Product brief AK09940

Ultrahigh precision 3-axis Electronic Magnetometer

1. General Description

AK09940 is ultrahigh precision 3-axis electronic magnetometer IC with ultrahigh sensitive TMR sensor technology.
Small package of AK09940 incorporates magnetic sensors for detecting magnetic field in the X-axis, Y-axis, and Z-axis, a sensor driving circuit, signal amplifier chain, and an arithmetic circuit for processing the signal from each sensor. Self-test function is also incorporated.

2. Features

☐ Functions:
- 3-axis magnetometer device
- Built-in A to D Converter for magnetometer data out
- 18-bit data out for each 3-axis magnetic component
  - Sensitivity: 10 nT/LSB (typ.)
  - Range: ±1200 μT (typ.)
- Serial interface
  - I^2C bus interface
    Standard and Fast modes compliant with Philips I^2C specification Ver.2.1
  - 4-wire SPI
- Operation mode
  - Power-down, Single measurement, Continuous measurement and Self-test
- DRDY function for measurement data ready
- Magnetic sensor overflow monitor function
- Built-in oscillator for internal clock source
- Power on Reset circuit
- Self-test function with internal magnetic source
- Built-in temperature sensor
- Built-in magnetic sensitivity adjustment circuit
- 8 FIFO data buffer
- Selectable sensor drive
  - Low power drive / Low noise drive

☐ Operating temperatures:
- -30˚C to +85˚C

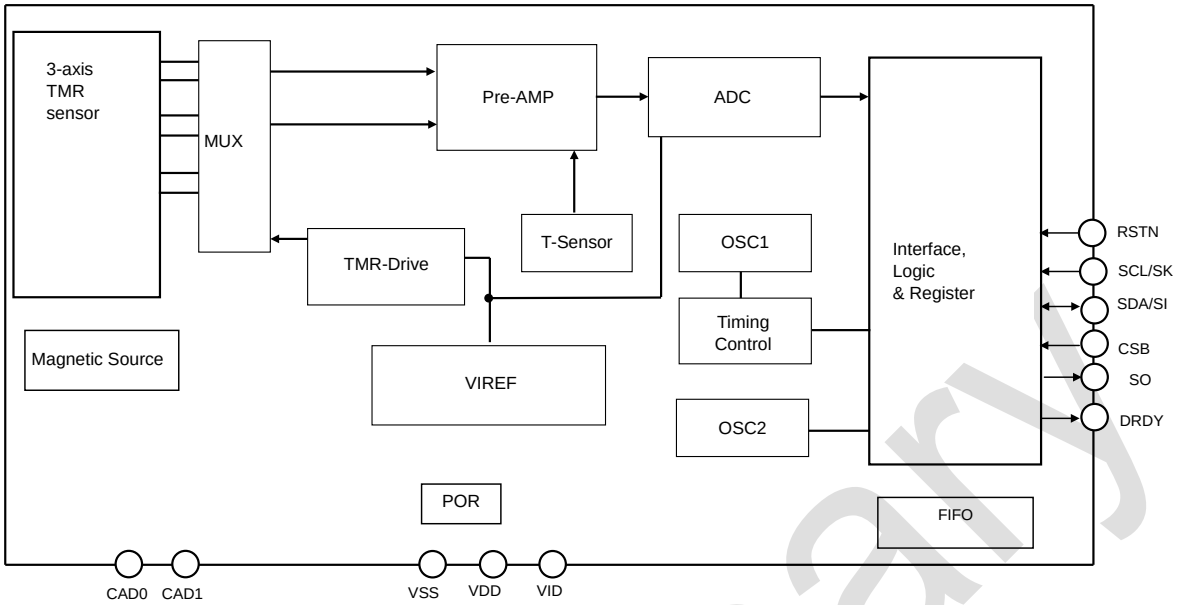
☐ Operating supply voltage:
- Analog power supply +1.7V to +1.98V
- Digital Interface supply +1.65V to analog power supply voltage

☐ Current consumption:
- Power-down: 2 μA (typ.)
- Measurement:
  - Average current consumption at 100 Hz repetition rate
    - Low power drive 1: 0.04mA (typ.)
    - Low power drive 2: 0.06mA (typ.)
    - Low noise drive 1 : 0.11mA (typ.)
    - Low noise drive 2 : 0.21mA (typ.)

☐ Package:
- AK09940 11-pin LGA: 1.6 mm × 1.6 mm × 0.58 mm (typ.)

Preliminary

3. Block Diagram and Functions



4. Evaluation Kit



Evaluation Kit “ACSP09940”

Preliminary

Preliminary

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