

HS-324R-05-0300

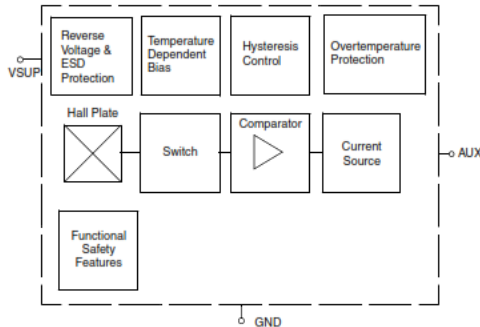


Product image serves as example only.

HS-324R-05-0300

Unipolar 2 - Wire
Flatpack Hall Effect Sensor

Block Diagram



Features

- Customized types available
- Operates with magnetic fields up to 12 kHz
- Current interface
- Compact size

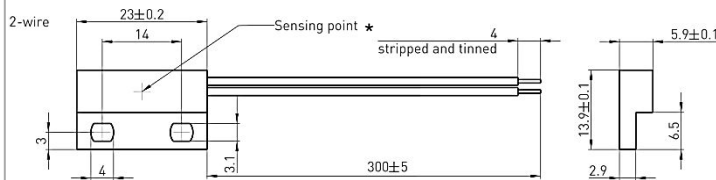
Approvals



Recommended Operating Conditions

Symbol	Parameter	Min.	Typ.	Max.	Unit	Conditions
V _{SUP}	Supply voltage	3	–	24	V	

Dimensions



* other positions on request

Wire Assignment

Name	Function	Cable colour
V _{SUP}	Supply voltage and output	red
GND	Ground	black

HS-324R-05-0300
 wire length (mm)

Material Information

	Material	Colour
Housing	ABS	black
Cable	UL 1007 AWG 24	red, black
Potting	Epoxy	black

Environmental Characteristics

Operating temperature	°C	- 20 to + 85
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Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Conditions
Supply						
V _{UV}	Undervoltage threshold	2	–	3	V	
I _{SUPlo}	Low supply current 1	2,5	–	5	mA	
I _{SUP}	Error current	0,8	–	1,9	mA	
			–		mA	
I _{SUPhi}	High supply current	12	–	17	mA	
I _{SUPR}	Reverse current	–	–	0,6	mA	for V _{SUP} = –18 V
Port Output						
B _{noise}	Effective noise of magnetic switching points (RMS) ²⁾	–	72	–	μT	For square wave signal with 12 kHz
t _i	Output jitter (RMS) ¹⁾	–	±0.58	±0.72	μs	For square wave signal with 1 kHz. Jitter is evenly distributed between –1 μs and +1 μs
t _d	Delay time ²⁾³⁾	–	16	21	μs	
t _{samp}	Output refresh period ²⁾	1,6	2,2	3	μs	
t _{en}	Enable time of output after exceeding of V _{UV}	20	50	60	μs	V _{SUP} = 12 V B > B _{on} + 2 mT or B < B _{off} – 2 mT

1) Characterized on small sample size, not tested

2) Guaranteed by design

3) Systematic delay between magnetic threshold reached and output switching

Absolute Maximum Ratings

Symbol	Parameter	Min.	Max.	Unit	Conditions
V _{SUP}	Supply voltage	–18	28	V	t < 96 h ¹⁾
		–	32	V	t < 5 min ¹⁾
		–	40	V	t < 10 x 400 ms "Load- Dump" ¹⁾ with series resistor R _V > 100 Ω.

1) No cumulative stress

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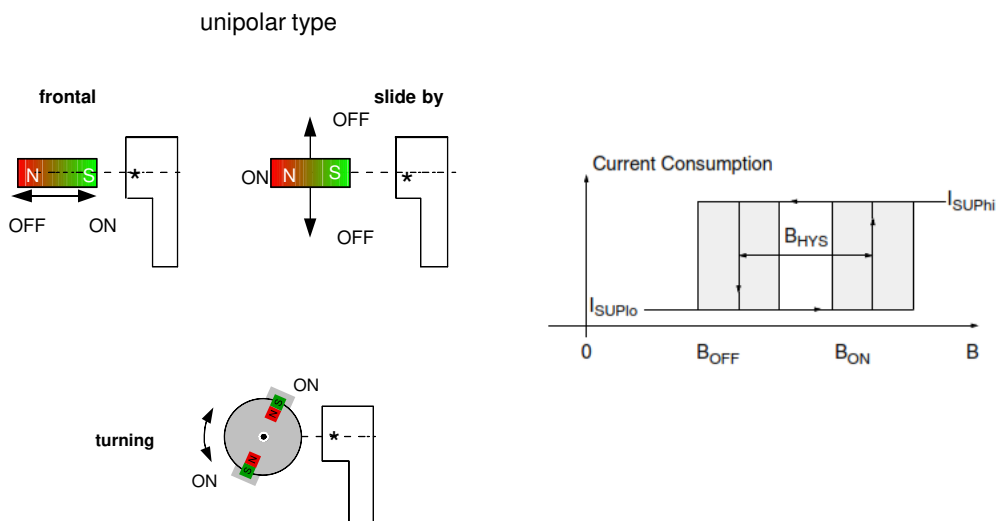
Magnetic Characteristics

Parameter	On point B_{ON}			Off point B_{OFF}			Hysteresis B_{HYS}		Unit
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	
T_J									
-40 °C	5.0	6,4	8,5	3,2	4,5	6,7	-	1,9	mT
25 °C	4,3	6	7,7	2,9	4,1	6,1	-	1,9	mT
170 °C	3,7	5,6	7,7	2,4	4.0	6,4	-	1,9	mT

¹⁾ The hysteresis is the difference between the switching points $B_{HYS} = B_{ON} - B_{OFF}$

Note: The sensor turns to high current consumption I_{SUPHi} with the magnetic north pole on the top side of the package and turns to low current consumption I_{SUPLo} if the magnetic field is removed. It does not respond to the magnetic north pole on the top side of the package. For correct function in the the application, the sensor requires only the magnetic south pole on the top side of the package.

Magnetic Approach (for example)



★ Sensor center point