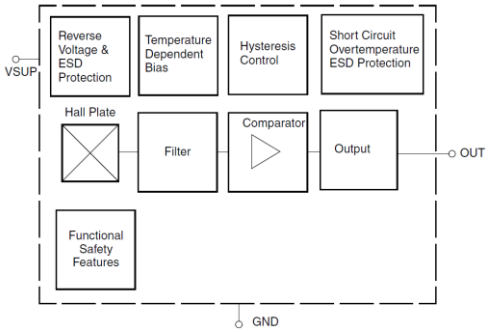
Product image serves as example only.

HS-3511-03-0300

Unipolar 3 - Wire

Flange Mount Hall Effect Sensor

Block Diagram



Features

› Compact size
› Various switching sensivities
› Customized types available

Approvals

RoHS REACH IP67

Absolute Maximum Ratings

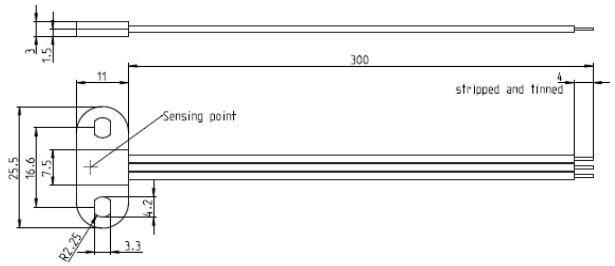
Stresses beyond those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device
Functional operation of the device at these conditions is not implied. Exposure to the absolute rating conditions for extended periods will affect device reliability

Symbol	Parameter	Pin No	Min.	Max.	Unit	Conditions
T_J	Junction temperature range A	–	–40	190	°C	t < 96 h[1)]
$T_{storage}$	Transportation/ Short-Term Storage Temperature	–	–50	155	°C	Device only without packing material
V_{SUP}	Supply voltage	1	–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
V_{OUT}	Output voltage	2	–0.5	28	V	t < 96 h[1)]
I_O	Output current	2	–	65	mA	
I_{OR}	Reverse output current	2	–50	–	mA	

[1)] No cumulative stress

All voltages listed are referenced to ground (GND)

Dimensions



Wire Assignment

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

HS-3511-03-0300
└ wire length [mm]

Environmental Characteristics

Operating temperature	°C	- 20 to + 85

Material Information

	Material	Colour
Housing	PA6	black
Cable	UL1007/1569, AWG 24	red, white, black
Potting compound	Epoxy	black

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Characteristics

Symbol	Parameter	Pin No.	Min.	Typ.	Max.	Unit	Conditions
Supply							
V_{UV}	Undervoltage threshold	1	2.0	–	2.7	V	
I_{SUP}	Supply current	1	1.1	1.6	2.4	mA	
I_{SUPR}	Reverse current	1	–1	–	–	mA	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	V	I_O = 25 mA
I_{oleak}	Output leakage current	2	–	0.1	10	µA	
t_f	Output fall time[1]	2	–	–	1	µs	V_{SUP} = 12 V; R_L = 820 Ω; C_L = 20 pF
t_r	Output rise time[1]	2	–	–	1	µs	
B_{noise}	Effective noise of magnetic switching points (RMS)[2]	–	–	72	–	µT	For square wave signal with 12 kHz
t_j	Output jitter (RMS)[1]	2	–	±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]	2	–	16	21	µs	
t_{samp}	Output refresh period[2]	2	1.6	2.2	3.0	µs	
t_{en}	Enable time of output after exceeding of V_{UV} [4]	2	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
[4] If power-on self-test is executed, t_{en} will be extended by power-on self-test period (see Section 3.2.)

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	

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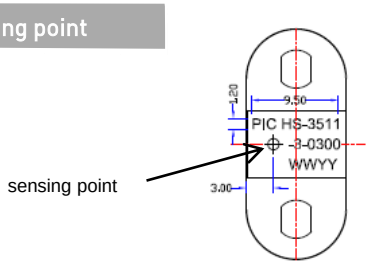
Off-center position of sensing point

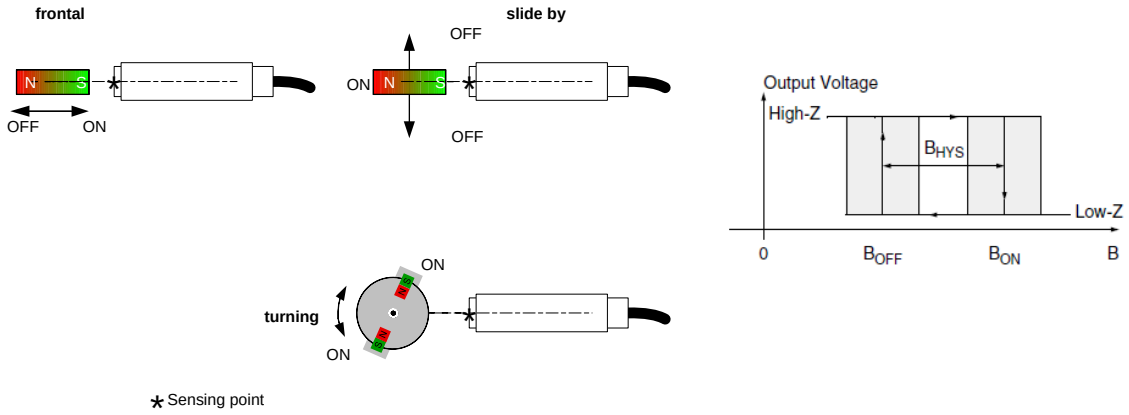


Magnetic Characteristics Overview

Parameter	On point B_{ON}			Off point B_{OFF}			Hysteresis B_{HYS}			Unit
T_J	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
–40 °C	4.4	6.1	7.6	2.4	4.0	5.7	–	2.1	–	mT
25 °C	3.8	5.5	7.1	2.1	3.7	5.5	–	1.8	–	mT
170 °C	3.0	5.0	6.7	1.8	3.6	5.5	–	1.4	–	mT

Magnetic Approach (for example)

unipolar type



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