

### Features

- APD with 0.04 mm<sup>2</sup> active area
- 230 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 230 μm diameter. Ceramic carrier type non hermetic SMD package with clear glass or filter window. Reflow solderable.

### Application

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

### RoHS

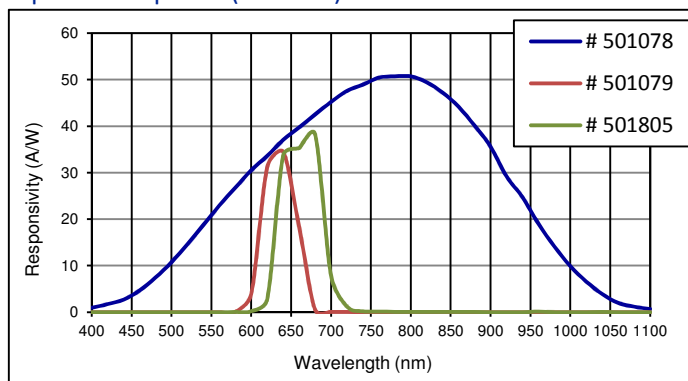
2002/95/EC



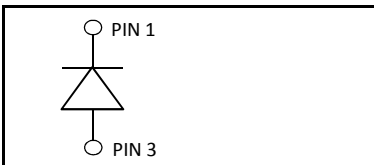
### Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T <sub>STG</sub>	Storage temp	-40	100	°C
T <sub>OP</sub>	Operating temp	-20	70	°C
M <sub>max</sub>	Gain (I <sub>PD</sub> = 1 nA)	200		
I <sub>PEAK</sub>	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 230			μm
	Active area		0.04			mm <sup>2</sup>
I <sub>D</sub>	Dark current	M = 100		0.2	0.5	nA
C	Capacitance	M = 100		0.6		pF
	Responsivity	Order # <b>501078</b> ; M = 100; λ = 800 nm	45	50		A/W
	Responsivity	Order # <b>501079</b> ; M = 100; λ = 635 nm	30	32		A/W
	Responsivity, preliminary	Order # <b>501805</b> ; M = 100; λ = 650 nm	30	35		A/W
t <sub>R</sub>	Rise time	M = 100; λ = 905 nm; R <sub>L</sub> = 50 Ω		0.18		ns
	Cut-off frequency	-3dB		2		GHz
V <sub>BR</sub>	Breakdown voltage	I <sub>R</sub> = 2 μA, V <sub>BR</sub> - binning available*	80		160	V
	Temperature coefficient	Change of V <sub>BR</sub> with temperature		0.45		V/K
	Excess noise factor	M = 100		2.2		
	Excess noise index	M = 100		0.2		

\*please add a "01" to the order number for VBR-class 80V-120V and a "02" for VBR-class 120V-160V

#### European, International Sales:



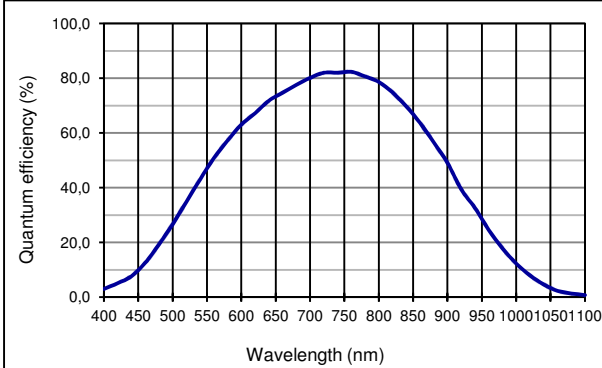
First Sensor AG  
 Peter-Behrens-Strasse 15  
 12459 Berlin  
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 sales.opto@first-sensor.com

#### USA:

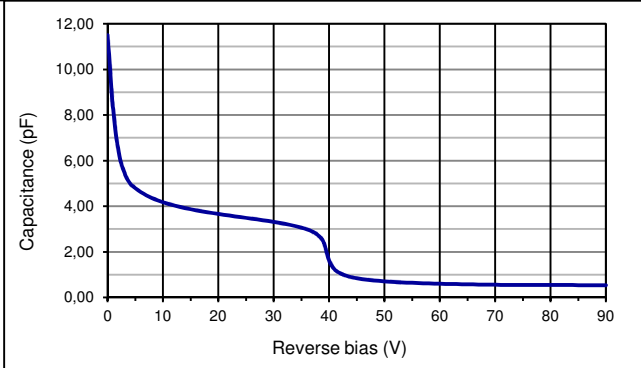


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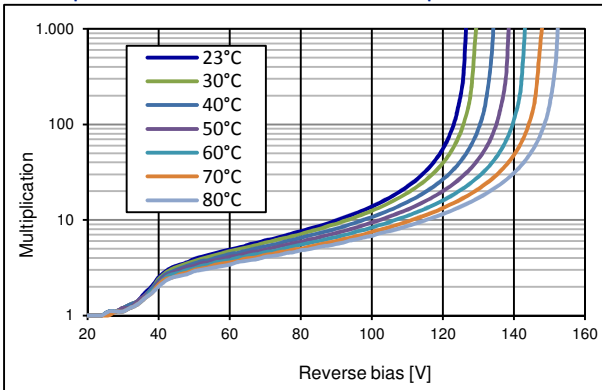
Quantum efficiency (23 °C)



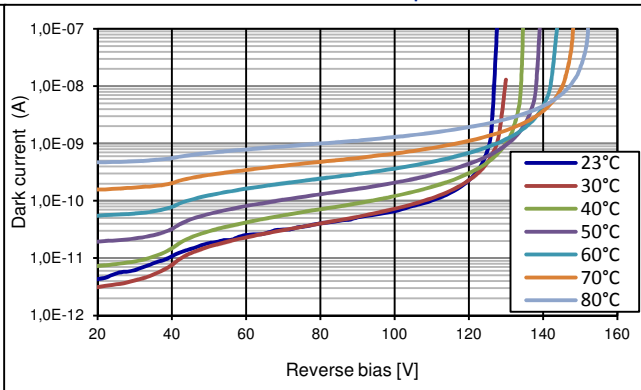
Capacitance as fct of reverse bias (23 °C)



Multiplication as fct of bias and temperature

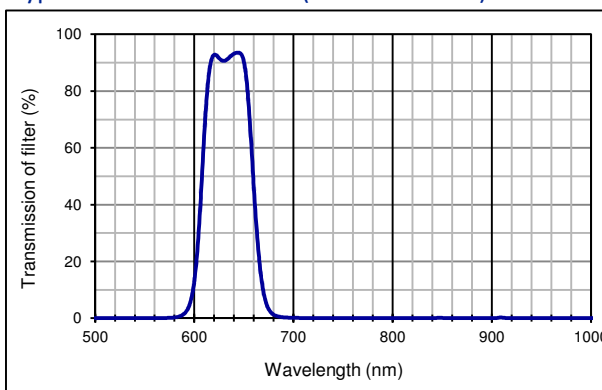


Dark current as fct of bias and temperature



Order # 501079:

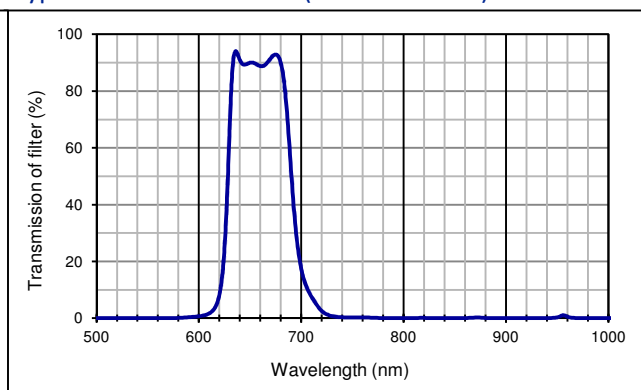
Typ. filter characteristics (center 635 nm)



full filter specification upon request

Order # 501805:

Typ. filter characteristics (center 650 nm)



full filter specification upon request

European, International Sales:



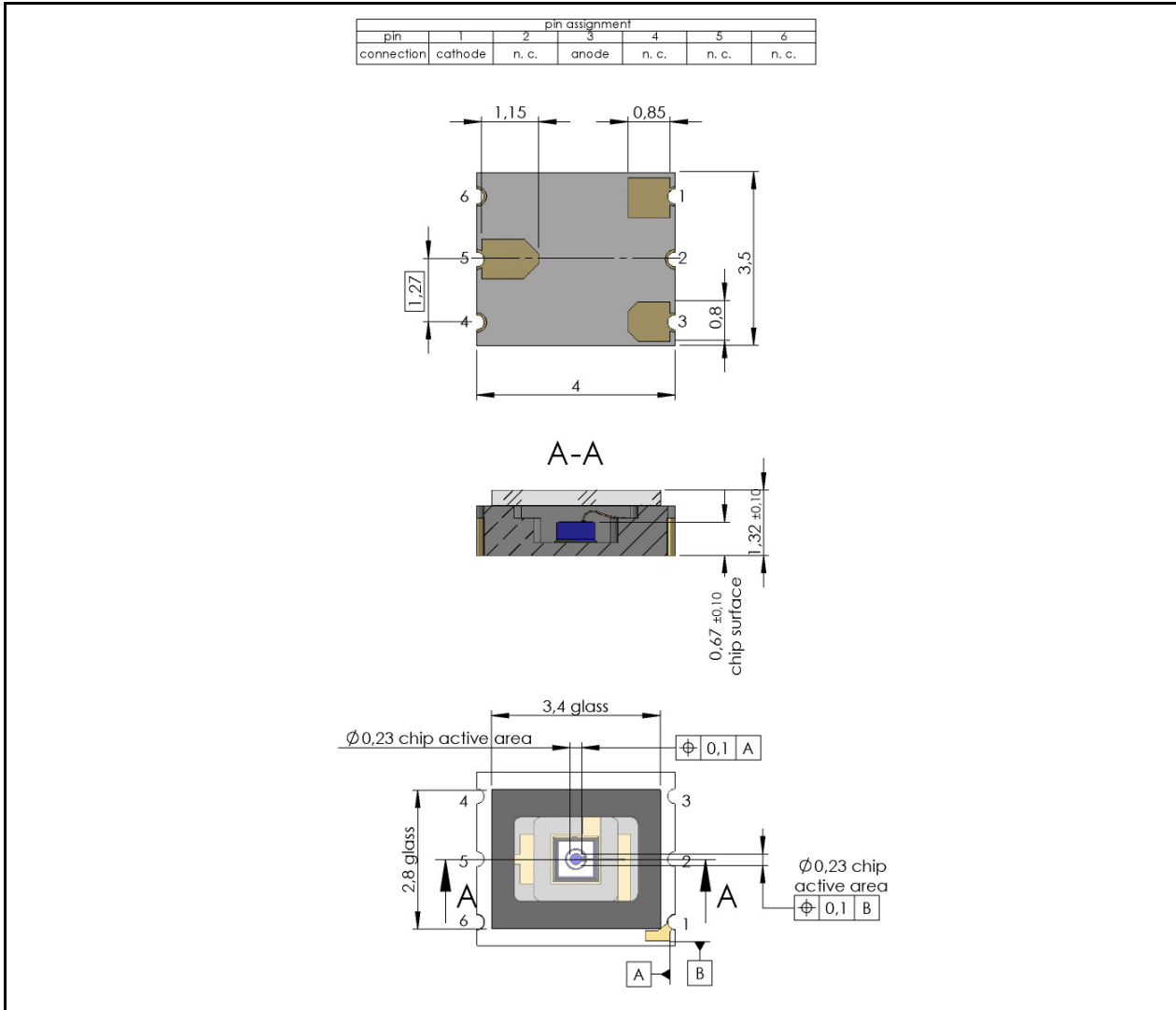
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USA:

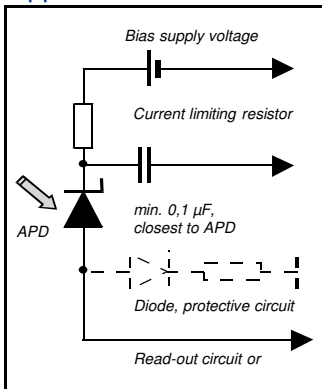


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Technical Drawing, Package: LCC6.1



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

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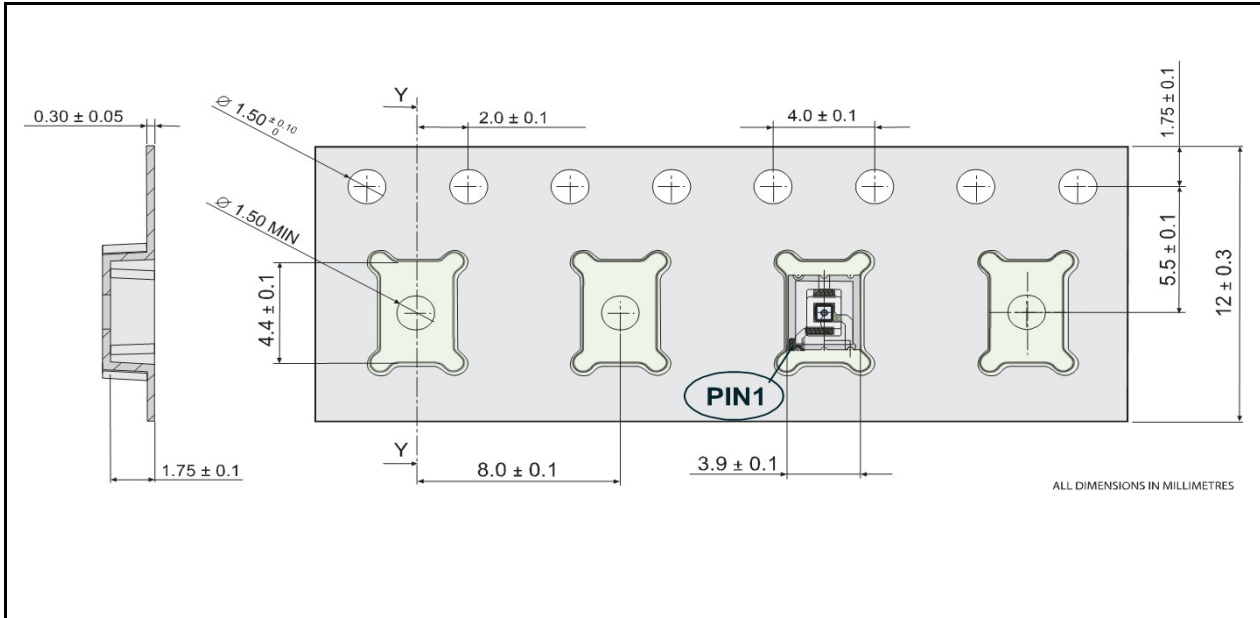
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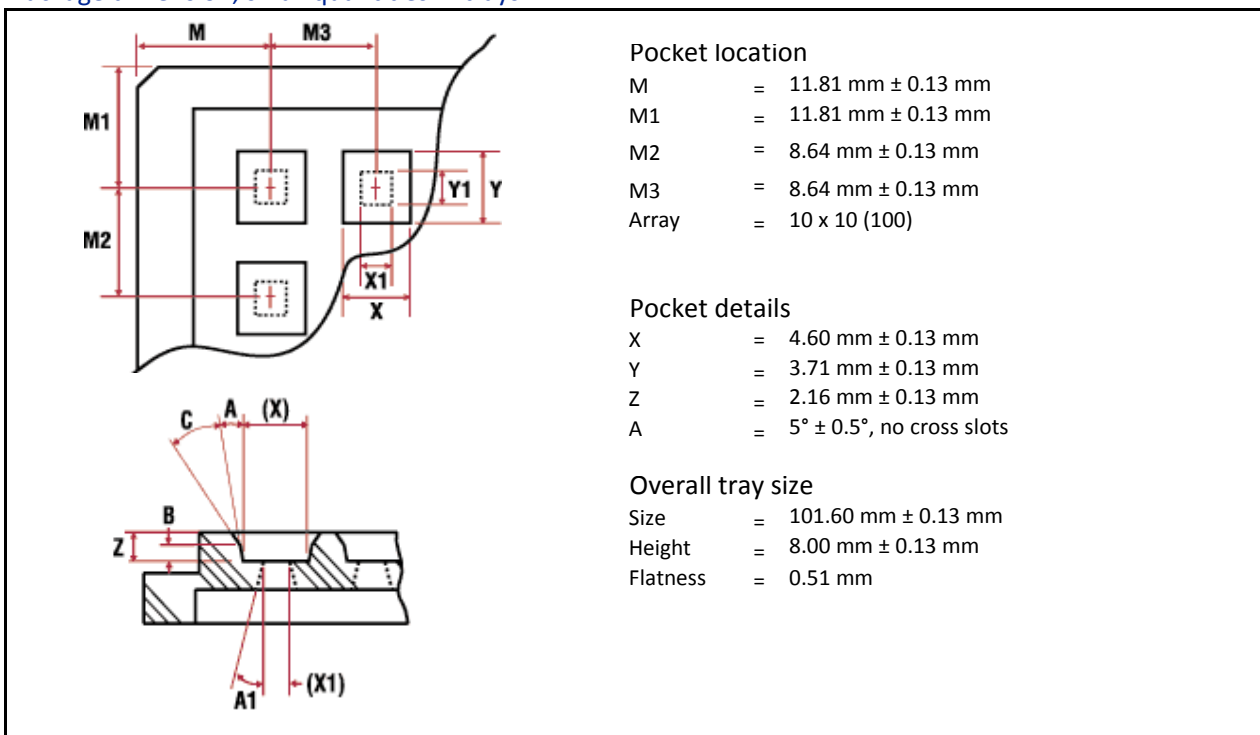


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Package dimension, large quantities on reel



Package dimension, small quantities in trays



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

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