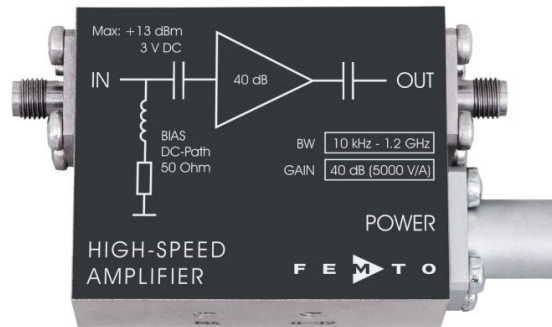




Datasheet

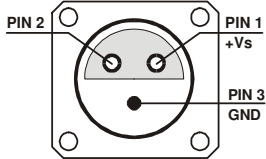
HSA-X-1-40

1.2 GHz High-Speed Amplifier



Features	<ul style="list-style-type: none"> • Bandwidth 10 kHz ... 1.2 GHz • Rise time 290 ps • Gain 40 dB • Noise figure 1.7 dB • Integrated bias circuit 																																							
Applications	<ul style="list-style-type: none"> • 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	<table border="0"> <tr> <td>Test conditions</td> <td colspan="2">$V_s = +15\text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = $50\ \Omega$</td> </tr> <tr> <td>Gain</td> <td>Gain</td> <td>40 dB (x 100)</td> </tr> <tr> <td></td> <td>Transimpedance gain</td> <td>5,000 V/A (40 dB x $50\ \Omega$)</td> </tr> <tr> <td></td> <td>Gain accuracy</td> <td>$\pm 1\text{ dB}$</td> </tr> <tr> <td>Frequency Response</td> <td>Lower cut-off frequency (-3 dB)</td> <td>10 kHz ($\pm 20\%$)</td> </tr> <tr> <td></td> <td>Upper cut-off frequency (-3 dB)</td> <td>1.2 GHz ($\pm 15\%$)</td> </tr> <tr> <td></td> <td>Rise/fall time (10% - 90%)</td> <td>290 ps</td> </tr> <tr> <td>Input</td> <td>DC input impedance</td> <td>$50\ \Omega$</td> </tr> <tr> <td></td> <td>RF input impedance</td> <td>$50\ \Omega$</td> </tr> <tr> <td></td> <td>$50\ \Omega$ noise figure</td> <td>1.7 dB (@ $f < 700\text{ MHz}$)</td> </tr> <tr> <td></td> <td>Equivalent input voltage noise</td> <td>310 pV/$\sqrt{\text{Hz}}$ (@ $f < 700\text{ MHz}$)</td> </tr> <tr> <td></td> <td>Input VSWR</td> <td>1.6 : 1 (@ $f < 2\text{ GHz}$)</td> </tr> <tr> <td></td> <td>Input return loss</td> <td>13 dB (@ $f < 2\text{ GHz}$)</td> </tr> </table>	Test conditions	$V_s = +15\text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = $50\ \Omega$		Gain	Gain	40 dB (x 100)		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)	1.2 GHz ($\pm 15\%$)		Rise/fall time (10% - 90%)	290 ps	Input	DC input impedance	$50\ \Omega$		RF input impedance	$50\ \Omega$		$50\ \Omega$ noise figure	1.7 dB (@ $f < 700\text{ MHz}$)		Equivalent input voltage noise	310 pV/ $\sqrt{\text{Hz}}$ (@ $f < 700\text{ MHz}$)		Input VSWR	1.6 : 1 (@ $f < 2\text{ GHz}$)		Input return loss	13 dB (@ $f < 2\text{ GHz}$)
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1.2 GHz High-Speed Amplifier

<p>Output</p>	<p>Output impedance 50 Ω</p> <p>Output VSWR 1.35 : 1 (@ f < 1.2 GHz)</p> <p>Output return loss 16.5 dB (@ f < 1.2 GHz)</p> <p>Output power P_{1dB} +12.5 dBm (@ f < 500 MHz)</p> <p>Output peak-to-peak voltage 2.0 V_{pp} (@ f < 500 MHz, for linear amplification)</p> <p>Output noise typ. 2.1 mV_{RMS} or 14 mV_{pp}* (measurement BW: 4 GHz)</p> <p>* 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.)</p>
<p>Power Supply</p>	<p>Supply voltage +15 V</p> <p>Supply current +140 mA</p>
<p>Case</p>	<p>Weight 100 g (0.23 lbs)</p> <p>Material AlMg4.5Mn, nickel-plated</p>
<p>Temperature Range</p>	<p>Storage temperature -40 ... +100 °C</p> <p>Operating ambient temperature 0 ... +60 °C</p>
<p>Absolute Maximum Ratings</p>	<p>Power supply voltage +18.5 V</p> <p>DC and LF input voltage ±3 V</p> <p>RF input power +13 dBm</p>
<p>Connectors</p>	<p>Input SMA, jack (female)</p> <p>Output SMA, jack (female)</p> <p>Power supply Lemo® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52)</p> <p>Pin 1: +15 V</p> <p>Pin 2: NC</p> <p>Pin 3: GND</p> 

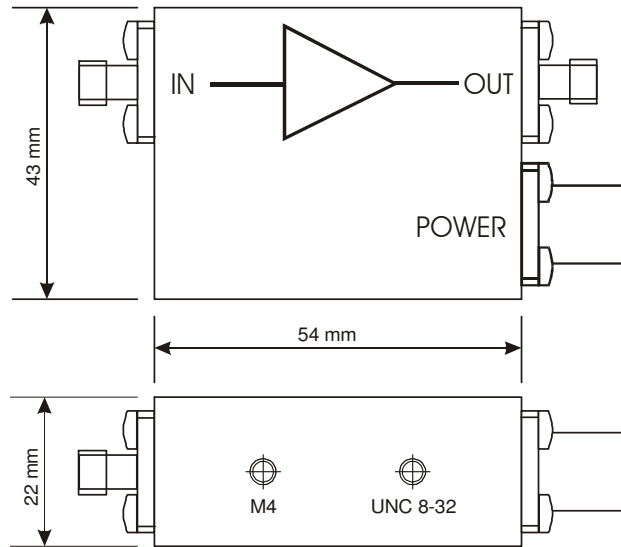


Datasheet

HSA-X-1-40

1.2 GHz High-Speed Amplifier

Dimensions



DZ01-0601-10

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