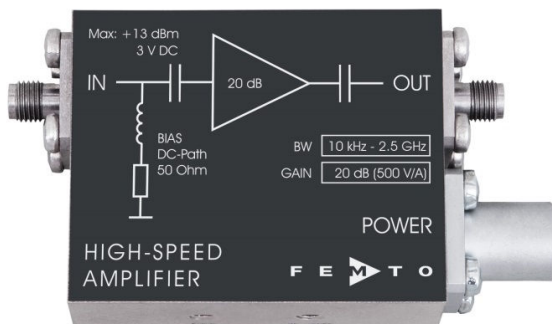


2.5 GHz High-Speed Amplifier



<p>Features</p>	<ul style="list-style-type: none"> • Bandwidth 10 kHz ... 2.5 GHz • Rise time 140 ps • Gain 20 dB • Input VWSR 1.23 : 1 • 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="3">$V_s = + 15 \text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = 50Ω</td> </tr> <tr> <td rowspan="3">Gain</td> <td>Gain</td> <td colspan="2">20 dB (x 10)</td> </tr> <tr> <td>Transimpedance Gain</td> <td>500 V/A</td> <td>(20 dB x 50Ω)</td> </tr> <tr> <td>Gain accuracy</td> <td colspan="2">$\pm 1 \text{ dB}$</td> </tr> <tr> <td rowspan="3">Frequency Response</td> <td>Lower cut-off frequency (-3 dB)</td> <td>10 kHz</td> <td>($\pm 20 \%$)</td> </tr> <tr> <td>Upper cut-off frequency (-3 dB)</td> <td>2.5 GHz</td> <td>($\pm 15 \%$)</td> </tr> <tr> <td>Rise/fall time (10 % - 90 %)</td> <td colspan="2">140 ps</td> </tr> <tr> <td rowspan="6">Input</td> <td>DC input impedance</td> <td colspan="2">50Ω</td> </tr> <tr> <td>RF input impedance</td> <td colspan="2">50Ω</td> </tr> <tr> <td>50Ω noise figure</td> <td>4.5 dB</td> <td>(@ $f < 1 \text{ GHz}$)</td> </tr> <tr> <td>Equivalent input voltage noise</td> <td>$610 \text{ pV}/\sqrt{\text{Hz}}$</td> <td>(@ $f < 1 \text{ GHz}$)</td> </tr> <tr> <td>Input VSWR</td> <td>1.23 : 1</td> <td>(@ $f < 2.5 \text{ GHz}$)</td> </tr> <tr> <td>Input return loss</td> <td>20 dB</td> <td>(@ $f < 2.5 \text{ GHz}$)</td> </tr> </table>	Test conditions	$V_s = + 15 \text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = 50Ω			Gain	Gain	20 dB (x 10)		Transimpedance Gain	500 V/A	(20 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)	2.5 GHz	($\pm 15 \%$)	Rise/fall time (10 % - 90 %)	140 ps		Input	DC input impedance	50Ω		RF input impedance	50Ω		50Ω noise figure	4.5 dB	(@ $f < 1 \text{ GHz}$)	Equivalent input voltage noise	$610 \text{ pV}/\sqrt{\text{Hz}}$	(@ $f < 1 \text{ GHz}$)	Input VSWR	1.23 : 1	(@ $f < 2.5 \text{ GHz}$)	Input return loss	20 dB	(@ $f < 2.5 \text{ GHz}$)
Test conditions	$V_s = + 15 \text{ V}$, $T_A = 25^\circ\text{C}$, system impedance = 50Ω																																											
Gain	Gain	20 dB (x 10)																																										
	Transimpedance Gain	500 V/A	(20 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)	2.5 GHz	($\pm 15 \%$)																																									
	Rise/fall time (10 % - 90 %)	140 ps																																										
Input	DC input impedance	50Ω																																										
	RF input impedance	50Ω																																										
	50Ω noise figure	4.5 dB	(@ $f < 1 \text{ GHz}$)																																									
	Equivalent input voltage noise	$610 \text{ pV}/\sqrt{\text{Hz}}$	(@ $f < 1 \text{ GHz}$)																																									
	Input VSWR	1.23 : 1	(@ $f < 2.5 \text{ GHz}$)																																									
	Input return loss	20 dB	(@ $f < 2.5 \text{ GHz}$)																																									

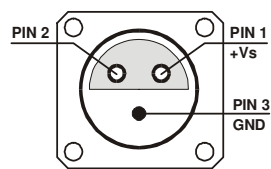
2.5 GHz High-Speed Amplifier

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} +13.5 dBm (@ f < 1 GHz) Output peak-to-peak voltage 2.0 V _{pp} (@ f < 500 MHz, for linear amplification) Output noise typ. 0.42 mV _{RMS} or 2.8 mV _{pp} * (measurement BW: 4 GHz)
	* 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.)
Power Supply	Supply voltage +15 V Supply current +105 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

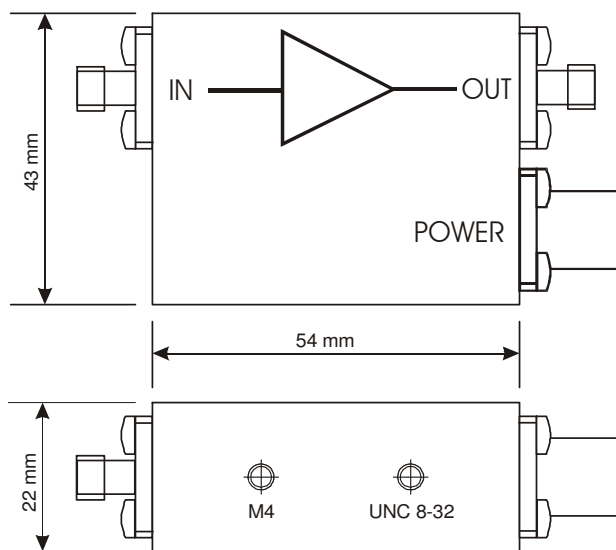
Absolute Maximum Ratings	Power supply voltage +18.5 V DC and LF input voltage ±3 V RF input power +13 dBm
--------------------------	--

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
------------	--



2.5 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