



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

- *Micro power 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

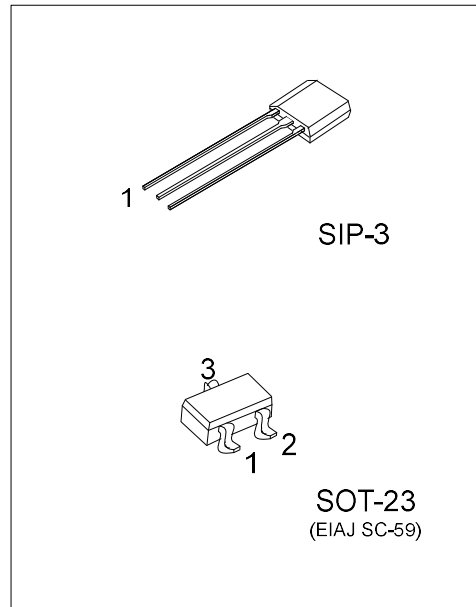
- *Micro Switch
- *Handheld Wireless Application Wake Up Switch
- *Clamp Shell Type Application Switch
- *Magnet Switch in Low Duty Cycle Applications

ORDERING INFORMATION

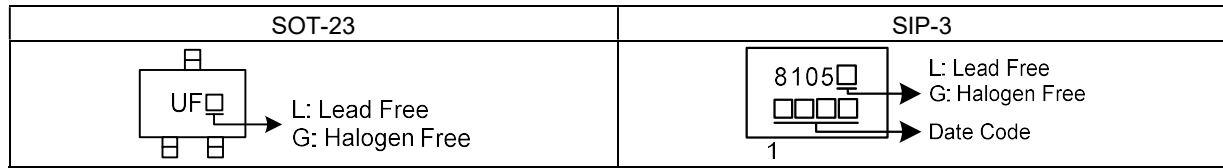
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UH8105L-AE3-R	UH8105G-AE3-R	SOT-23	I	O	G	Tape Reel
UH8105L-G03-B	UH8105G-G03-B	SIP-3	I	G	O	Tape Box
UH8105L-G03-K	UH8105G-G03-K	SIP-3	I	G	O	Bulk

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

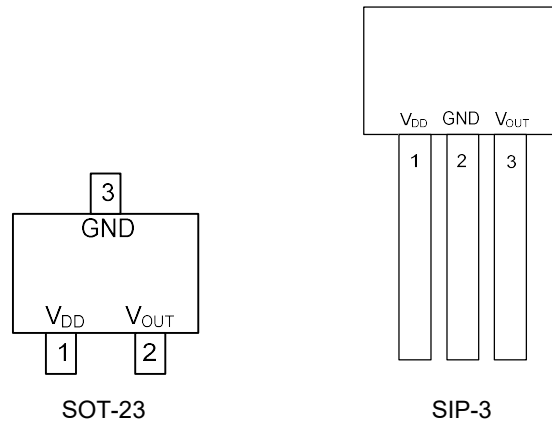
<p>UH8105G-AE3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) R: Tape Real, B: Tape Box, K: Bulk</p> <p>(2) AE3: SOT-23, G03: SIP-3</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	---



MARKING



PIN CONFIGURATIONS

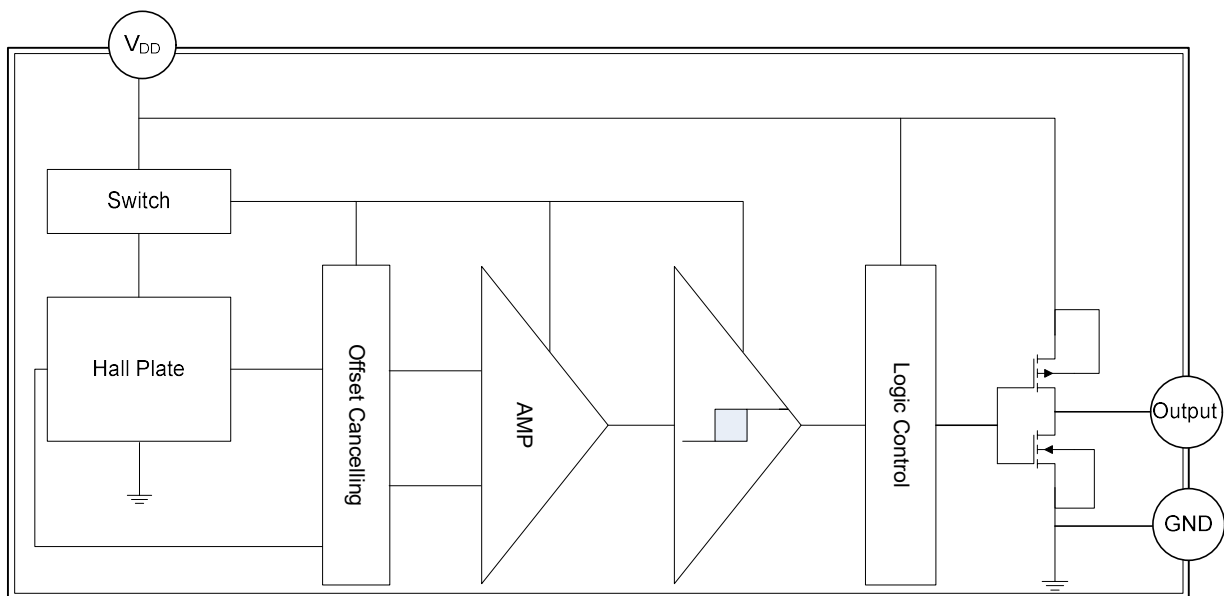


PIN DESCRIPTION

PIN NAME	TYPE	DESCRIPTION
V _{DD}	P/I	Power Supply Input
Output	O	Output
GND	P	Ground

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

BLOCK DIAGRAM



■ **ABSOLUTE MAXIMUM RATING** ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Magnetic Flux Density	B	Unlimited	mT
Supply Voltage	V_{DD}	5.5	V
Output Current	I_O	1	mA
Power Dissipation	SIP-3	400	mW
	SOT-23	200	mW
Maximum Junction Temp	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** ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	Conditions	MIN	TYP	MAX	UNIT
Supply Voltage	V_{DD}	Operating	2.5		5.5	V
Ambient Temperature	T_A		-40		+85	$^\circ\text{C}$

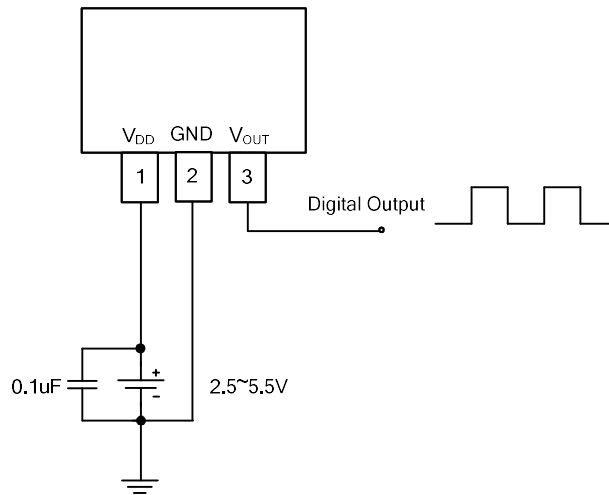
■ **ELECTRICAL CHARACTERISTICS** ($V_{DD}=3\text{V}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V_{DD}	Operating	2.5		5.5	V
Supply Current	I_{DD}	Average		5	10	μA
		Awake		1.2	2	mA
		Sleep		2	8	μA
Output Leakage Current	I_{OFF}	$V_{OUT} = 5.5\text{V}$, $B_{RPN} < B < B_{RPS}$			1	μA
Output Low Voltage	V_{OL}	$I_{SINK} = 1\text{mA}$		20	40	mV
Output High Voltage	V_{OH}		$V_{OUT}-0.4\text{V}$			V
Wake up Time	t_{AWAKE}			60		μS
Period	t_{PERIOD}			60		mS
Duty cycle	d.c.			0.1		%

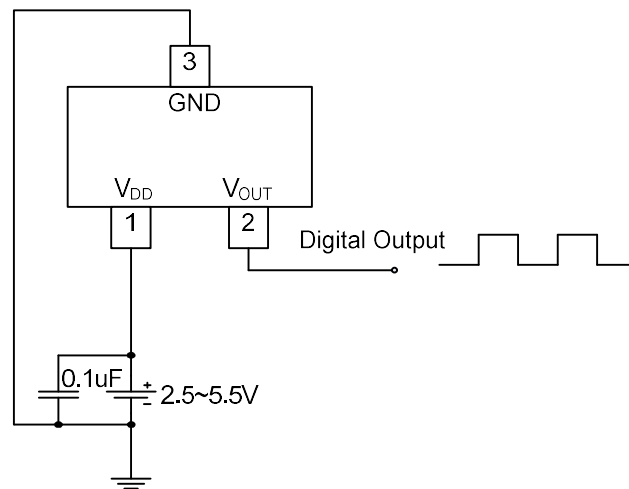
■ **MAGNETIC CHARACTERISTICS** ($V_{DD}=3\text{V}$, $1\text{mT}=10\text{Gauss}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Operation Points	B_{OPS}	15	30	45	Gauss
	B_{OPN}	-45	-30	-15	Gauss
Release Points	B_{RPS}	10	20	40	Gauss
	B_{RPN}	-40	-20	-10	Gauss
Hysteresis	B_{hys}		10		Gauss

■ TYPICAL CIRCUIT

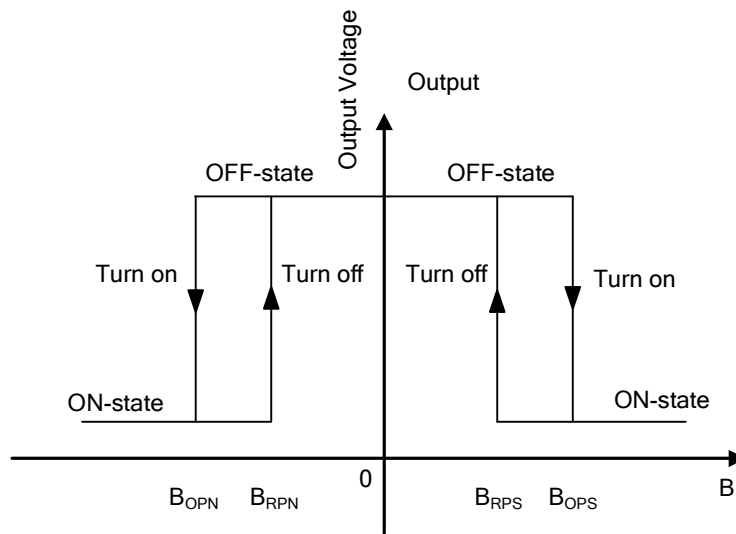


SIP-3



SOT-23

■ **MAGNETIC FLUX**



SOT-23 / SIP-3

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. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.