Ultra High-Speed Photoreceiver with Si-PIN Photodiode



The picture shows the HSPR-X-I-1G4-SI-FS with free space input. The photoreceiver will be delivered without post holder and post.

Features	Bandwidth 10 kHz 1.4 GHz Si-PIN detector Spectral range 320 1000 nm Amplifier transimpedance (gain) 5 x 10³ V/A (inverting) Conversion gain 2.55 x 10³ V/W @ 760 nm Spectroscopy Ultra-fast pulse and transient measurements Optical triggering Optical front-end for oscilloscopes and ultra-fast A/D converters		
Applications			
Specifications	Test conditions	$V_{s} = +15 \text{ V}, T_{A} =$	25 °C, system impedance = 50 Ω
Gain	Amplifier transimpedance Conversion gain	5 x 10 ³ V/A 2.55 x 10 ³ V/W	(@ 50 Ω load, inverting) (typ. @ 760 nm)
Frequency Response	Lower cut-off frequency (–3 dB) Upper cut-off frequency (–3 dB) Rise/fall time (10 % - 90 %)	10 kHz 1.4 GHz 250 ps	(±25 %) (±15 %) (±15 %)
Input/Detector	Detector material Active area	Si-PIN photodiode FS-version: FC-version:	e Ø 400 μm integrated ball lens, suitable for fibers up to 400 μm core diameter
	Spectral range Max. optical peak input power	320 1000 nm 390 µW AC 10 mW CW	(for linear amplification, @ 760 nm) (to prevent saturation, @ 760 nm)
Noise	Min. NEP	19 pW/√Hz	(@ 760 nm, 100 MHz)

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

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Specifications (continued)			
Output	Output impedance Output VSWR Output return loss Max. output voltage Output noise	$\begin{array}{lll} 50~\Omega & \text{(designed for } 50~\Omega \text{ load)} \\ 1.4:1 & \text{(@ f < 2.5 \text{ GHz)}} \\ 15.5~\text{dB} & \text{(@ f < 2.5 \text{ GHz)}} \\ 2.0~\text{V}_{\text{PP}} & \text{(@ } 50~\Omega \text{ load, for linear amplification)} \\ \text{typ. } 2.5~\text{mV}_{\text{RMS}} \text{ or } 17~\text{mV}_{\text{PP}}^{\star} \text{ (measurement BW: 4 \text{ GHz)}} \end{array}$	
	* The peak-to-peak output noise is derived from the RMS noise as follows: $V_{PP} = V_{PMMS} \times 6.6$ (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 Material	100 g (0.23 lbs) AIMg4.5Mn, nickel-plated	
Temperature Range	Storage temperature Operating temperature	−40 +100 °C 0 +60 °C	
Absolute Maximum Ratings	Power supply voltage Optical input power		
Spectral Response	0.6 0.5 0.4 A/W 0.3 0.2 0.1 0 200 300 40	Photo sensitivity 00 500 600 700 800 900 1000 1100 Wavelength - nm	
Connectors	Input HSPR-X-I-1G4-SI-FS 25 mm round flange for free space applications HSPR-X-I-1G4-SI-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: +15V Pin 2: NC Pin 3: GND PIN 1 +Vs PIN 3 GND		

Datasheet

HSPR-X-I-1G4-SI

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HSPR-X-I-1G4-SI-FS Available Models free space input HSPR-X-I-1G4-SI-FC fiber optic receptacle HSPR-X-S customized versions available on request **Dimensions** HSPR-X-I-1G4-SI-FS HSPR-X-I-1G4-SI-FC OPTICAL IN OUT POWER POWER 25.0 11.0 54.0 **→** 0 Ф UNG 8-32 1.9 mm distance to active area All measures in mm unless otherwise noted

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