



New Product Announcement

AH371xQ

High-Voltage, Automotive, Hall-Effect Latch Product Family with Improved Resistance to Physical Stress

The AH371xQ is a family of high-voltage, automotive-complaint, Hall-effect latches for brushless DC motor commutation, speed measurement, and incremental rotary and linear encoders/position sensors.

The family consists of six different magnetic operate and release points (B_{OP} and B_{RP}) variants ranging from ± 25 to ± 140 gauss. This product family has open-drain output, improved resistance to physical stress, and provides a solution for a wide range of automotive applications.

To enhance system reliability, the entire family is specified over the whole supply voltage range of 3V to 27V and -40°C to $+150^{\circ}\text{C}$.

The AH371xQ family incorporates reverse blocking diodes, V_{DD} and output Zener clamp, output current limit, high ESD ratings (8kV HBM, 1kV CDM), and up to a 40V load dump voltage.

All the variants are available in the industry-standard packages SOT23, SC59, SIP-3, and U-DFN2020-6/SWP (AH3712Q only).

Automotive-compliant - AEC qualified, manufactured in IATF 16949 certified sites supporting PPAP documents.

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The DIODES Advantage

The AH371xQ series provides a reliable and high-performance Hall-effect latch for automotive applications.

- **Wide Supply Voltage Range of 3V to 27V (40V Withstand)**
Supports 12V battery applications, including load dump
- **Ultra-Low Switch-Point Drift Over Full Temperature Range with High Resistance to Physical Stress (PCB Assembly)**
Maintains sensitivity accuracy across temperature and time
- **Fast 13 μs Power-On Time and 5 μs Response Time**
Improved position sensing accuracy for rotor commutation in BLDC motors
- **40V Load Dump and High ESD Capability (8kV HBM and 1kV CDM)**
Rugged device that meets demanding automotive needs
- **Industry-Standard SC59, SOT23, SIP-3 Packaging and Small-Footprint U-DFN2020-6/SWP (AH3712Q only)**
Improved performance in industry-standard footprints as well as the small-footprint DFN

Applications

Automotive rotational positioning:

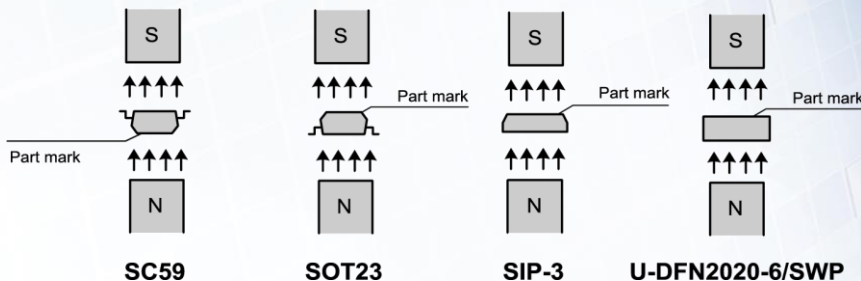
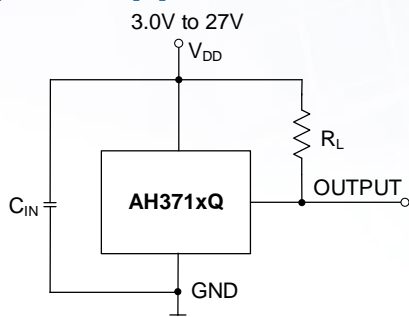
- Window power-lifts
- Motorized sunroofs
- Tailgate open/close motors
- Water and oil pumps
- Rotation speed measurements
- Incremental linear and rotary encoders and position sensors



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Typical Application



Note: C_{IN} is for power stabilization. To strengthen the noise immunity, the recommended capacitance is 10nF ~ 100nF.
 R_L is the pull-up resistor.

Automotive-Compliant High-Voltage Latch Portfolio

Part Number	Output Type	Supply Voltage Range	Supply Current	Reverse Protection	Current Limit	ESD HBM	Typ B_{OP}	Typ B_{RP}	Ambient Temp.	Packages
		V	mA		mA	kV	Gauss	°C		
AH3712Q	Open-Drain	3 to 27	2.8	Yes	28	8	25	-25	-40 to +150	SOT23 (Type S), SC59, SIP-3 (Bulk Pack), U-DFN2020-6/SWP
AH3713Q							30	-30		
AH3714Q							40	-40		
AH3715Q							70	-70		
AH3716Q							110	-110		
AH3717Q							140	-140		

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package Code	Package	Moisture Sensitivity	Packing	
					Quantity	Carrier
AH3712Q-P-B	Automotive	P	SIP-3 (Bulk Pack)	MSL-1	1,000	Bulk
AH3712Q-SA-7	Automotive	SA	SOT23 (Type S)	MSL-1	3,000	7" Tape & Reel
AH3712Q-W-7	Automotive	W	SC59	MSL-1	3,000	7" Tape & Reel
AH3712Q-FDW-7	Automotive	FDW	U-DFN2020-6/SWP	MSL-1	3,000	7" Tape & Reel
AH3713Q-P-B	Automotive	P	SIP-3 (Bulk Pack)	MSL-1	1,000	Bulk
AH3713Q-SA-7	Automotive	SA	SOT23 (Type S)	MSL-1	3,000	7" Tape & Reel
AH3713Q-W-7	Automotive	W	SC59	MSL-1	3,000	7" Tape & Reel
AH3714Q-P-B	Automotive	P	SIP-3 (Bulk Pack)	MSL-1	1,000	Bulk
AH3714Q-SA-7	Automotive	SA	SOT23 (Type S)	MSL-1	3,000	7" Tape & Reel
AH3714Q-W-7	Automotive	W	SC59	MSL-1	3,000	7" Tape & Reel
AH3715Q-P-B	Automotive	P	SIP-3 (Bulk Pack)	MSL-1	1,000	Bulk
AH3715Q-SA-7	Automotive	SA	SOT23 (Type S)	MSL-1	3,000	7" Tape & Reel
AH3715Q-W-7	Automotive	W	SC59	MSL-1	3,000	7" Tape & Reel
AH3716Q-P-B	Automotive	P	SIP-3 (Bulk Pack)	MSL-1	1,000	Bulk
AH3716Q-SA-7	Automotive	SA	SOT23 (Type S)	MSL-1	3,000	7" Tape & Reel
AH3716Q-W-7	Automotive	W	SC59	MSL-1	3,000	7" Tape & Reel
AH3717Q-P-B	Automotive	P	SIP-3 (Bulk Pack)	MSL-1	1,000	Bulk
AH3717Q-SA-7	Automotive	SA	SOT23 (Type S)	MSL-1	3,000	7" Tape & Reel
AH3717Q-W-7	Automotive	SA	SC59	MSL-1	3,000	7" Tape & Reel