



# = Preliminary = **AK9232/33/34** Dual 18/16/14-Bit 1.1MSPS ZDS A/D Converter

## General Description

The AK9232/33/34 are 18/16/14-bit 1.1MSPS ZDS\* A/D converters. A polar coordinate calculation function is also integrated, and it reduces the load of DSP or microcomputer. The AK9232/33/34 are 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. A ZDS A/D converter can achieve small and high accurate motor systems.

## Features

- Simultaneous Sampling 18/16/14-bit ZDS A/D Converter
- Sampling Rate: 1.1MSPS
- Differential Inputs
- S/N:
 

88 dBFS(Typ.)	at 20kHz Input	(AK9232)
87 dBFS(Typ.)	at 20kHz Input	(AK9233)
84 dBFS(Typ.)	at 20kHz Input	(AK9234)
- 18bit No Missing Code, INL:  $\pm 2$ LSB (Typ.) @Vin=-6dBFS (AK9232)
- 16bit No Missing Code, INL:  $\pm 1$ LSB (Typ.) @Vin=-6dBFS (AK9233)
- 14bit No Missing Code, INL:  $\pm 0.5$ LSB (Typ.) @Vin=-6dBFS (AK9234)
- Polar coordinate calculation function
- Offset/Gain adjustment function
- Power Consumption: 100mW/ch (fs= 1.1MSPS, VDD=1.8V, HVDD=5V, DRVDD=3V)
- Power Supply:
 

VDD : 1.7 ~ 2.0V
HVDD: 4.75 ~ 5.25V
DRVDD: 2.7 ~ 5.25V
- Operational Temperature Range (Ta): -40 ~ 105°C
- Small Package: 24-pin QFN (4mm x 4mm)

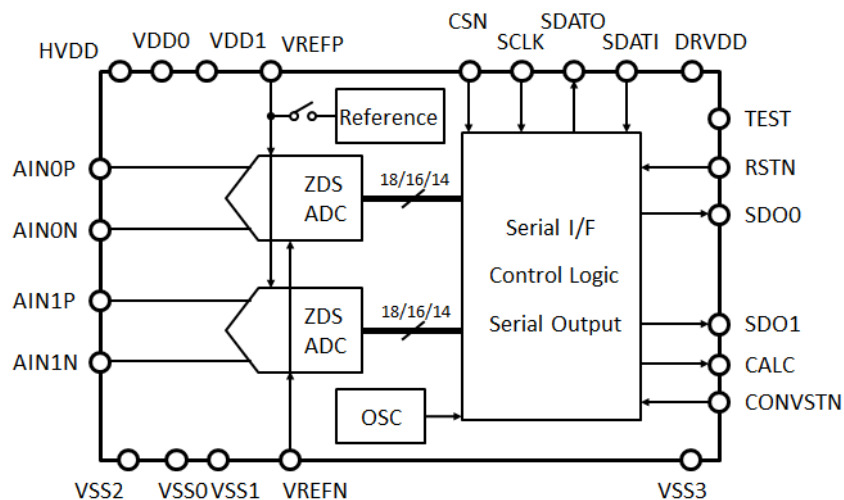


Figure 1. Block Diagram

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

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

#### IMPORTANT NOTICE

0. Asahi Kasei Microdevices Corporation ("AKM") reserves the right to make changes to the information contained in this document without notice. When you consider any use or application of AKM product stipulated in this document ("Product"), please make inquiries the sales office of AKM or authorized distributors as to current status of the Products.
1. All information included in this document are provided only to illustrate the operation and application examples of AKM Products. AKM neither makes warranties or representations with respect to the accuracy or completeness of the information contained in this document nor grants any license to any intellectual property rights or any other rights of AKM or any third party with respect to the information in this document. You are fully responsible for use of such information contained in this document in your product design or applications. AKM ASSUMES NO LIABILITY FOR ANY LOSSES INCURRED BY YOU OR THIRD PARTIES ARISING FROM THE USE OF SUCH INFORMATION IN YOUR PRODUCT DESIGN OR APPLICATIONS.
2. The Product is neither intended nor warranted for use in equipment or systems that require extraordinarily high levels of quality and/or reliability and/or a malfunction or failure of which may cause loss of human life, bodily injury, serious property damage or serious public impact, including but not limited to, equipment used in nuclear facilities, equipment used in the aerospace industry, medical equipment, equipment used for automobiles, trains, ships and other transportation, traffic signaling equipment, equipment used to control combustions or explosions, safety devices, elevators and escalators, devices related to electric power, and equipment used in finance-related fields. Do not use Product for the above use unless specifically agreed by AKM in writing.
3. Though AKM works continually to improve the Product's quality and reliability, you are responsible for complying with safety standards and for providing adequate designs and safeguards for your hardware, software and systems which minimize risk and avoid situations in which a malfunction or failure of the Product could cause loss of human life, bodily injury or damage to property, including data loss or corruption.
4. Do not use or otherwise make available the Product or related technology or any information contained in this document for any military purposes, including without limitation, for the design, development, use, stockpiling or manufacturing of nuclear, chemical, or biological weapons or missile technology products (mass destruction weapons). When exporting the Products or related technology or any information contained in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations. The Products and related technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations.
5. Please contact AKM sales representative for details as to environmental matters such as the RoHS compatibility of the Product. Please use the Product in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. AKM assumes no liability for damages or losses occurring as a result of noncompliance with applicable laws and regulations.
6. Resale of the Product with provisions different from the statement and/or technical features set forth in this document shall immediately void any warranty granted by AKM for the Product and shall not create or extend in any manner whatsoever, any liability of AKM.
7. This document may not be reproduced or duplicated, in any form, in whole or in part, without prior written consent of AKM.