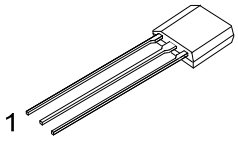
UH8105

CMOS IC

HALL EFFECT MICRO SWITCH IC



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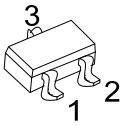

SOT-23
(EIAJ SC-59)

■ 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	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

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

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■ MARKING

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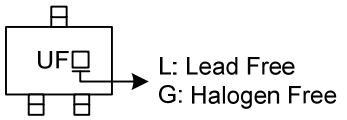
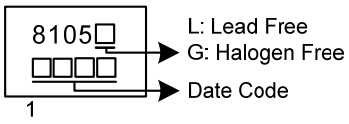
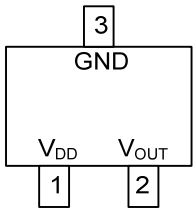
	

■ PIN CONFIGURATIONS



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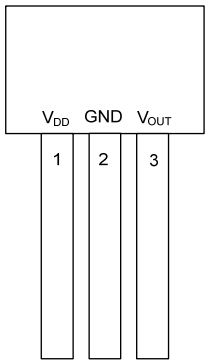


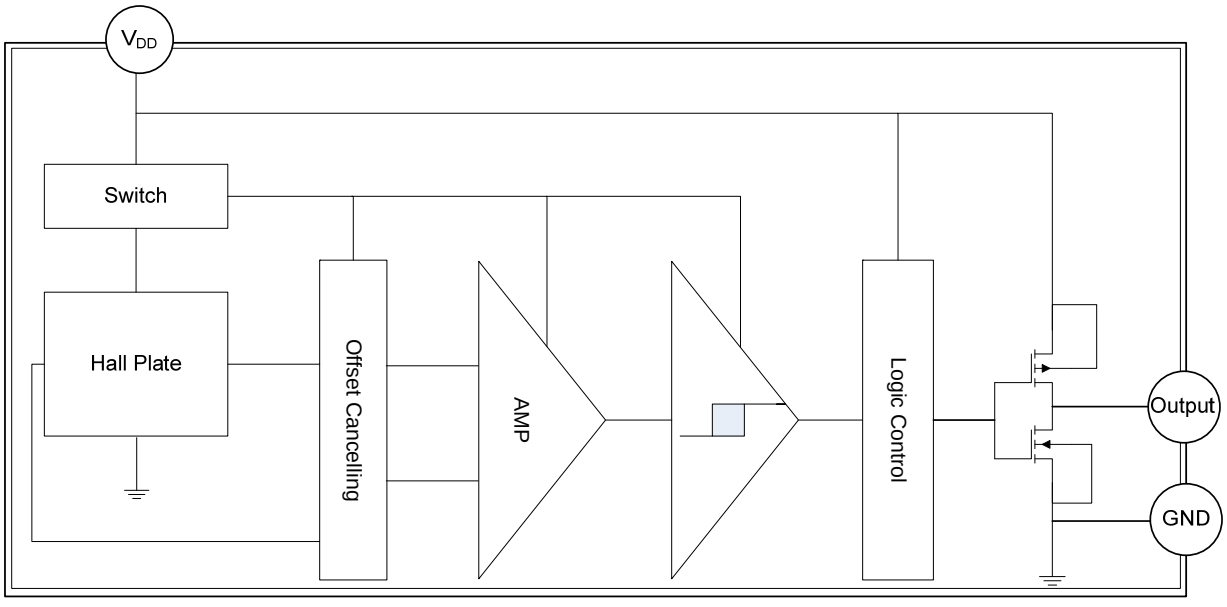
SIP-3

■ 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



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■ ABSOLUTE MAXIMUM RATING (T_A=25°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	P_D	400	mW
	SOT-23		200	mW
Maximum Junction Temp		T_J	+150	°C
Operation Temperature		T_{OPR}	-40 ~ +85	°C
Storage Temperature		T_{STG}	-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_A=25°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	°C

■ ELECTRICAL CHARACTERISTICS (V_{DD}=3V, T_A=25°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	uA
		Awake		1.2	2	mA
		Sleep		2	8	uA
Output Leakage Current	I_{OFF}	Vout = 5.5V, B_{RPN}<B<B_{RPS}			1	uA
Output Low Voltage	V_{OL}	I_{SINK} = 1mA		20	40	mV
Output High Voltage	V_{OH}		V_{OUT}-0.4V			V
Wake up Time	t_{AWAKE}			60		uS
Period	t_{PERIOD}			60		mS
Duty cycle	d.c.			0.1		%

■ MAGNETIC CHARACTERISTICS (V_{DD}=3V, 1mT=10Gauss, T_A=25°C, unless otherwise specified)

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

A grade

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Operation Points	B_{OPS}	15	25	35	Gauss
	B_{OPN}	-35	-25	-15	
Release Points	B_{RPS}	10	20	30	
	B_{RPN}	-30	-20	-10	
Hysteresis	B_{hys}		10		

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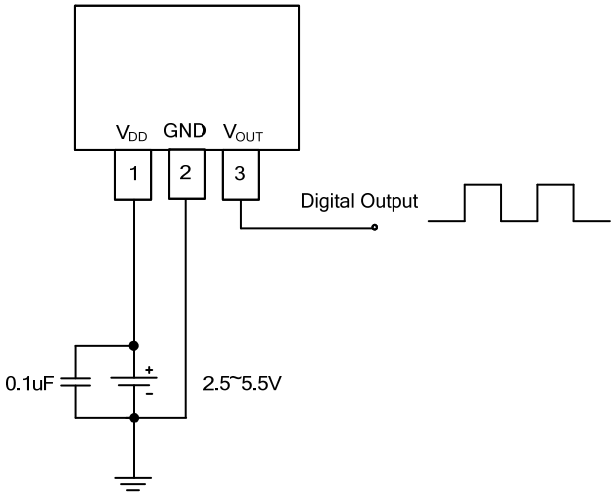
■ TYPICAL CIRCUIT



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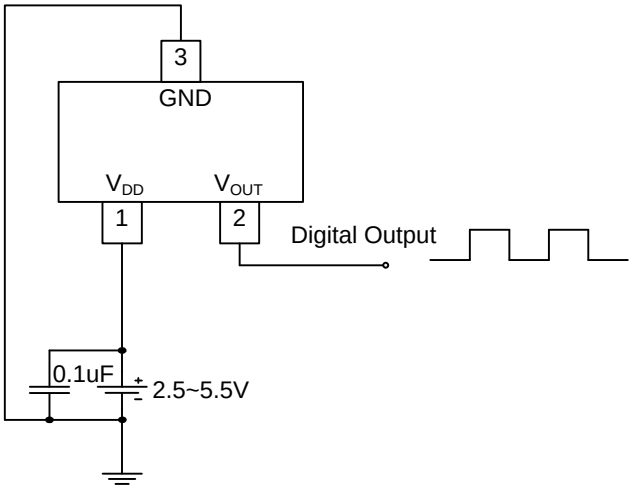

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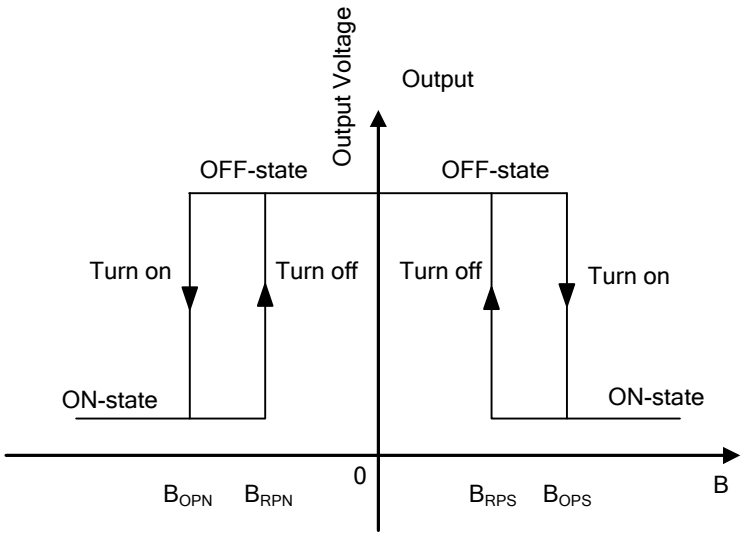
■ MAGNETIC FLUX



SOT-23 / SIP-3

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