



# New Product Announcement

AH324xQ/8xQ  
AH323xQ/7xQ

## Automotive-Compliant High-Voltage, High-Sensitivity Two-Wire Hall Effect Unipolar/Latch Switches with/out Integrated Self-Diagnostics

The automotive-compliant AH323xQ, AH324xQ, AH327xQ, and AH328xQ, are high-voltage, high-sensitivity Two-Wire Unipolar and Latch Hall Effect switch ICs. The Two-Wire format uses the supply pin for both power and output (current) signal reducing both wiring loom cost and weight as well as improving disturbance robustness.

With their wide supply range of 2.7V to 27V they are designed for position and proximity sensing in automotive applications such as seatbelt buckles, gear positions, wipers, door/trunk closures, etc.

The AH324xQ and AH328xQ have integrated self-diagnostics which continually monitor the main device blocks, supply voltage, and temperature. There is a third output state that warns of an abnormal condition. These devices are ISO 26262 ASIL-B ready\* - having been developed using rigorous design processes with safety design and analysis conducted in accordance with ISO 26262 standard.

For robustness and protection, all members have a built-in reverse blocking diode and Zener clamp on the supply. Built-in thermal protection shuts down the device if its junction temperature rises to an abnormal value, restarting once the junction temperature drops below the safe value.

The device is in the industry standard SC59 package.



### The Diodes Advantage

**Advanced design for position and proximity sensing in automotive applications.**

- **Precise and stable Unipolar/Latch Hall switch points across operating range**  
Maintains integrity of switch points ensuring correct system operation
- **Wide operating voltage range, 2.7V to 27V**  
Supports automotive battery range
- **AEC-Q100 qualified with wide -40 to +150°C temperature range**  
Provides flexible solution for different automotive application needs
- **Self-diagnostics for increasing functional-safety requirements (AH324xQ/AH328xQ)**  
Dedicated safe mode helps to create a safer system
- **Industry standard SC59 package**  
Ease of use and placement

### Applications

Automotive Position and Proximity sensing:

- Seat positions
- Seatbelt buckles
- Sunroof and trunk openers
- Window lifters
- Electrical power steering
- Gear selection positions
- Wiper positions

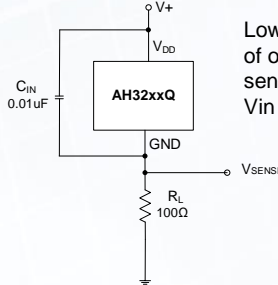
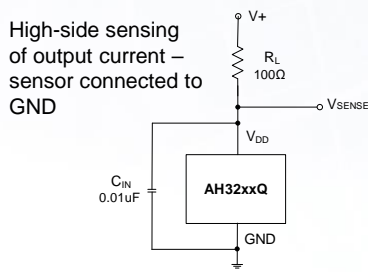
\* Safety manual and related documentation can be made available upon request.



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## Typical Application Schematic



## Two-Wire Hall Effect Switch Product Portfolio

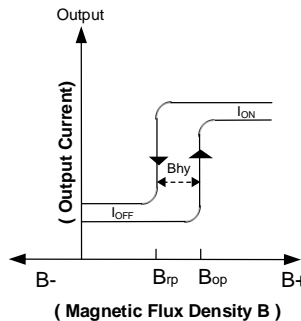
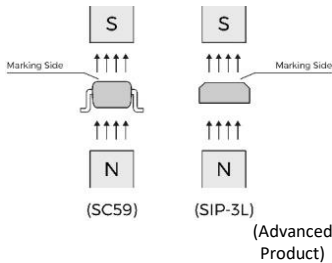
Part		Active Pole	Behavior	Operating Voltage* (V)	Supply Current		ESD	Operating Point Bop (Gauss)			Release Point Brp (Gauss) <sup>‡</sup>			Temp Range (°C)	Package
Self-Diagnostics	No Diagnostics				(South) (mA)	(Other) (mA)		Min	Typ	Max	Min	Typ	Max		
AH3280Q	AH3270Q	Direct South	Latch	2.7 to 27	14.5	3.3	8kV	3	18	33	-33	-18	-3	-40 to +150	SC59
AH3281Q	AH3271Q	Direct South	Latch		14.5	6	8kV	3	18	33	-33	-18	-3		
AH3282Q	AH3272Q	Direct South	Latch		14.5	3.3	8kV	10	30	50	-50	-30	-10		
AH3241Q	AH3231Q	Inverted South	Unipolar		6	14.5	8kV	55	90	135	35	70	115		
AH3242Q	AH3232Q	Direct South	Unipolar		14.5	6	8kV	30	60	90	10	40	70		
AH3243Q	AH3233Q	Direct South	Unipolar		14.5	6	8kV	20	45	70	3	28	53		

\* Operating voltage range is between VDD and GND pins.

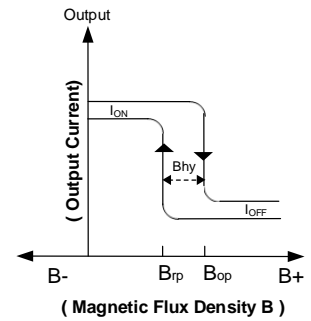
<sup>‡</sup> Negative numbers mean North polarity flux density

Further information: [Two-Wire Hall Effect Switches](#)

### Unipolar examples



Direct South Pole Active



Inverted South Pole Active

## Ordering Information

Device	Diagnostics	Type	Package Code	Packaging	Part Marking	Reel Size	Quantity
AH3231Q-W-7	No	Unipolar	W	SC59 (Type A1)	AT	7"	3000
AH3232Q-W-7	No	Unipolar	W	SC59 (Type A1)	AR	7"	3000
AH3233Q-W-7	No	Unipolar	W	SC59 (Type A1)	AV	7"	3000
AH3241Q-W-7	Yes	Unipolar	W	SC59 (Type A1)	BR	7"	3000
AH3242Q-W-7	Yes	Unipolar	W	SC59 (Type A1)	BS	7"	3000
AH3243Q-W-7	Yes	Unipolar	W	SC59 (Type A1)	BT	7"	3000
AH3270Q-W-7	No	Latch	W	SC59 (Type A1)	AW	7"	3000
AH3271Q-W-7	No	Latch	W	SC59 (Type A1)	AU	7"	3000
AH3272Q-W-7	No	Latch	W	SC59 (Type A1)	AS	7"	3000
AH3280Q-W-7	Yes	Latch	W	SC59 (Type A1)	BW	7"	3000
AH3281Q-W-7	Yes	Latch	W	SC59 (Type A1)	BU	7"	3000
AH3282Q-W-7	Yes	Latch	W	SC59 (Type A1)	BV	7"	3000