

Fiber Coupled High-Speed InGaAs APD Photodiode

(900 to 1600nm, up to 10 GHz)



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BUY NOW



Applications

- Lidar
- RF over Fiber
- Sensor
- Instruments

Features

- High Gain
- Large Bandwidth
- Fast Response
- High Reliability

The Fiber Coupled High-Speed InGaAs APD Photodiode is based on an InGaAs Avalanche photodiode integrated with an amplifier, provide fast pulse response up to 10Gb/s NRZ rates. Our design minimizes component assembly costs and module footprint while increasing stability over wide temperature and wavelength ranges.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength	1000		1630	nm
Responsivity (1550nm)	0.75	0.85		A/W
Input Power	-26		-5	dBm
Conversion Gain (Small Signal)	12000			V/W
Dark Current (3V Bias)		50	500	nA
Detector Capacitance		0.2	0.8	pF
Optical Back Reflection	40			dB
Operation Voltage			12	V
Operation Bandwidth (NRZ Rate)		10		GHz
Bandwidth (3dB S21)		8		GHz
Character (S22)		-7		dB
Group Delay		50		ps
RF Connector (50 om)		SMA		
Operating Temperature	-5		75	°C
Storage Temperature	-40		85	°C
Reliability		Telcordia 1209 and 1221		
Package Dimension				mm

Warning: The device is extremely ESD-sensitive. Its dark current increases by unprotected handling. It is recommended to be handled under a certified ion fan once the package is removed.

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Rev 03/21/24

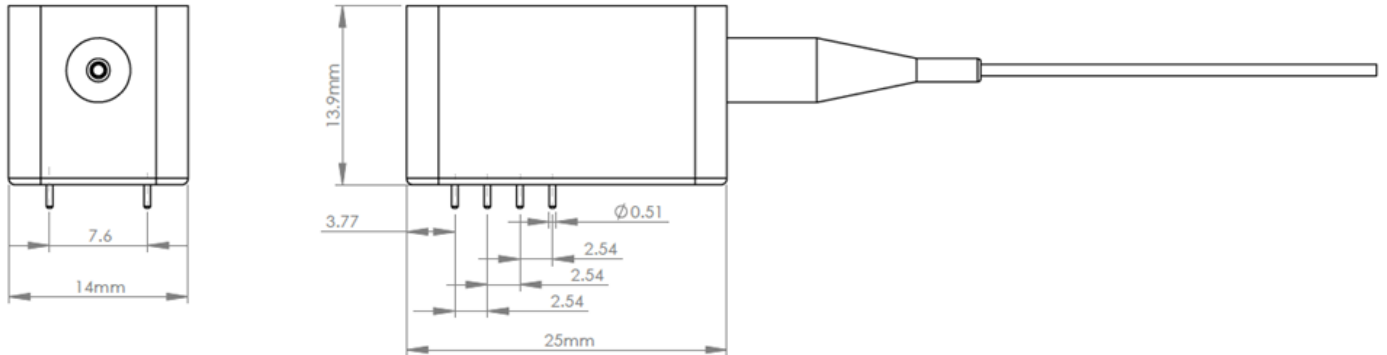
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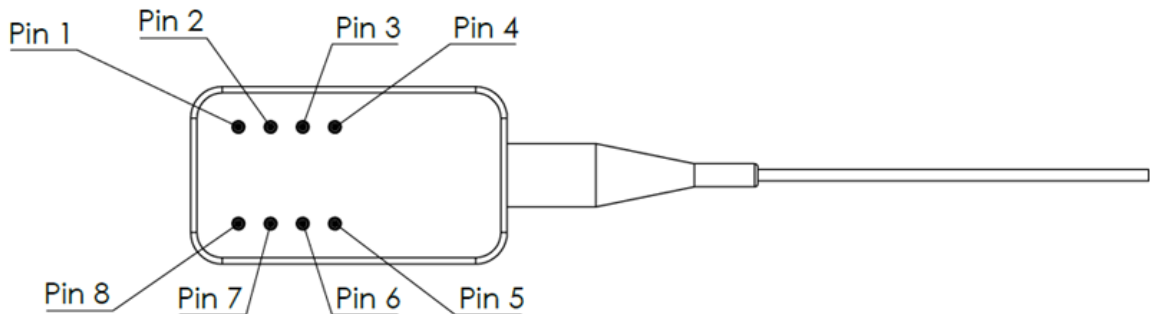
Mechanical Dimensions (mm)



Standard Package for Infrared Band. For other wavelength band, size may vary due to special detector configurations.

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Electrical Driving



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Typical Response @ 1550nm

Ordering Information

Prefix	Wavelength	Frequency	Power Supply	Fiber Type	Fiber Cover	Fiber Length	Connector
FCAD-	900 - 1620 = G Special = 0	2G = 02 3G = 03 10G = 10	No = 1 Yes = 2	Choose from table below	900µm Tube = 3 Bare fiber = 1 Special = 0	0.25m = 1 0.5m = 2 1.0 m = 3 1.5 m = 5 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

Fiber Type Selection Table:

01	SMF-28	34	PM1550	71	MM 50/125µm
02		35	PM1950	72	MM 62.5µm
03		36	PM1310	73	
04		37		74	
05	SM1950	38		75	
06		39		76	
07		40			
08		41	PM980		
09	SM980	42			
10	H11060	43			
11		44			
12		45			
13		46			

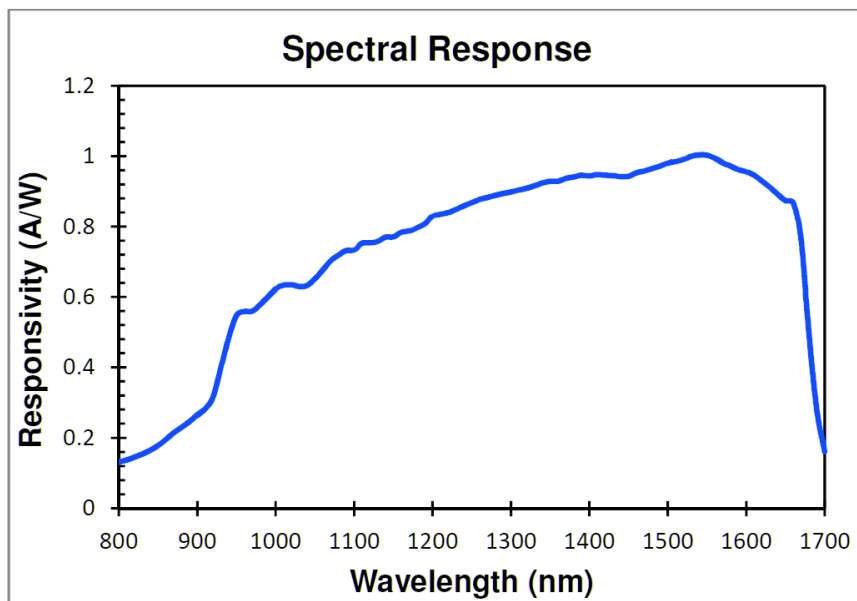
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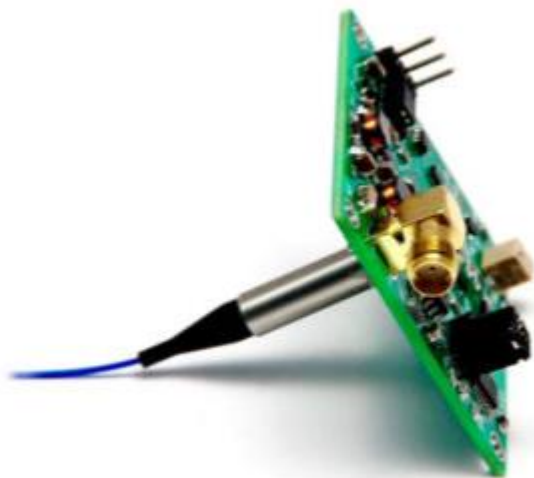


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Spectral Response



Amplifier Mounted Option



Low-Noise Optical Detector Amplifier

DETA-11A221111

\$165

<https://agiltron.com/product/precision-optical-detector-amplifier/>

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Application Notes

Fiber Core Alignment

Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness

Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power

Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the handling by expanding the core side at the fiber ends.