

50-100 GHz Photoreceiver Module – SM

SM28, power supply included



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The HPRM is a turnkey high-speed photoreceiver engineered for advanced analog and digital applications. It integrates a high-speed photodetector with a broadband RF amplifier to achieve an output power of 10 dBm. With its high conversion gain and low input-referred noise, the HPRM delivers exceptional linearity and precision. The RF output utilizes a 1 mm male connector. The unit includes a pluggable low-noise power supply, ensuring simple, reliable plug-and-play operation.

The detector is prone to damage if the applied optical power exceeds the maximum rating; therefore, units damaged by overpower cannot be returned. One example is the use of an optical amplifier, such as an EDFA, which can produce power surges even when the average power is low.

No TIA integrated, an external RF amplifier is recommended.

Features

- Up to 100 GHz Analog Bandwidth
- High Linearity

Applications

- Sensor
- RF over Fiber

Specifications

Parameter	Min	Typical	Max	Unit
Optimized Operating Wavelength	1250		1650	nm
Optical Input Level			+7	dBm
S21 3 dB Bandwidth	50	100		GHz
Gain	11	13		dB
Optical Return Loss		30		dB
Optical PDL @ 1550 nm			0.25	dB
Output Return Loss (up to 25 GHz)	-10			dB
Impedance		50		Ω
Noise Floor	5		10	dB
Noise Equivalent Power (NEP) @ 1GHz		17		pA/√Hz
Operating Temperature	-40		50	°C
Storage Temperature	-55		85	°C
Power Supply Requirements		12		V
Power Current		400		mA
Optical Connector		FC/APC		
RF Connector		2.92 mm, Female (K/SMA Compatible), GPPO		
Operating Temperature	-40		60	mW
P1dB -1Vpp	8		1	dBm



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+1 781-935-1200

sales@agiltron.com

www.agiltron.com

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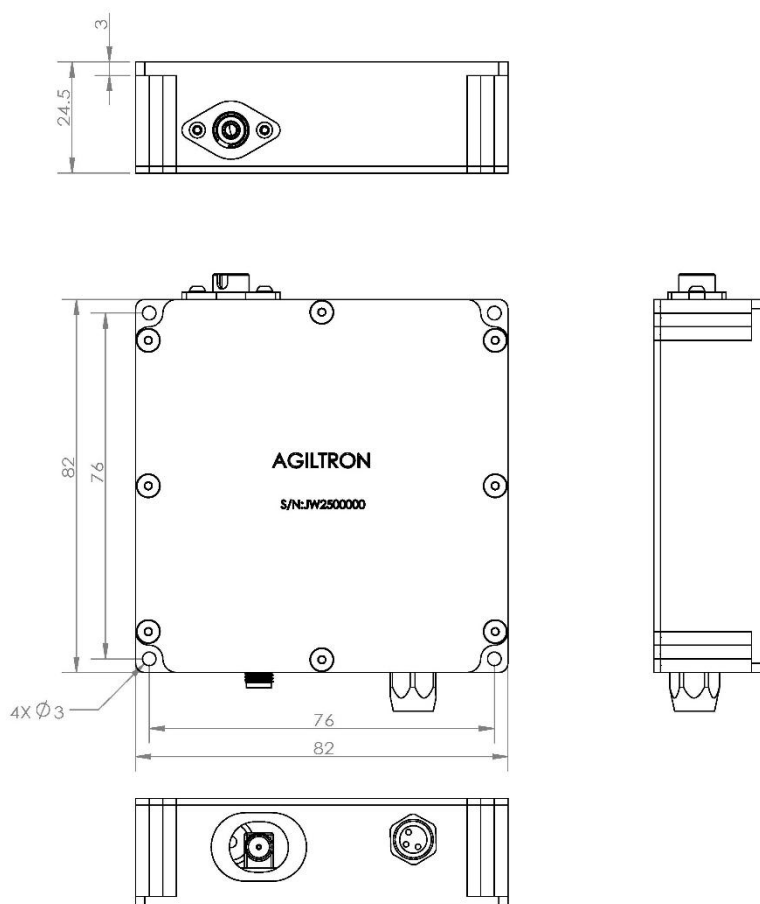
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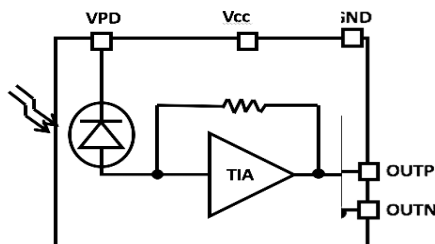
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Dimensions (mm)



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

Function Diagram



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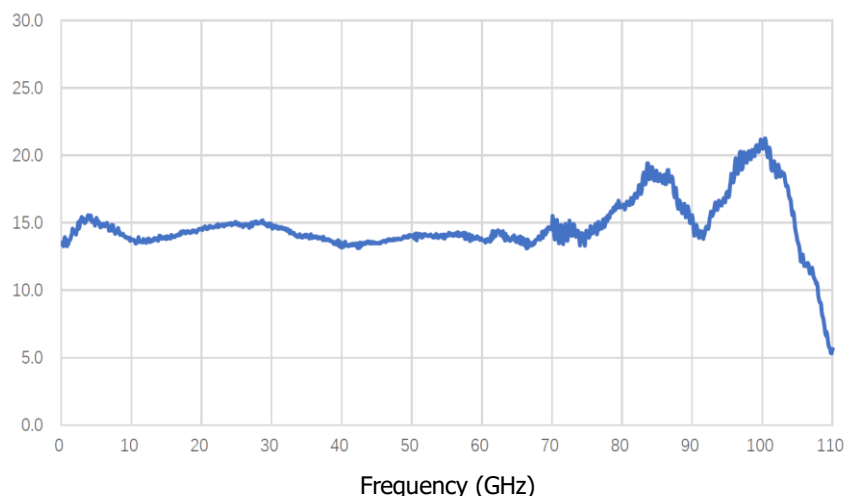
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S21 Graph



Ordering Information (Part Number)

	1	1	☐ ☐	2	2	☐	1	☐	☐
Prefix	Detector Type	Wavelength Range	Bandwidth	Coupling	Module	Configuration	Fiber	Connector ^{[1] [2]}	RF Connector
HPRM-	PIN = 1	1200-1600nm = 1	50GHz = 05 70GHz = 07 100GHz = 11	AC = 2	Non = 1 Yes = 2	Non Amplifier = 1 With Amplifier = 2	SM28 = 1	FC/APC = 3 Special = 0	GPPO = G K = 2

[1]. Default connector for SM is FC/APC, and For MM is FC/PC

[2]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber 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 may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

Note: This product requires prepayment and is non-returnable due to its high value and susceptibility to damage.

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Operation Instruction

- **Power Connection** - Connect the included low-noise power supply to the DC power input connector on the HPRM.
- **Optical Input Connection** - Connect the optical signal to the FC/APC input connector on the HPRM. ⚠ Note: Ensure the input connector is FC/APC. Using a non-angled connector (e.g., FC/PC) may result in up to 7 dB insertion loss and increased back reflection.
- **RF Output Connection** - Connect the RF output
- **DC Output Considerations** - For most applications, the default DC-coupled RF output is sufficient. If your downstream equipment requires AC coupling, or if you need to eliminate the DC component of the output signal, insert an external DC block in the RF signal path.

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.



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