



Datasheet

HSPR-X-I-2G-IN

**Ultra High-Speed Photoreceiver
with InGaAs-PIN Photodiode**



The picture shows the HSPR-X-I-2G-IN-FS with free space input. The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none"> • Bandwidth 10 kHz ... 2 GHz • InGaAs-PIN detector • Spectral range 900 ... 1700 nm • Amplifier transimpedance (gain) 5×10^3 V/A (inverting) • Conversion gain 4.75×10^3 V/W @ 1550 nm 		
Applications	<ul style="list-style-type: none"> • Spectroscopy • Ultra-fast pulse and transient measurements • Optical triggering • Optical front-end for oscilloscopes and ultra-fast A/D converters 		
Specifications	<p>Test conditions</p> <p>Gain</p> <p>Frequency Response</p> <p>Input/Detector</p> <p>Noise</p>	<p>$V_s = +15$ V, $T_A = 25$ °C, system impedance = 50 Ω</p> <p>Amplifier transimpedance 5×10^3 V/A (@ 50 Ω load, inverting)</p> <p>Conversion gain 4.75×10^3 V/W (typ. @ 1550 nm)</p> <p>Lower cut-off frequency (-3 dB) 10 kHz (± 25 %)</p> <p>Upper cut-off frequency (-3 dB) 2 GHz (± 15 %)</p> <p>Rise/fall time (10 % - 90 %) 180 ps (± 15 %)</p> <p>Detector material InGaAs-PIN photodiode</p> <p>Active area FS-version: \varnothing 100 μm FC-version: integrated ball lens, suitable for fibers up to 62.5 μm core diameter</p> <p>Spectral range 900 ... 1700 nm</p> <p>Max. optical peak input power 210 μW AC (for linear amplification, @ 1550 nm) 10 mW CW (to prevent saturation, @ 1550 nm)</p> <p>NEP 11 pW/\sqrtHz (@ 1550 nm, 100 MHz)</p>	

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Specifications (continued)

Output

Output impedance	50 Ω	(designed for 50 Ω load)
Output VSWR	1.4 : 1	(@ f < 2.5 GHz)
Output return loss	15.5 dB	(@ f < 2.5 GHz)
Max. output voltage	2.0 V _{pp}	(@ 50 Ω load, for linear amplification)
Output noise	typ. 2.5 mV _{RMS} or 17 mV _{pp} * (measurement BW: 4 GHz)	

* The peak-to-peak output noise is derived from the RMS noise as follows: V_{pp} = V_{RMS} × 6.6 (99.9% of the time the output noise voltage will be within the specified peak-to-peak value.)

Power Supply

Supply voltage +15 V, 150 mA typ. (depends on operating conditions, recommended power supply capability minimum 200 mA)

Case

Weight 100 g (0.23 lbs)
Material AlMg4.5Mn, nickel-plated

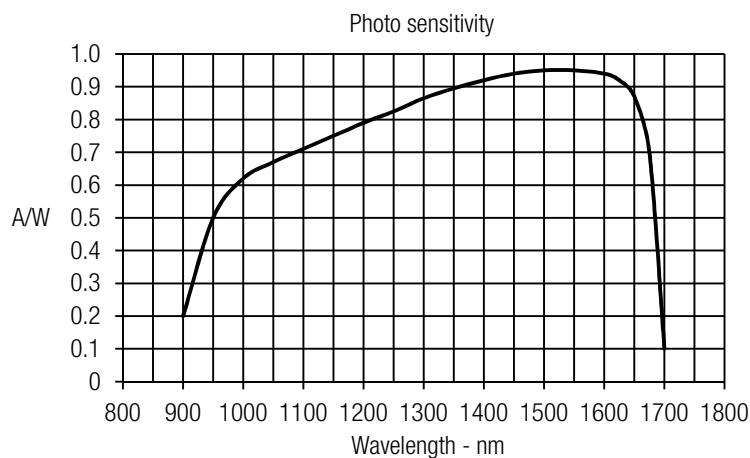
Temperature Range

Storage temperature -40 ... +100 °C
Operating temperature 0 ... +60 °C

Absolute Maximum Ratings

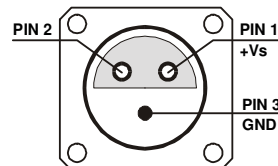
Power supply voltage ±18.5 V
Optical input power 12 mW (averaged)

Spectral Response



Connectors

Input	HSPR-X-I-2G-IN-FS	25 mm round flange for free space applications
	HSPR-X-I-2G-IN-FC	FC fiber optic receptacle
Output	SMA jack (female)	
Power supply	Lemo® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52)	
	Pin 1:	+15 V
	Pin 2:	NC
	Pin 3:	GND



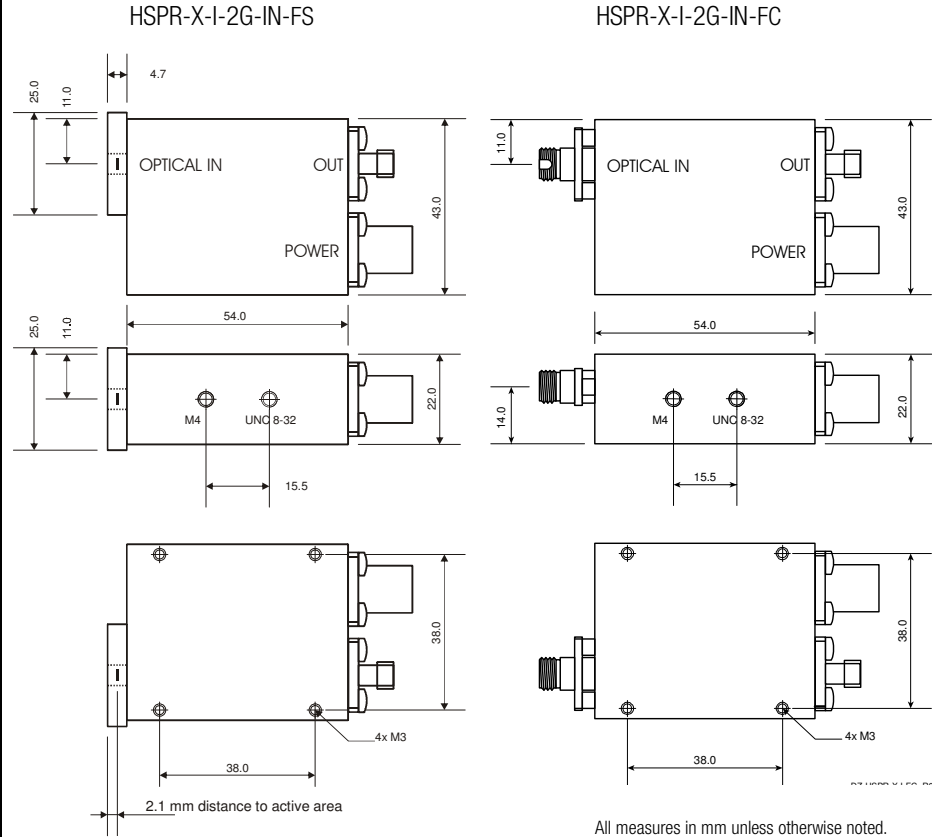
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Available Models

HSPR-X-I-2G-IN-FS
HSPR-X-I-2G-IN-FC
HSPR-X-S

free space input
fiber optic receptacle
customized versions available on request

Dimensions



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