10 Gb/s Avalanche Photodiode Fiber Receiver

InGaAs, Low Noise Transimpedance Amplifier

DATASHEET

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The APDR series consists of fiber-coupled, high-speed InGaAs APD with a broad operation bandwidth from 85 kHz to 10 GHz. Each APDR integrates a low-noise, high-gain amplifier to ensure optimal signal performance. The series is also available as a plug-and-play metal protected module for ease of use.

Due to their high sensitivity to electrostatic discharge (ESD), warranty coverage applies only to fully metal-enclosed modules, which provide proper protection. Other versions of the lasers and photodetectors are not covered by warranty and must be handled with extreme caution.

Features

- Low Darkcurrent
- Low Capacitance
- InGaAs Avalanche Photodiode
- Low Noise Transimpedance Amplifier
- High Bandwidth

Applications

- Long Haul Receivers for SONET/SDHADMs
- DWDM Receivers
- Optical Cross-Connects

RoHS COMPLIANT

Specifications

Parameter	Min	Typical	Max	Unit
APD Breakdown Voltage, Vb (Id = 10 µA)	20		40	V
Bandwidth (APD gain 3 ≤ M ≤ 9)	7			GHz
Low Frequency Cut-off			85	kHz
Output Return Loss (130 kHz to 7.5 GHz)		8		dB
Sensitivity			-22	dBm
Overload	-6	-3		dBm
Optical Return Loss			-27	dB
Transimpedance	550			Ω
Thermistor (T = 25 °C)	9.9		10.1	kΩ
Power Dissipation		0.65	0.8	W
Supply Voltage	-5.46	-5.2	-4.94	V
PD Supply Voltage	20		40	V
Supply Voltage Vee	-5.5		0	V
Supply Voltage V_{PD}	20		40	V
PD Forward Supply Current			2	mA
PD Reverse Supply Current			2	mA
Maximum Optical Input Power			0	dBm
RF Connector		SMA		
Operating Case Temperature	0		+70	°C
Storage temperature	-40		+85	°C

Notes:

* Temperature = 25°C, λ = 1550 nm, R_L = 50Ω,Vee = -5.2V

All specifications without connector.

Rev 03/25/26

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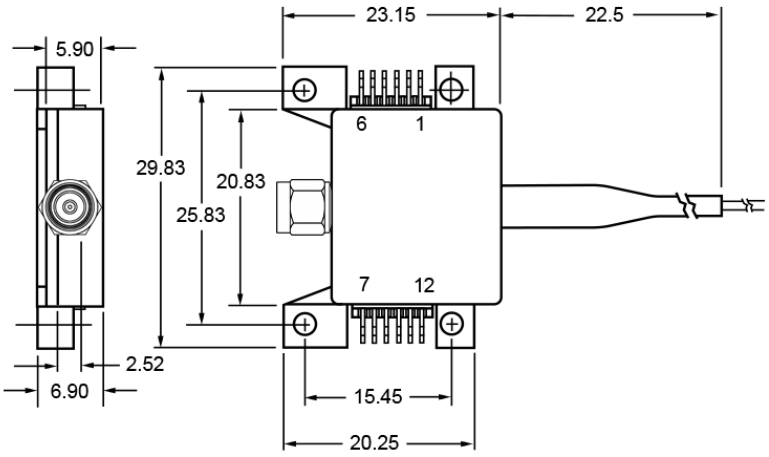
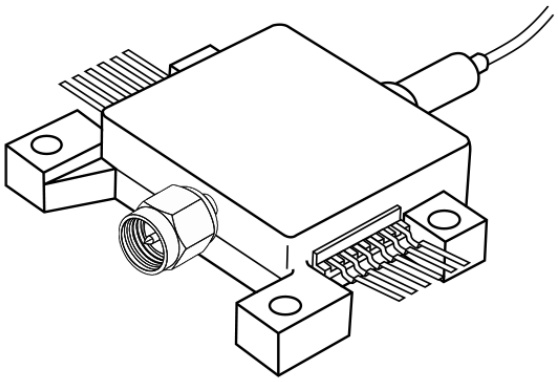
Mechanical Dimensions (mm)





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

Pin Definition

Pin #	Function	Pin #	Function
1	DC Bias (V_{PD} +)	7	NC or DC Feedback
2	GND	8	(-) OFF
3	Power Supply (Vee)	9	(+) OFF
4	GND	10	Feedback for Offset Control
5	NC	11	GND
6	GND	12	Thermistor

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Ordering Information (Part Number)

	2	☐	10	☐	11	☐
Prefix	**Detector Type**	**Wavelength Range**	**Bandwidth**	**Package [1]**	**Configuration**	**Connector [2]**
APDR-	APD = 2	1200-1600 nm = 1	10 GHz = 10	Component = 1 Module = 2	Standard = 11	FC/PC = 2 FC/APC = 3 Special = 0

[1]. Module contains driver and power supply.

[2]. The connector cannot be installed directly onto bare fiber, as it is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer can remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SM28 fiber and decreases further with smaller core fibers.