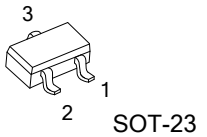
UH8100

CMOS IC

LOW POWER HALL EFFECT SWITCH



SOT-23
(EIAJ SC-59)

■ 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

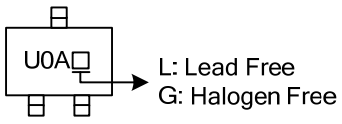
Note: O: V_{OUT}, I: V_{DD}, G: GND

UH8100X G-AE3-R

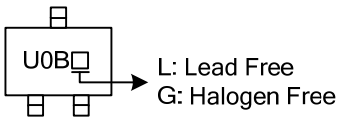
(1) Packing Type
(2) Package Type
(3) Halogen Free
(4) Average Supply Current

(1) R: Tape Reel
(2) AE3: SOT-23
(3) G: Halogen Free, L: Lead Free
(4) refer to Electrical Characteristics

■ MARKING

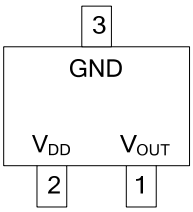


UH8100A



UH8100B

■ PIN CONFIGURATIONS

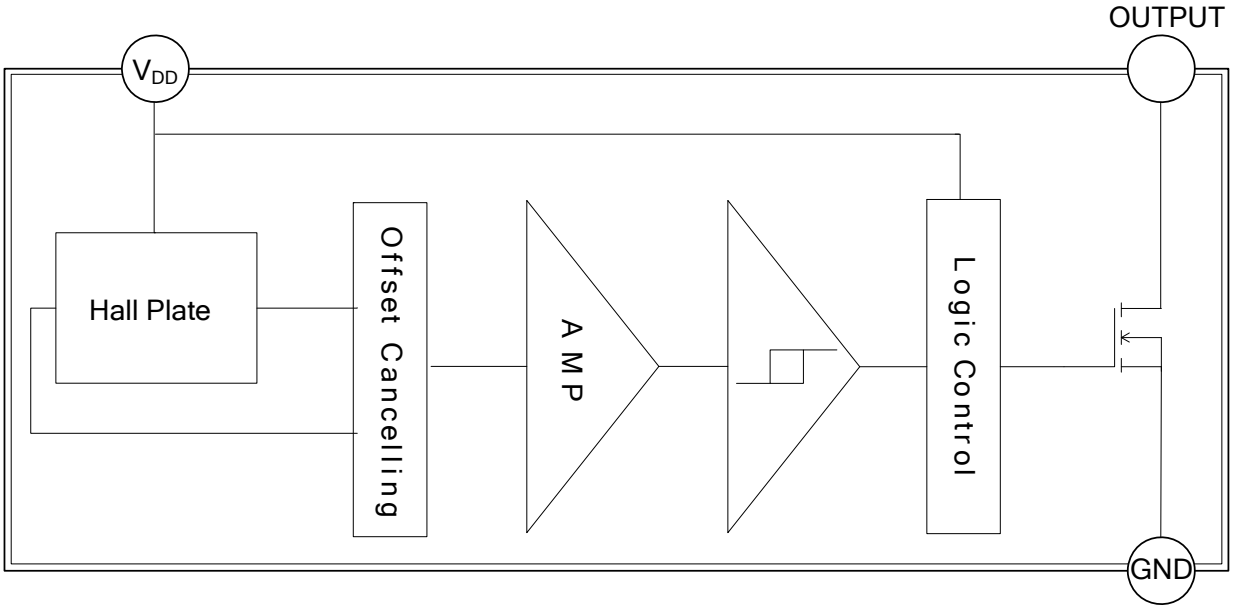


■ PIN DESCRIPTION

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℃)

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	℃
Operation Temperature	T_{OPR}	-40 ~ +85	℃
Storage Temperature	T_{STG}	-65 ~ +150	℃

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℃)

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

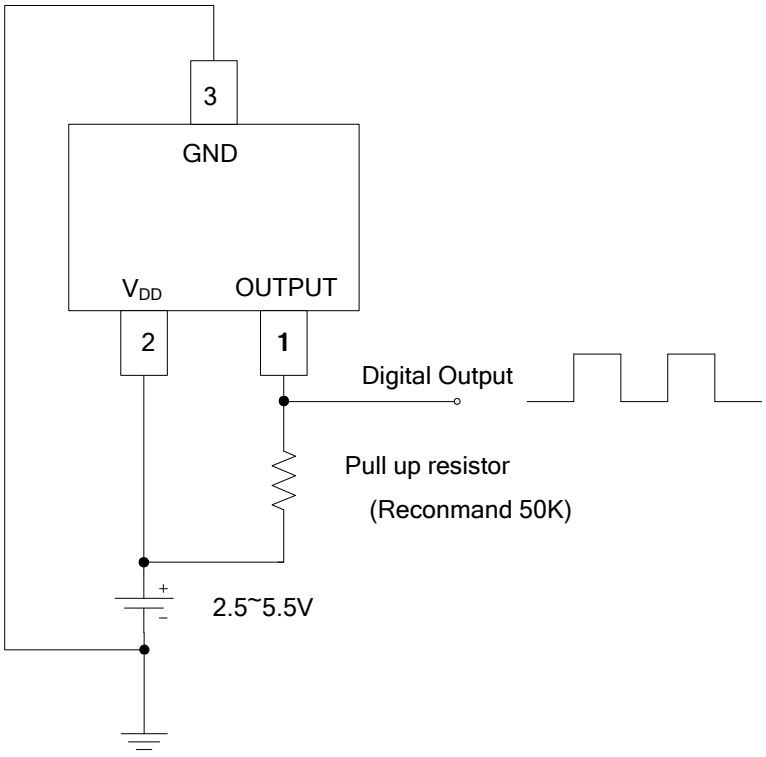
■ ELECTRICAL CHARACTERISTICS (T_A=25℃)

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

■ MAGNETIC CHARACTERISTICS (T_A=25℃,V_{DD}=3V)

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