

### Features

- APD with 0.2 mm<sup>2</sup> 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 500 μm diameter. Metal can type hermetic TO52 package with clear glass window. Three TO52 types available, customization on request.

### Application

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

### RoHS

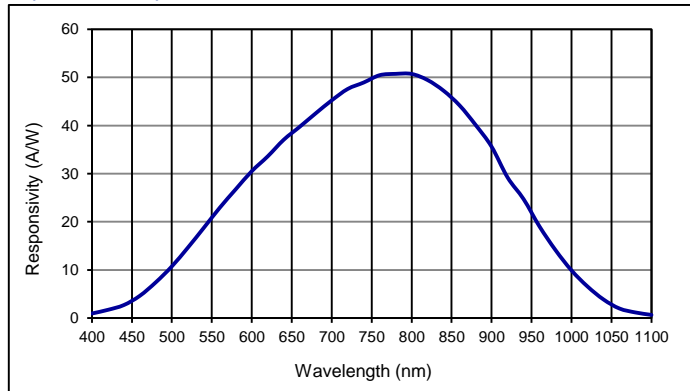
2002/95/EC



### Absolute maximum ratings

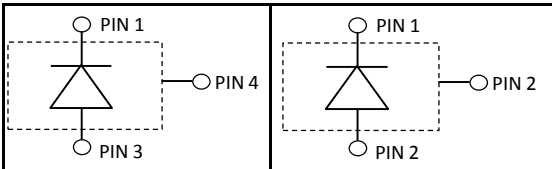
Symbol	Parameter	Min	Max	Unit
T <sub>STG</sub>	Storage temp	-55	125	°C
T <sub>OP</sub>	Operating temp	-40	100	°C
M <sub>max</sub>	Gain (I <sub>P0</sub> = 1 nA)	200		
I <sub>PEAK</sub>	Peak DC current		0.25	mA

### Spectral response (M = 100)



### 500030; 500305

### 500155



### 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		0.5	1.0	nA
C	Capacitance	M = 100		2.2		pF
	Responsivity	M = 100; λ = 800 nm	45	50		A/W
t <sub>R</sub>	Rise time	M = 100; λ = 905 nm; R <sub>L</sub> = 50 Ω		0.35		ns
	Cut-off frequency	-3dB		1		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:



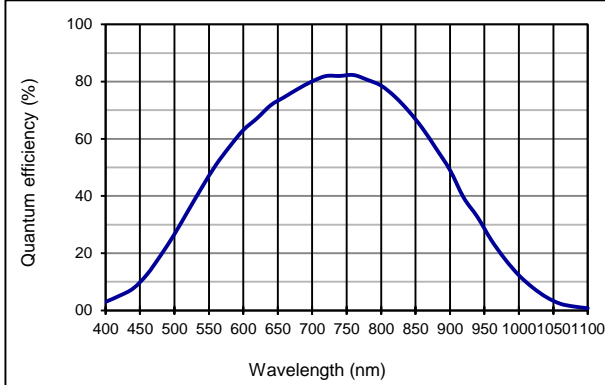
First Sensor AG  
 Peter-Behrens-Strasse 15  
 12459 Berlin  
 Germany  
 T +49 30 6399 2399  
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 sales.opto@first-sensor.com

#### USA:

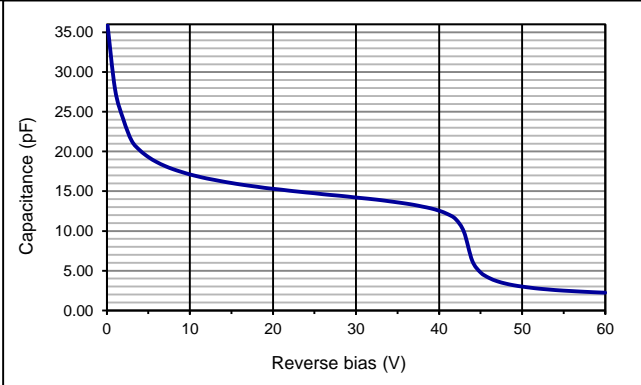


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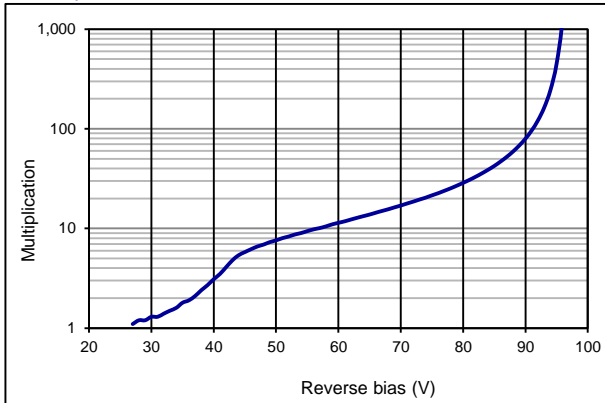
Quantum efficiency (23 °C)



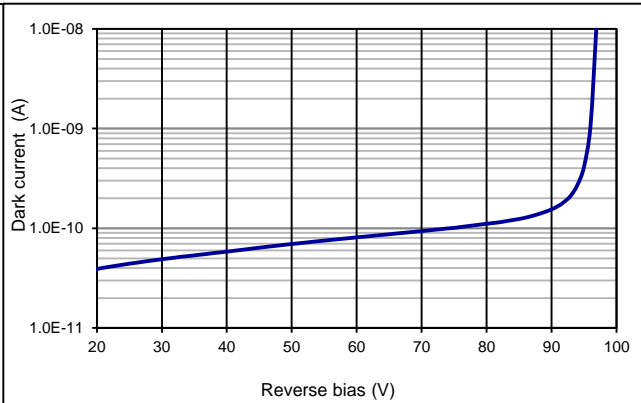
Capacitance as fct of reverse bias (23 °C)



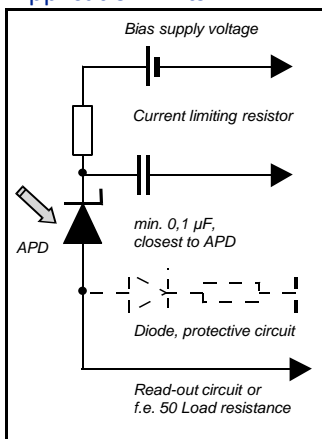
Multiplication as fct of bias (23 °C)



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

**European, International Sales:**



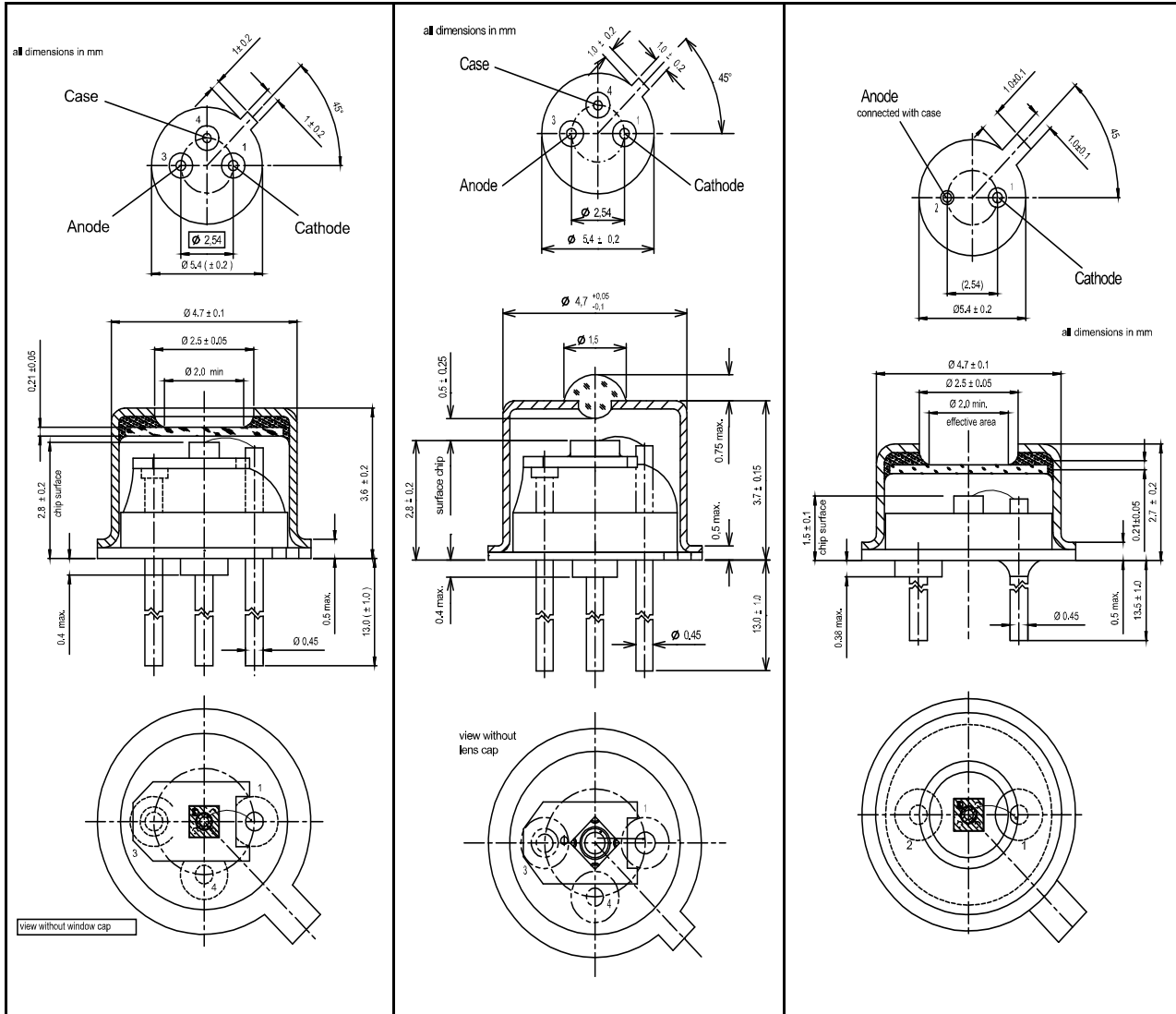
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Order # 500030, Package: TO52S1    Order # 500305, Package: TO52S2    Order # 500155, Package: TO52S3



**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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