



UH8100

CMOS IC

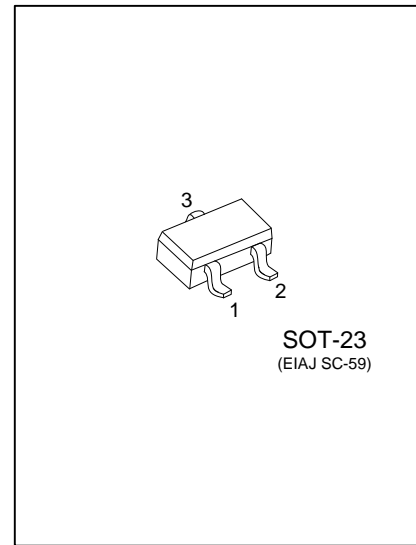
LOW POWER HALL EFFECT SWITCH

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	I	O	G	Tape Reel
UH8100BL-AE3-R	UH8100BG-AE3-R	SOT-23	I	O	G	Tape Reel

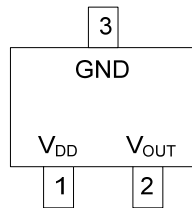
Note: Pin Assignment: I: V_{DD} O: V_{OUT} G: GND

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

<p>UH8100A</p> <p>L: Lead Free G: Halogen Free</p>	<p>UH8100B</p> <p>L: Lead Free G: Halogen Free</p>
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■ PIN CONFIGURATIONS

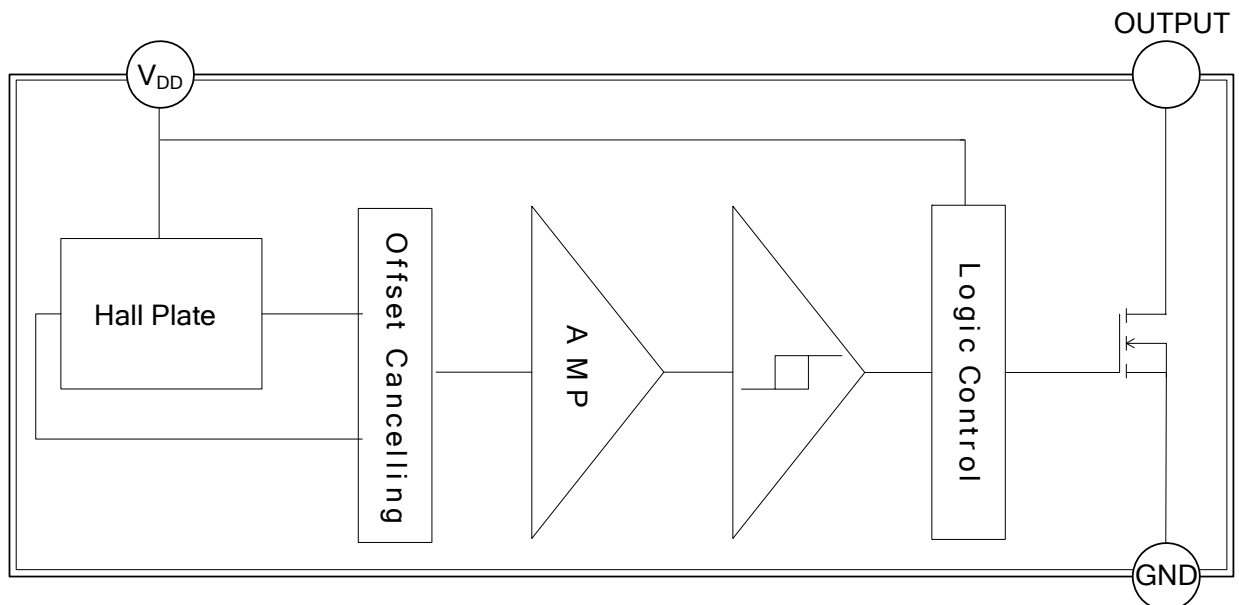


■ PIN DESCRIPTION

PIN NO.	PIN NAME	PIN TYPE	PIN DESCRIPTION
1	V _{DD}	P	Power Supply
2	V _{OUT}	O	Digital Output
3	GND	G	Ground

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

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Magnetic Flux Density	B	Unlimited	mT
Supply Voltage	V_{DD}	7	V
Output Current	I_O	10	mA
Package Power Dissipation	P_D	230	mW
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Operation Temperature	T_{OPR}	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-65 ~ +150	$^{\circ}\text{C}$

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 ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{DD}	Operating	2.5		5.5	V

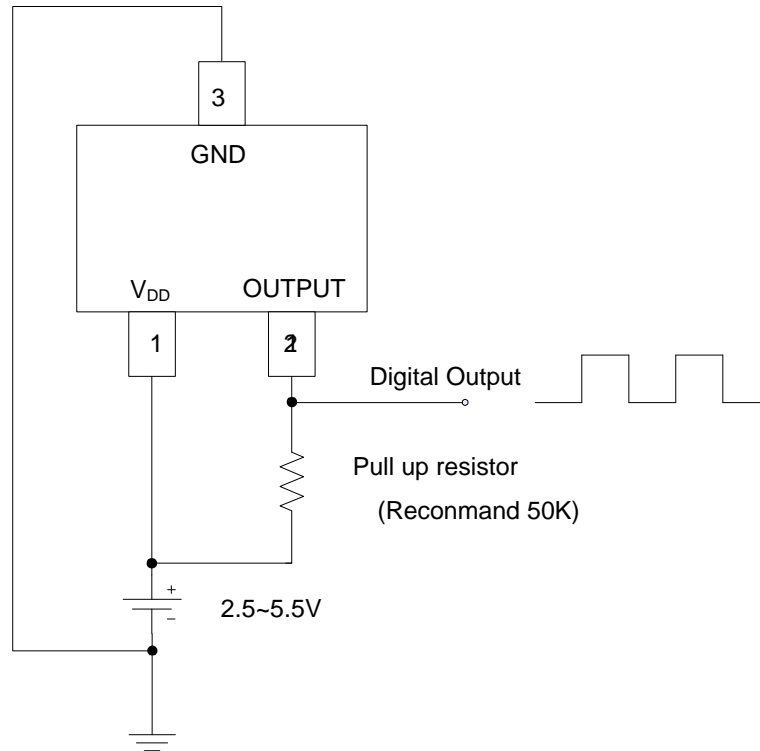
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Output On Voltage	V_{OUT}	$V_{DD}=3\text{V}$, $I_{OUT}=1\text{mA}$		0.1	0.3	V
Output Leakage Current	I_{OFF}	$V_{DD}=3\text{V}$, $V_{OUT}=5.5\text{V}$, $B < B_{RP}$		0.01	1	μA
Supply Current	$I_{DD(AVG)}$	$V_{DD}=3\text{V}$, average supply current	UH8100A	5	10	μA
			UH8100B	280	500	μA
Awake Time	T_{AWAKE}	$V_{DD}=3\text{V}$		50	100	μs
Period	T_{PERIOD}	$V_{DD}=3\text{V}$, UH8100A		50	100	ms
		$V_{DD}=3\text{V}$, UH8100B		200	400	μs
Duty Cycle	D.C.	$V_{DD}=3\text{V}$, UH8100A		0.1		%
		$V_{DD}=3\text{V}$, UH8100B		25		%

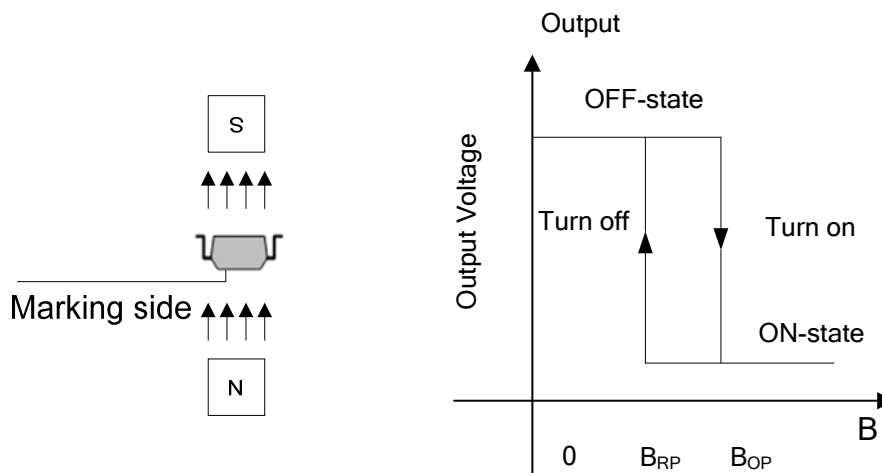
■ MAGNETIC CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, $V_{DD}=3\text{V}$, unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Operation Points	$ B_{OP} $		40	60	Gauss
Release Points	$ B_{RP} $	10	30		
Hysteresis	$ B_{OP}-B_{RP} $		10		

■ TYPICAL APPLICATION CIRCUIT



■ MAGNETIC FLUX



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