



AH3762Q to AH3769Q – High Voltage, Automotive, Hall Effect Latch Product Family with Market Leading Performance

AH376xQ is a family of high-voltage, high-performance Hall-Effect Latches, AEC-Q100-qualified for automotive applications. A PPAP is available on request.

The product range is specifically designed for the commutation of brushless DC motors, speed measurement and incremental rotary and linear encoders/position sensors in automotive applications.

Providing eight high-tolerance, magnetic operate and release points (Bop and Brp) ranging from a typical 25G to 220G, this new product family, with open-drain output, provides a solution for a wide range of applications.

To enhance system reliability, the entire family is specified over the whole operating range of 3 to 28V and -40 to +150°C. The family incorporates reverse blocking diodes, V_{DD} and output Zener clamp, output current limit, high ESD ratings (8kV HBM, 800V MM and 2kV CDM) and 32V load dump capability.

All the variants are available in the industry standard SOT23 and SIP-3 packages, with selected products also in SC59.



The Diodes' Advantage

The AH376xQ series provides a reliable high-voltage, high-performance Hall -Effect latch for automotive applications.

■ High Performance Hall-Effect Latch Family

- 8 sensitivity options with high-tolerance, tight-operating windows (less magnetic spread) and low -temperature coefficients for switch points
- Magnetic characteristics specified over the whole operating range.
- Fast power-on time of 10 μ s typical and response time of 3.75 μ s typical with wide bandwidth.

■ Product Flexibility

- Designed for a wide range of applications: 3 to 28V and -40 to 150°C.
- Open drain output for pull-up flexibility.
- Industry standard SC59, SOT23 and SIP-3 packages.
- Selected devices in SC59 packages provide options for opposite magnetic field polarity switching.

■ Stability, Reliability and Robustness

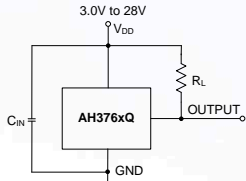
- Chopper stabilized design to provide minimal switch-point drift.
- Superior temperature and supply line stability.
- Input and output clamps with output overcurrent limit.
- Reverse voltage protection and 32V load dump capability.
- High ESD ratings: 8kV HBM, 800V MM and 2kV CDM.
- AEC-Q100 Grade 0 (-40°C to +150°C) qualification .

Applications

- Automotive applications
- Window power-lift and sun roof
- Tailgate open/close BLDC motors
- Seat adjust motors
- Seat and dashboard cooling fans
- Speed measurements
- Incremental linear and rotary encoder and position sensors



Typical Applications Circuit



Note 2: C_{IN} is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 10nF to 100nF.

Electrical Characteristics

Part	Output Type	Operating Voltage (V)	Ave Supply (mA)	Chopper stabilized	Reverse Protection	Current limit	ESD (kV)	Typical Bop (Gauss)	Typical Brp (Gauss)	Temp Range (°C)	Package
AH3762Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	+25	-25	-40 to +150	SC59, SOT23, SIP-3
AH3763Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	+30	-30	-40 to +150	SC59, SOT23, SIP-3
AH3764Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	-40	+40	-40 to +150	SC59, SOT23, SIP-3
AH3765Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	-70	+70	-40 to +150	SC59, SOT23, SIP-3
AH3766Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	+110	-110	-40 to +150	SOT23, SIP-3
AH3767Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	+140	-140	-40 to +150	SOT23, SIP-3
AH3768Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	+175	-175	-40 to +150	SOT23, SIP-3
AH3769Q	Open Drain	3 to 28	3	Yes	Yes	Yes	8	+220	-220	-40 to +150	SOT23, SIP-3

Ordering Information

Part Number	Package	Part Marking	Bulk	7" Tape and Reel		Ammo Box
			Quantity	Tape Width	Quantity	Quantity
AH3762Q-P-A	SIP-3	3762Q	-	-	-	4,000/Box
AH3762Q-P-B	SIP-3	3762Q	1,000	-	-	-
AH3762Q-SA-7	SOT23	WK	-	8mm	3,000	-
AH3762Q-W-7	SC59	YK	-	8mm	3,000	-
AH3763Q-P-A	SIP-3	3763Q	-	-	-	4,000/Box
AH3763Q-P-B	SIP-3	3763Q	1,000	-	-	-
AH3763Q-SA-7	SOT23	WM	-	8mm	3,000	-
AH3763Q-W-7	SC59	YM	-	8mm	3,000	-
AH3764Q-P-A	SIP-3	3764Q	-	-	-	4,000/Box
AH3764Q-P-B	SIP-3	3764Q	1,000	-	-	-
AH3764Q-SA-7	SOT23	WN	-	8mm	3,000	-
AH3764Q-W-7	SOT23	YN	-	8mm	3,000	-
AH3765Q-P-A	SIP-3	3765Q	-	-	-	4,000/Box
AH3765Q-P-B	SIP-3	3765Q	1,000	-	-	-
AH3765Q-SA-7	SOT23	WP	-	8mm	3,000	-
AH3765Q-W-7	SC59	YP	-	8mm	3,000	-
AH3766Q-P-A	SIP-3	3766Q	-	-	-	4,000/Box
AH3766Q-P-B	SIP-3	3766Q	1,000	-	-	-
AH3766Q-SA-7	SOT23	WR	-	8mm	3,000	-
AH3767Q-P-A	SIP-3	3767Q	-	-	-	4,000/Box
AH3767Q-P-B	SIP-3	3767Q	1,000	-	-	-
AH3767Q-SA-7	SOT23	WS	-	8mm	3,000	-
AH3768Q-P-A	SIP-3	3768Q	-	-	-	4,000/Box
AH3768Q-P-B	SIP-3	3768Q	1,000	-	-	-
AH3768Q-SA-7	SOT23	WT	-	8mm	3,000	-
AH3769Q-P-A	SIP-3	3769Q	-	-	-	4,000/Box
AH3769Q-P-B	SIP-3	3769Q	1,000	-	-	-
AH3769Q-SA-7	SOT23	WU	-	8mm	3,000	-

Notes: AH376x series is in "Green" and RoHS Compliant packages.
EU Directive 2011/65/EU (RoHS 2) compliant. Halogen and Antimony free. http://www.diodes.com/products/lead_free.html
Pad layouts: see <http://www.diodes.com/datasheets/ap02001.pdf>



New Product Announcement

AH3762Q - AH3769Q
New Family / AECQ100

Automotive Hall-Effect Latch Portfolio (Notes 3 and 4)

Part (Note 3)	Output Type	Operating Voltage	Average Supply Current	Output Current Capability	Protection Features (Note 4)	Operating Point Bop (Bop: +ve)			Release Point Brp (Brp: -ve)			Operating Ambient Temperature	Package Outlines
		(V)	(mA)	(mA)		(Gauss)			(Gauss)			°C	
						Min	Typ	Max	Min	Typ	Max		
AH3762Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	10	25	40	-40	-25	-10	-40 to +150	SC59, SOT23, SIP-3
AH3763Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	15	30	45	-45	-30	-15	-40 to +150	SC59, SOT23, SIP-3
AH3764Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	20	40	60	-60	-40	-20	-40 to +150	SC59, SOT23, SIP-3
AH3765Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	50	70	90	-90	-70	-50	-40 to +150	SC59, SOT23, SIP-3
AH3766Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	80	110	140	-140	-110	-80	-40 to +150	SOT23, SIP-3
AH3767Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	110	140	170	-170	-140	-110	-40 to +150	SOT23, SIP-3
AH3768Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	140	175	200	-200	-175	-140	-40 to +150	SOT23, SIP-3
AH3769Q	Open Drain	3.0 to 28	3	30	RVB, IPCLMP, OPCLMP, OCL	170	220	250	-250	-220	-170	-40 to +150	SOT23, SIP-3

Notes: 3. Q in part number denotes Automotive product with AECQ100 and PPAP availability
4. AH3762Q to AH3769Q have ESD withstand capability of 8kV HBM, 800V MM, and 2kV CDM

RVB: Reverse Voltage Blocking Diode
OCL: Output Current Limit
IPCLMP: Input supply clamp
OPCLMP: Output pin clamp

Further Information:

Hall Sensor Portfolio Page
Hall-Effect Latch Portfolio Page:

<http://www.diodes.com/catalog/sensors/>
http://diodes.com/catalog/latches_114/

Automotive Latches Datasheets:

AH3762Q Datasheet: <http://www.diodes.com/datasheets/AH3762Q.pdf>
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