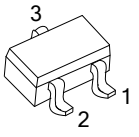
HALL EFFECT MICRO SWITCH IC



SOT-23

■ DESCRIPTION

The UH8103 is a low power, pole independent Hall-effect switch with a latched digital output driver. It can work in 2.5 volt supply. Either a north or south pole of sufficient flux will turn the output on; in the absence of a magnetic field, the output is off.

When a magnetic field enters the hall element and exceeds the operate point B_{OPS}(or less than B_{OPN}) the output turns on (output is low). When the magnetic field is below the release point B_{RPS} , the output turns off (output is high). It is designed with open drain configuration and connecting a pull up resistor from Output to VDD is necessary.

■ FEATURES

*Micropower Operation
*2.5V to 5.5V Battery Operation
*Offset Canceling Technology
*Independent of North or South Pole Magnet
*Superior Temperature Stability
*Extremely Low Switch-Point Drift

■ APPLICATIONS

*Micro Switch
*Handheld Wireless Application Wake Up Switch
*Clamp Shell Type Application Switch
*Magnet Switch in Low Duty Cycle Applications

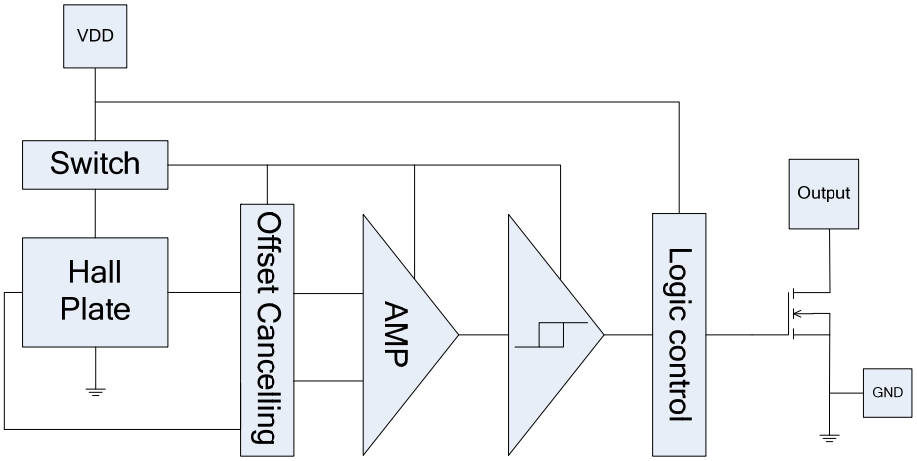
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UH8013L-AE3-R	UH8013G-AE3-R	SOT-23	O	I	G	Tape Reel

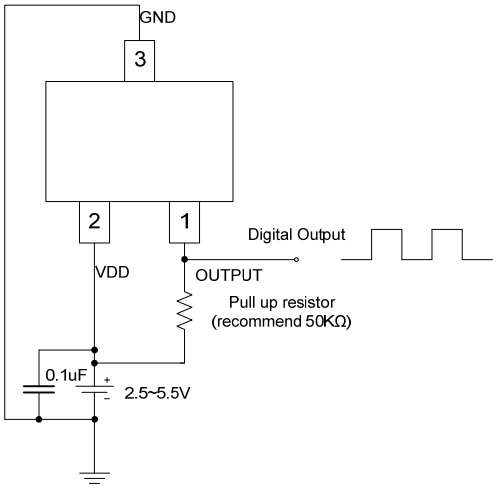
Note: O: Output, I: V_{DD}, G: GND

UH8013L-AE3-R (1)Packing Type (2)Package Type (3)Halogen Free	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free, L: Lead Free

■ BLOCK DIAGRAM



■ TYPICAL CIRCUIT



■ ABSOLUTE MAXIMUM RATING (T_a=25℃,Note)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	7	V
Magnetic Flux Density	B	Unlimited	
Output current	I_{OUT}	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℃, VDD=3V)

Symbol	Characteristic	Conditions	UH8103			Unit
			Min	Typ	Max	
V_{DD}	Supply Voltage Range	Operating	2.5		5.5	V
I_{DD}	Supply Current	Average		5	10	uA
		Awake		1.2	2	mA
		Sleep		2	8	uA
I_{OFF}	Output Leakage Current	V_{OUT} = 3.5V, B_{RPN}<B<B_{RPS}			1	uA
V_{OL}	Output Low Voltage	I_{SINK} = 1mA		20	40	mV
t_{awake}	Wake up Time			180		uS
t_{period}	Period			60		mS
d.c.	Duty cycle			0.3		%

■ MAGNETIC CHARACTERISTICS (T_A=25℃, VDD=3V, 1mT=10Gauss)

Symbol	Characteristic	MIN	TYP	MAX	UNIT
B_{OPS}	Operation Points		50	75	Gauss
B_{OPN}		-75	-50		
B_{RPS}	Release Points	10	35		
B_{RPN}			-35	-10	
B_{hys}	Hysteresis		15		

■ MAGNETIC FLUX