

The FORX Linear Photoreceiver is designed for high-speed analog and digital applications, featuring a surface-coupled coplanar waveguide PIN photodiode and a linear transimpedance amplifier within a hermetically sealed 14-pin butterfly package. Its high conversion gain and 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

- 35 GHz Bandwidth
- -11dBm Sensitivity
- Hermetically Sealed Package
- Linear TIA Integrated

## Applications

- Low Noise Analog Heterodyne Detection
- Transponder and Line Card Designs
- Linear Receiver up to 30 GHz
- 30 GHz Analog RFoF Link



## Specifications

Parameter	Min	Typical	Max	Unit
Wavelength Range	1200		1650	nm
Optical Input Power			+3	dBm
Bandwidth (-3 DB electrical @ max. gain)		29	35	GHz
Dark Current @ 30 °C, 3.3 V		5		nA
Sensitivity @ 1550 nm *	-11		-9	dBm
Optical Return Loss	-30		-27	dB
Polarization Dependent Loss		0.1		dB
PD Reverse Bias Voltage	3		4.5	V
Amplifier Supply Voltage	3.1	3.3	3.5	V
Electrical Return Loss (0.1 to 25 GHz)		< -15		dB
Impedance		50		Ω
Output Coupling	DC (external AC coupling required)			
Noise Equivalent Power (NEP) (@ 1 GHz)		17		pW/√Hz
Operating Temperature	-30		+75	°C
Storage Temperature	-50		+85	°C
Operating Humidity		85		%
Supply Current		90		mA
Power Consumption		300	350	mW
Package Type	8-pin butterfly min-DIL			
RF Connector	Dual GPPO			
ESD, Input and Output Pins	1000			V
ESD, All Other Pins	2000			V

\* 10<sup>-12</sup> BER, PRBS 2<sup>31</sup>-1

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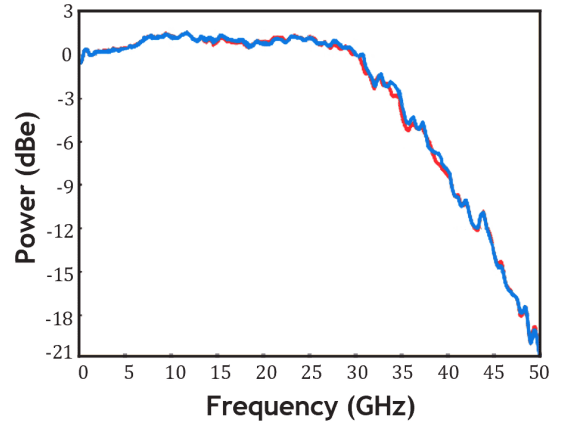
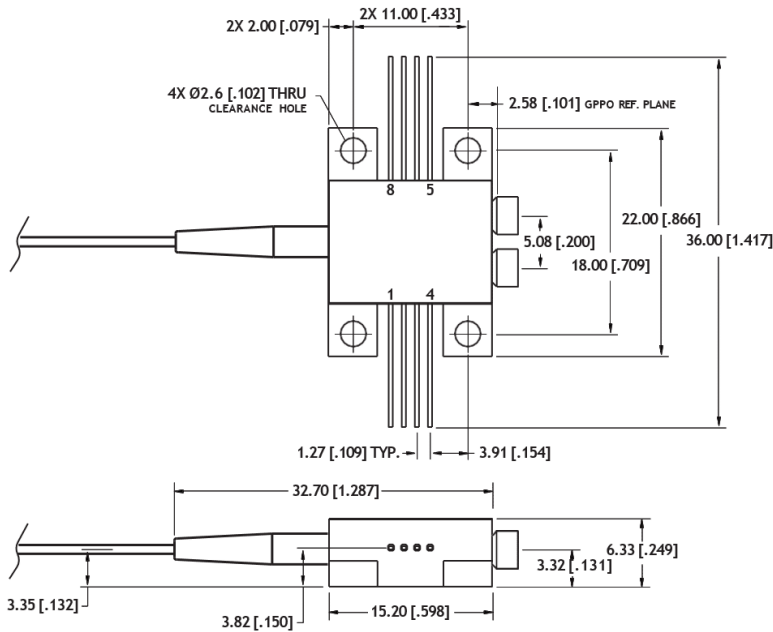
Rev 01/17/25

# Fiber Coupled 35 GHz Linear Photoreceiver



## DATASHEET

### Dimensions (mm [inches])



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

PIN	Description	PIN	Description
1	Vpd	5	NIC
2	GND	6	Vamp
3	NIC (No internal connection)	7	GND
4	NIC	8	Reserved (Rth)

### 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

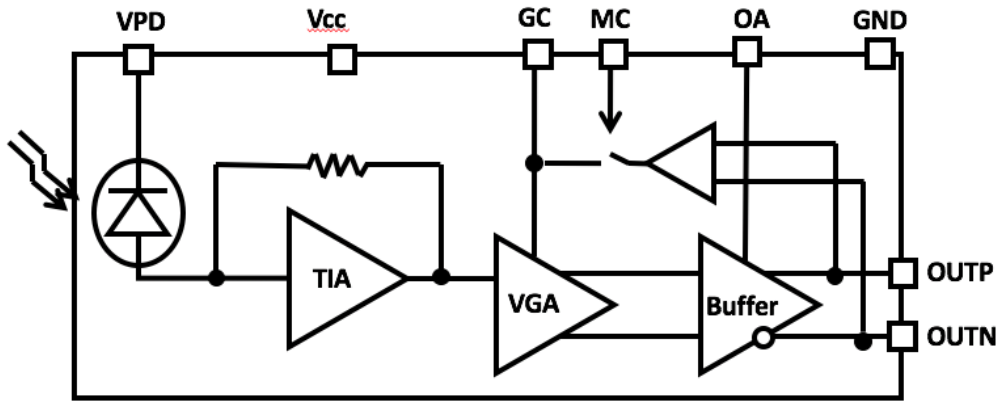
Exceeding these conditions can cause permanent damage to the device.

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### Functional Diagram



### S21 Frequency Response

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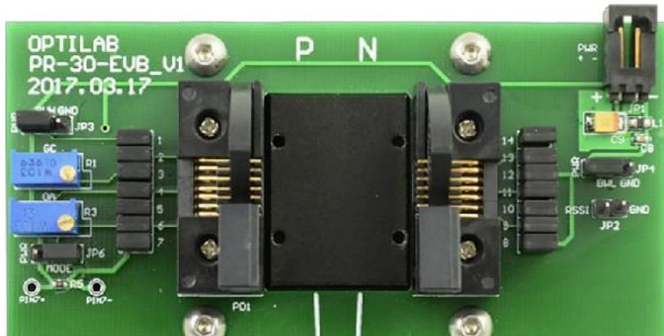
### Ordering Information

Prefix	Detector Type	Wavelength Range	Bandwidth	TEC	Module*	Configuration	Connector
<b>FORX-</b>	PIN = 1 APD = 2	1300-1600nm = 1	30GHz = 30	Non = 1	Non = 1 Yes = 2	Standard = 11	FC/PC = 2 FC/APC = 3 Special = 0

## DATASHEET

### Driver Board (DBRX-30)

Evaluation board for the PR is designed for ease of testing. It provides convenient access to all 14 pins and the data output ports. Utilizing a zero-insertion force configuration, the PR can be mounted without the need for soldering. Different settings can be easily configured with the provided jumpers. The evaluation board can be powered up with a single +3.3V power with the provided power cable.



### Operation Mode Setting

Operation Mode	Mode Setting (Pin 6)	Amplitude/ Gain Adjustment
Manual Gain Control	GND	GC (Pin 3) Range: 0 - 3.3 V
Automatic Gain Control	Floating	OA (Pin 4) Range: 0 - 3.3 V GC: Floating

### Bandwidth Setting Table

Setting #	BWH	BWL
1	GND	GND
2	GND	FLT
3	GND	Vcc
4	FLT	GND
5	FLT	FLT
6	FLT	Vcc
7	Vcc	GND
8	Vcc	FLT
9	Vcc	Vcc

### Integrated Module (PR-40G-M)

For ease of installation, a fully integrated module PR-40G-M is available for ordering. Here are the features of PR-40G-M:

- Power and Control via USB
- Integrated Input Power Monitoring
- MGC/AGC Selection
- Adjustable Bandwidth