OH9253 Omnipolar Micropower Hall Switch

1. General Description

OH9253 Hall-effect sensor is a temperature stable, stress-resistant switch， including the following items on a single silicon chip: voltage regulator, Hall voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, open-drain output. Advanced CMOS wafer fabrication processing is used to take advantage of low-voltage requirements, component matching, very low input-offset errors, and small component geometries.

2. Features

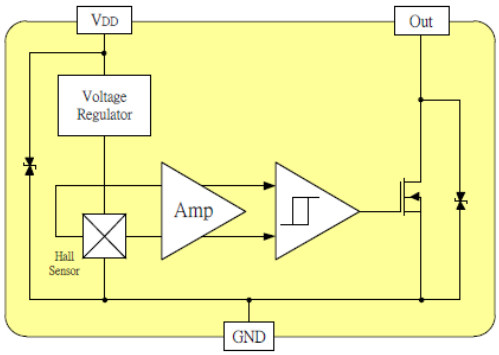
- CMOS Hall IC Technology
- Solid-State Reliability much better than a reed switch
- Omnipolar output switches with the absolute value of North or South pole from the magnet
- Low power consumption (2.6mA)
- High Sensitivity for reed switch replacement
- ESD HBM ±4KV Min
- COST competitive

3. Applications

- Solid-state switch
- Lid close sensor for power supply devices
- Magnet proximity sensor for reed switch replacement
- Safety Key Revolution counter
- Speed sensor
- Position Sensor
- Rotation Sensor

4. Functional Block Diagram

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



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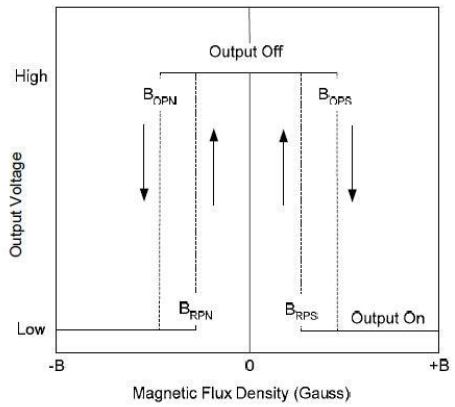
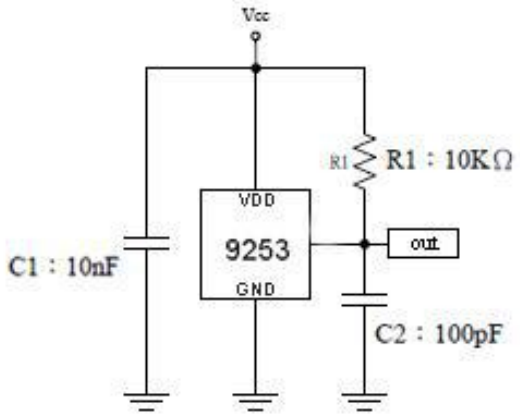
5. Output Voltage vs. Magnetic Flux Density



6. Typical Application



7. Absolute Maximum Ratings （T_A=25℃）

Parameter	Symbol	Value	Unit
Supply Voltage	Vcc	6	V
Output Voltage	V_{OUT}	6	V
Supply Current (Average)	I_{CC}	2.6	mA
Output current	Iout	25	mA
Operating temperature range	T_A	-40 to 150	℃
Storage temperature range	Tstg	-55 to 150	℃
Junction Temperature..		150	℃

8. Electrical Characteristics Vcc =5V, T_A=25°C, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Supply Voltage	V_{CC}		2.5	-	6	V
Supply Current	Icc			2.6	6.0	mA
Output Current	I_{OUT}				25	mA
Output Leakage Current	I_{LEAK}	B< | B_{RP} |	-	-	1.0	μA
Saturation Voltage	V_{SAT}	I_{OUT} =1.0mA	-	-	0.4	V
Output Rise Time	tr	Vcc=5V, R_L=10kΩ, C_L=20pF	-	-	0.45	μS
Output Falling Time	tf		-	-	0.45	μS

9. Magnetic Characteristics Vcc =5V, TA=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	60	GS
	B_{OPN}	North pole to branded side B>B_{OPN},V_{OUT}=low(output on)	-60	-30		GS
Release Point	B_{RPS}	South pole to branded side B<B_{RPS},V_{OUT}=high(output off)	5	25		GS
	B_{RPN}	North pole to branded side B<B_{RPN},V_{OUT}=high(output off)		-25	-5	GS
Hysteresis	B_H	| B_{OPX} - B_{RPX} |	-	10	-	GS

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

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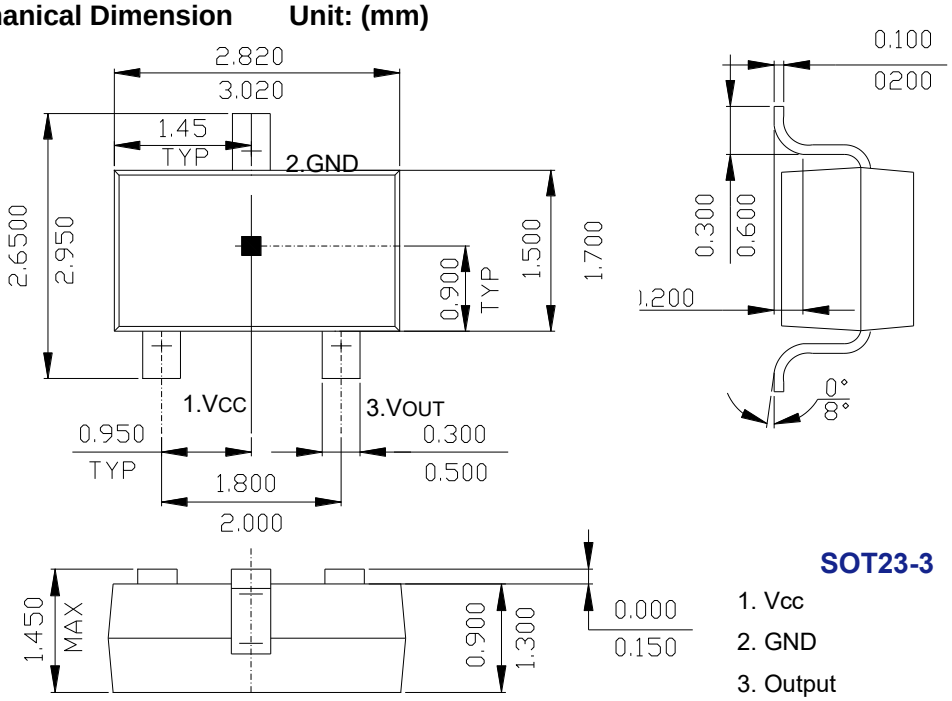
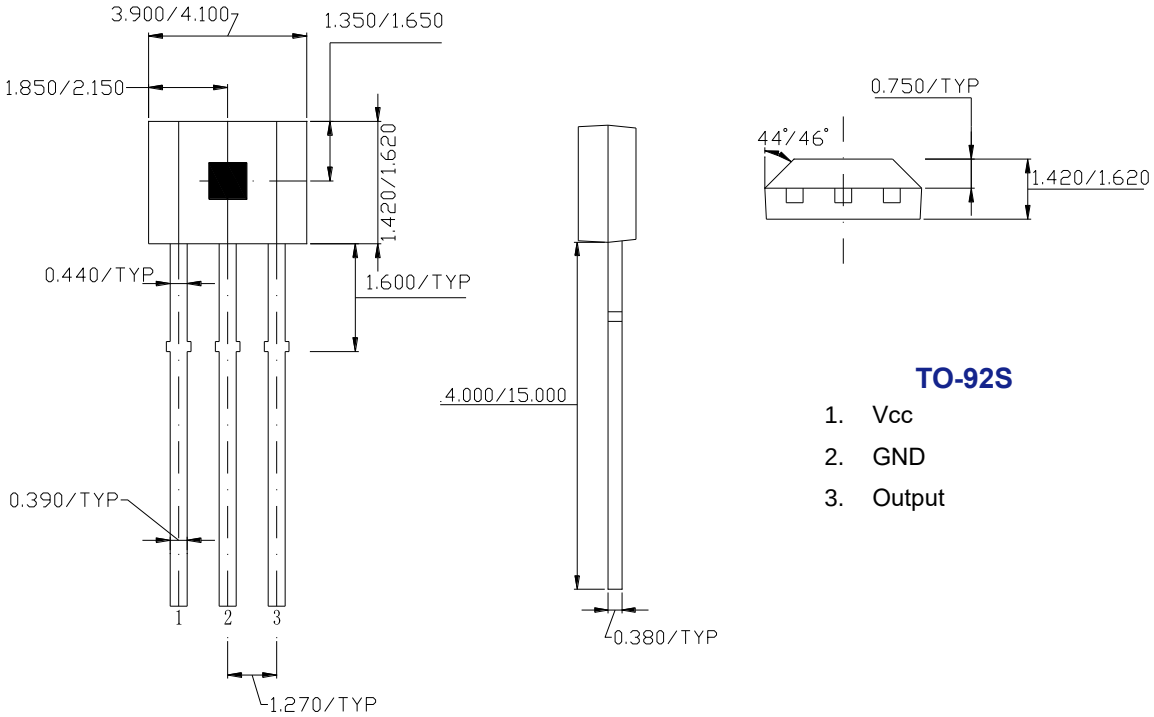
10. Mechanical Dimension Unit: (mm)



SOT23-3

1. Vcc
2. GND
3. Output



TO-92S

1. Vcc
2. GND
3. Output

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.