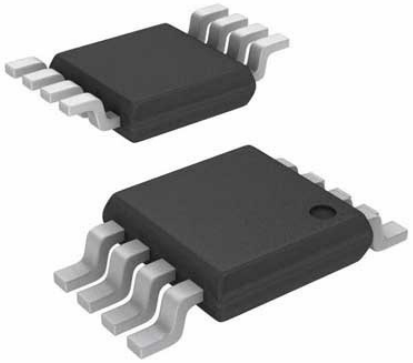
AD8310ARMZ-REEL7

Data Sheet

MSOP8 SP Amp LOG Amp Single R-R I/P 5.5V 8-Pin MSOP T/R

Manufacturers	Analog Devices, Inc
Package/Case	MSOP8
Product Type	RF Power Detectors ; Log Detectors
RoHS	Pb-free Halide free
Lifecycle	



Images are for reference only

Please submit RFQ for AD8310ARMZ-REEL7 or Email to us: sales@ovaga.com We will contact you in 12 hours. RFQ

General Description

The AD8310 is a complete, dc to 440 MHz demodulating logarithmic amplifier (log amp) with a very fast voltage mode output, capable of driving up to 25 mA into a grounded load in under 15 ns. It uses the progressive compression (successive detection) technique to provide a dynamic range of up to 95 dB to ±3 dB law conformance or 90 dB to a ±1 dB error bound up to 100 MHz. It is extremely stable and easy to use, requiring no significant external components. A single-supply voltage of 2.7 V to 5.5 V at 8 mA is needed, corresponding to a power consumption of only 24 mW at 3 V. A fast-acting CMOS-compatible enable pin is provided.

Each of the six cascaded amplifier/limiter cells has a small-signal gain of 14.3 dB, with a −3 dB bandwidth of 900 MHz. A total of nine detector cells are used to provide a dynamic range that extends from −91 dBV (where 0 dBV is defined as the amplitude of a 1 V rms sine wave), an amplitude of about ±40 μV, up to +4 dBV (or ±2.2 V). The demodulated output is accurately scaled, with a log slope of 24 mV/dB and an intercept of −108 dBV. The scaling parameters are supply- and temperature-independent.

The fully differential input offers a moderately high impedance (1 kΩ in parallel with about 1 pF). A simple network can match the input to 50 Ω and provide a power sensitivity of −78 dBm to +17 dBm. The logarithmic linearity is typically within ±0.4 dB up to 100 MHz over the central portion of the range, but it is somewhat greater at 440 MHz. There is no minimum frequency limit; the AD8310 can be used down to low audio frequencies. Special filtering features are provided to support this wide range.

The output voltage runs from a noise-limited lower boundary of 400 mV to an upper limit within 200 mV of the supply voltage for light loads. The slope and intercept can be readily altered using external resistors. The output is tolerant of a wide variety of load conditions and is stable with capacitive loads of 100 pF.

The AD8310 provides a unique combination of low cost, small size, low power consumption, high accuracy and stability, high dynamic range, a frequency range encompassing audio to UHF, fast response time, and good load-driving capabilities, making this product useful in numerous applications that require the reduction of a signal to its decibel equivalent.

The AD8310 is available in the industrial temperature range of −40°C to +85°C in an 8-lead MSOP package.

Features

Multistage demodulating logarithmic amplifier

Voltage output, rise time <15 ns

High current capacity: 25 mA into grounded RL

95 dB dynamic range: –91 dBV to +4 dBV

Single supply of 2.7 V min at 8 mA typ

DC to 440 MHz operation, ±0.4 dB linearity

Slope of +24 mV/dB, intercept of –108 dBV

Highly stable scaling over temperature

Fully differential dc-coupled signal path

100 ns power-up time, 1 mA sleep current

Application

Conversion of signal level to decibel form

Transmitter antenna power measurement

Receiver signal strength indication (RSSI)

Low cost radar and sonar signal processing

Network and spectrum analyzers

Signal-level determination down to 20 Hz

True-decibel ac mode for multimeters

Related Products

AD8418BRMZ-RL

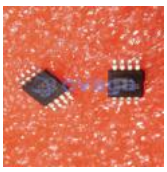
Analog Devices, Inc

MSOP-8

ADA4528-2ARMZ-R7

Analog Devices, Inc

MSOP-8



ADA4084-2ARMZ

Analog Devices, Inc

MSOP-8

AD8062ARMZ

Analog Devices, Inc

MSOP8

AD8567ARUZ

Analog Devices, Inc

TSSOP-14

AD8628AUJZ

Analog Devices, Inc

SOP23

AD8022ARMZ

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MSOP-8

AD8041AR

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SOP-8