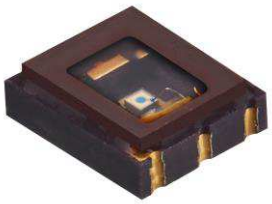
te.com



AD500-9 SMD

Description

Circular active area APD chip with NIR enhanced sensitivity. Ceramic carrier type non-hermetic SMD package with filter window. Reflow solderable.

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

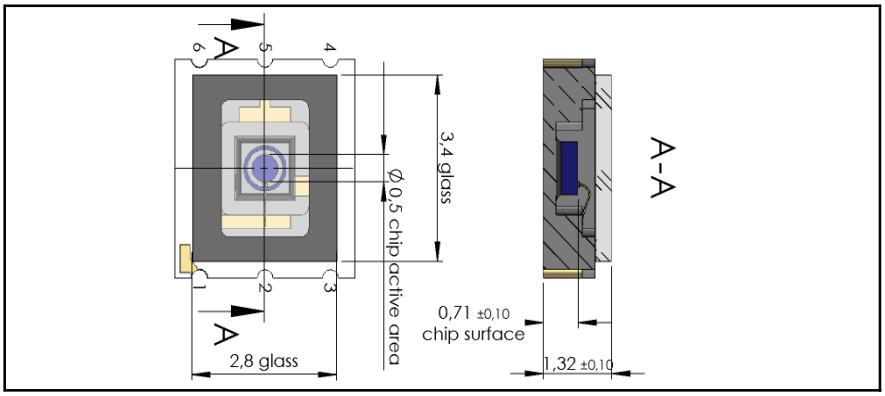
- LIDAR
- Laser range finder
- High speed photometry
- High speed optical communications

RoHS

2011/65/EU

2015/863/EU

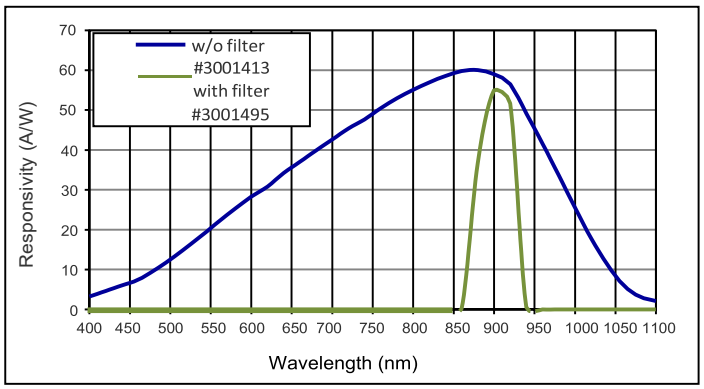
CLICK HERE ›
CONNECT WITH A SPECIALIST



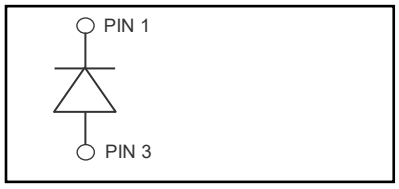
Absolute maximum rating

Symbol	Parameter	Min	Max	Unit
T_{STG}	Storage temp	-40	100	°C
T_{OP}	Operating temp	-20	70	°C
M_{max}	Gain (I_{P0} = 1 nA)	200		
I_{PEAK}	Peak DC current		0.25	mA

Spectral response (M = 100)



Schematic

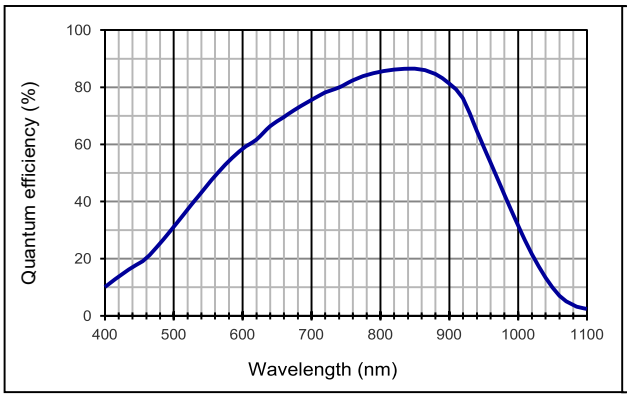


Electro-optical characteristics @ 23°C

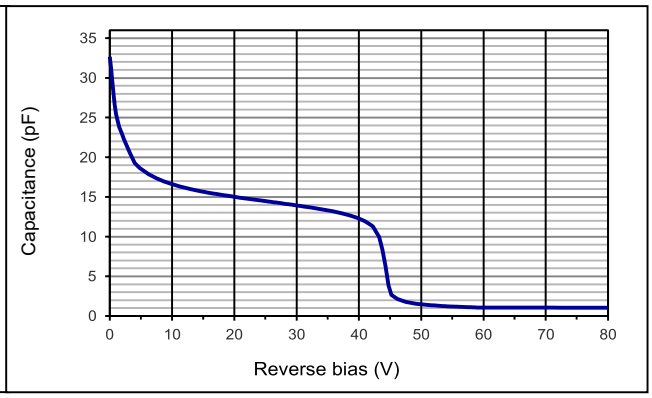
Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	Active area		diameter 500			µm
	Active area		0.196			mm²
I_D	Dark current	M = 100		0.8	2.0	nA
C	Capacitance	M = 100; f = 100 kHz		1.2		pF
	Responsivity with filter	M = 100; λ = 905 nm	42	55		A/W
t_R	Rise time	M = 100; λ = 905 nm; R_L = 50 Ω		0.9	1.2	ns
	Cut-off frequency	-3dB		0.4		GHz
V_{BR}	Breakdown voltage*	I_R = 2 µA	160		200	V
	Temperature coefficient	Change of V_{BR} with temperature	1.25	1.45	1.55	V/K

* ±2V measuring tolerance on upper and lower limits

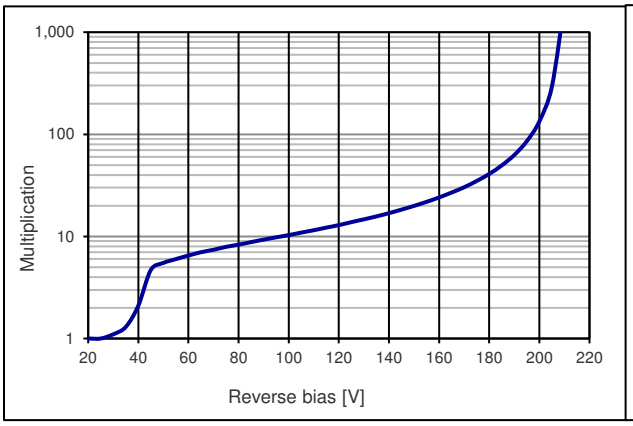
Quantum efficiency (23 °C)



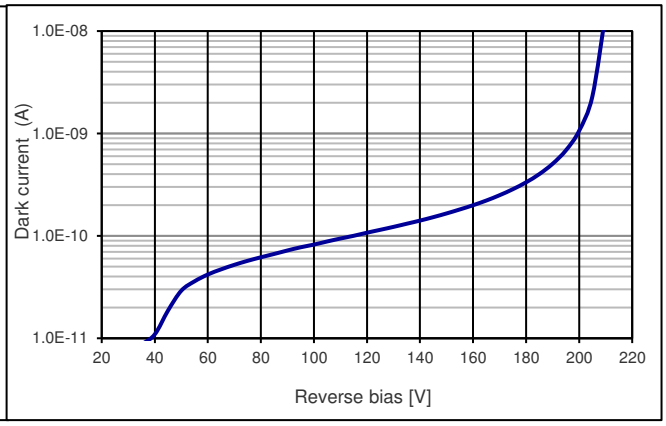
Capacitance as fct of reverse bias (23 °C)



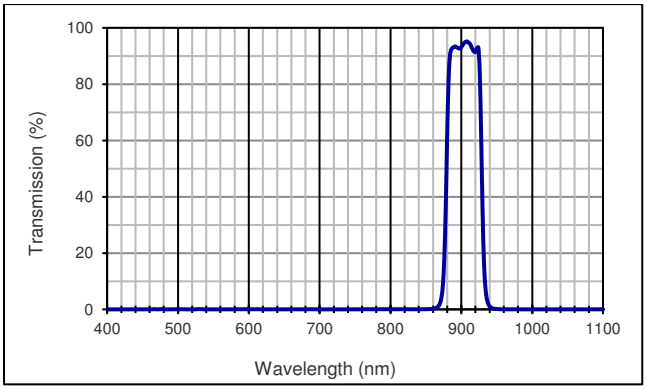
Multiplication as fct of bias (23 °C)



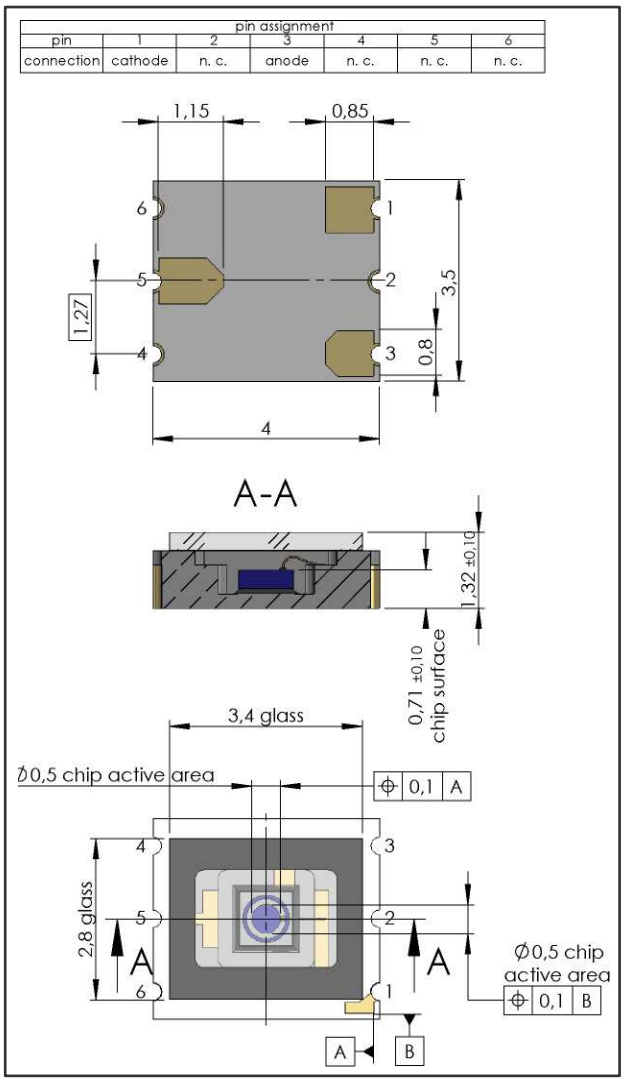
Dark current as fct of bias (23 °C)



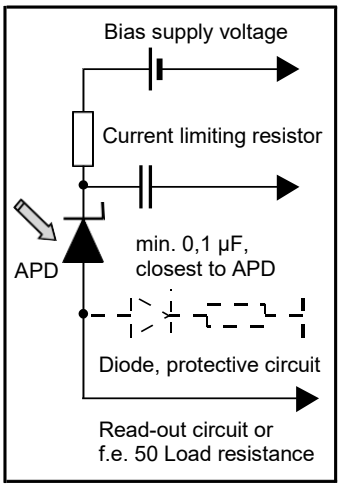
Filter characteristics 905 nm band pass



Technical Drawing, Package: LCC6.1

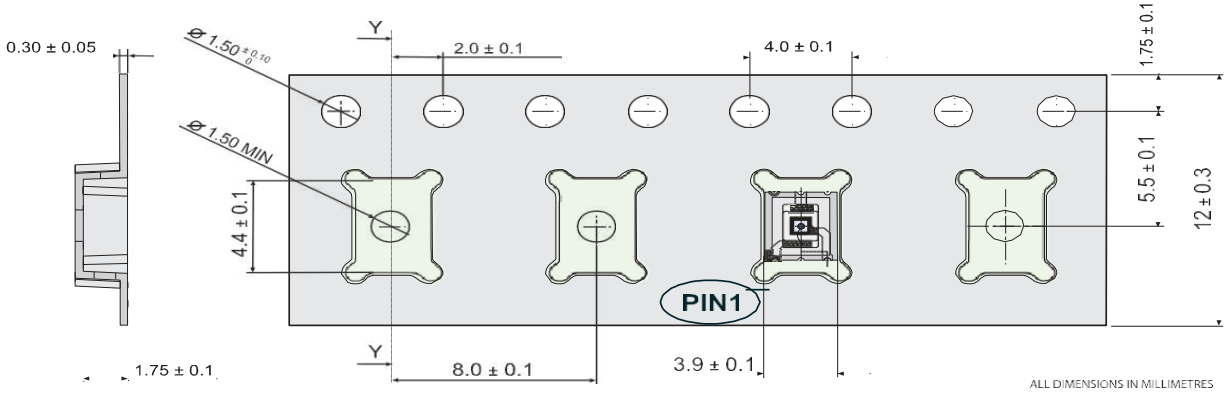


Application hints:

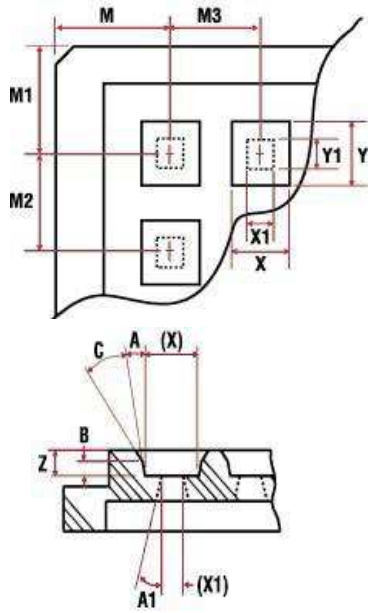


- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- For low light level applications blocking of ambient light should be used
- For high gain applications bias voltage should be temperature compensated
- Please consider basic ESD protection while handling
- Use low noise read-out - IC
- For further questions please refer to document "Instructions for handling and processing"
- Optimum gain: 50-60

Package dimension, large quantities on reel



Package dimension, small quantities in trays



Pocket location

M	=	11.81 mm ± 0.13 mm
M1	=	11.81 mm ± 0.13 mm
M2	=	8.64 mm ± 0.13 mm
M3	=	8.64 mm ± 0.13 mm
Array	=	10 x 10 (100)

Pocket details

X	=	4.60 mm ± 0.13 mm
Y	=	3.71 mm ± 0.13 mm
Z	=	2.16 mm ± 0.13 mm
A	=	5° ± 0.5°, no cross slots

Overall tray size

Size	=	101.60 mm ± 0.13 mm
Height	=	8.00 mm ± 0.13 mm
Flatness	=	0.51 mm

All dimensions in mm & tolerance of dimensions: ISO 2768 - mK

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

Optical inspection

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

Ordering Information

Description	TE Part Number
AD500-9 SMD (LCC6.1f;BP905;160-200V)	3001495-F

NORTH AMERICA
Tel +1 800 522 6752

EUROPE
Tel +31 73 624 6999

ASIA
Tel +86 0400 820 6015

te.com/sensors

Version # 07/2022