

## Extended InGaAs Photodiodes IG19-Series

### Description

The IG19-series is a panchromatic PIN photodiode nominal cut-off wavelength at 1.9  $\mu\text{m}$ . This series has been designed for demanding spectroscopic and radiometric applications. It offers excellent shunt resistance in combination with superior responsivity over a wide spectral range.

### Features

- 50 % cut-off wavelength  $\geq 1.87 \mu\text{m}$
- Typical peak responsivity: 1.15 A/W
- Excellent temperature stability
- Reduced edge effect

### Applications

- Spectrophotometer
- Diode laser monitoring



Optical Characteristics, Specifications @ 25 °C <sup>c</sup>

Part Number	Diameter [μm]	50% Cut off Wavelength <sup>a</sup> [μm]	Peak Wavelength <sup>a</sup> [μm]		Peak Responsivity <sup>a</sup> [A/W]		Responsivity @ 520 nm <sup>a,d</sup> [A/W]		Responsivity @ 1500 nm <sup>a</sup> [A/W]		Responsivity @ 1700 nm <sup>a</sup> [A/W]	
			Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
IG19X250S4i	250	1.87	1.75	1.1	1.15	TBD	0.1	0.77	0.96	0.9	1.05	
IG19X1000S4i	1000	1.87	1.75	1.1	1.15	TBD	0.1	0.77	0.96	0.9	1.05	

<sup>a</sup> Parameter tested on batch level.

<sup>b</sup> Responsivity measured at 0 V Bias.

<sup>c</sup> Data are prior to window integration.

<sup>d</sup> Preliminary data.

## Electro-Optical Characteristics, Specifications @ 25 °C

Part Number	Diameter [μm]	Shunt Impedance @ V <sub>R</sub> = 10 mV <sup>b</sup> [MΩ]		Dark Current @ V <sub>R</sub> = 0.25 V <sup>b</sup> [nA]		Peak D* <sup>a</sup> [cm Hz <sup>1/2</sup> /W]		Peak NEP <sup>a</sup> [W/Hz <sup>1/2</sup> ]		Capacitance @ V <sub>R</sub> = 0 V <sup>a</sup> [pF]
		Min.	Typ.	Typ.	Max.	Min.	Typ.	Typ.	Max.	Typ.
IG19X250S4i	250	8.0	16	5	50	1.2 E12	1.7 E+12	2.9 E-14	4.1 E-14	60
IG19X1000S4i	1000	0.8	1.6	40	400	7.6 E+11	1.1 E+12	0.9 E-13	1.3 E-13	1040

<sup>a</sup> Parameter tested on batch level

<sup>b</sup> Parameter 100% tested

## Thermoelectrically Cooled InGaAs Detectors

Part Number	Diameter [μm]	Operating Temperature [°C]	Shunt Impedance @ V <sub>R</sub> = 10 mV <sup>b</sup> [MΩ]		Peak D* <sup>a</sup> [cm Hz <sup>1/2</sup> /W]	Peak NEP <sup>a</sup> [W/Hz <sup>1/2</sup> ]	Capacitance @ V <sub>R</sub> = 0 V <sup>a</sup> [pF]
			Min.	Typ.	Typ.	Typ.	Typ.
IG19X1000T7	1000	-10	4	8	2.4E+12	4.1E-14	1040
IG19X1000T9	1000	-20	8	16	3.4E+12	2.9E-14	1040

<sup>a</sup> Parameter tested on batch level

<sup>b</sup> Parameter 100% tested

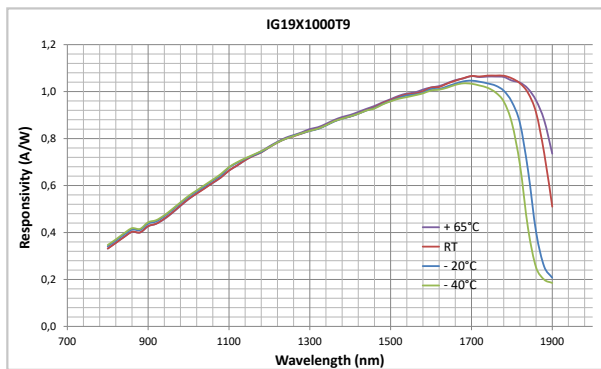
## Absolute Maximum Ratings

		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.

Fig. 1: Spectral Response



## Nomenclature

<b>C-</b>	<b>I</b>	<b>G</b>	<b>1</b>	<b>9</b>	<b>X</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>S</b>	<b>4</b>	<b>i</b>	
Chip only	Type					Diameter				Package Style			
	Extended InGaAs PIN Photodiode					250 = 250 µm				S4i - TO-46, isolated			
						1000 = 1 mm				S4ix - TO-46, no window			
										G1i - TO-39, isolated			
										G1ix - TO-39, no window			
										T7 - TO-37, single stage TEC			
										T9 - TO-66, dual stage TEC			
										M2 - 2 pad PCB SMD			
										L5 - TO-46 lens cap			

Standard window: Borosilicate glass

Package drawings, TEC and thermistor curves can be found on a separate datasheet.

## 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](http://www.lasercomponents.com)