ADS1120QPWRQ1

4-Channel Single ADC Delta-Sigma 2ksps 16-bit Serial (5-Wire, 4-Wire, 3-Wire, SPI) Automotive 16-Pin TSSOP T/R

Manufacturer:	Texas Instruments, Inc
Package/Case:	TSSOP16
Product Type:	Data Conversion ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active

Images are for reference only

Inquiry

General Description

The ADS1120-Q1 is a precision, 16-bit, analog-to-digital converter (ADC) that offers many integrated features to reduce system cost and component count in applications measuring small sensor signals. The device features two differential or four single-ended inputs through a flexible input multiplexer (MUX), a low-noise, programmable gain amplifier (PGA), two programmable excitation current sources, a voltage reference, an oscillator, a low-side switch, and a precision temperature sensor.

The device can perform conversions at data rates up to 2000 samples-per-second (SPS) with single-cycle settling. At 20 SPS, the digital filter offers simultaneous 50-Hz and 60-Hz rejection for noisy industrial applications. The internal PGA offers gains up to 128 V/V. This PGA makes the ADS1120-Q1 ideally-suited for applications measuring small sensor signals, such as resistance temperature detectors (RTDs), thermocouples, thermistors, and bridge sensors. The device supports measurements of pseudo- or fully-differential signals when using the PGA. Alternatively, the device can be configured to bypass the internal PGA while still providing high input impedance and gains up to 4 V/V, allowing for single-ended measurements.

Power consumption is as low as 120 µA when operating in duty-cycle mode with the PGA disabled. Communication to the device is established through a mode 1 SPI-compatible interface. The ADS1120-Q1 is offered in a TSSOP-16 package and is specified over a temperature range of –40°C to +125°C.

Key Features

AEC-Q100 qualified for automotive applications
Temperature grade 1: –40°C to +125°C, T_A

Functional Safety-Capable
Documentation available to aid functional safety system design

Wide supply range: 2.3 V to 5.5 V

Programmable gain: 1 V/V to 128 V/V

Programmable data rates: 5 SPS to 2 kSPS

16-bit, noise-free resolution at 20 SPS

Simultaneous 50-Hz and 60-Hz rejection at
20 SPS with single-cycle settling digital filter

Two differential or four single-ended inputs

Dual-matched programmable current sources:
50 µA to 1.5 mA

Internal 2.048-V reference: 5 ppm/°C (typ) drift

Internal 2% accurate oscillator

Internal temperature sensor:
0.5°C (typ) accuracy

SPI-compatible interface (mode 1)

Recommended For You

ADS8326IDGKT

Texas Instruments, Inc

MSOP8

ADS7816U

Texas Instruments, Inc

SOP8

ADS1110A0IDBVR

Texas Instruments, Inc

SOT23-6

ADS1015BQDGSRQ1

Texas Instruments, Inc

VSSOP-10

ADS7805UB

Texas Instruments, Inc

SOP28

ADS774KU

Texas Instruments, Inc

SOP28

ADS7846E

Texas Instruments, Inc

SSOP16

ADS8344NB

Texas Instruments, Inc

SSOP20

ADS1254E

Texas Instruments, Inc

SSOP20

ADS7842E

Texas Instruments, Inc

SSOP28

ADS1282IPW

Texas Instruments, Inc

TSSOP-28

ADS7843E/2K5

Texas Instruments, Inc

SSOP16

ADS1226IRGVT

Texas Instruments, Inc

QFN16

ADS825E

Texas Instruments, Inc

SSOP28

ADS7825U

Texas Instruments, Inc

SOP28