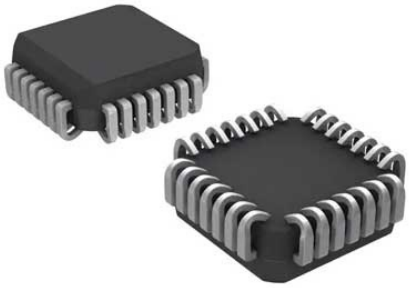
AD831APZ

Data Sheet

RF Low Distortion Mixer IC, Double-Balanced, 4.5 V to 5.5 V, 400 MHz Bandwidth, LCC-20

Manufacturers	Analog Devices, Inc
Package/Case	PLCC-20
Product Type	RF Integrated Circuits
RoHS	Pb-free Halide free
Lifecycle	



Images are for reference only

Please submit RFQ for AD831APZ or Email to us: sales@ovaga.com We will contact you in 12 hours. RFQ

General Description

The AD831 is a low distortion, wide dynamic range, monolithicmixer for use in such applications as RF to IF down conversionin HF and VHF receivers, the second mixer in DMR base stations,direct-to-baseband conversion, quadrature modulationand demodulation, and doppler-shift detection in ultrasoundimaging applications. The mixer includes an LO driverand a low-noise output amplifier and provides both user-programmablepower consumption and 3rd-order intercept point.

The AD831 provides a +24 dBm third-order intercept point for-10 dBm LO power, thus improving system performance andreducing system cost compared to passive mixers, by eliminatingthe need for a high power LO driver and its attendant shieldingand isolation problems.

The RF, IF, and LO ports may be dc or ac coupled when themixer is operating from ±5 V supplies or ac coupled when operatingfrom a single supply of 9 V minimum. The mixer operateswith RF and LO inputs as high as 500 MHz.

The mixer's IF output is available as either a differential currentoutput or a single-ended voltage output. The differential outputis from a pair of open collectors and may be ac coupled via atransformer or capacitor to provide a 250 MHz output bandwidth.In down-conversion applications, a single capacitor connectedacross these outputs implements a low-pass filter toreduce harmonics directly at the mixer core, simplifying outputfiltering. When building a quadrature-amplitude modulator orimage reject mixer, the differential current outputs of twoAD831s may be summed by connecting them together.

An integral low noise amplifier provides a single-ended voltageoutput and can drive such low impedance loads as filters, 50 Wamplifier inputs, and A/D converters. Its small signal bandwidthexceeds 200 MHz. A single resistor connected between pinsOUT and FB sets its gain. The amplifier's low dc offset allowsits use in such direct-coupled applications as direct-to-basebandconversion and quadrature-amplitude demodulation.

The mixer's SSB noise figure is 10.3 dB at 70 MHz using itsoutput amplifier and optimum source impedance. Unlike passivemixers, the AD831 has no insertion loss and does not requirean external diplexer or passive termination.

A programmable-bias feature allows the user to reduce powerconsumption, with a reduction in the 1 dB compression pointand third-order intercept. This permits a tradeoff between dynamicrange and power consumption. For example, the AD831may be used as a second mixer in cellular and two-way radiobase stations at reduced power while still providing a substantialperformance improvement over passive solutions.

Features

Doubly Balanced Mixer

Low Distortion+24 dBm Third Order Intercept (IP3)+10 dBm 1 dB Compression Point

Bandwidth500 MHz RF and LO Input Bandwidths250 MHz Differential Current IF OutputDC to >200 MHz Single-Ended Voltage IF Output

Low LO Drive Required: –10 dBm

Single- or Dual-Supply Operation

DC Coupled Using Dual SuppliesAll Ports May Be DC CoupledNo Lower Frequency Limit—Operation to DC

User-Programmable Power Consumption

Application

High Performance RF/IF Mixer

Direct to Baseband Conversion

Image-Reject Mixers

I/Q Modulators and Demodulators

Related Products

ADL5330ACPZ

Analog Devices, Inc

LFCSP24

ADL5240ACPZ-R7

Analog Devices, Inc

LFCSP-32

AD630SD

Analog Devices, Inc

20 ld Side-BrazedCerDIP

ADRF5040BCPZ

Analog Devices, Inc

HIGH ISOLATION, SP4T, 9KHZ - 12G

AD607ARSZ-REEL

Analog Devices, Inc

SSOP-20

AD831AP

Analog Devices, Inc

20 ld PLCC

ADG901BRM

Analog Devices, Inc

MSOP-8

ADL5350ACPZ

Analog Devices, Inc

LFCSP-8