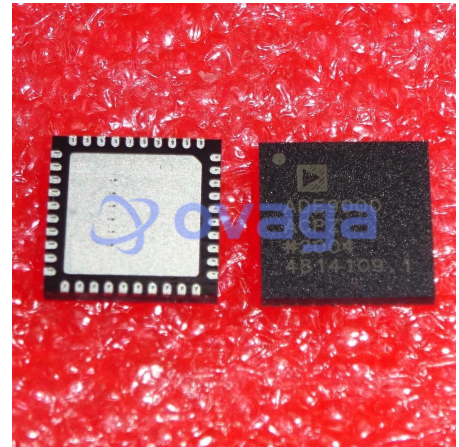


Multiphase Energy & Power Quality Monitoring, 2.97 to 3.63 V supply, LFCSP-40

Manufacturers	Analog Devices, Inc
Package/Case	40-WFQFN, CSP
Product Type	Data Conversion ICs
RoHS	Pb-free Halide free
Lifecycle	



Images are for reference only

Please submit RFQ for ADE9000ACPZ or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

General Description

The ADE9000 is a highly accurate, fully integrated, multiphase energy and power quality monitoring device. Superior analog performance and a digital signal processing (DSP) core enable accurate energy monitoring over a wide dynamic range. An integrated high end reference ensures low drift over temperature with a combined drift of less than ± 25 ppm/ $^{\circ}\text{C}$ maximum for the entire channel including a programmable gain amplifier (PGA) and an analog-to-digital converter (ADC).

The ADE9000 offers complete power monitoring capability by providing total as well as fundamental measurements on rms, active, reactive, and apparent powers and energies. Advanced features such as dip and swell monitoring, frequency, phase angle, voltage total harmonic distortion (VTHD), current total harmonic distortion (ITHD), and power factor measurements enable implementation of power quality measurements. The $\frac{1}{2}$ cycle rms and 10 cycle rms/12 cycle rms, calculated according to IEC 61000-4-30 Class S, provide instantaneous rms measurements for real-time monitoring.

The ADE9000 offers an integrated flexible waveform buffer that stores samples at a fixed data rate of 32 kSPS or 8 kSPS, or a sampling rate that varies based on line frequency to ensure 128 points per line cycle. Resampling simplifies fast Fourier transform (FFT) calculation of at least 50 harmonics in an external processor.

The ADE9000 simplifies the implementation of energy and power quality monitoring systems by providing tight integration of acquisition and calculation engines. The integrated ADCs and DSP engine calculate various parameters and provide data through user accessible registers or indicate events through interrupt pins. With seven dedicated ADC channels, the ADE9000 can be used on a 3-phase system or up to three single-phase systems. It supports current transformers (CTs) or Rogowski coils for current measurements. A digital integrator eliminates a discrete integrator required for Rogowski coils.

The ADE9000 absorbs most complexity in calculations for a power monitoring system. With a simple host microcontroller, the ADE9000 enables the design of standalone monitoring or protection systems, or low cost nodes uploading data into the cloud.

Note that throughout this data sheet, multifunction pins, such as CF4/EVENT/DREADY, are referred to either by the entire pin name or by a single function of the pin, for example, EVENT, when only that function is relevant.

Features

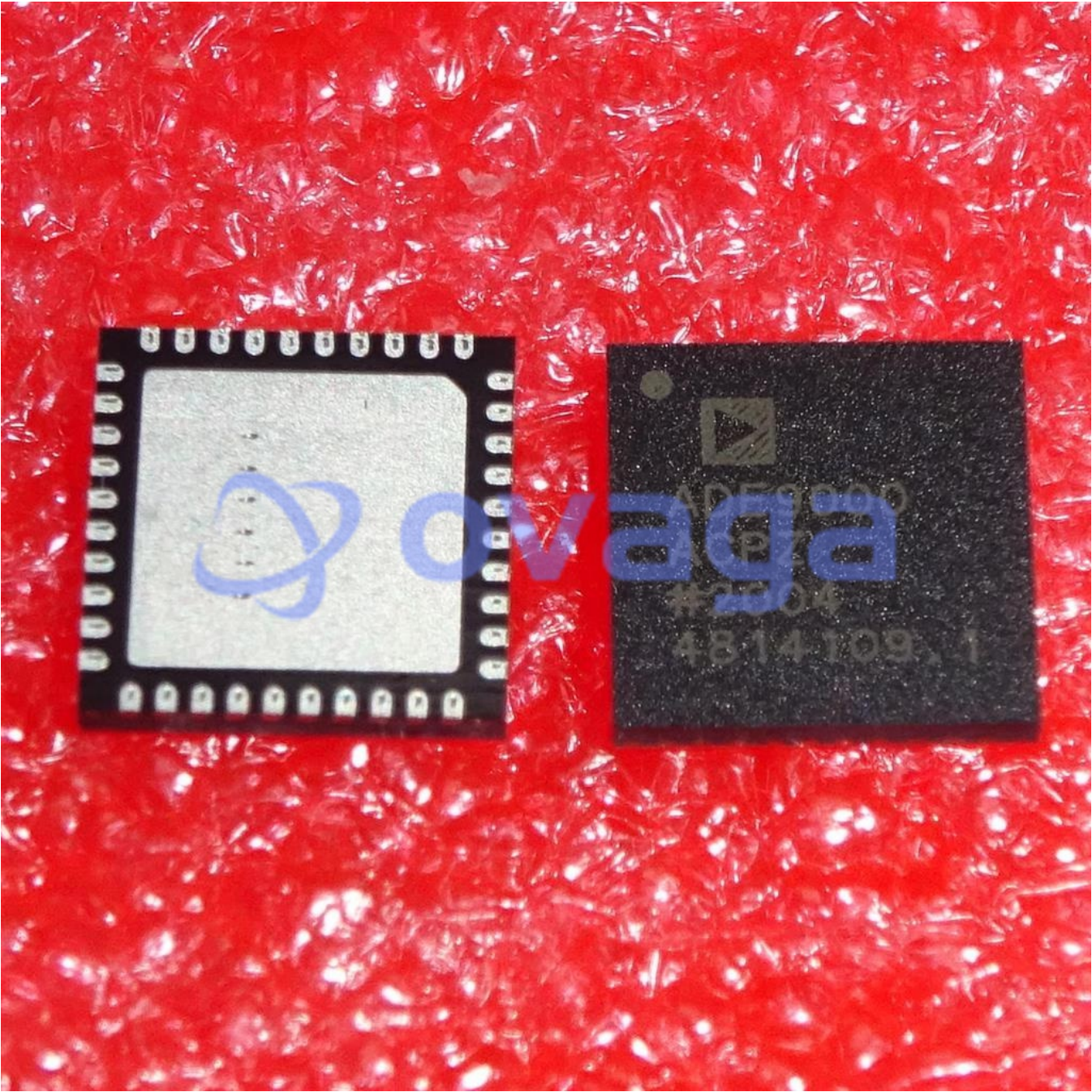
7 high performance ADCs

Application

Energy and power

101 dB SNR	monitoring
Wide input voltage range: ± 1 V, 707 mV rms FS at >	Power quality monitoring
Differential inputs	Protective devices
Class 0.2 metrology with standard external components	Machine health
Power quality measurements	Smart power distribution units
Enables implementation of IEC 61000-4-30 Class S	Polyphase energy meters
VRMS $\frac{1}{2}$, IRMS $\frac{1}{2}$ rms voltage refreshed each half cycle	
10 cycle rms/12 cycle rms	
Dip and swell monitors	
Line frequency—one per phase	
Zero crossing, zero-crossing timeout	
Phase angle measurements	
Supports CTs and Rogowski coil (di/dt) sensors	
Multiple range phase/gain compensation for CTs	
Digital integrator for Rogowski coils	
Flexible waveform buffer	
Able to resample waveform to ensure 128 points per line cycle for ease of external harmonic analysis	
Events, such as dip and swell, can trigger waveform storage	
Simplifies data collection for IEC 61000-4-7 harmonic analysis	
Advanced metrology feature set	
Total and fundamental active power, volt amperes reactive (VAR), volt amperes (VA), watthour, VAR hour, and VA hour	
Total and fundamental IRMS, VRMS	
Total harmonic distortion	
Power factor	
Supports active energy standards: IEC 62053-21 and IEC 62053-22; EN50470-3; OIML R46; and ANSI C12.20	
Supports reactive energy standards: IEC 62053-23, IEC 62053-24	
High speed communication port: 20 MHz serial port interface (SPI)	

Integrated temperature sensor with 12-bit successive approximation register (SAR) ADC



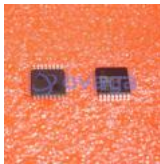


Related Products



[ADAS3022BCPZ](#)

Analog Devices, Inc
LFCSP-40



[AD7266BSUZ](#)

Analog Devices, Inc
TQPF-32



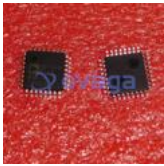
[AD574AJNZ](#)

Analog Devices, Inc
PDIP-28



[AD7401YRWZ](#)

Analog Devices, Inc
SOIC-16



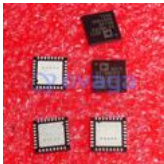
[AD7938BSUZ](#)

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[AD7192BRUZ-REEL](#)

Analog Devices, Inc
TSSOP-24



[AD7124-8BCPZ-RL7](#)

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[AD9680BCPZ-500](#)

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LFCSP-64