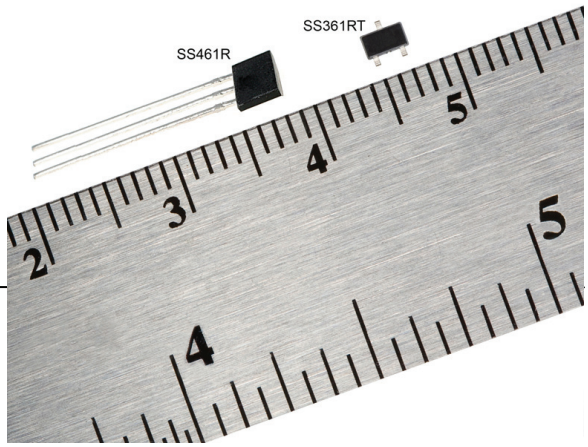
Honeywell




# SS361RT/SS461R

## Bipolar Latch, Hall-Effect Magnetic Position Sensors

**DESCRIPTION**

The SS361RT/SS461R sensors are small, versatile digital Hall-effect devices that are operated by the magnetic field from a permanent magnet or an electromagnet, designed to respond to alternating North and South poles.

These bipolar latching sensors have enhanced sensitivity which often allows for the use of less expensive magnets.

These sensors are available in two package styles, the SS361RT in the miniature SOT-23 surface mount package and the SS461R in the leaded, flat TO-92-style package.

The SS361RT's small size requires less PC board space, allowing it to be used in smaller assemblies. Its 3 V capability allows for use in low voltage applications, promoting energy efficiency.

The SS361RT is available on tape and reel; the SS461R is available in a bulk package (1000 units per bag).

**FEATURES**

- Enhanced sensitivity
- Miniature package size
- Low voltage: 3 V operation
- Built-in reverse voltage protection
- Robust design: will operate up to 150 °C [302 °F]

**POTENTIAL APPLICATIONS**

Transportation:

- Speed and RPM (revolutions per minute) sensing
- Tachometer, counter pickup
- Motor and fan control
- Electric window lift
- Convertible roof position
- Automotive transmission position

Industrial:

- Speed and RPM (revolutions per minute) sensing
- Tachometer, counter pickup
- Flow-rate sensing
- Brushless dc (direct current) motor commutation
- Motor and fan control
- Robotics control

Medical:

- Motor assemblies
- Medication dispense control

**Table 1. SS361RT/SS461R Performance Specifications (At 3.0 Vdc to 18 Vdc supply, 20 mA load, $T_A$ = -40 ºC to 150 ºC [-40 ºF to 257 ºF]**

| Characteristic | Condition | Minimum | Typical | Maximum | Unit |
|---|---|---|---|---|---|
| Supply voltage[1] | | | | | |
| SS461R | -40 °C to 150 °C [-40 °F to 302 °F] | 3 | – | 18 | V |
| SS361RT | -40 °C to 125 °C [-40 °F to 257 °F] | 3 | – | 18 | |
| SS361RT | 150 °C [302 °F] | 3 | – | 12 | |
| Supply current | Vsupply = 5 V at 25 °C [77 °F] | – | 4 | 6 | mA |
| | Vsupply = 3 V at 25 °C [77 °F] | – | 3.5 | 5 | |
| | | – | – | 8 | |
| Vsat | at 15 mA, gauss >120 | – | – | 0.4 | V |
| Output leakage current | gauss >120 | – | – | 10 | µA |
| Output switching time: | Vsupply = 12 V at 25 °C [77 °F], $R_L$ =1.6 KOhm, $C_L$ = 20 pF | | | | µs |
| rise | | – | – | 1.5 | |
| fall | | – | – | 1.5 | |
| Operate | – | 5 | 50 | 120 | gauss |
| Release | – | -120 | -50 | 5 | gauss |
| Differential | – | 50 | 100 | 170 | gauss |
| Operating temperature | | | | | |
| SS461R | 3 V to 18 V | -40 [-40] | – | 150 [302] | °C [°F] |
| SS361RT | 3 V to 12 V | | | | |
| Storage temperature | – | -40 [-40] | – | 150 [302] | °C [°F] |

**Note:**
1. See Figure 1.

## NOTICE

Bipolar Hall-effect sensors may have an initial output in either the ON or OFF state if powered up with an applied magnetic field in the differential zone (applied magnetic field >Brp and <Bop). Honeywell recommends allowing 10 µs for output voltage to stabilize after supply voltage has reached 5 V.

**Table 2. SS361RT/SS461R Absolute Maximum Ratings[1]**

| Characteristic | Minimum | Typical | Maximum | Unit |
|---|---|---|---|---|
| Supply voltage | -26.0 | – | 28.0 | V |
| Applied output voltage | -0.5 | – | 28.0 | V |
| Output current | – | – | 20 | mA |
| Magnetic flux | – | – | no limit | gauss |

**Note:**
1. The magnetic field strength (gauss) required to cause the switch to change state (operate and release) will be as specified in the magnetic characteristics. To test the switch against the specified magnetic characteristics, the switch must be placed in a uniform magnetic field.

## NOTICE

Absolute maximum ratings are the extreme limits that the device will withstand without damage to the device. However, the electrical and mechanical characteristics are not guaranteed as the maximum limits (above recommended operating conditions) are approached, nor will the device necessarily operate at absolute maximum ratings.




**Figure 1. SS361RT Rated Supply Voltage**

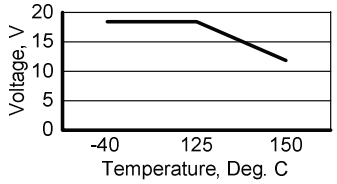



**Figure 2. Current Sinking Output Block Diagram**

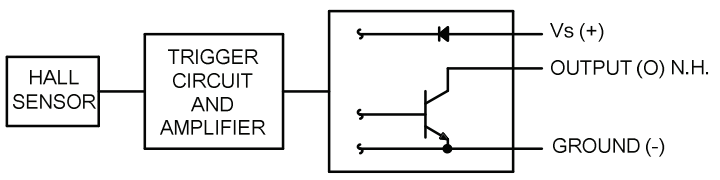


**Figure 3. SS361RT Mounting/Tape and Reel Dimensions (For reference only. mm/[in])**

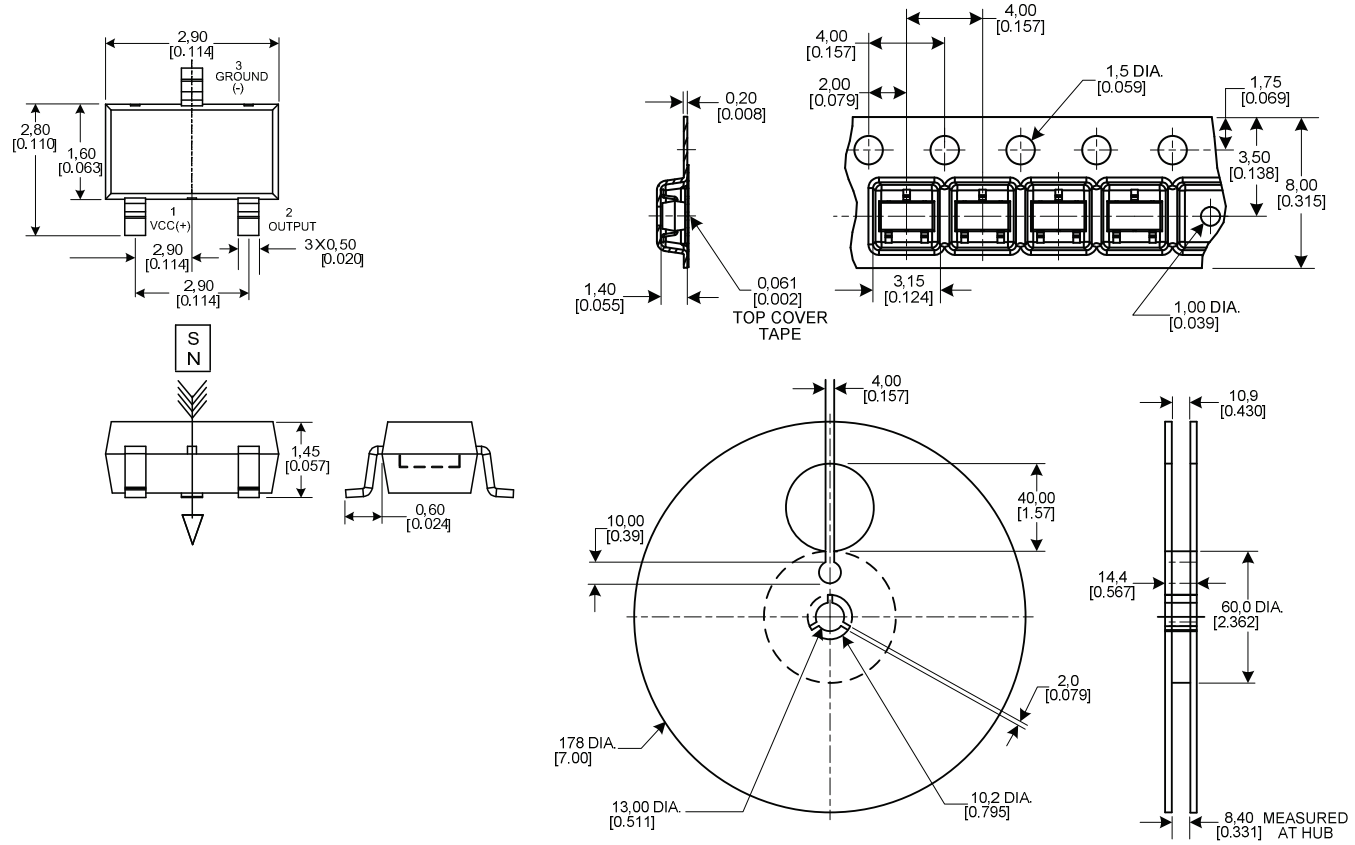
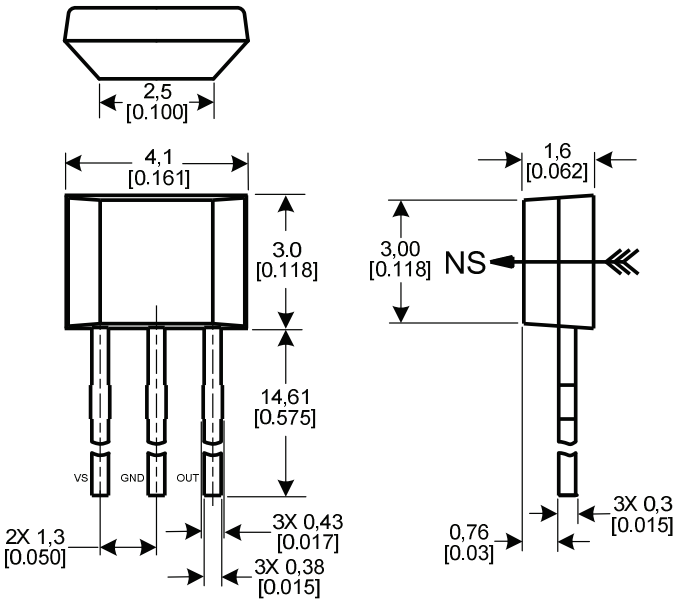



**Figure 4. SS416R Mounting Dimensions (For reference only. mm/[in])**



**Order Guide**

| Catalog Listing | Description |
|---|---|
| SS361RT | Bipolar latch, Hall-effect magnetic position sensor, SOT-23 package, tape and reel packaging |
| SS461R | Bipolar latch, Hall-effect magnetic position sensor, flat TO-92 package, bulk packaging (1000 units per bag) |

## ⚠ WARNING

**MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

**WARRANTY/REMEDY**

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## ⚠ WARNING

**PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

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| USA/Canada | +1-800-537-6945 |
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Sensing and Control
Honeywell
1985 Douglas Drive North
Golden Valley, MN 55422
**www.honeywell.com/sensing**

Honeywell

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