

# OH49E Series

## LINEAR HALL-EFFECT IC

### Order information

Type	OH49E-S	Operating Temperature	-20~100℃	Package	SOT23	3000pcs/reel
Type	OH49E		-20~100℃	Package	TO-92S	1000pcs/bag

### General Description

The OH49E is a small, versatile linear Hall-effect device 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 -20℃ to 100℃, appropriate for commercial, consumer and industrial applications.

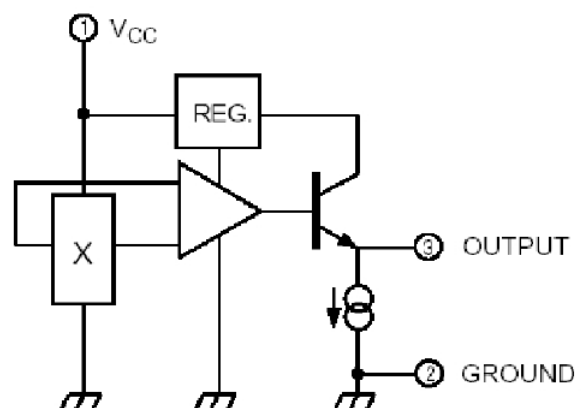
### Features

- Miniature Construction
- Power Consumption of 4.2mA 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 -20℃ to 100℃
- Responds to Either Positive or Negative Gauss

### 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	$V_{CC}$ .....10.V
Operating Temperature Range	$T_A$ ..... -20~100℃
Storage Temperature Range	$T_S$ .....-50~150℃

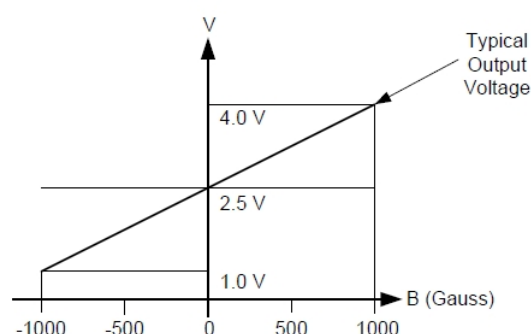
### Electrical & Magnetic Characteristics ( $T_A=25^{\circ}\text{C}$ , $V_{CC}=5.0\text{V}$ )

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	VCC		2.3	5	10	V
Supply Current	Icc			4.2		mA
Quiescent Output Voltage	$V_{NULL}$	@ B=0GS	2.35	2.5	2.65	V
Output Voltage Sensitivity	S	B= $\pm 100\text{GS}$	1.8	2.0	2.2	mV/GS
Output Voltage (high)	VH	B= +1200GS	-	-	4.2	V
Output Voltage(low)	VL	B=-1200GS	0.8	-	-	V
Output Resistor	Ro			40	100	$\Omega$
Output Noise		BW=10Hz to 10kHz		90		$\mu\text{V}$

### Transfer Characteristics ( $V_{CC}=5\text{V}$ )

When there is no outside magnetic field ( $B=0\text{GS}$ ), the quiescent output voltage is one-half the supply voltage in general. If a south magnetic pole approaches 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 5V, 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)

