

### Features

- APD with 0.2 mm<sup>2</sup> active area
- Optimized for 550 nm to 750 nm
- Very high sensitivity
- High cut-off frequency
- Ultra low temperature coefficient

### Description

Circular active area APD chip with 500 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

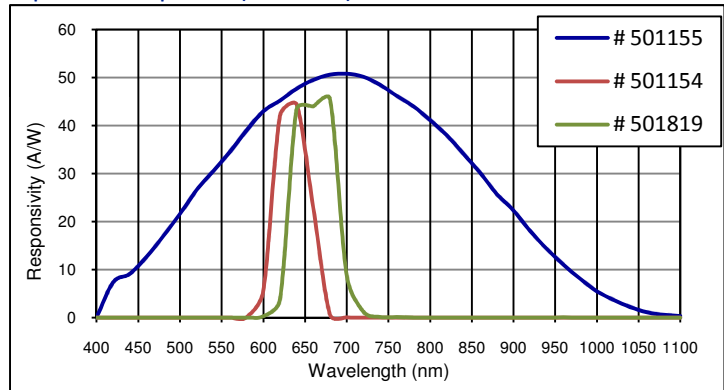
2002/95/EC



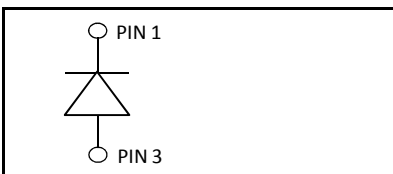
### Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T <sub>STG</sub>	Storage temp	-40	100	°C
T <sub>OP</sub>	Operating temp	-20	85	°C
M <sub>max</sub>	Gain (I <sub>PO</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 500			μm
	Active area		0.196			mm <sup>2</sup>
I <sub>D</sub>	Dark current	M = 100		0.3	2.0	nA
C	Capacitance	M = 100		4.5		pF
	Responsivity	Order # <b>501155</b> ; M = 100; λ = 660 nm	45	50		A/W
	Responsivity	Order # <b>501154</b> ; M = 100; λ = 635 nm	40	44		A/W
	Responsivity, preliminary	Order # <b>501819</b> ; M = 100; λ = 650 nm	40	44		A/W
t <sub>R</sub>	Rise time	M = 100; λ = 660 nm; R <sub>i</sub> = 50 Ω		0.35		ns
	Cut-off frequency	-3dB, phase shift mode	2	3		GHz
V <sub>BR</sub>	Breakdown voltage	I <sub>R</sub> = 2 μA, V <sub>BR</sub> - binning available	60	90	120	V
	Temperature coefficient	Change of V <sub>BR</sub> with temperature		0.2		V/K
F	Excess noise factor	M = 100		2.0		
x	Excess noise index	M = 100		0.15		

#### European, International Sales:



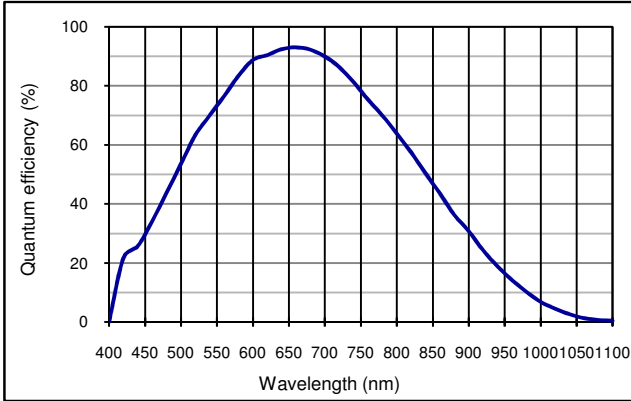
First Sensor AG  
 Peter-Behrens-Strasse 15  
 12459 Berlin  
 Germany  
 T +49 30 6399 2399  
 F +49 30 639923-752  
 sales.opto@first-sensor.com

#### USA:

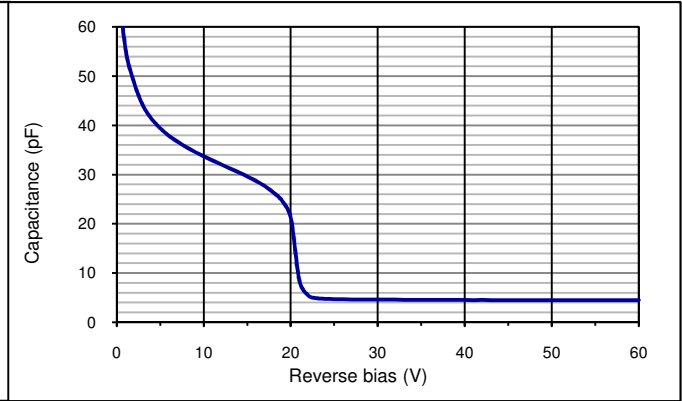


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 5700 Corsa Avenue #105  
 Westlake Village  
 CA 91362 USA  
 T +1 818 706 3400  
 F +1 818 889 7053  
 sales.us@first-sensor.com

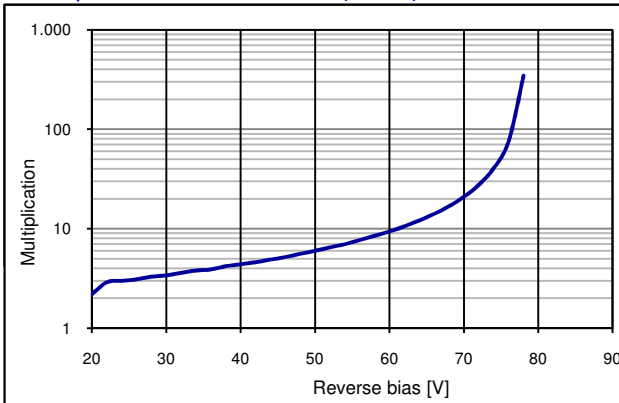
Quantum efficiency (23 °C)



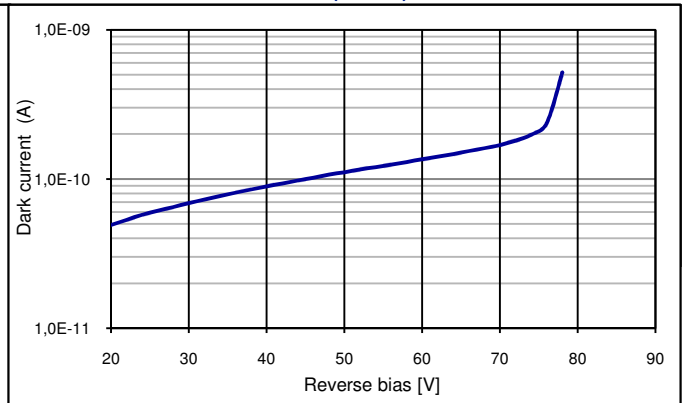
Capacitance as fct of reverse bias (23 °C)



Multiplication as fct of bias (23 °C)

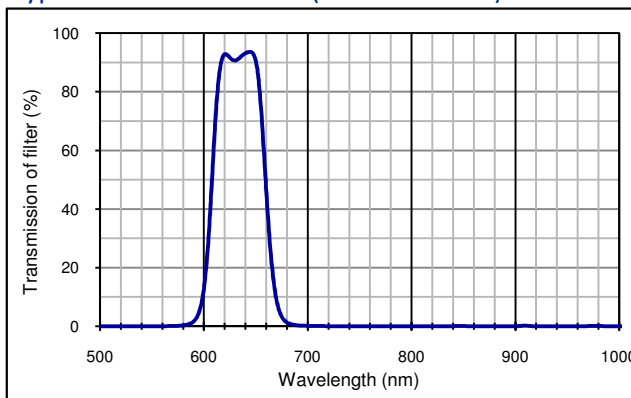


Dark current as fct of bias (23 °C)



Order # 501154:

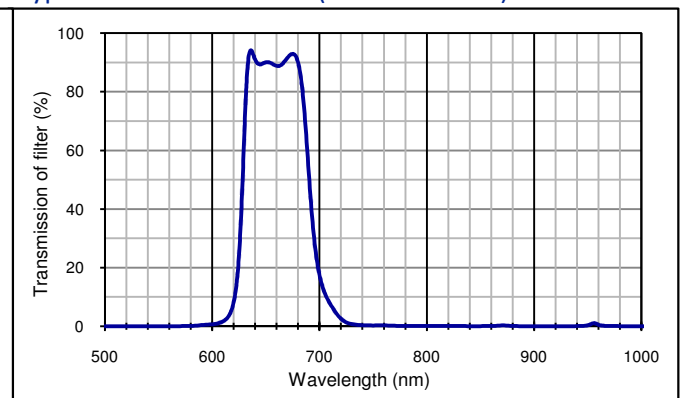
Typ. filter characteristics (center 635 nm)



full filter specification upon request

Order # 501819:

Typ. filter characteristics (center 650 nm)



full filter specification upon request

European, International Sales:



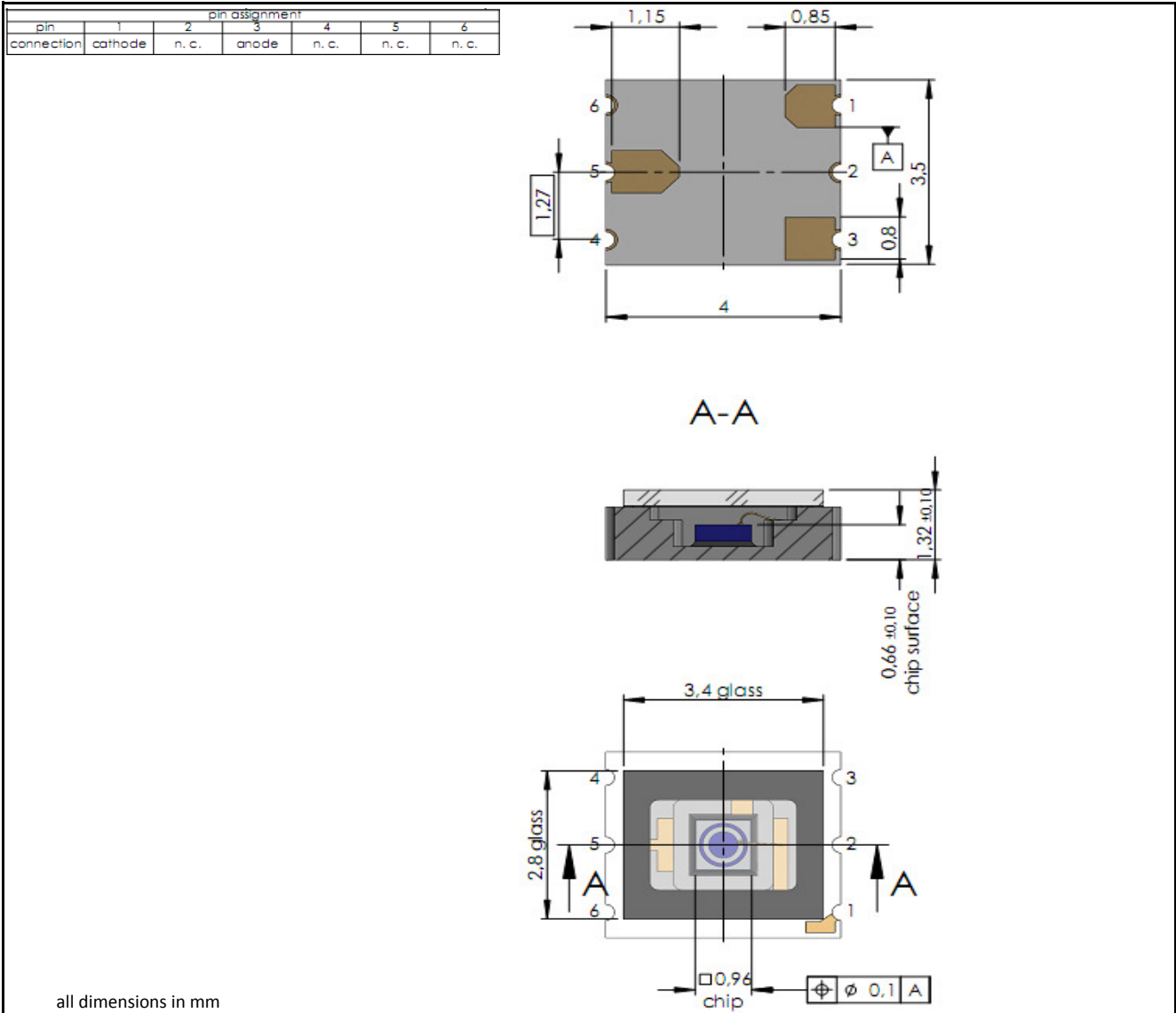
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 12459 Berlin  
 Germany  
 T +49 30 6399 2399  
 F +49 30 639923-752  
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USA:

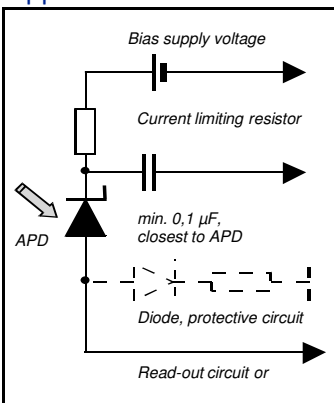


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Technical Drawing, Package: LCC6.1



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"

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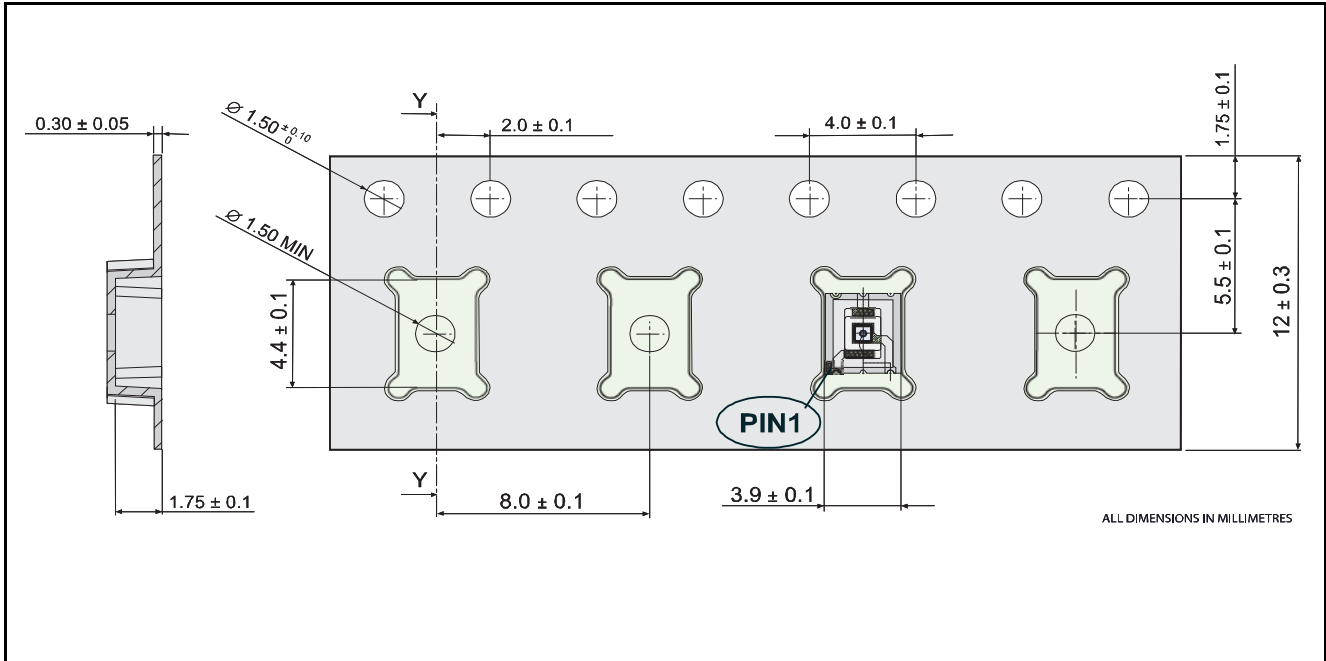
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 12459 Berlin  
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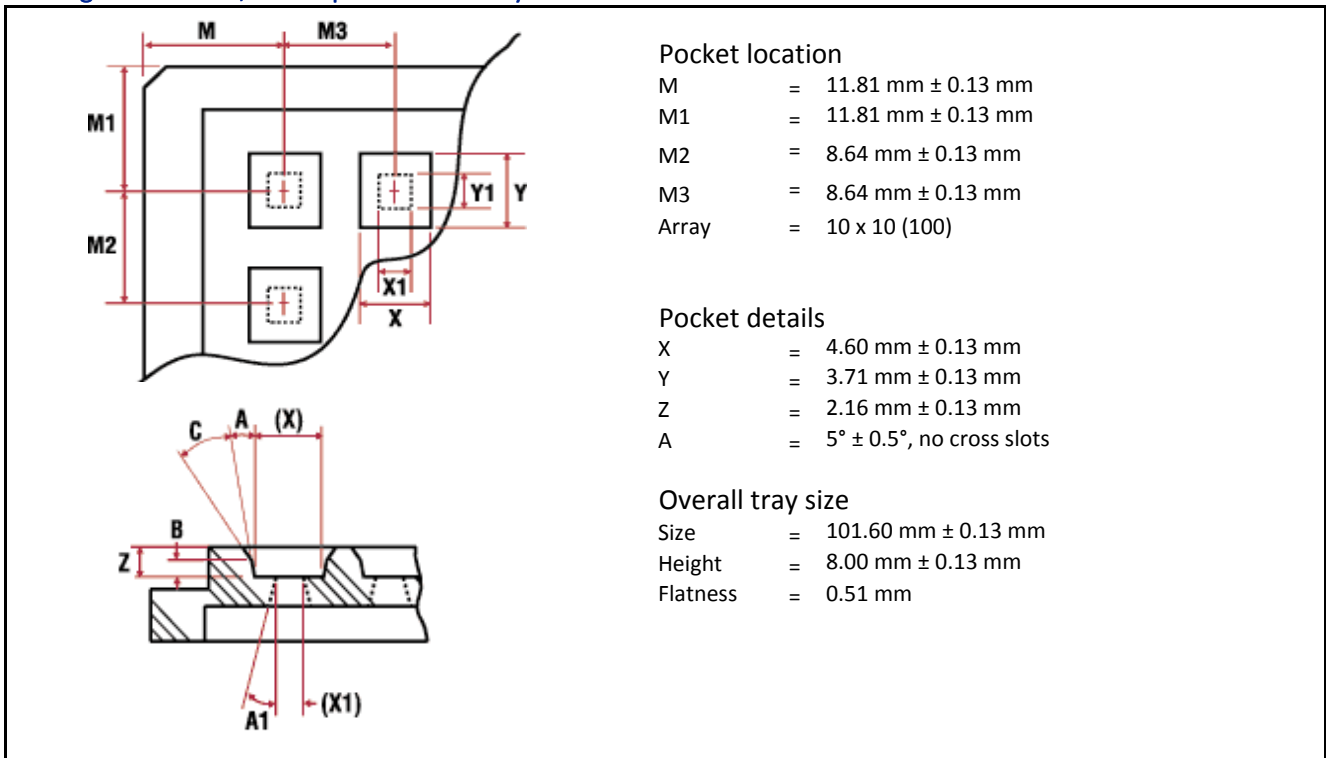


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Package dimension, large quantities on reel



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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