

Hall Effect Sensor Flange Mount

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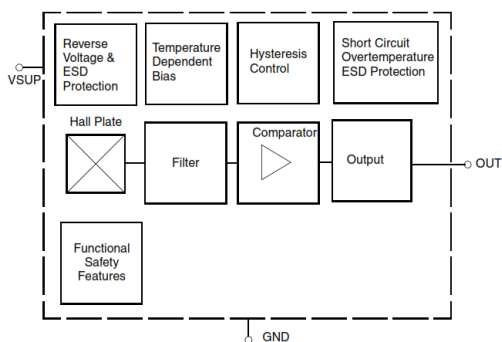
**RoHS
Compliant**



Features

- Open drain output
- Customized types available
- Constant switching points over wide supply voltage and temperature range

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	Pin No.	Min.	Max.	Unit	Conditions
T_J	Junction Temperature Range A	--	-40	190	°C	$t < 96 \text{ h}^{(1)}$
T_{storage}	Transportation/ Short-Term Storage Temperature	White	- 0.5			Device Only without packing material
V_{SUP}	Supply Voltage	1	-18	28	V	$t < 96 \text{ h}^{(1)}$
			--	32		$t < 5 \text{ h}^{(1)}$
			--	40		$t < 10 \times 400 \text{ ms}$ "Load-Dump" ⁽¹⁾ with series resistor $R_V > 100 \Omega$ $96 \text{ h}^{(1)}$
V_{OUT}	Output Voltage	2	-0.5	28	V	$t < 96 \text{ h}^{(1)}$
I_O	Output Current		--	65	mA	
I_{OR}	Reverse output current		-50	--	mA	

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

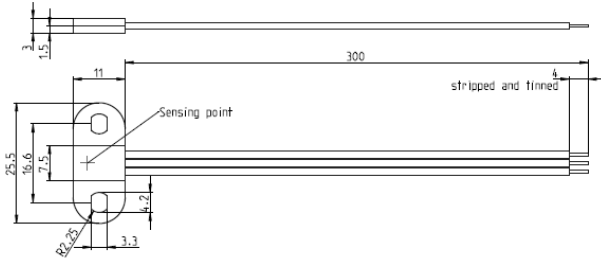
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Dimensions



Wire Assignment		
Name	Function	Cable colour
VSUP	Supply voltage	Red
OUT	Output	white
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, White, Black
Potting compound	Epoxy	Black

Characteristics

Symbol	Parameter	Pin No.	Min.	Typ.	Max.	Unit	Conditions	
Supply								
V _{UV}	Undervoltage threshold	1	2	--	2.7	V		
I _{SUP}	Supply Current		1.1	1.6	2.4	mA		
I _{SUPR}	Reverse current		-1	--	--		for V _{SUP} = -18 V	
Port Output								
V _{ol}	Port low output voltage	2	--	0.13	0.4	V	I _o = 20 mA	
				--	0.5		I _o = 25 mA	
I _{oleak}	Output leakage current			0.1	10	μA		
t _f	Output fall time ¹⁾	--	--	--	1	μs	V _{SUP} = 12 V; RL = 820; C _L = 20 pF	
t _r	Output rise time ¹⁾							
B _{noise}	Effective noise of magnetic switching points (RMS) ²⁾							72
t _j	Output jitter (RMS) ¹⁾	2	--	±0.58	±0.72	μs	For square wave signal with 1 kHz. Jitter is evenly distributed between -1μs and +1μs	
t _d	Delay time ²⁾³⁾			16	21			
t _{samp}	Output refresh period ²⁾			1.6	2.2			3
t _{en}	Enable time of output after exceeding of V _{UV} ⁴⁾			20	50			60
1) Characterized on small size, not tested 2) Guaranteed by design 3) Systematic delay between magnetic threshold reached and output switching 4) If power-on self-test is executed, t _{en} will be extended by power-on self-test period								

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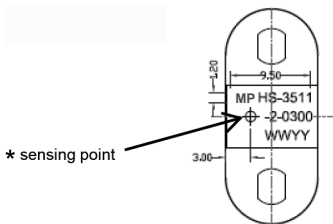
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Recommended Operating Conditions

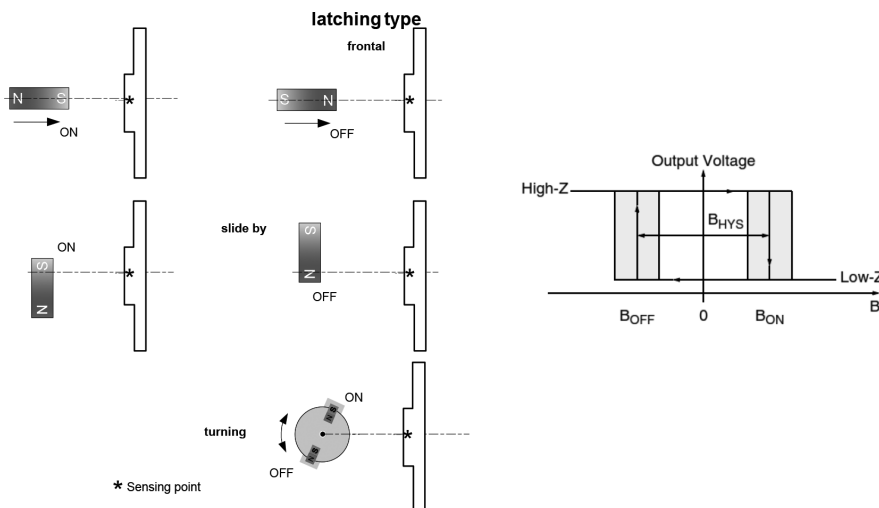
Symbol	Parameter	Wire colour	Min.	Max.	Unit
V _{SUP}	Supply voltage	Red	2.7	24	V
V _{OUT}	Output voltage	White			
I _{OUT}	Output current			25	mA

Off-center position of sensing point



Magnetic Characteristics Overview

Parameter	On point B _{ON}			Off point B _{OFF}			Hysteresis B _{HYS}			Unit
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
-40°C	1.3	2.8	4.3	-4.3	-2.8	-1.3	--	5.6	--	mT
25°C	1	2.5	4	-4	-2.5	-1		5		
170°C	0.8	2.3	3.8	-3.8	-2.3	-0.8		4.6		



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Part Number Table

Description	Part Number
3 Wire, Flange Mount Hall Effect Sensor, Bipolar	MP-HS-3511-02-0300

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