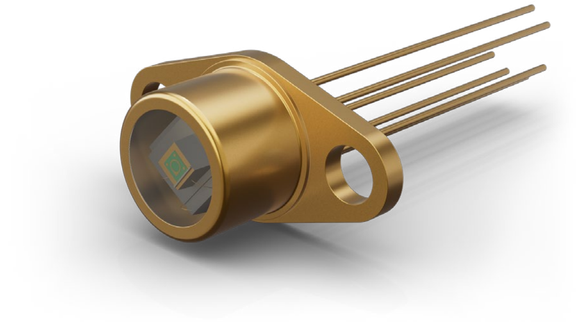
HIGH SHUNT RESISTANCE IG26H SERIES

Extended InGaAs Photodiodes



The IG26H Series is a PIN photodiode for spectroscopic and radiometric applications that benefit from reverse bias operation. The IG26H Series merges the benefits of high shunt resistance and high responsivity over a broad spectral range.

FEATURES

- High Shunt Resistance
- Low Dark Current under reverse bias
- 50 % cut-off wavelength > 2.45 µm
- Typical peak responsivity: 1.45 A/W
- Excellent temperature stability
- Reduced edge effect

APPLICATIONS

- Spectrophotometry
- Diode laser monitoring
- Non-contact temperature measurement
- Flame control
- Moisture monitoring
- Low level Gas detection (measuring parts per million)

VERSIONS

- Uncooled: TO-can, chip only
- Cooled: TE1, TE2

SPECIFICATIONS

Optical Characteristics, Specifications @ 25 °C[c]

Part Number	Diameter [µm]	50 % Cut off Wavelength[a] [µm]	Peak Wavelength[a] [µm]	Peak Responsivity[a,b] [A/W]		Responsivity @ 520 nm[a,b,d] [A/W]	Responsivity @ 1600 nm[a,b] [A/W]		Responsivity @ 1900 nm[a,b] [A/W]	
			Typ.	Min.	Typ.	Typ.	Min.	Typ.	Min.	Typ.
IG26H250S4i	250	≥ 2.45	2.25 ± 0.1	1.35	1.50	0.1	0.7	1.0	1.08	1.36
IG26H500S4i	500									
IG26H1000S4i	1000									
IG26H1300S4i	1300									
IG26H2000G1i	2000									
IG26H3000G1i	3000									

[a] Parameter tested on batch level at T = 25 °C
[b] Responsivity measured at 0 V Bias
[c] Data are prior to window integration
[d] Preliminary data

Electro-Optical Characteristics, Specifications @ 25 °C

Part Number	Diameter [µm]	Shunt Impedance @ V_R = 10 mV[b] [kOhm]		Dark Current @ V_R = 0.25 V[b] [µA]		Peak D*[a] f = 1 kHz [cm $Hz^{1/2}$/W]		Peak NEP[a] f = 1 kHz [W/$Hz^{1/2}$]	
		Min.	Typ.	Typ.	Max.	Min.	Typ.	Max.	Typ.
IG26H250S4i	250	50	100	0.2	2	5.0 E+10	7.1 E+10	4.4 E-13	3.1 E-13
IG26H500S4i	500	20	60	2	15	6.4 E+10	11.0 E+10	0.7 E-12	4.0 E-13
IG26H1000S4i	1000	7	11	5	40	7.5 E+10	9.5 E+10	1.2 E-12	0.9 E-12
IG26H1300S4i	1300	4	9	10	50	7.4 E+10	11.1 E+10	1.6 E-12	1.0 E-12
IG26H2000G1i	2000	3	6	10	100	9.8 E+10	14.0 E+10	1.8 E-12	1.3 E-12
IG26H3000G1i	3000	1	2	40	200	8.6 E+10	12.1 E+10	3.1 E-12	2.2 E-12

[a] Parameter tested on batch level
[b] Parameter 100 % tested

Electrical Characteristics, Specifications @ 25 °C

Part Number	Diameter [µm]	Capacitance @ V_R = 0 V[a] [pF]	Forward Voltage [V]
		Typ.	Typ.
IG26H250S4i	250	35	0.48
IG26H500S4i	500	140	
IG26H1000S4i	1000	580	
IG26H1300S4i	1300	1040	
IG26H2000G1i	2000	1920	
IG26H3000G1i	3000	3200	

[a] Parameter tested on batch level

SPECIFICATIONS

Thermoelectrically Cooled InGaAs Detectors

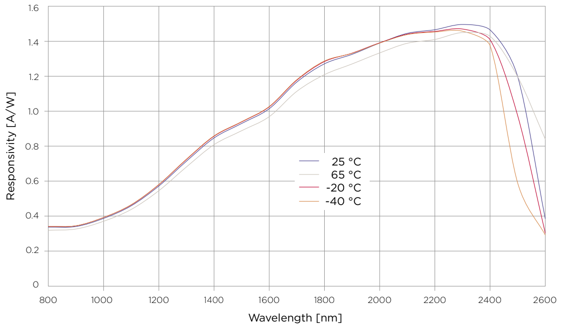
Part Number	Diameter [µm]	Operating Temperature [°C]	Shunt Impedance @ V_R = 10 mV[b] [kOhm]		Peak D*[a] f = 1 kHz [cm Hz^{½}/W]	Peak NEP[a] f = 1 kHz [W/Hz^{½}]
			Min.	Typ.	Typ.	Typ.
IG26H1000T7	1000	-10	50	75	2.5 E+11	3.5 E-13
IG26H2000T7	2000		5	50	4.3 E+11	4.1 E-13
IG26H1000T9	1000	-20	30	150	3.8 E+11	2.3 E-13
IG26H2000T9	2000		10	100	6.5 E+11	2.9 E-13

[a] Parameter tested on batch level
[b] Parameter 100 % tested

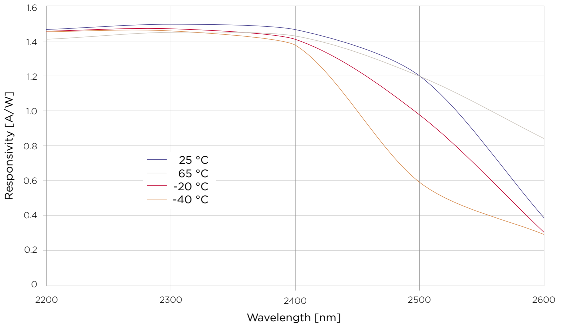
Absolute Maximum Ratings

		Min.	Max.
Storage temperature [°C]		-55	+125
Operating temperature [°C]		-40	+85
Reverse bias, cw [V]		–	1
Forward current, cw [mA]		–	1
Soldering temperature, 5 sec. [°C]		–	260
ESD damage threshold, human body model class 0*, [V]		0	< 250
TE cooler voltage [V]	T7	–	0.8
	T9	–	3.7
TE cooler current [A]	T7	–	1.9
	T9	–	1.2

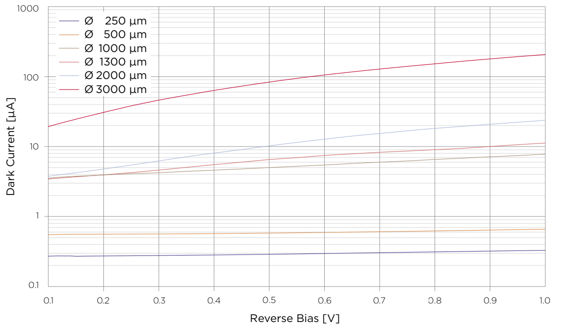
* ANSI/ ESD STN5. 1-2007
Valid with sufficient heat sinking only.



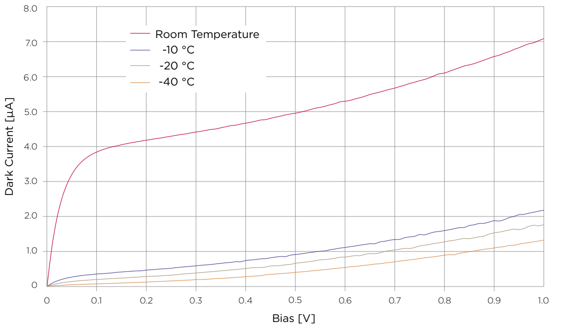
Spectral Response



Spectral Response Zoom



Dark Current Under Reverse Bias

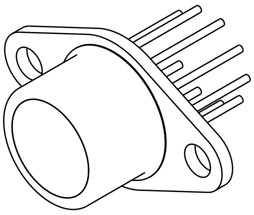


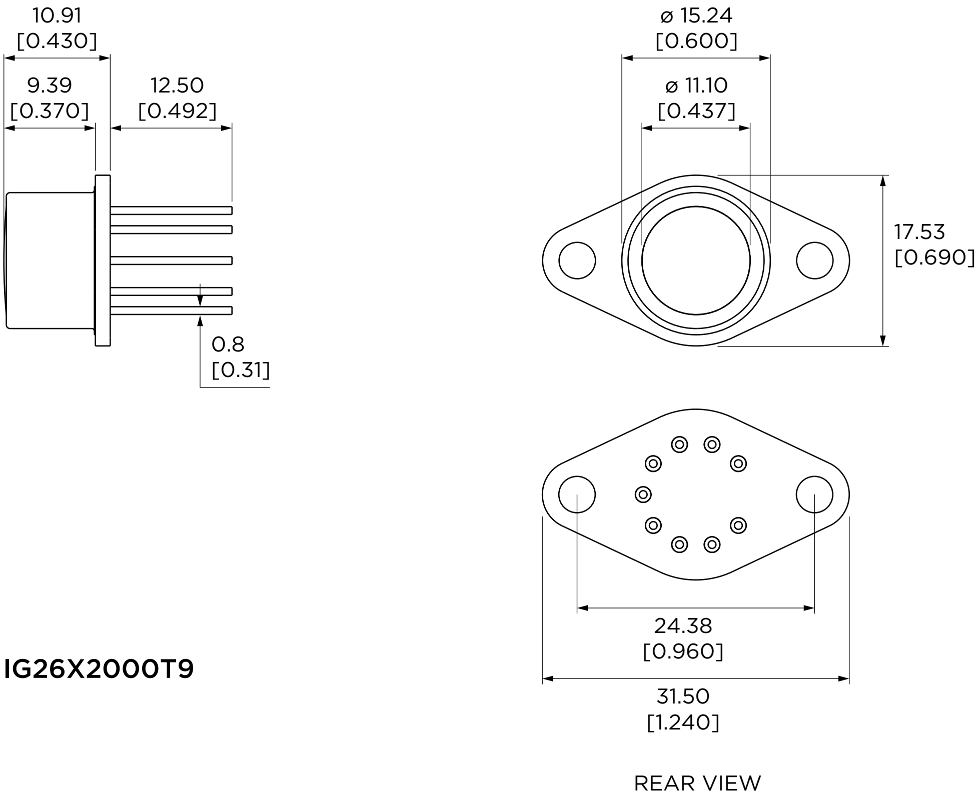
Dark Current Under Lowered Temperature for IG26H1000T9

The Graphs show typical performance.

TECHNICAL DRAWING

For information about the various packaging options for the IG26H Series, please refer to the Standard and Extended InGaAs Photodiodes - Package Drawings datasheet.





Package IG26X2000T9

Units: mm [inch]
Dimensions are in millimeters - [inches] and are for reference only.

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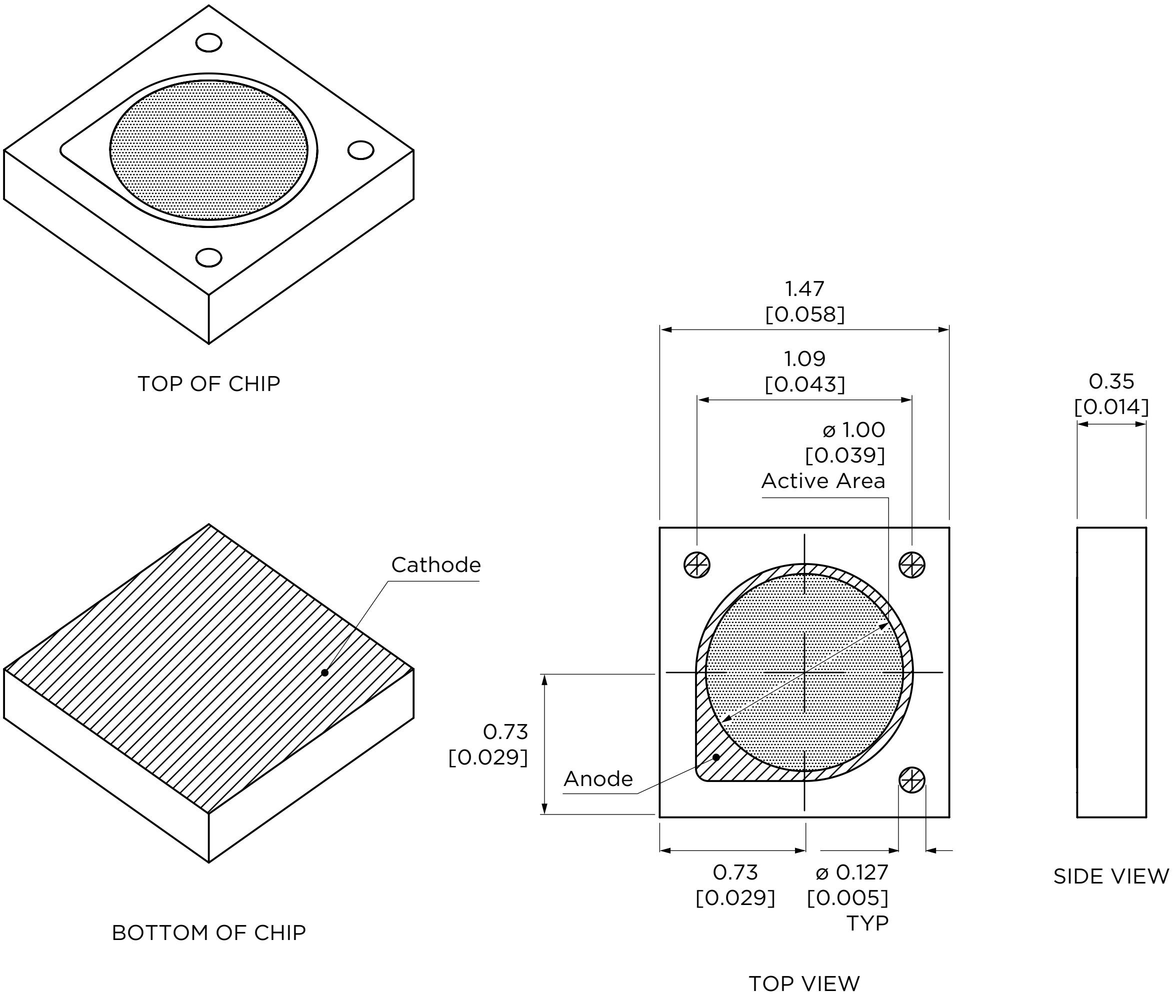

Package IG26H High Shunt Detector

▩ Active Area

▨ Metallization

Units: mm [inch]
Dimensions are in millimeters - [inches] and are for reference only.

ORDERING CODE

	Type	Diameter	Package Style
C-	**IG26H**	**X**	**X**
Chip only	Extended InGaAs PIN Photodiode	**250** = 250 µm **500** = 500 µm **1000** = 1 mm **1300** = 1.3 mm **2000** = 2 mm **3000** = 3 mm	**S4i** = TO-46, isolated **S4ix** = TO-46, no window **G1i** = TO-39, isolated **G1ix** = TO-39, no window **T7** = TO-37, single stage TEC **T9** = TO-66, single stage TEC **L5** = TO-46 lens cap

PRODUCT CHANGES

LASER COMPONENTS reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application.

ORDERING INFORMATION

Products can be ordered directly from LASER COMPONENTS or its representatives.
For a complete listing of representatives, visit our website at www.lasercomponents.com

Custom designed products are available on request.

LASER SAFETY

Safety Information

For a detailed guide into how to safely handle IR components with optical windows.

ESD sensitive device

High electrostatic discharge can damage or degrade the device.
Use proper EDS handling precautions.