

Dual Controlled Voltage Amplifier 20dB CMRR, 5 V 16-Pin SOIC

Manufacturers	Analog Devices, Inc
Package/Case	SOIC-16
Product Type	Amplifier ICs
RoHS	Pb-free Halide free
Lifecycle	



Images are for reference only

Please submit RFQ for AD605ARZ or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

General Description

The high performance linear-in-dB response of the AD605 is achieved with the differential input, single-supply, exponential amplifier (DSX-AMP) architecture. Each of the DSX-AMPs comprises a variable attenuator of 0 dB to -48.4 dB followed by a high speed, fixed-gain amplifier. The attenuator is based on a 7-stage R-1.5R ladder network. The attenuation between tap points is 6.908 dB, and 48.360 dB for the entire ladder network. The DSX-AMP architecture results in 1.8 nV/√Hz input noise spectral density and accepts a ±2.0 V input signal when VOVM is biased at VP/2.

Each independent channel of the AD605 provides a gain range of 48 dB that can be optimized for the application. Gain ranges between -14 dB to +34 dB and 0 dB to +48 dB can be selected by a single resistor between Pin FBK and Pin OUT. The lower and upper gain ranges are determined by shorting Pin FBK to Pin OUT or leaving Pin FBK unconnected, respectively. The two channels of the AD605 can be cascaded to provide 96 dB of very accurate gain range in a monolithic package.

The gain control interface provides an input resistance of approximately 2 MΩ and scale factors from 20 dB/V to 30 dB/V for a VREF input voltage of 2.5 V to 1.67 V, respectively. Note that scale factors up to 40 dB/V are achievable with reduced accuracy for scales above 30 dB/V. The gain scales linearly in dB with control voltages (VGN) of 0.4 V to 2.4 V for the 20 dB/V scale and 0.20 V to 1.20 V for the 40 dB/V scale. When VGN is <50 mV, the amplifier is powered down to draw 1.9 mA. Under normal operation, the quiescent supply current of each amplifier channel is only 18 mA.

The AD605 is available in a 16-lead PDIP and a 16-lead SOIC_N package and is guaranteed for operation over the -40°C to +85°C temperature range.

Features

2 independent linear-in-dB channels

Input noise at maximum gain: 1.8 nV/ $\sqrt{\text{Hz}}$, 2.7 pA/ $\sqrt{\text{Hz}}$

Bandwidth: 40 MHz (–3 dB)

Differential input

Absolute gain range programmable –14 dB to +34 dB (FBK shorted to OUT) through

Variable gain scaling: 20 dB/V through 40 dB/V

Stable gain with temperature and supply variations

Single-ended unipolar gain control

Output common mode independently set

Power shutdown at lower end of gain control

Single 5 V supply

Low power: 90 mW/channel

Application

Ultrasound and sonar time-gain controls

High performance AGC systems

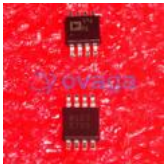
Signal measurement

Data Sheet, Rev. E, 5/07



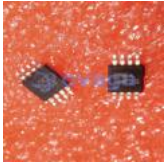


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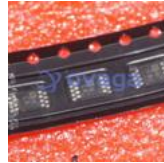
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