

# OH4913 Omnipolar CMOS Hall IC

## 1. General Description

OH4913 IC is an integrated hall-effect sensor designed to meet the requirements of low-power devices, for example, as an On/Off switch in Cellular Flip-Phones, with battery operating voltages of 1.65V to 5.5V. The IC switching behavior is Omnipolar, and it can switch on with either the North or South pole of a magnet. An onboard clock scheme reduces the average operating current of the IC. During the operating phase, the IC compares the actual magnetic field detected with the internally compensated switching points. The output voltage is switched at the end of each operating phase. During the Stand-by phase, the output stage is latched, and the current consumption reduces to some  $\mu\text{A}$ . The IC switching behavior is Omnipolar, and it can switch on with either the North or South pole of a magnet.

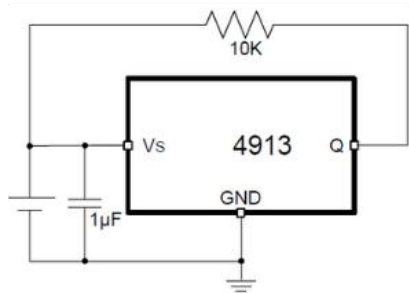
## 2. Features

- Micropower design
- High sensitivity and high stability of the magnetic switching points
- High resistance to mechanical stress
- Switching for both poles of a magnet (omnipolar)

## 3. Applications

- Cover switch in clam-shell cellular phones
- Cover switch in Notebook PC/PDA
- Contact-less switch in consumer products

## 4. Typical Application Circuit



## 5. Order information

Part number	Package
OH4913	TO-92S

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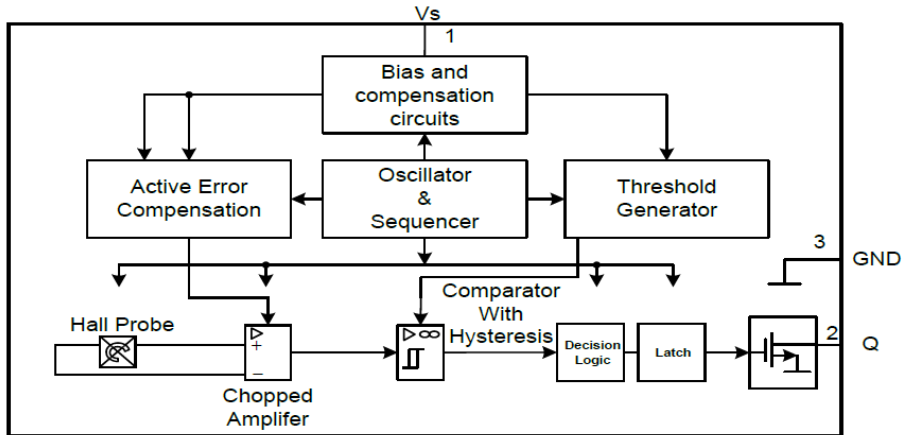
E-mail: [ouzhuo@zbling.com](mailto:ouzhuo@zbling.com)

[www.ohhallsensor.com](http://www.ohhallsensor.com)

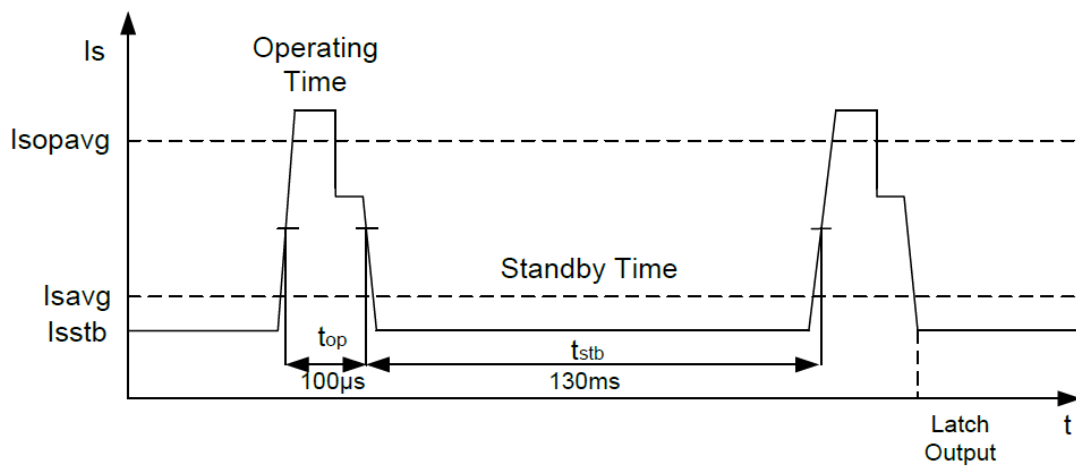
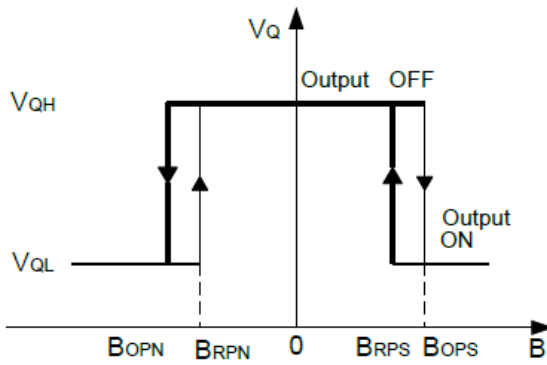
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## 6. Functional Block Diagram



## 7. Output Voltage vs. Magnetic Flux Density



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## 8. Absolute Maximum Ratings (TA=25°C)

Parameter	Symbol	Value	Unit
Supply Voltage	Vdd	-0.3 to 6.0	V
Operating current	Idd	-1 to 4.5	mA
Output voltage	Vout	-0.3 to 6.0	V
Output current	Iout	-1 to 2	mA
Storage temperature range	Tstg	-45 to 150	°C
Maximum junction temperature	-	-150	°C
ESD Protection	-	4000	V

## 9. Electrical Characteristics

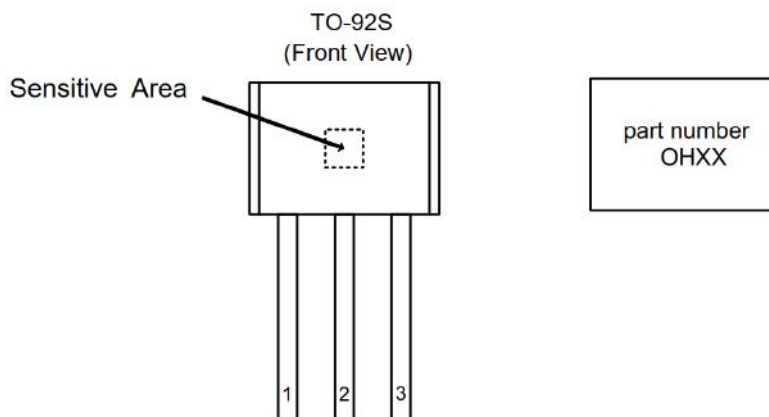
AC/DC Characteristics (TA=+25°C, VDD=3.0V, Unless otherwise specified)

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Supply Voltage	Vdd		1.65	-	6	V
Supply Current	I <sub>AW</sub>	Awake	0.5	2	4.5	mA
	I <sub>SL</sub>	Sleep	1	1.9	8	μA
	I <sub>AVG</sub>	Average	1	3	10	μA
Output Leakage Current	I <sub>LEAK</sub>	B <   B <sub>RP</sub>		0.01	1.0	μA
Output Saturation Voltage	V <sub>SAT</sub>	I <sub>OUT</sub> = 1.0mA	-	0.13	0.4	V
Output rise time	t <sub>AW</sub>	R <sub>L</sub> =2.7KΩ C <sub>L</sub> =10pF	-	0.5	1	μs
Output fall time	t <sub>SL</sub>	R <sub>L</sub> =2.7KΩ C <sub>L</sub> =10pF		0.1	1	μs
Operating time	T <sub>op</sub>	Operating	25	100	160	μs
Standby Time	T <sub>stb</sub>		60	140	240	ms
Duty Cycle	t <sub>r</sub>		-	0.071		%
Start-up time of IC	t <sub>r</sub>		-	12	20	μs



**10. Magnetic Characteristics** (TA=+25°C, VDD=2.7V, Unless otherwise specified)

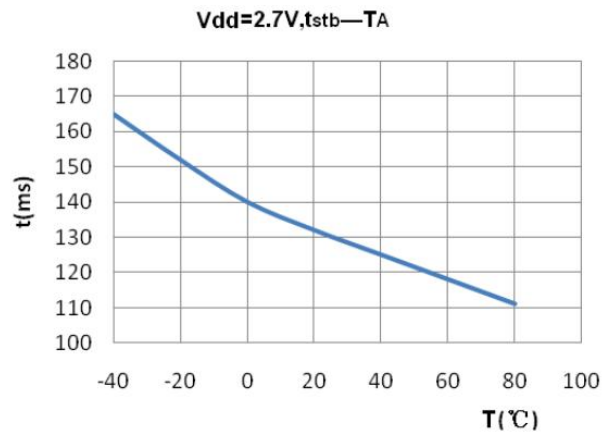
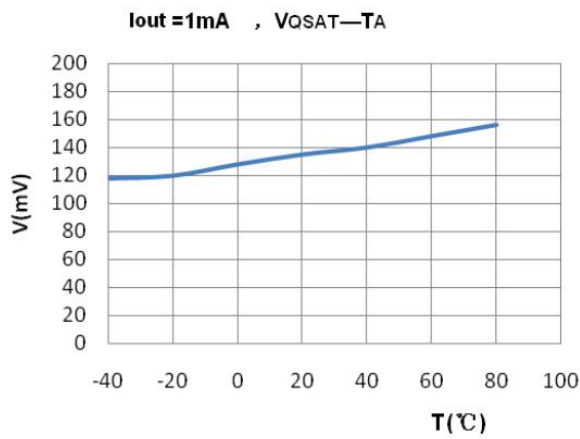
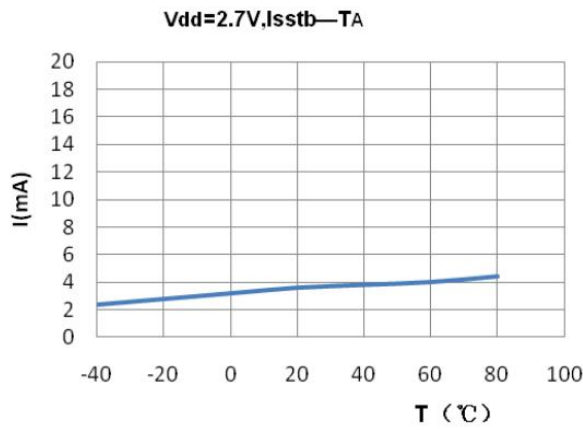
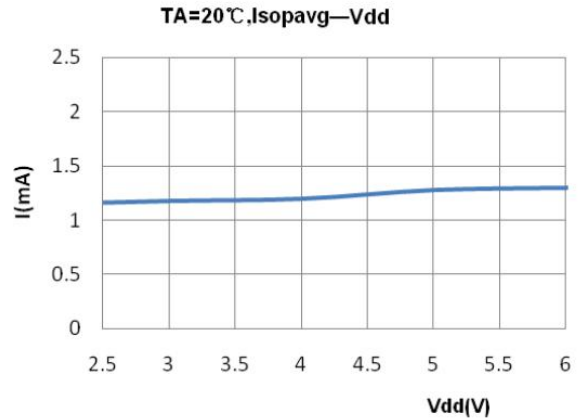
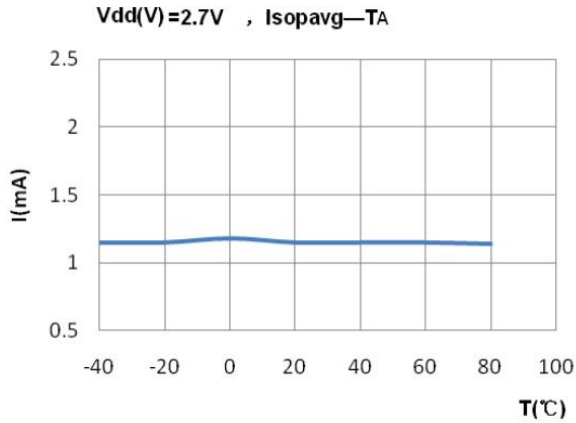
Parameter	symbol	Conditions	Value			Unit
			Min	Typ	Max	
Operate Point	B <sub>OPS</sub>	South pole to branded side B>BOPS,VOUT=low(output on)	20	35	50	GS
	B <sub>OPN</sub>	North pole to branded side B>BOPN,VOUT=low(output on)	-50	-35	-20	GS
Release Point	B <sub>RPS</sub>	South pole to branded side B<BRPS,VOUT=high(output off)	12	27	42	GS
	B <sub>RPN</sub>	North pole to branded side B<BRPN,VOUT=high(output off)	-42	-26	-12	GS
Hysteresis	B <sub>H</sub>	BOPX - BRPX	2	8	16	GS

**11. Pin configuration**


Pin Name	PIN	Function description
1	VDD	Supply Voltage
2	GND	Ground
3	VOUT	Output



## 12. Typical Operating Characteristics



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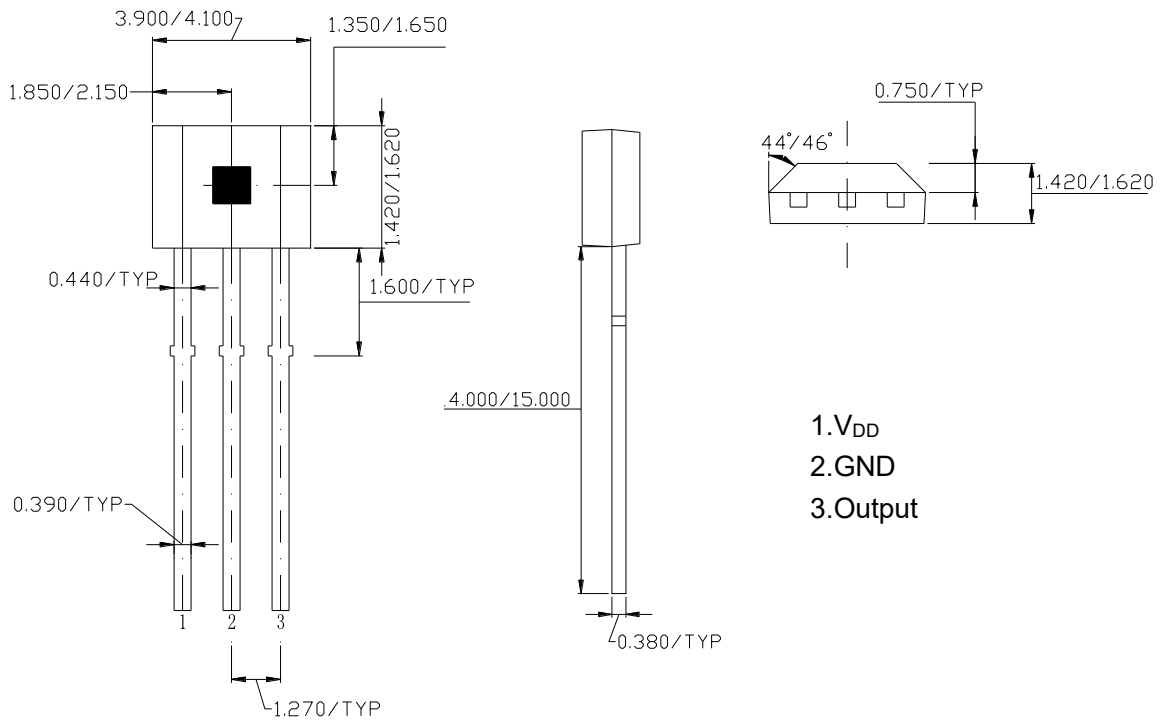
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**13. Dimension** Unit: mm



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For more information:

Ouzhuo Technology service you through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, you could reach us the way you are convenient, thank you for your support!

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**NOTICE:**

The information presented in this datasheet is for reference only. Specifications may change without notice.

