

Magnetic Sensor ICs

Digital Linear Hall Sensor



AS8801

● General Description

AS8801 is the digital linear Hall sensor in measuring the intensity of the magnetic flux through selecting options of the various sensitivity with the low power consumption providing a built-in 16 bits ADC digital output. It can also detect the open/close state for many applications by one or multiple external magnets.

This sensor is comprised of a Hall element, an offset cancellation circuitry, a programmable gain amplifier, a 16-bits low power ADC, and control logic in a single chip. The adjustment of the open/close state threshold values, the magnetic polarity, and the operation period can be programmed through I2C interface. The software package supports to convert the magnetic strength into the angle or distance by detecting intensity of flux between the external magnet and the sensing element. Because the small WLCSP package, the low current consumption, and the stable performance, the device can be used in the hand set and consumer electronics and any other industries. One of the typical applications in the smart phone is the lid opening angle measurement system.

The device is a RoHS and Green compliant WLCSP-9B (1.33 x 1.33 x 0.53mm³) package.

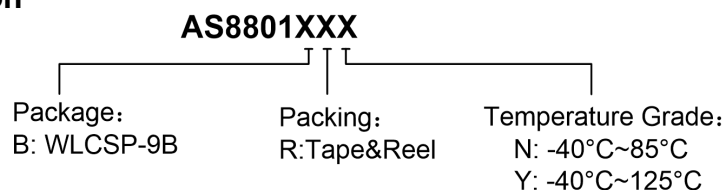
● Applications

- Magnetometer for External Detection
- Lid Opening Angle Detection
- Mobile Phones and Smart Phones
- Touch Screen Disable
- Mechanical Switch Replacement
- Universal Remote Control
- Control Display Switch
- VCM Modules

● Features

- Magnetometer device for magnets on external equipment
- Built-in 8~16bit Adjustable ADC for magnetometer data outputs
- Input Voltage Range V_{DD} : 1.8V to 3.6V
- Operation Current: 180uA (typ.) at 50Hz Operating Frequency
- Digital Interface Supply V_{ID} : 1.65V to V_{DD} (1.8V Typical)
- 16~8-bits selectable data outputs for each built-in hall element
- High Dynamic Range of Maximum $\pm 40.96mT$
- High Resolution of Maximum 0.3125uT/LSB (16-bit Setting with 10.24mT Dynamic Range)
- Programmable Through I²C Compatible Interface (Up to 400kHz): 1.65~3.65V I2C interface
- Interrupt Function: when magnetic intensity level sensed is higher than upper threshold level or lower than lower threshold level, interrupt signal is generated through INTB PAD
- Low Power Design: Standby Mode and Wait Mode
- Built-in Oscillator for internal Clock Source
- Power On Reset
- RoHS and Green Compliant
- WLCSP-9B (1.33 x 1.33 x 0.53mm³) Packages
- -40°C to +125 °C Temperature Range

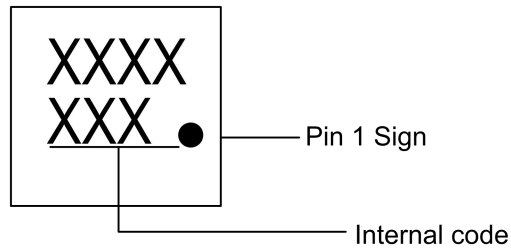
■ Ordering Information



Part Number	Function	Package Type	Package Qty	Temperature	Eco Plan
AS8801BRN	Magnetometer	WLCSP-9B	7-in reel 3000pcs/reel	-40~85°C	Green
AS8801BRY	Magnetometer	WLCSP-9B	7-in reel 3000pcs/reel	-40~125°C	Green

■ Marking Information

WLCSP-9B:



■ Typical Application Circuit

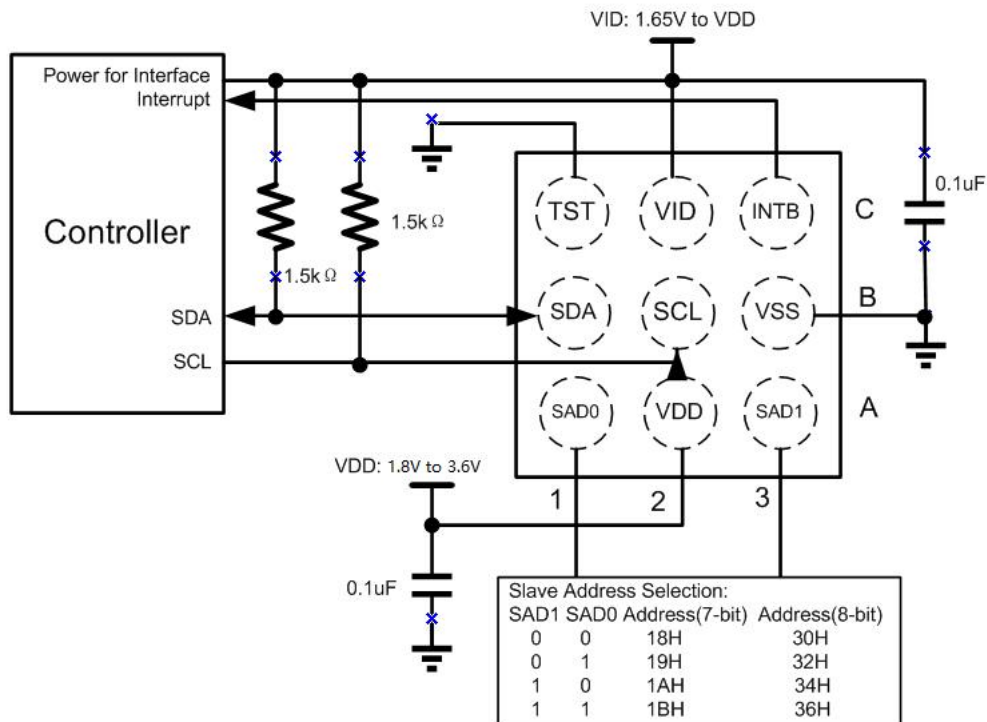


Figure 1, Typical Application Circuit of AS8801

■ Pin Configuration

WLCSP-9B (Top View):

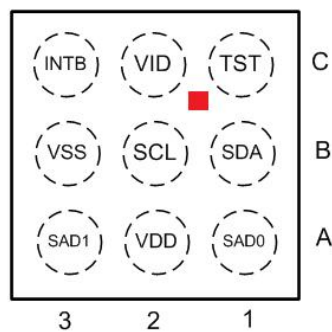
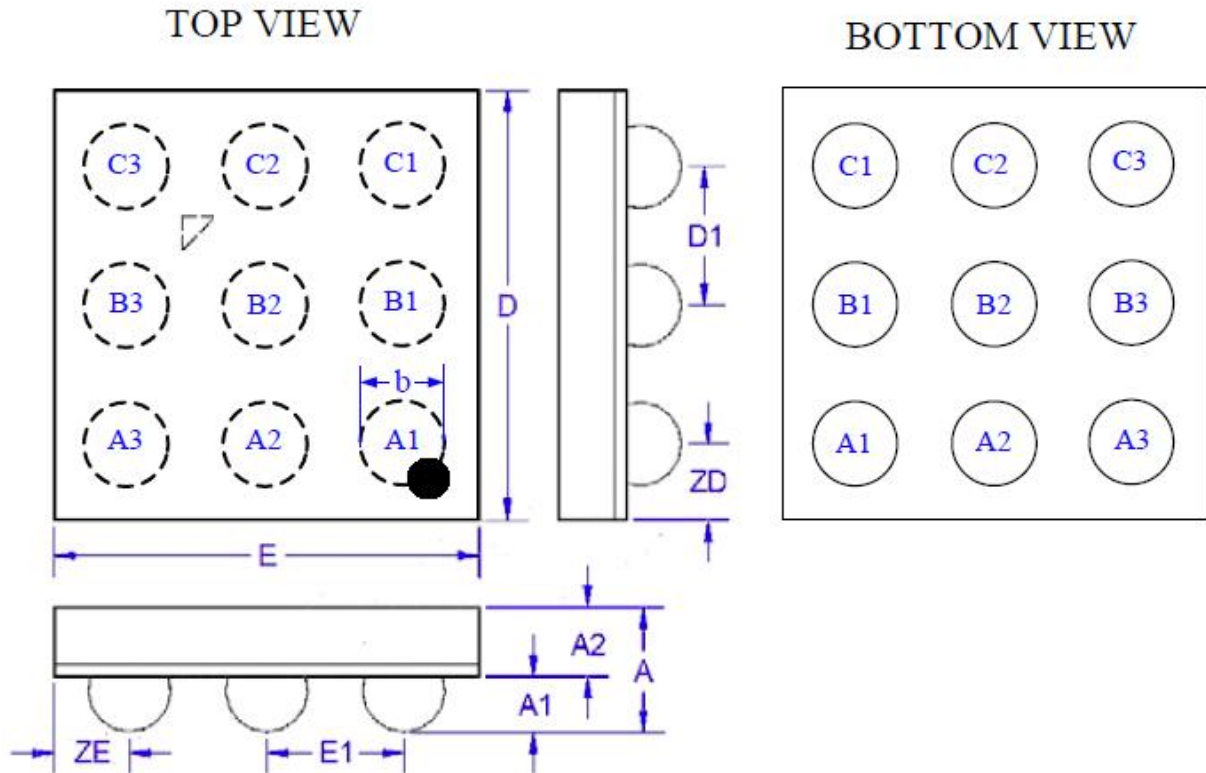


Figure 2, Pin Assignments

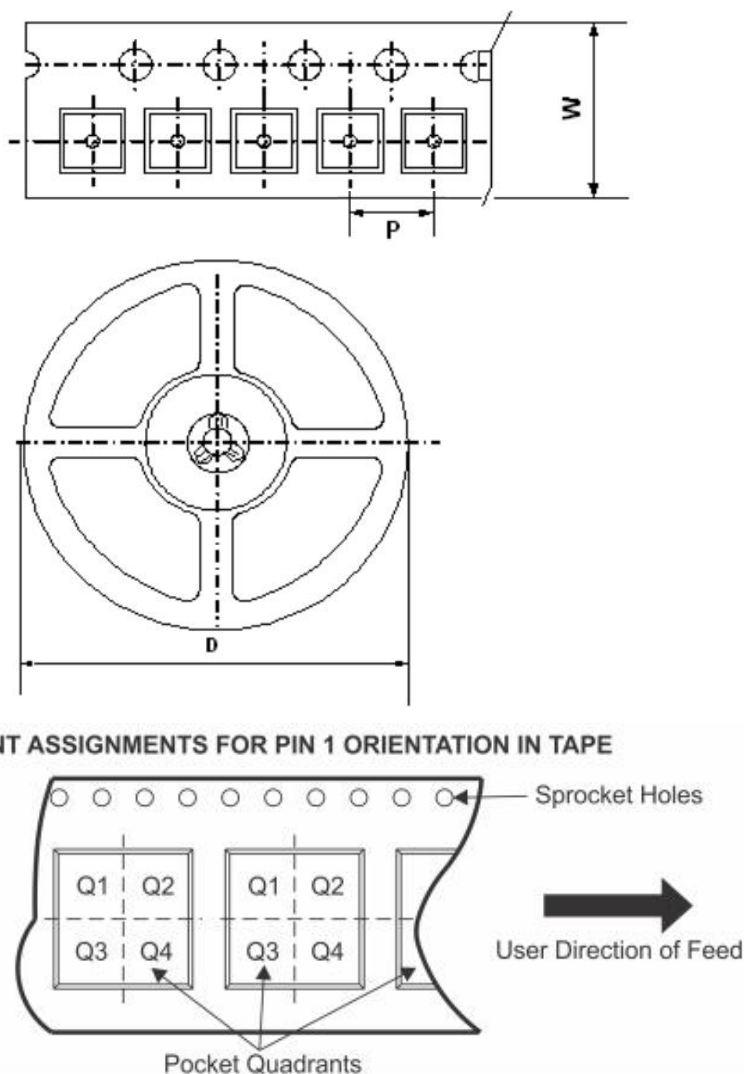
■ Package Information

WLCSP-9B:



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.470	0.590	0.019	0.023
A1	0.130	0.150	0.005	0.006
A2	0.390 BSC		0.015 BSC	
E1	0.400 BSC		0.016 BSC	
D1	0.400 BSC		0.016 BSC	
D	1.280	1.380	0.050	0.054
E	1.280	1.380	0.050	0.054
b	0.240 BSC		0.009 BSC	

■ Packing Information



QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE

Note: Carrier Tape Dimension, Reel Size and Packing Minimum

Device	Package Type	SPQ	Carrier Width (W)	Pitch(P)	Reel Size(D)	Pin1 Quadrant
AS8801BRN	WLCSP-9B	3000pcs	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	Q1
AS8801BRY	WLCSP-9B	3000pcs	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	Q1