High-Speed Detectors HSPD4018 & HSPD4040

Module Introduction and Product Features

To meet domestic customers' demand for fully localized high-speed photodetector (PD) products, Fiberwdm has developed two high-speed PD products with bandwidths exceeding 18GHz and 40GHz after nearly 2 years of R&D and optimization. The 18GHz PD has a rise time of less than 20ps, and the 40GHz PD has a rise time of less than 8.5ps. Their responsivity is no lower than that of similar imported products from Finisar, Thorlabs, etc., and the tail oscillation is also well controlled.

This series of high-speed detectors does not include a Transimpedance Amplifier (TIA) and features extremely low noise. It can be used for testing high-speed communication systems and femtosecond laser systems, and is a cost-effective fully localized product.

The linear power supply independently developed by Fiberwdm can fully meet the requirements of high-speed detectors in scientific research applications.

2 User Instructions

2.1 Appearance and Interface Description

Module appearance is shown below:

Figure 2-1 Detector Module Appearance (Left), High-Speed Bare PD (Right)

2.2 Electrical Specifications

1. Output Interface: SMA (female) or 2.92mm
2. Spectral Response Range: 1000nm–1700nm
3. Detector Responsivity: >0.7A/W @1550nm
4. Caution: Do not exceed the saturation optical power for optical input.

3 Performance Parameters

3.1 Test Parameters for High-Speed Detectors (HSPD4018, HSPD4040)

Model	HSPD4018	HSPD4040
Wavelength Range	1000nm - 1700nm	1000nm - 1700nm
3dB Cut-off Bandwidth	18GHz	＞40GHz
Conversion Gain	35V/W	35V/W
Saturation Optical Power	10mW	10mW
Rise Time (10% – 90%)	＜20ps	＜8.5ps
Typical Max. Responsivity	＞0.7A/W @1550nm	＞0.7A/W @1550nm
Output Reflection Coefficient (S22)	＜-2dB	＜-2dB
Amplitude Flatness	＜±2dB	＜±2dB
Maxim Output	0.35V	0.5V
Max Incident Power	30mW	30mW
Detector Material/Type	InGaAs/PIN	InGaAs/PIN
Operating Temperature	-40℃~85℃	-40℃~85℃
Optical Input	FC/PC or FC/APC	FC/PC or FC/APC
Electrical Output	SMA or 2.92mm	SMA or 2.92mm
Power Supply	+12V/100mA	+12V/100mA

Figure 3-1 Summary of Electrical Performance

Figure 3-2 HSPD4018 Pulse Response Curve

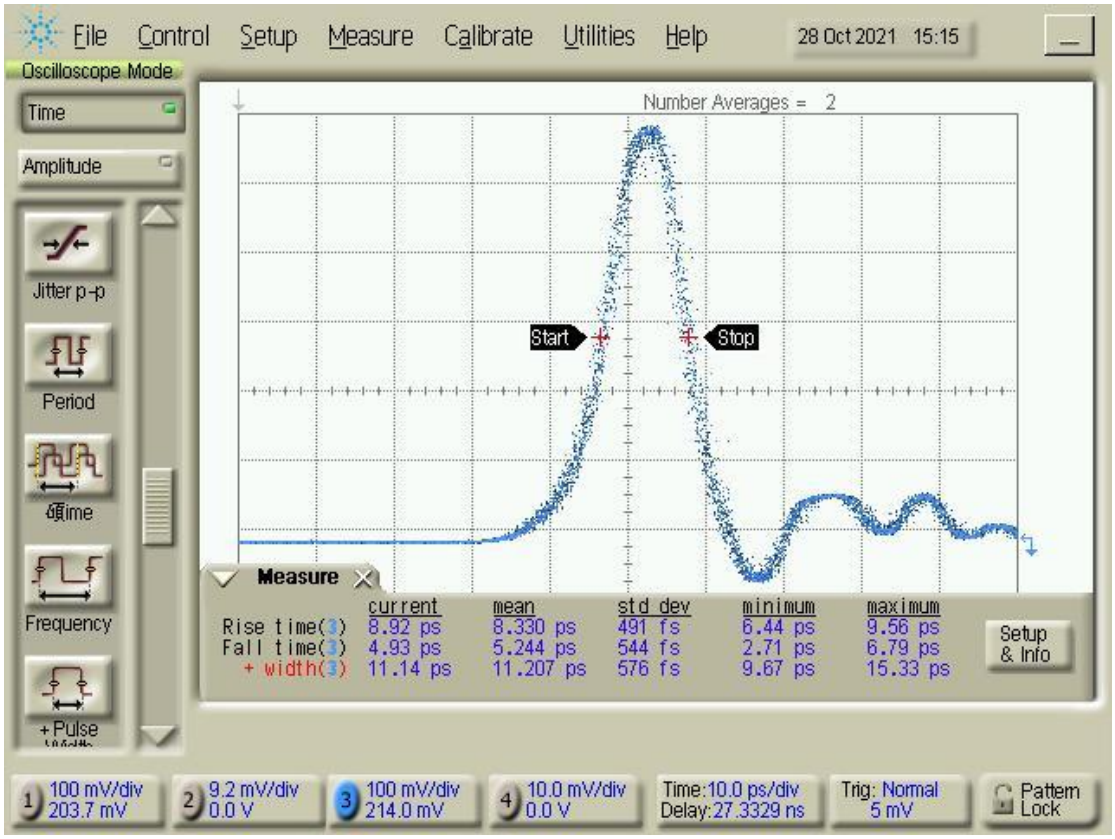

Figure 3-3 Pulse Response Curve

Mechanical dimension diagram of the high-speed detector

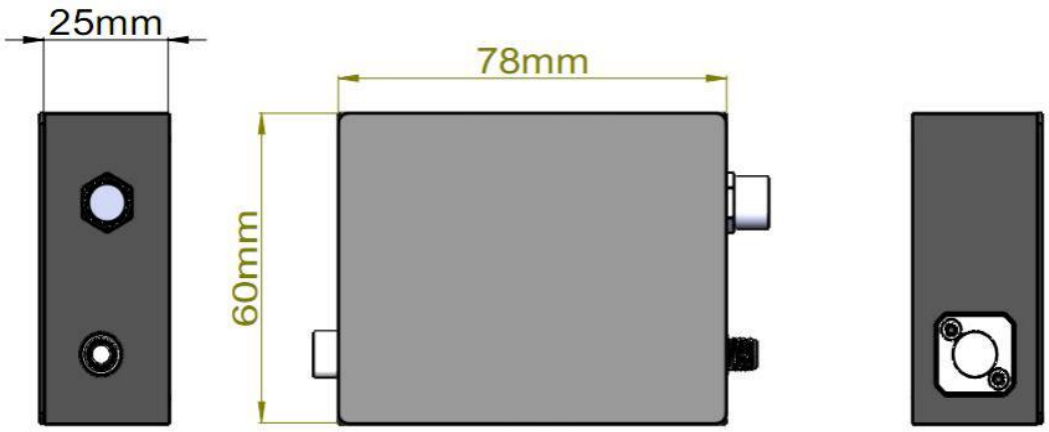

Figure 4-1 Mechanical dimensions diagram of the high-speed detector module

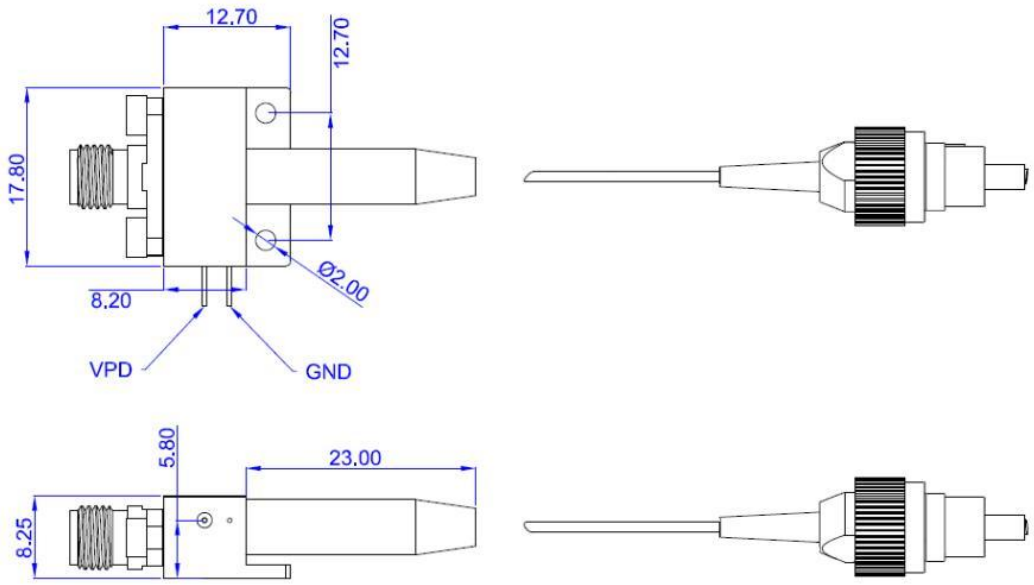

Figure 4-2 Mechanical dimensions of the high-speed PD