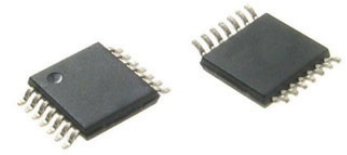


RF Detector 0MHz to 2700MHz 14-Pin TSSOP Tube

Manufacturer:	Analog Devices, Inc
Package/Case:	TSSOP14
Product Type:	RF Integrated Circuits
Lifecycle:	Obsolete



Images are for reference only

[Inquiry](#)

General Description

The AD8302 is a fully integrated system for measuring gain/loss and phase in numerous receive, transmit, and instrumentation applications. It requires few external components and a single supply of 2.7 V–5.5 V. The ac-coupled input signals can range from –60 dBm to 0 dBm in a 50 Ω system, from low frequencies up to 2.7 GHz. The outputs provide an accurate measurement of either gain or loss over a ±30 dB range scaled to 30 mV/dB, and of phase over a 0°–180° range scaled to 10 mV/degree. Both subsystems have an output bandwidth of 30 MHz, which may optionally be reduced by the addition of external filter capacitors. The AD8302 can be used in controller mode to force the gain and phase of a signal chain toward predetermined setpoints.

The AD8302 comprises a closely matched pair of demodulating logarithmic amplifiers, each having a 60 dB measurement range. By taking the difference of their outputs, a measurement of the magnitude ratio or gain between the two input signals is available. These signals may even be at different frequencies, allowing the measurement of conversion gain or loss. The AD8302 may be used to determine absolute signal level by applying the unknown signal to one input and a calibrated ac reference signal to the other. With the output stage feedback connection disabled, a comparator may be realized, using the setpoint pins MSET and PSET to program the thresholds.

The signal inputs are single-ended, allowing them to be matched and connected directly to a directional coupler. Their input impedance is nominally 3 kΩ at low frequencies.

The AD8302 includes a phase detector of the multiplier type, but with precise phase balance driven by the fully limited signals appearing at the outputs of the two logarithmic amplifiers. Thus, the phase accuracy measurement is independent of signal level over a wide range.

The phase and gain output voltages are simultaneously available at loadable ground referenced outputs over the standard output range of 0 V to 1.8 V. The output drivers can source or sink up to 8 mA. A loadable, stable reference voltage of 1.8 V is available for precise repositioning of the output range by the user.

In controller applications, the connection between the gain output pin VMAG and the setpoint control pin MSET is broken. The desired setpoint is presented to MSET and the VMAG control signal drives an appropriate external variable gain device. Likewise, the feedback path between the phase output pin VPHS and its setpoint control pin PSET may be broken to allow operation as a phase controller.

The AD8302 is fabricated on Analog Devices' proprietary, high performance 25 GHz SOI complementary bipolar IC process. It is available in a 14-lead TSSOP package and operates over a –40°C to +85°C temperature range. An evaluation board is available.

Key Features

Measures Gain/Loss and Phase up to 2.7 GHz

Dual Demodulating Log Amps and Phase Detector

Input Range -60 dBm to 0 dBm in a 50 Ω System

Accurate Gain Measurement Scaling (30 mV/dB)

Typical Nonlinearity < 0.5 dB

Accurate Phase Measurement Scaling (10 mV/Degree)

Typical Nonlinearity < 1 Degree

Measurement/Controller/Level Comparator Modes

Operates from Supply Voltages of 2.7 V-5.5 V

Stable 1.8 V Reference Voltage Output

Small Signal Envelope Bandwidth from DC to 30 MHz

Recommended For You

ADF4153BCPZ

Analog Devices, Inc

QFN

ADF5355BCPZ

Analog Devices, Inc

LFCSP32

AD8318ACPZ

Analog Devices, Inc

LFCSP

AD6620ASZ

Analog Devices, Inc

QFP

ADF4107BCPZ

Analog Devices, Inc

QFN

ADL5513ACPZ-R7

Analog Devices, Inc

LFCSP-16

AD8319ACPZ

Analog Devices, Inc

LFCSP

ADRF6755ACPZ

Analog Devices, Inc

QFN

ADL5535ARKZ-R7

Analog Devices, Inc

SOT89

AD608AR

Analog Devices, Inc

SOP16

ADF4107BRUZ-REEL7

Analog Devices, Inc

TSSOP16

ADRF6780ACPZN

Analog Devices, Inc

QFN

AD8317ACPZ

Analog Devices, Inc

LFCSP

AD608ARZ

Analog Devices, Inc

SOP16

AD8318ACPZ-REEL7

Analog Devices, Inc

LFCSP