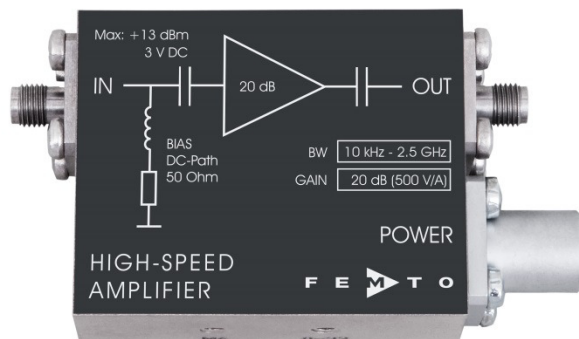
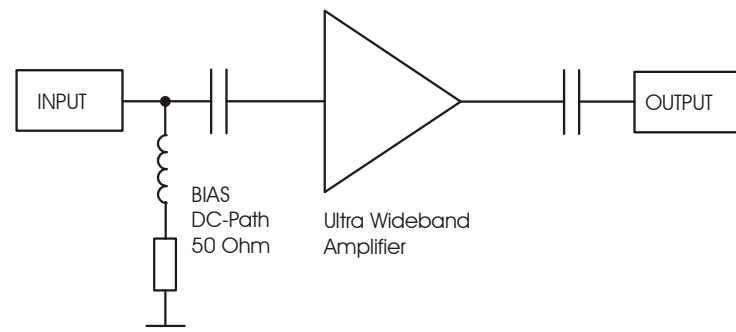


Datasheet

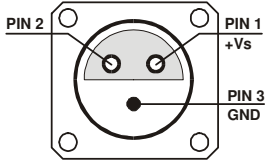
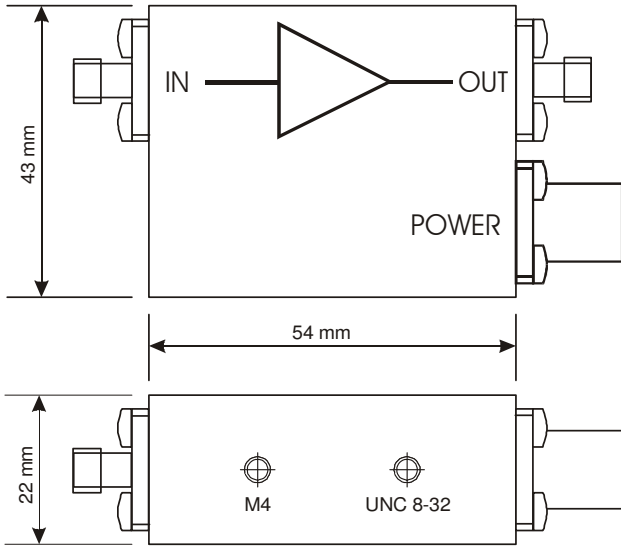
HSA-X-2-20

2.5 GHz High-Speed Amplifier



Features	<ul style="list-style-type: none"> • Bandwidth 10 kHz ... 2.5 GHz • Rise time 140 ps • Gain 20 dB • Input VWSR 1.25 : 1 • 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 Ω</td> </tr> <tr> <td>Gain</td> <td>Gain</td> <td>20 dB</td> </tr> <tr> <td></td> <td>Gain accuracy</td> <td>± 1 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>2.5 GHz ($\pm 15\%$)</td> </tr> <tr> <td></td> <td>Rise/fall time (10% - 90%)</td> <td>140 ps</td> </tr> <tr> <td>Input</td> <td>DC input impedance</td> <td>50 Ω</td> </tr> <tr> <td></td> <td>RF input impedance</td> <td>50 Ω</td> </tr> <tr> <td></td> <td>50 Ω noise figure</td> <td>4.9 dB (@ $f < 1$ GHz)</td> </tr> <tr> <td></td> <td>Equivalent input voltage noise</td> <td>650 pV/$\sqrt{\text{Hz}}$ (@ $f < 1$ GHz)</td> </tr> <tr> <td></td> <td>Input VSWR</td> <td>1.25 : 1 (@ $f < 2.5$ GHz)</td> </tr> <tr> <td></td> <td>Input return loss</td> <td>20 dB (@ $f < 2.5$ GHz)</td> </tr> <tr> <td>Output</td> <td>Output impedance</td> <td>50 Ω</td> </tr> <tr> <td></td> <td>Output power $P_{1\text{dB}}$</td> <td>+13.5 dBm (@ $f < 1$ GHz)</td> </tr> <tr> <td></td> <td>Output peak-to-peak voltage</td> <td>2.0 V_{pp} (@ $f < 500$ MHz, for linear amplification)</td> </tr> </table>	Test conditions	$V_s = +15\text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = 50 Ω		Gain	Gain	20 dB		Gain accuracy	± 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 Ω		RF input impedance	50 Ω		50 Ω noise figure	4.9 dB (@ $f < 1$ GHz)		Equivalent input voltage noise	650 pV/ $\sqrt{\text{Hz}}$ (@ $f < 1$ GHz)		Input VSWR	1.25 : 1 (@ $f < 2.5$ GHz)		Input return loss	20 dB (@ $f < 2.5$ GHz)	Output	Output impedance	50 Ω		Output power $P_{1\text{dB}}$	+13.5 dBm (@ $f < 1$ GHz)		Output peak-to-peak voltage	2.0 V _{pp} (@ $f < 500$ MHz, for linear amplification)
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2.5 GHz High-Speed Amplifier

Specifications (continued)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Power Supply</td> <td>Supply voltage</td> <td style="text-align: right;">+15 V</td> </tr> <tr> <td></td> <td>Supply current</td> <td style="text-align: right;">+140 mA</td> </tr> <tr> <td>Case</td> <td>Weight</td> <td style="text-align: right;">100 g (0.23 lbs)</td> </tr> <tr> <td></td> <td>Material</td> <td style="text-align: right;">AlMg4.5Mn, nickel-plated</td> </tr> <tr> <td>Temperature Range</td> <td>Storage temperature</td> <td style="text-align: right;">-40 ... +100 °C</td> </tr> <tr> <td></td> <td>Operating ambient temperature</td> <td style="text-align: right;">0 ... +60 °C</td> </tr> </table>	Power Supply	Supply voltage	+15 V		Supply current	+140 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
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Dimensions	 <p style="text-align: right; font-size: small;">DZ01-0601-10</p>																		

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