



## UH8105

CMOS IC

### Hall Effect Micro Switch IC

#### DESCRIPTION

The **UH8105** 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  $B_{RPS}$  (or above  $B_{RPN}$ ), the output turns off (output is high).

#### FEATURES

- \*Micropower operation
- \*2.5V to 5.0V 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

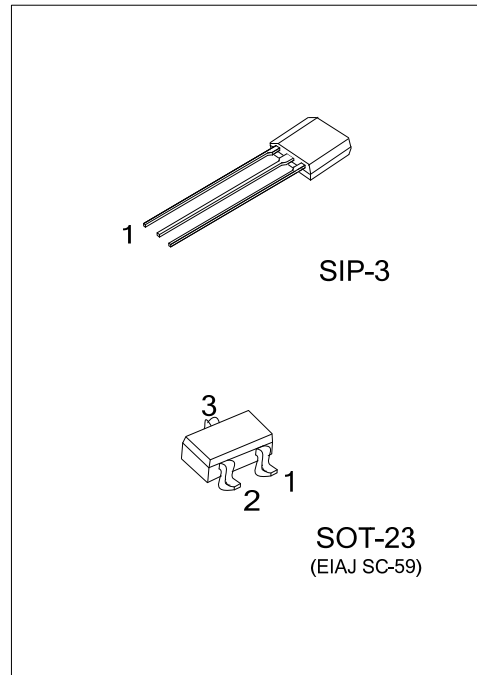
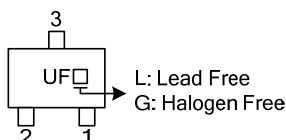
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UH8105L-AE3-R	UH8105G-AE3-R	SOT-23	O	I	G	Tape Reel
UH8105L-G03-B	UH8105G-G03-B	SIP-3	I	G	O	Tape Box
UH8105L-G03-K	UH8105G-G03-K	SIP-3	I	G	O	Bulk

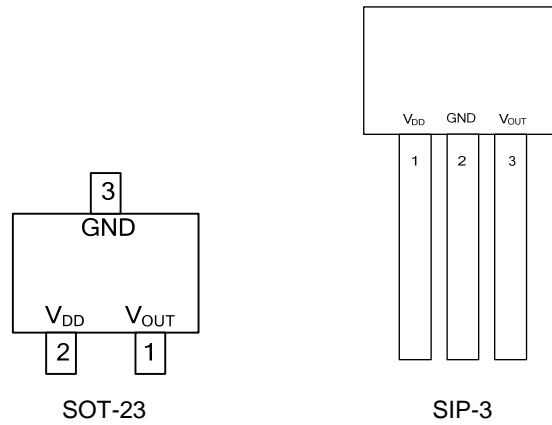
Note: Pin Assignment : O: Output, I:  $V_{DD}$ , G: GND

<p>UH8105L-AE3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk</p> <p>(2) AE3: SOT-23, G03: SIP-3</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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#### MARKING



■ PIN CONFIGURATIONS

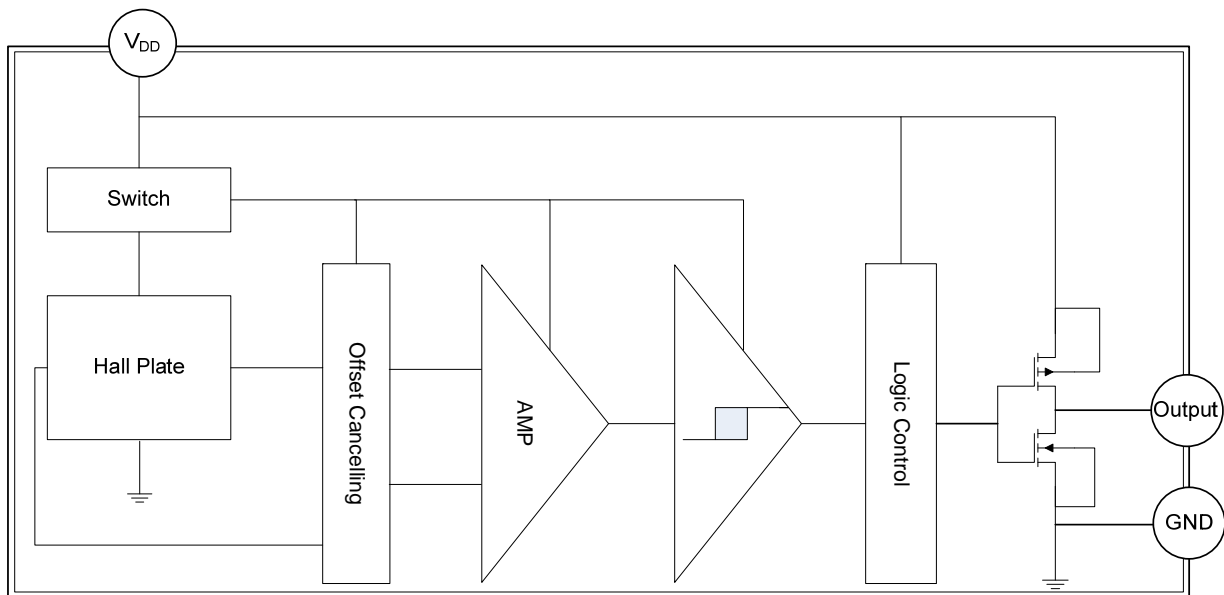


■ PIN DESCRIPTION

PIN NAME	TYPE	DESCRIPTION
Output	O	Output
V <sub>DD</sub>	P/I	Power Supply Input
GND	P	Ground

Note: P: power supply, I: input, O: output

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Magnetic Flux Density	B	Unlimited	mT
Supply Voltage	V <sub>DD</sub>	5.5	V
Output Current	I <sub>O</sub>	1	mA
Power Dissipation	SIP-3	P <sub>D</sub>	400
	SOT-23		200
Maximum Junction Temp	T <sub>J</sub>	150	°C
Operation Temperature	T <sub>OPR</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>STG</sub>	-65 ~ +150	°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<sub>A</sub>=25°C)

PARAMETER	SYMBOL	Conditions	MIN	TYP	MAX	UNIT
Supply Voltage	V <sub>DD</sub>	Operating	2.5	-	5.5	V
Ambient Temperature	T <sub>A</sub>		-40		85	°C

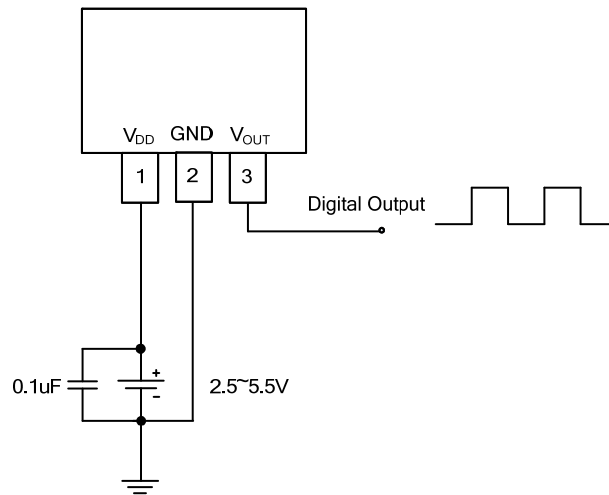
■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, V<sub>DD</sub>=3V)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V <sub>DD</sub>	Operating	2.5		5.5	V
Supply Current	I <sub>DD</sub>	Average		5	10	uA
		Awake		1.2	2	mA
		Sleep		2	8	uA
Output Leakage Current	I <sub>OFF</sub>	V <sub>out</sub> = 5.5V, B <sub>RPN</sub> <B<B <sub>RPS</sub>			1	uA
Output Low Voltage	V <sub>OL</sub>	I <sub>SINK</sub> = 1mA		20	40	mV
Output High Voltage	V <sub>OH</sub>		V <sub>OUT</sub> -0.4V			V
Wake up Time	t <sub>AWAKE</sub>			60		uS
Period	t <sub>PERIOD</sub>			60		mS
Duty cycle	d.c.			0.1		%

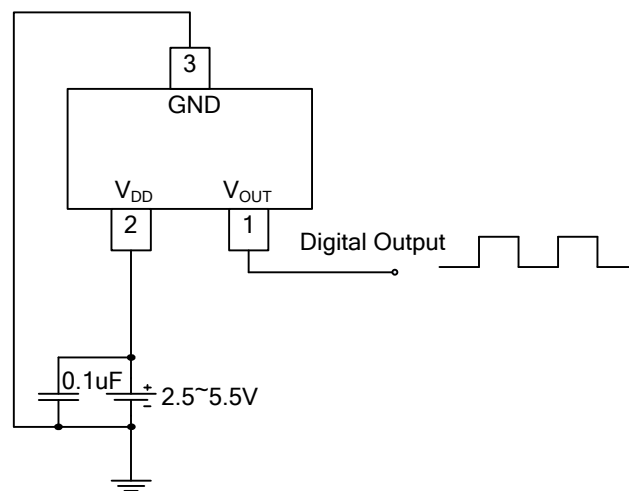
■ MAGNETIC CHARACTERISTICS (T<sub>A</sub>=25°C, V<sub>DD</sub>=3V, 1mT=10Gauss)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Operation Points	B <sub>OPS</sub>	15	30	45	Gauss
	B <sub>OPN</sub>	-45	-30	-15	
Release Points	B <sub>RPS</sub>	10	20	40	
	B <sub>RPN</sub>	-40	-20	-10	
Hysteresis	B <sub>hys</sub>		10		

## ■ TYPICAL CIRCUIT

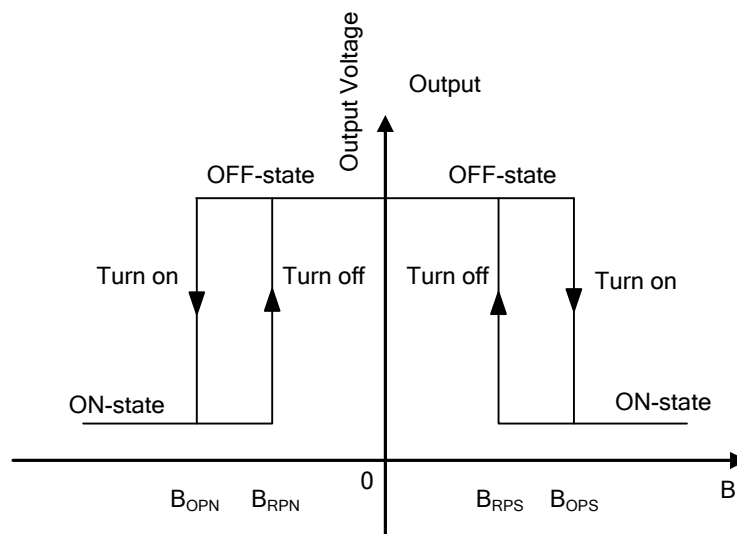


SIP-3



SOT-23

■ MAGNETIC FLUX



SOT-23 / SIP-3

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