



# AK9255A/56A

## Dual 16/14-Bit 0.54MSPS ZDS-NS A/D Converter

### 1. General Description

The AK9255A/56A are 16/14-bit 0.54MSPS ZDS-NS (\* 1) A/D converters. They have noise suppression function and are capable of improving the system accuracy. The AK9255A/56A are available in a small package, saving space on the printed circuit board.

Notes:

\* 1. ZDS-NS: Zero latency Delta Sigma with Noise Suppression Function

A ZDS-NS 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. A ZDS-NS A/D converter has smaller input capacitance than SARs, reducing the buffer load of the input stage of the IC. Furthermore, the oversampling process is executed inside of the IC, and the averaging process is carried out with a built-in digital filter. Therefore, analog input signal noise can be suppressed, contributing to improving noise characteristics of the system. It also contributes to high-speed processing of a system that needs a noise averaging.

Application

- Motor Control : Position Measurement Using SinCos Encoders
- Three-Phase Power Controls
- Programmable Logic Controllers
- Power Quality Measurement
- Industrial Automation

### 2. Features

- |                          |  |   |                       |
|--------------------------|--|---|-----------------------|
| <input type="checkbox"/> | 2ch Simultaneous Sampling ZDS-NS A/D Converter |   |                       |
| <input type="checkbox"/> | Resolution, Sampling Rate:                     | 16-bit, 0.54 MSPS                                     | AK9255A               |
|                          |  | 14-bit, 0.62 MSPS                                     | AK9256A               |
| <input type="checkbox"/> | Differential Input / Pseudo Differential Input |   |                       |
| <input type="checkbox"/> | Noise Suppression Function                     |   |                       |
| <input type="checkbox"/> | 16bit No Missing Code                          | INL: $\pm 3.0$ LSB(Typ.)                              | AK9255A               |
|                          | 14bit No Missing Code                          | INL: $\pm 1.0$ LSB(Typ.)                              | AK9256A               |
| <input type="checkbox"/> | S/N  | 86 dBFS(Typ.)   | AK9255A (NS Setting1) |
|                          |  | 90 dBFS(Typ.)   | AK9255A (NS Setting4) |
|                          |  | 82 dBFS(Typ.)   | AK9256A (NS Setting1) |
|                          |  | 85 dBFS(Typ.)   | AK9256A (NS Setting4) |
| <input type="checkbox"/> | Power Dissipation:                             | VDD : 26 mA (Typ.)                                    |                       |
|                          |  | DRVDD : 0.3 mA (Typ.)                                 |                       |
|                          |  | (fs= 0.54MSPS, VDD= 3.3 V, DRVDD= 3.3 V, NS Setting1) |                       |
| <input type="checkbox"/> | Power Supply:                                  | VDD : 3.0 ~ 3.6 V                                     |                       |
|                          |  | DRVDD : 3.0 ~ 3.6 V                                   |                       |
| <input type="checkbox"/> | Operating Temperature Range:                   | -40 ~ 105 °C  |                       |
| <input type="checkbox"/> | Package:                                       | Small 16-pin QFN (3mm x 3mm, 0.5mm pitch)             |                       |

3. Block Diagram

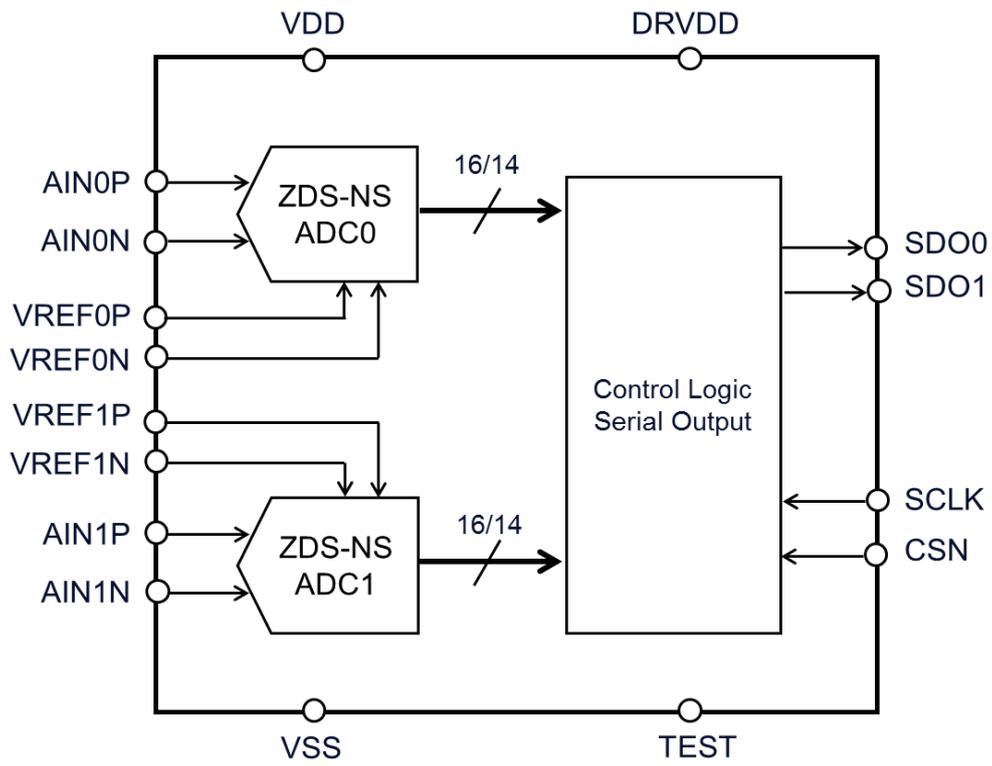
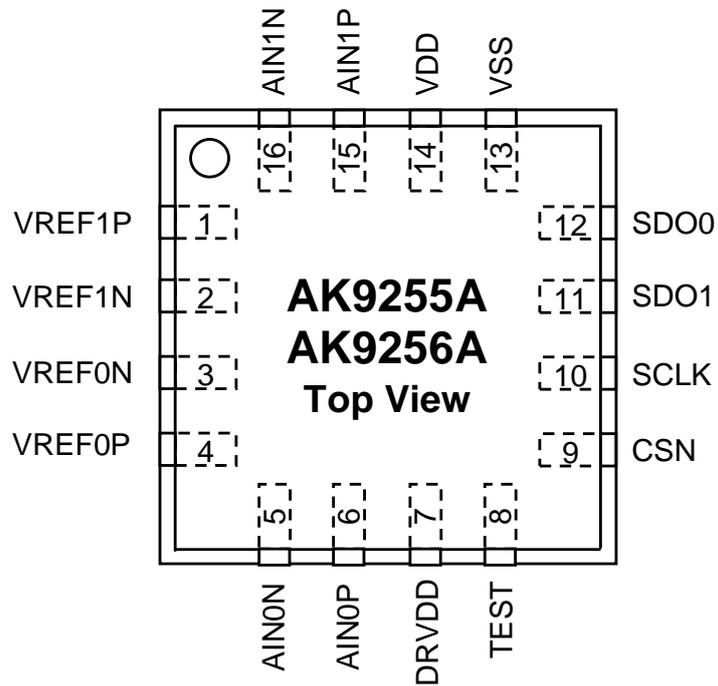


Figure 1. Block Diagram

**4. Pin Configurations**

■ Pin Configurations





**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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