

ADS1281PW
1k units from:
€ 24.82



ADS1281

Ultra-High Performance 24-Bit ADC

Francisco Sanchez, Silica Spain

The ADS1281 is an extremely high-performance, single-chip analog-to-digital converter (ADC) designed for the demanding needs of energy exploration and seismic monitoring environments. The single-chip design promotes board area savings for improvements in high-density applications.

The converter uses a fourth-order, inherently stable, delta-sigma modulator that provides outstanding noise and linearity performance. The modulator is used either in conjunction with the on-chip digital filter or can be bypassed for use with post-processing filters.

The digital filter consists of sinc and finite impulse response (FIR) low-pass stages followed by an infinite impulse response (IIR) high-pass filter (HPF) stage. Selectable decimation provides data rates from 250 to

4000 samples per second (SPS). The FIR low-pass stage provides both linear and minimum phase response. The HPF features an adjustable corner frequency. On-chip gain and offset scaling registers support system calibration.

The synchronization input (SYNC) can be used to synchronize the conversions of multiple ADS1281s. The SYNC input also accepts a clock input for continuous alignment of conversions from an external source. Together, the modulator and filter dissipate only 12mW.

Key Features

- High resolution: 130dB SNR (250sps), 127dB SNR (500sps)
- Flexible digital filter

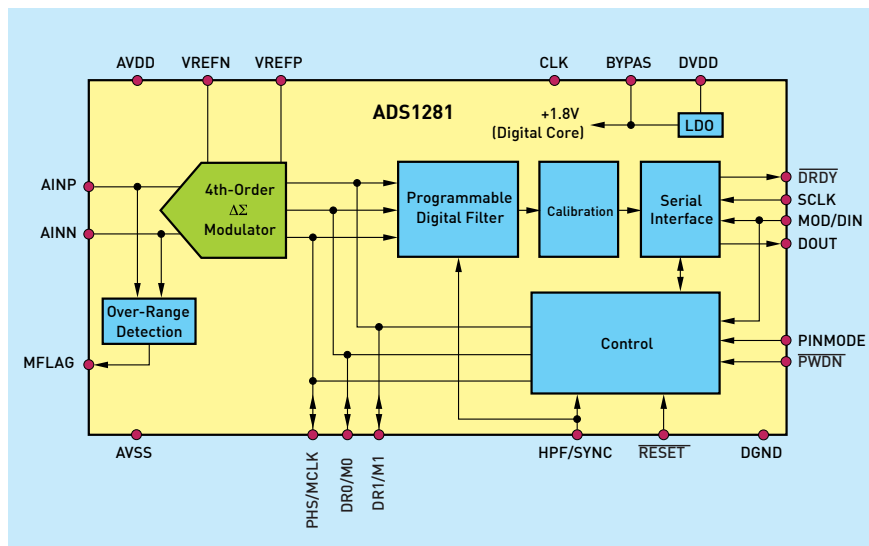
- High accuracy: THD -122dB (typ), -115db (max)
- Inherently stable modulator with fast responding over-range detection
- Filter bypass option
- Low power consumption: 12mW operating, 10μW shutdown
- Calibration engine for offset and gain correction
- Synchronization input
- Analog supply: Unipolar (+5V) or Bipolar (±2.5V)
- Digital supply: 1.8...3.3V

Key Applications

- Seismic/Energy Exploration
- Earthquake and Building Monitors
- Anyone measuring low frequencies with hydrophones or geophones
- Scientific Instrumentation
- High Resolution Analytical Balances

Key Design Tips

- This Device is featured in the Silica Speedway Design Workshop: Amplifier & Data Converter Design Optimization (see page 52).
- The ADS1281 provides board area savings by integrating the analog modulator with the programmable digital filter. Other competitive solutions in this performance range require a multichip solution; this not only increases the board space but also reduces reliability due to increased component count.



Service available or already delivered T&R from Manufacturer.
Tapes are available, but not stocked at Avnet Logistics due to low demand.
Device supported by or programming equipment, but the socket for this package must be provided by customer.

P/N	Package	Programming	Taping & Reeling	Marking
ADS1281PW	24-pin TSSOP			

AMPLIFIERS
CONNECTIVITY, COMMUNICATION & INTERFACE ICs
DATA CONVERTER ICs
DIGITAL SIGNAL PROCESSORS
DISCRETES
MEMORIES
MICRO-CONTROLLERS & PROCESSORS
OPERATING SYSTEMS
OPTOELECTRONICS & DISPLAYS
POWER MANAGEMENT ICs
PROGRAMMABLE LOGIC DEVICES
TOOLS & SERVICES