



## New Product Announcement

AH324xQ/8xQ  
AH323xQ/7xQ

### ISO 26262-Ready Automotive-compliant Two-Wire Hall Effect Unipolar/Latch Switches with 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. They are designed for position and proximity sensing in automotive applications such as seatbelt buckle, gear position, wiper, door/trunk closure, etc. Their 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.

The ISO 26262-Ready AH324xQ and AH328xQ devices have integrated self-diagnostics – which monitor main device blocks, supply voltage, and temperature – with a third, lower current, output state. This enables them, as a Safety Element out of Context (SEooC), to support ISO 26262 system integrations.

The AH323xQ and AH327xQ have similar magnetic characteristics without self-diagnostics.

Their wide supply range of 2.7V to 27V supports a wide range of demanding applications. For robustness and protection, all members have 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, automatically restarting once the junction temperature drops below the safe value.

The device is in the industry standard SC59 and SIP-3 packages.

**Automotive compliant** – AEC qualified, manufactured in IATF 16949 certified facilities supporting PPAP documents



#### The Diodes Advantage

Advanced design for position and proximity sensing in automotive applications.

- **Precise and stable 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 grade 0 qualified (-40 to +150°C temperature)**  
Provides flexible solution for different automotive application needs
- **AH324xQ/AH328xQ have built-in self-diagnostics for increasing functional-safety requirements**  
Dedicated safe mode helps to create a safer system.
- **Industry standard SC59 and SIP-3 packages**  
Ease of use and placement

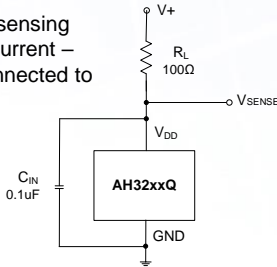
#### Applications

Automotive Position and Proximity sensing:

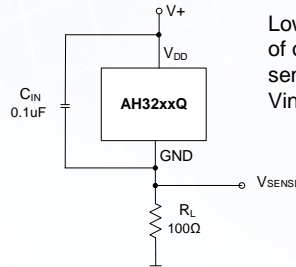
- Seat position
- Seatbelt buckle
- Sunroof and trunk opener
- Window lifter
- Electrical power steering
- Gear selection position
- Wiper position

### Typical Application

High-side sensing of output current – sensor connected to GND



Low-side sensing of output current – sensor connected to Vin

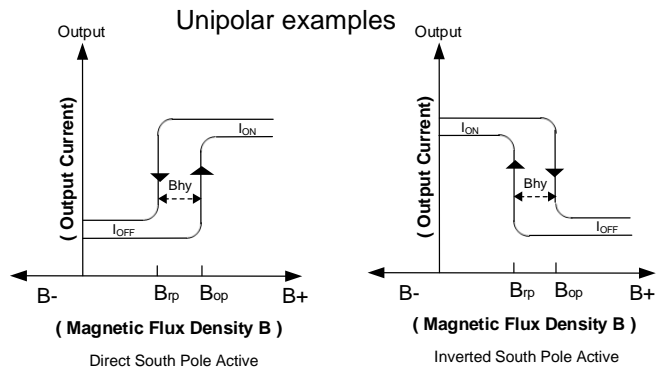
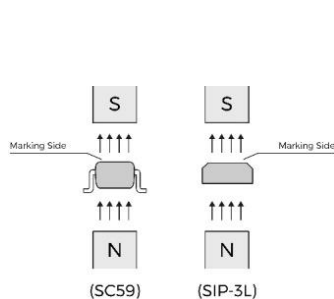


### Two-Wire Hall Effect Switch Product Portfolio

Part		Active Pole/ Output type	Type	Operating Voltage* (V)	Supply Current		ESD	Operating Point			Release Point			Temp Range (°C)	Package
Diagnostics					(South) (mA)	(Other) (mA)		Bop (Gauss) Min Typ Max	Brp (Gauss) Min Typ Max	Bop (Gauss) Min Typ Max	Brp (Gauss) Min Typ Max				
Self-	No														
AH3280Q	AH3270Q	Direct South	Latch	2.7 to 27	14.5	3.3	8kV	3	18	33	-33	-18	-3	-40 to +150	SC59 SIP-3
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.

\* Negative numbers mean North polarity flux density



### Ordering Information

Device	Compliance	Diagnostics	Type	Package Code	Packaging	Moisture Sensitivity	Packing/ Reel Size	Quantity
AH323xQ-W-7	Automotive	None	Unipolar	W	SC59 (Type A1)	MSL-1	7"	3000
AH323xQ-P-A	Automotive	None	Unipolar	P	SIP-3	-	Ammo	4000
AH3233Q-P-B	Automotive	None	Unipolar	P	SIP-3	-	Bulk	1000
AH324xQ-W-7	Automotive	Yes	Unipolar	W	SC59 (Type A1)	MSL-1	7"	3000
AH324xQ-P-A	Automotive	Yes	Unipolar	P	SIP-3	-	Ammo	4000
AH324xQ-P-B	Automotive	Yes	Unipolar	P	SIP-3	-	Bulk	1000
AH327xQ-W-7	Automotive	None	Latch	W	SC59 (Type A1)	MSL-1	7"	3000
AH327xQ-P-A	Automotive	None	Latch	P	SIP-3	-	Ammo	4000
AH327xQ-P-B	Automotive	None	Latch	P	SIP-3	-	Bulk	1000
AH328xQ-W-7	Automotive	Yes	Latch	W	SC59 (Type A1)	MSL-1	7"	3000
AH328xQ-P-A	Automotive	Yes	Latch	P	SIP-3	-	Ammo	4000
AH328xQ-P-B	Automotive	Yes	Latch	P	SIP-3	-	Bulk	1000