

# Flatpack Hall Effect Sensor

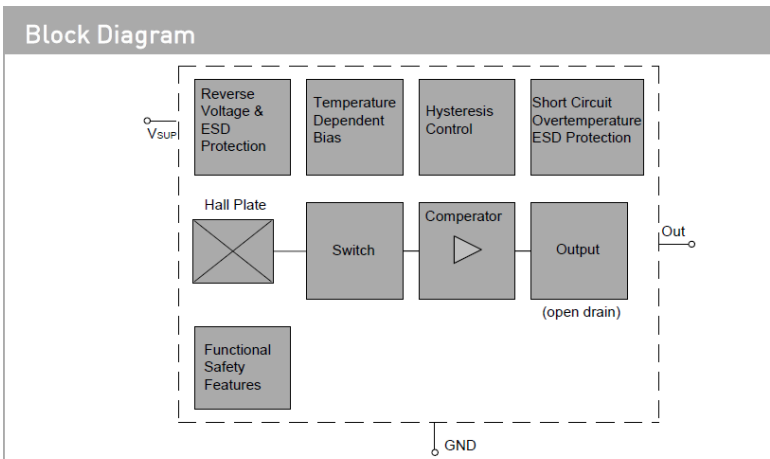


## Features

- Flatpack Hall Sensor
- Compact size
- Latching, 3 Wire
- Easy to mount
- Hall Sensors are ideal for high frequency applications where accuracy and product life are critical
- Typical applications include position control, speed measurement RPM, non-touch switching, level sensing and flow detection



## Specification



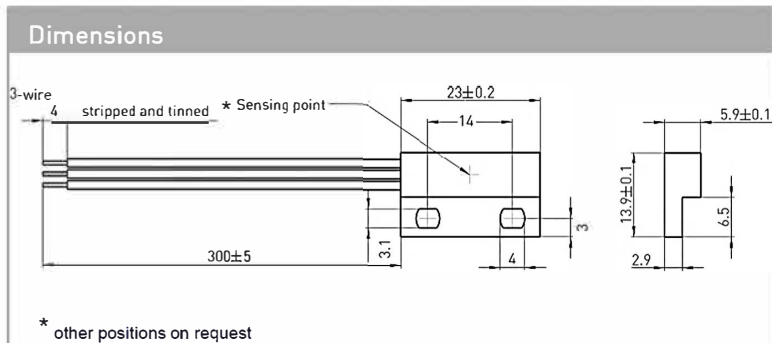
**Approvals**

### Absolute Maximum Ratings

Stresses beyond those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device  
Functional operation of the device at these conditions is not implied. Exposure to the absolute rating conditions for extended periods will affect device reliability

Symbol	Parameter	wire colour	Min.	Max.	Unit	Conditions
V <sub>SUP</sub>	Supply voltage	red	- 18		V	t < 1000 h <sup>1)</sup>
			-	28	V	t < 96 h <sup>1)</sup>
			-	32	V	t < 5 min <sup>1)</sup>
			-	40	V	t < 5 x 400 ms <sup>1)</sup> with series resistor R <sub>V</sub> > 100 Ohm
V <sub>OUT</sub>	Output voltage	white	- 0.5		V	t < 1000 h <sup>1)</sup>
			-	28	V	t < 96 h <sup>1)</sup>
			-	32	V	t < 5 min <sup>1)</sup>
			-	40	V	t < 5 x 400 ms <sup>1)</sup> with series resistor R <sub>V</sub> > 100 Ohm
I <sub>O</sub>	Output current	white	-	65	mA	
I <sub>OR</sub>	Reverse output current	white	- 50		mA	

<sup>1)</sup> No cumulative stress      All voltages listed are referenced to ground (GND)



### Wire Assignment

Name	Function	Cable colour
VSUP	Supply voltage	red
OUT	Output	white
GND	Ground	black

HS-324-02-0300  
 wire length [mm]

### Environmental Characteristics

Operating temperature	°C	- 20 to + 85
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### Material Information

	Material	Colour
Housing	ABS	black
Cable	UL1007/1569, AWG 24	red, white, black
Potting compound	Epoxy	black

### Characteristics

At recommended operation conditions if not otherwise specified in the column "Conditions".

Typical characteristics for  $T_J = 25\text{ °C}$  and  $V_{SUP} = 12\text{ V}$

Symbol	Parameter	wire colour	Min.	Typ.	Max.	Unit	Conditions
<b>Supply</b>							
$I_{SUP}$	Supply current	red		1.6	2.4	mA	
$I_{SUPHi}$	Reverse current				1	mA	for $V_{SUP} = -18\text{ V}$
<b>Output</b>							
$V_{ol}$	Port low output voltage	white		0.13	0.4	V	$I_o = 20\text{ mA}$
					0.5	V	$I_o = 25\text{ mA}$
$t_f$	Output fall time <sup>1)</sup>				1	µs	<sup>1)</sup> $V_{SUP} = 12\text{ V}$ ; $R_L = 820\text{ }\Omega$ ; $C_L = 20\text{ pF}$
$t_r$	Output rise time				1	µs	
$t_d$	Delay time <sup>1)</sup>			16		µs	
$t_{samp}$	Output refresh period		1.6	2	2.66	µs	
$t_{en}$	Enable time of output after settling of $V_{SUP}$			50		µs	$V_{SUP} = 12\text{ V}$ $B > B_{on} + 2\text{ mT}$ or $B < B_{off} - 2\text{ mT}$
<b>Power-on-self-test</b>							
Self test can be triggered externally; details on request <sup>1)</sup> Guaranteed by design							

### Recommended Operating Conditions

Symbol	Parameter	wire colour	Min.	Max.	Unit	Conditions
$V_{SUP}$	Supply voltage	red	2.7	24	V	
$V_{OUT}$	Output voltage	white		24	V	
$I_{OUT}$	Output current	white		25	mA	

### Magnetic Characteristics Overview

Symbol	Parameter	wire colour	Min.	Typ.	Max.	Unit	Conditions
$B_{ON}$	ON threshold range <sup>1)</sup>	-	- 30		30	mT	
$B_{OFF}$	OFF threshold range <sup>1)</sup>	-	- 30		30	mT	
$B_{ST}$	Adjustable step size <sup>2)</sup>	-		0.5		mT	
$T_C$	Temperature compensation of magnetic thresholds <sup>3)</sup>	-	0		- 3000	ppm/K	

<sup>1)</sup> Available range

<sup>2)</sup> Small steps at small values, bigger steps at higher values. May not be undercut

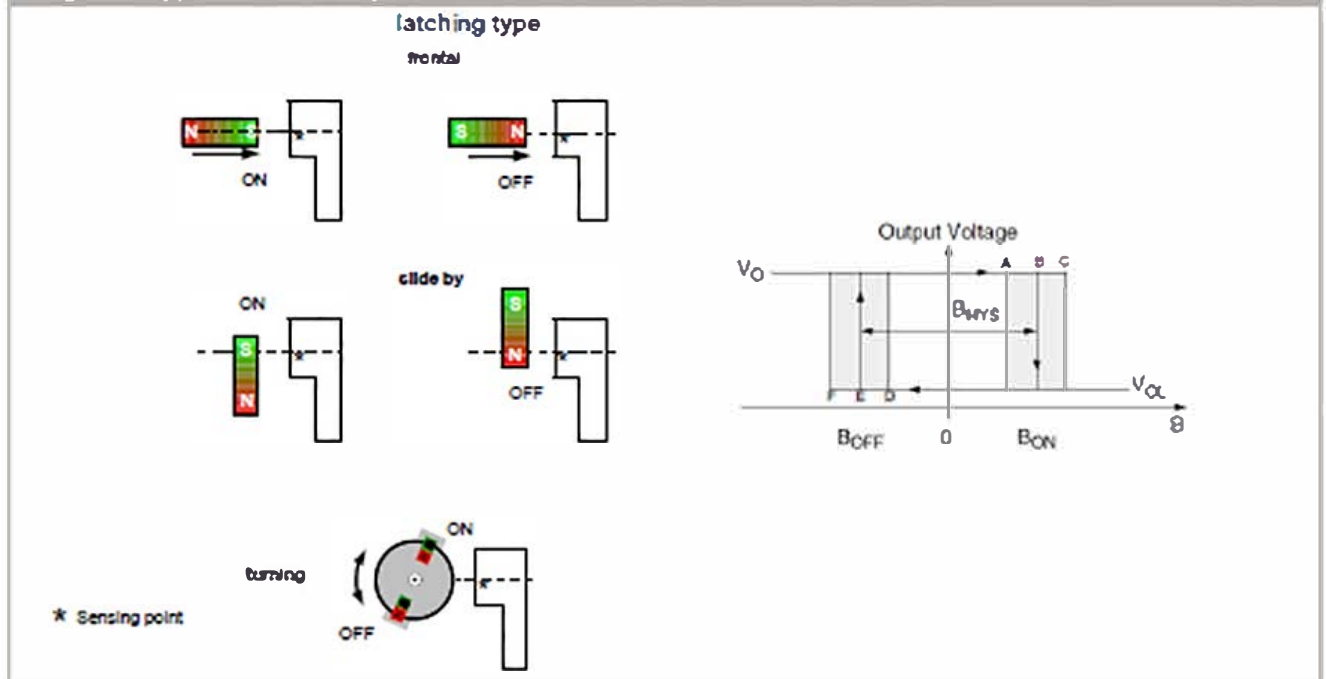
<sup>3)</sup> Different temperature compensation available on request

### Magnetic Characteristics

Switching Type	Temp. coeff. of magnetic thresh. TC [ppm/K]	On point $B_{ON}$			Off point $B_{OFF}$			Hysteresis $B_{HYS}$ <sup>1)</sup>		
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
latching	-1000	bd. A	2.5 B	bd. C	bd. D	- 2.5 E	bd. F	-	5.0	-

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

### Magnetic Approach (for example)



Art. Nr.  
RND 410-00369