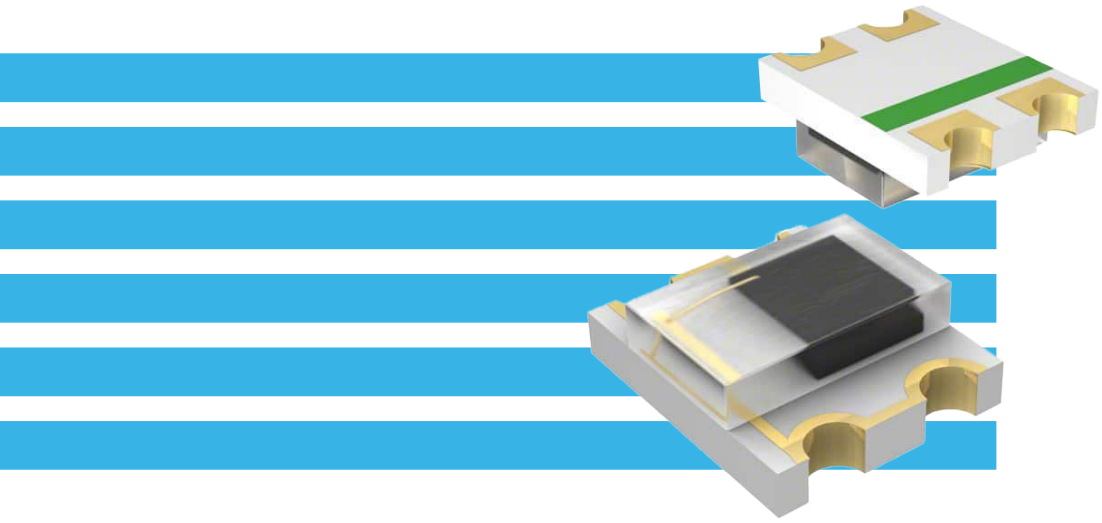
Advanced Photonix
A Division of OSI Optoelectronics

PHOTODETECTORS
InGaAs Photodiode



SD0800-3111-185

1mm Diameter Surface Mount Device (SMD) InGaAs Photodiode

The SD0800-3111-185 is a high-sensitivity, low-noise InGaAs photodiode, specifically designed for short-wave infrared (SWIR) and near-infrared (NIR) wavelength detection in sensing applications. Featuring a circular 1.0mm diameter active area, this photodetector provides exceptional performance and reliability. It is assembled in a compact, water-clear 1210 surface-mount package, ensuring compatibility with standard pick-and-place equipment. To facilitate automated surface-mount technology (SMT) assembly, the device is conveniently available on Tape and Reel packaging.

Applications

- Industrial Industrial Sensing
- Security
- Communication
- Medical

Features

- Low Noise
- Low Dark Current and Capacitance
- High Sensitivity
- Detection in SWIR

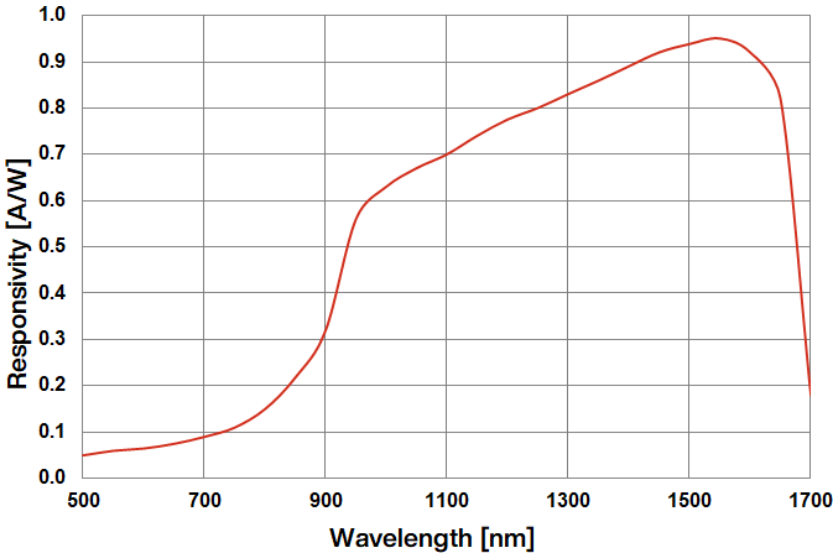
Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Reverse Voltage	V_R	-	20	V
Operating Temperature	T_{OP}	-40	+100	ºC
Storage Temperature	T_{STG}	-40	+125	ºC
Package		1210		

Typical Electro-Optical Specifications at T_A=23 ºC

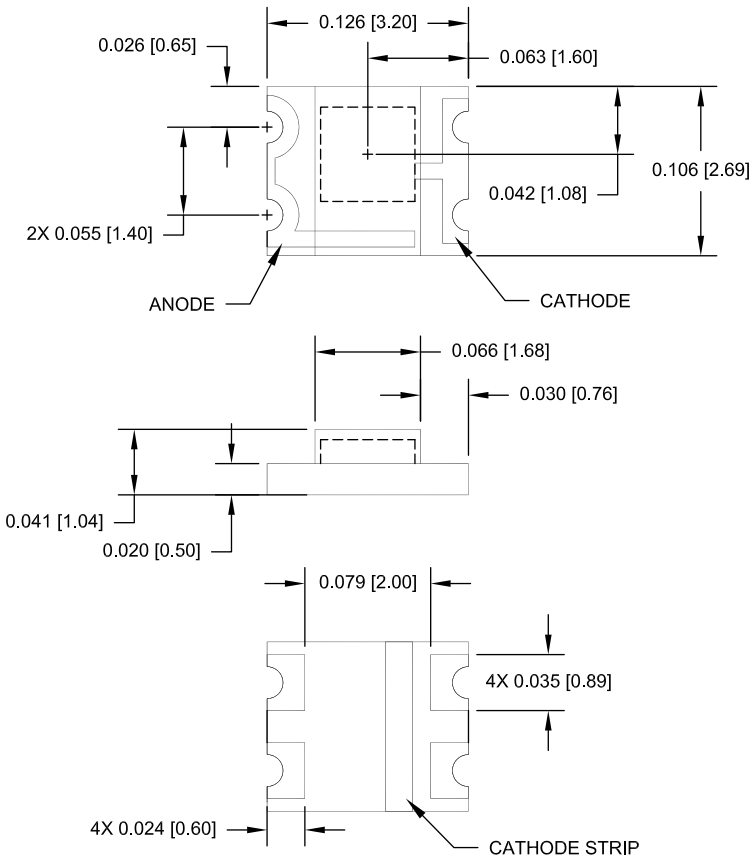
Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Active Area	-	A.A.	-	0.79	-	mm^2
Active Area Diameter	-	A.Aø.	-	Ø1.0	-	mm
Responsivity	λ= 1300nm, V_R=5V	R_{1300}	0.90	0.95	-	A/W
Responsivity	λ= 1550nm, V_R=5V	R_{1550}	0.95	1.00	-	A/W
Forward Voltage	I_f=3mA	Vf	-	-	0.8	V
Dark Current	V_R=10V	ID	-	0.5	5	nA
Spectral Range	Spot Scan	Δλ	900	-	1700	nm
Breakdown Voltage	I_R=1µA	V_{BD}	-	-	20	V
Capacitance	V_R=5V,F=1MHz	C_J	-	75	100	pF
Angle of Half Sensitivity	-	θ	-	65	-	±deg

Typical Spectral Response at T_A=23 ºC

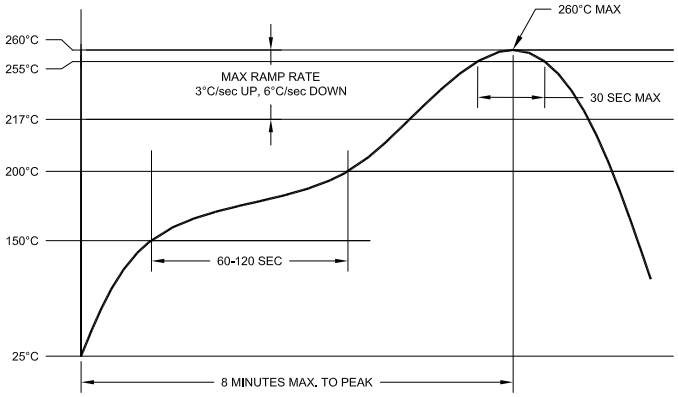


Mechanical Specifications

Units are in inches [mm]



Reflow Profile



Soldering

Recommendation		
Wave	Not Advised	-
IR Oven Reflow	Allowed	See Reflow Profile
Forced Convection Reflow	Recommended	See Reflow Profile
Convection Reflow	Recommended	See Reflow Profile
Vapor Phase Reflow	Recommended	See Reflow Profile
Manual	Allowed	260°C for 3 seconds max
Moisture Sensitivity Level	3	J-STD-033

Care and Handling Instructions

Handle and store devices with care to minimize exposure to excessive ambient light levels, especially from intense sources like direct sunlight or tungsten lamps. Protecting the devices from excessive light exposure during installation, maintenance, or storage helps ensure optimal performance.

- These components can be rendered inoperable if dropped or sharply jarred. The wire bonds are delicate and can become separated from the bonding pads when the component is dropped or otherwise receives a sharp physical blow.
- Most windows on photodiodes are either borosilicate 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.

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.

RoHS COMPLIANT

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

- Optoelectronic components 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 Advanced Photonix Applications group at Techsupport@advancedphotonix.com 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