

Analogue to Digital Converter, 8-CH, Sigma-Delta, 16 bit, 256 kSPS, Differential, SPI, Single, 2 V

Manufacturers	Analog Devices, Inc
Package/Case	LQFP-64
Product Type	Data Conversion ICs
RoHS	Pb-free Halide free
Lifecycle	



Images are for reference only

Please submit RFQ for AD7761BSTZ or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

General Description

The AD7761 is an 8-channel, simultaneous sampling sigma-delta (Σ - Δ) analog-to-digital converter (ADC) with a Σ - Δ modulator and digital filter per channel, enabling synchronized sampling of ac and dc signals.

The AD7761 achieves 97.7 dB dynamic range at a maximum input bandwidth of 110.8 kHz, combined with typical performance of ± 1 LSB integral nonlinearity (INL), ± 1 LSB offset error, and ± 5 LSB gain error.

The AD7761 user can trade off input bandwidth, output data rate, and power dissipation. Select one of three power modes to optimize the device for noise targets and power consumption. The flexibility of the AD7761 allows it to become a reusable platform for low power dc and high performance ac measurement modules.

The AD7761 has three modes: fast mode (256 kSPS maximum, 110.8 kHz input bandwidth, 51.5 mW per channel), median mode (128 kSPS maximum, 55.4 kHz input bandwidth, 27.5 mW per channel) and low power mode (32 kSPS maximum, 13.8 kHz input bandwidth, 9.375 mW per channel).

The AD7761 offers extensive digital filtering capabilities, such as a wideband, low ± 0.005 dB pass-band ripple, antialiasing low-pass filter with sharp roll-off, and 105 dB attenuation at the Nyquist frequency.

Frequency domain measurements can use the wideband linear phase filter. This filter has a flat pass band (± 0.005 dB ripple) from dc to 102.4 kHz at 256 kSPS, from dc to 51.2 kHz at 128 kSPS, or from dc to 12.8 kHz at 32 kSPS.

The AD7761 also offers sinc response via a sinc5 filter, a low latency path for low bandwidth, and low noise measurements.

The wideband and sinc5 filters can be selected and run on a per channel basis.

Within these filter options, the user can improve the dynamic range by selecting from decimation rates of $\times 32$, $\times 64$, $\times 128$, $\times 256$, $\times 512$, and $\times 1024$. The ability to vary the decimation filtering optimizes noise performance to the required input bandwidth.

Embedded analog functionality on each ADC channel makes design easier, such as a precharge buffer on each analog input that reduces analog input current and a precharge reference buffer per channel reduces input current and glitches on the reference input terminals.

The device operates with a 5 V AVDD1A and AVDD1B supply, a 2.25 V to 5.0 V AVDD2A and AVDD2B supply, and a 2.5 V to 2.2 V

1.8 V IOVDD supply (see the 1.8 V IOVDD Operation section for specific requirements for operating at 1.8 V IOVDD).

The device requires an external reference; the absolute input reference voltage range is 1 V to AVDD1 – AVSS.

For the purposes of clarity within this data sheet, the AVDD1A and AVDD1B supplies are referred to as AVDD1 and the AVDD2A and AVDD2B supplies are referred to as AVDD2. For the negative supplies, AVSS refers to the AVSS1A, AVSS1B, AVSS2A, AVSS2B, and AVSS pins.

The specified operating temperature range is -40°C to $+105^{\circ}\text{C}$. The device is housed in a 10 mm \times 10 mm 64-lead LQFP package with a 12 mm \times 12 mm printed circuit board (PCB) footprint.

Throughout this data sheet, multifunction pins, such as XTAL2/MCLK, are referred to either by the entire pin name or by a single function of the pin, for example MCLK, when only that function is relevant.

Features

Precision ac and dc performance

8-channel simultaneous sampling

256 kSPS ADC ODR per channel

97.7 dB dynamic range

110.8 kHz input bandwidth (–3 dB BW)

Optimized power dissipation vs. noise vs. input bandwidth

Selectable power, speed, and input bandwidth

Fast (highest speed): 110.8 kHz BW, 51.5 mW per channel

Median (half speed): 55.4 kHz BW, 27.5 mW per channel

Low power (lowest power): 13.8 kHz BW, 9.375 mW per channel

Input BW range: dc to 110.8 kHz

Programmable input bandwidth/sampling rates

CRC error checking on data interface

Daisy-chaining

Linear phase digital filter

Low latency sinc5 filter

Wideband brick wall filter: ± 0.005 dB ripple to 102.4 kHz

Analog input precharge buffers

Power = 2.25 V to 5.0 = 1.8 V

64-lead LQFP package, no exposed pad

Temperature range: -40°C to $+105^{\circ}\text{C}$

Application

Data acquisition systems: USB/PXI/Ethernet

Instrumentation and industrial control loops

Audio testing and measurement

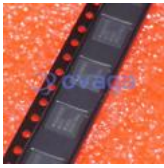
Vibration and asset condition monitoring

3-phase power quality analysis

Sonar

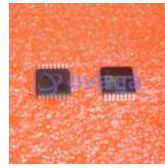
High precision medical electroencephalogram (EEG)/ electromyography (EMG)/electrocardiogram (ECG)

Related Products



[ADAS3022BCPZ](#)

Analog Devices, Inc
LFCSP-40



[AD7266BSUZ](#)

Analog Devices, Inc
TQFP-32



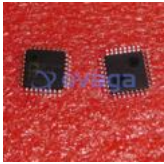
[AD574AJNZ](#)

Analog Devices, Inc
PDIP-28



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SOIC-16



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