8-Channel Octal ADC Delta-Sigma 32ksps 24-bit Serial 64-Pin LFCSP EP Tray

Manufacturers	Analog Devices, Inc
Package/Case	64-WFQFN, CSP
Product Type	Data Conversion ICs
RoHS	Pb-free Halide free
Lifecycle	
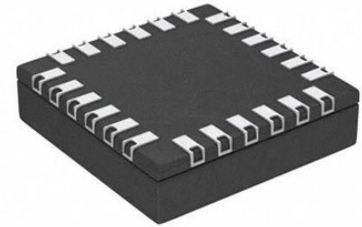
Images are for reference only

Please submit RFQ for AD7770ACPZ or Email to us: sales@ovaga.com We will contact you in 12 hours.   RFQ

General Description

The AD7770 is an 8-channel, simultaneous sampling ADC. Eight full sigma-delta (Σ-Δ) ADCs are on chip. The AD7770 provides a low input current to allow direct sensor connection. Each input channel has a programmable gain stage allowing gains of 1, 2, 4, and 8 to map lower amplitude sensor outputs into the full-scale ADC input range, maximizing the dynamic range of the signal chain. The AD7770 accepts a VREF voltage from 1 V up to 3.6 V.

The analog inputs accept unipolar (0 V to VREF) or true bipolar ($\pm$VREF/2) analog input signals with 3.3 V or $\pm$1.65 V analog supply voltages, respectively for>

Each channel contains a PGA, an ADC modulator and a sinc3, low latency digital filter. An SRC is provided to allow fine resolution control over the AD7770 ODR. This control can be used in applications where the ODR resolution is required to maintain coherency with 0.01 Hz changes in the line frequency. The SRC is programmable through the serial port interface (SPI). The AD7770 implements two different interfaces: a data output interface and SPI control interface. The ADC data output interface is dedicated to transmitting the ADC conversion results from the AD7770 to the processor. The SPI writes to and reads from the AD7770 configuration registers and for the control and reading of data from the SAR ADC. The SPI can also be configured to output the Σ-Δ conversion data.

The AD7770 includes a 12-bit SAR ADC. This ADC can be used for AD7770 diagnostics without having to decommission one of the Σ-Δ ADC channels dedicated to system measurement functions. With the use of an external multiplexer, which can be controlled through the three general-purpose input/output pins (GPIOs), and signal conditioning, the SAR ADC can validate the Σ-Δ ADC measurements in applications where functional safety is required. In addition, the AD7770 SAR ADC includes an internal multiplexer to sense internal nodes.

The AD7770 contains a 2.5 V reference and reference buffer. The reference has a typical temperature coefficient of 10 ppm/°C.

The AD7770 offers two modes of operation: high resolution mode and low power mode. High resolution mode provides a higher dynamic range while consuming 10.75 mW per channel; low power mode consumes just 3.37 mW per channel at a reduced dynamic range specification.

The specified operating temperature range is −40°C to +105°C, although the device is operational up to +125°C.

Features

8-channel, 24-bit simultaneous sampling analog-to-digital converter (ADC)

Single-ended or true differential inputs

Programmable gain amplifier (PGA) per channel (gains of 1, 2, 4, and 8)

Low dc input current

Up to 32 kSPS output data rate (ODR) per channel

Programmable ODRs and bandwidth

Sample rate converter (SRC) for coherent sampling

Sampling rate resolution up to 15.2×10^{-6} SPS

Low latency sinc3 filter path

Adjustable phase synchronization

Internal 2.5 V reference

Two power modes optimizing power dissipation and performance: high resolution mode and low power mode

Low resolution successive approximation register (SAR) ADC for system and chip diagnostics

Power supply

Bipolar (±1.65 V) or unipolar (3.3 V) supplies

Digital input/output (I/O) supply: 1.8 V to 3.6 V

Performance temperature range: −40°C to +105°C

Functional temperature range: −40°C to +125°C

Performance

Combined ac and dc performance

103 dB dynamic range at 32 kSPS in high resolution mode

Application

Protection relays
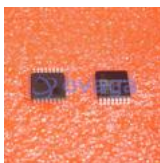
General-purpose data acquisition

Industrial process control

Related Products

[ADAS3022BCPZ](#)

Analog Devices, Inc

LFCSP-40

[AD7266BSUZ](#)
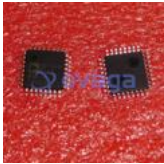
Analog Devices, Inc

TQPF-32

AD574AJNZ

Analog Devices, Inc

PDIP-28

AD7401YRWZ

Analog Devices, Inc

SOIC-16

AD7938BSUZ

Analog Devices, Inc

TQFP-32

AD7192BRUZ-REEL

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TSSOP-24

AD7124-8BCPZ-RL7

Analog Devices, Inc

LFCSP-32

AD9680BCPZ-500

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LFCSP-64