



UH8100

CMOS IC

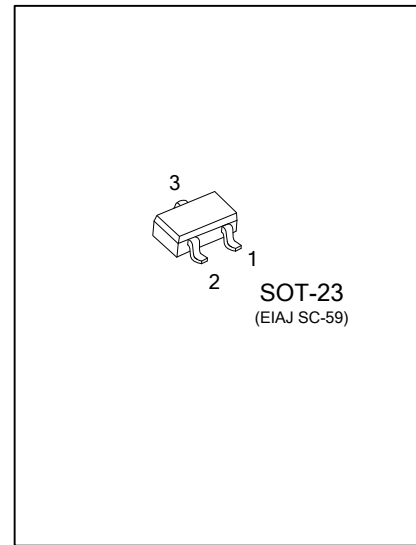
LOW POWER HALL EFFECT SWITCH

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

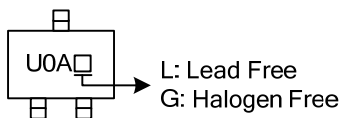
ORDERING INFORMATION

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

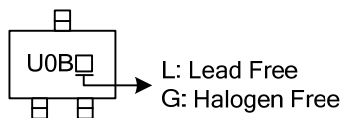
Note: O: V_{OUT}, I: V_{DD}, G: GND

<p>UH8100XG-AE3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Halogen Free (4) Average Supply Current 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free, L: Lead Free (4) refer to Electrical Characteristics
--	---

MARKING

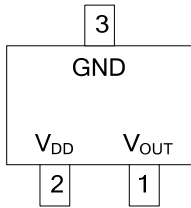


UH8100A



UH8100B

■ PIN CONFIGURATIONS

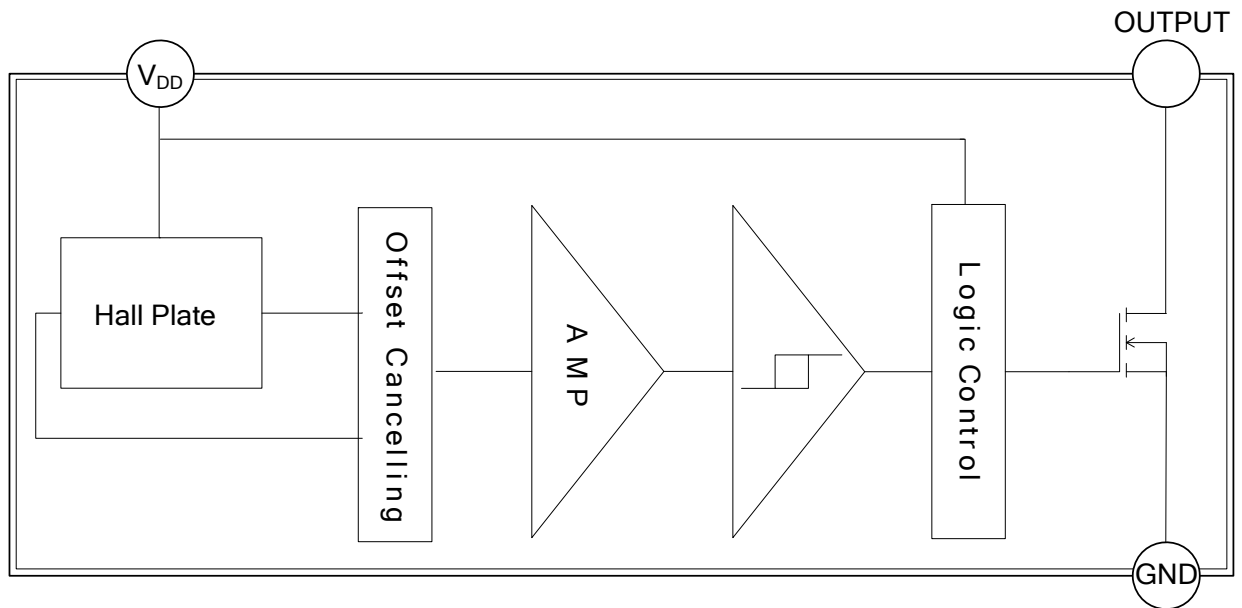


■ PIN DESCRIPTION

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

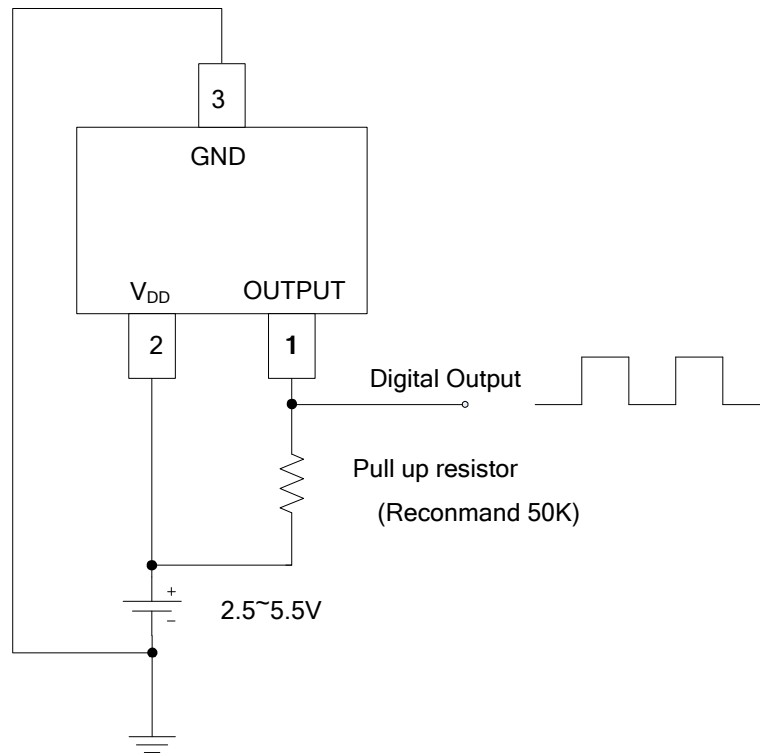
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

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				
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		%

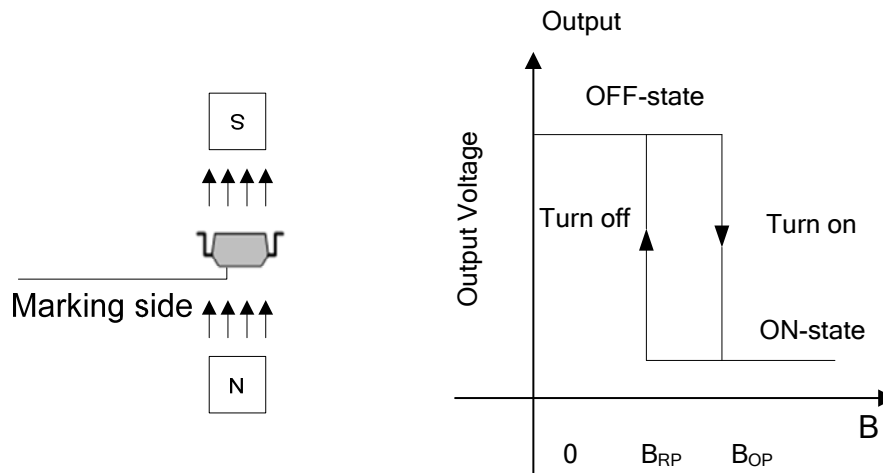
■ MAGNETIC CHARACTERISTICS ($T_A=25^\circ\text{C}$, $V_{DD}=3\text{V}$)

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



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.