



UH8111

Advance

CMOS IC

CMOS, UNI-POLAR, LOW POWER HALL SENSOR

DESCRIPTION

UTC **UH8111** is a low-power integrated Hall switch designed to sense the applied magnetic flux density and give a digital output, which indicates the present condition of the magnitude sensed.

It mainly designed for battery-powered system and hand-held equipment, such as cellular flip-phones and PDA's, in which power consumption is one major concern.

FEATURES

- * Unipolar detection
- * 2.2V to 5.5V battery operation
- * Offset Canceling Technology
- * Superior temperature stability
- * Extremely Low Switch-Point Drift

APPLICATIONS

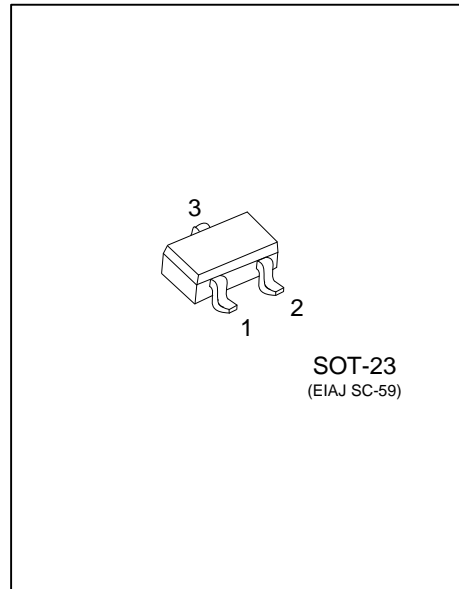
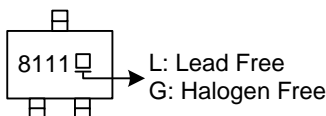
- * Micro Switch
- * Handheld Wireless Application Wake Up Switch
- * Clamp Shell Type Application Switch
- * Magnet Switch in Low Duty Cycle Applications

ORDERING INFORMATION

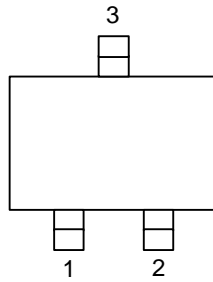
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UH8111L-AE3-R	UH8111G-AE3-R	SOT-23	Tape Reel

UH8111G-AE3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE3: SOT-23
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



■ PIN CONFIGURATION

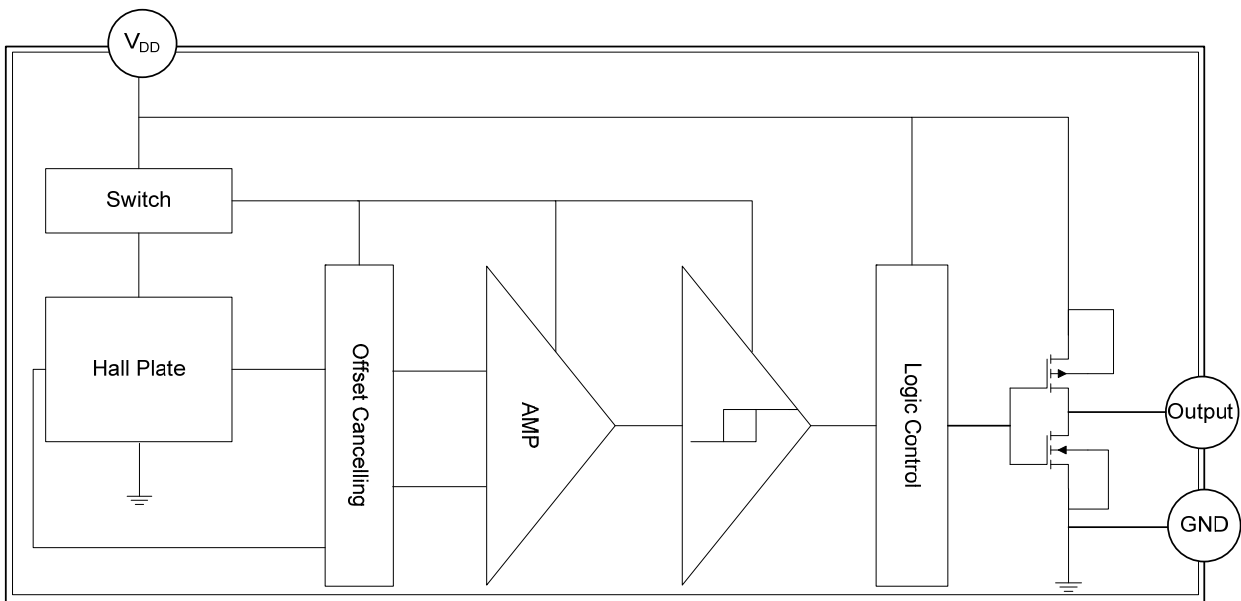


■ PIN DESCRIPTION

PIN NO.	PIN NAME	TYPE	DESCRIPTION
1	V _{DD}	P/I	Power Supply Input
2	V _{OUT}	O	Output
3	GND	P	Ground

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

■ BLOCK DIAGRAM



CMOS push-pull output

■ 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	P_D	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	2.2		5.5	V
Ambient Temperature	T_A		-40		+85	$^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS

$V_{DD}=2.2\text{V}$ to 5.5V , $T_A=25^\circ\text{C}$, unless otherwise specified

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V_{DD}	Operating	2.2		5.5	V
Supply Current	I_{DD}	Average ($ B < B_{rp} $, $V_{DD}=3.5\text{V}$)		3	6	μA
		Awake ($ B < B_{rp} $, $V_{DD}=3.5\text{V}$)		2	3	mA
		Sleep ($ B < B_{rp} $, $V_{DD}=3.5\text{V}$)		1.5	3	μA
Output Low Voltage	V_{OL}	$I_{SINK} = 0.5\text{mA}$			0.2	V
Output High Voltage	V_{OH}	$I_{SOURCE} = 0.5\text{mA}$	$V_{DD}-0.2$			V
Wake up Time	t_{AWAKE}			40	80	μS
Period	t_{PERIOD}			80	120	mS
Duty cycle	d.c.			0.05		%

■ MAGNETIC CHARACTERISTICS

($V_{DD}=2.2\text{V}$ to 5.5V , $1\text{mT}=10\text{Gauss}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

RANK	PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
A	Operation Points	B_{OPS}	$B > B_{OPS}$	6	18	45	Gauss
	Release Points	B_{RPS}	$B < B_{RPS}$	3	9	25	Gauss
	Hysteresis	B_{HYS}	$B_{OPS}-B_{RPS}$		9		Gauss

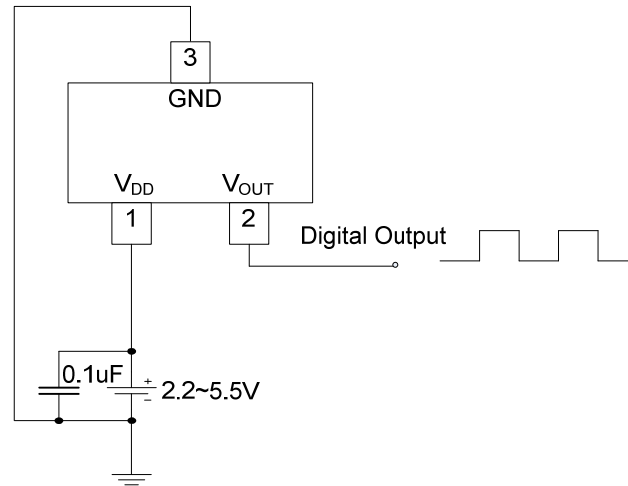
Notes: RANK A, detects only North or South Pole.

■ PRODUCT LIST

ICMOS push-pull output

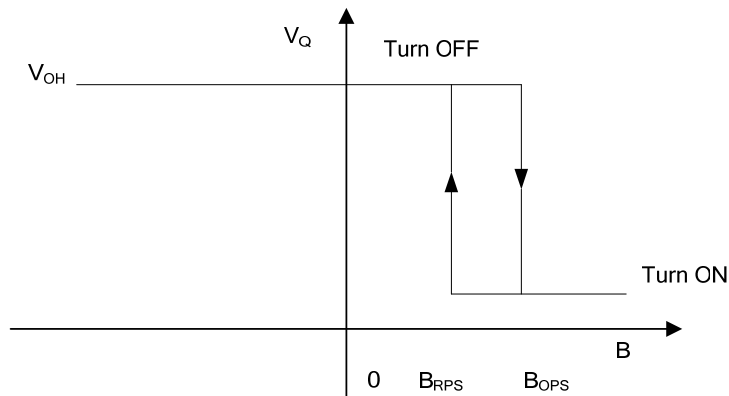
PRODUCT NAME	OUTPUT	V_{OUT} (When $ B > B_{OP} $)	$ B_{OP} $
UH8111A	CMOS push-pull	LOW	0.6 ~ 4.5 mT

■ TYPICAL APPLICATION CIRCUIT



SOT-23 (CMOS push-pull output)

■ MAGNETIC FLUX



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