

High-Speed Fiber Coupled InGaAs PIN Photodiode

(1000 to 1600nm, 10, 20, 32GHz)



DATASHEET

BUY NOW



Applications

- Channel Monitoring
- Power Monitoring in Optical
- Interface Modules
- Gain Monitoring for Amplifier
- Instruments

Features

- Low Cost
- Large Bandwidth
- ns Fast Response
- High Reliability

The Fiber Coupled High-Speed InGaAs PIN Photodiode is based on a unique package featuring a high-speed, fast rise and fall response. The component integrates a fiber with a high-sensitivity photodiode for signal detection. The response is analog without TIAC. Our design minimizes component assembly costs and module footprint while increasing stability over wide temperature and wavelength ranges. We offer three analog response speeds of 10GHz, 20GHz, and 32GHz. Detector integrated with bias and SMA RF connector is also available online.

Specifications

Parameter	Min	Typical	Max	Unit
Central Wavelength	1000		1600	nm
Responsivity ^[1]	0.7	0.9		A/W
Input Power	-30		10	mW
Saturation Power			10	dBm
Polarization Extinction Ratio ^[3]	18	23		dB
Dark Current at 23°C	0.05	0.1	4	nA
Capacitance		60	70	fF
Reverse Voltage			10	V
Reverse Breakdown Voltage			20	V
Response Frequency	10	30	40	GHz
Forward Current			10	mA
Reverse Current			5	mA
ESD Susceptibility (HBM)			100	V
Soldering Temperature (60 sec)			200	°C
Operating Temperature	-40		75	°C
Storage Temperature	-40		85	°C
Reliability	Telcordia 1209 and 1221			

Notes:

- [1]. The net responsivity is defined as the ratio of the PD current output and optical power measured at output fiber
- [2]. Single Mode Fiber version only.
- [3]. PM Fiber version only.

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 04/24/24

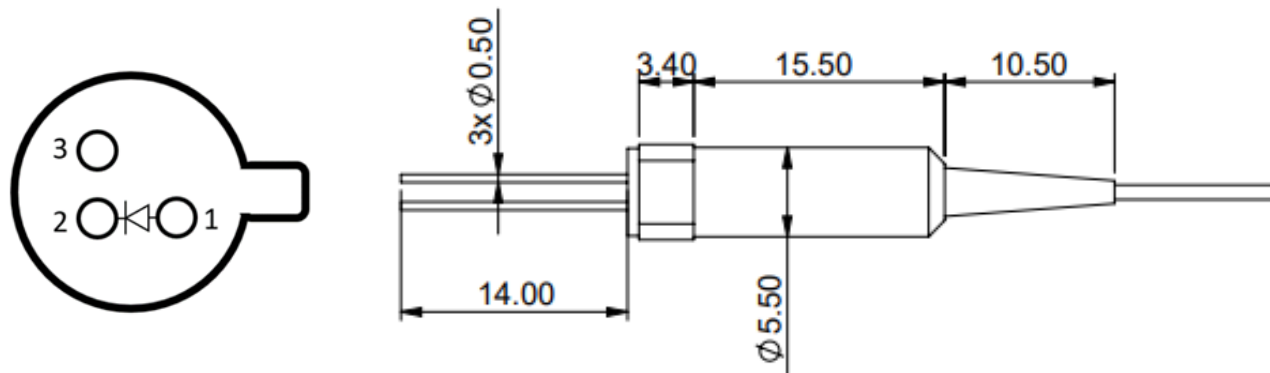
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Mechanical Footprint Dimensions (mm)



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

Ordering Information

Prefix	Wavelength	Speed	PCB	Package	Fiber Type	Fiber Cover	Fiber Length	Connector
FCHD-	1000 - 1620 = 1 Special = 0	10GHz=1 20GHz= 2 32GHz=3	None = 1 Yes =2 Special = 0	Standard = 1 Special = 0	SM28 = 11	0.9mm tube = 3 Bare Fiber = 1 Special = 0	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

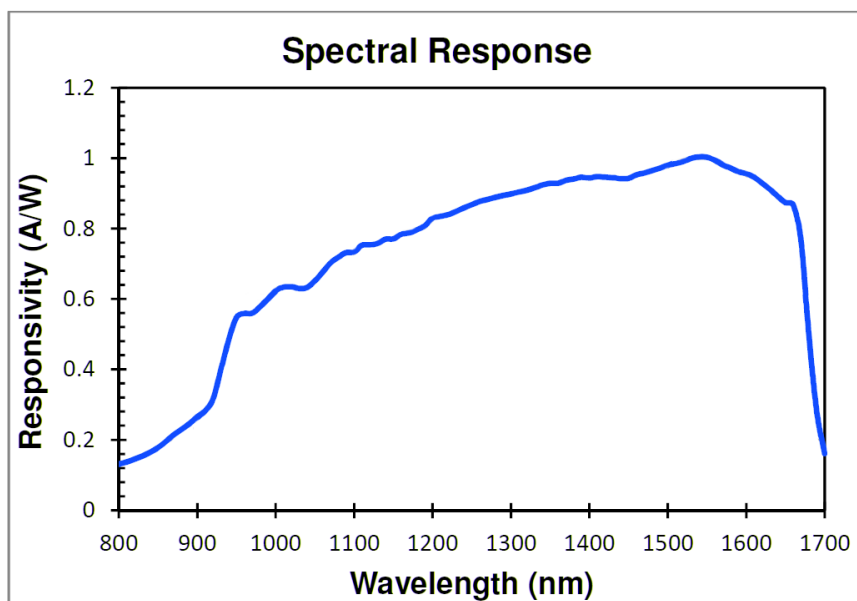
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Spectral Response



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.

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Typical Response @ 1550nm

Amplifier Mounted Option

DETA-11A221111

\$165

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