te.com



AD500-8 TO

Description

Circular active area APD chip with 500 µm diameter. Metal can type hermetic TO52 package with clear glass window.

Features

- APD with 0.2 mm² active area
- 500 µm diameter active area
- High gain at low bias voltage
- Fast rise time, low capacitance
- Optimum gain: 50-60

Applications

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

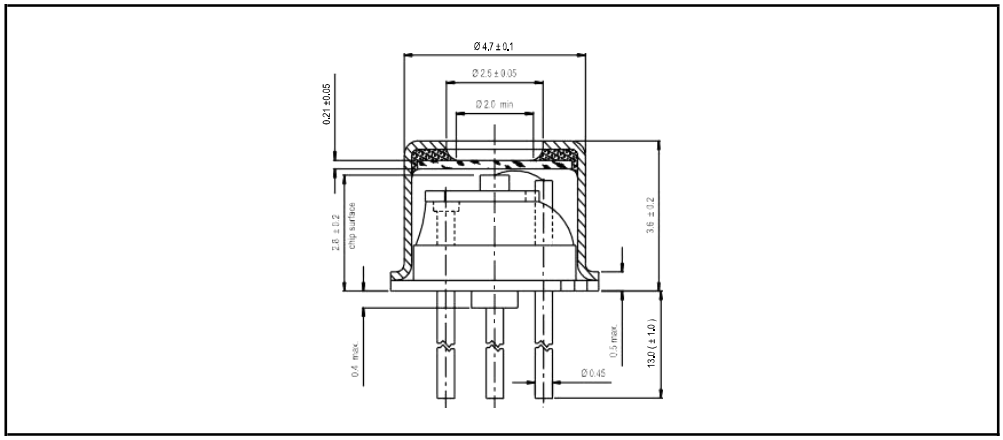
RoHS

2011/65/EU

2015/863/EU

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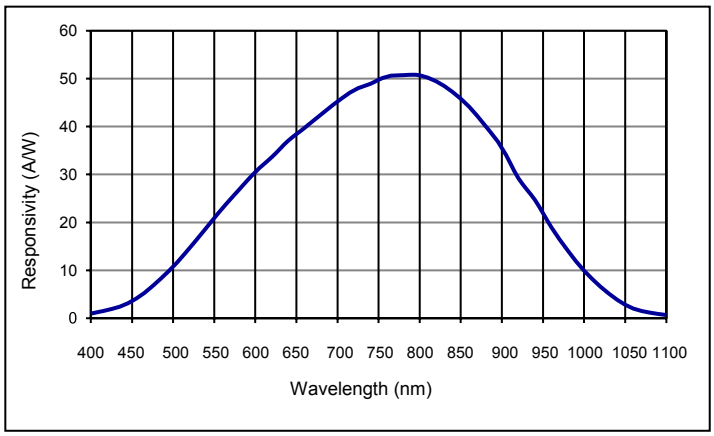
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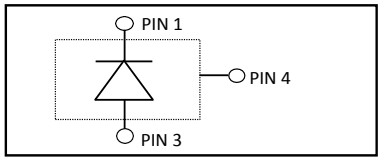
Absolute maximum rating

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 nA)	200		
I_{PEAK}	Peak DC current		0.25	mA

Spectral response (M = 100)



Schematic



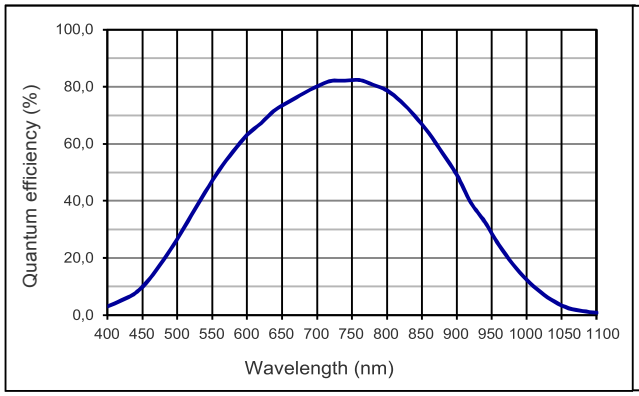
Electro-optical characteristics @ 23°C

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area		diameter 500			µm
	Active area		0.196			mm²
I_D	Dark current	M = 100		0.5	1.0	nA
C	Capacitance	M = 100; f = 100 kHz		2.2		pF
	Responsivity	M = 100; λ = 800 nm	45	50		A/W
t_R	Rise time	M = 100; λ = 905 nm; R_L = 50 Ω		0.35		ns
	Cut-off frequency	-3dB		1		GHz
V_{BR}	Breakdown voltage*	I_R = 2 µA	80		120	V
	Temperature coefficient	Change of V_{BR} with temperature	0.35	0.45	0.55	V/K
	Excess noise factor	M = 100; calculated		2.2		
	Excess noise index	M = 100; calculated		0.2		

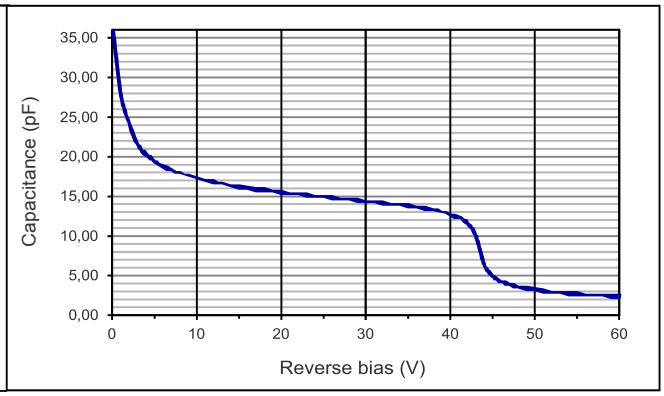
* ±1V measuring tolerance on upper and lower limits

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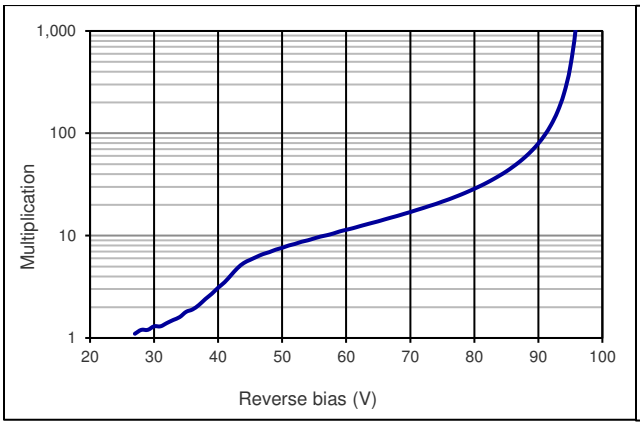
Quantum efficiency (23 °C)



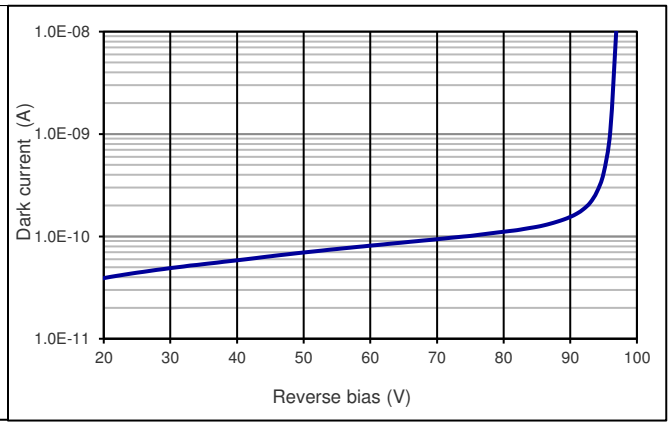
Capacitance as fct of reverse bias (23 °C)



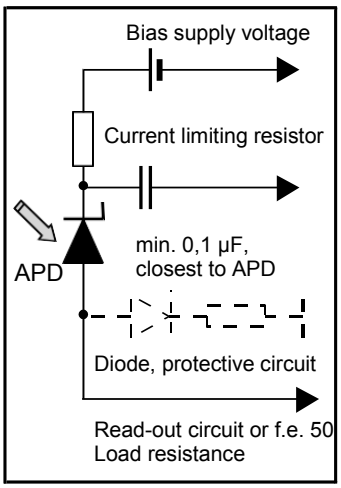
Multiplication as fct of bias (23 °C)



Dark current as fct of bias (23 °C)



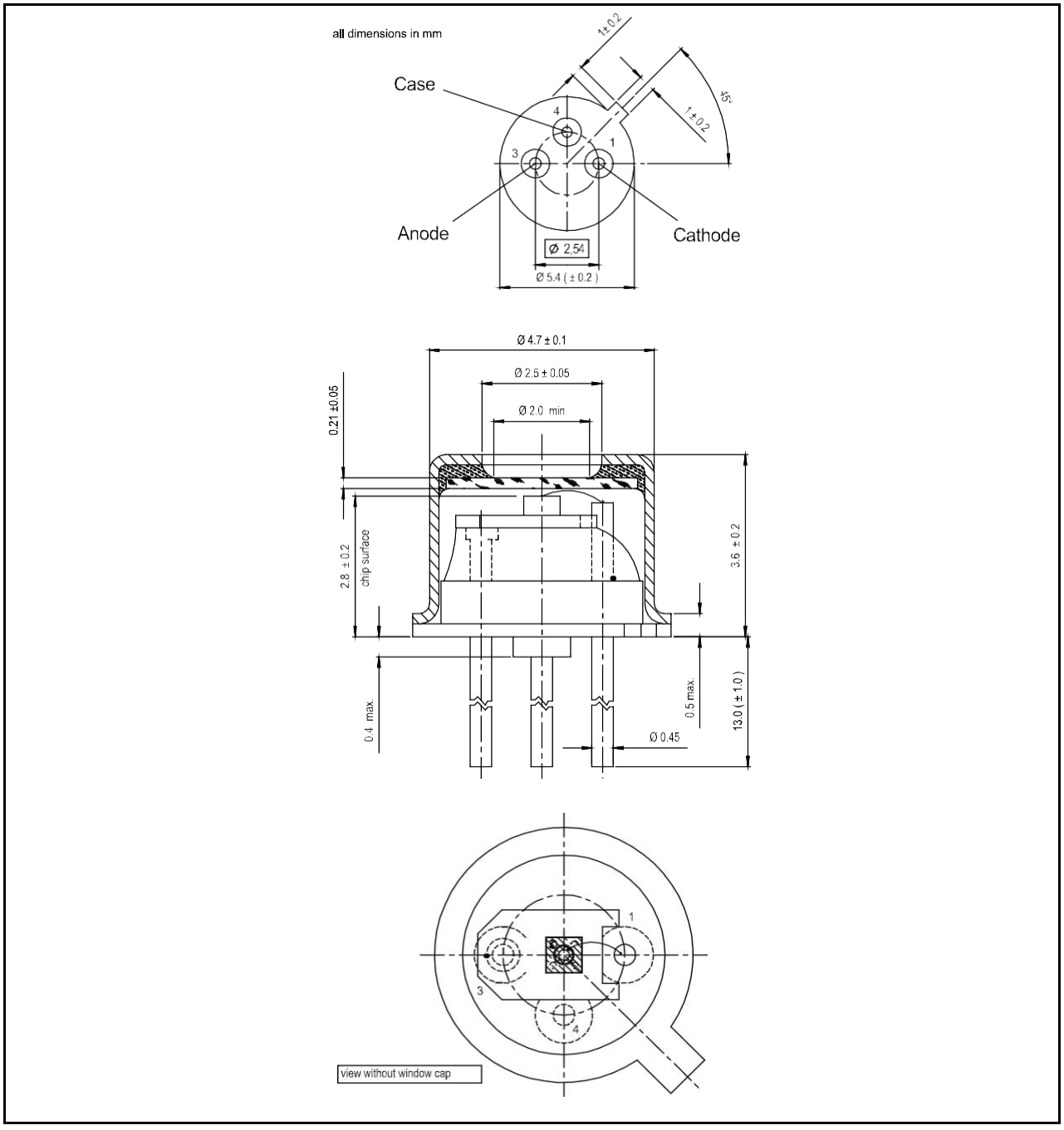
Application hints:



- 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

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Package: TO52S1



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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Optical inspection

Optical inspection according to failure catalogue for optical sensors FK INS 201.

Ordering Information

Description	TE Part Number	MPQ
AD500-8 TO (TO52S1; Ubr 80-120V)	3001349-F	1000 pcs

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