



## New Product Announcement

AH1711Q, AH1712Q,  
AH1713Q, AH1714Q

### High-Sensitivity, Low-Voltage, Automotive-Compliant Hall-Effect Latches for Rotational Speed Sensing and Positioning Applications

The AH171xQ series is a low-voltage, high-sensitivity, Hall-effect latch IC for automotive rotation detection applications such as brushless DC-motor commutation, speed measurement, angular or linear encoders, and positioning.

These devices are optimized to operate across the 2.4V to 5.5V supply range and -40°C to +150°C temperature range, enabling them to support a wide range of demanding applications.

The AH171xQ's chopper-stabilized architecture and internal temperature-compensated regulator allows them to provide a reliable solution across the entire operating range.

The series has three magnetic operate and release points ( $B_{OP}$  and  $B_{RP}$ ) ranging from a typical 7G to 50G with open-drain output, and including one option providing an inverted output.

The AH171xQ are available in the industry-standard SOT23 package.



#### The DIODES Advantage

The AH171xQ family provides a low-voltage, high-sensitivity solution for angular and rotational positioning.

- **Three High-Sensitivity  $B_{OP}/B_{RP}$  Options with Tight Operating Windows**  
Provides accurate and reliable switch points
- **2.4V to 5.5V Supply Range**  
Enables direct operation from standard  $\mu C$  supply rails
- **Fast 30kHz Sensing Bandwidth**  
Supports higher rotational speed sensing
- **High 8kV HBM and 2kV CDM ESD Ratings**  
Maintains robust and reliable detection
- **AEC-Q100 Grade 0 Qualified (-40°C to +150°C Temperature)**  
Provides a flexible solution for different automotive application needs

#### Applications

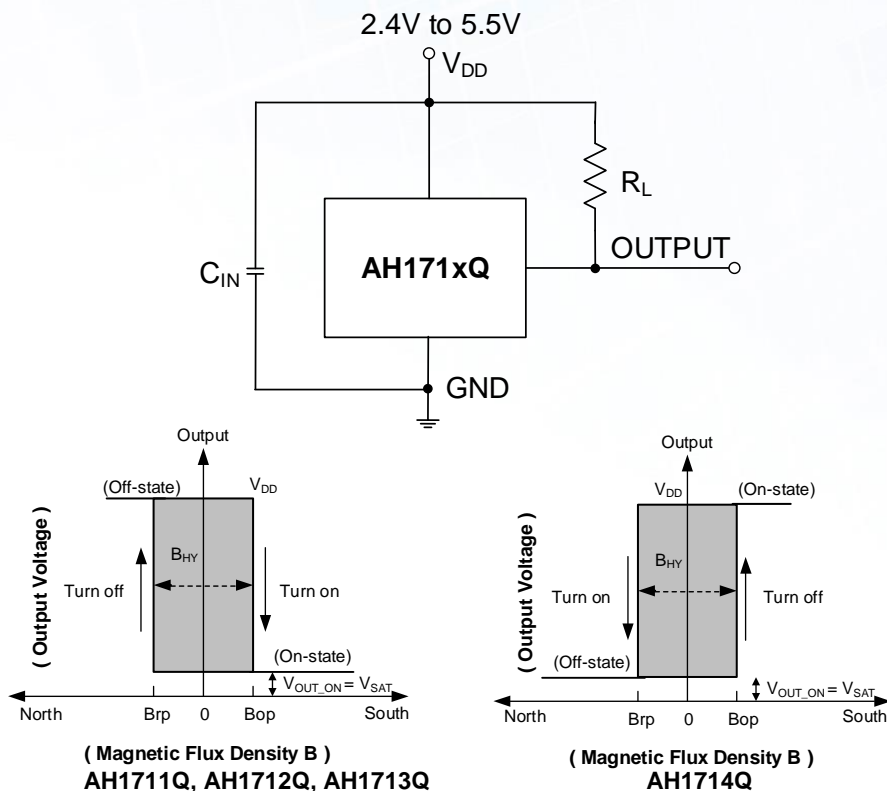
- Brushless DC-motor commutations
- Revolutions per minute (RPM) measurements
- Rotational speed/angular/speed sensing
- Fuel pumps/windows/sliding doors

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

*The Diodes logo is a registered trademark of Diodes Incorporated in the United States and other countries.*

© 2023 Copyright Diodes Incorporated. All Rights Reserved.

## Typical Application



## Low-Voltage Latch Portfolio

| Part Number             | Output Type | Operating Voltage | Supply Current | Output Polarity | ESD HBM | Typical Operating Point ( $B_{OP}$ ) | Typical Release Point ( $B_{RP}$ ) | Ambient Temperature Range | Package |
|-------------------------|-------------|-------------------|----------------|-----------------|---------|--------------------------------------|------------------------------------|---------------------------|---------|
|                         |             | V                 | mA             |                 | kV      | Gauss                                | Gauss                              | °C                        |         |
| <a href="#">AH1711Q</a> | Open-Drain  | 2.4 to 5.5        | 2.0            | Direct          | 8       | 7                                    | -7                                 | -40 to +150               | SOT23   |
| <a href="#">AH1712Q</a> |             |                   |                | Direct          | 8       | 18                                   | -18                                |                           |         |
| <a href="#">AH1713Q</a> |             |                   |                | Direct          | 8       | 50                                   | -50                                |                           |         |
| <a href="#">AH1714Q</a> |             |                   |                | Inverted        | 8       | 18                                   | -18                                |                           |         |

## Ordering Information

| Orderable Part Number        | Compliance (Only Automotive Supports PPAP) | Package | Package Code | Moisture Sensitivity | Tape Width | Packing  |                |
|------------------------------|--|---------|--------------|----------------------|------------|----------|----------------|
|                              |  |         |              |                      |            | Quantity | Carrier        |
| <a href="#">AH1711Q-SA-7</a> | <a href="#">Automotive</a>                 | SOT23   | SA           | MSL-1                | 8mm        | 3,000    | 7" Tape & Reel |
| <a href="#">AH1712Q-SA-7</a> | <a href="#">Automotive</a>                 | SOT23   | SA           | MSL-1                | 8mm        | 3,000    | 7" Tape & Reel |
| <a href="#">AH1713Q-SA-7</a> | <a href="#">Automotive</a>                 | SOT23   | SA           | MSL-1                | 8mm        | 3,000    | 7" Tape & Reel |
| <a href="#">AH1714Q-SA-7</a> | <a href="#">Automotive</a>                 | SOT23   | SA           | MSL-1                | 8mm        | 3,000    | 7" Tape & Reel |