UNISONIC TECHNOLOGIES CO., LTD

CMOS, UNI-POLAR, LOW POWER HALL SENSOR

SOT-23
(EIAJ SC-59)

■ 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
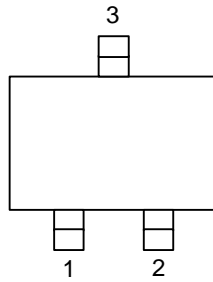* Magnet Switch in Low Duty Cycle Applications

■ 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

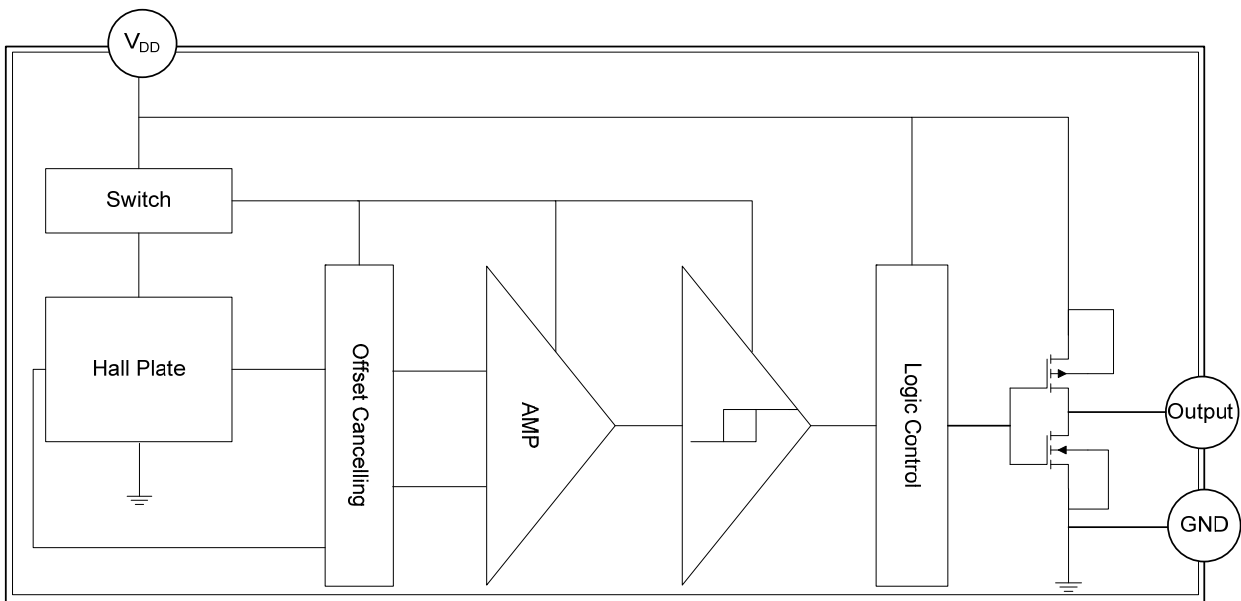8111　L: Lead Free
　　　G: Halogen Free
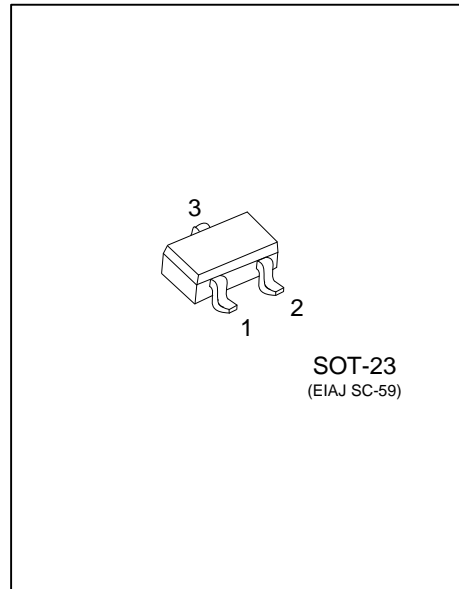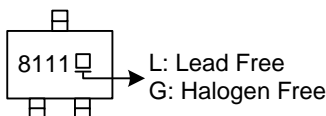
■ **PIN CONFIGURATION**

■ **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°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	°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	2.2		5.5	V
Ambient Temperature	T$_A$		-40		+85	°C

■ **ELECTRICAL CHARACTERISTICS**

V$_{DD}$=2.2V to 5.5V, T$_A$=25°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|<|Brp|, V$_{DD}$=3.5V)		3	6	uA
		Awake (|B|<|Brp|, V$_{DD}$=3.5V)		2	3	mA
		Sleep (|B|<|Brp|, V$_{DD}$=3.5V)		1.5	3	uA
Output Low Voltage	V$_{OL}$	I$_{SINK}$ = 0.5mA			0.2	V
Output High Voltage	V$_{OH}$	I$_{SOURCE}$ = 0.5mA	V$_{DD}$-0.2			V
Wake up Time	t$_{AWAKE}$			40	80	uS
Period	t$_{PERIOD}$			80	120	mS
Duty cycle	d.c.			0.05		%

■ **MAGNETIC CHARACTERISTICS**

(V$_{DD}$=2.2V to 5.5V , 1mT=10Gauss, T$_A$=25°C, unless otherwise specified)

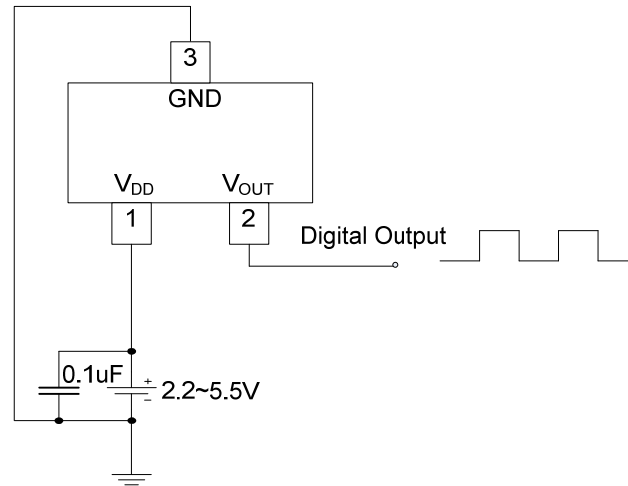| RANK	PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
A	Operation Points	B$_{OPS}$	B > B$_{OPS}$	6	18	45	Gauss
	Release Points	B$_{RPS}$	B|< B$_{RPS}$	3	9	25	Gauss
	Hysteresis	B$_{HYS}$	B$_{OPS}$−B$_{RPS}$		9		Gauss

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**