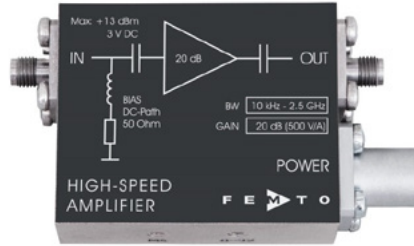


Datasheet

HSA-X-2-20

2.5 GHz High-Speed Amplifier



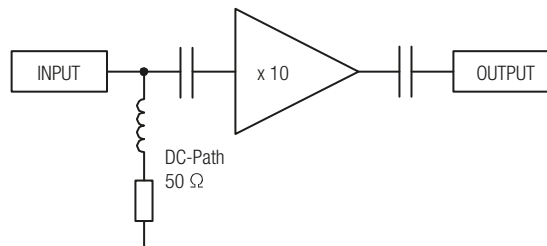
Features

- Bandwidth 10 kHz ... 2.5 GHz
- Rise time 140 ps
- Gain 20 dB
- Input VWSR 1.23 : 1
- Integrated bias circuit

Applications

- Preamplifier for ultra-fast detectors (microchannel-plates, photomultipliers, avalanche-photodiodes and PIN-photodiodes)
- Oscilloscope and transient-recorder preamplifier
- Time-resolved pulse and transient measurements

Block Diagram



Specifications

Test conditions		$V_s = +15\text{ V}$ , $T_A = 25^\circ\text{C}$ , system impedance = 50 $\Omega$	
Gain	Gain	20 dB (x 10)	
	Transimpedance Gain	500 V/A	(20 dB x 50 $\Omega$ )
	Gain accuracy	$\pm 1$ dB	
Frequency Response	Lower cut-off frequency (-3 dB)	10 kHz	( $\pm 20$ %)
	Upper cut-off frequency (-3 dB)	2.5 GHz	( $\pm 15$ %)
	Rise/fall time (10 % - 90 %)	140 ps	
Input	DC input impedance	50 $\Omega$	
	RF input impedance	50 $\Omega$	
	50 $\Omega$ noise figure	4.5 dB	(@ f < 1 GHz)
	Equivalent input voltage noise	610 pV/ $\sqrt{\text{Hz}}$	(@ f < 1 GHz)
	Input VSWR	1.23 : 1	(@ f < 2.5 GHz)
	Input return loss	20 dB	(@ f < 2.5 GHz)

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY



DE-HSA-X-2-20\_R2/LK\_JM/220CT2015

**Datasheet**

**HSA-X-2-20**

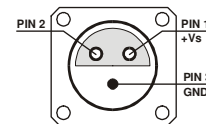
**2.5 GHz High-Speed Amplifier**

Specifications (continued)

Output	Output impedance	50 Ω
	Output VSWR	1.4 : 1 (@ f < 2.5 GHz)
	Output return loss	15.5 dB (@ f < 2.5 GHz)
	Output power P <sub>1dB</sub>	+13.5 dBm (@ f < 1 GHz)
	Output peak-to-peak voltage	2.0 V <sub>pp</sub> (@ f < 500 MHz, for linear amplification)
	Output noise	typ. 0.42 mV <sub>RMS</sub> or 2.8 mV <sub>pp</sub> * (measurement BW: 4 GHz)
* The peak-to-peak output noise is derived from the RMS noise as follows: V <sub>pp</sub> = V <sub>RMS</sub> × 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
	Supply current	+105 mA
Case	Weight	100 g (0.23 lbs)
	Material	AlMg4.5Mn, nickel-plated
Temperature Range	Storage temperature	-40 ... +100 °C
	Operating ambient temperature	0 ... +60 °C

Absolute Maximum Ratings	Power supply voltage	+18.5 V
	DC and LF input voltage	±3 V
	RF input power	+13 dBm

Connectors	Input	SMA, jack (female)
	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



SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

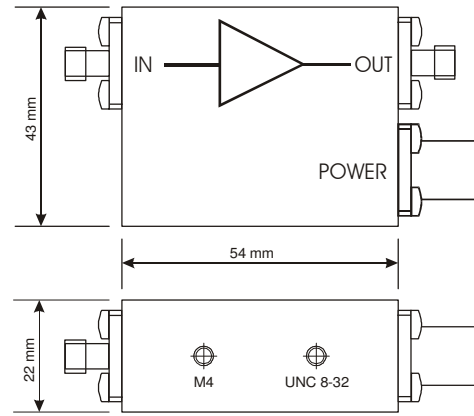
**F E M T O**

**Datasheet**

**HSA-X-2-20**

**2.5 GHz High-Speed Amplifier**

Dimensions



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**SOPHISTICATED TOOLS FOR SIGNAL RECOVERY**

