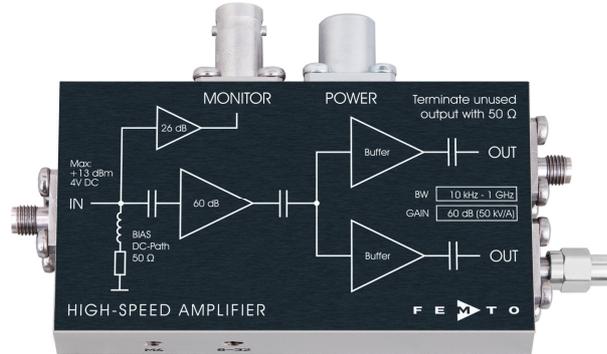


# 1 GHz High-Speed Amplifier

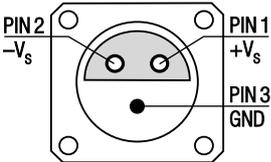


<p>Features</p>	<ul style="list-style-type: none"> <li>• <b>Bandwidth 10 kHz – 1.1 GHz</b></li> <li>• <b>Exceptional low 10 kHz lower cut-off frequency for optimal pulse processing without shape distortion</b></li> <li>• <b>Rise time 320 ps</b></li> <li>• <b>Gain 60 dB</b></li> <li>• <b>Noise figure 1.9 dB</b></li> <li>• <b>Integrated bias circuit</b></li> <li>• <b>Monitor output</b></li> <li>• <b>Two identical signal outputs</b></li> </ul>
<p>Applications</p>	<ul style="list-style-type: none"> <li>• <b>Pre-amplifier for ultra-fast detectors (microchannel-plates, photomultipliers, avalanche-photodiodes, PIN-photodiodes etc.)</b></li> <li>• <b>Oscilloscope and transient-recorder pre-amplifier</b></li> <li>• <b>Time-resolved pulse and transient measurements</b></li> </ul>
<p>Block Diagram</p>	<p style="text-align: right;">BS-HSA-Y_23_R01</p>
<p>Intended Use</p>	<p>The HSA-Y-1-60 amplifier is a fixed gain wideband GHz amplifier. It is designed for ultra fast amplification of small voltage and current signals in the frequency range from 10 kHz to 1.1 GHz. Operation is mostly self-explanatory. If in doubt, consult this document or contact support@femto.de.</p> <p>For safe operation, please refer to the damage thresholds specified in the "Absolute Maximum Ratings", "Temperature Range" and "Power Supply" sections of this document.</p>
<p>Application Notes</p>	<p><b>CAUTION!</b> Do not exceed the maximum allowable input power of +13 dBm (20 mW). If in doubt, use attenuators on the amplifier input.</p> <p>The HSA-Y-1-60 offers two identical RF outputs. For operation it is mandatory that both RF outputs are terminated with 50 Ω loads. If only one output is used, the unused SMA output socket must be terminated with a 50 Ω terminator which is included in delivery.</p>

## 1 GHz High-Speed Amplifier

Available Accessories	PS-15-25-L  Power supply Input: AC 100 – 240 V Output: DC ±15 V																				
Related Models	<table border="0"> <tr> <td>HSA-Y-1-40</td> <td>Gain 40 dB, 10 kHz – 1 GHz, noise figure 1.9 dB</td> </tr> <tr> <td>HSA-Y-2-20</td> <td>Gain 20 dB, 10 kHz – 2 GHz, noise figure 5.2 dB</td> </tr> <tr> <td>HSA-Y-2-40</td> <td>Gain 40 dB, 10 kHz – 1.9 GHz, noise figure 4.9 dB</td> </tr> </table>	HSA-Y-1-40	Gain 40 dB, 10 kHz – 1 GHz, noise figure 1.9 dB	HSA-Y-2-20	Gain 20 dB, 10 kHz – 2 GHz, noise figure 5.2 dB	HSA-Y-2-40	Gain 40 dB, 10 kHz – 1.9 GHz, noise figure 4.9 dB														
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(depends on operating conditions, recommended power supply capability min. <math>\pm 250\text{ mA}</math>)                 </td> </tr> <tr> <td>Case</td> <td>                     Weight 190 g (0.42 lbs) including <math>50\ \Omega</math> SMA terminator                      Material AlMg4.5Mn, nickel-plated                 </td> </tr> <tr> <td>Temperature Range</td> <td>                     Storage temperature <math>-40\text{ }^\circ\text{C} \dots +85\text{ }^\circ\text{C}</math>                      Operating temperature <math>0\text{ }^\circ\text{C} \dots +60\text{ }^\circ\text{C}</math> </td> </tr> </table>	Test conditions	$V_S = \pm 15\text{ V}$ , $T_A = 25\text{ }^\circ\text{C}$ , system impedance $50\ \Omega$ , warm-up 20 minutes (min. 10 minutes recommended)	Gain	Gain 60 dB dB ( $\times 1000$ ) Transimpedance gain 50,000 V/A ( $50\ \Omega$ input impedance $\times 1000$ gain) Gain accuracy $\pm 1\text{ dB}$ Gain drift vs. temperature 0.022 dB/ $^\circ\text{C}$ typ.	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# 1 GHz High-Speed Amplifier

Connectors	<p>Input SMA jack (female)</p> <p>RF Output 2 × SMA jack (female)</p> <p>Monitor output BNC jack (female)</p> <p>Power supply LEMO® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52)</p> <div style="text-align: center;">  <p style="margin-left: 100px;">PIN 1: +15 V PIN 2: -15 V PIN 3: GND</p> </div>
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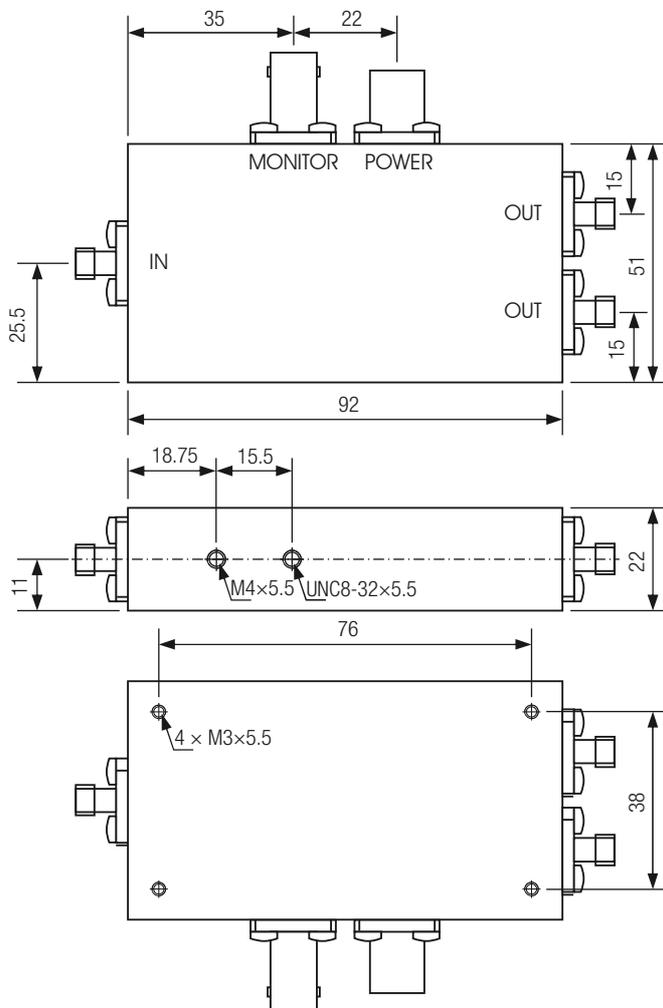
Scope of Delivery	HSA-Y-1-60, 50 Ω SMA terminator, LEMO® 3-pin connector, datasheet, transport package
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Ordering Information	<p>HSA-Y-1-60 High-speed GHz amplifier</p>
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# 1 GHz High-Speed Amplifier

Dimensions

HSA-Y-1-60



DZ-HSA-Y\_23\_R01

all dimensions in mm unless otherwise noted

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