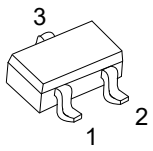
DIGITAL VERTICAL INDUCTION HALL-EFFECT SENSOR ICs



SOT-23
(EIAJ SC-59)

■ DESCRIPTION

The UTC **UH8108** sensor ICs (Integrated Circuits) is small, versatile, digital Vertical induction Hall-effect devices operated by the magnetic field from a permanent magnet or an electromagnet. This sensitive device is designed to meet a wide range of potential applications with low power requirements.

This low-power sensing device uses CMOS technology and a timing circuit that turns the power on for only a short time - it is off for the rest of the period (duty cycle) - significantly reducing the average current consumption.

The UTC **UH8108** responds to either a North or South pole, meaning that it doesn't require the magnet polarity to be identified, providing an easier installation and potentially reducing system cost.

The product can operate from a supply voltage as low as 2.2V promoting energy efficiency.

■ FEATURES

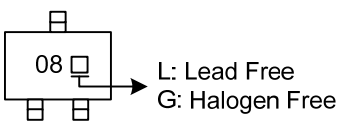
* Omnipolar detection
* Push-pull output does not require external pull-up resistor

■ ORDERING INFORMATION

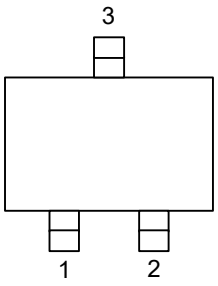
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UH8108L-AE3-R	UH8108G-AE3-R	SOT-23	Tape Reel

UH8108G-AE3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



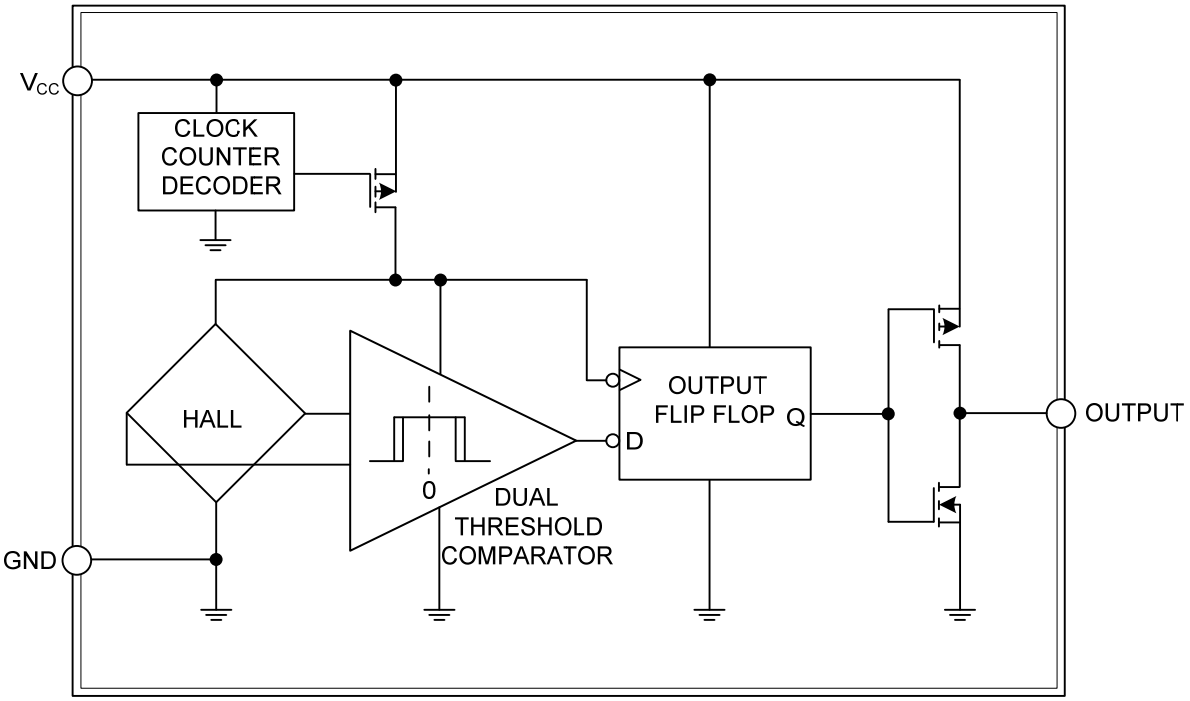
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V_{CC}	Power Supply
2	OUTPUT	Output
3	GND	Ground

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	6	V
Output (Load) Current	I_{OUT}	5	mA
Operating Temperature	T_{OPR}	-40 ~ +85	°C
Storage Temperature	T_{STG}	-40 ~ +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.

■ ELECTRICAL CHARACTERISTICS (NOTE) (V_S=2.8V, T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage		V_S		2.2		5.5	V
Active Mode Current		I_{ACT}			1	4	mA
Sleep Mode Current		I_{SL}			1.5	2.5	μA
Average Current		I_{CC}			1.8	3	μA
Active Mode Time		T_{ACT}			7		μs
Period		T_P		30	45	80	ms
Duty Cycle		d.c.			0.015		%
Output Voltage (Note 1)	High	V_{OH}	Load Current=100μA	V_S-0.15	V_S-0.11		V
	Low	V_{OL}	Load Current=100μA		0.11	0.15	V
Operate Point (Positive)		B_{OPP}		20	60	110	Gauss
Operate Point (Negative)		B_{OPN}		-110	-60	-20	Gauss
Release Point (Positive)		B_{RPP}		5	45	95	Gauss
Release Point (Negative)		B_{RPN}		-95	-45	-5	Gauss
Differential		Bhys		3	15	60	Gauss

Note: This Hall-effect sensors may have an initial output in either the ON or OFF state if powered up with an applied magnetic field in the differential zone (applied magnetic field > Brp and < Bop).

■ PACKAGE INFORMATION

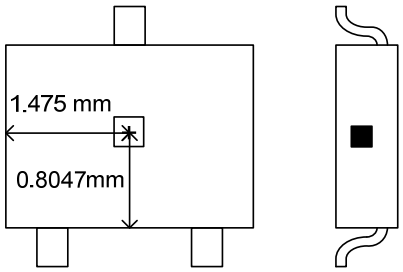


Fig. 1 SENSOR LOCATIONS

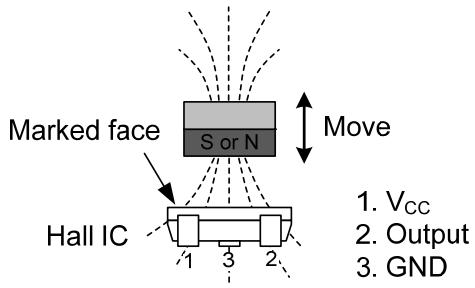


Fig. 2 APPLYING DIRECTION OF MAGNETIC FLUX

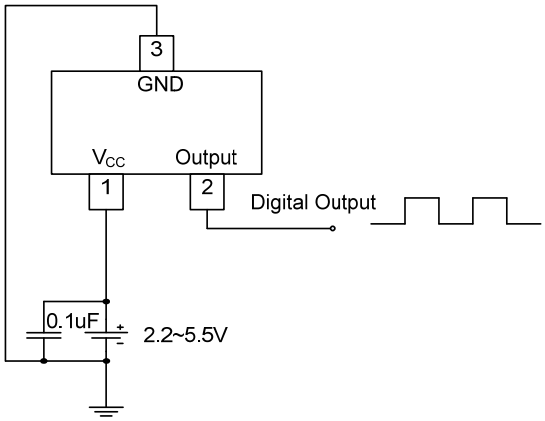


Fig. 3 TYPICAL CIRCUIT

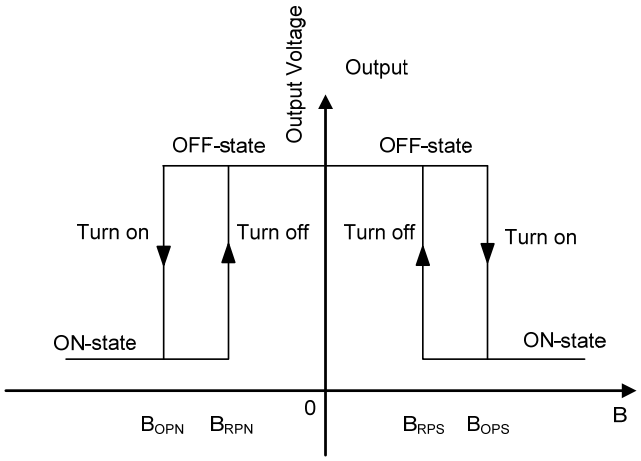


Fig. 4 MAGNETIC FLUX DENSITY