



# UH8100

CMOS IC

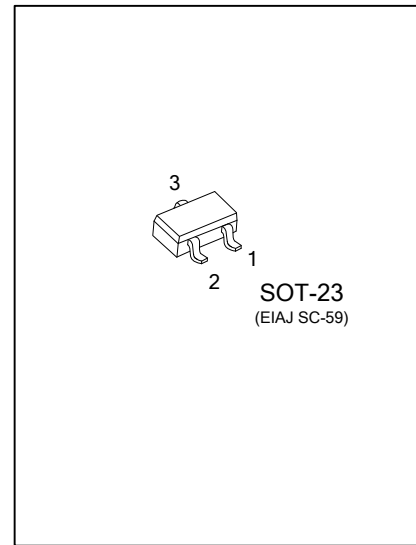
## LOW POWER HALL EFFECT SWITCH

### DESCRIPTION

**UH8100** is a low-power integrated Hall switch designed to sense the applied magnetic flux density and give a digital output, which indicates the present condition of the magnitude sensed.

It mainly designed for battery-powered system and hand-held equipment, such as cellular flip-phones and PDA's, in which power consumption is one major concern. The typical power consumption of **UH8100** is down to 15uW at 2.75V supply.

For **UH8100**, the output will be high when no magnetic field is applied and be low when the applied magnetic flux density is stronger than the switching threshold. The difference between **UH8100A** and **UH8100B** is that **UH8100A** consumes less power than **UH8100B** in the Hall sensor operation.



### FEATURES

- \* Micro power Operation
- \* 2.5V to 5.5V Battery Operation
- \* Offset Canceling Technology
- \* Superior Temperature Stability
- \* Extremely Low Switch-Point Drift
- \* Insensitive to Physical Stress

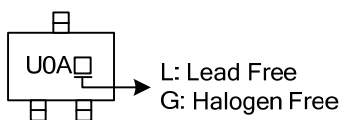
### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UH8100AL-AE3-R	UH8100AG-AE3-R	SOT-23	O	I	G	Tape Reel
UH8100BL-AE3-R	UH8100BG-AE3-R	SOT-23	O	I	G	Tape Reel

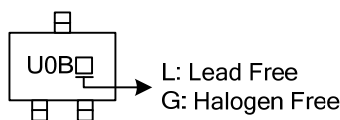
Note: O: V<sub>OUT</sub>, I: V<sub>DD</sub>, G: GND

<p>UH8100XG-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Halogen Free (4) Average Supply Current</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free, L: Lead Free (4) refer to Electrical Characteristics</p>
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### MARKING

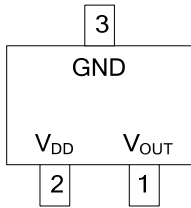


UH8100A



UH8100B

## ■ PIN CONFIGURATIONS

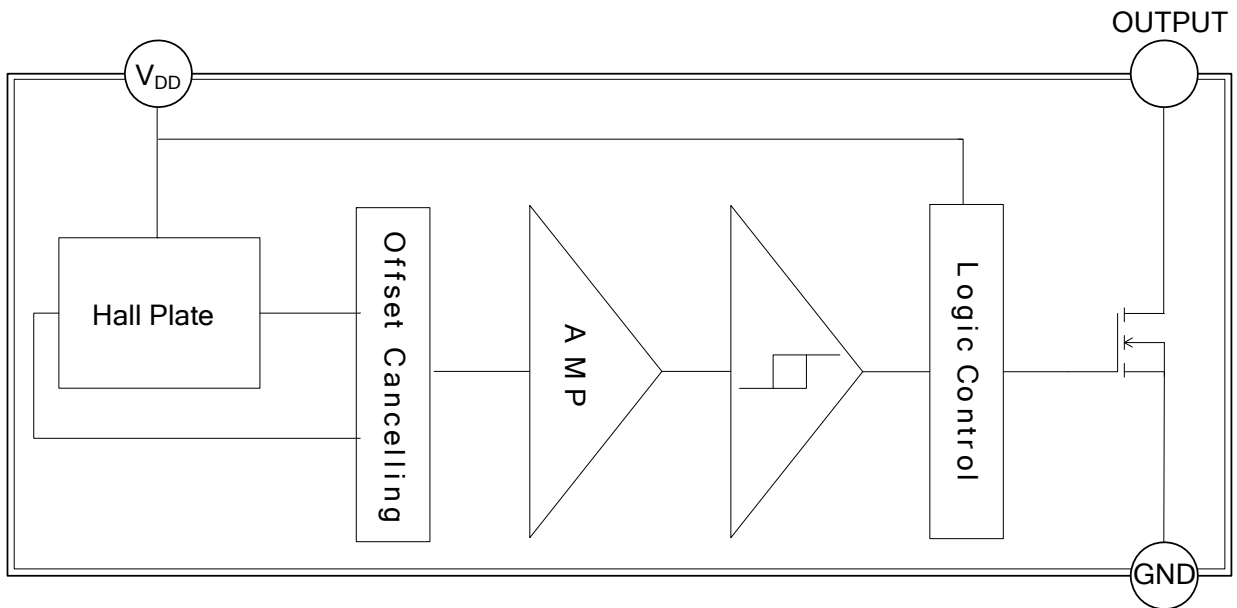


## ■ PIN DESCRIPTION

PIN NAME	PIN TYPE	PIN DESCRIPTION
V <sub>OUT</sub>	O	Digital Output
V <sub>DD</sub>	P	Power Supply
GND	G	Ground

Note: O=Output, P=Power Supply, G=Ground

■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
Magnetic Flux Density	B	Unlimited	mT
Supply Voltage	V <sub>DD</sub>	7	V
Output Current	I <sub>O</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

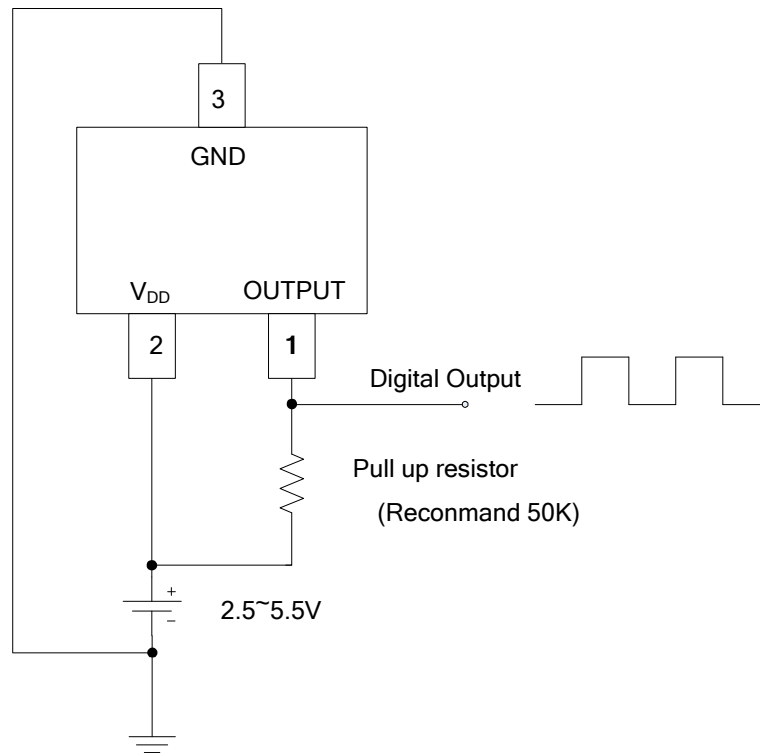
### ■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Output On Voltage	V <sub>OUT</sub>	V <sub>DD</sub> =3V, I <sub>OUT</sub> =1mA		0.1	0.3	V
Output Leakage Current	I <sub>OFF</sub>	V <sub>DD</sub> =3V, V <sub>OUT</sub> =5.5V, B<B <sub>RP</sub>		<0.1	1	uA
Supply Current	I <sub>DD(EN)</sub>	V <sub>DD</sub> =3V, Chip enable			2.0	mA
Supply Current	I <sub>DD(DIS)</sub>	V <sub>DD</sub> =3V, Chip disable				
	I <sub>DD(AVG)</sub>	V <sub>DD</sub> =3V, average supply current	UH8100A	5	10	uA
			UH8100B	280	500	uA
Awake Time	T <sub>AWAKE</sub>	V <sub>DD</sub> =3V		50	100	us
Period	T <sub>PERIOD</sub>	V <sub>DD</sub> =3V, UH8100A		50	100	ms
		V <sub>DD</sub> =3V, UH8100B		200	400	us
Duty Cycle	D.C.	V <sub>DD</sub> =3V, UH8100A		0.1		%
		V <sub>DD</sub> =3V, UH8100B		25		%

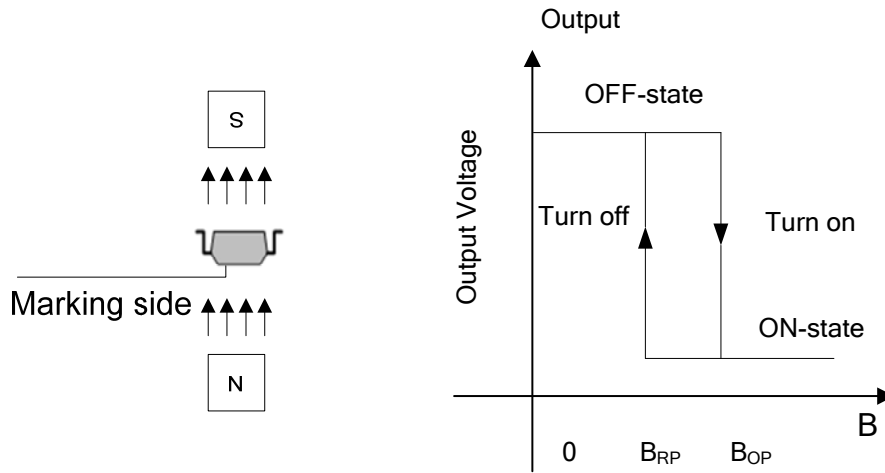
### ■ MAGNETIC CHARACTERISTICS (T<sub>A</sub>=25°C, V<sub>DD</sub>=3V)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Operation Points	B <sub>OP</sub>		40	60	Gauss
Release Points	B <sub>RP</sub>	10	30		
Hysteresis	B <sub>OP</sub> -B <sub>RP</sub>		10		

## ■ TYPICAL APPLICATION CIRCUIT



■ MAGNETIC FLUX



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