

Programmable/Variable Amplifier, 1 Channels, 1 Amplifier, 90 MHz, -40 °C, 85 °C,  $\pm 4.75V$  to  $\pm 6.3V$

Manufacturers	<a href="#">Analog Devices, Inc</a>
Package/Case	CDIP-8
Product Type	Amplifier ICs
RoHS	
Lifecycle	



Images are for reference only

Please submit RFQ for AD603AQ or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

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## General Description

The AD603 is a low noise, voltage-controlled amplifier for use in RF and IF AGC systems. It provides accurate, pin-selectable gains of  $-11$  dB to  $+31$  dB with a bandwidth of 90 MHz or  $+9$  dB to  $51+$  dB with a bandwidth of 9 MHz. Any intermediate gain range may be arranged using one external resistor. The input referred noise spectral density is only  $1.3$  nV/ $\sqrt{\text{Hz}}$ , and power consumption is 125 mW at the recommended  $\pm 5$  V supplies.

The decibel gain is linear in dB, accurately calibrated, and stable over temperature and supply. The gain is controlled at a high impedance ( $50$  M $\Omega$ ), low bias (200 nA) differential input; the scaling is 25 mV/dB, requiring a gain control voltage of only 1 V to span the central 40 dB of the gain range. An overrange and underrange of 1 dB is provided whatever the selected range. The gain control response time is less than 1  $\mu$ s for a 40 dB change.

The differential gain control interface allows the use of either differential or single-ended positive or negative control voltages. Several of these amplifiers may be cascaded and their gain control gains offset to optimize the system SNR.

The AD603 can drive a load impedance as low as  $100$   $\Omega$  with low distortion. For a  $500$   $\Omega$  load in shunt with 5 pF, the total harmonic distortion for a  $\pm 1$  V sinusoidal output at 10 MHz is typically  $-60$  dBc. The peak specified output is  $\pm 2.5$  V minimum into a  $500$   $\Omega$  load.

The AD603 uses a patented proprietary circuit topology—the X-AMP®. The X-AMP comprises a variable attenuator of 0 dB to  $-42.14$  dB followed by a fixed-gain amplifier. Because of the attenuator, the amplifier never has to cope with large inputs and can use negative feedback to define its (fixed) gain and dynamic performance. The attenuator has an input resistance of  $100$   $\Omega$ , laser trimmed to  $\pm 3\%$ , and comprises a 7-stage R-2R ladder network, resulting in an attenuation between tap points of 6.021 dB. A proprietary interpolation technique provides a continuous gain control function that is linear in dB.

The AD603 is specified for operation from  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$ .

## Features

Linear-in-dB gain control

Pin-programmable gain ranges -11 dB to +31 dB with 90 MHz bandwidth 9 dB to 51 dB with 9 MHz bandwidth

Any intermediate range, for example -1 dB to +41 dB with 30 MHz bandwidth

Bandwidth independent of variable gain

1.3 nV/ $\sqrt{\text{Hz}}$  input noise spectral density

## Application

RF/IF AGC amplifiers

Video gain controls

A/D range extensions

Signal measurements



## Related Products



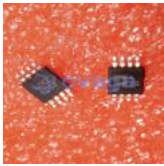
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