



Magnetic Sensor IC Selection Chart

A Technical Note

Tables 1, 2, 3, and 4 provide an overview of Honeywell's Hall-effect and anisotropic magnetoresistive (AMR) sensor ICs.

Table 1. Digital Position Sensor ICs

| Product Type | Package Style | | | | | | | | Typical Operate (Gauss) | Typical Release (Gauss) | Maximum Operate (Gauss) | Reverse Polarity | Operating Temp. (°C) | Supply Voltage (Vdc) | Typical Current Supply (mA) |
|-----------------------|--|-------------------------|--|----------------|-----------------|----------------|-----------------|----------------|-------------------------|-------------------------|-------------------------|------------------|-------------------------|----------------------------|-----------------------------|
| | SOT-23 | | TO-92-Style or U-Pack ¹ Straight Standard Leads | | TO-92-Style SMT | | SOT-89B | | | | | | | | |
| | Catalog Listing | Standard Label | Catalog Listing | Standard Label | Catalog Listing | Standard Label | Catalog Listing | Standard Label | | | | | | | |
| Bipolar | | | | | | | | | | | | | | | |
| Hall effect | SS30AT | S30A | SS40A | 40A | — | — | SS50AT | SS50A | 45 | -45 | 170 | yes | -40 to 125 | 4.5 to 24 | 6.8 |
| | SS311PT | 311P | SS411P | 411P | — | — | — | — | 60 | -80 | 140 | — | -40 to 150 | 2.7 to 7 | 5.5 |
| | — | — | SS41 | S41 | — | — | SS51T | SS51 | 40 | -40 | 250 | yes | -40 to 150 | 4.5 to 24 | 5.8 |
| | — | — | 411A | 11A | — | — | SS511AT | S511A | 20 | -20 | 70 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| | — | — | SS413A | 13A | — | — | SS513AT | S513A | 50 | -50 | 140 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| Latching | | | | | | | | | | | | | | | |
| Hall effect | VF360NT ² VF360ST ² | 360NT 360ST | VF460S ² | 460S | — | — | — | — | 30 | -30 | 55 | yes | -40 to 150 | 3 to 24 | 4 |
| | SS360NT SS360ST SS360PT | 360NT 360ST 360PT | SS460S SS460P | 460S 460P | — | — | — | — | 30 | -30 | 55 | yes | -40 to 150 | 3 to 24 | 4 |
| | SS361RT | 361RT | SS461R | 461R | — | — | — | — | 50 | -50 | 120 | yes | -40 to 150 | 3 to 24 | 4 |
| | SS361CT | 361CT | SS461C | 461C | — | — | — | — | 50 | -50 | 95 | yes | -40 to 125 | 4 to 24 | 4 |
| | — | — | SS461A | 61A | — | — | — | S561A | 50 | -50 | 110 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| | — | — | SS466A | 66A | — | — | — | S566A | 140 | -140 | 200 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| Unipolar | | | | | | | | | | | | | | | |
| Hall effect | SS341RT | 341RT | SS441R | 441R | — | — | — | — | 75 | 35 | 135 | yes | -40 to 150 | 3 to 24 | 4 |
| | SS343RT | 343RT | SS443R | 443R | — | — | — | — | 135 | 85 | 205 | yes | -40 to 150 | 3 to 24 | 4 |
| | SS349RT | 349RT | SS449R | 449R | — | — | — | — | 305 | 225 | 460 | yes | -40 to 150 | 3 to 24 | 4 |
| | SS345PT | 345PT | SS445P | 445P | — | — | — | — | 180 | 105 | 280 | — | -40 to 150 | 2.7 to 7 | 5.5 |
| | — | — | SS441A | 41A | SS541AT | S541A | — | — | 85 | 58 | 135 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| | — | — | SS443A | 43A | SS543AT | S543A | — | — | 145 | 115 | 215 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| | — | — | SS449A | 49A | SS549AT | S549A | — | — | 350 | 275 | 435 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| Omnipolar | | | | | | | | | | | | | | | |
| Hall effect | SS351AT | 351AT | SS451A | 451A | SS551AT | S551A | — | — | ±85 | ±40 | ±135 | yes | -40 to 150 | 3 to 24 | 4.5 |
| AMR | — | — | 2SS52M | 2SSM | 2SS52M-S | 2SSM | 2SS52MT | S552M | ±15 | ±11 | ±25 | — | -40 to 150 | 3.8 to 30 | 6.5 |
| AMR Standard Power | SM351RT SM353RT | SM351R SM353R | SM451R SM453R | 451R 453R | — | — | — | — | ±7 ±14 | ±5 ±10 | ±11 ±20 | — | -40 to 85 -40 to 85 | 3 to 24 3 to 24 | 4 4 |
| AMR Low Power | SM351LT SM353LT | SM351L SM353L | — | — | — | — | — | — | ±7 ±14 | ±5 ±10 | ±11 ±20 | — | -40 to 85 -40 to 85 | 1.65 to 5.5 1.65 to 5.5 | 0.36 μA 0.35 μA |
| Hall effect Low Power | SL353HT SL353LT | L353H L353L | — | — | — | — | — | — | ±60 ±60 | ±45 ±45 | ±110 ±110 | — | -40 to 85 -40 to 150 | 2.2 to 5.5 2.2 to 5.5 | 330 μA 1.8 μA |

¹U-pack package style applies to the 2SS52M Series only.

²Qualified to AEC-Q100 (Grade 0).

Table 2. Linear Sensor ICs

| Package Style | | | | | | | | Typical Sensitivity (mV/Gauss) | Typical Range (Gauss) | Operating Temp. (°C) | Supply Voltage (Vdc) | Typ. Current (mA) |
|-----------------|----------------|-------------------------------------|----------------|-------------------------|----------------|-----------------|----------------|--------------------------------|-----------------------|----------------------|----------------------|-------------------|
| SOT-23 | | TO-92-Style Straight Standard Leads | | TO-92-Style SMT | | SOT-89B | | | | | | |
| Catalog Listing | Standard Label | Catalog Listing | Standard Label | Catalog Listing | Standard Label | Catalog Listing | Standard Label | | | | | |
| SS39ET | — | SS49ET | 49E | — | — | SS59ET | SS59E | 1.4 | ±1000 | -40 to 100 | 2.7 to 6.5 | 6 |
| — | — | SS494B | 94B | SS494B-SP | 94B | — | — | 5.0 | ±420 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | SS495A | 95A | SS495A-SP | 95A | — | — | 3.125 | ±670 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | SS495A1 | 95A | SS495A1-SP | 95A | — | — | 3.125 | ±670 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | SS495A2 | 95A | SS495A2-SP | 95A | — | — | 3.125 | ±670 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | SS495B | 95B | SS495B-SP | 95B | — | — | 3.125 | ±670 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | SS496A | 96A | SS496A-SP | 96A | — | — | 2.50 | ±840 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | SS496A1 | 96A | SS496A1-SP | 96A | — | — | 2.50 | ±840 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | SS496B | 96B | SS496B-SP | 96B | — | — | 2.50 | ±840 | -40 to 150 | 4.5 to 10.5 | 7 |
| — | — | — | — | VF495A1-SP ¹ | 495A | — | — | 3.125 | ±670 | -40 to 150 | 4.5 to 10.5 | 7 |

¹ Qualified to AEC-Q100 (Grade 0).

Table 3. Angular AMR Position Sensor IC

| SOIC-8 Package Style | | Typical Sensitivity (mV/deg.) | Typical Range (degree) | Operating Temp. (°C) | Supply Voltage (Vdc) | Current (mA) |
|----------------------|----------------|-------------------------------|------------------------|----------------------|----------------------|--------------|
| Catalog Listing | Standard Label | | | | | |
| APS00B | — | 2.1 | ±90 | -40 to 150 | 1 to 12 | 7 max. |

Table 4. Speed and Direction, Speed Sensor ICs

| Product Type | Catalog Listing | Standard Label | Function | Target | Package Style | Output | Typical Sensitivity (Gauss) | Operating Temp. (°C) | Supply Voltage (Vdc) | Current (mA) | |
|----------------------------|------------------------|--------------------|---|--------------------------|---|---|-----------------------------|----------------------|-------------------------------|---------------------------------|-----------------------------|
| AMR | VM721V1 ^{1,2} | VM721V1 | speed sensing | ring magnet encoder | 2-pin SIP, wide leads | 2-pin current | ±30 | -40 to 150 | -40°C to 110°C: 4.0 V to 24 V | high: 14 typ. low: 6.95 typ. | |
| | VM721D1 ^{1,2} | VM721D1 VM721D1 | speed and direction sensing | | 2-pin SIP, wide leads | 2-pin pulse width modulated (PWM) | | | -150°C: 4.0 V to 9 V | | |
| | VM821Q1 | VM821Q1 | speed and direction or position sensing | | 4-pin SIP | quadrature, dual open collector sinking | | | 4.0 V to 24 V | | 20 max. |
| | VF401 | VF401 | | | VF401 2-pin, TO-92-style, straight standard leads | 2-pin current | | | 4.0 V to 16 V | | high: 14 typ. low: 7 typ |
| Hall effect, back biased | VG481V1 ¹ | VG481V1 | speed sensing | ferrous gear tooth wheel | TO-92-style, straight standard leads | sinking | 49.5 | -40 to 150 | 4 V to 24 V | 10 max. | |
| Hall effect, dual latching | VF526DT | V526 | speed and direction sensing | ring magnet encoder | SOT-89B | dual open collector sinking | 130 | -40 to 125 | 3.4 V to 24 V | off: 12 max. on: 14 max. | |
| | SS526GT | S526G | | | | | | | | | |

¹ Qualified to AEC-Q100 (Grade 0).

² ISO26262 ASIL B(D) compliant.

For More Information

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