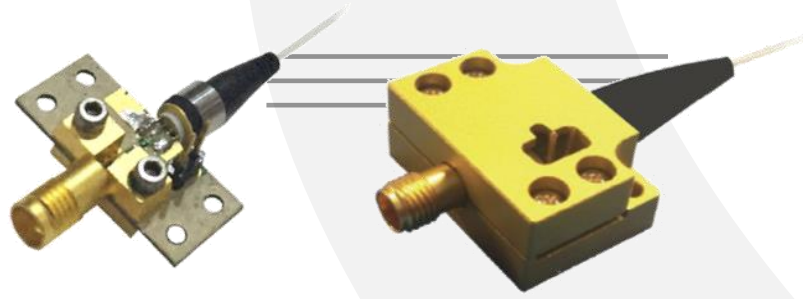


PD-40



DEVICE

40 GHz Linear InGaAs PIN Photodetector

OVERVIEW

The Optilab PD-40 is a highly linear, 40 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 1260 nm through 1610 nm wavelength range, and assures a 40 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 10 mW. The PD-40 is available in a standard 2-pin package with K-connector output for ease of assembly, and can be ordered with or without the external protective housing. Contact Optilab for more information.

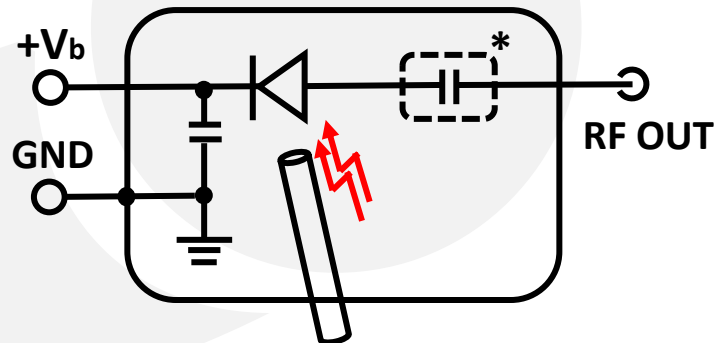
FEATURES

- Bandwidth 60 KHz to 40 GHz, AC coupled
- DC to 40 GHz, DC coupled
- Highly linear to 10 mW+ input power
- Operating Temperature from -10 °C to +50 °C
- High current handling up to 35 mA
- Flat frequency response, ± 1 dB
- Useful spectral range 850 nm - 1650 nm

USE IN

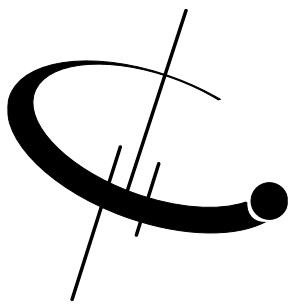
- Analog RF over Fiber
- Optically Amplified Systems
- RZ and NRZ up to 40 Gb/s
- Coherent lightwave systems
- Front-End O/E converter for test instrument
- LIDAR Measurements

FUNCTION DIAGRAM



*Optional DC Block for AC Coupled Version





PD-40

SPECIFICATIONS

| | |
|--------------------------------|--|
| Optimized Operating Wavelength | 1260 nm to 1610 nm |
| Useful Operating Wavelength | 850 nm to 1650 nm |
| Optical Input Level | 10 mW max. |
| S21 3 dB Bandwidth | 31 GHz min., 33 GHz typ. |
| S22 Characteristics | < -10 dB @ 30 GHz |
| Responsivity | 0.72 A/W @ 1550 nm typ., 0.35 A/W @ 850 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 | DC Coupled (default), AC available |

GENERAL

| | |
|--------------------------------------|----------------|
| Ripple over any 1 GHz | ± 1.0 dB max. |
| Group Delay | ± 7.0 ps |
| 2 nd Harmonics Distortion | -70.0 dBc max. |
| 3 rd Harmonics Distortion | -75.0 dBc max. |

ANALOG APPLICATIONS

LINK PERFORMANCE W/ LT-20

| | |
|-----------|-------------------------------|
| SFDR | 113 dB Hz ^{2/3} |
| Link Loss | -25 dB @ 10 dBm Optical Input |

MECHANICAL

| | |
|-------------------------|---|
| Operating Temperature | -10 °C to +60 °C |
| Storage Temperature | -55 °C to +75 °C |
| Operating Humidity | 85% |
| Photodiode Bias Voltage | 5 V, ± 1 V DC |
| Package Type | 2-pin module with K Female RF connector |
| 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 | 10 mW |
| Lead Soldering Temp (10s) | 250 °C |





PD-40

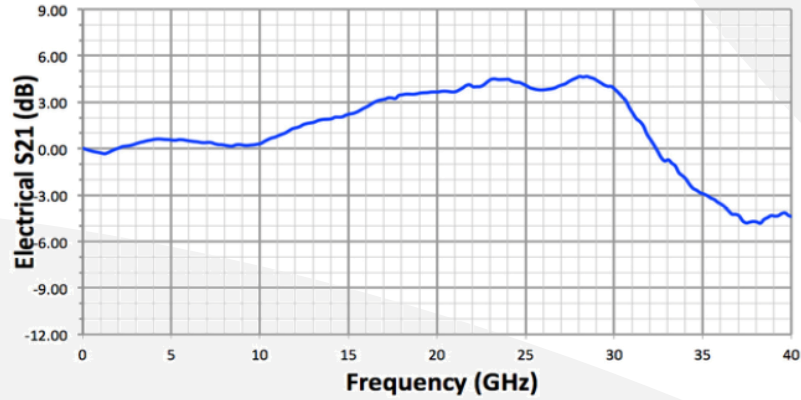
PD-40-X-YY

OPTIONS

X: A, No Housing, default
 B, Legacy Housing
 C, External Housing

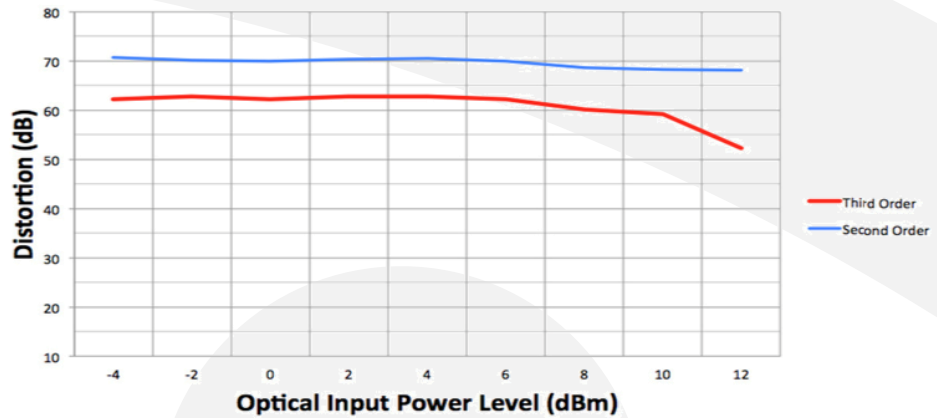
YY: DC, DC Coupled
 AC, AC Coupled

S21 O/E RESPONSE

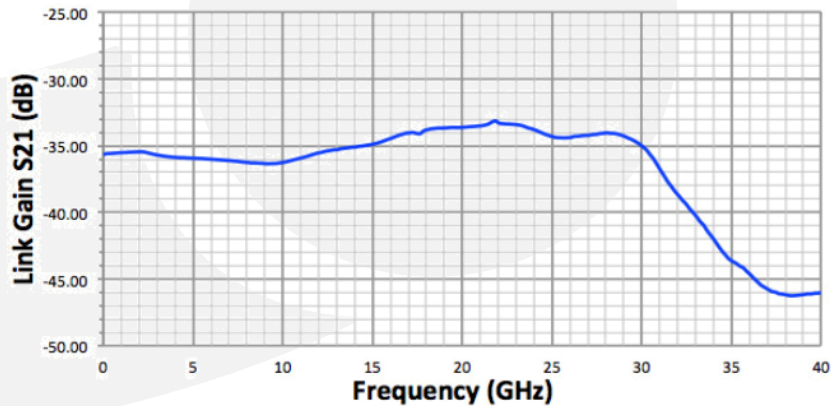


CSO, CTB LINEARITY MEASUREMENT

Second and Third Order Distortion vs. Optical Input



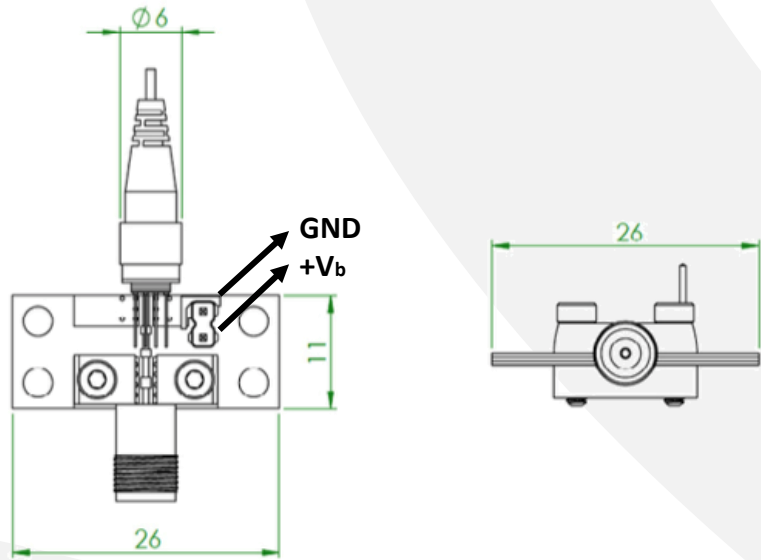
LINK GAIN WITH IM-1550-40-PM



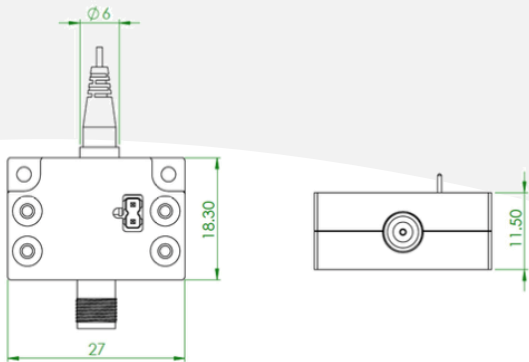


PD-40

PD-40-A Mechanical Drawing



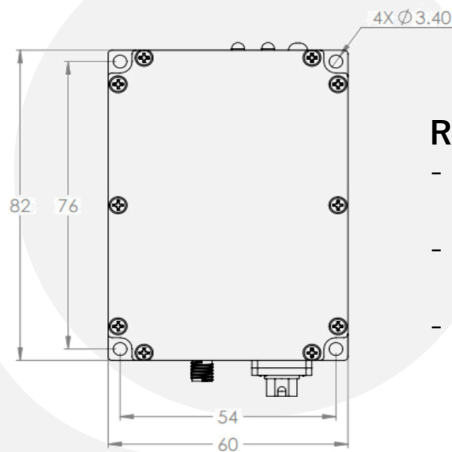
PD-40-C Mechanical Drawing



- 1 All measurements are in Metric
 - 2 External housing is for Mechanical Protection Only
- Legacy housing information available upon request

Unit: mm

PD-40-M: Module



Ready to use module

- Power and Remote Monitoring via USB Port
- Status Monitoring: RS-232 (Standard)
- No TIA for Intrinsic Phase Linearity

Unit: mm

