

## Installation Instructions for the SS345PT/SS445P Unipolar Hall-effect Digital Position Sensor ICs with Built-in Pull-up Resistor

ISSUE 2  
50048012

### GENERAL INFORMATION

#### CAUTION

##### ELECTROSTATIC DISCHARGE DAMAGE

This component is sensitive to electrostatic discharge (ESD). Take normal ESD precautions in handling this product to prevent ESD-induced damage and/or degradation.

**Failure to comply with these instructions may result in product damage.**



### SOLDERING/ASSEMBLY

#### CAUTION

##### IMPROPER SOLDERING

- Ensure leads are adequately supported during any forming/shearing operation so that they are not stressed inside the plastic case.
- Limit exposure to high temperatures.
- Do not wave solder the SS345PT.

**Failure to comply with these instructions may result in product damage.**

**SS345PT:** Use an infrared reflow process with temperatures of 245 °C [473 °F] peak for 10 s max.

**SS445P:** PC board wave soldering temperature is 250 °C to 260 °C [482 °F to 500 °F] peak for 3 s max.

Figure 1. Current Sinking Output Block Diagram

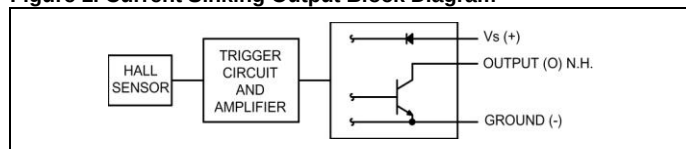


Table 1. Absolute Maximum Ratings<sup>1</sup>

| Characteristic         | Min. | Typ. | Max.     | Unit  |
|------------------------|------|------|----------|-------|
| Supply voltage         | -0.5 | —    | 7.0      | Vdc   |
| Applied output voltage | -0.5 | —    | 7.0      | Vdc   |
| Output current         | —    | —    | 8.0      | mA    |
| Magnetic flux          | —    | —    | no limit | Gauss |

**Note 1:** 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.

#### NOTICE

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.

Figure 2. Typical Performance Characteristics

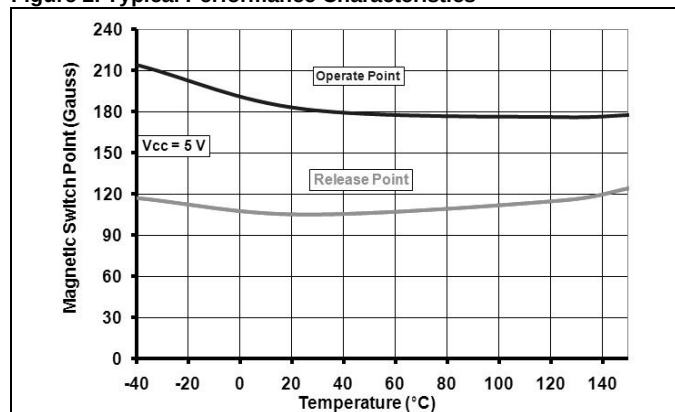


Table 1. Specifications (At 2.7 to 7 Vdc supply, 4 mA load, TA = -40 °C to 150 °C [-40 °F to 302 °F])

| Characteristic            | Condition                           | Minimum   | Typical | Maximum   | Unit    |
|---------------------------|-------------------------------------|-----------|---------|-----------|---------|
| Supply voltage            | -40 °C to 150 °C [-40 °F to 302 °F] | 2.7       | 5.0     | 7.0       | Vdc     |
| Supply current            | Gauss < 25, Vs = 5 V, 25 °C [77 °F] | —         | 5.5     | —         | mA      |
|                           | -40 °C to 150 °C [-40 °F to 302 °F] | —         | —       | 14        | mA      |
| Output current            | —                                   | —         | —       | 4.0       | mA      |
| Vsat                      | Gauss > 260                         | —         | —       | 0.4       | Vdc     |
| Output leakage current    | Gauss < 25                          | —         | —       | 10        | μA      |
| Output rise and fall time | 25 °C [77 °F]                       | —         | —       | 1.5       | μs      |
| Thermal resistance:       |                                     |           |         |           |         |
| SS345PT                   | —                                   | —         | 303     | —         | °C/W    |
| SS445P                    | —                                   | —         | 233     | —         | °C/W    |
| Operate                   | -40 °C to 150 °C [-40 °F to 302 °F] | 55        | 180     | 280       | Gauss   |
| Release                   | -40 °C to 150 °C [-40 °F to 302 °F] | 25        | 105     | 240       | Gauss   |
| Differential              | -40 °C to 150 °C [-40 °F to 302 °F] | 10        | 75      | 140       | Gauss   |
| Operating temperature     | —                                   | -40 [-40] | —       | 150 [302] | °C [°F] |
| Storage temperature       | —                                   | -55 [-67] | —       | 165 [329] | °C [°F] |

Figure 3. Mounting Dimensions (For reference only. mm/[in])

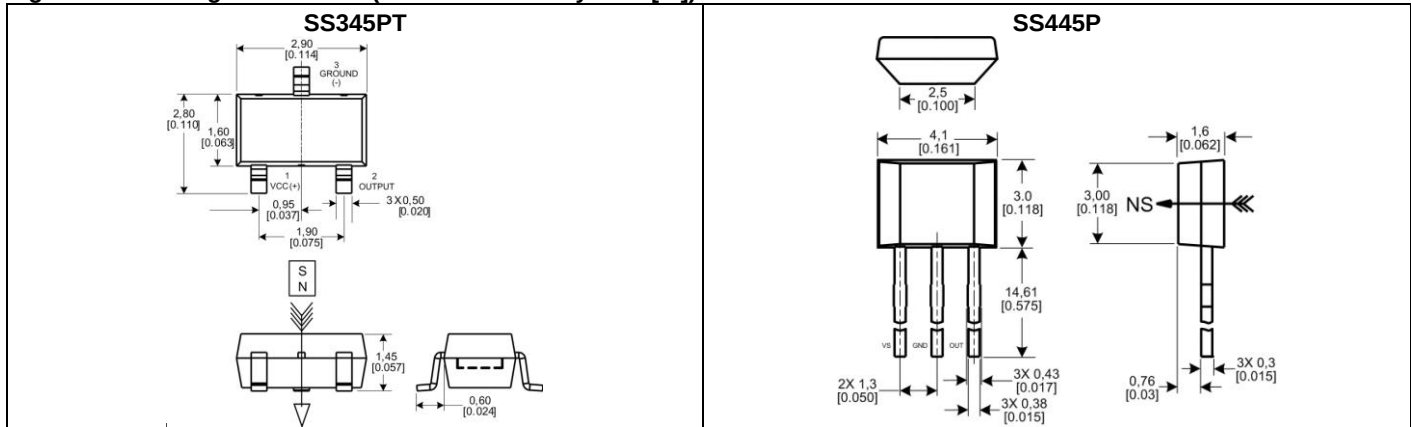
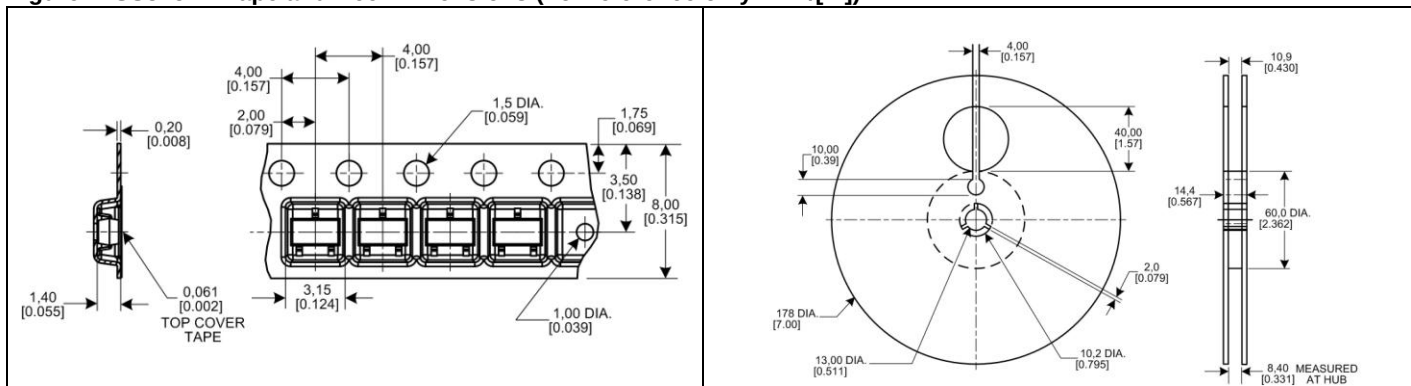


Figure 4. SS345PT Tape and Reel Dimensions (For reference only. mm/[in])



## 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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**E-mail:** [info.sc@honeywell.com](mailto:info.sc@honeywell.com)

**Internet:** [www.honeywell.com/sensing](http://www.honeywell.com/sensing)

### Phone and Fax:

Asia Pacific +65 6355-2828  
+65 6445-3033 Fax  
Europe +44 (0) 1698 481481  
+44 (0) 1698 481676 Fax  
Latin America +1-305-805-8188  
+1-305-883-8257 Fax  
USA/Canada +1-800-537-6945  
+1-815-235-6847  
+1-815-235-6545 Fax

Sensing and Control

Honeywell

1985 Douglas Drive North

Golden Valley, MN 55422

[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

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