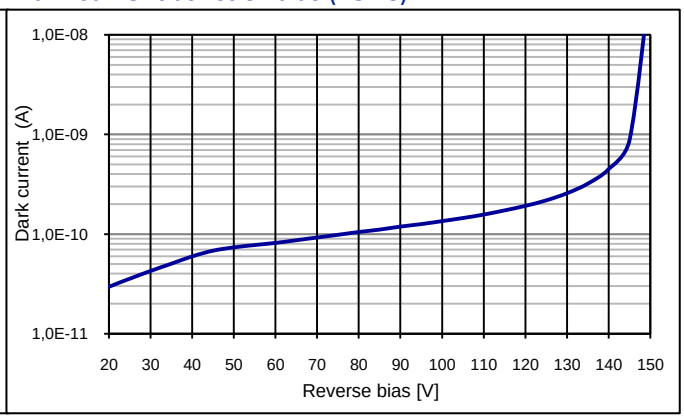
Capacitance as fct of reverse bias (23 °C)



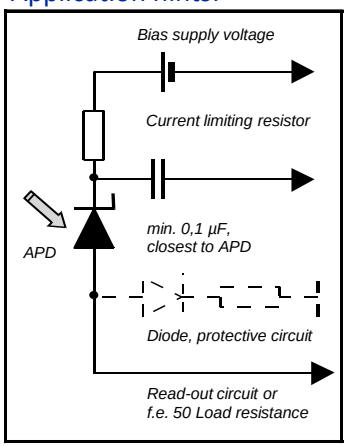
Multiplication as fct of bias (23 °C)



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

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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