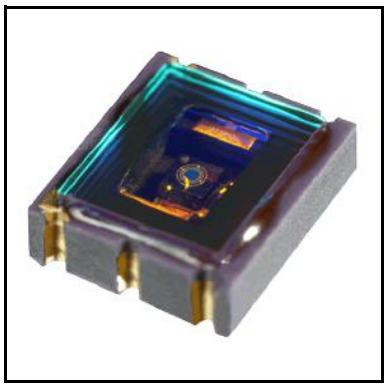
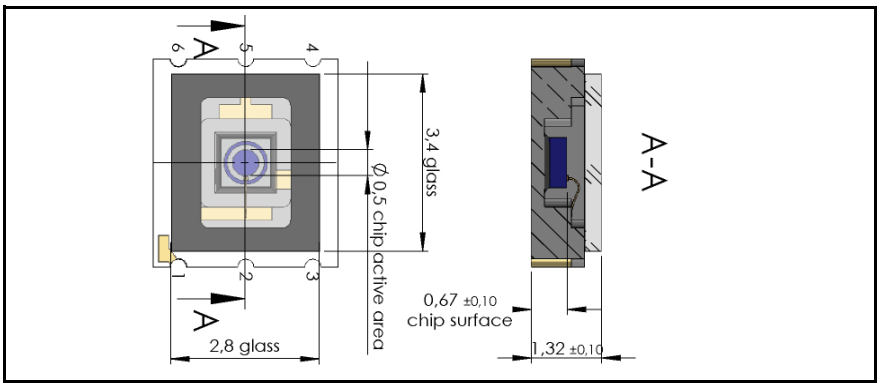
info@laser-opto.com +86 188-1364-1717

First Sensor

First Sensor APD Data Sheet
Part Description AD500-8 SMD
Order # 3001396





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

Description

Circular active area APD chip with 500µm diameter. Ceramic carrier type non hermetic SMD package with filter window (BP-Filter for 635nm). Reflow solderable.

Application

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

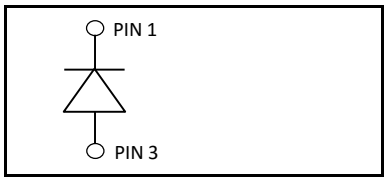
RoHS

2011/65/EU

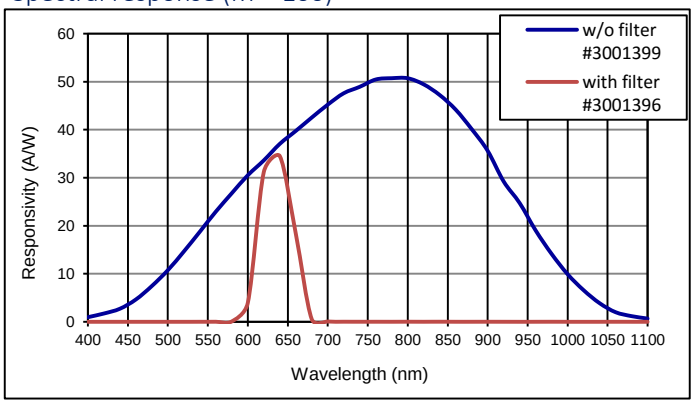
Absolute maximum ratings

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

Schematic



Spectral response (M = 100)



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		2.2		pF
	Responsivity	M = 100; λ = 635 nm	30	32		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		0.45		V/K
	Excess noise factor	M = 100		2.2		
	Excess noise index	M = 100		0.2		

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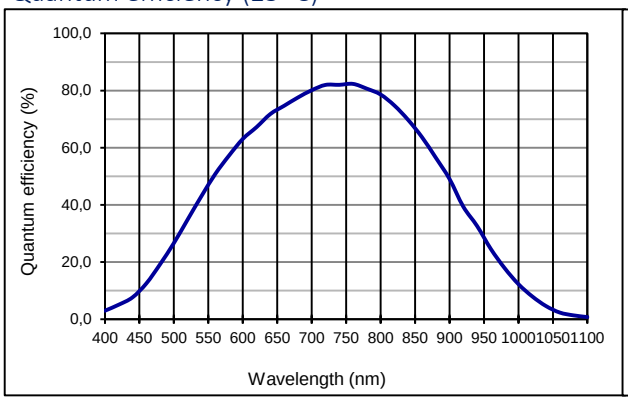
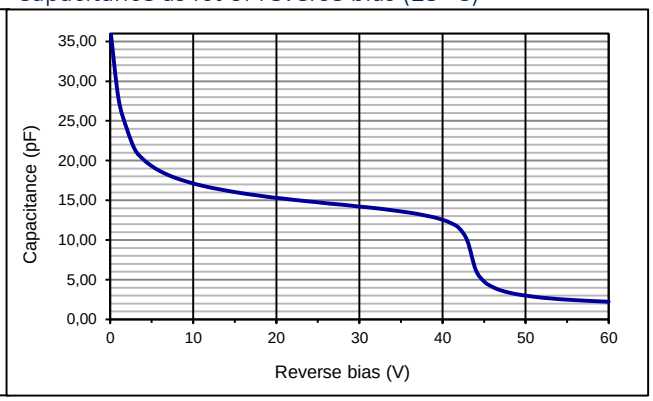
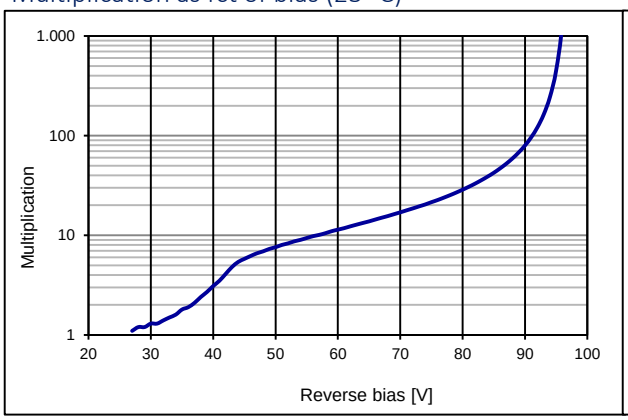
Quantum efficiency (23 °C)



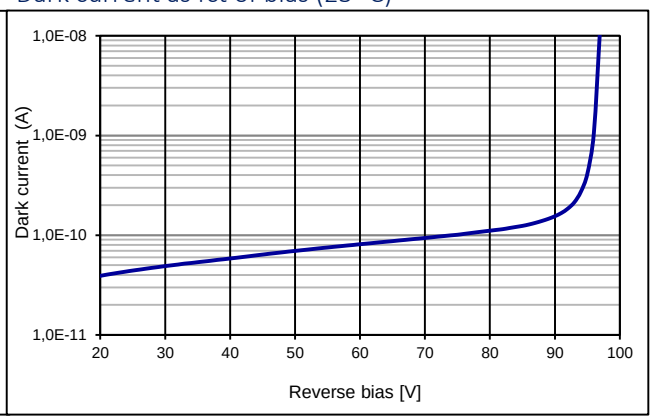
Capacitance as fct of reverse bias (23 °C)



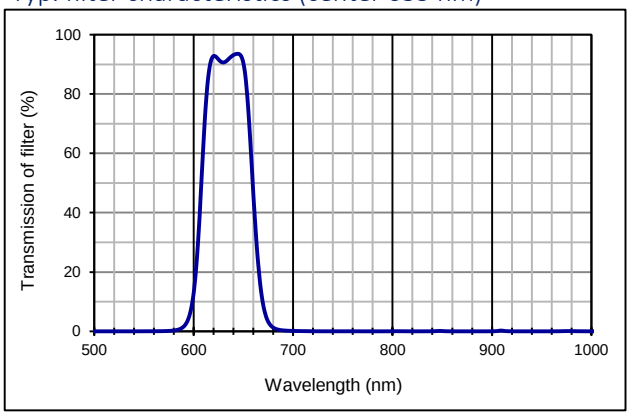
Multiplication as fct of bias (23 °C)



Dark current as fct of bias (23 °C)

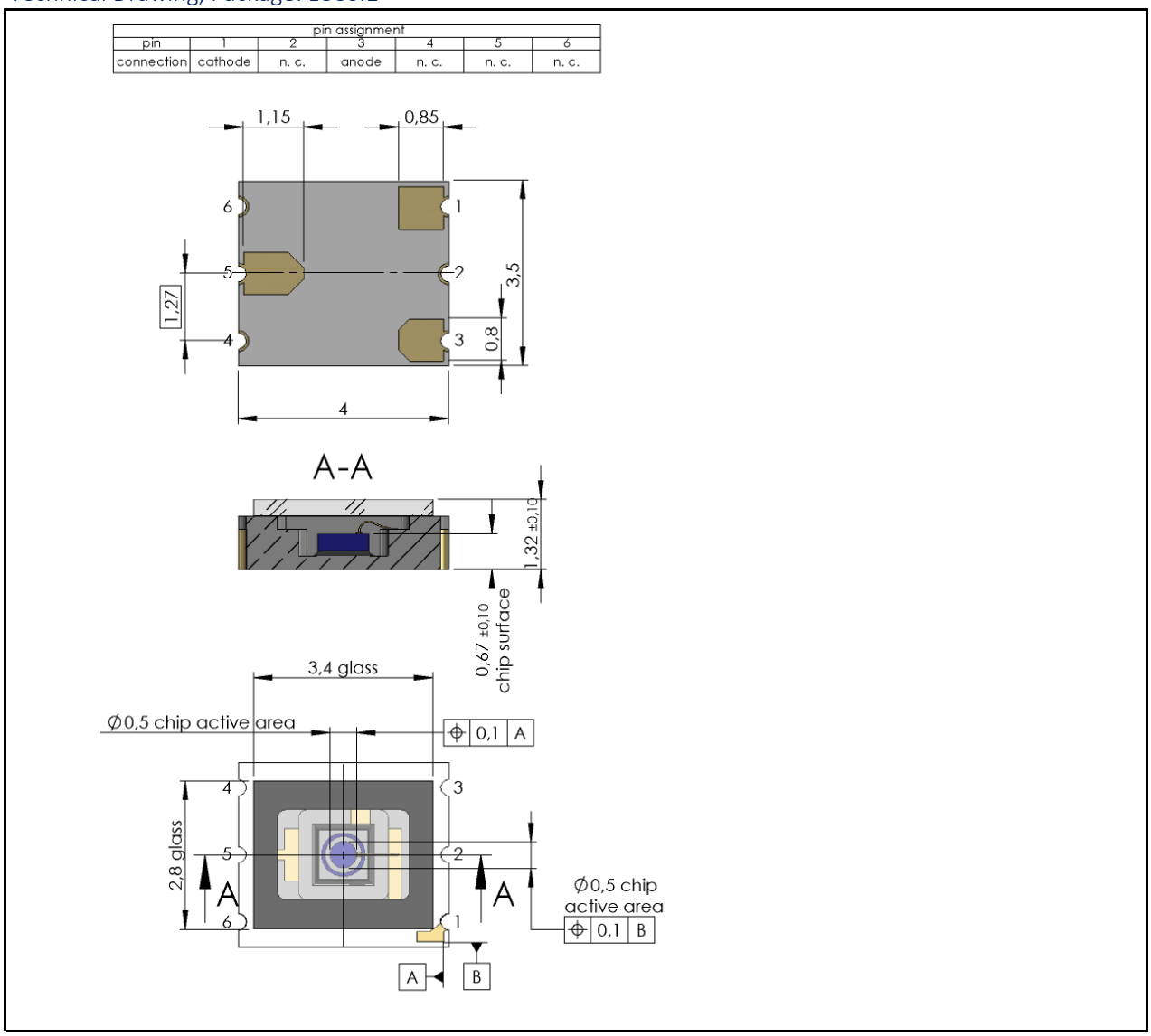


Typ. filter characteristics (center 635 nm)

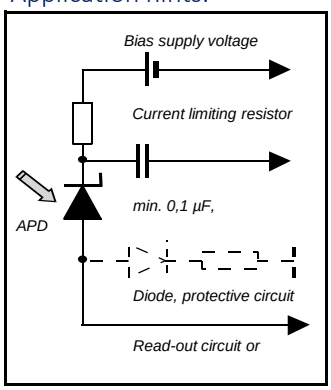


full filter specification upon request

Technical Drawing, Package: LCC6.1

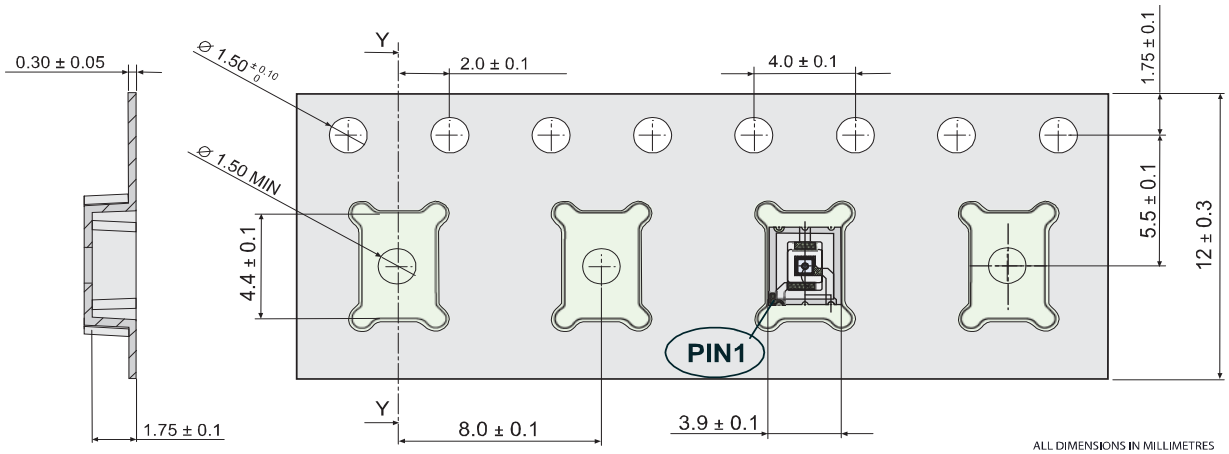


Application hints:

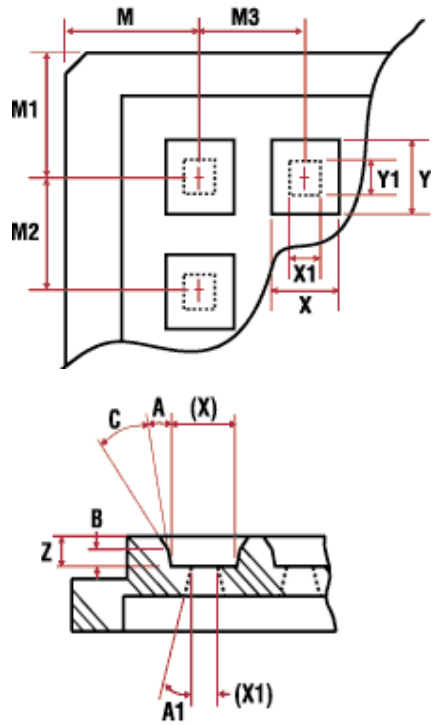


- Current should be limited by a protecting resistor or current limiting - IC inside the power supply
- For low light level applications blocking of ambient light should be used
- For high gain applications bias voltage should be temperature compensated
- Please consider basic ESD protection while handling
- 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

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