


SP Amp Variable Gain Amp Single $\pm 6.3V$ 8-Pin SOIC N Tube

Manufacturer:	Analog Devices, Inc
Package/Case:	SOP8
Product Type:	Amplifier ICs
RoHS:	RoHS Compliant/Lead free 
Lifecycle:	Active



Images are for reference only

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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 ± 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 Ω), 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 μs 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 Ω with low distortion. For a 500 Ω load in shunt with 5 pF, the total harmonic distortion for a ± 1 V sinusoidal output at 10 MHz is typically -60 dBc. The peak specified output is ± 2.5 V minimum into a 500 Ω 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 Ω , 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°C to $+85^\circ\text{C}$.

Key Features

- Linear-in-dB gain control
- Pin-programmable gain ranges
- Any intermediate range
- Bandwidth independent of variable gain
- ± 0.5 dB Typical gain accuracy

Application

- RF/IF AGC amplifiers
- Video gain controls
- A/D range extensions
- Signal measurements



Recommended For You

AD8309ARUZ

Analog Devices, Inc
TSSOP-16

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