



# HALL EFFECT MICRO SWITCH IC

## DESCRIPTION

The UH8103 is a low power, pole independent Hall-effect switch with a latched digital output driver. It can work in 2.5 volt supply. Either a north or south pole of sufficient flux will turn the output on; in the absence of a magnetic field, the output is off.

When a magnetic field enters the hall element and exceeds the operate point  $B_{OPS}$ (or less than  $B_{OPN}$ ) the output turns on (output is low). When the magnetic field is below the release point  $B_{RPS}$ , the output turns off (output is high). It is designed with open drain configuration and connecting a pull up resistor from Output to  $V_{DD}$  is necessary.

## FEATURES

- \*Micropower Operation
- \*2.5V to 5.5V Battery Operation
- \*Offset Canceling Technology
- \*Independent of North or South Pole Magnet
- \*Superior Temperature Stability
- \*Extremely Low Switch-Point Drift

## APPLICATIONS

- \*Micro Switch
- \*Handheld Wireless Application Wake Up Switch
- \*Clamp Shell Type Application Switch
- \*Magnet Switch in Low Duty Cycle Applications

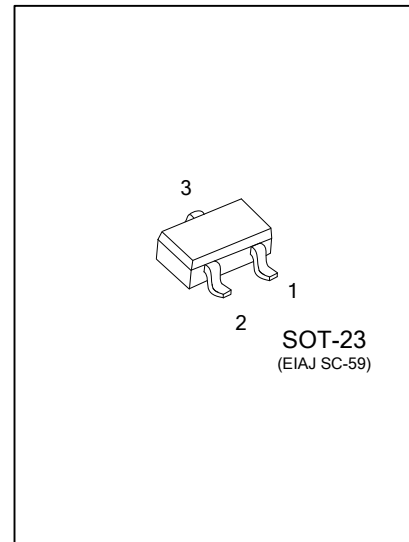
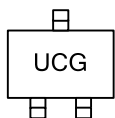
## ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UH8013G-AE3-R	SOT-23	O	I	G	Tape Reel

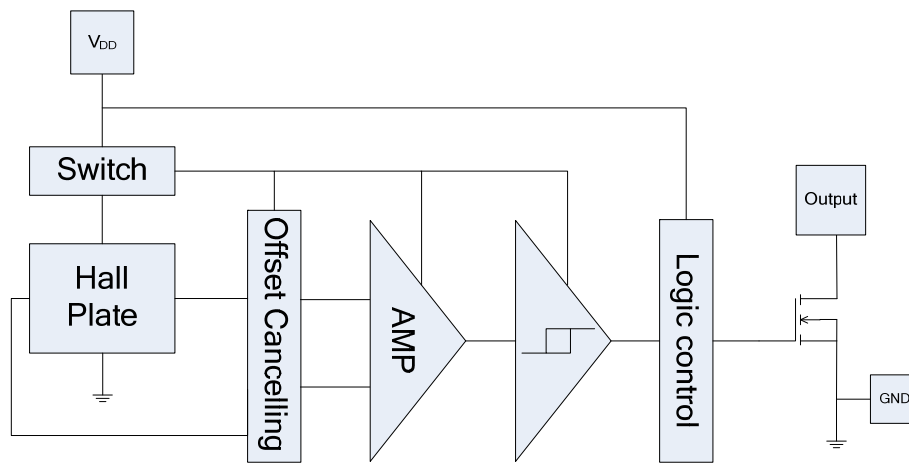
Note: Pin Assignment: O: Output I:  $V_{DD}$  G: GND

<p>UH8013G-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free</p>
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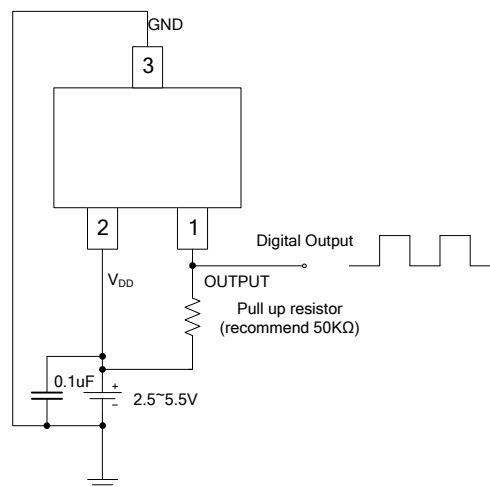
## MARKING



■ BLOCK DIAGRAM



■ TYPICAL CIRCUIT



■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>DD</sub>	7	V
Magnetic Flux Density	B	Unlimited	
Output current	I <sub>OUT</sub>	10	mA
Package Power Dissipation	P <sub>D</sub>	230	mW
Junction Temperature	T <sub>J</sub>	150	°C
Operation Temperature	T <sub>OPR</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>STG</sub>	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ RECOMMENDED OPERATING CONDITIONS (T<sub>A</sub>=25°C)

PARAMETER	SYMBOL	Conditions	MIN	TYP	MAX	UNIT
Supply Voltage	V <sub>DD</sub>	Operating	2.5	---	5.5	V

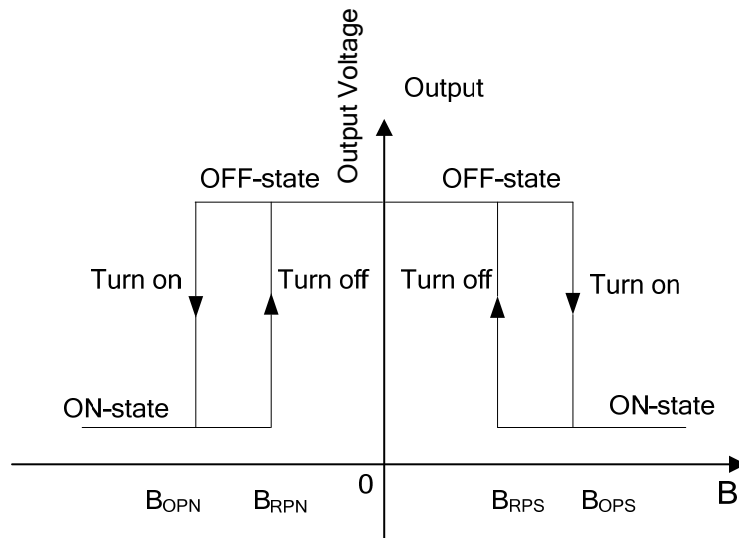
■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, V<sub>DD</sub>=3V)

PARAMETER	SYMBOL	Conditions	MIN	TYP	MAX	UNIT
Supply Voltage Range	V <sub>DD</sub>	Operating	2.5		5.5	V
Supply Current	I <sub>DD</sub>	Average		5	10	μA
		Awake		1.2	2	mA
		Sleep		2	8	μA
Output Leakage Current	I <sub>OFF</sub>	V <sub>OUT</sub> = 3.5V, B <sub>RPN</sub> < B < B <sub>RPS</sub>			1	μA
Output Low Voltage	V <sub>OL</sub>	I <sub>SINK</sub> = 1mA		20	40	mV
Wake up Time	t <sub>awake</sub>			180		μS
Period	t <sub>period</sub>			60		mS
Duty cycle	d.c.			0.3		%

■ MAGNETIC CHARACTERISTICS (T<sub>A</sub>=25°C, V<sub>DD</sub>=3V, 1mT=10Gauss)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Operation Points	B <sub>OPS</sub>		50	75	Gauss
	B <sub>OPN</sub>	-75	-50		
Release Points	B <sub>RPS</sub>	10	35		
	B <sub>RPN</sub>		-35	-10	
Hysteresis	B <sub>hys</sub>		15		

## ■ MAGNETIC FLUX



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