

Ultra-High Sensitivity Dual-Output Unipolar Hall Effect Switch Lowers System Cost and Extends Battery Life

The AH1388 is a miniature micropower and ultra-high sensitivity dual unipolar output Hall effect switch IC. It is ideal for proximity detection in portable and battery powered consumer equipment as well as home appliances and industrial applications.

Its 1.6V to 3.6V supply voltage supports battery-powered equipment and low voltage microcontrollers and with its sleep function, the AH1388's average supply current is only 12 μ A at 1.85V.

The dual unipolar outputs allows the AH1388 to independently detect North and South poles. A North pole of sufficient strength turns Output1 on (pulled low) and a South pole of sufficient strength turns on Output2 (pulled low). This ability increases functionality and versatility for system design.

The device is housed in a small DFN1410 package, 1.4 mm x 1.0 mm x 0.4 mm.



The Diodes Advantage

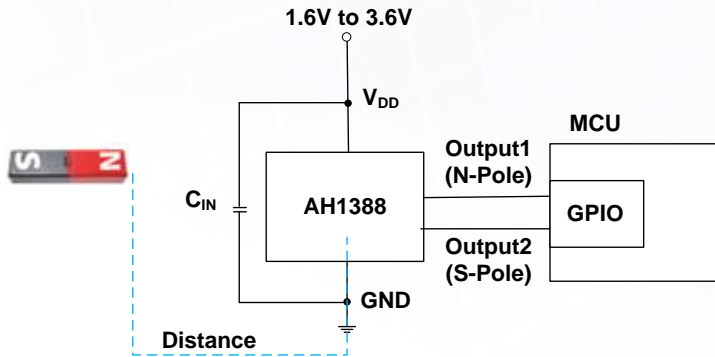
The AH1388 provides a micropower versatile solution, with ultra-high sensitivity for proximity detection in battery powered, home appliance and industrial applications.

- Ultra-High Sensitivity with Very Tight Switching-Point Tolerance**
 Supports the use of smaller magnets with better design flexibility
- High Sample Rate with 2.8ms Sleep/Wake Period (1.6% Wake Duty Cycle)**
 Enable faster response time to magnetic flux changes
- Independent Detection of North and South Poles**
 Increase functionality and versatility within proximity detection applications
- Push-Pull Output Removes the Need for External Pull-Up Resistor**
 Minimize external components and reduce solution size
- Small and Low Profile Package**
 Fits best for compact designs

Applications

- Smart cover or dock detection for cell phones and tablets
- Medical devices and IoT systems
- Contact-less switches in industrial applications
- E-locks, smoke detectors, and home appliances

Typical Application Schematic



Dual-Output Unipolar Product Portfolio

Part	Output Type	Operating Voltage (V)	Duty Cycle (%)	Average Supply Current (μ A)	Dual Output	Operating Point Bop (Gauss)			Release Point Brp (Gauss)			Temp Range ($^{\circ}$ C)	Package
						Min	Typ	Max	Min	Typ	Max		
AH1389	Push-Pull	1.6 to 3.6	0.1	4	Output2 (S)	13	25	39	9	20	37	-40 to +85	X2-DFN1410-4
					Output1 (N)	-39	-25	-13	-37	-20	-9		
AH1390	Push-Pull	1.6 to 3.6	0.1	1.3	Output2 (S)	6	17	25	2	11	20	-40 to +85	X2-DFN1410-4
					Output1 (N)	-25	-17	-6	-20	-11	-2		
AH1388	Push-Pull	1.6 to 3.6	1.6	12*	Output2 (S)	6	17	25	2	11	20	-40 to +85	X2-DFN1410-4
					Output1 (N)	-25	-17	-6	-20	-11	-2		

*Higher Duty Cycle for higher supply current, please contact Diodes if you need lower supply current.

Ordering Information

Part Number	Packaging	Packaging Code	7" Tape and Reel	
			Tape Width	Quantity
AH1388-HK4-7	X2-DFN1410-4	HK4	8mm	4000

Further information:

<https://www.diodes.com/part/AH1388>