OH9251 Micropower CMOS Output Hall Effect Switch

General Description:

Part Number：OH9251 Temperature Range:-40 to 85°C Package: 3000pcs/reel

OH9251 Hall-effect sensor is a temperature stable, stress-resistant,Low Tolerance of Sensitivity micro-power switch. Superiorhigh-temperature performance is made possible through a dynamic offset cancellation that utilizes chopper-stabilization. This method reduces the offset voltage normally caused by device over molding, temperature dependencies, and thermal stress.

OH9251 is special made for low operation voltage, 1.65V, to active the chip which isincludes the following on a single silicon chip:voltage regulator, Hall voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, CMOS output driver. 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.This device requires the presence of omni-polarmagnetic fields for operation.

The package type is in a Halogen Free version has been verified by third party Lab.

Features

- CMOS Hall IC Technology
- StrongRF noise protection
- 1.65to 6V for battery-powered applications
- Omni polar, output switches with absolute value of North or South pole from magnet
- Operation down to 1.65V,Micro powerconsumption
- High Sensitivity for reed switch replacement applications
- Multi Small Sizeoption
- Low sensitivity drift in crossing of Temp. range
- Ultra Low power consumption at 5uA (Avg)
- High ESD Protection, HBM> ±4KV(min)
- Totem-pole output

Applications

- Solid state switch
- Handheld Wireless Handset Awake Switch(Flip Cell/PHS Phone/Note Book/Flip VideoSet)
- Lid close sensor for battery powered devices
- Magnet proximity sensor for reed switch replacement in low duty cycle applications
- Water Meter
- Floating Meter
- PDVD

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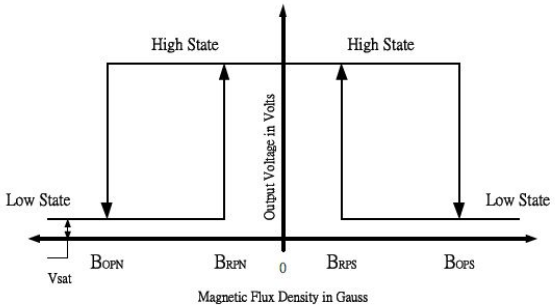
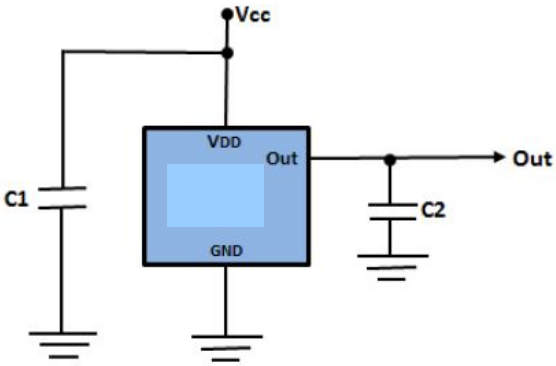
Absolute Maximum Ratings （T_A=25℃）

Supply Voltage VCC..... 7 V
Supply Current (Fault) ICC .....5 mA
Output Voltage VOUT .....7 V
Output Current IOUT .....1 mA
Storage Temperature .....-65 to 150 °C
Junction Temperature .....150 °C

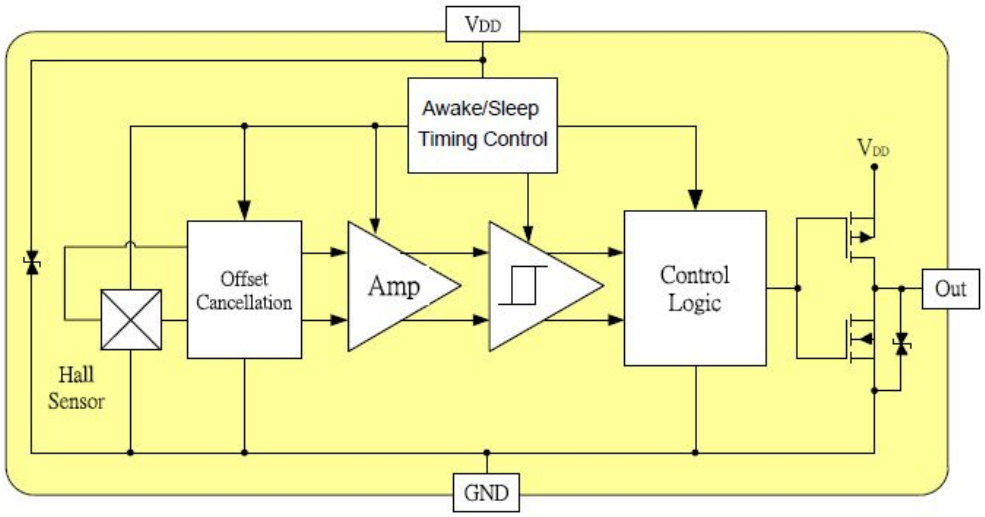
Output Voltage vs. Magnetic Flux Density



Typical Application



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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Electrical Characteristics Ta=25℃, VDD=1.8V

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Supply Voltage	V_{CC}		1.65	-	6	V
Supply Current	IAW	Awake		1.4	3	mA
	ISL	Sleep		3.6	7	μA
	IAVG	Average		5	10	μA
Output Leakage Current	Ioff	Output off	-	-	1.0	μA
Output HighVoltage,(VOH)	VOH	IOUT=0.5mA(Source)	VDD-0.2	-	-	V
Output LowVoltage	VOL	IOUT=0.5mA(Sink)			0.2	V
Awake Mode Time	tAW	OPERATING		40	80	μs
Sleep Mode Time	tSL	OPERATING		40	80	ms
Duty Cycle	D			0.1		%
Electro-Static Discharge		HBM	4	-	-	KV

Magnetic Characteristics Ta=25℃, VDD=1.8V (1mT = 10 Gauss)

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

BOPX=operating point (output turns on);

BRPX=releasing point (output turns off)

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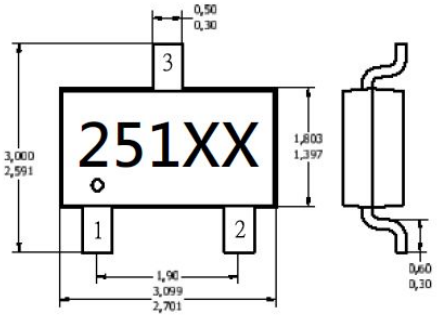
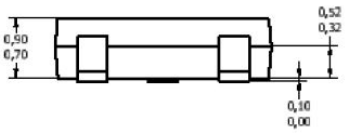
Mechanical Dimension **Unit**: (mm)

ST Package(TSOT-23)

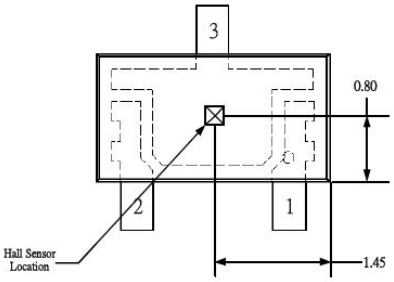
(Top View)





Hall Plate Chip Location

(Bottom view)



NOTES:

1. PINOUT (See Top View at left:)
   - Pin 1 VDD
   - Pin 2 Output
   - Pin 3 GND
2. Controlling dimension: mm;

NOTES:

- Controlling dimension: mm
- Leads must be free of flash and plating voids
- Do not bend leads within 1 mm of lead to package interface.

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