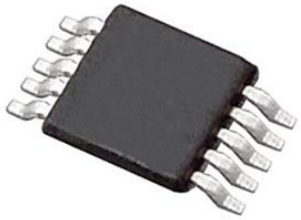
AD4003BRMZ

Data Sheet

Analogue to Digital Converter, 18 bit, 2 MSPS, Pseudo Differential, Microwire, QSPI, SPI, Single

Manufacturers	Analog Devices, Inc
Package/Case	MSOP10
Product Type	Data Conversion ICs
RoHS	Pb-free Halide free
Lifecycle	



Images are for reference only

Please submit RFQ for AD4003BRMZ or Email to us: sales@ovaga.com We will contact you in 12 hours. RFQ

General Description

The AD4003/AD4007/AD4011 are high accuracy, high speed, low power, 18-bit, Easy Drive, precision successive approximation register (SAR) analog-to-digital converters (ADCs). The high throughput allows both accurate capture of high frequency signals and decimation to achieve higher SNR, while also reducing antialiasing filter challenges.

Easy Drive features reduce signal chain complexity and power consumption, and enable higher channel density. The reduced input current, particularly in high-Z mode, coupled with a long signal acquisition phase, eliminates the need for a dedicated high power, high speed ADC driver, which broadens the range of low power precision amplifiers that can drive these ADCs directly (see Figure 2). The input span compression feature enables the ADC driver amplifier and the ADC to operate off common supply rails without the need for a negative supply while preserving the full ADC code range. The input overvoltage clamp protects the ADC inputs against overvoltages, minimizes disturbance on the reference pin, and eliminates the need for external protection diodes.

The low serial peripheral interface (SPI) clock rate (75 MHz for the AD4003 in turbo mode) reduces the digital input/output power consumption, broadens processor options, and simplifies the task of sending data across digital isolation.

The SPI-compatible versatile serial interface features seven different programmable modes with an optional busy indicator. Using the SDI input, several ADCs can be daisy-chained on a single 3-wire bus. The AD4003/AD4007/AD4011 are compatible with 1.8 V, 2.5 V, 3 V, and 5 V logic, using the separate supply, VIO.

Features

Throughput: 2 MSPS/1 MSPS/500 kSPS options

INL: ±1.0 LSB (±3.8 ppm) maximum

Guaranteed 18-bit no missing codes

Low power

Application

Automatic test equipment

Machine automation

Medical equipment

Battery-powered equipment

4.9 mW/MSPS, 2.4 mW at 500 kSPS, VDD only

8 mW/MSPS, 80 µW at 10 kSPS, 16 mW at 2 MSPS total

SNR: 100.5 dB at = 100 kHz

Oversampled SNR:

103.5 dB at 1.0 MSPS,>

130.5 dB at 1.9 kSPS,>

THD: −123 dB at = 100 kHz

SINAD: 89 dB at>

Easy Drive

Greatly reduced input kickback

Input current reduced to 0.5 µA/MSPS

Long acquisition phase, ≥79% of cycle time at 1 MSPS

Input span compression for single-supply operation

Input overvoltage clamp protection sinks up to 50 mA

Differential input range: ±VREF

VREF input range from 2.4 V to 5.1 V

Single 1.8 V supply operation with 1.71 V to 5.5 V logic interface

First conversion accurate, no latency/pipeline delay

Fast conversion time allows low SPI clock rates

SPI-/QSPI-/MICROWIRE-/DSP-compatible serial interface

Ability to daisy-chain multiple ADCs

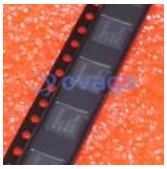
Guaranteed operation: −40°C to +125°C

10-lead packages: 3 mm × 3 mm LFCSP, 3 mm × 4.90 mm MSOP

Pin compatible with AD4000/AD4004/AD4008 family

Precision data acquisition systems

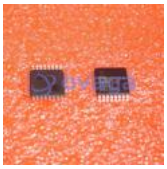
Related Products



ADAS3022BCPZ

Analog Devices, Inc

LFCSP-40



AD7266BSUZ

Analog Devices, Inc

TQPF-32

AD574AJNZ

Analog Devices, Inc

PDIP-28

AD7401YRWZ

Analog Devices, Inc

SOIC-16

AD7938BSUZ

Analog Devices, Inc

TQFP-32

AD7192BRUZ-REEL

Analog Devices, Inc

TSSOP-24

AD7124-8BCPZ-RL7

Analog Devices, Inc

LFCSP-32

AD9680BCPZ-500

Analog Devices, Inc

LFCSP-64