

# Hall Effect Sensor Flange Mount

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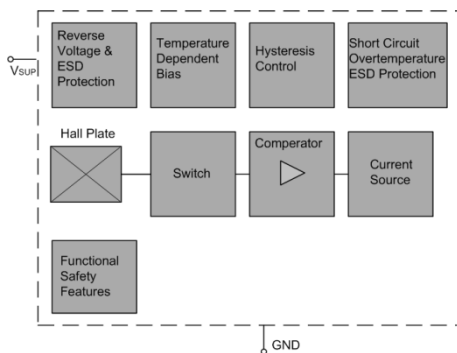
RoHS  
Compliant



## Features

- Compact size
- Various switching sensitivities
- Customized types available

## Block Diagram



## 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		t < 96 h <sup>1)</sup>
			--	32		t < 5 min <sup>1)</sup>
			--	40		t < 5 x 400 ms <sup>1)</sup> with series resistor R <sub>V</sub> > 100Ω
V <sub>OUT</sub>	Output voltage		-0.5		V	t < 1000 h <sup>1)</sup>
			--	28		t < 96 h <sup>1)</sup>
			--	32		t < 5 min <sup>1)</sup>
			--	40		t < 5 x 400 ms <sup>1)</sup> with series resistor R <sub>V</sub> > 100Ω
I <sub>O</sub>	Output current		--	65	mA	
I <sub>OR</sub>	Reverse output current		- 50			

1) No cumulative stress All voltages listed are referenced to ground (GND)

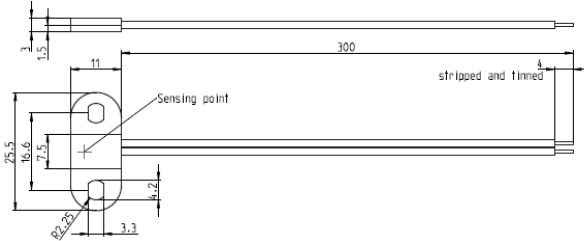
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## Dimensions



Wire Assignment		
Name	Function	Cable colour
VSUP	Supply voltage and output	Red
GND	Ground	Black

## Environmental Characteristics

Operating temperature - 20°C to + 85°C

Material Information		
	Material	Colour
Housing	PA6	Black
Cable	UL1007/1569, AWG 24	Red, Black
Potting compound	Epoxy	Black

## Characteristics

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

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

Symbol	Parameter	Wire colour	Min.	Typ.	Max.	Unit	Conditions
<b>Supply</b>							
$I_{SUPlo}$	Low supply current	Red	2		5	mA	
$I_{SUPlo}$	High supply current		12		17		
$I_{SUPhi}$	Reverse current				1		for $V_{SUP} = -18\text{ V}$
<b>Output</b>							
$t_f$	Output fall time <sup>1)</sup>	--			1	$\mu\text{s}$	<sup>1)</sup> $V_{SUP} = 12\text{ V}$ ;
$t_r$	Output rise time				1		
$t_d$	Delay time <sup>1)</sup>			16	--		
$t_{samp}$	Output refresh period		1.6	2	2.66		
$t_{en}$	Enable time of output after settling of $V_{SUP}$			50			$V_{SUP} = 12\text{ V}$ $B > B_{on} + 2\text{ mT}$ or $B < B_{off} - 2\text{ mT}$

## Recommended Operating Conditions

Symbol	Parameter	Wire colour	Min.	Max.	Unit
$V_{SUP}$	Supply voltage	Red	3	24	V

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# Hall Effect Sensor Flange Mount

## Magnetic Characteristics Overview

Symbol	Parameter	Min.	Typ.	Max.	Unit
B <sub>ONth</sub>	ON threshold range <sup>1)</sup>	-30		30	mT
B <sub>OFFth</sub>	OFF threshold range <sup>1)</sup>	-30		30	
B <sub>th</sub>	Adjustable step size <sup>2)</sup>		0.5		
T <sub>C</sub>	Temperature compensation of magnetic thresholds <sup>3)</sup>	0		-3000	ppm/K

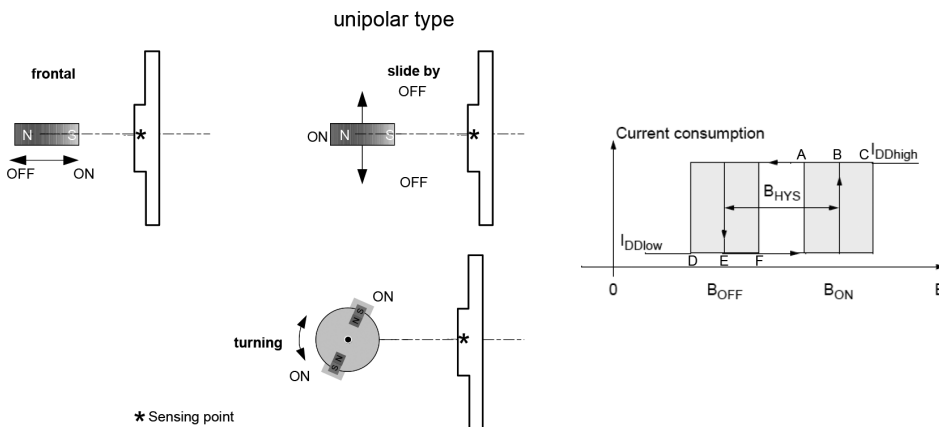
1) Available range  
 2) Small steps at small values, bigger steps at higher values. May not be undercut  
 3) Different temperature compensation available on request

## Magnetic Characteristics

SwitchingType	Temp. coeff. of magnetic thresh. TC [ppm/K]	On point B <sub>ON</sub> [mT]			Off point B <sub>OFF</sub> [mT]			Hysteresis B <sub>HYS</sub> <sup>1)</sup> [mT]		
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
unipolar	0	4.3	6	7.7	2.9	4.1	6.1	-	1.9	-
		A	B	C	D	E	F			

<sup>1)</sup>The hysteresis is the difference between the switching points B<sub>HYS</sub> = B<sub>ON</sub> - B<sub>OFF</sub>

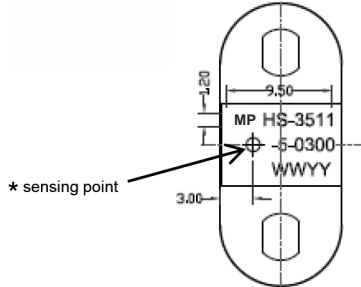
## Magnetic Approach (for example)



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## Off-center position of sensing point



## Part Number Table

Description	Part Number
2 Wire, Flange Mount Hall Effect Sensor, Unipolar	MP-HS-3511-05-0300

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