

Balanced Mod/Dmod 20-Pin SOIC W

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



Images are for reference only

[Inquiry](#)

General Description

The AD630 is a high precision balanced modulator/demodulator that combines a flexible commutating architecture with the accuracy and temperature stability afforded by laser wafer trimmed thin film resistors. A network of on-board applications resistors provides precision closed-loop gains of ± 1 and ± 2 with 0.05% accuracy (AD630B). These resistors may also be used to accurately configure multiplexer gains of 1, 2, 3, or 4. External feedback enables high gain or complex switched feedback topologies.

The AD630 can be thought of as a precision op amp with two independent differential input stages and a precision comparator that is used to select the active front end. The rapid response time of this comparator coupled with the high slew rate and fast settling of the linear amplifiers minimize switching distortion. The AD630 is used in precision signal processing and instrumentation applications that require wide dynamic range. When used as a synchronous demodulator in a lock-in amplifier configuration, the AD630 can recover a small signal from 100 dB of interfering noise (see the Lock-In Amplifier Applications section).

Although optimized for operation up to 1 kHz, the circuit is useful at frequencies up to several hundred kilohertz.

Other features of the AD630 include pin programmable frequency compensation; optional input bias current compensation resistors, common-mode and differential-offset voltage adjustment, and a channel status output that indicates which of the two differential inputs is active.

Product Highlights

The application flexibility of the AD630 makes it the best choice for applications that require precisely fixed gain, switched gain, multiplexing, integrating-switching functions, and high speed precision amplification.

The 100 dB dynamic range of the AD630 exceeds that of any hybrid or IC balanced modulator/demodulator and is comparable to that of costly signal processing instruments.

The op amp format of the AD630 ensures easy implementation of high gain or complex switched feedback functions. The application resistors facilitate the implementation of most common applications with no additional parts.

The AD630 can be used as a 2-channel multiplexer with gains of 1, 2, 3, or 4. The channel separation of 100 dB at 10 kHz approaches the limit achievable with an empty IC package.

Laser trimming of the comparator and amplifying channel offsets eliminate the need for external nulling in most cases.

Key Features

Recovers signal from 100 dB noise

2 MHz channel bandwidth

45 V/ μ s slew rate

Low crosstalk: -120 dB at 1 kHz, -100 dB at 10 kHz

Pin programmable, closed-loop gains of ± 1 and ± 2

0.05% closed-loop gain accuracy and match

100 μ V channel offset voltage (AD630)

350 kHz full power bandwidth

Chips available

Application

Balanced modulation and demodulation

Synchronous detection

Phase detection

Quadrature detection

Phase sensitive detection

Lock in amplification

Square wave multiplication

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