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# AK9242

## AFE with Dual 16-Bit 1.1MSPS ZDS A/D Converter

### 1. General Description

The AK9242 is an Analog Front End with 16-bit 1.1MSPS ZDS\* A/D converters. They integrate a programmable gain amplifier (PGA) that is able to select input range according to a system. A polar coordinate calculation function is also integrated, and it reduces the load of DSP or microcomputer. The AK9242 is housed in a space-saving 24-pin QFN package.

\* ZDS: Zero latency Delta Sigma

A ZDS A/D converter realizes ultrafast response of SAR with maintaining high accuracy conversion like a delta-sigma converter, based on AKM's accumulated experience and know-how in analog-digital LSI technology. It contributes to improve the speed and the accuracy of negative feedback system. The AK9242 has longer acquisition time than an SAR, reducing buffer load of input stage of the IC. For example, a ZDS A/D converter can achieve small, fast and high accurate motor systems.

### 2. Features

- Simultaneous Sampling 16-bit ZDS A/D Converter
- Sampling Rate: 1.1MSPS
- Differential Inputs
- Current Input or Voltage Input Selectable
- Selectable Low-Pass Filter
- PGA Function
- S/N: 82 dBFS (Typ.) at 20kHz Input
- 16bit No Missing Code, INL:  $\pm 8$  LSB (Max.)
- Polar coordinate calculation function
- Offset/Gain/Phase adjustment function
- Power Consumption: 104mA (Typ.) (Voltage Input Mode,  $f_s = 1.1$ MSPS,  $V_{DD} = 5V, DRV_{DD} = 3V$ )
- Power Supply:  $V_{DD}: 4.2 \sim 5.5V$   
 $DRV_{DD}: 2.7 \sim 5.5V$
- Operational Temperature Range ( $T_a$ ):  $-40 \sim 105^\circ C$
- Small Package: 24-pin QFN (4mm x 4mm)

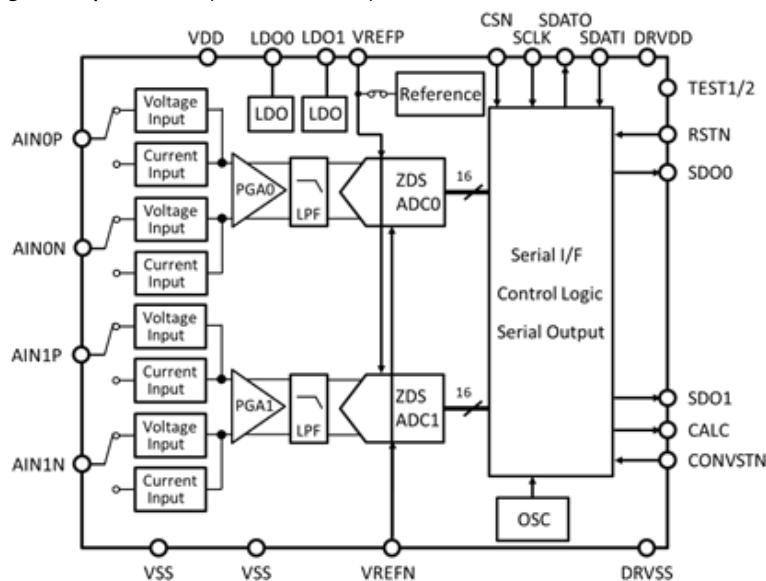


Figure 1. Block Diagram

**Thank you for your access to AKM product information.**

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