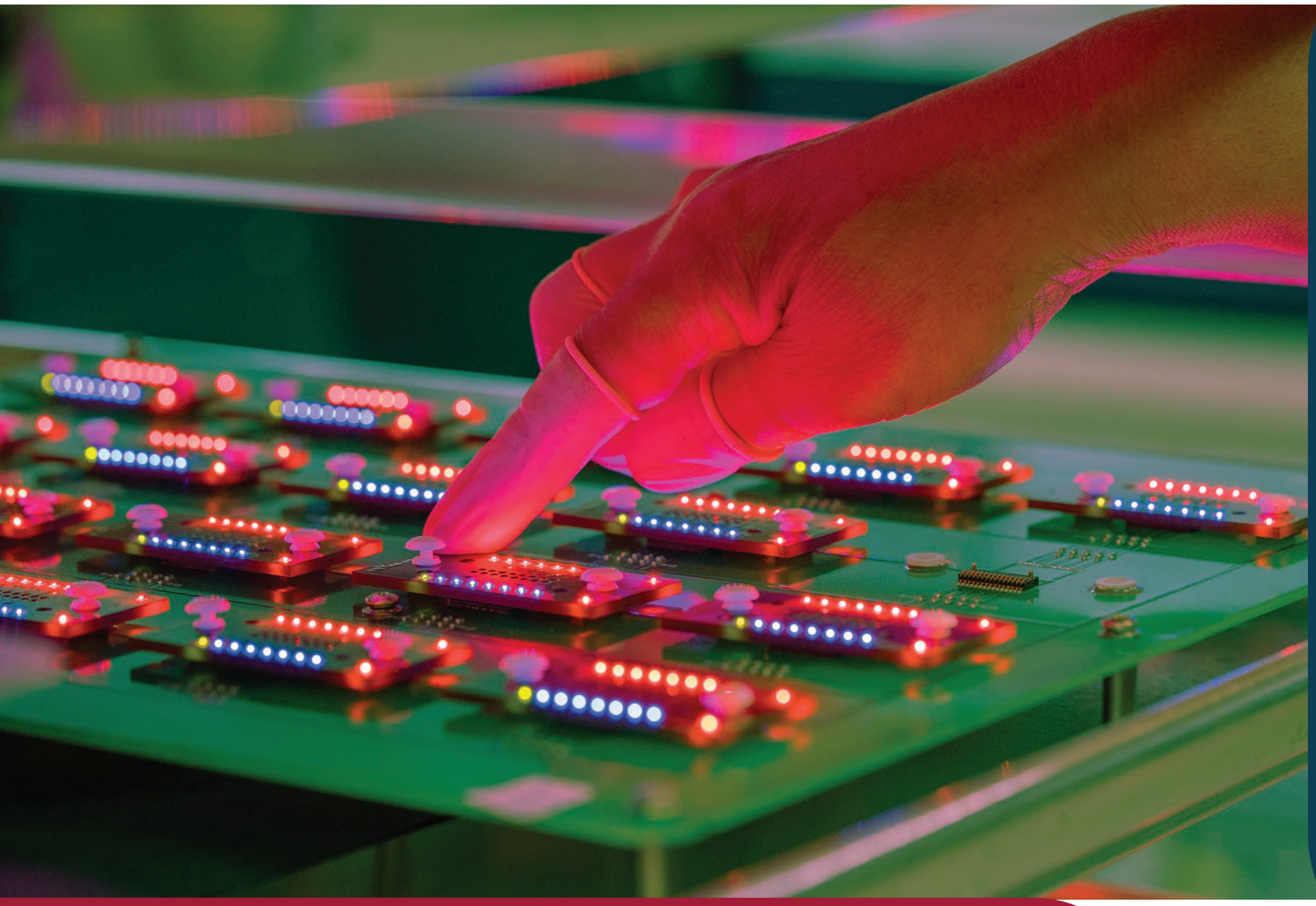
OPTO DIODE

An ITW Company



Illuminating Industries Since 1981

Product Catalog

Illuminate. Detect. Innovate

www.OptoDiode.com

WELCOME TO **OUR PRODUCT CTALOG**



ABOUT US

Who are we?

Opto Diode Corporation is a trusted provider of high-performance photonic solutions, specializing in photodetectors, infrared (IR) detectors, IR emitters, and LEDs. Our products are designed to deliver exceptional precision and reliability across a wide range of applications, meeting the most demanding industry requirements.

Serving industries such as Aerospace, Defense, Medical, Automotive, and Industrial Automation, Opto Diode's technologies support critical applications like environmental monitoring, biomedical imaging, night vision, and LiDAR. With decades of expertise and a strong commitment to quality, we deliver innovative optical components that empower industries and drive progress.

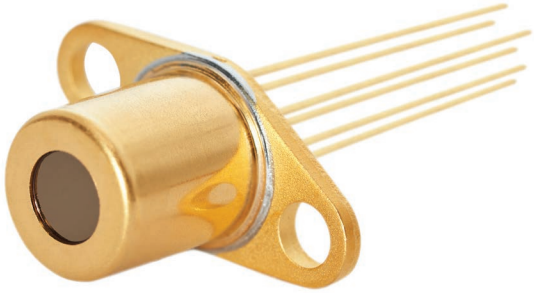




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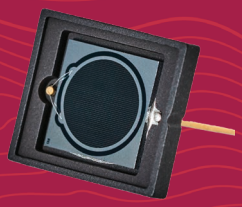
16 Infrared Emitters
Black body radiation IR emitters

18 LEDs
Robust LEDs for critical applications

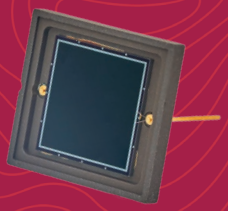
20 Avalanche Photodiodes
APDs from 905nm to 1550nm

SXUV Series

EUV Enhanced Photodiodes



SXUV20HS1



SXUV100

KEY FEATURES

- TO-18 and TO-5 Packaging
- Low Dark Current
- Fast Rise TImes
- Various Active Area Sizes
- Low Capacitance

APPLICATIONS

- EUV Power Monitoring
- Metrology and Inspection
- Process Control
- EUV Qualification Processes

The SXUV family of Extreme Ultraviolet (EUV) optimized photodetectors offer exceptional 13.5nm photolithography capabilities and stable responsivity across extreme UV exposure wavelengths ranging from 1nm to 190nm. This makes them indispensable tools for the most critical EUV light measurement tasks, ensuring reliable and accurate results in demanding environments.

Available in a wide range of sizes, the SXUV series can be customized with bandpass filters optimized for specific wavelength ranges or incident power attenuation. This versatility allows users to select the most suitable configuration for their applications, whether in metrology and inspection, power monitoring, exposure systems, or process control.

Where speed and precision are paramount, low capacitance, high-speed versions of the SXUV detectors such as the **SXUV20HS1** deliver enhanced response times while maintaining low dark current. These features make them ideal for speed-critical applications such as high-throughput manufacturing, real-time process control, and advanced diagnostic systems.

Product Lineup

Model Number	Part Number	Active Area Size (mm²)	Typical Responsivity (A/W)	Detection Range (nm)
SXUV100	ODD-SXU-001	100	See Responsivity Graph	1-190
SXUV20C	ODD-SXU-051	19.7	See Responsivity Graph	1-190
SXUVHS1	ODD-SXU-004	19.7	See Responsivity Graph	1-190
SXUV300C	ODD-SXU-044	331	See Responsivity Graph	1-190
SXUV5	ODD-SXU-008	5	See Responsivity Graph	1-90

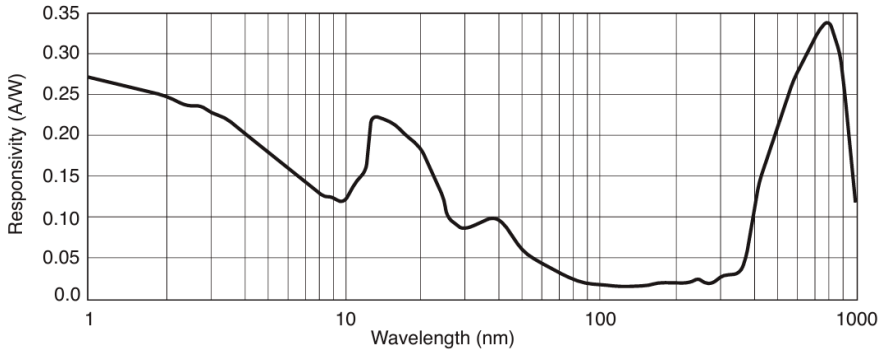


Engineered with durability and performance in mind, the SXUV detectors are designed to withstand rigorous use in laboratory and industrial environments, ensuring long-term reliability. Whether you are working on cutting-edge semiconductor fabrication, advanced materials research, or critical quality assurance, the SXUV family of detectors is your go-to solution for achieving superior performance and accuracy in extreme UV detection.

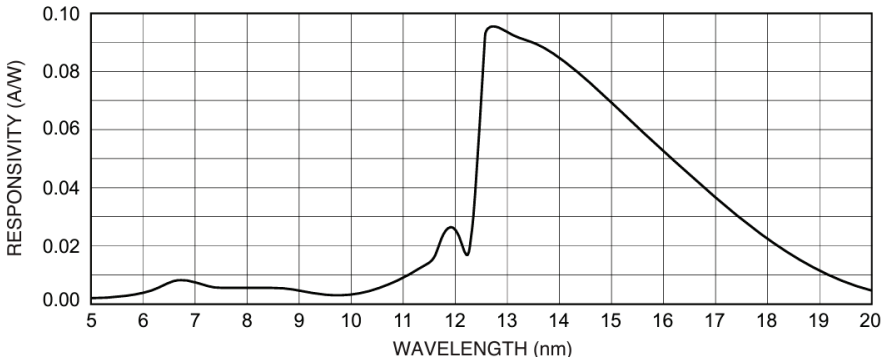
Tailored Solutions

Model Number	Part Number	Active Area Size (mm²)	Typical Responsivity (A/W)	Detection Range (nm)
Multi Element and Array				
SXUVPS4	ODD-SUXU-013	5	See Responsivity Graph	1-190
SXUVPS4C	ODD-SUXU-023	5	See Responsivity Graph	1-190
Detectors with Integrated Thin Film				
SXUV100TF135	ODD-SUXU-003	100	0.09 @ 13.5nm	12 - 18

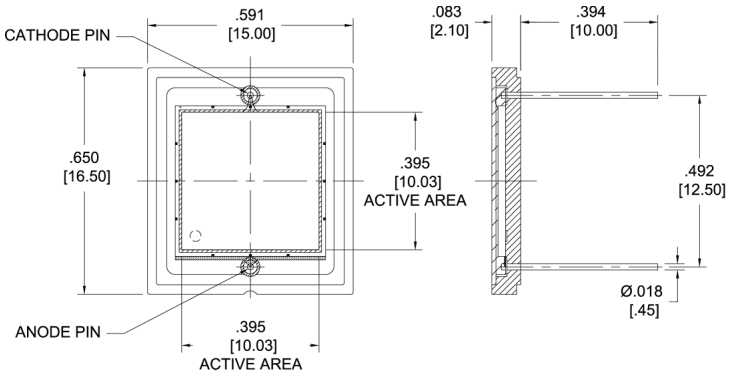
Typical Responsivity (SXUV Series)



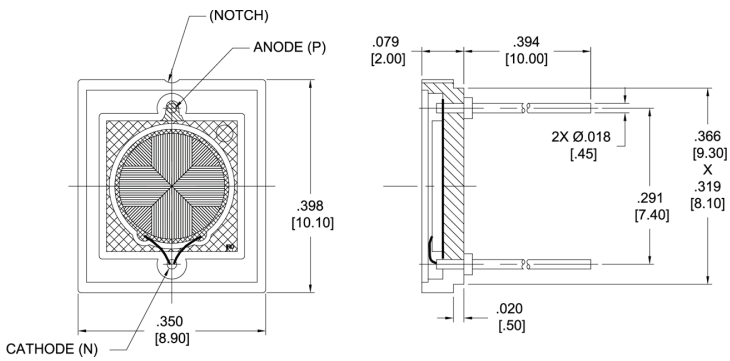
Typical Responsivity (SXUV100TF135)



Typical Packaging



SXUV100

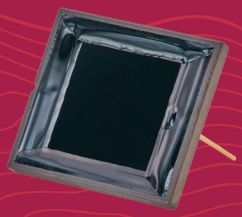


SXUV20HS1

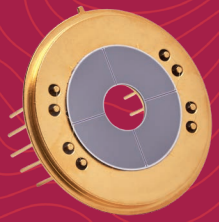
For additional technical specificaions, please visit our website at www.optodiode.com

AXUV Series

Electron, Photon & X-Ray Detectors



AXUV100TF030



AXUVPS7

KEY FEATURES

- Large Detection Areas
- Vacuum Compatible
- High Speed Configurations
- Broad Wavelength Response
- Customizable

APPLICATIONS

- Electron Detection
- High Energy Photon Detection
- Synchotron X-Ray Detection
- Back-Scatter Electron Detection
- Advanced Diagnostics

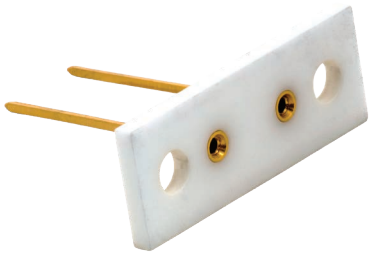
The AXUV Series excels in applications such as synchrotron and beamline instrumentation, where high-intensity photon beam monitoring is critical. They are also ideally suited for particle accelerators, providing precise measurements for high-energy physics experiments. In the semi-conductor manufacturing sector, these photodiodes ensure precision and stability in photolithography and process control tasks. Additionally, their high energy detection capabilities make them a preferred choice for radiation monitoring in both medical diagnostics and industrial safety applications.

With versatile configurations, the AXUV Series offers both standard and custom options, including multi-element or array designs that adapt seamlessly to diverse operational requirements. These detectors are engineered for durability and performance, withstanding rigorous use in both laboratory and industrial settings.

Whether you are conducting cutting-edge experiments in physics and materials science, advancing diagnostic capabilities in medical imaging, or ensuring quality control in industrial processes, the AXUV Series provides the reliability and accuracy essential to your success.

Product Lineup

Model Number	Part Number	Active Area Size (mm²)	Typical Responsivity (A/W)	Detection Range (nm)
AXUV100G	ODD-AXU-010	100	See Responsivity Graphs	0.0124 to 190
AXUV20A	ODD-AXU-026	23	See Responsivity Graphs	0.0124 to 190
AXUV20HS1	ODD-AXU-036	20	See Responsivity Graphs	0.0124 to 190
AXUV300C	ODD-AXU-082	331	See Responsivity Graphs	0.0124 to 190
AXUV576C	ODD-AXU-048	576.5	See Responsivity Graphs	0.0124 to 190
AXUV63HS1	ODD-AXU-049	63	See Responsivity Graphs	0.0124 to 190
AXUV63HS1-CH	ODD-AXU-051	63	See Responsivity Graphs	0.0124 to 190

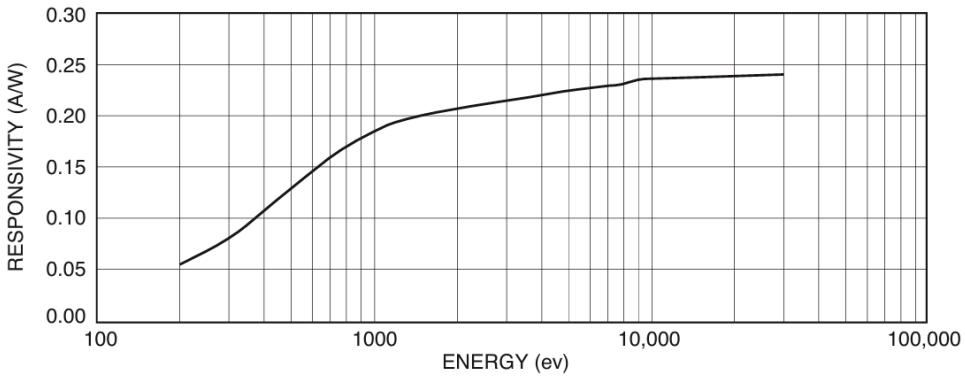


Sockets available for easy replacement and intengration!

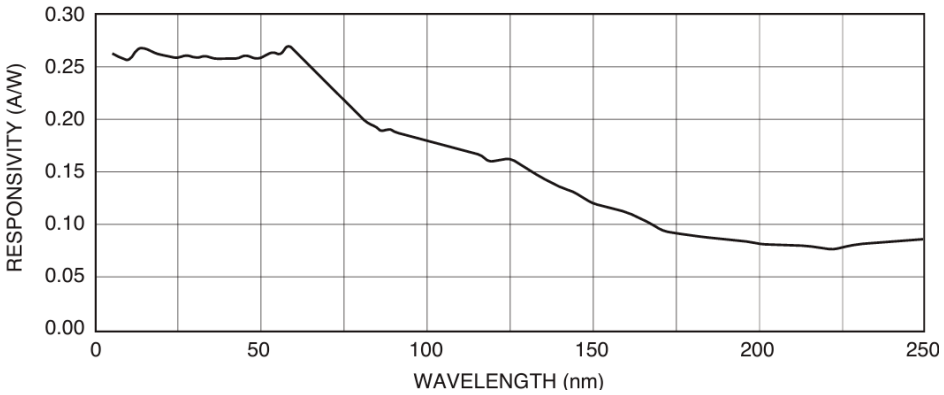
Tailored Solutions

Model Number	Part Number	Active Area Size (mm²)	Typical Responsivity (A/W)	Detection Range (nm)
Multi-element and Array Detectors				
AXUV16ELG	ODD-AXU-023	36.5	See Responsivity Graphs	0.0124 to 190
AXUV20ELG	ODD-AXU-033	3	See Responsivity Graphs	0.0124 to 190
Back Scatter Detectors				
AXUVPS7	ODD-AXU-096	5	See Responsivity Graphs	0.0124 to 190
Detectors with Integrated Thin Films				
AXUV100TF030	ODD-AXU-019	100	See Responsivity Graphs	1 - 12
AXUV100TF400	ODD-AXU-002	100	See Responsivity Graphs	18 - 80

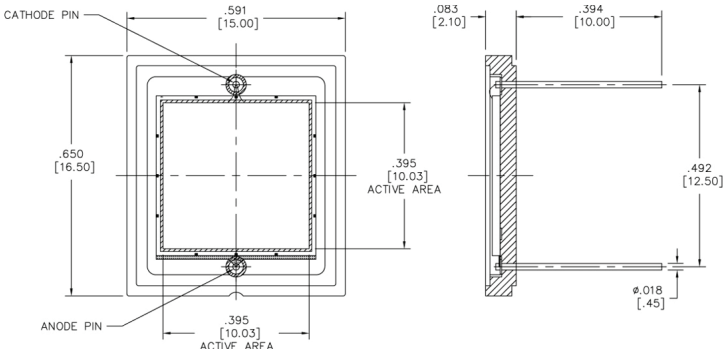
Typical Electron Response



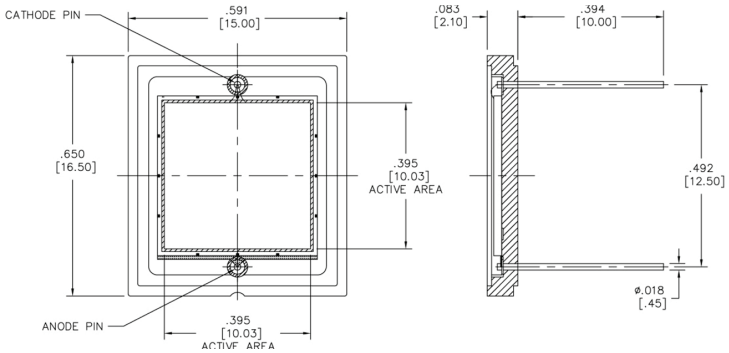
Typical EUV-UV Response



Typical Packaging



AXUV100TF030

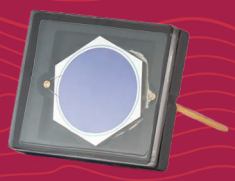


AXUV100G

For additional technical specificaions, please visit our website at www.optodiode.com

UVG Series

UV Enhanced Photodetectors



UVG-20S



Space Qualified Solutions

KEY FEATURES

- Large Detection Areas
- 100% Internal QE
- Highly Stable UV Response
- Vacuum Compatible
- Ideal for 190-400nm

APPLICATIONS

- UV-A, UV-B, UV-C Detection
- Laser Monitoring
- Photolithography
- UV Radiation Dosimetry
- Fluorescence Spectroscopy

Ideal for applications where reliability and accuracy are critical, the UVG Series excels in tasks such as laser power monitoring, UV light measurement, and quality assurance systems. Whether utilized in industrial processes, scientific research, or environmental monitoring, these detectors provide consistent results with minimal performance degradation over time.

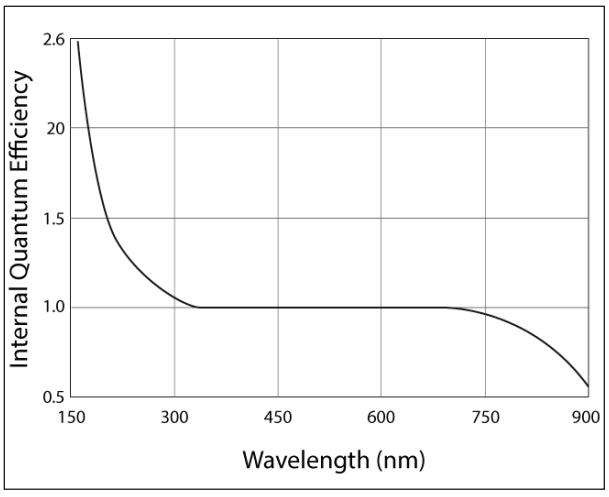
In semiconductor manufacturing, they ensure accurate laser monitoring in photolithography systems. In environmental monitoring, the detectors enable precise measurement of UV radiation levels for ozone studies and solar performance assessments. Medical fields benefit from their ability to monitor UV exposure in sterilization systems, while industrial applications rely on their stable output for UV curing and material testing processes.

With a design philosophy centered on durability and adaptability, the UVG Series offers a range of configurations to suit diverse operational needs. Customers can select from standard models or explore custom configurations tailored to specific requirements, ensuring optimal integration into existing systems.

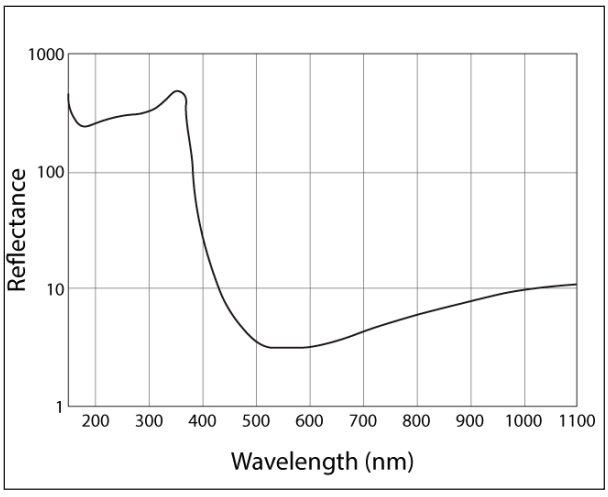
Product Lineup

Model Number	Part Number	Active Area Size (mm²)	Typical Responsivity (A/W)	Detection Range (nm)
UVG100	ODD-UVG-002	100	See Responsivity Graphs	190 - 400
UVG12	ODD-UVG-014	12	See Responsivity Graphs	190 - 400
UVG20C	ODD-UVG-004	19	See Responsivity Graphs	190 - 400
UVG20S	ODD-UVG-013	24	See Responsivity Graphs	190 - 400
UVG5S	ODD-UVG-007	5	See Responsivity Graphs	190 - 400

Internal Quantum Efficiency

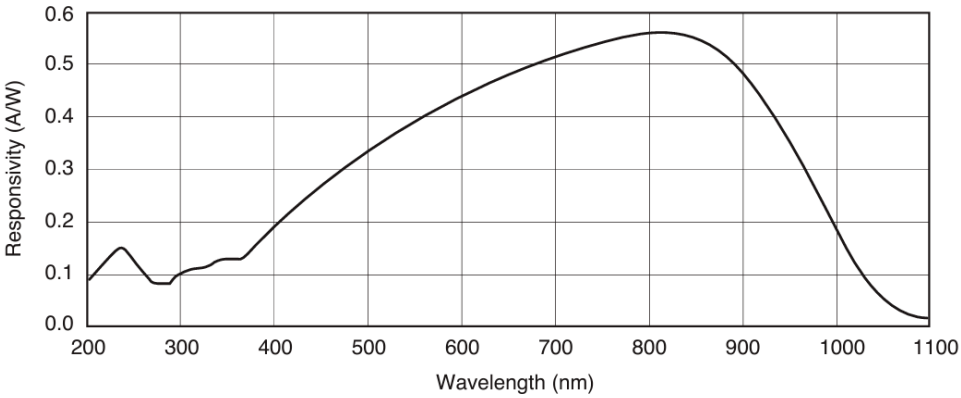


Typical Reflectance

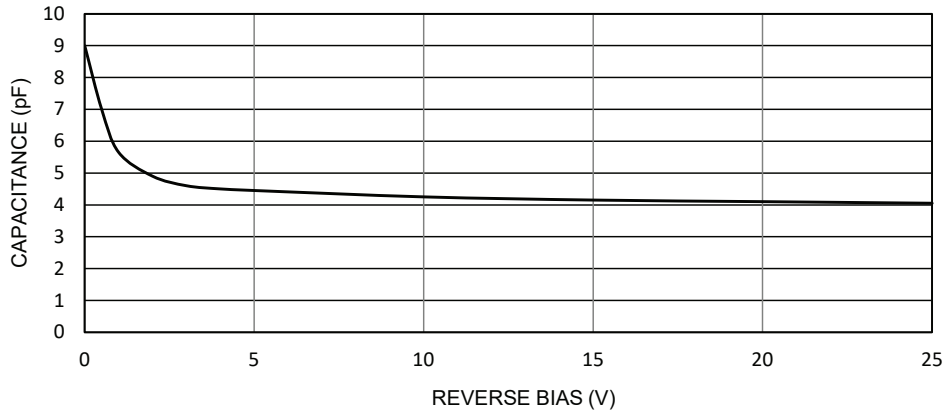


Performance Specifications

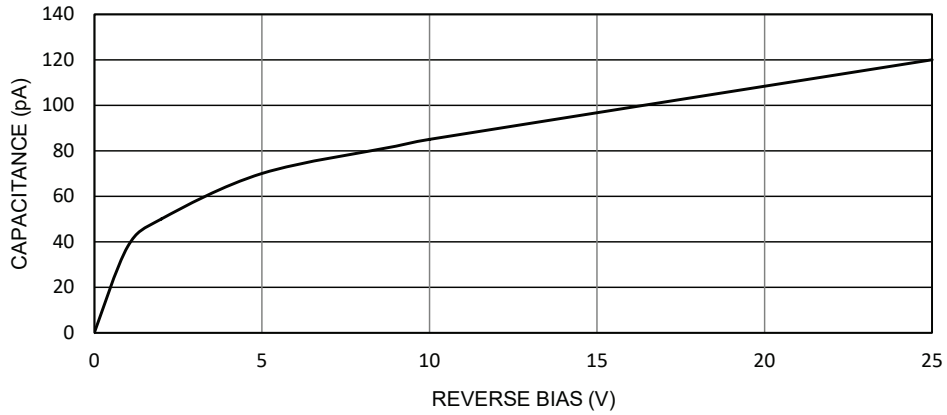
Typical Photon Responsivity



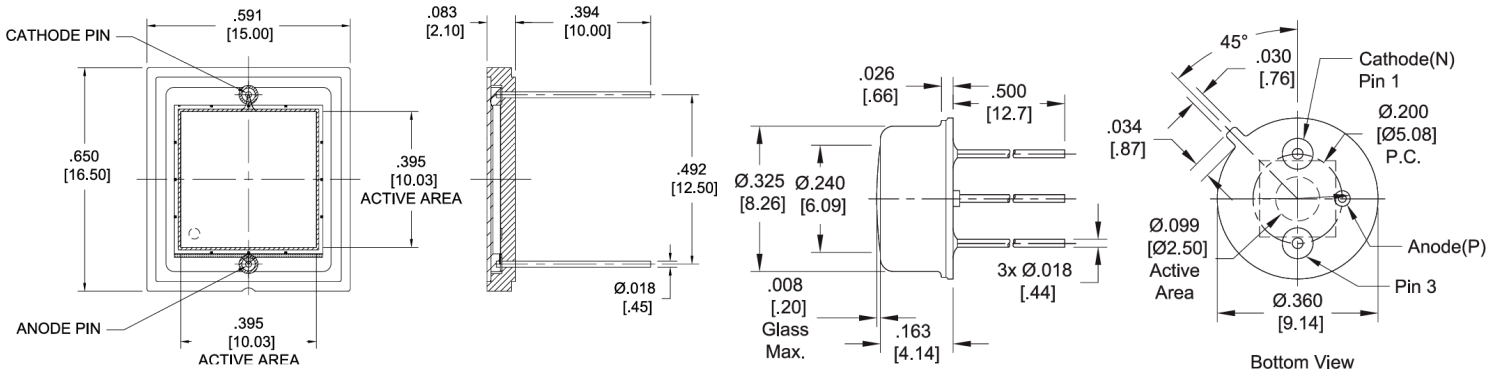
Typical Capacitance vs. Bias (Per mm² of Active Area)



Typical Dark Current vs. Bias (Per mm² of Active Area)



Sample Packaging



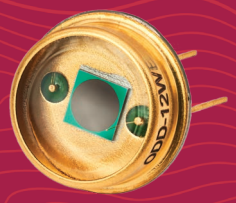
UVG100

UVG5S

For additional technical specificaions, please visit our website at www.optodiode.com

Standard Photodiodes

Red and Blue Enhanced



ODD-12WB



ODD-1WB

KEY FEATURES

- Large Detection Areas
- 100% Internal QE
- Highly Stable UV Response
- Vacuum Compatible
- Ideal for 190-400nm

APPLICATIONS

- UV-A, UV-B, UV-C Detection
- Laser Monitoring
- Photolithography
- UV Radiation Dosimetry
- Fluorescence Spectroscopy

Opto Diode's Red and Blue Enhanced silicon photodiode detectors are designed to deliver exceptional performance across the visible spectrum, from 400nm to 1000nm. With low dark current and low capacitance, these photodiodes provide reliable and accurate light detection for applications that demand high sensitivity and precision.

Ideal for industries including medical diagnostics, scientific research, environmental monitoring, and industrial automation, these devices excel in tasks requiring consistent responsivity and stable output. Their red and blue wavelength enhancement ensures optimized detection in specific wavelength ranges, making them invaluable for applications such as color sensing, fluorescence detection, and light intensity measurements in imaging systems.

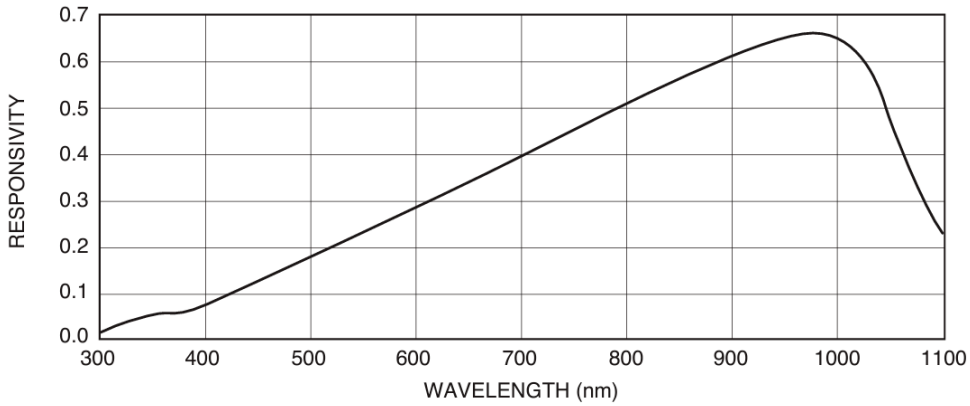
Available in both standard and customizable configurations, Opto Diode's photodiodes can be tailored to meet your specific requirements.

Product Lineup

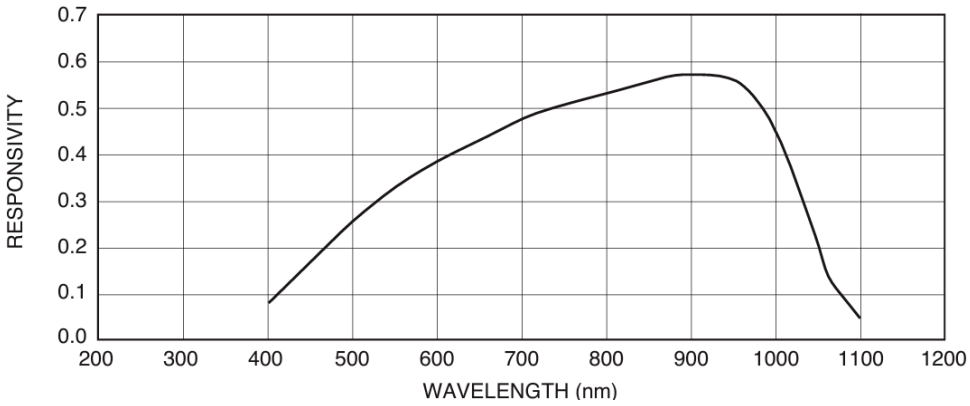
Model Number	Part Number	Active Area Size (mm^2)	Description	Typical Responsivity (A/W)
ODD-1	ODD-632-001	1	Red Enhanced Photodiode in TO-18 Pkg	0.40 @ 632nm
ODD-12W	ODD-632-004	12	Red Enhanced Photodiode in TO-8 Hermetic Pkg	0.35 @ 632nm
ODD-12WB	ODD-450-004	12	Blue Enhanced Photodiode in TO-8 Hermetic Pkg	0.28 @ 450nm
ODD-15W	ODD-632-005	15.8	Red Enhanced Photodiode in TO-5 Hermetic Pkg	0.35 @ 632nm
ODD-15WB	ODD-450-005	15.8	Blue Enhanced Photodiode in TO-5 Hermetic Pkg	0.28 @ 450nm
ODD-1B	ODD-450-001	1	Blue Enhanced Photodiode in TO-18 Pkg	0.28 @ 450nm
ODD-1W	ODD-632-008	1	Red Enhanced Photodiode in TO-18 Pkg	0.40 @ 632nm
ODD-1WB	ODD-450-007	1	Blue Enhanced Photodiode in TO-18 Pkg	0.28 @ 450nm
ODD-42W	ODD-632-006	42	Red Enhanced Photodiode in TO-8 Hermetic Pkg	0.35 @ 632nm
ODD-42WB	ODD-450-006	42	Blue Enhanced Photodiode in TO-8 Hermetic Pkg	0.28 @ 450nm
ODD-5W	ODD-632-002	5	Red Enhanced Photodiode in TO-5 Hermetic Pkg	0.35 @ 632nm
ODD-5WB	ODD-450-002	5	Blue Enhanced Photodiode in TO-5 Hermetic Pkg	0.28 @ 450nm
ODD-5WBISOL	ODD-450-003	5	Blue Enhanced Photodiode in TO-5 Hermetic Pkg	0.28 @ 450nm
ODD-5WISOL	ODD-632-003	5	Red Enhanced Photodiode in TO-5 Hermetic Pkg	0.35 @ 632nm

Performance Specifications

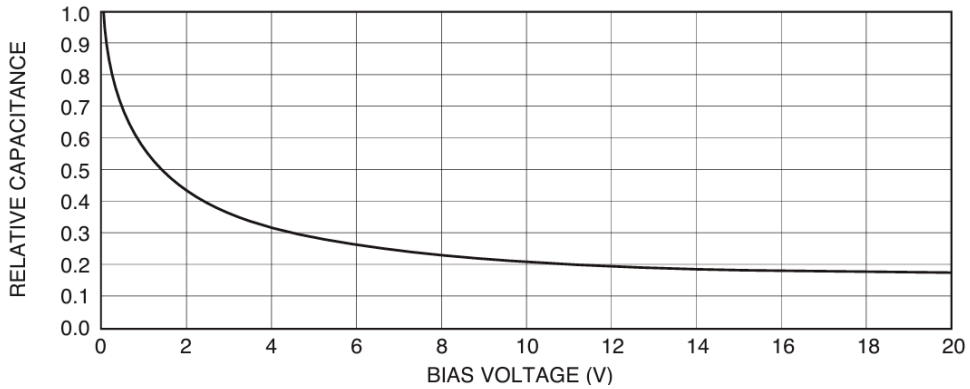
Typical Red Enhanced Photodiode Responsivity



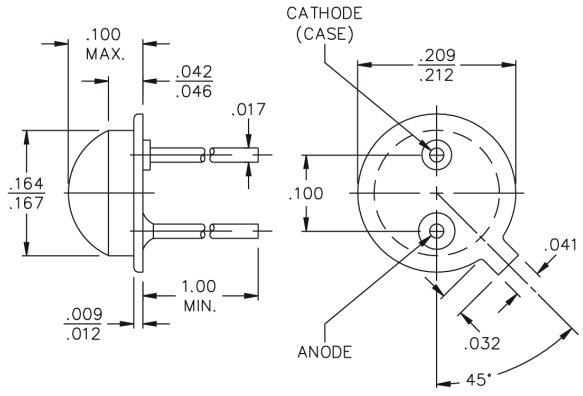
Typical Blue Enhanced Photodiode Responsivity



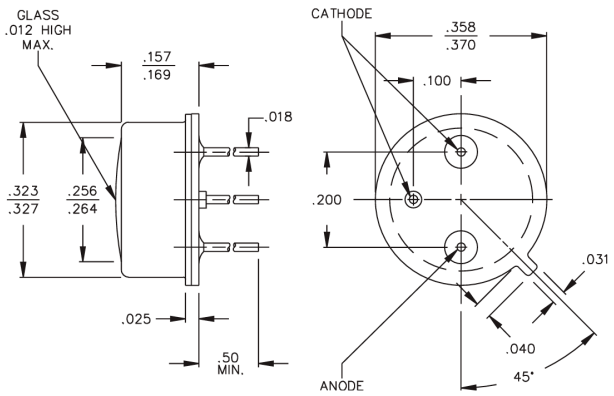
Capacitance vs. Reverse Bias (Per mm² of Active Area)



Sample Packaging



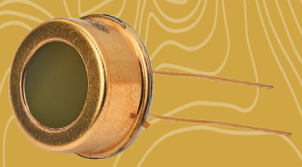
ODD-1



ODD-15W

For additional technical specificaions, please visit our website at www.optodiode.com

PbS Infrared Detectors



AP-58E



AP-68

KEY FEATURES

- High Sensitivity (2um - 4um)
- High Signal to Noise Ratio
- High Durability Ensuring Long Field Operation
- Customizable Configurations

APPLICATIONS

- Gas Analysis
- Emission Monitoring
- Spectroscopy
- Process Control Systems
- Thermal Imaging

The A Series single channel infrared detectors integrates PbS technology with proven manufacturing processes to provide the highest sensitivity detectors across the spectral range from two to four microns. In addition, the product line minimizes maintenance costs and provides dependable operation with industry leading quality, durability, and reliability.

Many of today's demanding applications, including industrial, environmental, and medical uses, require a high level of performance to address evolving challenges. The A Series IR Detectors deliver superior sensitivity, meeting the need to detect trace elements, gases, fire, flame, and emissions with accuracy and consistency. This makes them ideal for tasks ranging from process control to safety monitoring in high-stakes environments.

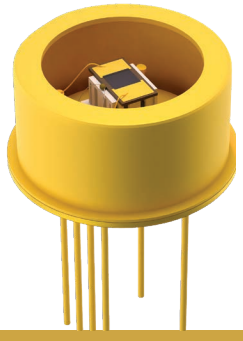
Available in a variety of standard configurations, customers can choose from an assortment of options including element size, cooling alternatives, and package size to suit numerous system and application requirements. Cooled units provide additional sensitivity for very low-level signal detection and enhanced stability in environments where temperatures are in constant flux. These features allow users to tailor their solutions to specific operational needs, ensuring optimal performance in any scenario.



AP Series - Uncooled PbS IR Detectors

Model Number	Part Number	Sensing Element Size (mm)	D* (cm $HZ^{½}$ W^{-1})	Resistance (MΩ)	Window Type
AP-15G	40725	1mm x 1mm	$1x10^{11}$ Typ.	0.5 - 2.0	Glass Molded Lens
AP-25G	40370	2mm x 2mm	$1x10^{11}$ Typ.	0.5 - 2.0	Glass Molded Lens
AP-35	40363	3mm x 3mm	$1x10^{11}$ Typ.	0.5 - 2.0	Glass Molded Lens
AP-20505	40009	2mm x 2mm	$7x10^{10}$ Min.	0.5 - 2.0	Glass Molded Lens
AP-58E	40736	5mm x 5mm	$7x10^{10}$ Min.	0.5 - 2.0	Flat Silicon
AP-68	40368	6mm x 6mm	$7x10^{10}$ Min.	0.5 - 2.0	Flat Silicon

- D* measurements @ λp, 650 Hz, 1 Hz
- Specifications apply at voltage (VBias) of 50V/mm with a 1MΩ resistor in series. Except for 40009 uses a 0.5MΩ. λp @ 500K.



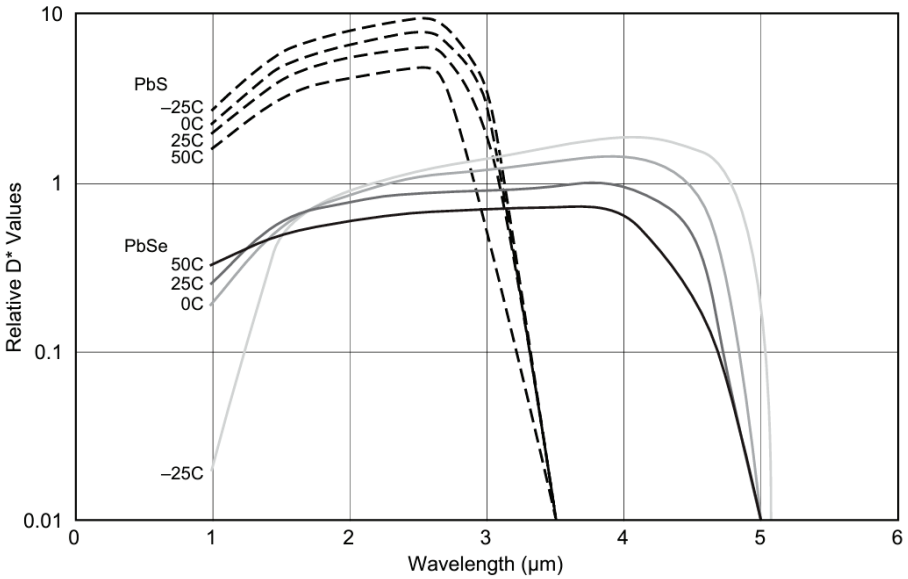
AT1 & AT2 Series - Cooled PbS IR Detectors

Model Number	Part Number	Sensing Element Size (mm^2)	D* ($cm\ HZ^{½}\ W^{-1}$)	Resistance (MΩ)	Window Type	Number of Cooling Stages
AT1-27TE	40373	4	$1.5x10^{11}$ Typ.	1.5-10.0	Flat Sapphire	1
AT1-37T	40147	9	$1.5x10^{11}$ Typ.	1.5-10.0	Flat Sapphire	1
AT2-28TE	40028	4	$2.5x10^{11}$ Typ.	2.5-15.0	Flat Sapphire	2
AT2-37T	40193	9	$2.5x10^{10}$ Min.	2.5-15.0	Flat Sapphire	2
AT2S-38T	40029	9	$3x10^{10}$ Min.	3.0-20.0	Flat Sapphire	2

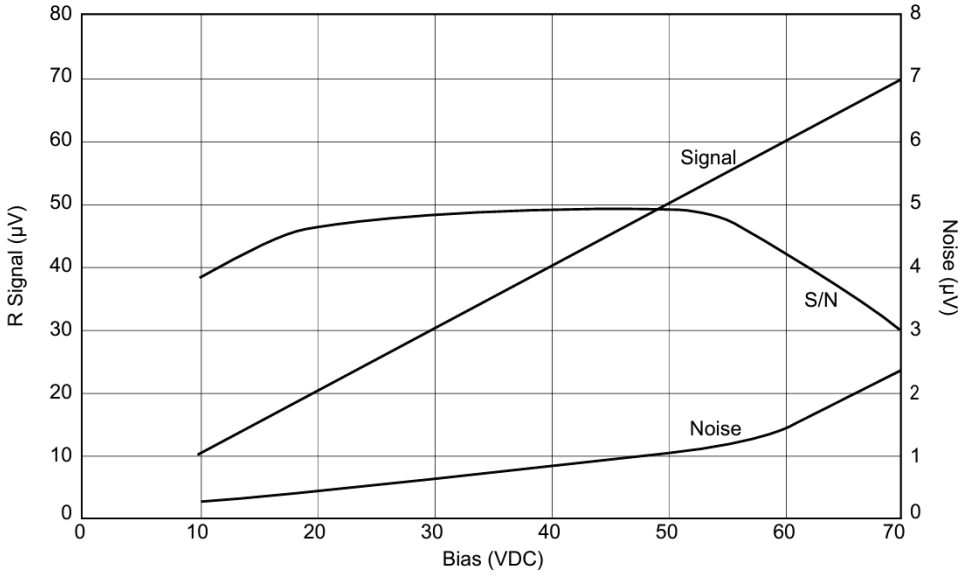
- D* measurements @ λp, 650 Hz, 1 Hz

Response Spectrum and SNR

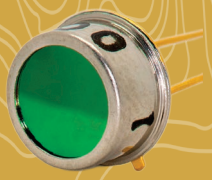
Detector Spectral Response



Signal to Noise Ratio vs. Bias Voltage



PbSe Infrared Detectors



BPX-35F



BXT2-17TF

KEY FEATURES

- High Sensitivity (1um - 5um)
- High Signal to Noise Ratio
- High Durability Ensuring Long Field Operation
- Customizable Configurations

APPLICATIONS

- Gas Analysis
- Emission Monitoring
- Spectroscopy
- Process Control Systems
- Thermal Imaging

The BX Series PbSe Infrared Detectors deliver exceptional performance for material analysis across the 1 to 5-micron spectrum. With a combination of high sensitivity, fast response times, and proven reliability, these detectors are designed to meet the rigorous demands of applications such as gas analysis, emissions monitoring, and industrial process control. Their precision and speed make them indispensable tools for detecting trace elements, analyzing gases, and monitoring pollutants with accuracy and consistency, ensuring compliance with regulatory standards and optimizing industrial processes.

Uncooled options in the BXP Series provide cost-effective performance, while the BXT1 Series single-stage TEC detectors enhance temperature stability and sensitivity. For the most challenging environments, the BXT2 Series two-stage TEC detectors deliver superior temperature stability and the highest levels of sensitivity, ensuring reliable operation even under harsh conditions.

Designed to maximize dynamic range, the BX Series supports real-time measurements with fast response times and low maintenance requirements. The rugged construction and long operational life of these detectors reduce downtime and maintenance costs, making them an ideal choice for high-stakes environments.

BXP Series - Uncooled PbSe IR Detectors

Model Number	Part Number	Sensing Element Size (mm)	D* (cm $HZ^{½}$ W^{-1})	Resistance (MΩ)	Window Type
BXP-15E	40785	1mm x 1mm	$2x10^{10}$ Typ.	0.7 - 1.5	Falt Saphire
BXP-25M	42413	2mm x 2mm	$2x10^{10}$ Typ.	0.1 - 2.5	AR Silicon
BXP-35E	40055	3mm x 3mm	$1.5x10^{10}$ Typ.	0.5 - 1.75	Falt Saphire
BXP-35F	40333	3mm x 3mm	$1.5x10^{10}$ Typ.	0.5 - 1.0	2.4um Longpass Ge Filter

- D* measurements @ ʎp, 1000 Hz, 1 Hz
- Specifications apply at voltage (VBias) of 25V/mm for cooled and 35V/mm for uncooled detectors with either a 1MΩ or 0.5MΩ load resistor in series.



Single- and two-stage cooling options enable precise measurements, even in environments with varying temperatures.

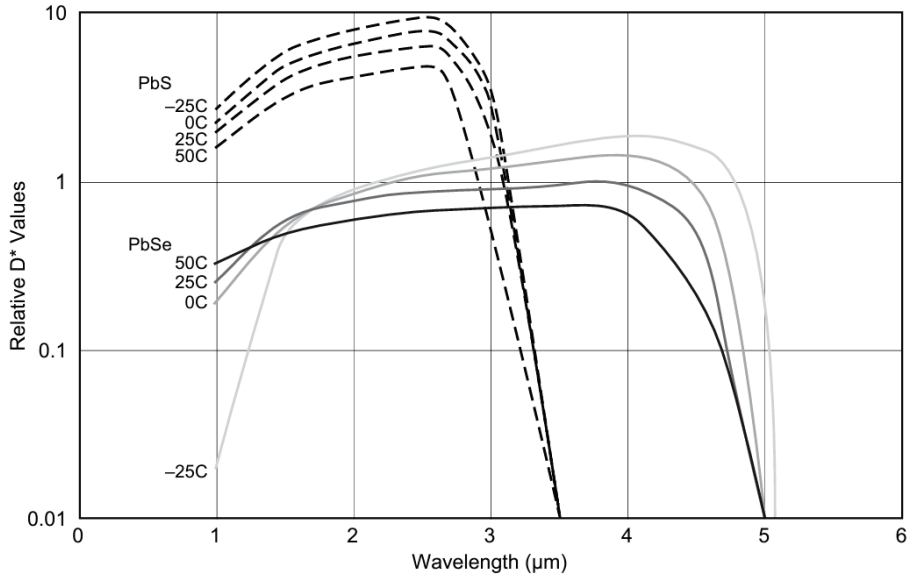


BXT1 & BXT2 Series - Cooled PbSe IR Detectors

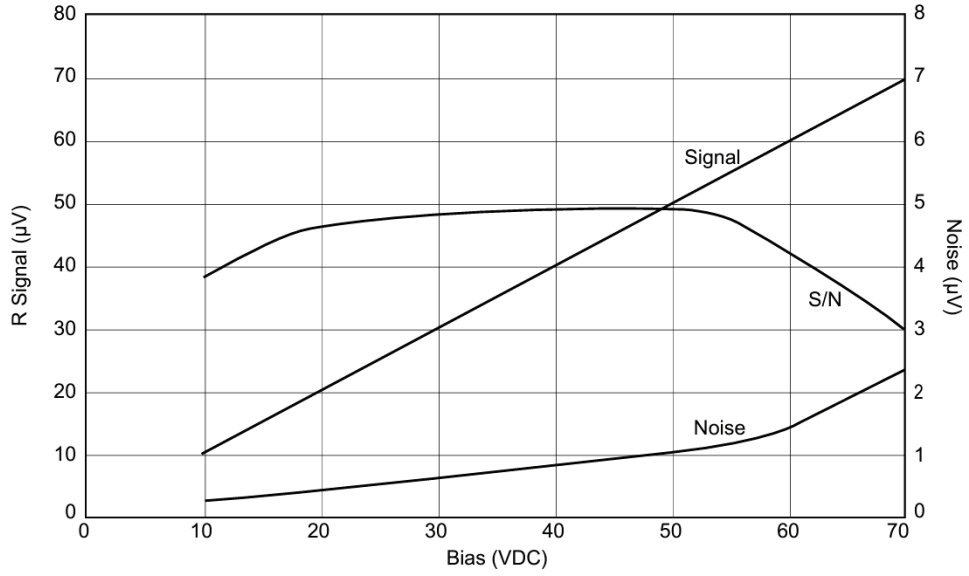
Model Number	Part Number	Sensing Element Size (mm^2)	D* ($cm\ HZ^{½}\ W^{-1}$)	Resistance (MΩ)	Window Type	Number of Cooling Stages
BXT1-28TE	40373	2mm x 2mm	$2.8x10^{10}$ Typ.	0.5 - 10.0	Flat Sapphire	1
BXT1-37T	40147	3mm x 3mm	$2.8x10^{10}$ Typ.	0.5 - 10.0	Flat Sapphire	1
BXT2-17T	40174	1mm x 1mm	$1.6x10^{10}$ Min.	1.0 - 15.0	Flat Sapphire	2
BXT2-17TF	40065	1mm x 1mm	$2.4x10^{10}$ Min.	1.5 - 7.0	Flat Sapphire	2
BXT2-27	40587	2mm x 2mm	$1.8x10^{10}$ Min.	1.0 - 4.5	2.7um Longpass Si Filter	2
BXT2-37T	40071	3mm x 3mm	$1.6x10^{10}$ Min.	1.0 - 15.0	Flat Sapphire	2
BXT2S-28T	40186	2mm x 2mm	$3.5x10^{10}$ Typ.	1.0 - 15.0	Flat Sapphire	2
BXT2S-38T	40203	3mm x 3mm	$3.5x10^{10}$ Typ.	1.0 - 15.0	Flat Sapphire	2
BXT2S-68TE	40076	6mm x 6mm	$1.5x10^{10}$ Min.	1.0 - 15.0	Flat Sapphire	2

- D* measurements @ λp, 650 Hz, 1 Hz

Detector Spectral Response



Signal to Noise Ratio vs. Bias Voltage



IR-Emitters

NIR to IR Emitters



SHA727-5M0



SA10510-8M2

KEY FEATURES

- Calcium Fluouride window options
- Choose from Steady State or Pulsable
- High Emissivity
- Configurable Options

APPLICATIONS

- Environmental Monitoring
- Spectroscopy
- Process Monitoring
- Gas Analysis

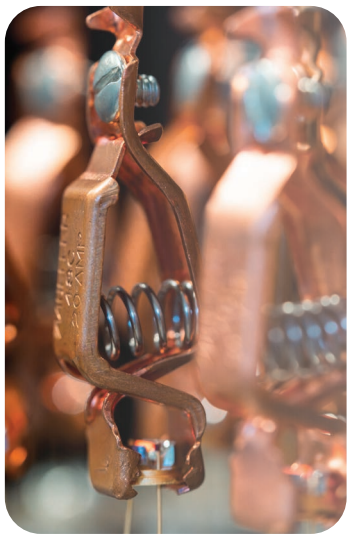
The IR Emitter Series by Opto Diode offers a versatile range of high-performance infrared emitters, meeting the demands of industrial and medical applications such as gas analysis, environmental monitoring, spectroscopy, and process control.

The **SA Series** emitters provide steady-state blackbody radiation with sapphire or calcium fluoride windows, delivering consistent performance in TO5 and TO8 packages. For higher output, the **SHA Series** emitters offer windowless TO5 packaging and blackbody-like spectral distribution, ideal for applications requiring stability and high power. For pulsable sources of blackbody radiation, the **SVF Series** excels with emissivity up to 0.88, while the **SPF Series** offers fast, dynamic performance for high-speed applications. The PIREPLUS emitters take innovation further with high-speed IR emission and integrated drive electronics, streamlining complex setups.

Designed for adaptability, these emitters suit a broad range of industries, from medical diagnostics to industrial safety, enabling gas detection, advanced spectroscopy, and process monitoring. Engineered for durability and seamless integration, the IR Emitter Series exemplifies Opto Diode's commitment to quality and innovation. Whether for steady-state or pulsable needs, this series delivers unmatched performance for today's most critical applications.

Steady State IR Emitters

Model Number	Part Number	Window Type	Typical Resistance
Steady State: SA Series			
SA1037-5M2	40089	Sapphire	0.80 ohms
SA1037-5M3	40090	Calcium Fluoride	0.80 ohms
SA10510-8M2	40092	Sapphire	1.60 ohms
SA10510-8M3	40093	Calcium Fluoride	1.60 ohms
SA727-5M2	40095	Sapphire	1.00 ohms
SA727-5M3	40096	Calcium Fluoride	1.00 ohms
SA727-8M2	40198	Sapphire	1.30 ohms
Steady-State SHA High Power Series			
SHA1037-5M0	40099	Windowless	0.80 ohms
SHA727-5M0	40100	Windowless	1.00 ohms



Pulsable IR Emitters

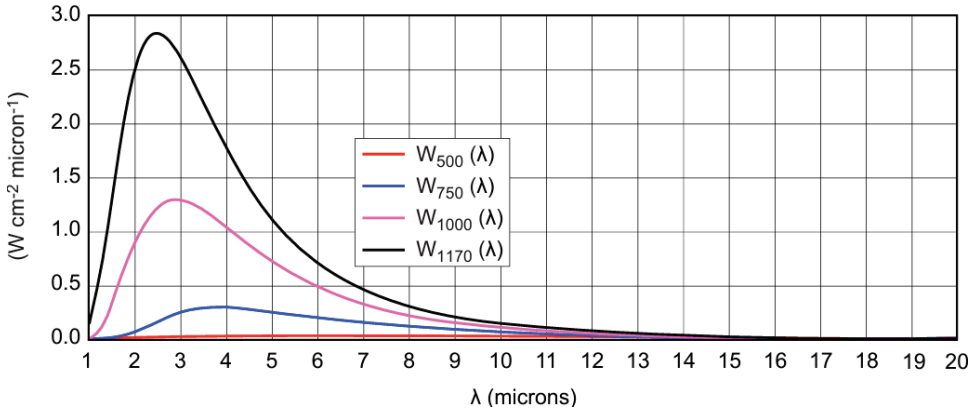
Model Number	Part Number	Window Type	Typical Resistance
Pulsable SVF Series			
SVF230-5M2	40103	Sapphire	0.80 ohms
SVF230-5M3	40104	Calcium Fluoride	0.80 ohms
SVF350-5M2	40106	Sapphire	1.60 ohms
SVF350-5M3	40107	Calcium Fluoride	1.60 ohms
SVF350-8M3	40172	Calcium Fluoride	1.00 ohms
SVF360-8M2	40432	Sapphire	1.00 ohms
SVF360-8M3	40110	Calcium Fluoride	1.30 ohms
Pulsable High Speed			
SPF220-5M2	40101	Sapphire	2.46 ohms
SPF220-5M2H	40800	Sapphire	2.46 ohms
Pire Plus	40801	Sapphire	---



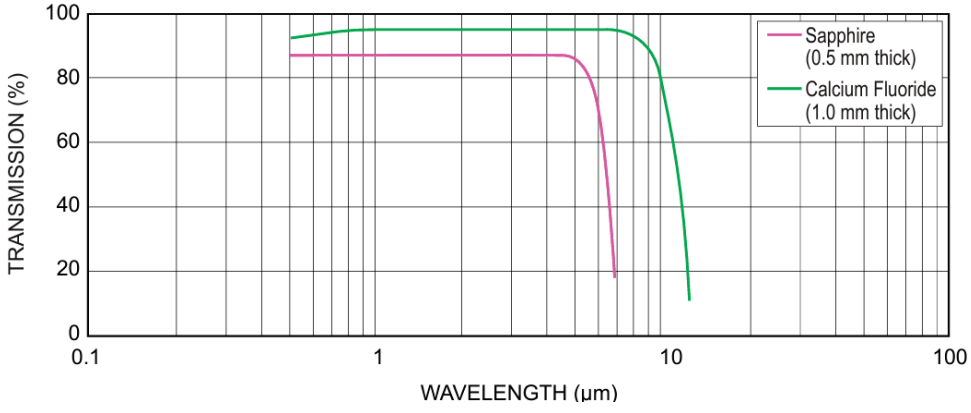
* Customization available for specific wavelenths.

Emission Specifications

Black Body Radiant Emittance



Window Spectral Transmission Options



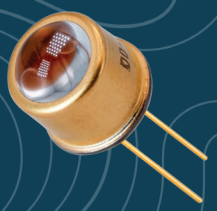
For additional technical specificaions, please visit our website at www.optodiode.com

LEDs

Visble and Near-Infrared



OD-110W



OD-110L

KEY FEATURES

- Variety of Packaging Available
- Visible to Near Infrared (NIR)
- Cusomizable
- High Power Output
- Hi-Rel Qualified

APPLICATIONS

- Industrial Systems
- Night Vision
- Surveillance
- Stealth Illumination
- Optical Encoders

Our high-performance light-emitting diodes are engineered to meet the demands of the most rigorous applications. Designed with rugged, hermetically sealed packaging, these LEDs excel in environments requiring extreme durability and precision, withstanding temperatures from -65°C to +150°C. Their versatility and reliability make them indispensable for markets such as medical, automotive, aerospace, imaging, scientific research, and military operations.

The standard product line includes high-output visible LEDs in red and blue with narrow beam angles, ideal for radiometric measurements and tight spectral bandwidth requirements. For near-infrared needs, Opto Diode offers high-power near-IR LEDs producing up to 250mW DC from single chips or up to 1000mW DC from arrays, tailored for surveillance, night vision, and advanced imaging systems. Available in wide, medium, or narrow light patterns, these near-IR LEDs provide superior linear power output and are available in high-speed grades for dynamic applications.

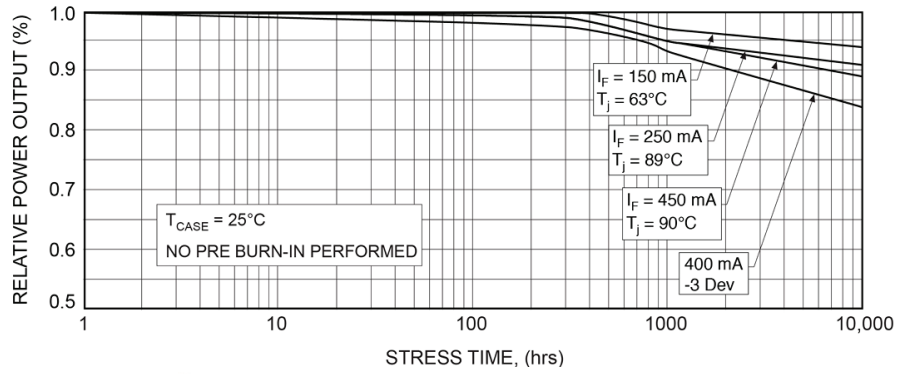
Standard Product Line

Model Number	Part Number	Typ. Power Output (mW)	Peak Emission Walvelength (λ_P)	Typ. Forward Voltage (V)	Package Type
OD-800F	OD-810-005	3.0	810nm @ 50mA	1.45V @ 100mA	TO-46
OD-800L	OD-810-003	3.0	810nm @ 50mA	1.45V @ 100mA	TO-46
OD-800W	OD-810-002	3.0	810nm @ 50mA	1.45V @ 100mA	TO-46
OD-850F	OD-850-004	30	850nm @ 20mA	1.60V @ 100mA	TO-46
OD-850FHT	OD-850-010	22	810nm @ 50mA	1.60V @ 100mA	TO-46
OD-850L	OD-850-003	35	810nm @ 50mA	1.60V @ 100mA	TO-46
OD-850LHT	OD-850-009	25.5	810nm @ 50mA	1.60V @ 100mA	TO-46
OD-850W	OD-850-002	40	810nm @ 50mA	1.60V @ 100mA	TO-46
OD-850WHT	OD-850-008	27.5	810nm @ 50mA	1.60V @ 100mA	TO-46
OD-685C	OD-2438	2.0	685nm @ 20mA	1.80V @ 20mA	SMD
D-469L	OD-469-001	170	470nm @ 350mA	3.2V @ 350mA	TO-39
OD-624L	OD-624-001	170	635nm @ 350mA	2.3V @ 350mA	TO-39

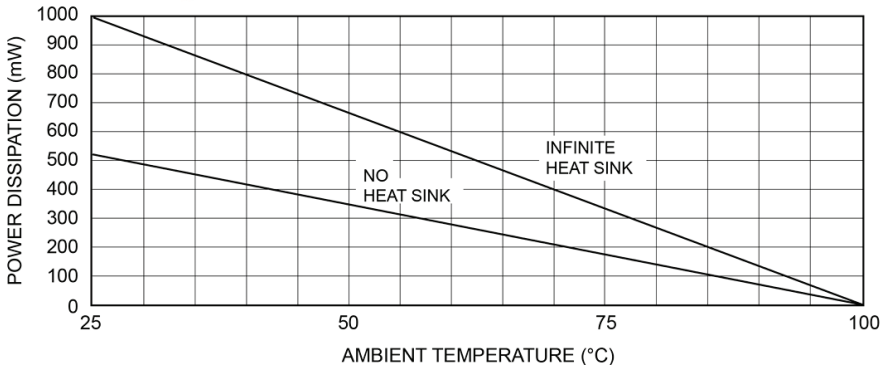
High Power NIR LEDs

Model Number	Part Number	Typ. Power Output (mW)	Peak Emission Walvelength (λP)	Typ. Forward Voltage (V)	Number of LED Die	Package Type
OD-110L	OD-850-006	110	850nm @ 50mA	1.7V @ 500mA	1	TO-39
OD-110W	OD-850-005	140	850nm @ 50mA	1.7V @ 500mA	1	TO-39
OD-110LISOLHT	OD-850-015	100	880nm @ 50mA	1.75V @ 500mA	1	TO-39
OD-110WISOLHT	OD-850-014	120	880nm @ 50mA	1.75V @ 500mA	1	TO-39
OD-250	OD-850-007	250	850nm @ 50mA	1.7V @ 500mA	1	TO-39
OD-663	OD-880-015	170	880nm @ 50mA	4.5V @ 300mA	3	TO-66
OD-663-850	OD-850-011	425	850nm @ 50mA	4.8V @ 300mA	3	TO-66
OD-666	OD-880-016	330	880nm @ 50mA	9.0V @ 300mA	6	TO-66
OD-669	OD-880-017	500	880nm @ 50mA	13.5 @ 300mA	9	TO-66
OD-669-850	OD-850-013	1250	850nm @ 50mA	13.5 @ 300mA	9	TO-66

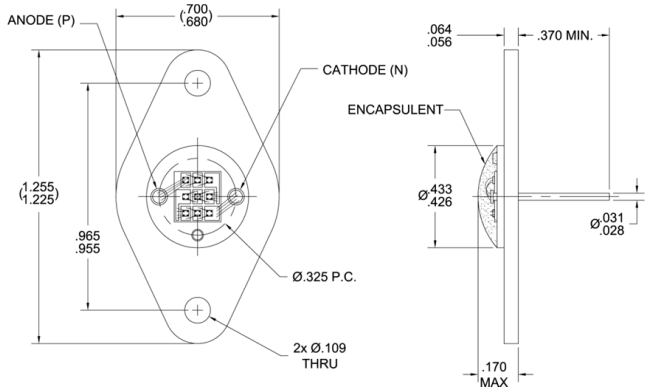
Typical Degradation Curve



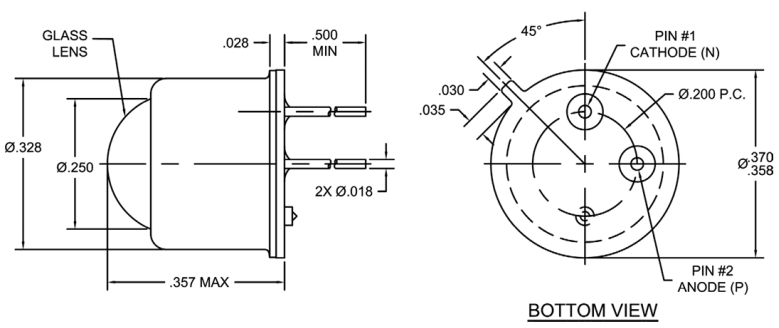
Maximum Rated Thermal Derating Curve



Typical Packaging



OD-669-850



OD-110LISOLHT

For additional technical specificaions, please visit our website at www.optodiode.com

APDs

Near-Infared to Infrared



ODD-APD-003

KEY FEATURES

- High Gain
- High responsivity
- Low dark current
- Low capacitance

APPLICATIONS

- Automotive LiDAR
- Industrial safety scanners
- Time-of-Flight (ToF)
- Autonomous Systems

Avalanche photodiodes (APDs) amplify faint optical signals internally, enabling the detection of weak reflections from distant or low-reflectivity objects. Operating under high reverse bias, the ODD-APD-002 provides gain up to ~100× while maintaining low noise and excellent linearity. With a 500 µm active area and responsivity of ~0.55 A/W at 905 nm, it ensures strong signal conversion and rapid response, even in bright ambient light. The device's low capacitance (~1.2 pF) supports sub-nanosecond rise times, critical for accurate time-of-flight ranging.

Driving Precision in Next-Generation LiDAR and Autonomous Systems

LiDAR (Light Detection and Ranging) technology is transforming automotive, industrial, and mapping applications by providing high-resolution distance and imaging data. As systems push for greater range and reliability under challenging environmental conditions, detector performance becomes critical. Opto Diode's ODD-APD-002 Silicon Avalanche Photodiode, optimized for 905 nm, delivers the sensitivity, speed, and stability required for advanced LiDAR and time-of-flight (ToF) systems. With decades of photonics expertise, Opto Diode offers a dependable solution for designers seeking enhanced accuracy, range, and detection confidence.

Standard Product Line

Model Number	Active Area (mm^2)	V_{op} (V) (Gain = M)	Responsivity (A/W)	Dark Current (nA)	Rise Time (ns)	Reverse Breakdown (V)
ODD-APD-003-1550-IGA-T46	0.03	93V @ λ_p, M= 10	1550nm, M = 1	8.0 @ M=30	0.3 @ λ_p, R_L= 50Ω	50
ODD-APD-020-905-SI-T46	0.20	95V @ λ_p, M = 100	905nm, M = 1	0.4 @ M=100	0.5 @ λ_p, R_L= 50Ω	220
ODD-APD-020-1064-SI-T46	0.20	332V @ λ_p, M = 100	1064nm, M = 1	5.0 @ M=100	2.0 @ λ_p, R_L= 50Ω	460

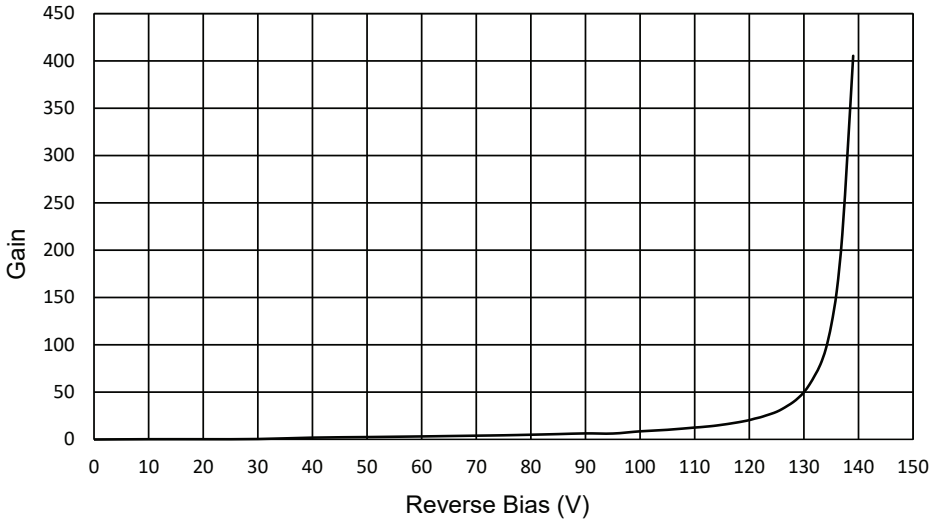


Why use APDs?

- Higher responsivity than PIN diodes and lead based detectors
- Internal gain for weak signals
- Better SNR at low light levels
- Ideal for LiDAR, ToF, and long-distance sensing

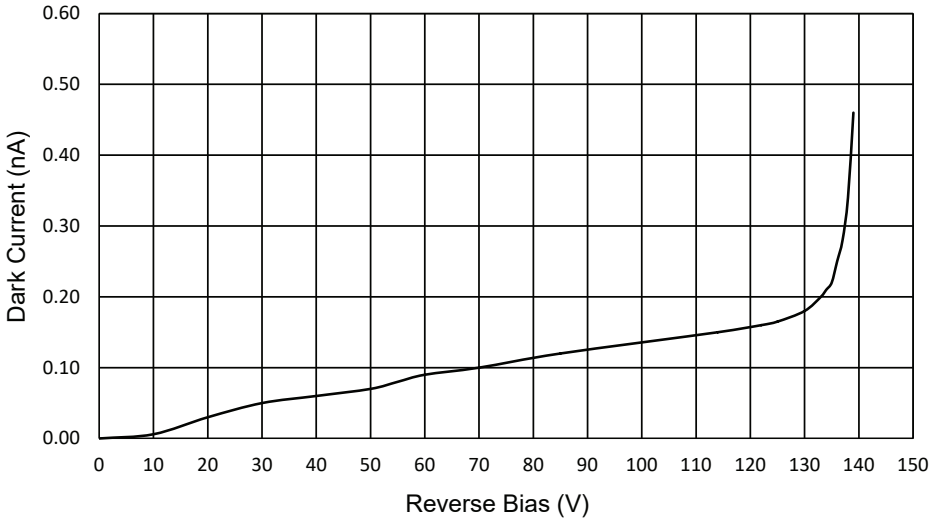
Typical Gain vs. Reverse Bias

(ODD-APD-002)

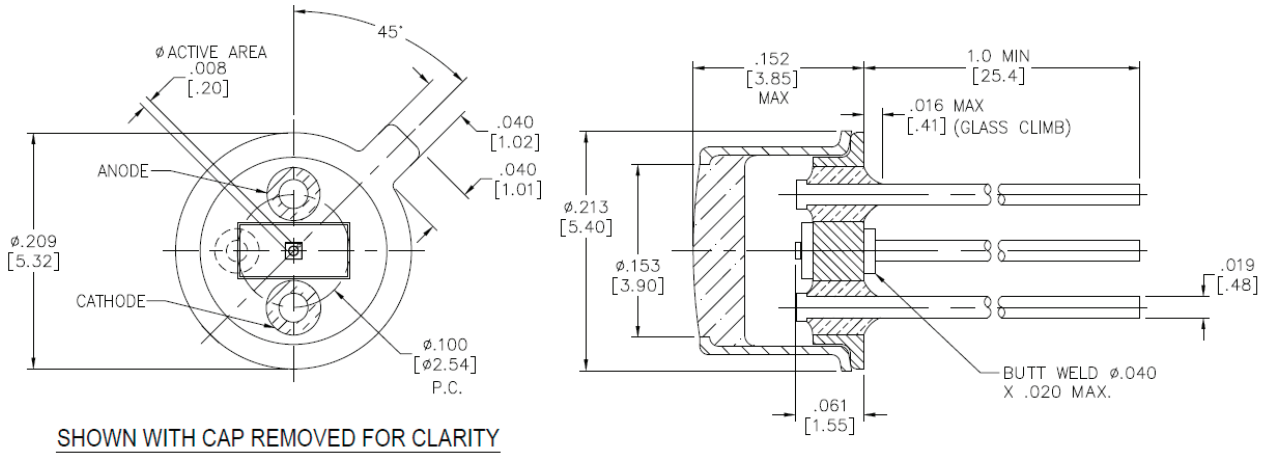


Typical Dark Current vs. Reverse Bias

(ODD-APD-002)



Typical Packaging



ODD-APD-001

For additional technical specificaions, please visit our website at www.optodiode.com

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For more information or to discuss how our solutions can meet your specific needs, don't hesitate to contact us. We're here to help!

WWW.OptoDiode.com