



# UH8104

**CMOS IC**

## HALL EFFECT MICRO SWITCH IC

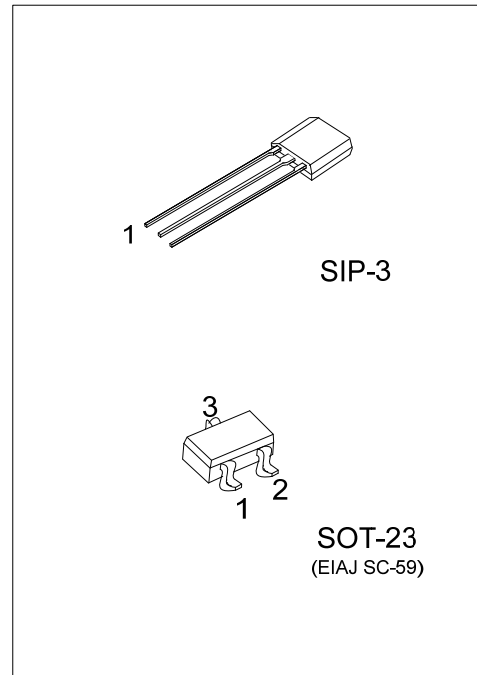
### DESCRIPTION

The **UH8104** is a low power, pole independent Hall-effect switch with a latched digital output driver. It can work in 2.5V 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). It is designed with open drain configuration and connecting to a pull up resistor from Output to  $V_{DD}$  is necessary.

### FEATURES

- \* Micro power 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



### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UH8104L-AE3-R	UH8104G-AE3-R	SOT-23	I	O	G	Tape Reel
UH8104L-G03-B	UH8104G-G03-B	SIP-3	I	G	O	Tape Box
UH8104L-G03-K	UH8104G-G03-K	SIP-3	I	G	O	Bulk

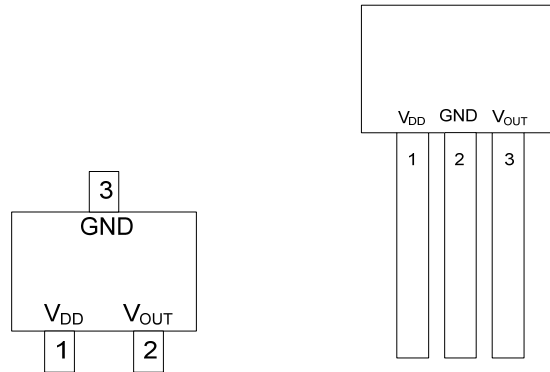
Note: Pin Assignment : I:  $V_{DD}$  O:  $V_{OUT}$  G: GND

<p>UH8104G-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk (2) AE3: SOT-23, G03: SIP-3 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING

<p>SOT-23</p> <p>L: Lead Free G: Halogen Free</p>	<p>SIP-3</p> <p>L: Lead Free G: Halogen Free Date Code</p>
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■ PIN CONFIGURATIONS

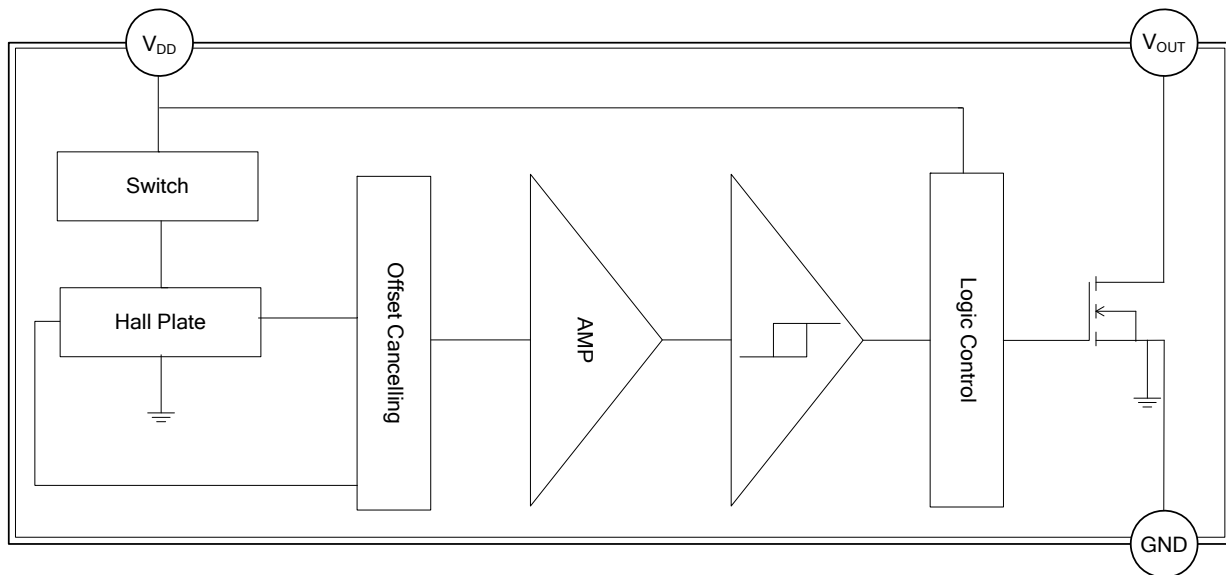


■ PIN DESCRIPTION

PIN NAME	PIN TYPE	PIN DESCRIPTION
V <sub>DD</sub>	I	Power Supply
V <sub>OUT</sub>	O	Output Pin
GND	G	Ground

Note: O: Output, I: Power Supply, G: Ground

■ 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	$V_{DD}$	7	V
Package Power Dissipation	$P_D$	230	mW
Junction Temperature	$T_J$	+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

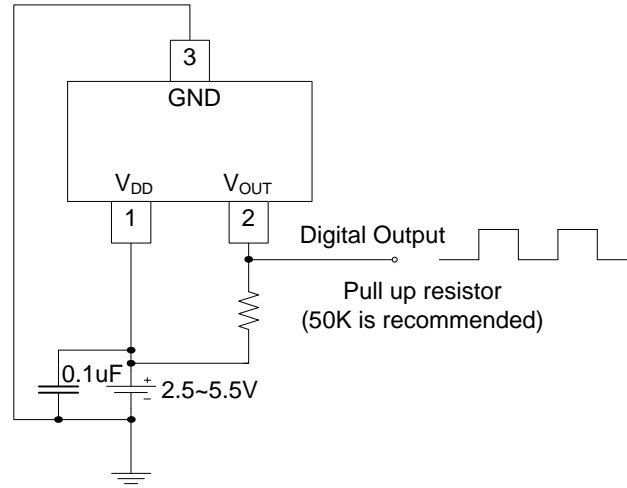
■ ELECTRICAL CHARACTERISTICS ( $V_{DD}=3\text{V}$ ,  $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Output Low Voltage	$V_{OL}$	$I_{SINK} = 1\text{mA}$		20	40	mV
Output Leakage Current	$I_{OFF}$	$V_{OUT} = 5.5\text{V}$ , $B_{RPN} < B < B_{RPS}$			1	$\mu\text{A}$
Supply Current	$I_{DD}$	Average		5	10	$\mu\text{A}$
		Awake		1.2	2	mA
		Sleep		2	8	$\mu\text{A}$
Awake Time	$T_{AWAKE}$			75	125	$\mu\text{S}$
Period	$T_{PERIOD}$			75	125	mS
Duty Cycle	D.C.			0.1		%

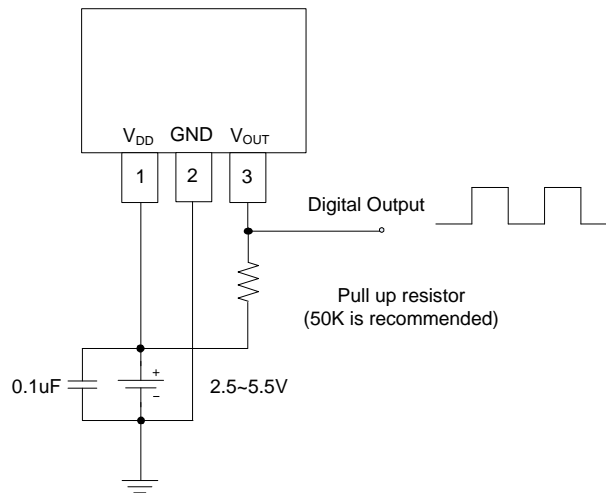
■ MAGNETIC CHARACTERISTICS ( $V_{DD}=3\text{V}$ ,  $1\text{mT}=10\text{Gauss}$ ,  $T_A=25^\circ\text{C}$ , unless otherwise specified )

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Operation Points	$B_{OPS}$		40	60	Gauss
	$B_{OPN}$	-60	-40		
Release Points	$B_{RPS}$	10	30		
	$B_{RPN}$		-30	-10	
Hysteresis	$ B_{OPX}-B_{RPX} $		10		

## ■ TYPICAL APPLICATION CIRCUIT

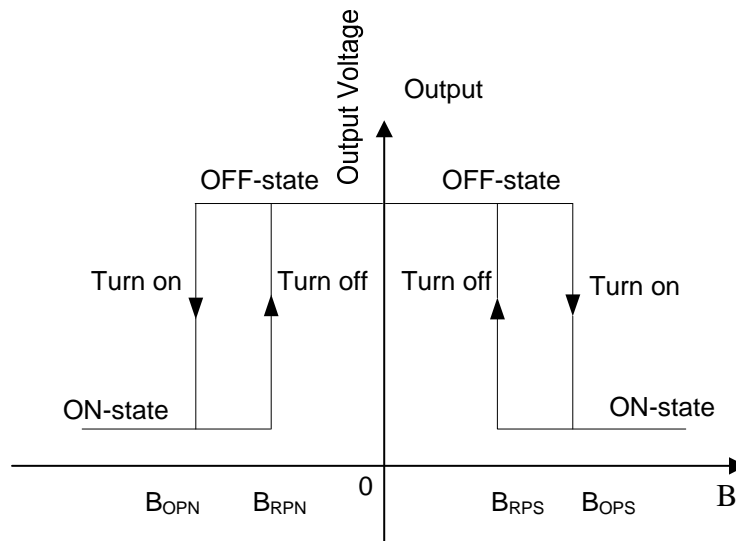


SOT-23



SIP-3

■ MAGNETIC FLUX



SOT-23 / SIP-3

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