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Datasheet HSA-X-S-1G4-SI

Ultra High-Speed Photoreceiver with Si-PIN Photodiode

The picture shows the HSA-X-S-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 10^3 V/A**
- **Conversion gain 2.55 x 10^3 V/W @ 760 nm**

Applications

- **Spectroscopy**
- **Ultra-fast pulse and transient measurements**
- **Optical triggering**
- **Optical front-end for oscilloscopes and ultra-fast A/D converters**

Specifications

Test conditions		V_S = +15 V, T_A = 25 °C, system impedance = 50 Ω	
Gain	Amplifier transimpedance	5 x 10^3 V/A	(@ 50 Ω load)
	Conversion gain	2.55 x 10^3 V/W	(typ. @ 760 nm)
Frequency Response	Lower cut-off frequency (–3 dB)	10 kHz	
	Upper cut-off frequency (–3 dB)	1.4 GHz	(±15 %)
	Rise/fall time (10 % - 90 %)	250 ps	(±15 %)
Input/Detector	Detector material	Si-PIN photodiode	
	Active area	FS-version:	∅ 400 µm
		FC-version:	integrated ball lens, suitable for fibers up to 400 µm core diameter
	Spectral range	320 ... 1000 nm	
	Max. optical peak input power	370 µW AC	(for linear amplification, @ 760 nm)
		10 mW CW	(to prevent saturation, @ 760 nm)
Noise	Min. NEP	32 pW/√Hz	(@ 760 nm, 100 MHz)

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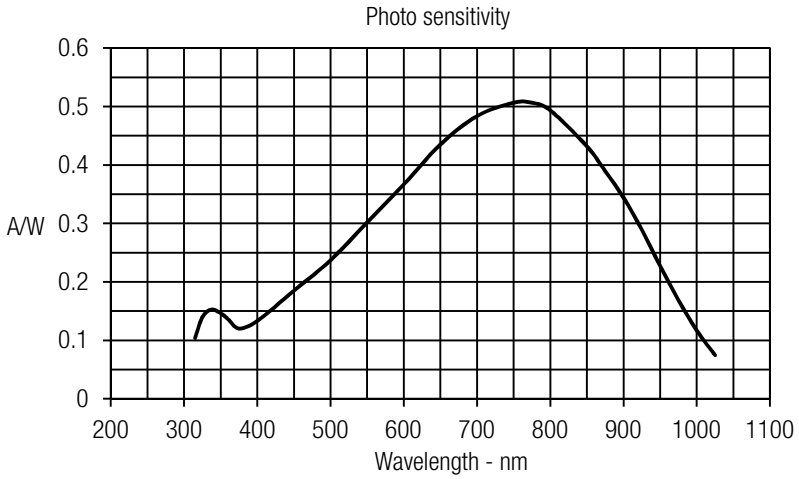
Specifications (continued)

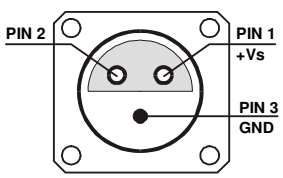
Output	Output impedance	50 Ω	(designed for 50 Ω load)
	Output VSWR	2.5 : 1	(@ f < 2.5 GHz)
	Output return loss	7.3 dB	(@ f < 2.5 GHz)
	Max. output voltage	1.9 V_{PP}	(@ 50 Ω load, for linear amplification)
	Output noise	typ. 3.6 mV_{RMS} or 24 mV_{PP}*	(measurement BW: 4 GHz)
	* The peak-to-peak output noise is derived from the RMS noise as follows: $V_{PP} = V_{RMS}$ x 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, 130 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	±20 V
	Optical input power	12 mW (averaged)

Spectral Response



Connectors	Input	HSA-X-S-1G4-SI-FS	25 mm round flange for free space applications
		HSA-X-S-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	

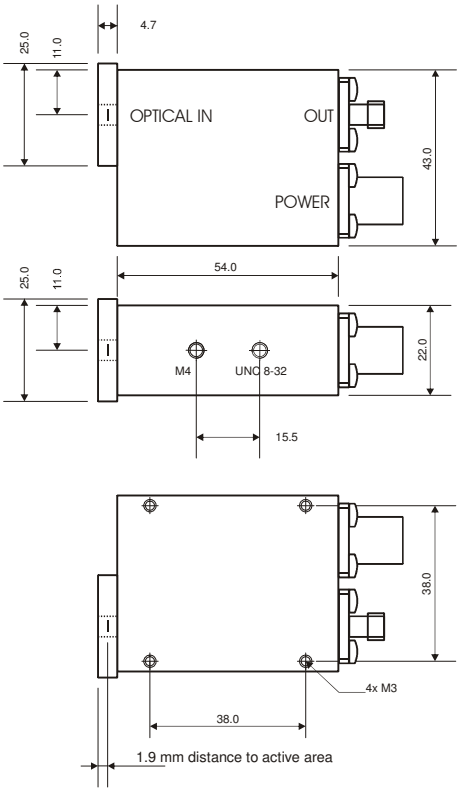


Ultra High-Speed Photoreceiver with Si-PIN Photodiode

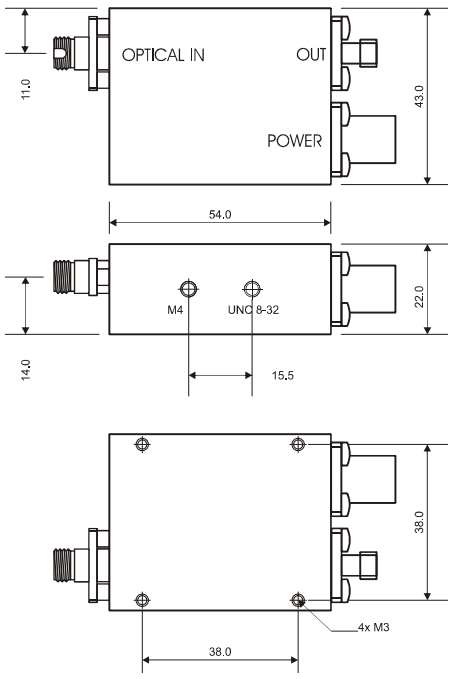
Available Models	HSA-X-S-1G4-SI-FS	free space input
	HSA-X-S-1G4-SI-FC	fiber optic receptacle
	HSA-X-S	customized versions available on request

Dimensions

HSA-X-S-1G4-SI-FS



HSA-X-S-1G4-SI-FC



All Measures in mm unless otherwise noted.

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