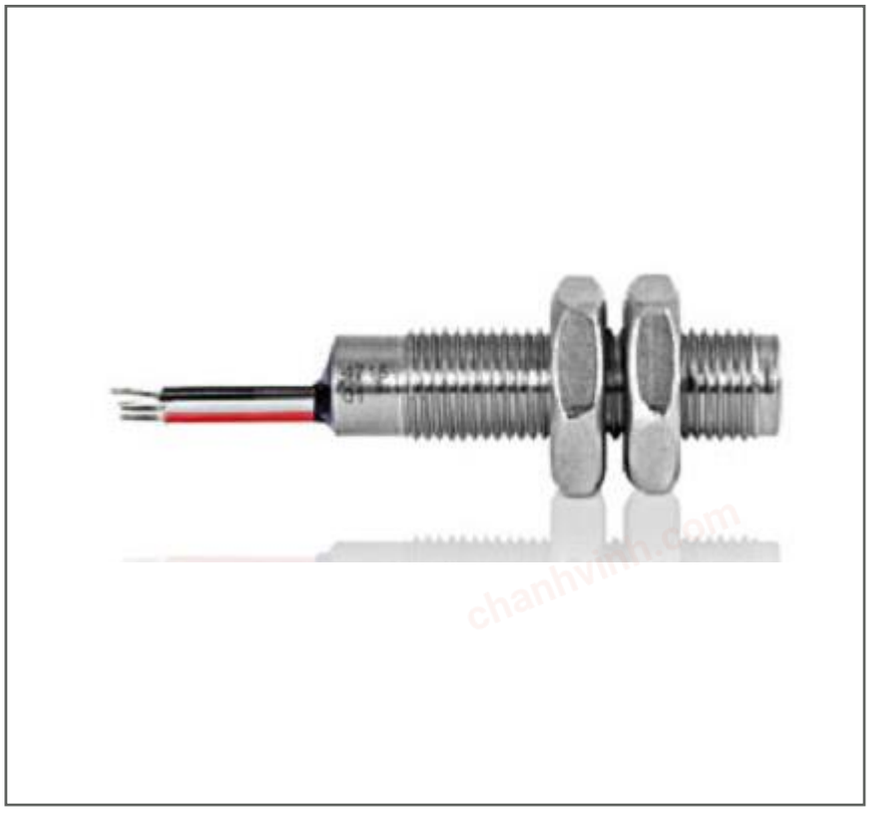
Hall Effect Sensors

Features

- Bipolar Operation
- Threaded Barrel
- Rugged M10 Housing
- Compact size
- 3 Wire
- Easy mounting

RS PRO 24V Bipolar Barrel Hall Effect Sensor

RS Stock No.: 277-3608



RS PRO is the own brand of RS. The RS PRO Seal of Approval is your assurance of professional quality, a guarantee that every part is rigorously tested, inspected, and audited against demanding standards. Making RS PRO the Smart Choice for our customers.

Hall Effect Sensors

Product Description

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.

They operate with a supply voltage of up to 24VDC making them suitable for the automotive industry.

General Specifications

Operation	Bipolar
Output Type	NPN
Body Style	Barrel
Mounting Style	Panel Mount
Terminal Type	Wire Lead

Electrical Specifications

Supply Voltage	24V
Maximum DC Current	40V

Mechanical Specifications

Housing Material	Nickel Plated Brass
Length	38mm
Width	10mm

Operation Environment Specifications

Operating Temperature Range	-20°C to 85°C

Hall Effect Sensors

Protection Category

IP Rating	IP67

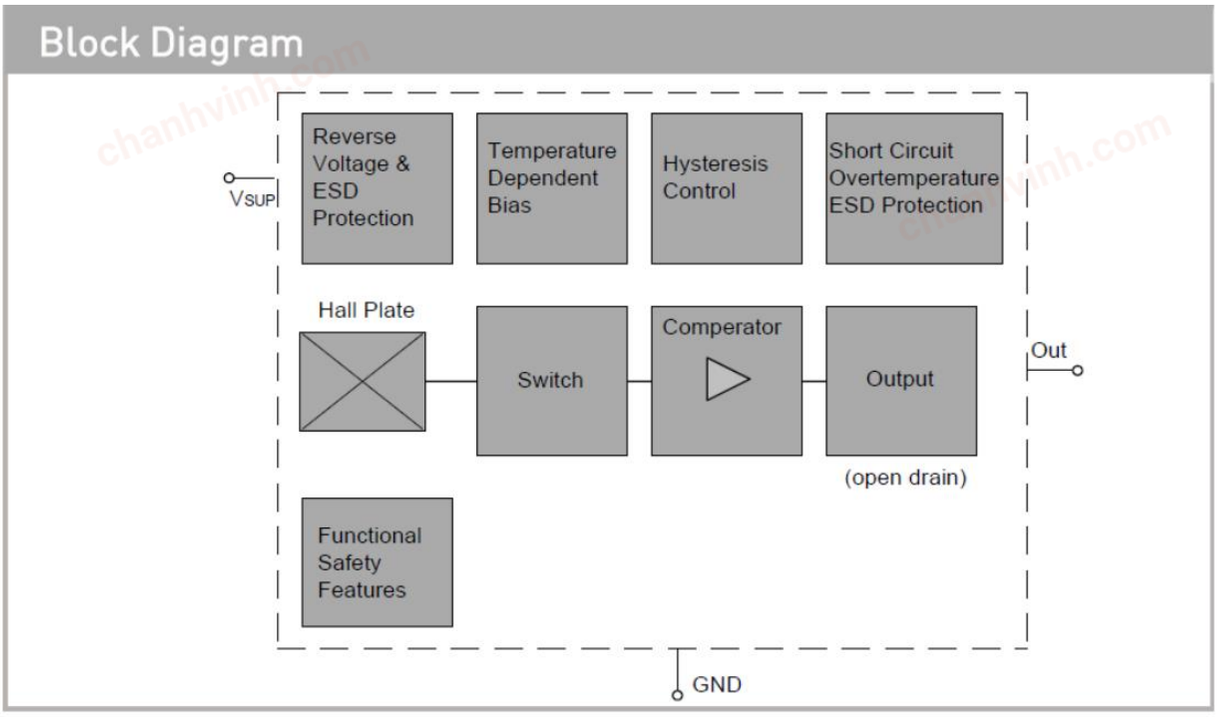
Approvals

Compliance/Certifications	RoHs, Reach

Similar Products

Description	Operation	Wires	RS Stock No
Barrel Hall Effect Sensor	Bipolar	3	277-3608
Barrel Hall Effect Sensor	Latching	3	277-3610
Barrel Hall Effect Sensor	Unipolar	3	277-3611
Barrel Hall Effect Sensor	Latching	2	277-3612
Barrel Hall Effect Sensor	Unipolar	2	277-3613

Block Diagram



Hall Effect Sensors

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_{SUP}	Supply voltage	red	- 18		V	t < 1000 h [1]
			-	28	V	t < 96 h [1]
			-	32	V	t < 5 min [1]
			-	40	V	t < 5 x 400 ms [1] with series resistor R_V > 100 Ohm
V_{OUT}	Output voltage	white	- 0.5		V	t < 1000 h [1]
			-	28	V	t < 96 h [1]
			-	32	V	t < 5 min [1]
			-	40	V	t < 5 x 400 ms [1] with series resistor R_V > 100 Ohm
I_O	Output current	white	-	65	mA	
I_{OR}	Reverse output current	white	- 50		mA	

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

Characteristics

At recommended operation conditions if not otherwise specified in the column "Conditions".
Typical characteristics for T_J = 25 °C and V_{SUP} = 12 V

Symbol	Parameter	wire colour	Min.	Typ.	Max.	Unit	Conditions
Supply							
I_{SUP}	Supply current	red		1.6	2.4	mA	
I_{SUPNI}	Reverse current				1	mA	for V_{SUP} = - 18 V
Output							
V_{ol}	Port low output voltage	white		0.13	0.4	V	Io = 20 mA
					0.5	V	Io = 25 mA
t_f	Output fall time [1]				1	µs	[1] V_{SUP} = 12 V;
t_r	Output rise time				1	µs	RL = 820; C_L = 20 pF
t_d	Delay time [1]			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 V B > B_{on} + 2 mT or B < B_{off} - 2 mT
Power-on-self-test							

Self test can be triggered externally; details on request
[1] Guaranteed by design

Hall Effect Sensors

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_{ONth}	ON threshold range [1]	-	- 30		30	mT	
B_{OOth}	OFF threshold range [1]	-	- 30		30	mT	
B_{th}	Adjustable step size [2]	-		0.5		mT	
T_C	Temperatur compensation of magnetic thresholds [3]	-	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

Switching Type	Temp. koeff. of magnetic thresh.	On point B_{ON} [mT]			Off point B_{OFF} [mT]			Hysteresis BHYS [1] [mT]		
	TC [ppm/K]	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
bipolar	0	tbd.	0.5	tbd.	tbd.	- 0.5	tbd.	-	1.0	-
		A	B	C	D	E	F			

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

Magnetic Approach (for example)

