



## 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

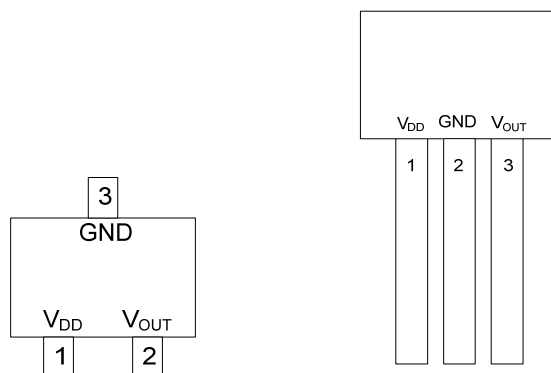
Note: Pin Assignment : I:  $V_{DD}$  O:  $V_{OUT}$  G: GND

<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>
---	---

#### MARKING

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

## PIN CONFIGURATIONS

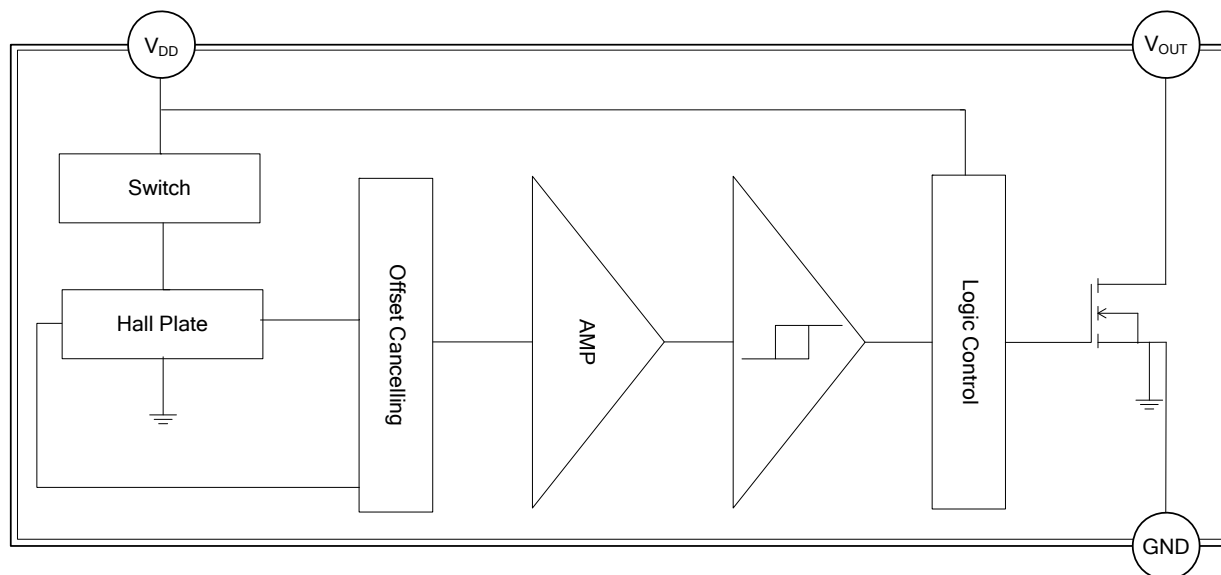


## PIN DESCRIPTION

PIN NAME	PIN TYPE	PIN DESCRIPTION
$V_{DD}$	I	Power Supply
$V_{OUT}$	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

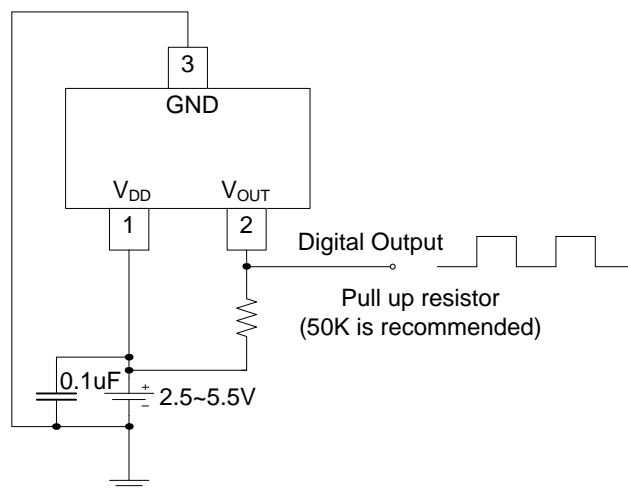
■ ELECTRICAL CHARACTERISTICS ( $V_{DD}=3\text{V}$ ,  $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

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		%

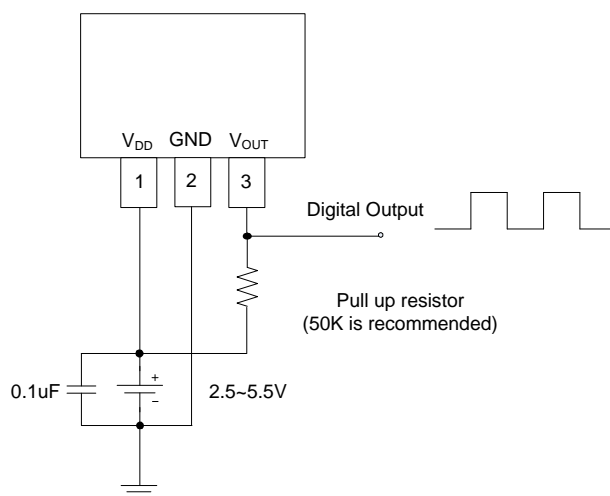
■ MAGNETIC CHARACTERISTICS ( $V_{DD}=3\text{V}$ ,  $1\text{mT}=10\text{Gauss}$ ,  $T_A=25^{\circ}\text{C}$ , unless otherwise specified )

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

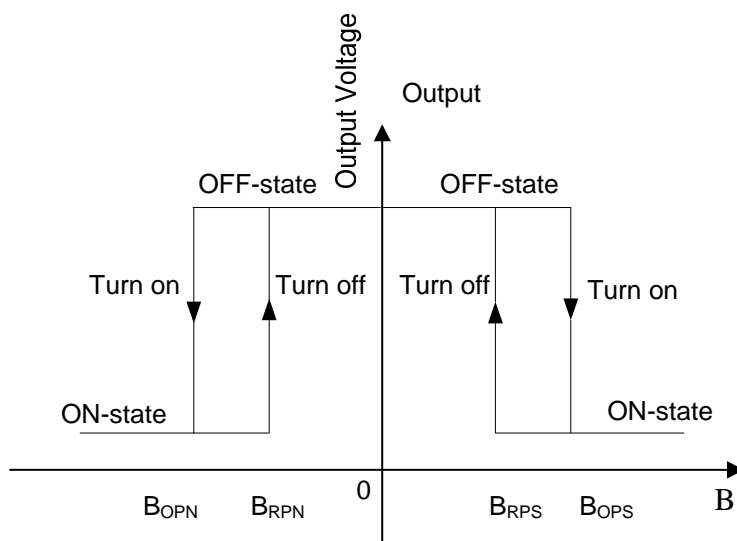


SOT-23



SIP-3

■ MAGNETIC FLUX



SOT-23 / SIP-3

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.