OH49F-S

LINEAR HALL-EFFECT IC

Order information

PN	OH49F-S	Operating Temperature	-40～105℃	Package	SOT23	3000pcs/reel

General Description

The OH49F-S is a small, versatile linear Hall-effectdevice that is operated by the magnetic field from a permanent magnet or an electromagnet. The output voltage is set by the supply voltage and varies in proportion to the strength of the magnetic field.
The integrated circuitry features low noise output, which makes it unnecessary to use external filtering. It also includes precision resistors to provide increased temperature stability and accuracy. The operating temperature range of these linear Hall sensors is -40℃ to105℃, appropriate for commercial, consumer and industrial applications.

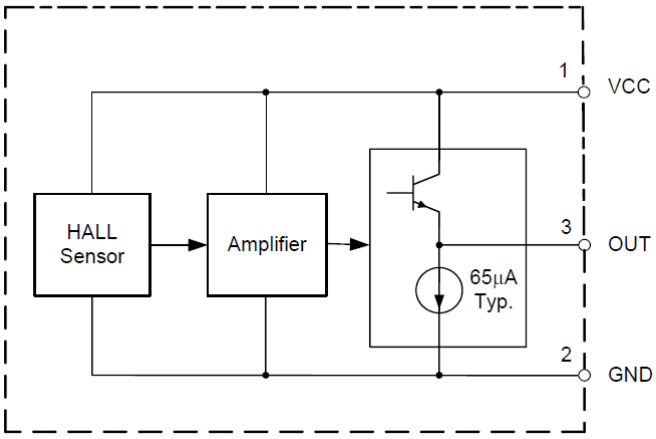
Features

· Miniature Construction
· Power Consumption of 3mA at VCC=5V for Energy Efficiency
· Single Current Sourcing Output
· Linear Output for Circuit Design Flexibility
· Low Noise Output Virtually Eliminates the Need for Filtering
· A Stable and Accurate Output
· Temperature Range of -40℃ to 105℃
· Responds to Either Positive or Negative Gauss
· The Maximum Instantaneous Supply Voltage up to 50V
· HIgh ESD Rating: Human Body Model: 6000V, Machine Model: 600V

Typical applications

· Current Sensing
· Motor Control
· Position Sensing
· Magnetic Code Reading
· Ferrous Metal Detector
· Vibration Sensing
· Liquid Level Sensing
· Weight Sensing

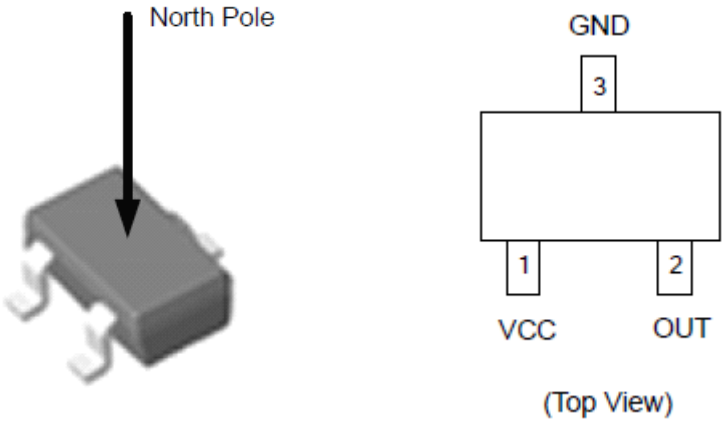
Functional Block Diagram



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Absolute Maximum Rating

Supply Voltage	V_{CC}.....10V
Instantaneous Supply Voltage	V_{CC_INST}..... 50V
Operating Temperature Range	T_A..... -40～125℃
Storage Temperature Range	T_S .....-50～150℃
ESD (Human Body Model)	6000V
ESD(Machine Model)	600V

Note: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extendedperiods may affect device reliability.

Recommended Operating Conditions

Supply Voltage	V_{CC}.....3-8V
Operating Temperature Range	T_A..... -40～105℃

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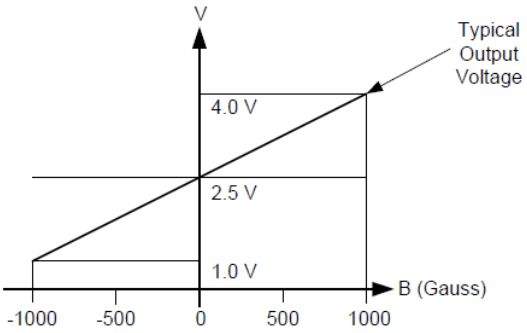
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Electrical & Magnetic Characteristics (T_A=25℃,Vcc=5.0V)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Current	Icc		2	3	4	mA
Quiescent Output Voltage	VNULL	@ B=0GS	2.25	2.5	2.75	V
Output Voltage Sensitivity	S	B=0GS to ±600GS	1.7	2.1	2.5	mV/GS
Output Voltage Span	VOS		1.0 to (VCC-1.0)	0.8 to (VCC-0.8)		V
Output Resistor	RO			60	120	Ω
Magnetic Field Range	B		±500	±800		GS
Linearity of Span				0.7		%
Output Noise		BW=10Hz to 10kHz		90		μV

Transfer Characteristics (VCC=5V)



When there is no ouside magnetic field (B=0GS), the quiescent output voltage is one-half the supply voltage in general. If a south magnetic pole approches to the front face (the side with marking ID) of the Hall effect sensor, the circuit will drive the output voltage higher. Contrary, a north magnetic pole will drive the output voltage lower. The variations of voltage level up or down are symmetrical. Greatest magnetic sensitivity is obtained with a supply voltage of 6V, but at the cost of increased supply current and a slight loss of output symmetry. So, it is not recommended to work in such condition unless the output voltage magnitude is a main issue. The output signal can be capacitively coupled to an amplifier for boosting further if the changing frequency of the magnetic field is high.

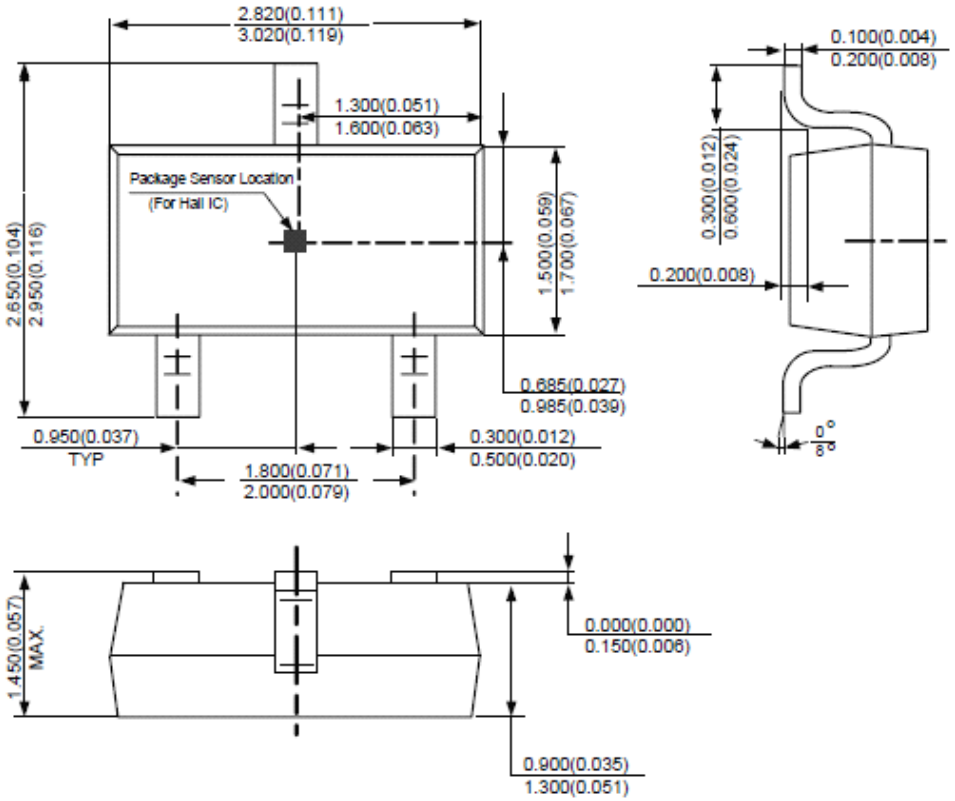
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Package

(unit :mm)



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