OH9248

High Sensitivity Micropower Omnipolar Hall-Effect Switch

Order Information

Part Number	Package	Temperature Range	Marking ID	Packing Type
OH9248-T	TO-92S	-40 to 85°C	9248	Bulk
OH9248-S	SOT23	-40 to 85°C	GL1	Tape & Reel

General Description: The OH9248 is an ultra-sensitive Hall-effect switch with digital latched output, mainly designed for battery-operation, hand-held equipments. Special CMOS process is used for low-voltage and low-power requirement. A chopper stabilized amplifier improves stability of magnetic switch points. A sleep-awake logic controls the IC in sleep time or awake time. This function will reduce the average operating current of the IC. During the awake time, the output is changed with the magnetic flux density. During the sleep time, the output is latched in its previous state and the current consumption will reduce to some μA. The IC switching behaviour is omnipolar, either north or south pole sufficient strength will turn the output on. If the magnetic flux density is larger than operating point (BOP), the output will be turned on; if it is less than releasing point (BRP), the output will be turned off.

Features

- Micropower Operation
- 2.5 to 5.5V Power Supply
- Switching for Both Poles of a Magnet (Omnipolar)
- Stabilized Chopper
- Superior Temperature Stability
- Digital Output Signal

Applications

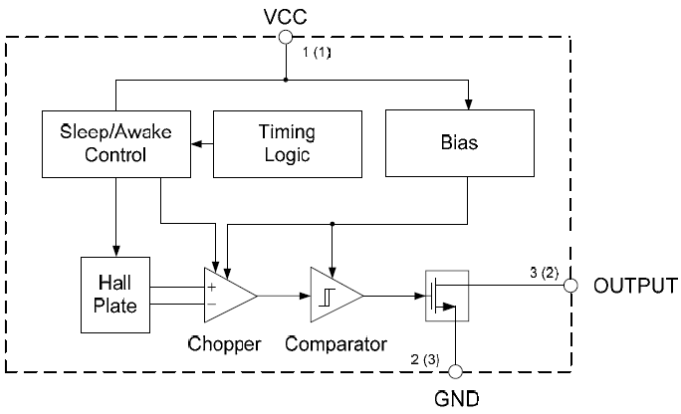
- Cover Switch in Notebook PC/PDA
- Handheld Wireless Application Awake Switch
- Magnet Switch in Low Duty Cycle Applications

Absolute Maximum Ratings （T_A=25℃）

Supply Voltage V_{CC} ..... 7 V
Supply Current (Fault) I_{CC} .....6 mA
Output Voltage V_{OUT} .....7 V
Output Current I_{OUT} .....2 mA
Magnetic Flux Density B .....Unlimited
Storage Temperature .....-55 to 150 °C
Junction Temperature .....150 °C
ESD (Machine Model) .....ESD 200 V

NOTE：Electronic semiconductor products are sensitive to Electro Static Discharge (ESD). Always observe Electro Static Discharge control procedures whenever handling semiconductor products.

Functional Block Diagram



A (B)
A for TO-92S-3
B for SOT-23-3

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Electrical Characteristics

Vcc =3V, T_A=25°C, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Supply Voltage	V_{CC}		2.5	3	5.5	V
Supply Current	I_{AW}	Awake		2	4	mA
	I_{SL}	Sleep		6	10	μA
	I_{AVG}	Average		10	15	μA
Output Current	I_{OUT}				1.0	mA
Output Leakage Current	I_{LEAK}	B< | BRP |	-	<0.1	1.0	μA
Saturation Voltage	V_{SAT}	IOUT =1.0mA	-		0.4	V
Awake Mode Time	t_{AW}	OPERATING		150		μs
Sleep Mode Time	t_{SL}	OPERATING		90	120	ms
Duty Cycle	D			0.15		%
Chopper Frequency	f_C			15		kHz

Magnetic Characteristics

Vcc =3V, T_A=25°C, (1mT = 10 Gauss)

Parameter	symbol	Conditions	Value			Unit
			Min	Typ	Max	
Operate Point	B_{OPS}	South pole to branded side B>B_{OPS},V_{OUT}=low(output on)		30	55	GS
	B_{OPN}	North pole to branded side B>B_{OPN},V_{OUT}=low(output on)	-55	-30		GS
Release Point	B_{RPS}	South pole to branded side B<B_{RPS},V_{OUT}=high(output off)	5	20		GS
	B_{RPN}	North pole to branded side B<B_{RPN},V_{OUT}=high(output off)		-20	-5	GS
Hysteresis	B_H	| BOPX - BRPX |	-	10	-	GS

B_{OPX}=operating point(output turns on);

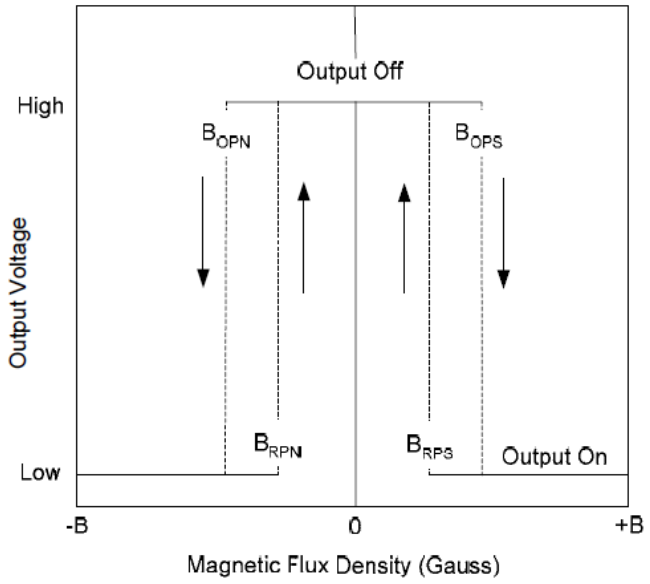
B_{RPX}=releasing point(output turns off)

Output Voltage vs. Magnetic Flux Density

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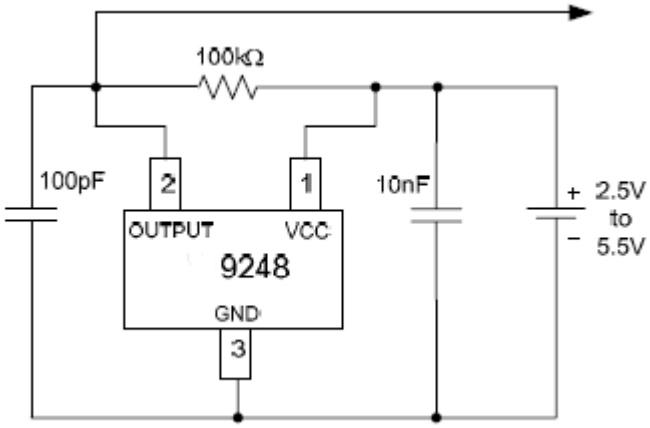
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Typical Application

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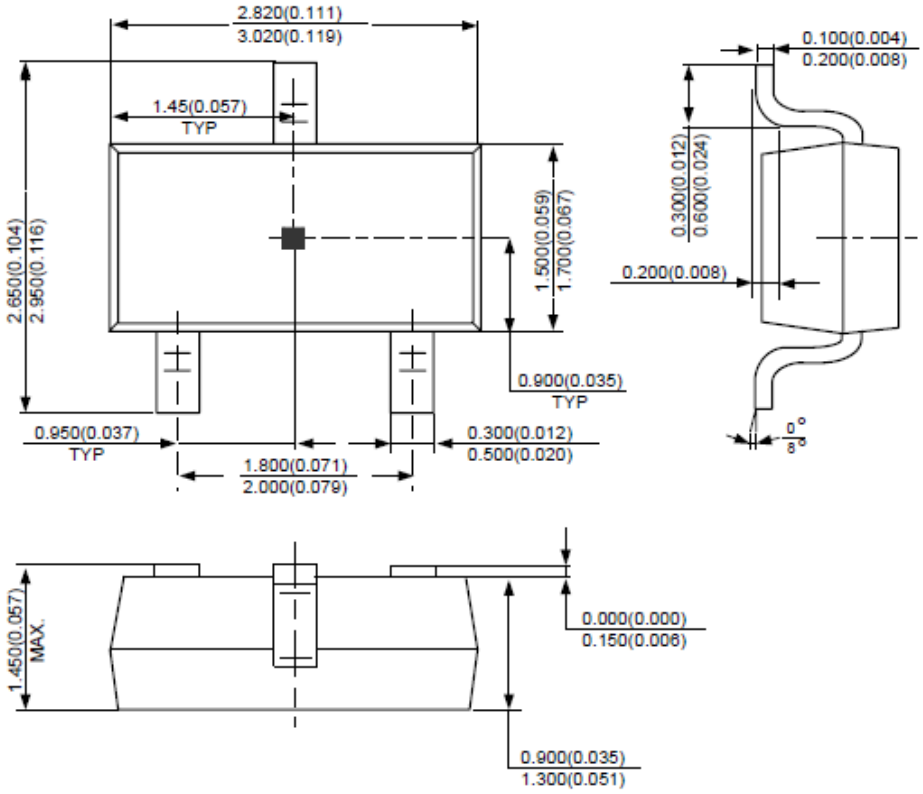
Mechanical Dimension unit:mm(inch)

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SOT23

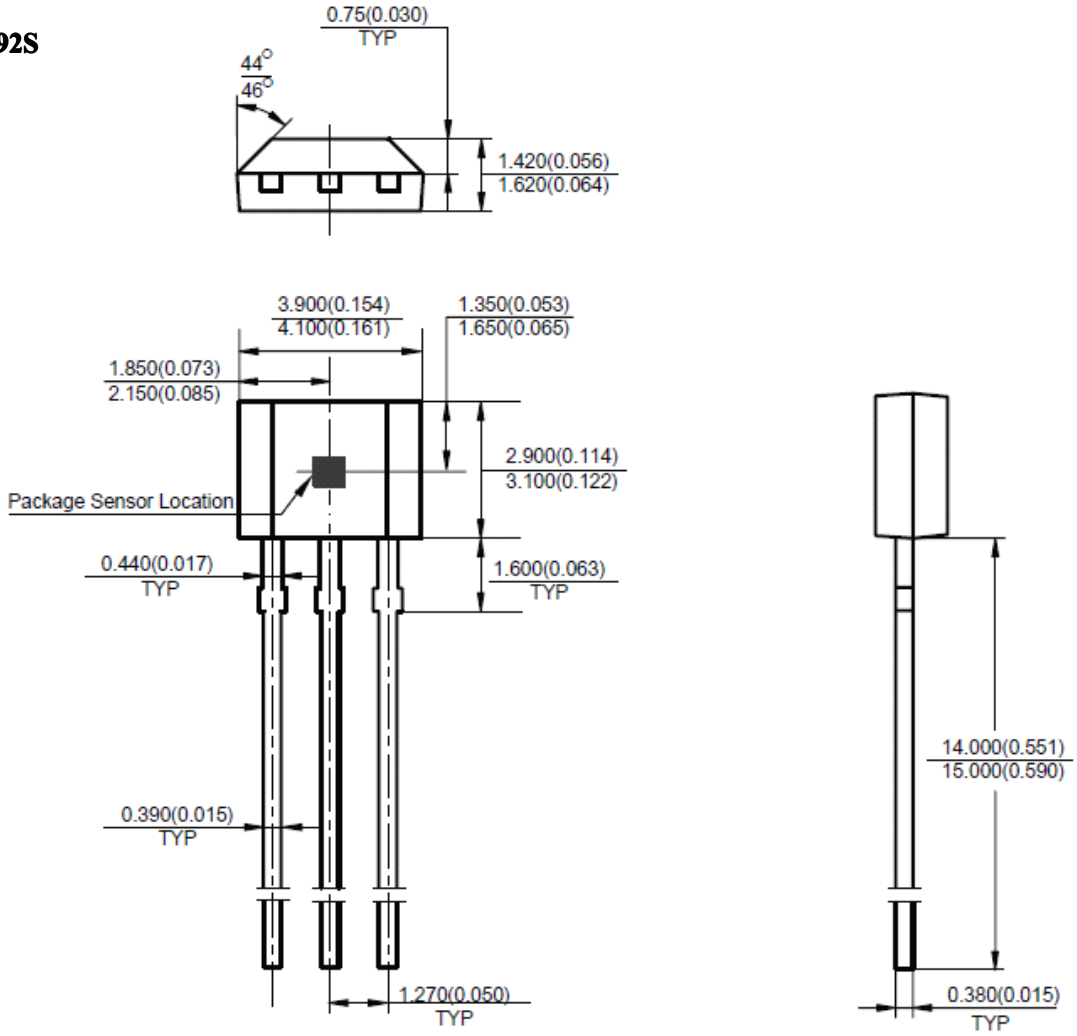


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TO-92S



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