

Fiber Coupled 8 GHz PIN Photoreceiver



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The FORX Photoreceiver is designed for high-speed and high sensitivity analog and digital applications, featuring a high bandwidth PIN photodiode and a linear preamplifier within a hermetically sealed coaxial package. The module incorporates a highly stable optical coupling system. Its low input-referred noise ensure exceptional linearity and precision.

For added convenience, Agiltron offers a driving PCB for easy integration and a metal box protective package to safeguard against ESD in laboratory environments, both come with a specially designed low noise power supply.

Features

- 7-pin Coaxial Package
- InGaAs-PIN with 3.3V Pre-Amplifier
- Differential Output

Applications

- RF Over Fiber
- Analog and Digital Link
- Other Optical Fiber Systems



Specifications *

Parameter	Min	Typical	Max	Unit
PIN Responsivity	$\lambda = 1,310\text{nm}$	0.7	0.9	A/W
	$\lambda = 1,550\text{nm}$	0.7	0.9	
AC Transimpedance	2000	2500		Ω
Maximum Output Voltage Swing		250		mV
Bandwidth	7.0	8.0		GHz
Output Return Loss		8.0		dB
Minimum Sensitivity	25°C, Rext=13dB	(-19.0)	-17.0	dBm
	25°C, Rext=8.2dB	(-17.5)		
	25°C, Rext=6.0dB	(-16.0)		
	-5 to 70°C, Rext=13dB	(-18.0)	-16.0	
Maximum Overload		(2.0)		dBm
Optical Return Loss	$\lambda = 1,310\text{nm}$	27		dB
	$\lambda = 1,550\text{nm}$	27		
Preamp Supply Current		40	50	mA
Preamp Supply Voltage	3.13	3.3	3.47	V
PIN Supply Voltage	4.5	5.0	12	V
Storage Temperature	-40		85	°C
Operating Temperature	-5		70	°C
Supply Voltage	-0.5		4	V
PIN Reverse Voltage	0		+20	V
PIN Reverse Current			4 (peak)	mA

* $T_a=25^\circ\text{C}$, $\lambda=1,550\text{nm}$, $V_{cc}=3.3\text{V}$, $V_r=5\text{V}$, unless otherwise specified

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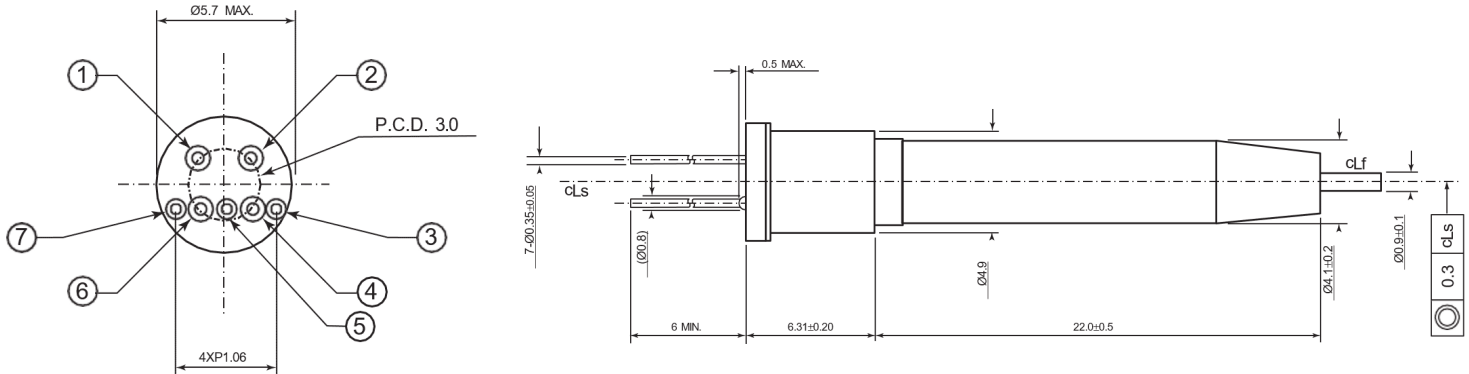
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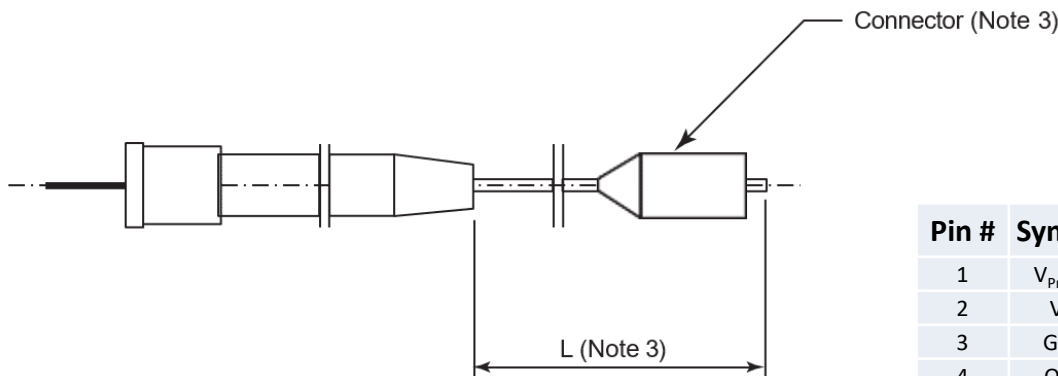
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Dimensions (mm)



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

Pin Definition



Pin #	Symbol	Function
1	V_{Preamp}	Preamp Bias
2	V_{PD}	PD Bias
3	GND	Case Ground
4	OUT	Output (-)
5	GND	Case Ground
6	OUT	Output (+)
7	GND	Case Ground

Note 1: cLf: Fiber center line

Note 2: cLs: Stem center line Neither cLf not cLs are necessarily corresponding

Note 3: The fiber length and connector shall be specified in the detail (individual) specification.

Application Notes

Electrostatic discharge (ESD) will cause permanent damage to the product. Please avoid any ESD to the input pins or output connector. Use standard ESD protective equipment when handling this product.

Temperature and fiber restrictions are as follows: Lead soldering: 250°C for no more than 10 seconds Fiber feed-through tube:

- 120°C
- Fiber pull force: 4.9 N
- Fiber bending radius: 1 inch or less

Exceeding these conditions can cause permanent damage to the device.

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Functional Diagram

S21 Frequency Response

Ordering Information

Prefix	Detector Type	Wavelength Range	Bandwidth	TEC	Module*	Configuration	Connector
FORX-	PIN = 1 APD = 2	1300-1600nm = 1	8GHz = 08	Non = 1	Non = 1 Yes = 2	Standard = 11	FC/PC = 2 FC/APC = 3 Special = 0

* Module contains driver, SMA RF connector converter, and power supply.

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Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 μm .

Maximum power = 30 mW.

