Ultralow Distortion, Ultralow Noise Op Amp

AD797*

FEATURES

Low Noise
- 0.9 nV/√Hz typ (1.2 nV/√Hz max) Input Voltage Noise at 1 kHz
- 50 nV p-p Input Voltage Noise, 0.1 Hz to 10 Hz

Low Distortion
- –120 dB Total Harmonic Distortion at 20 kHz

Excellent AC Characteristics
- 800 ns Settling Time to 16 Bits (10 V Step)
- 110 MHz Gain Bandwidth (G = 1000)
- 8 MHz Bandwidth (G = 10)
- 280 kHz Full Power Bandwidth at 20 V p-p
- 20 V/μs Slew Rate

Excellent DC Precision
- 80 μV max Input Offset Voltage
- 1.0 μV/°C V_{OS} Drift

Specified for ±5 V and ±15 V Power Supplies

High Output Drive Current of 50 mA

APPLICATIONS

Professional Audio Preamplifiers

IR, CCD, and Sonar Imaging Systems

Spectrum Analyzers

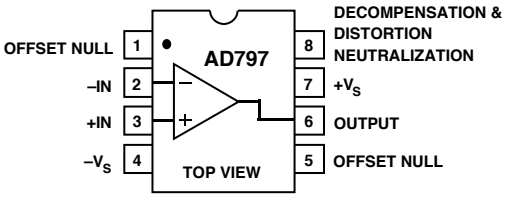
Ultrasound Preamplifiers

Seismic Detectors

ΣΔ ADC/DAC Buffers

CONNECTION DIAGRAM

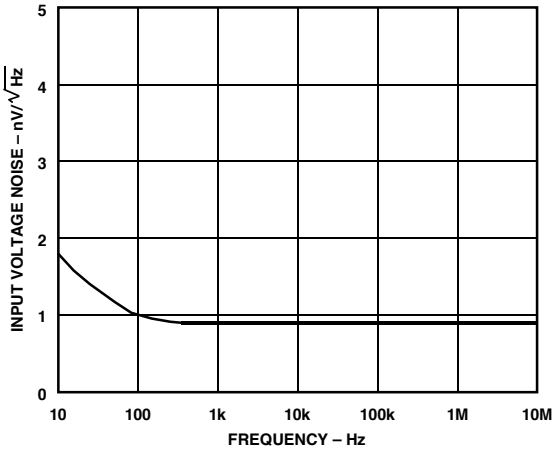
8-Pin Plastic Mini-DIP (N) and SOIC (R) Packages



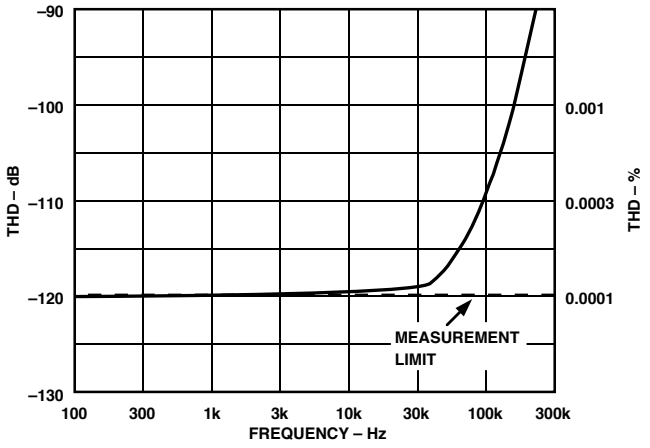
PRODUCT DESCRIPTION

The AD797 is a very low noise, low distortion operational amplifier ideal for use as a preamplifier. The low noise of 0.9 nV/√Hz and low total harmonic distortion of –120 dB at audio bandwidths give the AD797 the wide dynamic range necessary for preamps in microphones and mixing consoles. Furthermore, the AD797's excellent slew rate of 20 V/μs and 110 MHz gain bandwidth make it highly suitable for low frequency ultrasound applications.

The AD797 is also useful in IR and Sonar Imaging applications where the widest dynamic range is necessary. The low distortion and 16-bit settling time of the AD797 make it ideal for buffering the inputs to ΣΔ ADCs or the outputs of high resolution DACs especially when they are used in critical applications such as seismic detection and spectrum analyzers. Key features such as a 50 mA output current drive and the specified power supply voltage range of ±5 to ±15 Volts make the AD797 an excellent general purpose amplifier.



AD797 Voltage Noise Spectral Density



THD vs. Frequency

*Patent pending.

REV. D

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