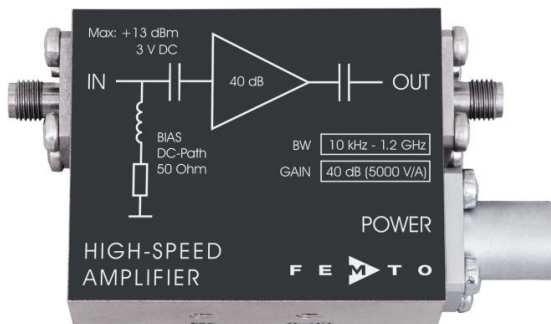
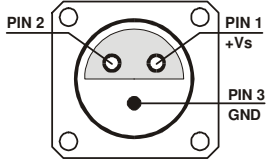


1.2 GHz High-Speed Amplifier



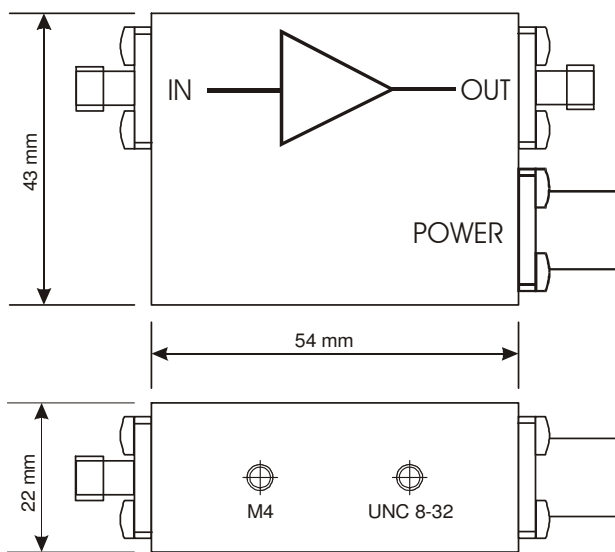
<p>Features</p>	<ul style="list-style-type: none"> • Bandwidth 10 kHz ... 1.2 GHz • Rise time 290 ps • Gain 40 dB • Noise figure 1.7 dB • Integrated bias circuit 																																							
<p>Applications</p>	<ul style="list-style-type: none"> • Preamplifier for ultra-fast detectors (microchannel-plates, photomultipliers, avalanche-photodiodes and PIN-photodiodes) • Oscilloscope and transient-recorder preamplifier • Time-resolved pulse and transient measurements 																																							
<p>Block Diagram</p>																																								
<p>Specifications</p>	<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 (@ $f < 2\text{ GHz}$)
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 (@ $f < 2\text{ GHz}$)																																						

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> 

1.2 GHz High-Speed Amplifier

Dimensions



DZ01-0601-10

FEMTO Messtechnik GmbH
 Klosterstr. 64
 10179 Berlin · Germany
 Phone: +49 30 280 4711-0
 Fax: +49 30 280 4711-11
 Email: info@femto.de
 www.femto.de

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