

## OH3144 Unipolar Hall Effect Switch IC



### General Description:

Part No.: OH3144 Operate temperature: -40~125°C Package:1000pcs/bag

**OH3144** Hall switch IC is internally consisted by reverse voltage protection device, voltage regulator, hall voltage generator, a differential amplifier, Schmitt trigger and the open collector output level, which can change magnetic field signal into digital voltage output. With the typical feature of small size, stable performance, OH3144 is widely used in all kinds of position control, speed detection, flow detection occasion as a non-contact switch.

### Features

- 4V to 24V DC operation voltage
- Open-Collector pre-driver
- 25mA maximum sinking output current.
- Reverse Polarity Protection

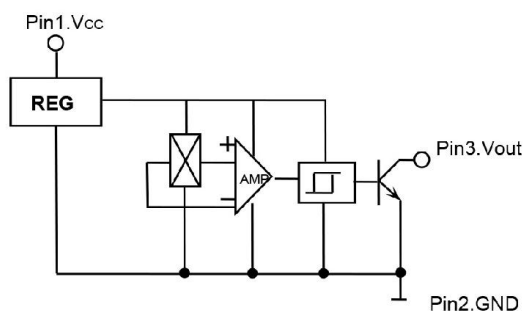
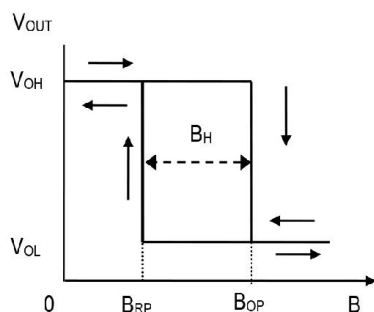
### Applications

- Speed measurement
- Home appliances
- Position detection
- Flow measurement

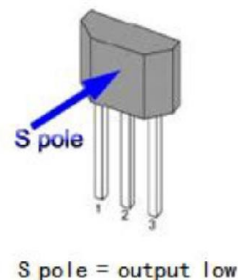
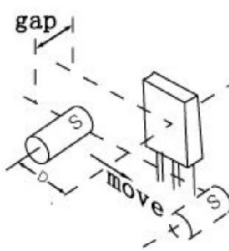
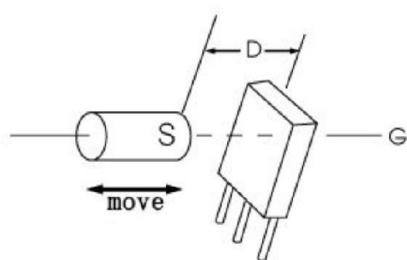
### Absolute Maximum Ratings (T<sub>A</sub>=25°C)

Supply Voltage V <sub>CC</sub> .....	3.5-30V	Operating Temperature Range T <sub>A</sub> .....	-40~125°C
Output Current I <sub>O</sub> .....	25mA	Storage Temperature Range T <sub>S</sub> .....	-55~150°C

### Magnetic-electrical Transfer Characteristics Functional Block Diagram:



### Typical Working Mode



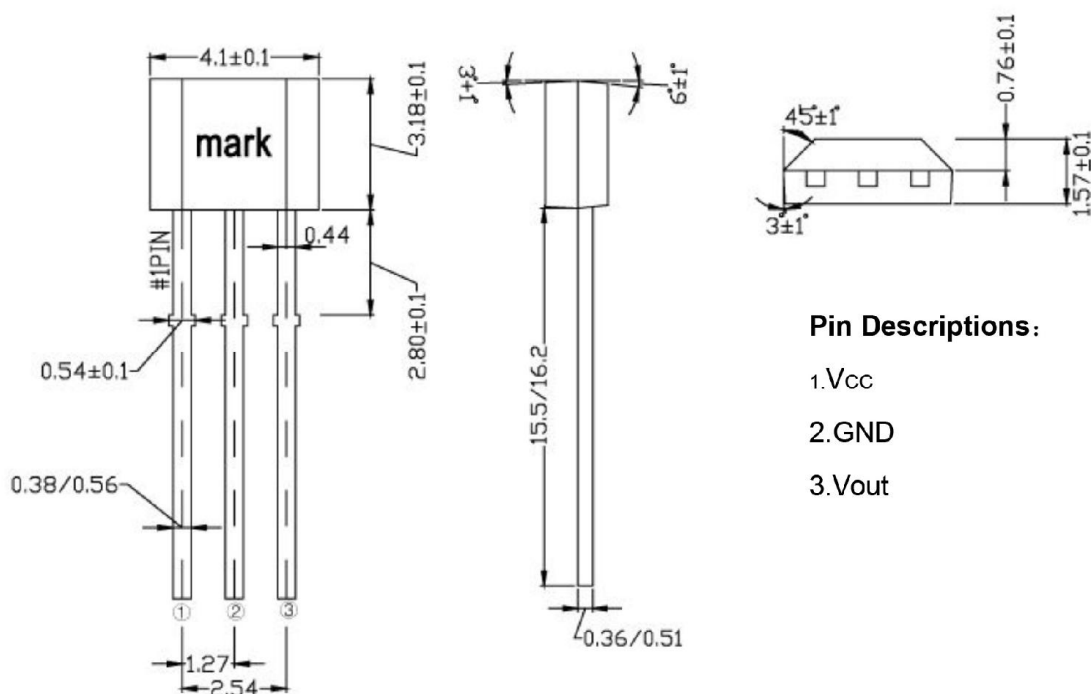
**Electrical Characteristics (Ta= 25°C )**

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Supply Voltage	V <sub>CC</sub>		4	-	24	V
Output Saturation Voltage	V <sub>OL</sub>	V <sub>CC</sub> =5V, R <sub>L</sub> =1KΩ, B≥B <sub>OP</sub>	-	200	400	mV
Output Leakage Current	I <sub>OH</sub>	V <sub>out</sub> =V <sub>CC</sub> max, B≤B <sub>RP</sub>	-	1.0	10	μA
Supply Current	I <sub>CC</sub>	V <sub>CC</sub> =V <sub>CC</sub> max OC output	-	6	-	mA
Output Rise Time	t <sub>r</sub>	V <sub>CC</sub> =5V, R <sub>L</sub> =1kΩ, C <sub>L</sub> =20pF	-	0.1	-	μS
Output Falling Time	t <sub>f</sub>		-	0.1	-	μS

**Magnetic Characteristics (Ta= 25°C ) (1mT = 10 Gauss)**

Parameter	symbol	Value			Unit
		Min	Typ	Max	
Operate Point	B <sub>OP</sub>	-	-	16	mT
Release Point	B <sub>RP</sub>	2	-	-	mT
Hysteresis	B <sub>H</sub>	-	5	-	mT

**Dimension (unit:mm)**

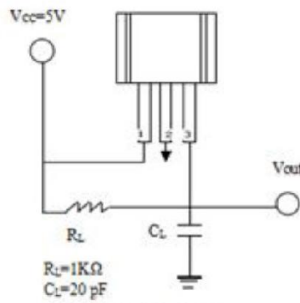


**Pin Descriptions:**

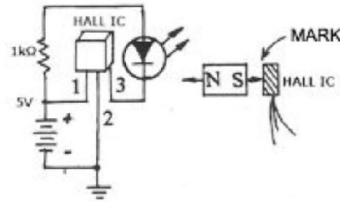
- 1.V<sub>CC</sub>
- 2.GND
- 3.V<sub>out</sub>



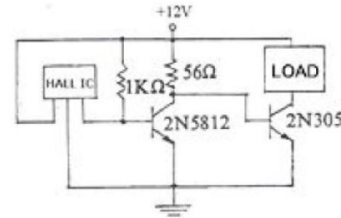
### Typical Application Cuicuits:



Typical Cuicuits



Driving LED



Driving 4A DC load

### Precautions OH Series Hall ICS

Hall ICs are sensitive devices which performance could be influenced in some extent by magnetic , optical , thermal and mechanical stress.

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- 1) A pull-up resistor RL should be connected between the power supply (Vcc) and the output (Vout). Since most of hall ICs are open collector output (OC output) circuits. Such as OH44E, OH137, OH513, OH543. Hall ICs with Build-in Resistor are not necessary to add one, for example OH921.
- 2) Avoid reversing the power supply (Vcc) and the output (Vout) and overload use. Be careful of the burn and damage caused by instant large current and instantaneous high voltage.
- 3) The Protection circuit should be added in the test cuicuits of hall ICS, such as large capacitor and a voltage stabilizing diode, which could absorb the effects of the external circuit and power fluctuation.
- 4) Try to minimise the mechanical stress applied to the device and leads during the installation, especially on the pins where close to the root of the device when bending shaping etc.
- 5) Strictly regulate the welding temperature and time (lead-free welding process reference). When manual welding, the temperature of soldering iron shall not exceed 260 degrees and time should be less than 3seconds.
- 6) When designing, please fully consider the influence factors of temperature,magnetic field attenuation, the movement way, etc.

