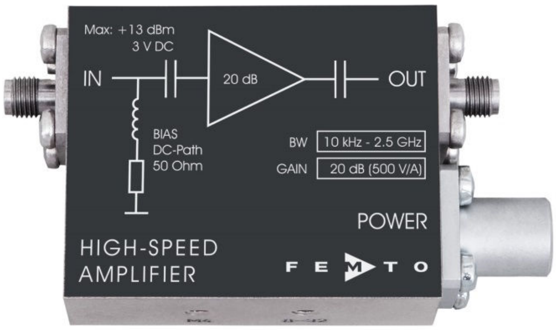
2.5 GHz High-Speed Amplifier



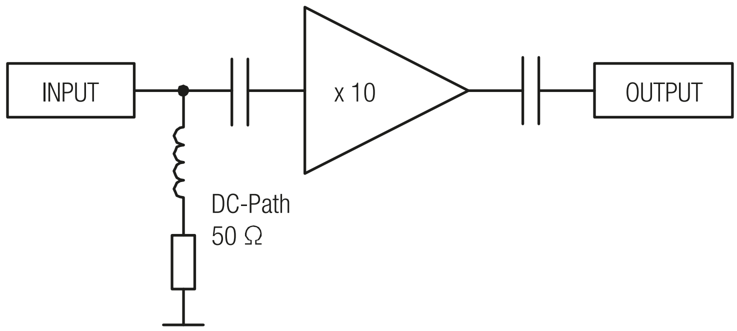
Features

- **Bandwidth 10 kHz … 2.5 GHz**
- **Rise time 140 ps**
- **Gain 20 dB**
- **Input VWSR 1.23 : 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 V, T_A = 25°C, system impedance = 50 Ω

Gain

Gain	20 dB (x 10)	
Transimpedance Gain	500 V/A	(20 dB x 50 Ω)
Gain accuracy	±1 dB	

Frequency Response

Lower cut-off frequency (–3 dB)	10 kHz	(±20 %)
Upper cut-off frequency (–3 dB)	2.5 GHz	(±15 %)
Rise/fall time (10 % - 90 %)	140 ps	

Input

DC input impedance	50 Ω	
RF input impedance	50 Ω	
50 Ω noise figure	4.5 dB	(@ f < 1 GHz)
Equivalent input voltage noise	610 pV/√Hz	(@ f < 1 GHz)
Input VSWR	1.23 : 1	(@ f < 2.5 GHz)
Input return loss	20 dB	(@ f < 2.5 GHz)

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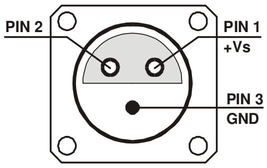
Specifications (continued)			
Output	Output impedance	50 Ω	
	Output VSWR	1.4 : 1	(@ f < 2.5 GHz)
	Output return loss	15.5 dB	(@ f < 2.5 GHz)
	Output power P_{1dB}	+13.5 dBm	(@ f < 1 GHz)
	Output peak-to-peak voltage	2.0 V_{PP}	(@ f < 500 MHz, for linear amplification)
	Output noise	typ. 0.42 mV_{RMS} 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



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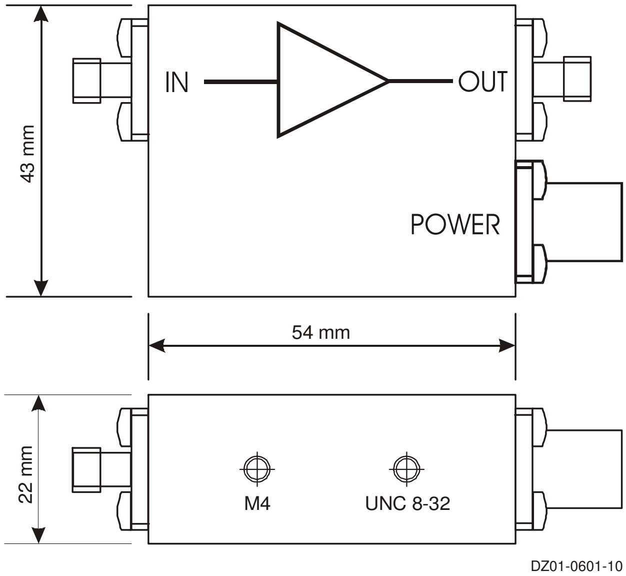
Dimensions



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