

General Description

The AMR1320 is a 3D digital omnipolar magnetic switch that integrates anisotropic magnetoresistance (AMR) and CMOS technology in order to provide a magnetically triggered digital switch with high sensitivity, high accuracy, and low power consumption. AMR1320 enables 30 Hz sampling frequency, 1 μ A power consumption, a wide range of operating voltages from 1.8 V to 5.5 V, and operating temperature from -40~125 $^{\circ}$ C. It is available in packaging form factors of SOT23-3 (P/N AMR1320S).

Features and Benefits

- Anisotropic magnetoresistance (AMR) technology
- Ultra low power consumption: 1 μ A
- 30 Hz sampling frequency
- 3D omnipolar latching operation
- Push-pull (CMOS) output
- High sensitivity and low operate points (OP:17Gs, RP:12Gs)
- Compatible with a wide range of supply voltages
- Excellent thermal stability

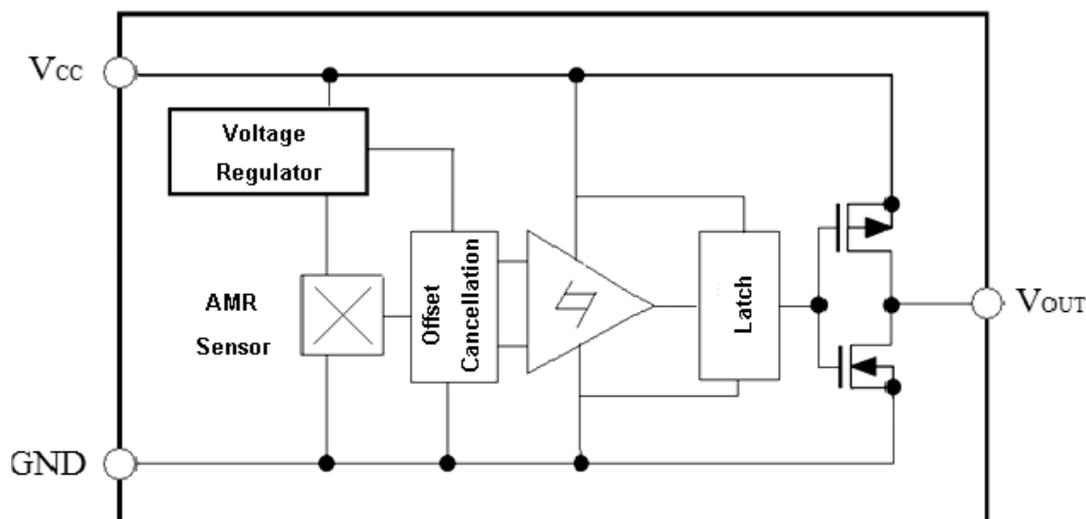


SOT23-3

Applications

- Magnetic interference proof switches
- Proximity switches

FUNCTIONAL BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Limit	Unit
Supply Voltage	V _{CC}	7	V
Reverse Supply Voltage	V _{RCC}	0.3	V
Output Current	I _{OUTSINK}	9	mA
Magnetic Flux Density	B	4000	G
ESD level(HBM)	V _{ESD}	4000	v
Operating Ambient Temperature	T _A	-40 ~125	°C
Storage Temperature	T _{stg}	-50 ~ 150	°C

SPECIFICATIONS

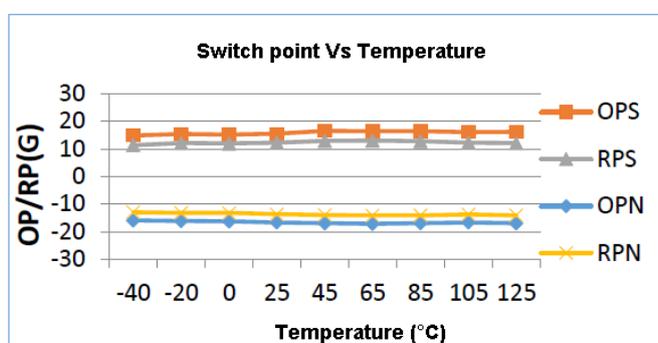
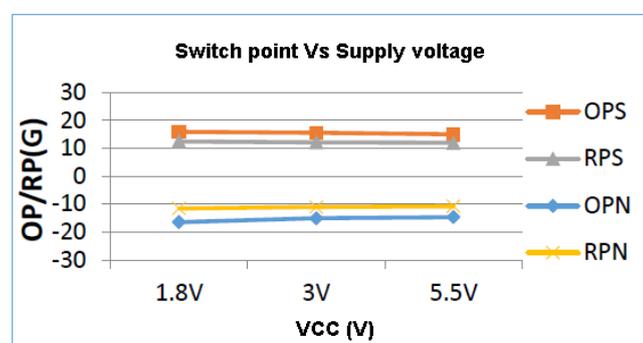
V_{CC} = 3.0 V, T_A = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Supply voltage	V _{CC}	operating	1.8	3.0	5.5	V
Average current	I _{CC}	output open	-	1	-	A
Output high voltage	V _{OH}	-	V _{CC} -0.3		V _{CC}	V
Output low voltage	V _{OL}	-	0	-	0.2	V

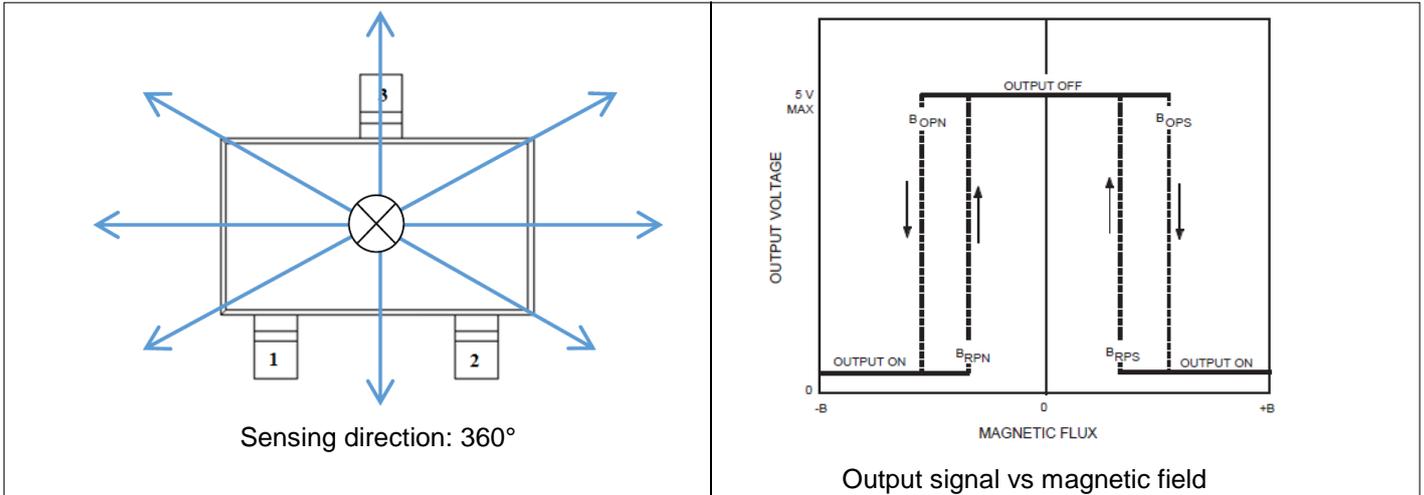
Parameters	Symbol	Min	Typ.	Max	Units
Operate Point	B _{OPS}	10	17	25	G
	B _{OPN}	-25	-17	-10	G
Release Point	B _{RPS}	8	12	20	G
	B _{RPN}	-20	-12	-8	G
Hysteresis	B _H	-	5	-	G

Note: a 0.1 μF capacitor is connected between V_{CC} and GND in all tests.

TYPICAL PERFORMANCE CHARACTERISTICS



OUTPUT SIGNAL CHARACTERISTICS

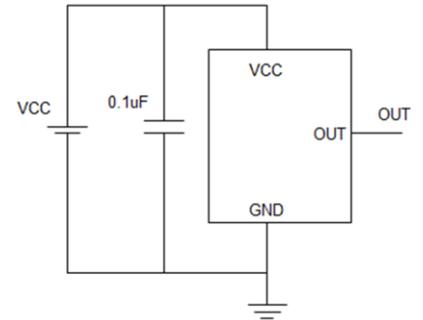


Note: The device output is high at zero field

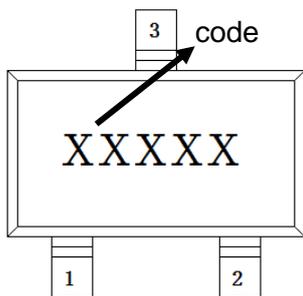
Application Information

The output of AMR1320 switches low level (status ON), when the magnetic field along the sensing axis exceeds the operate point BOPS or BOPN, and the device output switches high level (status OFF) when the magnetic field is reduced below the release point BRPS or BRPN. The difference between the BOPS and BRPS (or BOPN and BRPN) is the hysteresis BH of the device.

We recommend that an external bypass capacitor connects in close proximity to the device between the supply and ground pins to reduce noise. The typical value for this external bypass capacitor is 0.1 μ F.



PIN CONFIGURATION

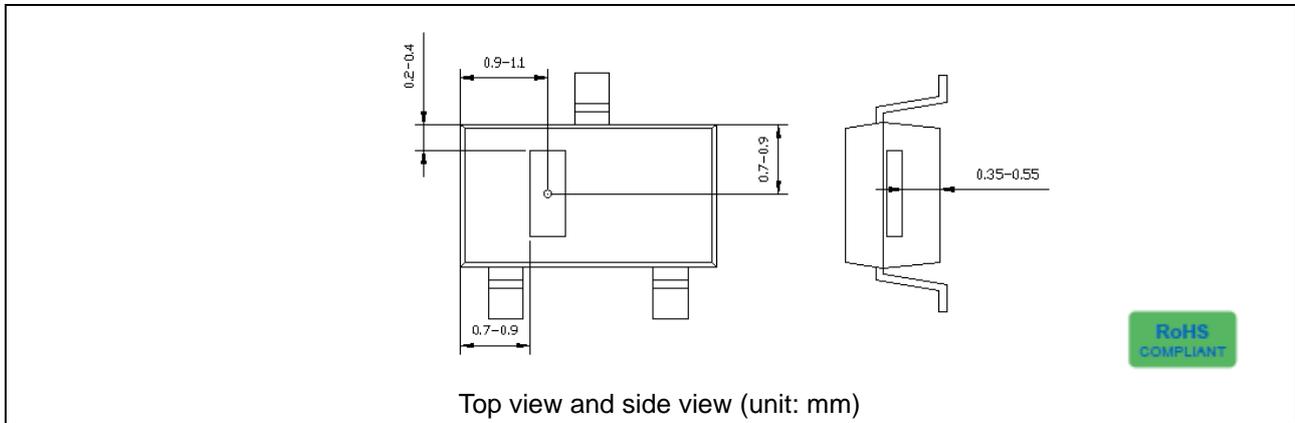
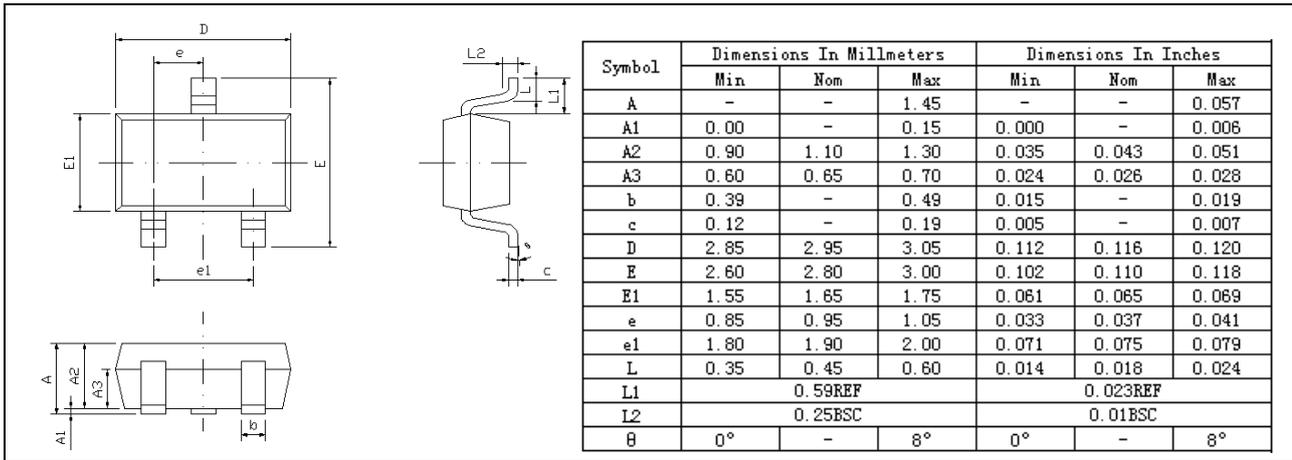


SOT23-3

Symbol	Pad No.
	SOT23-3
V_{CC}	1
V_{OUT}	2
GND	3

DIMENSIONS (mm)

SOT23-3 package drawing





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