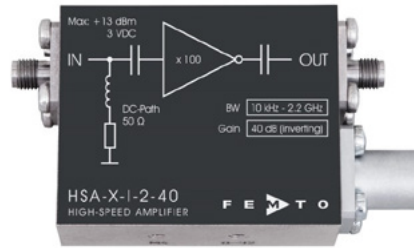


Datasheet

HSA-X-I-2-40

2.2 GHz High-Speed Amplifier



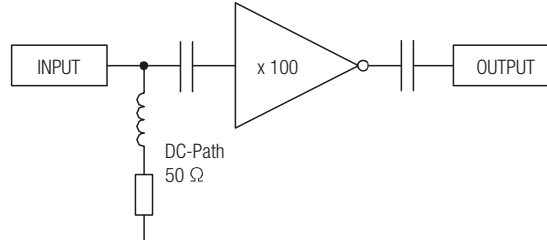
Features

- Bandwidth 10 kHz ... 2.2 GHz
- Rise time 160 ps
- Gain 40 dB (inverting)
- Input VSWR 1.25 : 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	40 dB (x 100) (inverting)	
	Transimpedance gain	5,000 V/A	(40 dB x 50 $\Omega$ )
	Gain accuracy	$\pm 1\text{ dB}$	
Frequency Response	Lower cut-off frequency (-3 dB)	10 kHz	( $\pm 20\%$ )
	Upper cut-off frequency (-3 dB)	2.2 GHz	( $\pm 15\%$ )
	Rise/fall time (10% - 90%)	160 ps	
Input	DC input impedance	50 $\Omega$	
	RF input impedance	50 $\Omega$	
	50 $\Omega$ noise figure	2.8 dB	(@ $f < 1\text{ GHz}$ )
	Equivalent input voltage noise	430 pV/ $\sqrt{\text{Hz}}$	
	Input VSWR	1.25 : 1	(@ $f < 2.2\text{ GHz}$ )
	Input return loss	19 dB	(@ $f < 2.2\text{ GHz}$ )

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY

FEMTO

DE-HSA-X-I-2-40\_R1 /LK, JM/22OCT2015

**Datasheet**

**HSA-X-I-2-40**

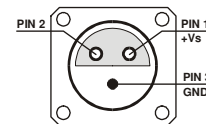
**2.2 GHz High-Speed Amplifier**

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>	+12.5 dBm (@ f < 1 GHz)
	Output peak-to-peak voltage	2.0 V <sub>pp</sub> (@ f < 500 MHz, for linear amplification)
	Output noise	typ. 3.0 mV <sub>RMS</sub> or 20 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	+145 mA
Case	Weight	100 g (0.23 lb)
	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

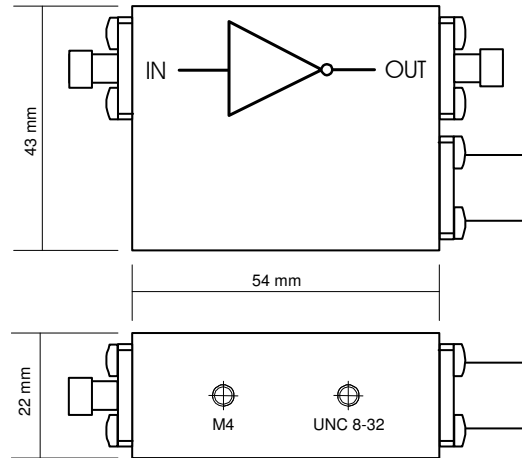


**Datasheet**

**HSA-X-I-2-40**

**2.2 GHz High-Speed Amplifier**

Dimensions



DZ-HSA-X-I

Specifications are subject to change without notice. Information provided herein is believed to be accurate and reliable. However, no responsibility is assumed by FEMTO Messtechnik GmbH for its use, nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of FEMTO Messtechnik GmbH. Product names mentioned may also be trademarks used here for identification purposes only.

© by FEMTO Messtechnik GmbH - Printed in Germany

**SOPHISTICATED TOOLS FOR SIGNAL RECOVERY**

**FEMTO**