

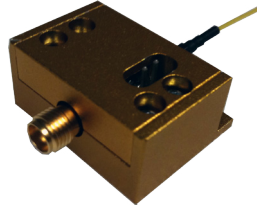
30 GHz Linear InGaAs PIN Photodetector

The Optilab PD-30 series are highly linear, InGaAs PIN photodetectors designed to operate from 60 KHz to 30 GHz with an input power capability of 40 mW.

PD-30 30 GHz Linear InGaAs PIN Photodetector



PD-30



PD-30 with External Housing

Product Description

The PD-30 is a highly linear, 30 GHz bandwidth InGaAs PIN photodetector that is ideal for use in O/E front-ends requiring wide band frequency response. The coplanar waveguide photodiode design optimizes speed and sensitivity for the 1250 nm through 1650 nm wavelength range. The waveguide design assures a 30 GHz frequency response necessary for digital and analog applications. The front-illuminated mesa-structured PIN design allows a high input power level of up to 40 mW.

The PD-30 is available in a standard 2-pin package with K output connector for ease of assembly. The PD-30 can be ordered with or without the external protective housing. Optical Input via a single-mode fiber is coupled to FC/APC connector. The PIN detector is hermetically sealed.

Features

- Wide bandwidth 60 KHz to 31 GHz
- Highly Linear to 30 mW+ input power
- Wide Operating Temperature Range from -50°C to +85°C
- High Current Handling up to 35 mA
- Flat frequency response, ± 1 dB
- Useful Spectral Range 850-1650 nm
- Hermetically Sealed

Applications

- Analog RF over Fiber
- Optically Amplified Systems
- RZ and NRZ up to 40 Gb/s
- LIDAR Measurements
- Coherent Lightwave Systems
- Ideal Front-End O/E Converter for Test Instruments

PRODUCT SPECIFICATIONS

General Specifications

Optimized Operating Wavelength	1250 nm to 1650 nm
Useful Operating Wavelength	850 nm to 1650 nm
Optical Input Level	40 mW max.
S21 3 dB Bandwidth	29 GHz min., 31 GHz typ.
S22 Characteristics	< -10 dB @ 20 GHz
Responsivity	0.85 A/W @ 1550 nm typ., 0.90 A/W at 1310 nm typ.
Dark Current @ 25° C, 5 V	10 nA typ., 100 nA max.
Optical Return Loss	-30.00 dB typ.
Optical PDL @ 1550 nm	0.05 dB max.
Optical Fiber	SMF-28
Bias Voltage	5 V typ.
Impedance	50 Ω
Coupling	AC-Coupled

Analog Applications

Useful Bandwidth	60 KHz to 32 GHz
Ripple over any 1 GHz	± 1.0 dB max.
Group Delay	± 7.0 ps
2nd Harmonics Distortion	-70.0 dBc max.
3rd Harmonics Distortion	-75.0 dBc max.

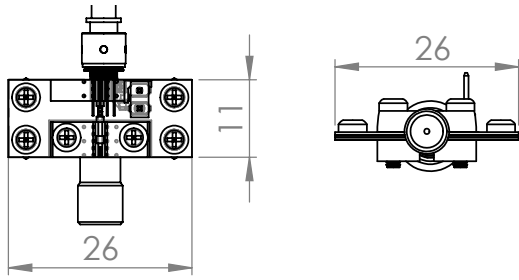
Digital Applications

Sensitivity @ 10 Gb/s	-19.0 dBm
Receiving Bandwidth	Up to 40 Gb/s
Data Format	RZ, NRZ

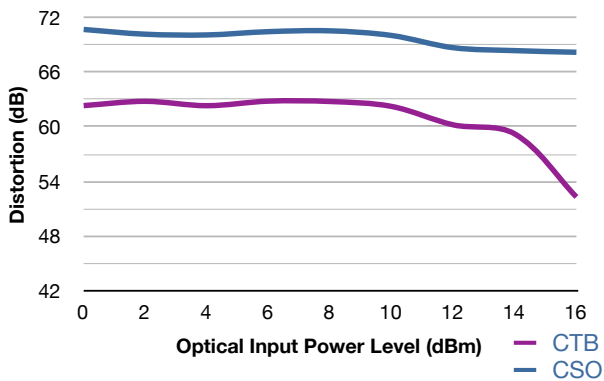
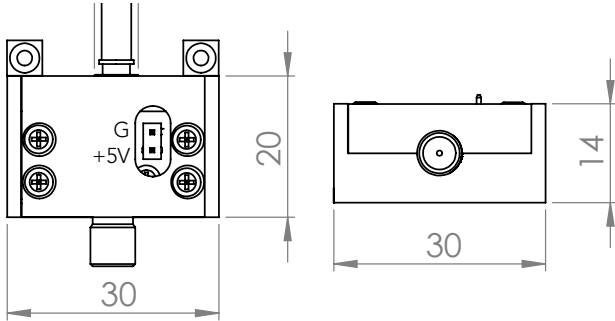
Ordering Information

PD-30-x	
x	Housing Type; A, No Housing, default; B, External Housing.

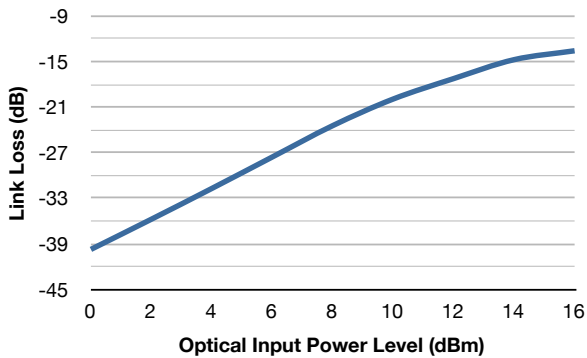
Mechanical Drawing of PD-30³



Mechanical Drawing of PD-30 w/ External Housing⁴



PD-30 CSO, CTB Linearity Measurement²



PD-30 Link Loss

¹ Measured by Agilent 86030A Lightwave Component Analyzer

² 40 Channel Analog Channel Loading

³ All Measurements are in Metric

⁴ External Housing is for Mechanical Protection Only

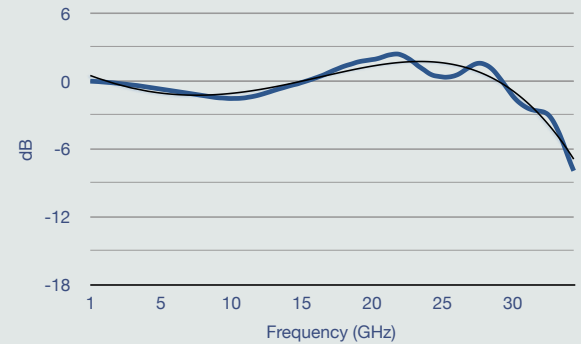
30 GHz Linear InGaAs PIN Photodetector

Mechanical Specifications

Temperature Range	-50° C to +85° C (operation), -55° C to +125° C (storage)
Operating Humidity	85%
Photodiode Bias Voltage	5 V, ± 1 V DC
Package type	2-pin module with K type RF connector
Housing Dimensions	30 mm x 20 mm x 14 mm
Fiber Connector	FC/APC
Optical Fiber	SMF-28 with 900 mm Tube

Absolute Maximum Ratings

PIN Bias Voltage	+2.0 to +7 V
Forward Current	35 mA
Optical Input Power	40 mW
Damage Threshold	
Lead Soldering Temp (10 s)	250 ° C



S21 O/E Response¹



Need a 30 GHz Receiver?
Order an LR-30 module today.