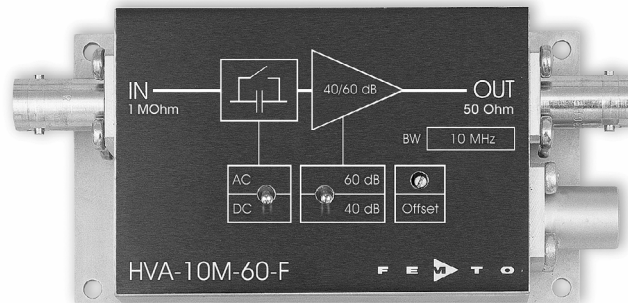




Datasheet

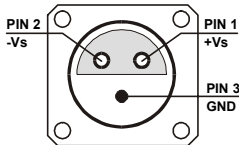
HVA-10M-60-F

10 MHz High Input Impedance Voltage Amplifier



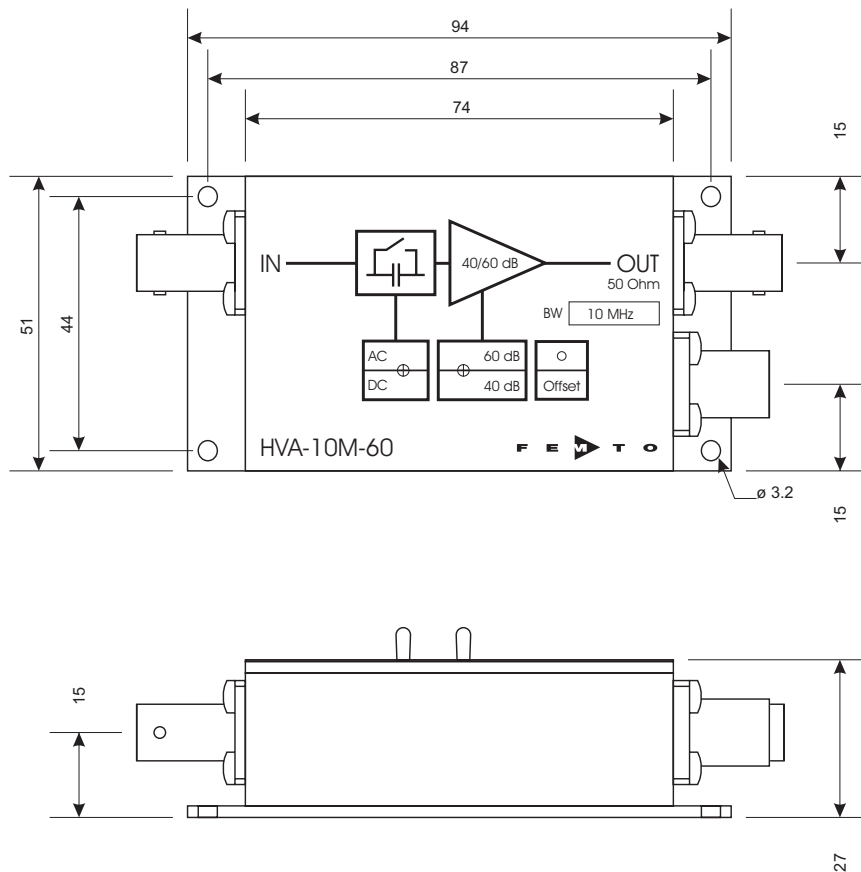
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|---|---|--|------------------------|-------------------------------|------|------|---------------------|--|---------------|----------|--------------------|---------------------------------|--------------------|--|---------------------------------|--------|--|----------------------------|-------|-------|-----------------|---------------|--|---------------------|----------------------|--|------------------------|------------------|--|--------------------|------|--|----------------------|-------------|--|---------------------|---------|--------|------------------|--|--|----------------|---|--|---------------------|--------|--|-----------------------------|----------|--|-----------|------------------------|--------------|----------------|--------|--|----------------|---|------|--------|-----------------|--|----------|--------------------------|
| Features | <ul style="list-style-type: none"> • Switchable Gain 40/60 dB (x100 / x1,000) • Bandwidth DC ... 10 MHz • High Input Impedance 1 MΩ • Switchable AC/DC Coupling | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Applications | <ul style="list-style-type: none"> • Oscilloscope and Transient Recorder Preamplifier • Photomultiplier and Microchannel Plate Amplifier • Signal Booster for Optical Receivers and Current Amplifiers • Time-Resolved Pulse and Transient Measurements | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Specifications | <table border="0"> <tr> <td></td> <td><i>Test Conditions</i></td> <td><i>Vs = ± 15 V, Ta = 25°C</i></td> </tr> <tr> <td>Gain</td> <td>Gain</td> <td>40/60 dB switchable</td> </tr> <tr> <td></td> <td>Gain Accuracy</td> <td>± 0.2 dB</td> </tr> <tr> <td>Frequency Response</td> <td>Lower Cut-Off Frequency (-3 dB)</td> <td>DC/1 Hz switchable</td> </tr> <tr> <td></td> <td>Upper Cut-Off Frequency (-3 dB)</td> <td>10 MHz</td> </tr> <tr> <td></td> <td>Rise/Fall Time (10% - 90%)</td> <td>35 ns</td> </tr> <tr> <td>Input</td> <td>Input Impedance</td> <td>1 MΩ 15 pF</td> </tr> <tr> <td></td> <td>Input Voltage Noise</td> <td>4.7 nV/√Hz (@ 2 MHz)</td> </tr> <tr> <td></td> <td>Integrated Input Noise</td> <td>100 μV peak-peak</td> </tr> <tr> <td></td> <td>Input Bias Current</td> <td>2 pA</td> </tr> <tr> <td></td> <td>Input Offset Voltage</td> <td>250 μV max.</td> </tr> <tr> <td></td> <td>Input Voltage Drift</td> <td>2 μV/°C</td> </tr> <tr> <td>Output</td> <td>Output Impedance</td> <td>50 Ω (terminate with 50 Ω load for best performance)</td> </tr> <tr> <td></td> <td>Output Voltage</td> <td>± 3.5 V (@ 50 Ω load, for linear amplification)</td> </tr> <tr> <td></td> <td>Max. Output Current</td> <td>100 mA</td> </tr> <tr> <td></td> <td>Output Offset Trimmer Range</td> <td>± 500 mV</td> </tr> <tr> <td></td> <td>Slew Rate</td> <td>500 V/μs (@ 50 Ω load)</td> </tr> <tr> <td>Power Supply</td> <td>Supply Voltage</td> <td>± 15 V</td> </tr> <tr> <td></td> <td>Supply Current</td> <td>± 70 mA typ. (depends on operating conditions, recommended power supply capability min. ± 150 mA)</td> </tr> <tr> <td>Case</td> <td>Weight</td> <td>200 g (0.5 lbs)</td> </tr> <tr> <td></td> <td>Material</td> <td>AlMg4.5Mn, nickel-plated</td> </tr> </table> | | | <i>Test Conditions</i> | <i>Vs = ± 15 V, Ta = 25°C</i> | Gain | Gain | 40/60 dB switchable | | Gain Accuracy | ± 0.2 dB | Frequency Response | Lower Cut-Off Frequency (-3 dB) | DC/1 Hz switchable | | Upper Cut-Off Frequency (-3 dB) | 10 MHz | | Rise/Fall Time (10% - 90%) | 35 ns | Input | Input Impedance | 1 MΩ 15 pF | | Input Voltage Noise | 4.7 nV/√Hz (@ 2 MHz) | | Integrated Input Noise | 100 μV peak-peak | | Input Bias Current | 2 pA | | Input Offset Voltage | 250 μV max. | | Input Voltage Drift | 2 μV/°C | Output | Output Impedance | 50 Ω (terminate with 50 Ω load for best performance) | | Output Voltage | ± 3.5 V (@ 50 Ω load, for linear amplification) | | Max. Output Current | 100 mA | | Output Offset Trimmer Range | ± 500 mV | | Slew Rate | 500 V/μs (@ 50 Ω load) | Power Supply | Supply Voltage | ± 15 V | | Supply Current | ± 70 mA typ. (depends on operating conditions, recommended power supply capability min. ± 150 mA) | Case | Weight | 200 g (0.5 lbs) | | Material | AlMg4.5Mn, nickel-plated |
| | <i>Test Conditions</i> | <i>Vs = ± 15 V, Ta = 25°C</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gain | Gain | 40/60 dB switchable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Gain Accuracy | ± 0.2 dB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency Response | Lower Cut-Off Frequency (-3 dB) | DC/1 Hz switchable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Upper Cut-Off Frequency (-3 dB) | 10 MHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Rise/Fall Time (10% - 90%) | 35 ns | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input | Input Impedance | 1 MΩ 15 pF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Voltage Noise | 4.7 nV/√Hz (@ 2 MHz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Integrated Input Noise | 100 μV peak-peak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Bias Current | 2 pA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Offset Voltage | 250 μV max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Voltage Drift | 2 μV/°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Output | Output Impedance | 50 Ω (terminate with 50 Ω load for best performance) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output Voltage | ± 3.5 V (@ 50 Ω load, for linear amplification) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Max. Output Current | 100 mA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output Offset Trimmer Range | ± 500 mV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Slew Rate | 500 V/μs (@ 50 Ω load) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power Supply | Supply Voltage | ± 15 V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Supply Current | ± 70 mA typ. (depends on operating conditions, recommended power supply capability min. ± 150 mA) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Case | Weight | 200 g (0.5 lbs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Material | AlMg4.5Mn, nickel-plated | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

10 MHz High Input Impedance Voltage Amplifier

| | | | | | | | |
|----------------------------|--|----------------------|---------------------|----------------------|-------|-------------------------|--|
| Specifications (continued) | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Temperature Range</td> <td style="padding: 2px;">Storage Temperature</td> <td style="padding: 2px;">- 40 ... + 100 °C</td> </tr> <tr> <td></td> <td style="padding: 2px;">Operating Temperature</td> <td style="padding: 2px;">0 ... + 60 °C</td> </tr> </table> | Temperature Range | Storage Temperature | - 40 ... + 100 °C | | Operating Temperature | 0 ... + 60 °C |
| Temperature Range | Storage Temperature | - 40 ... + 100 °C | | | | | |
| | Operating Temperature | 0 ... + 60 °C | | | | | |
| Absolute Maximum Ratings | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Power Supply Voltage</td> <td style="padding: 2px;">± 20 V</td> </tr> <tr> <td style="padding: 2px;">Signal Input Voltage</td> <td style="padding: 2px;">± 5 V</td> </tr> <tr> <td style="padding: 2px;">Transient Input Voltage</td> <td style="padding: 2px;">200 V (out of a 200 pF Source)</td> </tr> </table> | Power Supply Voltage | ± 20 V | Signal Input Voltage | ± 5 V | Transient Input Voltage | 200 V (out of a 200 pF Source) |
| Power Supply Voltage | ± 20 V | | | | | | |
| Signal Input Voltage | ± 5 V | | | | | | |
| Transient Input Voltage | 200 V (out of a 200 pF Source) | | | | | | |
| Connectors | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Input</td> <td style="padding: 2px;">BNC</td> </tr> <tr> <td style="padding: 2px;">Output</td> <td style="padding: 2px;">BNC</td> </tr> <tr> <td style="padding: 2px;">Power Supply</td> <td style="padding: 2px;">LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND</td> </tr> </table> <div style="text-align: center; margin-top: 10px;">  </div> | Input | BNC | Output | BNC | Power Supply | LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND |
| Input | BNC | | | | | | |
| Output | BNC | | | | | | |
| Power Supply | LEMO series 1S, 3-pin fixed socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND | | | | | | |

10 MHz High Input Impedance Voltage Amplifier

Dimensions



all measures in mm unless otherwise noted

DZ_HVA-10M-60_R2

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