Issue Number | 001
January 2017

New Product Announcement

AH1389

AH1389 - High-Sensitivity Dual-Output Unipolar Hall Effect Switch with Independent North and South Pole Detect Outputs

The AH1389 is a miniature micropower, Unipolar Hall effect switch IC with dual outputs. It is ideally suited for portable and battery-powered consumer equipment, home appliances and industrial applications.

Its 1.6V to 3.6V supply voltage supports battery-powered equipment and low voltage microcontrollers, and with sleep function the average supply current is only 4µA.

A North pole of sufficient strength turns OUTPUT1 on (pulled low) and a South pole of sufficient strength turns on OUTPUT2 (pulled low).

Output1 remains on until the magnetic flux density (B) rises above the North field release point B_{RPN} (-20G typical). While, Output2 remains low until B falls below the South field release point B_{RPS} (+20G typical).

The AH1389 has an 8kV ESD rating on the supply and output pins. The AH1389 is packaged in the tiny footprint, low profile X2-DFN1410-4.

The Diodes Advantage

AH1389 provides a small, simple and flexible contactless switch solution for a wide range of applications – battery powered through home appliance to industrial

- **Dual output Unipolar functions independently to detect North and South poles**
  - Output1 responds to North Pole and Output2 responds to South Pole
  - No external pull-up required –Minimal external component
- **Designed for battery-powered equipment and industrial applications**
  - 1.6V to 3.6V supply voltage supports industrial battery powered applications
  - 4µA micropower operation
- **High performance and reliability**
  - Tight magnetic operating window (reduced magnetic thresholds spread) over full operating voltage and temperature range
  - Chopper stabilized provides minimal switch point drift and superior temperature stability
  - Operating temperature range -40°C to 85°C
  - High ESD (HBM) rating of 8kV
- **Small footprint and Low Profile packages**
  - X2-DFN1410-4 (1.0mm x 1.4mm x 0.37mm) occupies on $1mm^2$

Circuit Functions

- Smart Cover or Dock Detect for Cellular Phones and Tablet
- Screen Position Detect for Digital Still/Video Cameras and Handheld Gaming Consoles
- Door, Lids and Tray Position Detect Switches for Home Appliances and Industrial Applications
- Level, Proximity and Position Switches
- Contact-Less Switches in Home Appliances and Industrial Applications

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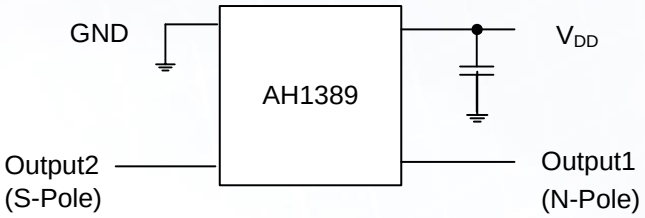
Typical Application Schematic



Unipolar Hall Effect Switch Product Portfolio – Low Voltage (Note 1)

Part	Output Type	Operating Voltage (V)	Average Supply Current (μA)	Output		Operating Point Bop (Gauss) Min	Typ	Max	Release Point Brp (Gauss) Min	Typ	Max	Temp Range (°C)	Package
AH1887	Push-Pull	1.65 to 3.3	7	Dual	Output1 (S)	NS	35	50	6	20	NS	-40 to +85	SOT553
					Output2 (N)	-50	-23	NS	NS	-20	-6		
AH1889	Push-Pull	1.65 to 3.3	2100	Dual	Output1 (S)	NS	35	50	6	20	NS	-40 to +85	SOT553
					Output2 (N)	-50	-23	NS	NS	-20	-6		
AH1903	Push-Pull	1.6 to 3.6	4.3	Single Selective function	Omnipolar	±21	±33	±48	±9	±23	±38	-40 to +85	DFN1216-4
					Unipolar	21	33	48	9	23	38		
AH3360	Push-Pull	1.6 to 3.6	4.3	Single		14	30	46	9	23	39	-40 to +85	DFN1216-4 DFN2015-6
AH182	Open Drain	2.5 to 5.5	5	Single		NS	40	60	10	30	NS	-40 to +85	SC59,SIP-3L
AH183	Open Drain	2.5 to 5.5	280	Single		NS	40	60	10	30	NS	-40 to +85	SC59,SIP-3L
AH1389	Push-Pull	1.6 to 3.6	4	Dual	Output2 (S)	13	25	39	9	20	37	-40 to +85	X2-DFN1410-4
					Output1 (N)	-39	-25	-13	-37	-20	-9		

Note1: Diodes also has large high voltage Unipolar family.
Please see http://www.diodes.com/catalog/Unipolar_Hall_Effect_Switches_86 for full portfolio

Ordering Information

Device	Packaging	Reel Size	Tape Width	Quantity Per Reel
AH1389-HK4-7	X2-DFN1410-4	7”	8mm	4k