

1064nm Optimized Photodetectors

Nd:YAG Optimized Silicon Photodiodes

The Nd:YAG Series of silicon photodetectors are optimized for high responsivity at 1064nm, the Nd:YAG laser light wavelength. They offer low capacitance and fast response times. Due to their low noise and high responsivity they are ideal for measuring low light intensities, like the light reflected from objects illuminated by a Nd:YAG laser beam for ranging applications.

The detectors can be operated both in photovoltaic mode (unbiased), for applications requiring low noise, or biased in the photoconductive mode, for high-speed applications.

Applications

- Nd:YAG Pointing
- Laser Pointing & Positioning
- Position Measurement
- Surface Profiling
- Guidance Systems

Features

- 1064nm high reponsivity
- High Breakdown Voltage
- Large Area
- High Speed
- High Accuracy

Absolute Maximum Ratings

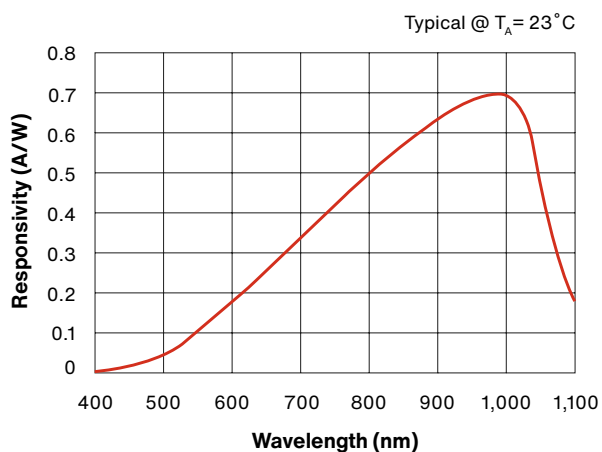
Parameter	Symbol	Min	Max	Unit
Reverse Voltage	V_R	-	200	V
Operating Temperature*	T_{OP}	-40	+100	°C
Storage Temperature*	T_{STG}	-40	+125	°C

*Non-Condensing

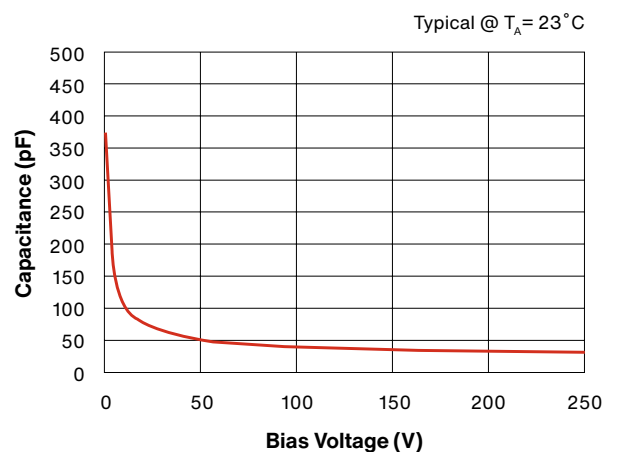
Typical Electro-Optical Specifications at $T_A=23\text{ }^\circ\text{C}$

Model	Active Area mm ²	Active Area Diameter mm	Spectral Response nm	Peak Wavelength nm	Responsivity		Dark Current		Capacitance	Rise Time	NEP	Package
					A/W	nA	pF	ns	(W/√Hz)			
					1064nm/ -180V	-180V	-180V	1060nm/ -180V/ 50Ω	-180V/ 1064nm			
				typ	typ	typ	max	typ	typ	typ		
PIN-5-YAG	5.1	2.54 Φ	400 - 1100	1000	0.4	50	0	5	18	1.2×10^{-14}	TO-5	
PIN-100-YAG	100	11.28 Φ	400 - 1100	1000	0.4	75	1000	25	30	2.5×10^{-14}	METAL	

Spectral Response

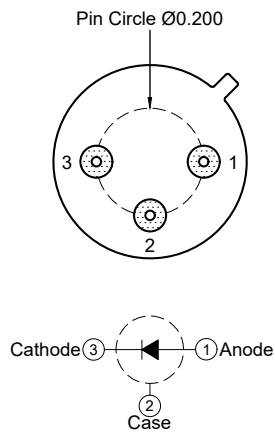
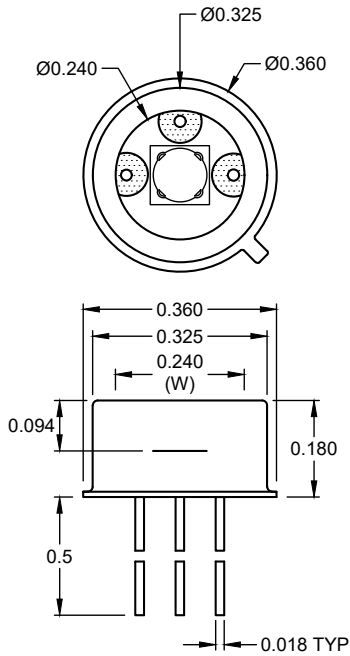


Capacitance vs. Reverse Bias

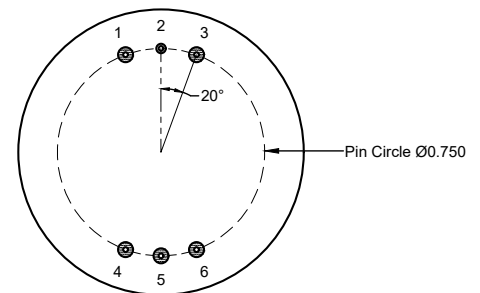
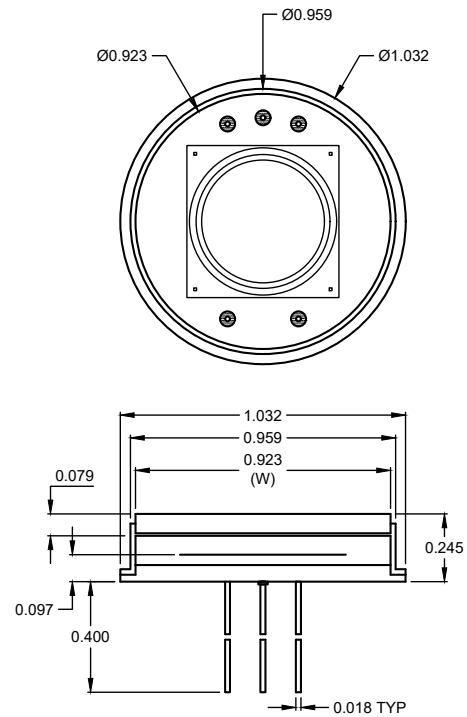


Mechanical Specifications

Units are in inches



PIN-5-YAG



PIN-100-YAG

Tolerances (unless otherwise noted)

- General: $0.XX \pm 0.01"$, $0.XXX \pm 0.005"$
- Chip Centering: $\pm 0.010"$
- Dimension: 'A': $\pm 0.015"$
- Pin Diameters: $0.018 \pm 0.002"$

Care and handling instructions

Your photodiodes are packaged and shipped in opaque, padded containers to avoid ambient light exposure and damage due to shock from dropping or jarring.

Care must be taken to avoid photodiode exposure to high ambient light levels, particularly from tungsten sources or sunlight.

- Photodiodes can be rendered inoperable if dropped or sharply jarred. The wire bonds are delicate and can become separated from the photodiode's bonding pads when the detector is dropped or otherwise receives a sharp physical blow.
- Most windows on photodiodes are either silicon or quartz. They should be cleaned with isopropyl alcohol and a soft (optical grade) pad.
- Photodiode exposure to extreme high or low storage temperatures can affect the subsequent performance. Maintain a non-condensing environment for optimum performance and lifetime.
- All devices are considered ESD sensitive. The photodiodes are shipped in ESD protective packaging. When unpacking and using these products, anti-ESD precautions should be observed.
- Photodiode packages and/or operation may be impaired if exposed to CHLOROETHENE, THINNER, ACETONE, TRICHLOROETHYLENE or any harsh chemicals.
- Photodiodes in plastic packages should be given special care. Clear plastic packages are more sensitive to environmental stress than those of black plastic. Storing devices in high humidity can present problems when soldering. Since the rapid heating during soldering stresses the wire bonds and can cause wire to bonding pad separation, it is recommended that devices in plastic packages to be baked for 24 hours at 85°C.
- The leads on the photodiode SHOULD NOT BE FORMED. If your application requires lead spacing modification, please contact OSI Optoelectronics Applications group at (310)978-0516 before forming a product's leads. Product warranties could be voided.
- Most devices are provided with wire or pin leads for installation in circuit boards or sockets. Observe the soldering temperatures and conditions specified below:
 - Soldering Iron: Soldering 30 W or less
 - Temperature at tip of iron 300°C or lower.
 - Dip Soldering: Bath Temperature: 260±5°C.
 - Immersion Time: within 5 Sec.
 - Soldering Time: within 3 Sec.
 - Vapor Phase Soldering, Reflow Soldering: DO NOT USE

Legal Disclaimer

Information in this data sheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject to change without notice.



Most of our standard catalog products are RoHS Compliant. Please contact us for details.

