



UH8100

CMOS IC

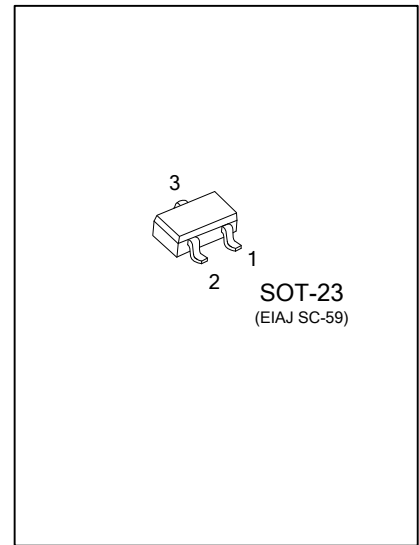
LOW POWER HALL EFFECT SWITCH

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

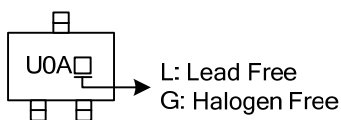
ORDERING INFORMATION

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

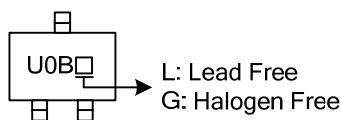
Note: O: V_{OUT}, I: V_{DD}, G: GND

<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

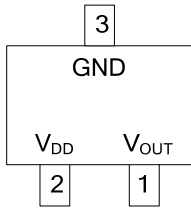


UH8100A



UH8100B

■ PIN CONFIGURATIONS

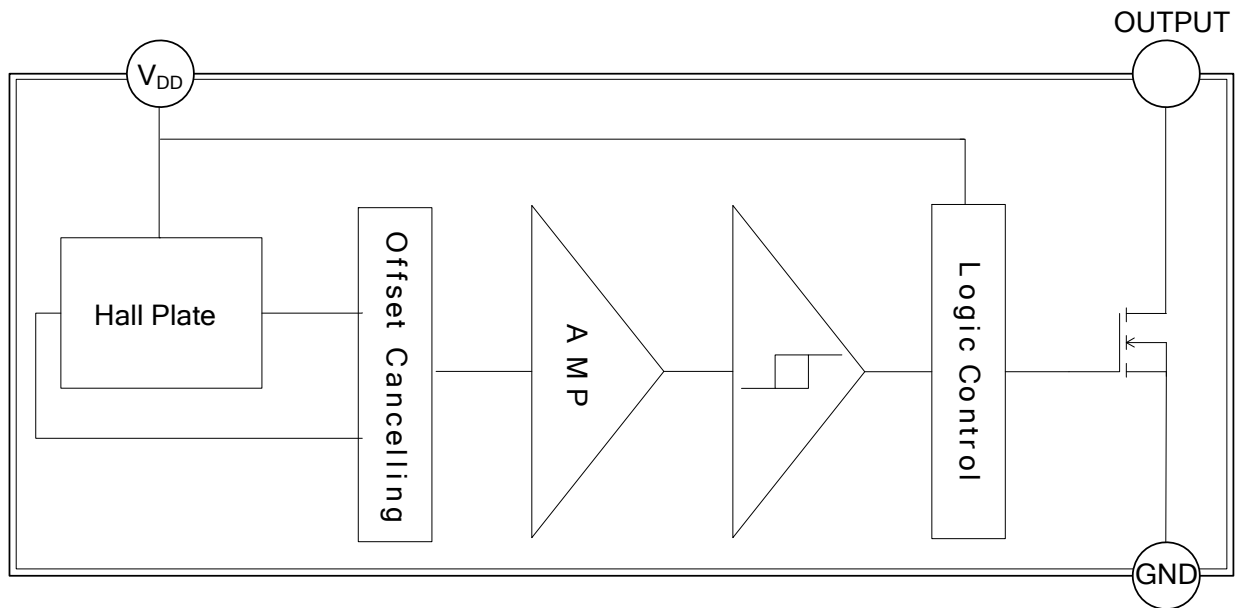


■ PIN DESCRIPTION

PIN NAME	PIN TYPE	PIN DESCRIPTION
V _{OUT}	O	Digital Output
V _{DD}	P	Power Supply
GND	G	Ground

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

■ BLOCK DIAGRAM



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

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 ($T_A=25^\circ\text{C}$)

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

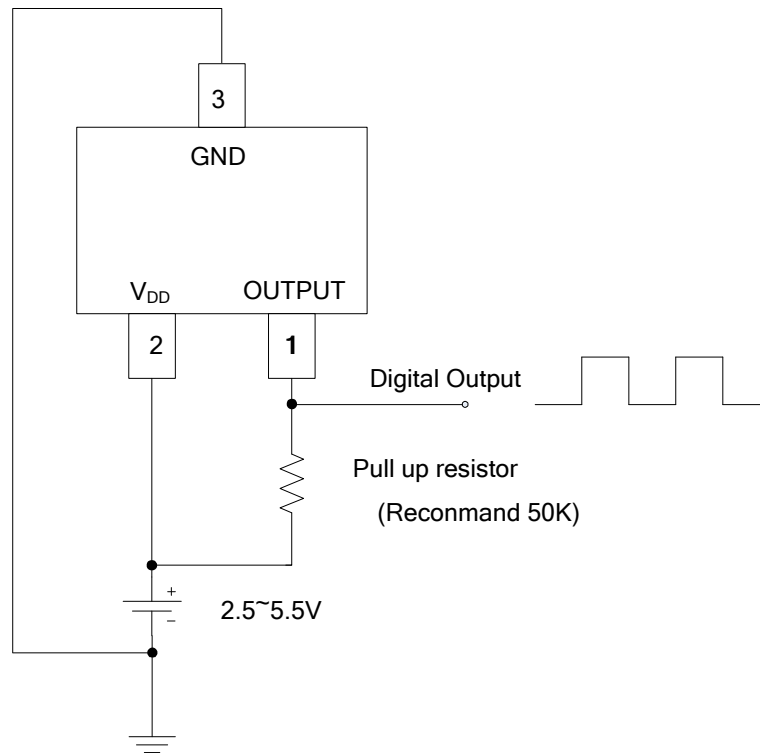
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

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}	$V_{DD}=3\text{V}$, $V_{OUT}=5.5\text{V}$, $B < B_{RP}$		<0.1	1	μA
Supply Current	$I_{DD(EN)}$	$V_{DD}=3\text{V}$, Chip enable			2.0	mA
Supply Current	$I_{DD(DIS)}$	$V_{DD}=3\text{V}$, Chip disable				
	$I_{DD(AVG)}$	$V_{DD}=3\text{V}$, average supply current				
				5	10	μA
				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		%

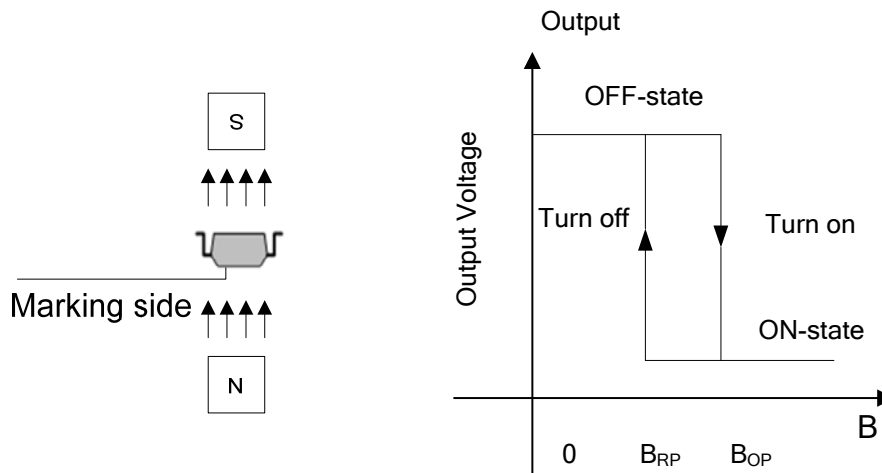
■ MAGNETIC CHARACTERISTICS ($T_A=25^\circ\text{C}$, $V_{DD}=3\text{V}$)

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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