



AD500-9 TO

Description

Circular active area APD chip with NIR enhanced sensitivity. Metal can type hermetic TO52 package with 905nm BP filter.

Features

- APD with 0.2 mm² active area
- Slow multiplication curve
- QE > 80% @ 750 nm-910 nm
- Fast rise time, low noise
- Optimum gain: 50-60

Applications

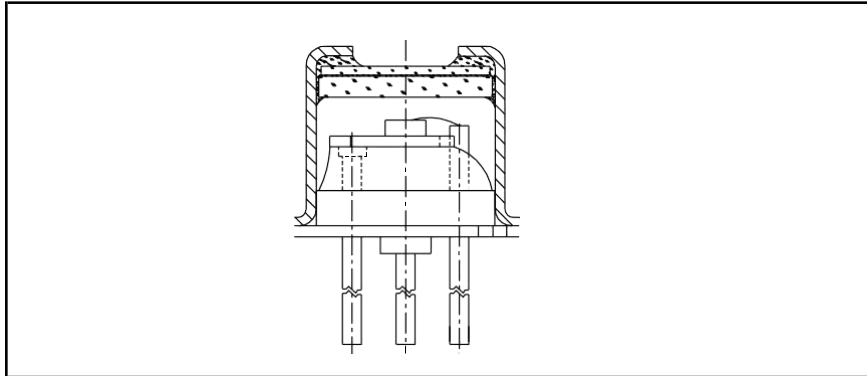
- Laser range finder
- High speed photometry
- High speed optical communications
- Medical equipment
- LIDAR

RoHS

2011/65/EU

2015/863/EU

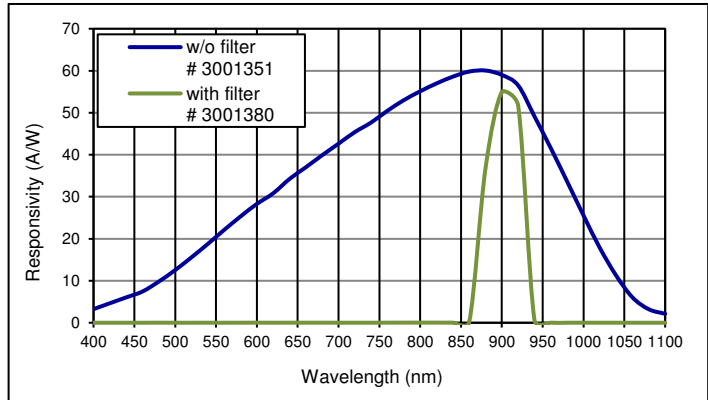
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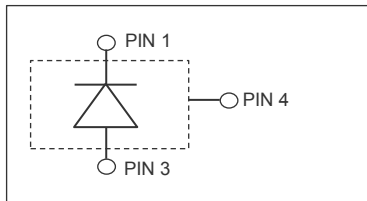
Absolute maximum rating

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

Spectral response ($M = 100$)



Schematic

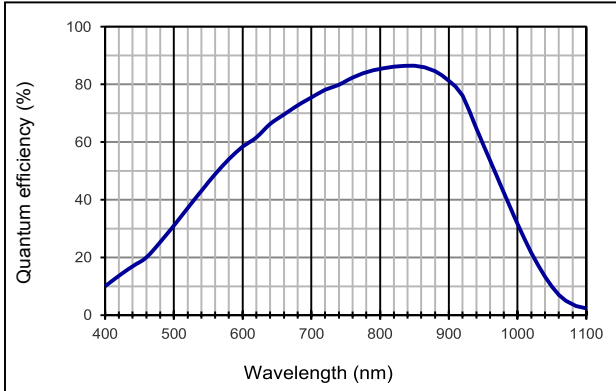


Electro-optical characteristics @ 23°C

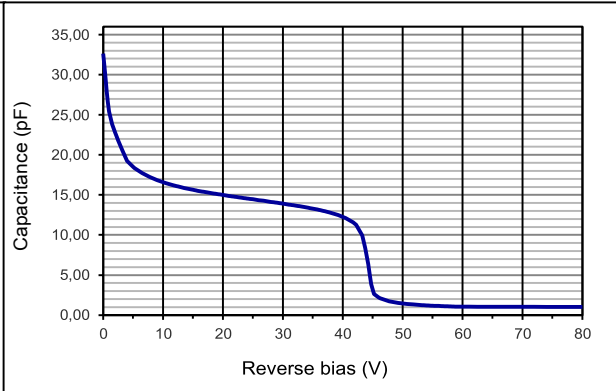
Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area		diameter 500			μm
	Active area		0.196			mm^2
I_D	Dark current	$M = 100$		0.8	2.0	nA
C	Capacitance	$M = 100; f = 100 \text{ kHz}$		1.2		pF
	Responsivity with filter	$M = 100; \lambda = 905 \text{ nm}$	38	49		A/W
t_R	Rise time	$M = 100; \lambda = 905 \text{ nm}; R_L = 50 \Omega$		0.55		ns
	Cut-off frequency	-3dB		0.5		GHz
V_{BR}	Breakdown voltage*	$I_R = 2 \mu\text{A}$	160		200	V
	Temperature coefficient	Change of V_{BR} with temperature	1.25	1.45	1.55	V/K
	Excess noise factor	$M = 100; \text{calculated}$		2.5		
	Excess noise index	$M = 100; \text{calculated}$		0.2		

* $\pm 2\text{V}$ measuring tolerance on upper and lower limits

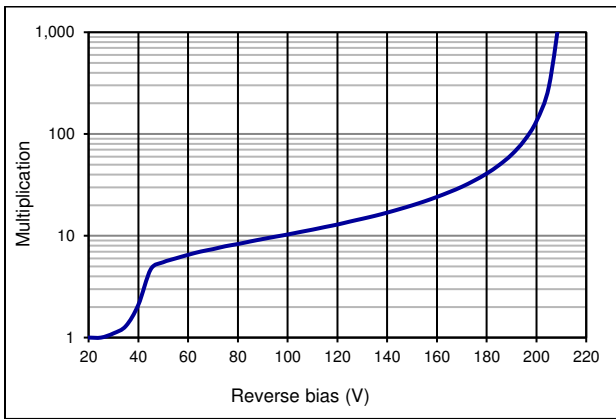
Quantum efficiency (23 °C)



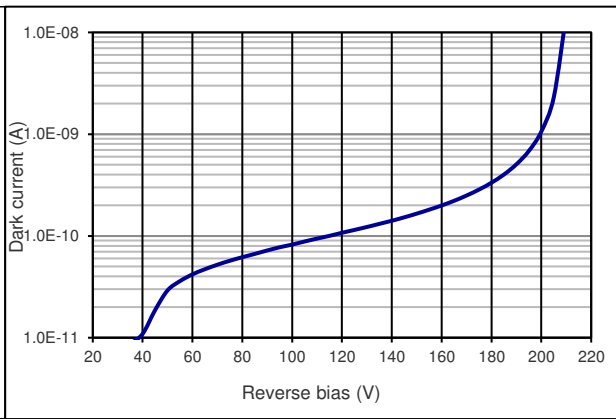
Capacitance as fct of reverse bias (23 °C)



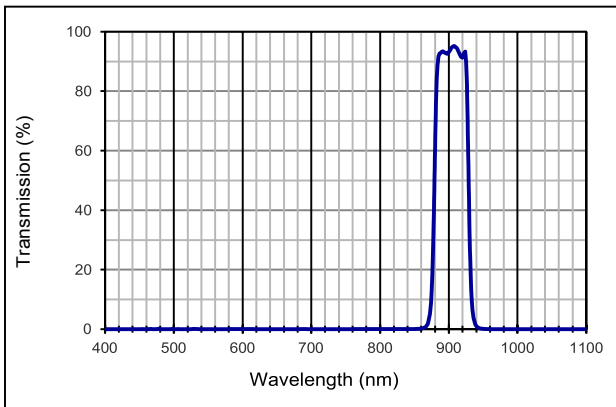
Multiplication as fct of bias (23 °C)



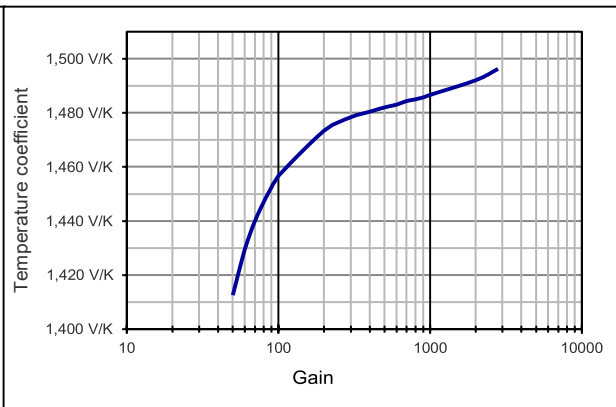
Dark current as fct of bias (23 °C)



Filter characteristics 905 nm band pass



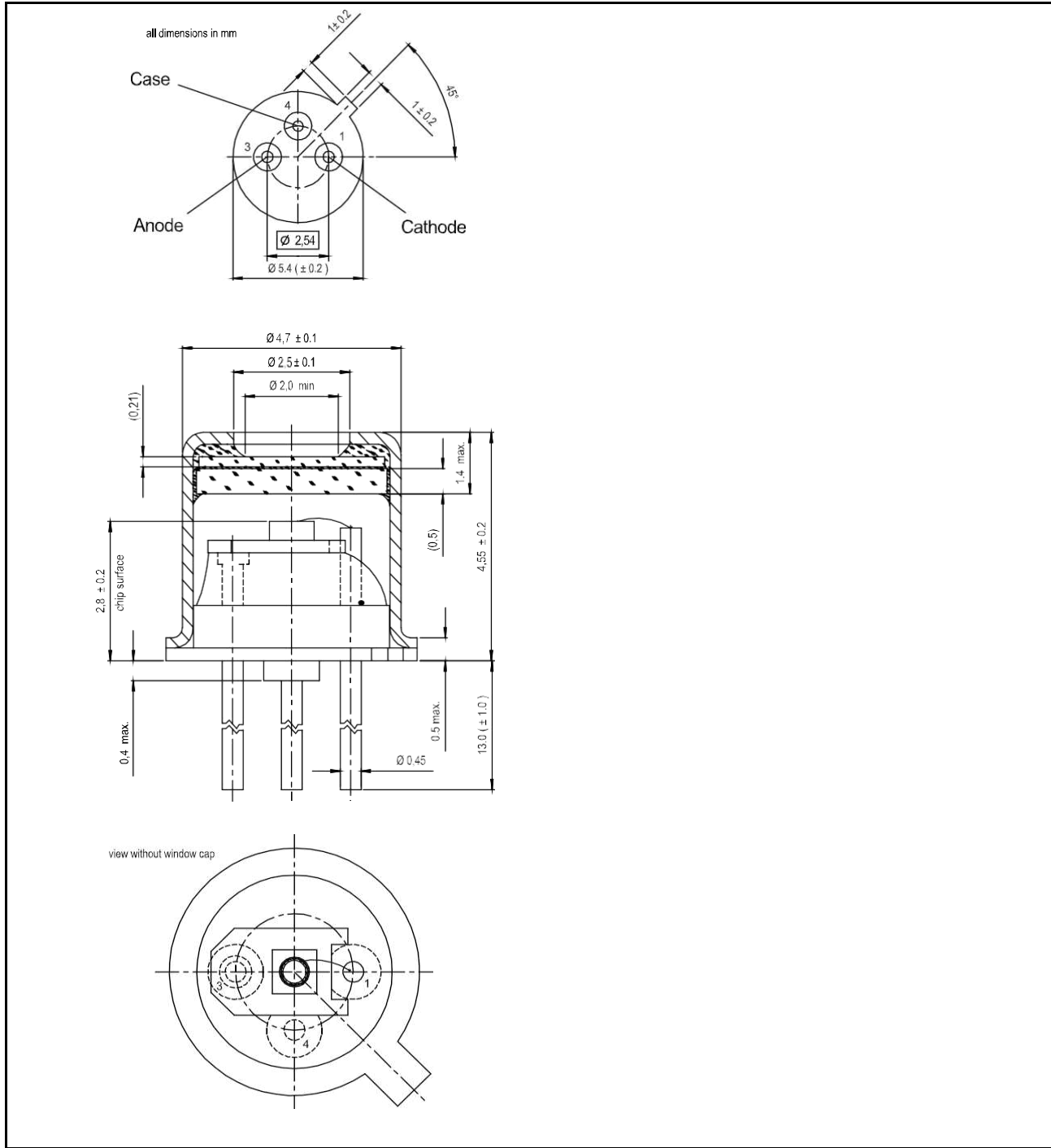
TC as fact of Gain



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"

Package: TO52S1F2



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.

AD500-9 TO

Optical inspection

Optical inspection according to failure catalogue for optical sensors FK INS 203.

Ordering Information

Description	TE Part Number	MPQ
AD500-9 TO (TO52S1F2;BP905;160-200V)	3001380-F	1000 pcs

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NORTH AMERICA
Tel +1 800 522 6752

EUROPE
Tel +31 73 624 6999

ASIA
Tel +86 0400 820 6015

te.com/sensors

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