

Avalanche Photodiodes

Ultra High Gain Silicon Photodetectors

Silicon Avalanche Photodiodes make use of internal multiplication to achieve gain due to impact ionization. The result is the optimized series of high Responsivity devices, exhibiting excellent sensitivity. OSI Optoelectronics offers several sizes of detectors that are available with flat windows or ball lenses for optical fiber applications.



APPLICATIONS

- High Speed Optical Communications
- Laser Range Finder
- Bar Code Readers
- Optical Remote Control
- Medical Equipment
- High Speed Photometry

FEATURES

- High Responsivity
- High Bandwidth / Fast Response
- Low Noise
- Low Bias Voltage
- Hermetically Sealed TO-Packages

Model Number	Active Area		Peak Responsivity Wavelength	Responsivity (A/W)	Dark Current (nA)	Capacitance (pF)	Rise Time (ns)	Operating Bias Voltage Range (V)	Temp. Range (°C)		Package Style ¶
	Area (mm ²)	Dimensions (mm)	λ_p nm	850nm, G=100	G=100	1MHz G=100	850 nm G=100	G=100	Operating	Storage	
			typ.	typ.	typ.	typ.					

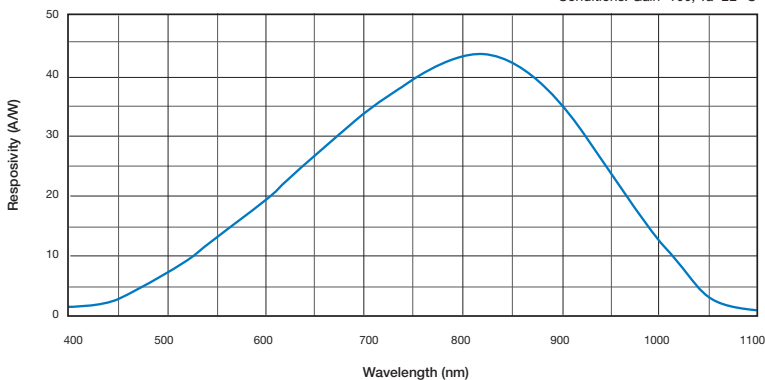
Silicon Avalanche Photodiodes

Model Number	Area (mm ²)	Dimensions (mm)	Peak Responsivity Wavelength (nm)	Responsivity (A/W)	Dark Current (nA)	Capacitance (pF)	Rise Time (ns)	Operating Bias Voltage Range (V)	Temp. Range (°C)	Package Style ¶	
APD-300 APD-300L*	0.07	0.3 ϕ	820	42	1.0	1.5	0.4	130-280	-40 ~ +70	-40 ~ +85	68 / TO-18 Flat Window 69 / TO-18 Ball Lens
APD-500 APD-500L*	0.20	0.5 ϕ			1.8	2.5	0.5				
APD-900	0.64	0.9 ϕ			2.5	7	1.0				70 / TO-5
APD-1500	1.8	1.5 ϕ			7.0	12	2.0				70 / TO-5
APD-3000	7.1	3.0 ϕ			15	40	5.0				70 / TO-5

¶ For mechanical drawings please refer to pages 58 thru 69.

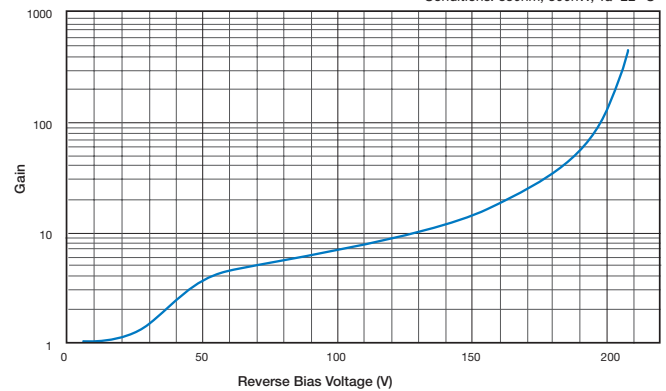
Typical Spectral Response

Conditions: Gain=100, Ta=22 °C



Typical Gain vs. Bias Voltage

Conditions: 850nm, 500nW, Ta=22 °C



1. Parameter Definitions:

A = Distance from top of chip to top of glass.

a = Photodiode Anode.

B = Distance from top of glass to bottom of case.

c = Photodiode Cathode

(Note: cathode is common to case in metal package products unless otherwise noted).

W = Window Diameter.

F.O.V. = Field of View (see definition below).

2. Dimensions are in inches (1 inch = 25.4 mm).

3. Pin diameters are 0.018 ± 0.002" unless otherwise specified.

4. Tolerances (unless otherwise noted)

General: 0.XX ±0.01"

0.XXX ±0.005"

Chip Centering: ±0.010"

Dimension 'A': ±0.015"

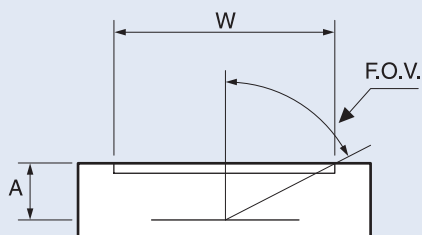
5. Windows

All '**UV**' Enhanced products are provided with QUARTZ glass windows, 0.027 ± 0.002" thick.

All '**XUV**' products are provided with removable windows.

All '**DLS**' PSD products are provided with A/R coated glass windows.

All '**FIL**' photoconductive and photovoltaic products are epoxy filled instead of glass windows.



$$F.O.V. = \tan^{-1} \left(\frac{W}{2A} \right)$$



For Further Assistance
Please Call One of Our Experienced
Sales and Applications Engineers

310-978-0516



- Or -
On the Internet at

www.osioptoelectronics.com

Mechanical Specifications

All units in inches. Pinouts are bottom view.

68 TO-18	69 TO-18	70 TO-5
<p>Products: APD-300 APD-500</p> <p>Pin Circle Dia.=0.100</p>	<p>Products: APD-300L APD-500L</p> <p>Pin Circle Dia.=0.100</p>	<p>Products: APD-900 APD-1500 APD-3000</p> <p>Pin Circle Dia.=0.200</p>
71 Plastic	72 TO-8	73 TO-8
<p>Products: CD-1705</p> <p>ANODE CATHODE</p>	<p>Products: OSD-60-0</p> <p>CATHODE & CASE ANODE</p>	<p>Products: QD50-0</p> <p>CATHODE & CASE Q4 Q3 Q2 Q1 QUADRANT ANODE 1</p>
74 Special	75 TO-5	76 Plastic Molded
<p>Products: OSD100-0A OSD100-5TA</p> <p>RED DOT INDICATES CATHODE LEAD</p>	<p>Products: DLS-2S</p> <p>Pin Circle Dia.= 0.200 Bottom View</p>	<p>Products: OS-P200</p> <p>OPTICAL C</p>