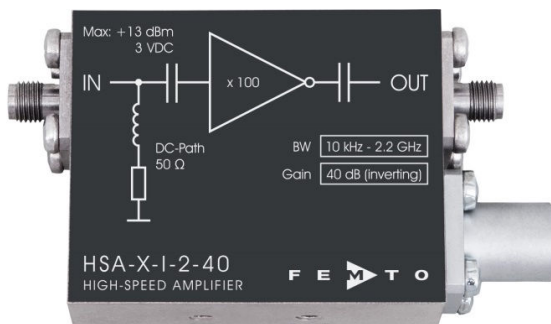


2.2 GHz High-Speed Amplifier



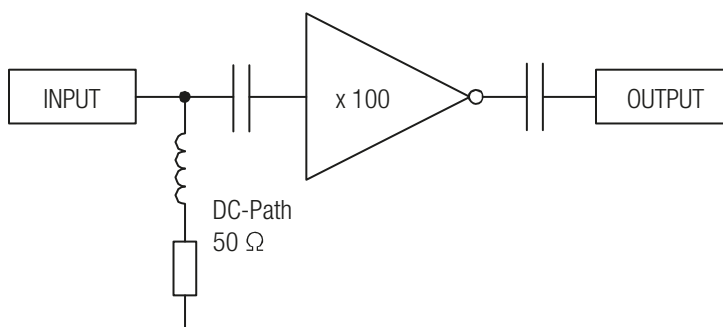
Features

- **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 = 50Ω

Gain

Gain 40 dB (x 100) (inverting)
 Transimpedance gain 5,000 V/A (40 dB x 50Ω)
 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 50Ω
 RF input impedance 50Ω
 50Ω noise figure 2.8 dB (@ $f < 1 \text{ GHz}$)
 Equivalent input voltage noise $430 \text{ pV}/\sqrt{\text{Hz}}$
 Input VSWR 1.25 : 1 (@ $f < 2.2 \text{ GHz}$)
 Input return loss 19 dB (@ $f < 2.2 \text{ GHz}$)

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 _{1dB}	+12.5 dBm (@ f < 1 GHz)
Output peak-to-peak voltage	2.0 V _{pp} (@ f < 500 MHz, for linear amplification)
Output noise	typ. 3.0 mV _{RMS} or 20 mV _{pp} * (measurement BW: 4 GHz)

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

Power Supply

Supply voltage	+15 V
Supply current	+145 mA

Case

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

Temperature Range

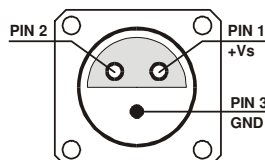
Storage temperature	-40 ... +100 °C
Operating ambient temperature	0 ... +60 °C

Absolute Maximum Ratings

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

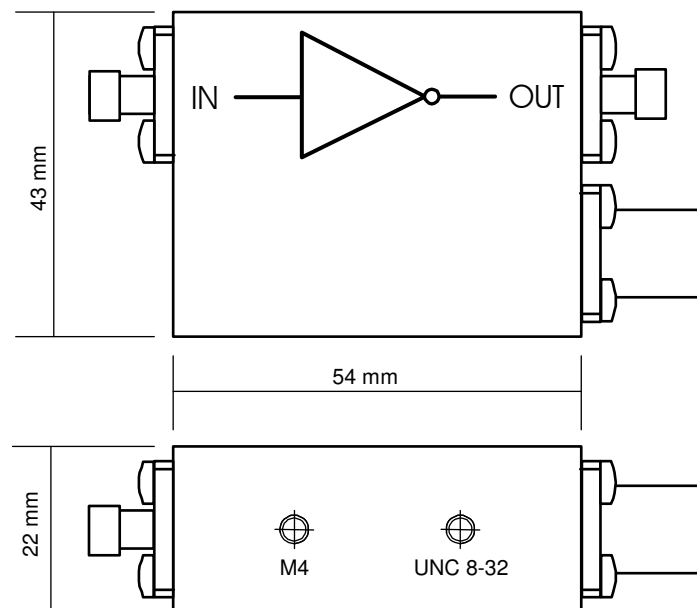
Connectors

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



2.2 GHz High-Speed Amplifier

Dimensions



DZ-HSA-X-I

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