

FPD510-V - Nov 20, 2017

Item # FPD510-V was discontinued on Nov 20, 2017. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

SI FAST PIN (RF) AMPLIFIED PHOTODETECTOR

- ▶ High Signal-to-Noise Ratio
- ▶ Ultrafast up to 1.5 GHz
- ▶ Free-Space or Fiber-Coupled Si Photodetectors
- ▶ Wavelength Range from 400 - 1000 nm



FPD510-V



FPD310-FV

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OVERVIEW

FPD310-FV High Sensitivity Si PIN Photodetector: 1 MHz to 1.5 GHz

Features

- Ultrafast Reponse (1.5 GHz)
- 3 dB bandwidth from 10 - 1000 MHz
- OEM Package with Free-Space Input
- Spectral Sensitivity from 400 - 1000 nm
- Two Gain Settings

Applications

- Detection of Fast Laser Pulses
- Detection of Free-Space Low-Light Level Signals

For experiments requiring high bandwidths and extremely short rise times, choose Menlo Systems' FPD310-FV Si photodetector. It is an easy-to-use photodiode package with an integrated high-gain, low-noise, RF amplifier. The FPD310-FV detects light from 400 to 1000 nm and has a rise time of less than a nanosecond. The compact housing facilitates OEM integration.

The FPD310-FV is not suitable for pulses longer than 30 ns or continuous light levels. For more details, please consult the Specs tab or contact Menlo



Jason
Reeves
Sales
Engineer
Menlo
Systems

Feedback?
Questions?
Need a Quote?

[Contact Us](#)

Please note that these Amplified Photodetectors are available directly from Menlo Systems, Inc. within the United States and from Menlo Systems GmbH outside the United States.

United States

Phone: +1-973-300-4490

Email: ussales@menlosystems.com

Outside United States

Phone: +49-89-189166-0

Email: sales@menlosystems.com

Systems at sales@menlosystems.com.

FPD510-V and FPD510-FV High Sensitivity PIN Photodetectors: DC to 250 MHz**Features**

- High Signal-to-Noise Ratio
- Flat Spectral Response (Less than 3 dB up to 200 MHz)
- OEM Package with Fiber-Coupled or Free-Space Input

Applications

- Detection of Chopped Light Sources
- Fiber-Coupled or Free-Space Low-Light Level Signals

Menlo Systems' FPD510 series high sensitivity Si PIN photodetector is optimized for the highest signal-to-noise ratio when detecting low-level optical beat signals at frequencies up to 250 MHz. This series is recommended, in particular, for applications in metrology when beat signals of weak power have to be detected in a highly efficient way. The FPD510 photodetectors feature an ultrafast fiber-coupled or free-space photoreceiver with an integrated low-noise transimpedance amplifier. The 3 dB bandwidth of each DC-coupled device is 200 MHz. The compact design of these detectors allows for easy OEM integration.

Power Supply

The FPD310 and FPD510 series photodetectors do not come with a power supply. They require a customer-supplied power supply between +8 and +20 VDC. For best performance, we recommend using a linear regulated power supply or a battery. Thorlabs' LDS9 is a suitable power supply that can be wired by the customer to operate these detectors. As can be seen in the drawings for these detectors, a pin and ground are provided for soldering a power supply to the detector. When connecting a power supply, please note the polarity of the supply. A switched power supply is not recommended as it may introduce switching noise in the output signal.

[Hide Specs](#)**S P E C S**

Item #	FPD310-FV	FPD510-V	FPD510-FV
Optical Input	Free-Space	Fiber-Coupled ^a	Free-Space
Supply Voltage ^b	+8 to +20 V		
Current Consumption	250 mA	50 mA	
Max. Incident Power	2 mW	10 mW	
Operating Temperature	10 - 40 °C		
Spectral Range ^c	400 - 1000 nm		
Detector Diameter	0.4 mm		
Frequency Range	1 to 1500 MHz	0 to 250 MHz	
3 dB Bandwidth	10 to 900 MHz	0 to 200 MHz	
Rise Time	0.5 ns	2 ns	
Gain Setting 1	5×10^3 V/W	4 x 10 ⁴ V/W	
Gain Setting 2	5×10^1 V/W		
Dark State Noise Level	-90 dBm	-120 dBm	
NEP (Calculated)	30.0 pW/(Hz ^{1/2})	6.38 pW/(Hz ^{1/2})	6.0 pW/(Hz ^{1/2})
Output Connector	SMA		
Output Impedance	50 Ω		
Device Dimensions	60 mm x 50 mm x 27 mm		
Output Coupling	AC	DC	

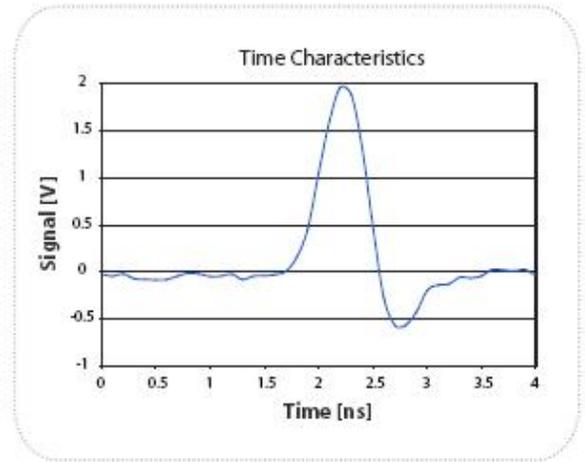
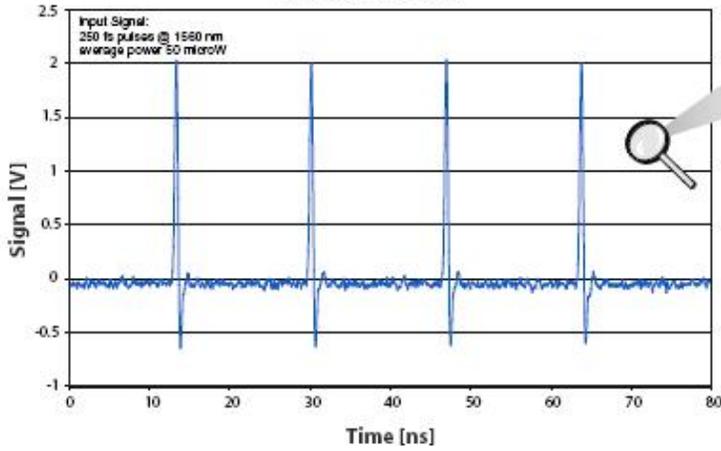
- FC/PC Connector
- Power Supply Not Included
- Other Spectral Ranges on Request

Hide Graphs

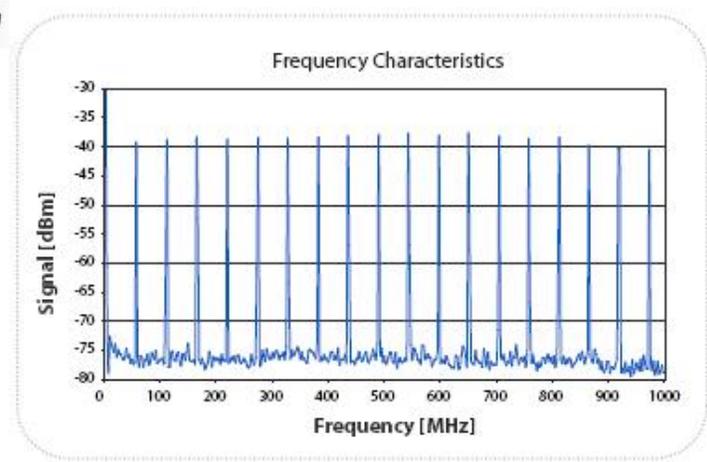
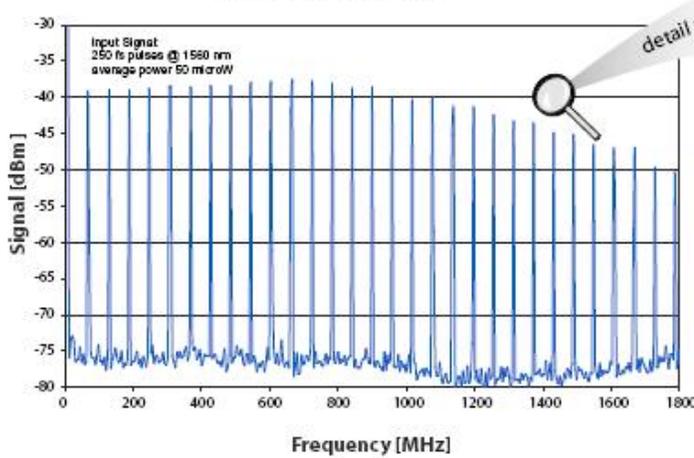
GRAPHS

FPD310-FV Graphs

Time Characteristics

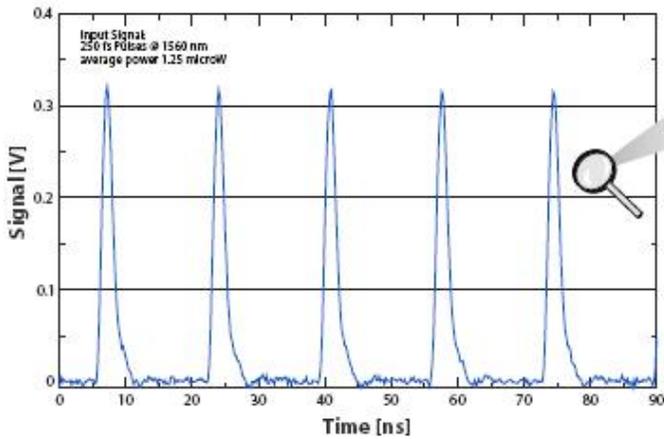


Frequency Characteristics

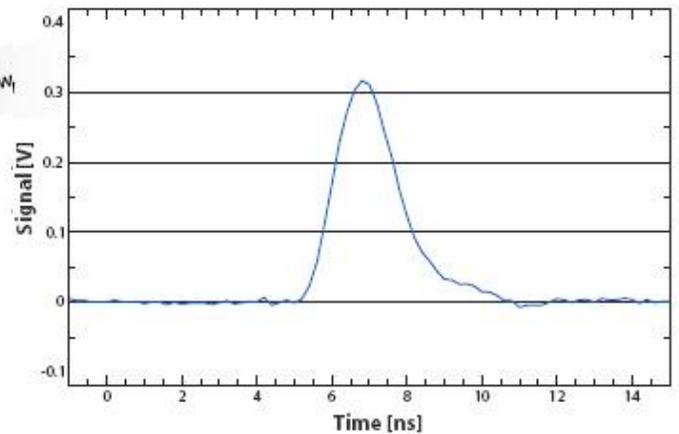


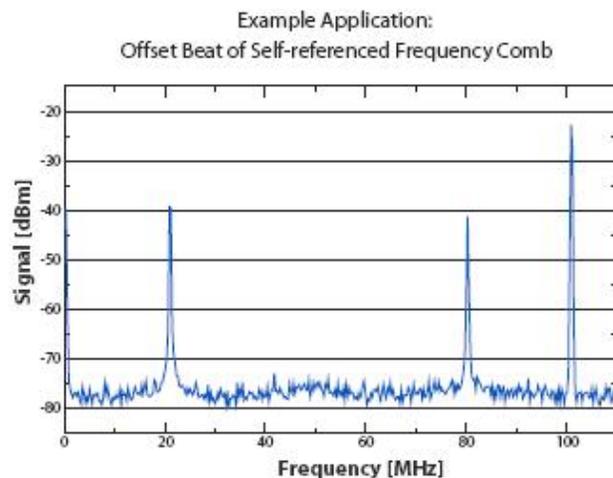
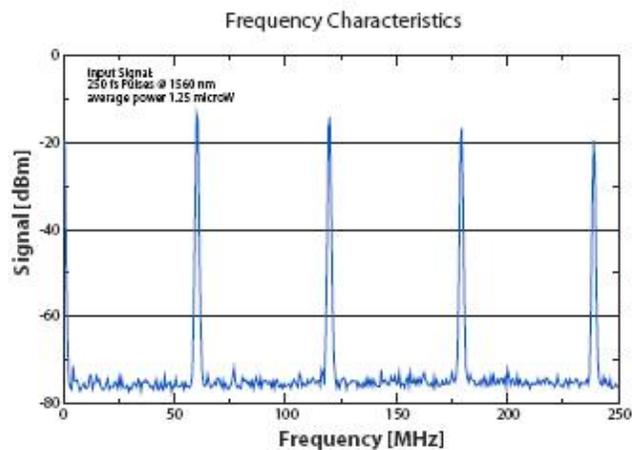
FPD510-FV and FPD510-V Graphs

Time Characteristics



Time Characteristics

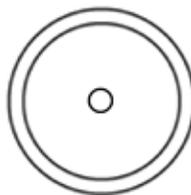




[Hide Pin Diagram](#)

PIN DIAGRAM

Signal Out - SMA Female



For connection to a suitable monitoring device, e.g. oscilloscope or RF-spectrum-analyzer, with 50Ω impedance.

[Hide Si Fast PIN \(RF\) Amplified Photodetector](#)

Si Fast PIN (RF) Amplified Photodetector

Part Number	Description	Price	Availability
FPD310-FV	High Sensitivity Si PIN Detector, 400 to 1000 nm, Free Space, 1 MHz to 1.5 GHz	\$1,074.00	Today
FPD510-FV	High Sensitivity Si PIN Detector, 400 to 1000 nm, Free Space, DC to 250 MHz	\$1,442.00	Today
FPD510-V	High Sensitivity Si PIN Detector, 400 to 1000 nm, Fiber Coupled, DC to 250 MHz	\$1,442.00	Lead Time

Visit the *Si Fast PIN (RF) Amplified Photodetector* page for pricing and availability information:
https://www.thorlabs.com/newgroupage9.cfm?objectgroup_id=6685