

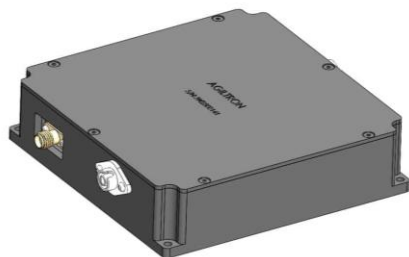
High-Speed Fiber-Coupled InGaAs Bias Detectors

0-50GHz, 1000-1600nm



DATASHEET

[Return to the Webpage](#)



Features

- Low Signal Distortion
- High Bandwidth
- Fiber Coupled
- Power Supplier Operation
- Battery Operation
- Fast Response

Applications

- Microwave Photonics
- Instruments

The HSDT series High-Speed Fiber-Coupled Detectors are plug-and-play units featuring high-fidelity analog response with bandwidths up to 50 GHz. These biased detectors are ideal for measuring fast signal transients without distortion from amplification circuitry. Each unit integrates a high-speed InGaAs PIN photodiode operated in photoconductive mode with an internal reverse bias, providing a linear optical-to-electrical response without ringing and supporting input powers up to 10 dBm. The output is delivered via an RF SMA connector. Designed for high-speed photonics applications, HSDT detectors are suited for test and measurement tasks in data communications, analog microwave systems, and general photonic research.

Specifications

Parameter	Min	Typical	Max	Unit
Wavelength Response	1300		1600	nm
Peak Responsivity @DC		0.4		A/W
Bandwidth @3dB S21	0		50	GHz
Output Reflection Coefficient S22	-6			dB
Dark Current		5		nA
PIN Bias		2.8		V
Optical Damage Threshold			10	dBm
Output Impedance		50		Om
Operating Temperature	-40		50	°C
Optical Input		FC/APC		
Electric Output (DC Coupled)		SMA		

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

Rev 06/30/25

© Photonwares Corporation

P +1 781-935-1200

E sales@photonwares.com

W www.agiltron.com

Information contained herein is deemed to be reliable and accurate as of the issue date. Photonwares reserves the right to change the design or specifications at any time without notice. Agiltron is a registered trademark of Photonwares Corporation in the U.S. and other countries.

High-Speed Fiber-Coupled InGaAs Bias Detectors

0-50GHz, 1000-1600nm



DATASHEET

Ordering Information (Part Number) System

	A	☐	☐ ☐ ☐	☐	☐	1	☐
Prefix	Type	Wavelength	Speed	Configure	Package		Power Supply
HSDT-		1310-1650nm = 1 Special = 0	50GHz = 050	Regular = 1 Special = 0	Regular = 1 Special = 0		Non = 1 Yes = 2

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 ($<5 \mu\text{m}$) 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 how handling by expanding the core side at the fiber ends.

High-Speed Fiber-Coupled InGaAs Bias Detectors

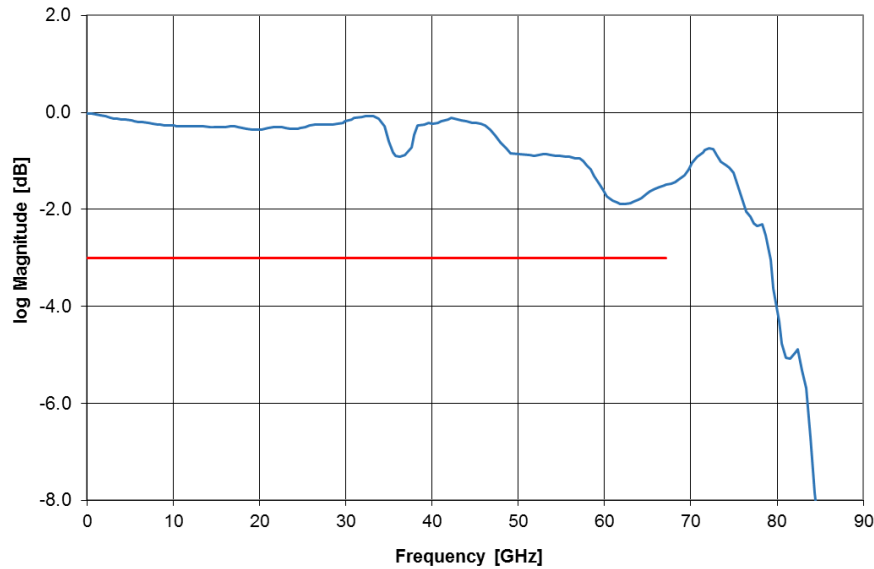
0-50GHz, 1000-1600nm



DATASHEET

Frequency Response (typical)

S21



S22

