First Sensor

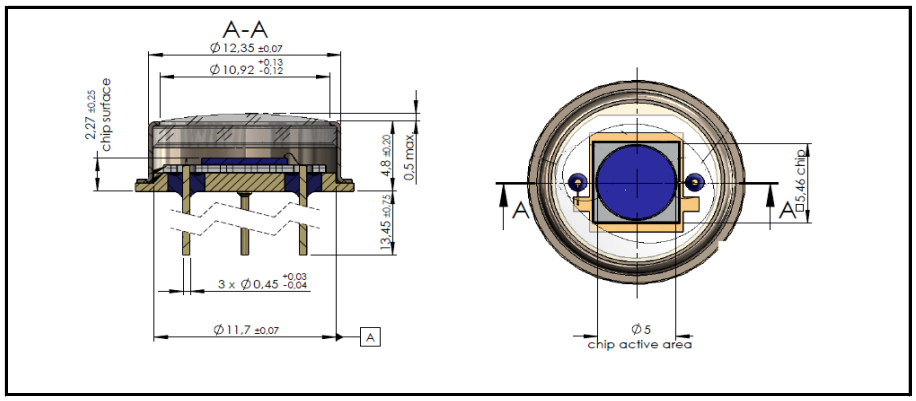
First Sensor APD Data Sheet

Part Description AD5000-9 TO

Order # 50016101

Version 28-10-15





Features

- APD with 19.6 mm² 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 TO8i package with clear glass window.

Application

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

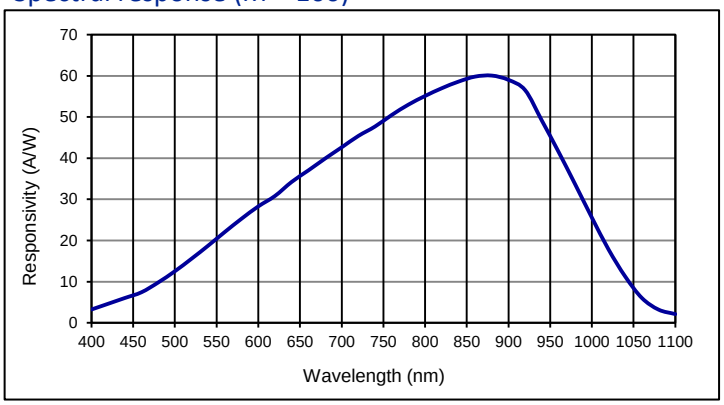
RoHS

2002/95/EC

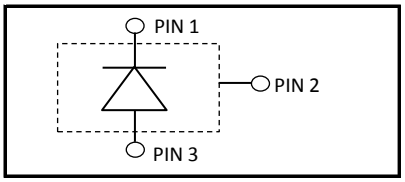
Absolute maximum ratings

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 5000		µm
	Active area			19.6		mm²
I_D	Dark current	M = 100		60		nA
C	Capacitance	M = 100		45		pF
	Responsivity	M = 100; λ = 905 nm	52	58	60	A/W
t_R	Rise time	M = 100; λ = 905 nm; R_L = 50 Ω		3		ns
	Cut-off frequency	-3dB		0.12		GHz
V_{BR}	Breakdown voltage	I_R = 2 µA, V_{BR} - binning available	160		240	V
	Temperature coefficiant	Change of V_{BR} 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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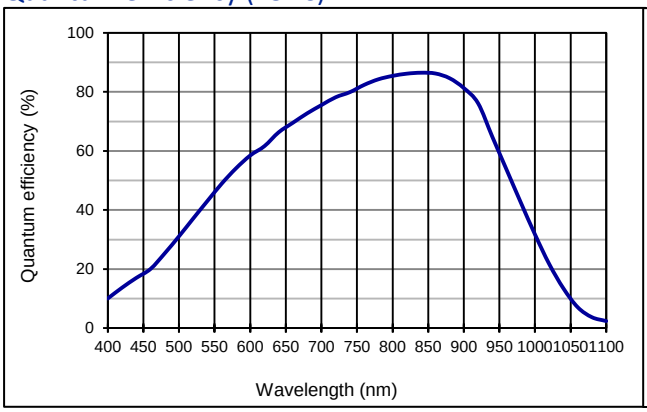
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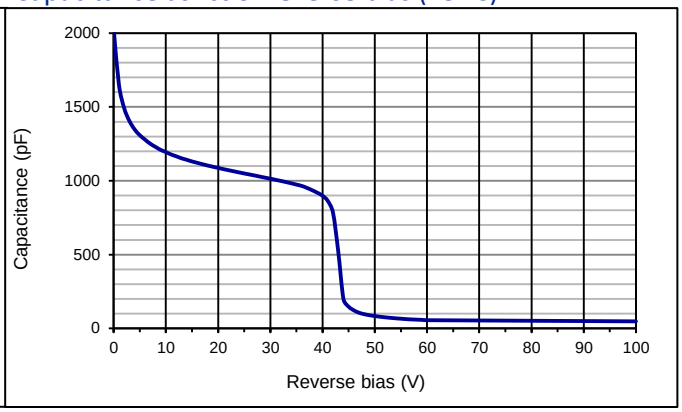
First Sensor

First Sensor APD Data Sheet
Part Description AD5000-9 TO
Order # 50016101
Version 28-10-15

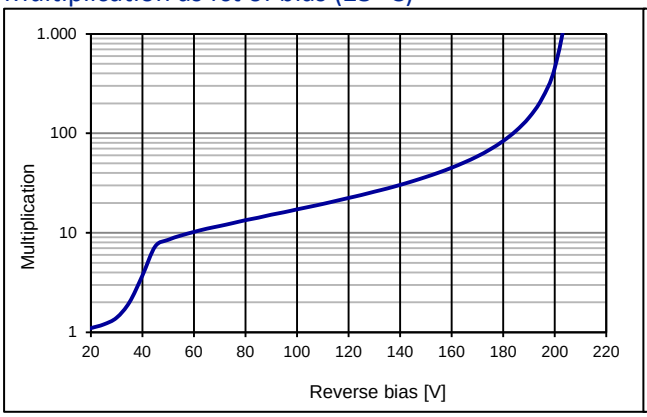
Quantum efficiency (23 °C)



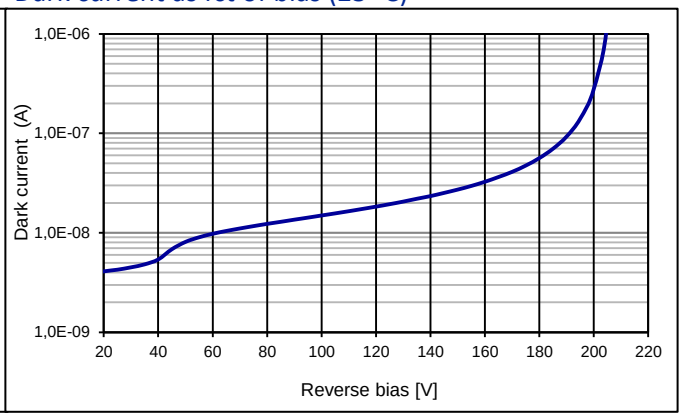
Capacitance as fct of reverse bias (23 °C)



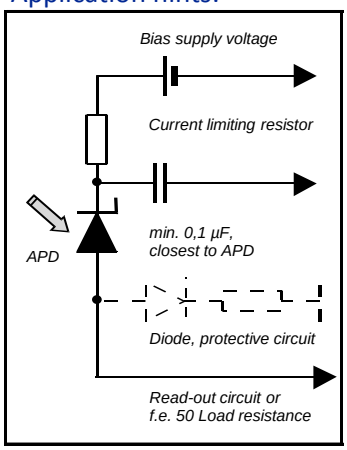
Multiplication as fct of bias (23 °C)



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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