Features

- Bandwidth 10 kHz ... 1 GHz
- Rise Time 330 ps
- Gain 40 dB (5 kV/A)
- Noise Figure 1.9 dB
- Integrated Bias Circuit
- Monitor Output
- Two identical Signal Outputs

Applications

- Preamplifier for ultra-fast Detectors (Microchannel-Plates, Photomultipliers, Avalanche-Photodiodes, PIN-Photodiodes etc.)
- Oscilloscope and Transient-Recorder Preamplifier
- Time-Resolved Pulse and Transient Measurements

Block Diagram

![Block Diagram of the 1 GHz High-Speed Amplifier]

Specifications

<table>
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<th>Test Conditions</th>
<th>Vs = ±15 V, Ta = 25°C, System Impedance = 50 Ω</th>
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<td>Gain</td>
<td>Gain 40 dB (5 kV/A)</td>
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<td></td>
<td>Gain Accuracy ±1 dB</td>
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<td>Gain Flatness ±0.1 dB</td>
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<td>Frequency Response</td>
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<td>Time Response</td>
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<td>RF Input Impedance 50 Ω</td>
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<td>50 Ω Noise Figure 1.9 dB (f &lt; 700 MHz)</td>
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<td>Equivalent Input Voltage Noise 330 pV/√Hz (f &lt; 700 MHz)</td>
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<td>Input VSWR 1 : 1.45 (@ f &lt; 1.5 GHz)</td>
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<td></td>
<td>Maximum Input VSWR 1 : 1.45 (@ f &lt; 3 GHz)</td>
</tr>
</tbody>
</table>
### Specifications (continued)

#### Output
- Two identical Signal Outputs:
  - Output Impedance: 50 Ω
  - Maximum Output VSWR: 1 : 1.6 (@ f < 3 GHz)
  - Output Power $P_{1dB}$: +11.5 dBm (@ f < 500 MHz)
  - Output Peak-Peak Voltage: 2 Vpp (@ f < 500 MHz, for linear Amplification)
  - Isolation between Outputs: 20 dB (@ f < 3 GHz)

#### Monitor Amplifier
- Gain: 26 dB (1 kV/A)
- Lower Cut-Off Frequency: DC
- Upper Cut-Off Frequency: 100 kHz
- Output Voltage: $± 10$ V (@ 10 kΩ load)

#### Power Supply
- Supply Voltage: $± 15$ V
- Supply Current: $+ 200 / -10$ mA

#### Case
- Weight: 180 gr. (0.41 lbs)
- Material: AlMg4.5Mn, nickel-plated

#### Temperature Range
- Storage Temperature: -40 ... +100 °C
- Operating Ambient Temperature: 0 ... +60 °C
- Operating Case Temperature: 40 °C (@ $Ta = 25$ °C)

#### Absolute Maximum Ratings
- Power Supply Voltage: $± 20$ V
- DC and LF Input Voltage: $± 4$ V
- RF Input Power: +13 dBm

#### Connectors
- Input: SMA
- Signal Outputs: SMA
- Monitor Output: BNC
- Power Supply: LEMO Series 1S, 3-pin fixed Socket
  - Pin 1: $+ 15$ V
  - Pin 2: $- 15$ V
  - Pin 3: GND

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**Datasheet HSA-Y-1-40**

**1 GHz High-Speed Amplifier**

SOPHISTICATED TOOLS FOR SIGNAL RECOVERY
1 GHz High-Speed Amplifier

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