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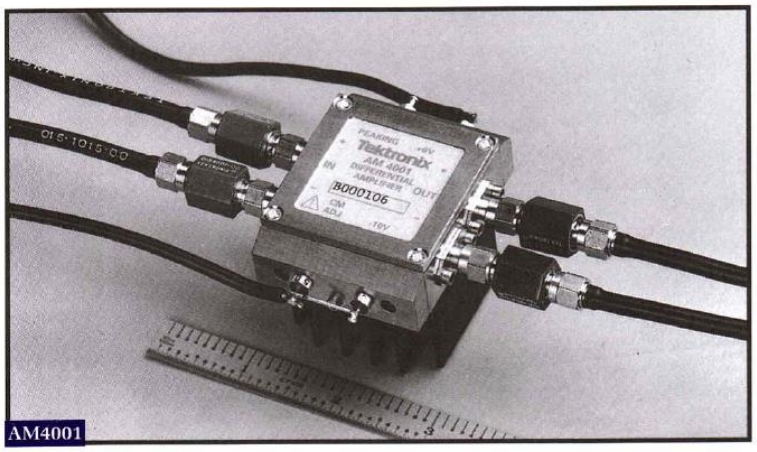
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Differential Amplifier

AM4001



AM4001

AM4001 Differential Amplifier

The Tektronix Differential Amplifier provides performance previously unavailable in commercial amplifiers. The product quality and design expertise in Tektronix Test & measurement instrumentation is now available in this stand alone amplifier.

This DC coupled amplifier offers response flatness of less than 1 dB from 1 MHz to 2.5 GHz with an upper –3 dB bandwidth of 4 GHz.

Roll off of response above 4 GHz is gradual, providing usable gain beyond the –3 dB bandwidth.

The step response has minimal aberrations and ringing with a typical risetime of 92 ps. An external peaking control input allows optimization of response for minimum pulse overshoot or best frequency response flatness.

Differential inputs and outputs provide excellent noise immunity and stability. Differential output mode enables up to 8 V peak-to-peak differential drive capability.

Single-ended mode can be in-phase or inverting. Inputs and outputs can be used single-ended by terminating the unused ports. The second input can be used for an offset control.

Output and input connectors are all SMA for compatibility with standard high frequency modules and test equipment. Excellent gain flatness and VSWR allows modules to be cascaded without introduction of ripples in the passband.

The unit is small, light, and completely shielded for use in high field strength environments. The integral heat sink allows free standing operation up to 50°C.

Characteristics

Bandwidth – >4 GHz (–3 dB)*.

Voltage Gain – 18 dB ±1 dB differential, 12 dB ±1 dB single-ended, (both at 1 MHz)*.

Gain Flatness – <1 dB (between 1 MHz to 2.5 GHz).

1 dB Compression Point – 16 dBm at 50 MHz, 13 dBm at 3 GHz (each output, 50 Ω load).

Noise Figure – 13 dB single ended in and single-ended out (1 GHz to 4 GHz).

Input VSWR – ≤2.5:1 differential or 2.5:1 single-ended (DC to 4 GHz).

Rise/Fall Time – 90 ps (0.35/Bandwidth).

Pulse Aberrations – <5% peak-to-peak within first ns. See Typical Step Response Figure.

Pulse Flatness – For time intervals >1 ns a monotonic settling occurs that is <5% in the first microsecond and 15% in the first ms.

Output Common Mode Level – 0 ±0.5 VDC (adjustable to 0).

Output Differential DC Offset – <0.5 V*.

Common Mode Rejection Ratio – 2500:1 (DC to 1 GHz) 68 dB.

AM4001

- Driver For Multi-GHz Fiber Optic Laser Transmitters
- EW,ECM and Advanced Radar
- Level Matching Between System Blocks

FEATURES

- Excellent Pulse Response
- 1 MHz to 4 GHz Bandwidth
- 18 dB Gain Differential
- Differential Inputs and Outputs
- Inputs and Outputs at Ground Level
- Outputs up to +2 V into 50 Ω for Each Output
- Modules Can be Cascaded to Achieve Gain in Multiples of 18 dB
- Small Package can be Supported from SMA Connectors

Preamplifier for Realtime or Sampling Oscilloscopes, and Spectrum Analyzers

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