

SP Amp Variable Gain Amp Single R-R O/P 6V 16-Pin QSOP Tube

Manufacturer:	Analog Devices, Inc	<input type="text" value="AD8330ARQZ Image"/>
Package/Case:	QSOP16	Images are for reference only
Product Type:	Amplifier ICs	Inquiry
RoHS:	RoHS Compliant/Lead free 	
Lifecycle:	Active	

General Description

The AD8330 is a wideband variable gain amplifier for applications requiring a fully differential signal path, low noise, well-defined gain, and moderately low distortion, from dc to 150 MHz. The input pins can also be driven from a single-ended source. The peak differential input is ± 2 V, allowing sine wave operation at 1 V rms with generous headroom. The output pins can drive single-sided loads essentially rail-to-rail. The differential output resistance is 150 Ω . The output swing is a linear function of the voltage applied to the VMAG pin that internally defaults to 0.5 V, providing a peak output of ± 2 V. This can be raised to 10 V p-p, limited by the supply voltage.

The basic gain function is linear-in-dB, controlled by the voltage applied to Pin VDBS. The gain ranges from 0 dB to 50 dB for control voltages between 0 V and 1.5 V—a slope of 30 mV/dB. The gain linearity is typically within ± 0.1 dB. By changing the logic level on Pin MODE, the gain decreases over the same range, with an opposite slope. A second gain control port is provided at the VMAG pin and allows the user to vary the numeric gain from a factor of 0.03 to 10. All the parameters of the AD8330 have low sensitivities to temperature and supply voltages. Using VMAG, the basic 0 dB to 50 dB range can be repositioned to any value from 20 dB higher (that is, 20 dB to 70 dB) to at least 30 dB lower (that is, -30 dB to $+20$ dB) to suit the application, thereby providing an unprecedented gain range of over 100 dB. A unique aspect of the AD8330 is that its bandwidth and pulse response are essentially constant for all gains, over both the basic 50 dB linear-in-dB range, but also when using the linear-in-magnitude function. The exceptional stability of the HF response over the gain range is of particular value in those VGA applications where it is essential to maintain accurate gain law conformance at high frequencies.

An external capacitor at Pin OFST sets the high-pass corner of an offset reduction loop, whose frequency can be as low as 5 Hz. When this pin is grounded, the signal path becomes dc-coupled. When used to drive an ADC, an external common-mode control voltage at Pin CNTR can be driven to within 0.5 V of either ground or VS to accommodate a wide variety of requirements. By default, the two outputs are positioned at the midpoint of the supply, $V_S/2$. Other features, such as two levels of power-down (fully off and a hibernate mode), further extend the practical value of this exceptionally versatile VGA.

The AD8330 is available in 16-lead LFCSP and 16-lead QSOP packages and is specified for operation from -40°C to $+85^\circ\text{C}$.

Key Features

Fully differential signal path, also used with single-sided signals

Automatic offset compensation (optional)

Linear-in-dB and linear-in-magnitude gain modes

50dB to 0dB at -30mV/dB Inverted gain mode

Constant bandwidth

5nV/ $\sqrt{\text{Hz}}$ Typical noise at maximum gain

$\leq -62\text{dBc}$ Typical distortion

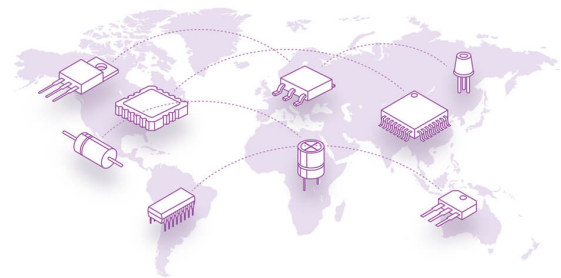
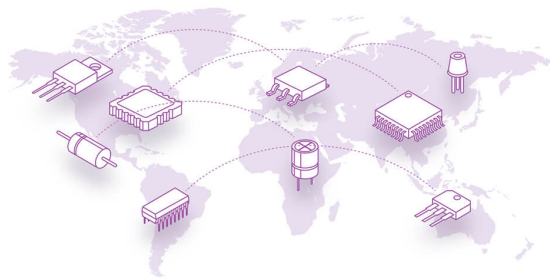
Low power

Application

Pre-ADC signal conditioning

75 Ω cable driving adjust

AGC amplifiers



Recommended For You

AD8309ARUZ

Analog Devices, Inc

TSSOP16

AD524BDZ

Analog Devices, Inc

CDIP-16

AD8221BR

Analog Devices, Inc

SOP-8

AD8221ARZ

Analog Devices, Inc

SOP8

AD627BRZ

Analog Devices, Inc

SOP8

AD622ANZ

Analog Devices, Inc

DIP8

ADA4930-2YCPZ-R7

Analog Devices, Inc

LFCSP24

AD8034ARZ

Analog Devices, Inc

SOP8

AD8561ARZ

Analog Devices, Inc

SOP8

AD633JRZ

Analog Devices, Inc

SOP8

AD632AH

Analog Devices, Inc

CAN10

AD8422BRZ

Analog Devices, Inc

SOP8

ADCMP600BKSZ-R2

Analog Devices, Inc

SC70-5

AD620BN

Analog Devices, Inc

DIP8

AD620BR

Analog Devices, Inc

SOP