



## UH8108

Advance

CMOS IC

### DIGITAL HALL-EFFECT SENSOR ICs

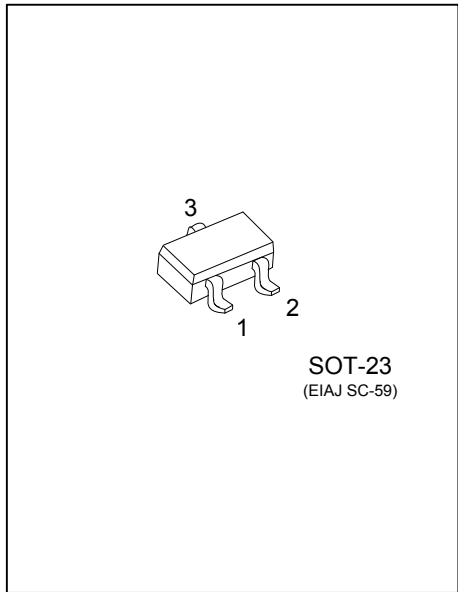
#### DESCRIPTION

The UTC **UH8108** sensor ICs (Integrated Circuits) is small, versatile, digital 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

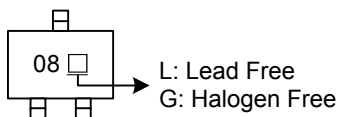
- \* Omnipolar detection
- \* Push-pull output does not require external pull-up resistor

#### ORDERING INFORMATION

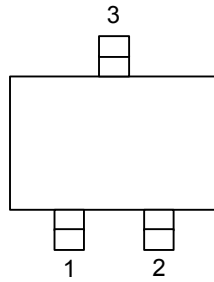
| Ordering Number |               | Package | Packing   |
|-----------------|---------------|---------|-----------|
| Lead Free       | Halogen Free  |         |           |
| UH8108L-AE3-R   | UH8108G-AE3-R | SOT-23  | Tape Reel |

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

#### MARKING



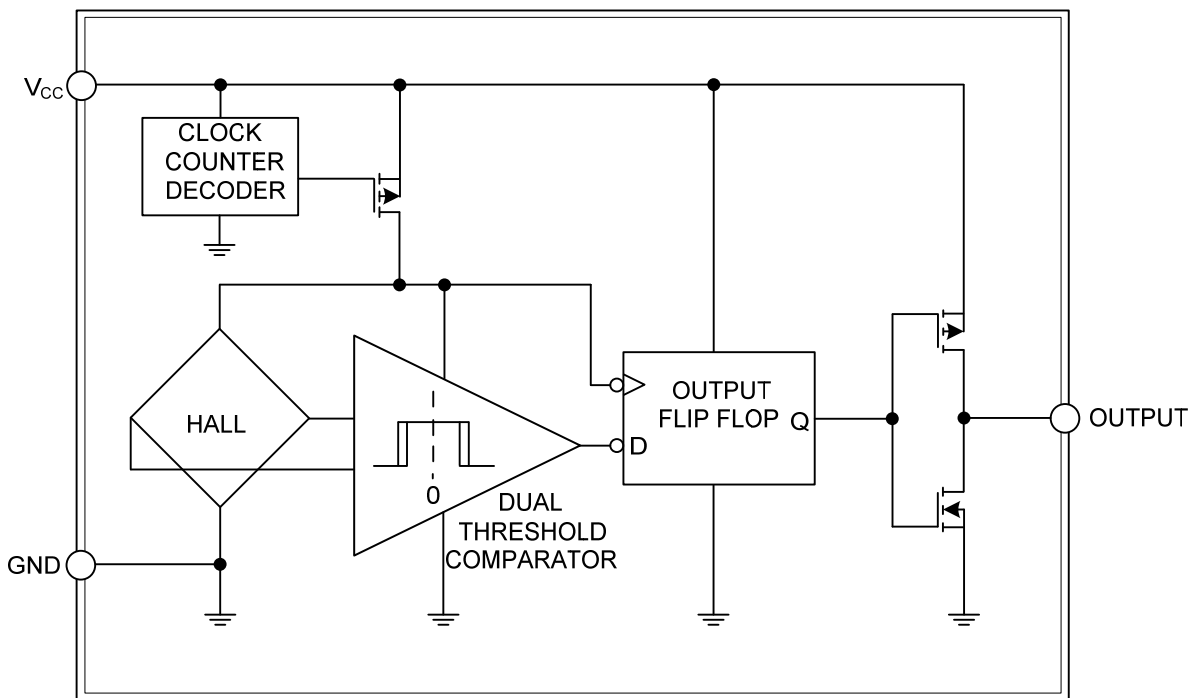
### ■ PIN CONFIGURATION



### ■ PIN DESCRIPTION

| PIN NO. | PIN NAME        | DESCRIPTION  |
|---------|-----------------|--------------|
| 1       | V <sub>CC</sub> | Power Supply |
| 2       | OUTPUT          | Output       |
| 3       | GND             | Ground       |

### ■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING ( $T_A=25^\circ\text{C}$  , 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  | $^\circ\text{C}$ |
| Storage Temperature   | $T_{STG}$ | -40 ~ +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.

■ ELECTRICAL CHARACTERISTICS (NOTE) ( $V_S=2.8\text{V}$ ,  $T_A=25^\circ\text{C}$ , 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        | $\mu\text{A}$ |
| Average Current          | $I_{CC}$  |                 |                                | 1.8        | 3          | $\mu\text{A}$ |
| Active Mode Time         | $T_{ACT}$ |                 |                                | 7          |            | $\mu\text{s}$ |
| Period                   | $T_P$     |                 | 30                             | 45         | 80         | ms            |
| Duty Cycle               | d.c.      |                 |                                | 0.015      |            | %             |
| Output Voltage (Note 1)  | High      | $V_{OH}$        | Load Current=100 $\mu\text{A}$ | $V_S-0.15$ | $V_S-0.11$ | V             |
|                          | Low       | $V_{OL}$        | Load Current=100 $\mu\text{A}$ |            | 0.11       | 0.15          |
| 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             | $B_{hys}$ |                 | 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).

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