



# AK9232/33/34

## Dual 18/16/14-Bit 1.1MSPS ZDS A/D Converter

### 1. General Description

The AK9232/33/34 are 18/16/14-bit 1.1MSPS ZDS (\*) A/D converter. A polar coordinate calculation function is also integrated, and it reduces the load of DSP or microcomputer. The AK9232/33/34 are available in an ultra-small package, saving space on the printing board.

(\*) ZDS: Zero latency Delta Sigma

A ZDS A/D converter realizes ultrafast response of SAR while 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 improving the speed and the accuracy of negative feedback circuits. A ZDS A/D converter can achieve small and high accurate motor systems..

### 2. Features

- 2ch Simultaneous Sampling 18/16/14-bit ZDS A/D Converter
- Sampling Rate: 1.1MSPS
- Differential Input
- S/N: 88 dB (Typ.) at 20 kHz Input (AK9232)  
88 dB (Typ.) at 20 kHz Input (AK9233)  
84 dB (Typ.) at 20 kHz Input (AK9234)
- 18-bit No Missing Code, INL:  $\pm 5.0$  LSB (Typ.) @ $V_{in} = -6\text{dBFS}$  (AK9232)  
16-bit No Missing Code, INL:  $\pm 1.25$  LSB (Typ.) @ $V_{in} = -6\text{dBFS}$  (AK9233)  
14-bit No Missing Code, INL:  $\pm 0.75$  LSB (Typ.) @ $V_{in} = -6\text{dBFS}$  (AK9234)
- Polar coordinate calculation function
- Offset/Gain Adjustment Function
- Power Consumption: 130 mW/ch ( $f_s=1.1\text{MSPS}$ ,  $V_{DD}=1.8\text{V}$ ,  $HV_{DD}=5\text{V}$ ,  $DRV_{DD}=3\text{V}$ )
- Power Supply  
VDD: 1.7 ~ 2.0 V  
HVDD: 4.75 ~ 5.25 V  
DRVDD: 2.7 ~ 5.25 V
- Operational Temperature Range:  $-40 \sim 105^\circ\text{C}$
- Package: Ultra Small 24-pin QFN (4mm x 4mm)

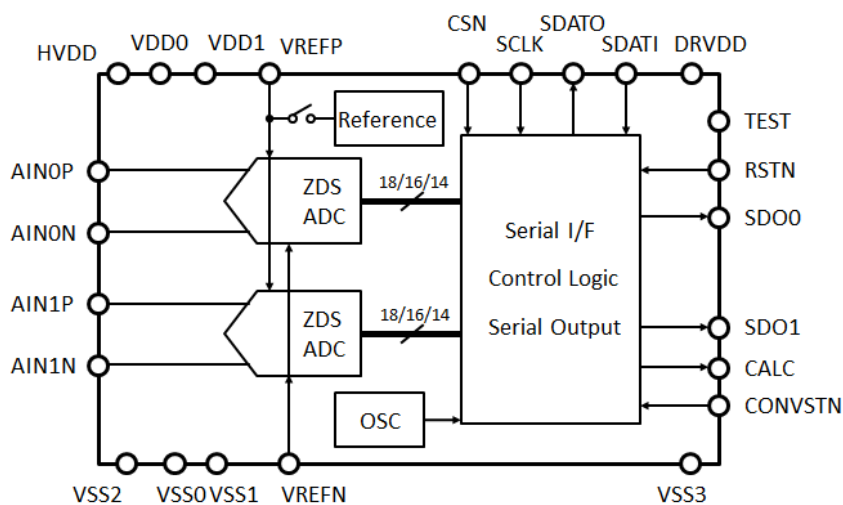


Figure 1. Block Diagram

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

**More detail product information is available,  
please contact our sales office or authorized distributors.**

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