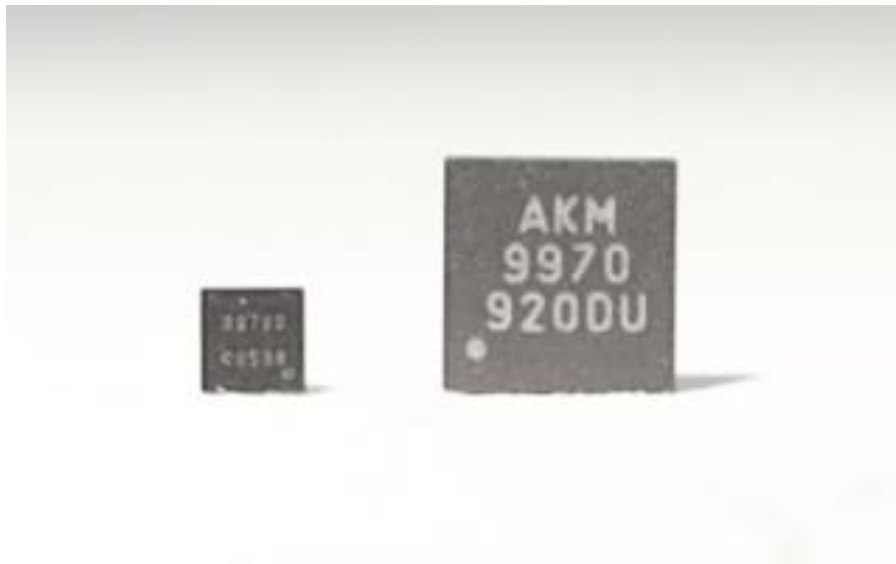


AK09970D

Ultra-small Tri-axis Magnetic Smart Switch



AK09970D / AK09970N

Description

Reduction of Package Area to 1/5 of Conventional Product

By adopting a 1.35mm, 6-pin WL-CSP package, the area has been reduced to an ultra-small size compared to the conventional 3.0mm, 16-pin QFN package.

Wide Measurement Range & High Resolution

The AK09970D has a high sensitivity setting of 36mT on tri-axis. It is able to measure a wide range of magnetic field from microtesla to millitesla such as from geomagnetic to a magnet since it has high measurement resolution of 1.1 μ T/LSB in high sensitivity mode. In addition, wide range setting of 101mT can be achieved via the Z axis.

Low-power Consumption when Battery Life is Critical

The AK09970D can operate using only a few μ A, thus consuming a very low current that satisfies a demand of IoT products, (Refer to the Specification Table). It contributes to a long battery life of a product that needs constant acquisition of sensor data to monitor an object's status.

Magnetic Field Output (Digital)/ Data Ready Alert (DRDY bit)

The AK09970D measures magnetic field on all tri-axis via intermittent drive and outputs the result as digital data, (supporting I2C communications). It outputs a Data Ready alert to the dedicated register when the measurement data is updated. (0.25/0.5/1/10/20/15/100Hz interval modes or single measurement mode is selectable for intermittent drive options.)

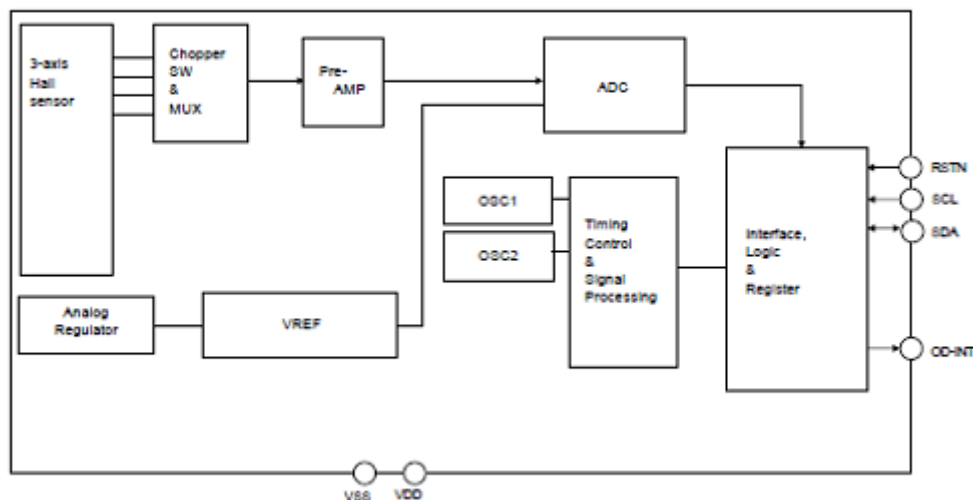
Magnetic Event Interrupt Function

The AK09970D has magnetic event interrupt pin. Two thresholds can be programmed for each axis, (setting the resolution equal to the measuring resolution). When a magnetic field that exceeds the threshold is sent, the AK09970D outputs a “Magnetic Event” interrupt to external output pin. The magnetic event that causes an interrupt output can be selected freely by setting a register. (Data Ready alert can also be output from an interrupt pin). Interrupt pin is available for magnetic event : the OD-INT pin for open-drain output. Therefore, the output format can be selected depending on the customer’s product.

Application

Opening, closing, stroke, rotation and push detection in mobile devices

Block Diagram



AK09970D

Main Specifications

Tri-axis Magnetic Sensor		Tri-axis Magnetic Smart Switch
Part Number		AK09970D
Technology		Si Hall
Power supply (VDD)	[V]	1.7 to 3.6
Magnetic sensitivity	[μ T/LSB]	1.1
Measurement range	[mT]	X,Y,Z \pm 36
Measuremet time	[ms]	0.23
Current consumption @ 100Hz ODR (Low power drive)	[μ A]	27
Current consumption when measuring	[mA]	1.5
Output pin		Interrupt pin (CMOS/Open Drain)
Max. ODR	[Hz]	2000
Interface		I2C
Package		WLCSP
Package Size		

Datasheet

You can download it by registering with myAKM.

