

## Installation Instructions for the SS311PT/SS411P Bipolar Hall-effect Digital Position Sensors with Built-in Pull-up Resistor

ISSUE 1  
50046426

### 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 SS311PT.

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

**SS311PT:** Use an infrared reflow process with temperatures of 245 °C [473 °F] peak for 10 s max.

**SS411P:** PC board wave soldering temperature is 250 °C to 260 °C [482°F to 500 °F] peak for 3 s max.

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

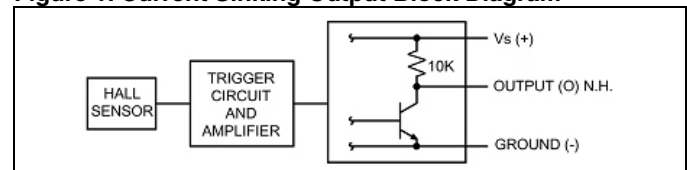
Characteristic	Min.	Typ.	Max.	Unit
Supply voltage	-0.5	–	7.0	Vdc
Applied output voltage	-0.5	–	7.0	Vdc
Output current	–	–	8.0	mA
Magnetic flux	–	–	no limit	gauss

**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

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 Vdc.

**Figure 1. Current Sinking Output Block Diagram**



**Table 1. SS311PT/SS411P Specifications (At 2.7 Vdc 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 <-140, Vs = 5 V, 25 °C [77°F] -40 °C to 150 °C [-40 °F to 302 °F]	–	5.5	–	mA
Output current	–	–	–	4.0	mA
Vsat	gauss >140	–	–	0.4	V
Output leakage current	gauss <-140	–	–	10	μA
Output rise time	25 °C [77 °F]	–	–	1.5	μs
Output fall time	–	–	–	1.5	μs
Thermal resistance:					
SS311PT	–	–	303	–	°C/W
SS411P	–	–	233	–	°C/W
Operate	-40 °C to 150 °C [-40 °F to 302 °F]	-30	55	140	gauss
Release	-40 °C to 150 °C [-40 °F to 302 °F]	-140	-55	30	gauss
Differential	-40 °C to 150 °C [-40 °F to 302 °F]	40	–	–	gauss
Operating temperature	–	-40 [-40]	–	150 [302]	°C [°F]
Storage temperature	–	-40 [-40]	–	150 [302]	°C [°F]

Figure 2. Mounting Dimensions (For reference only. mm/[in])

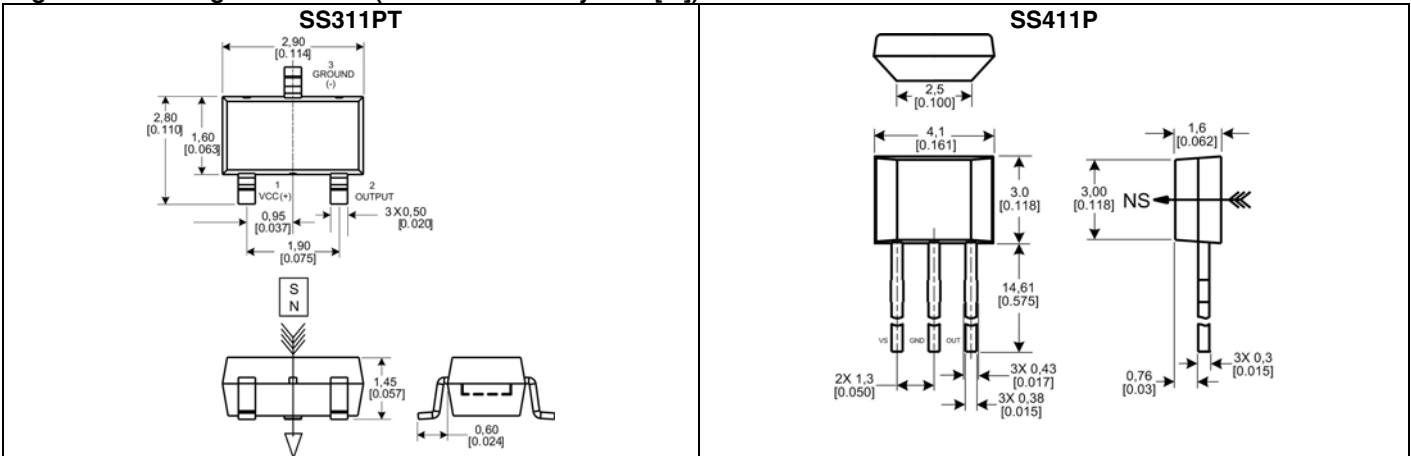
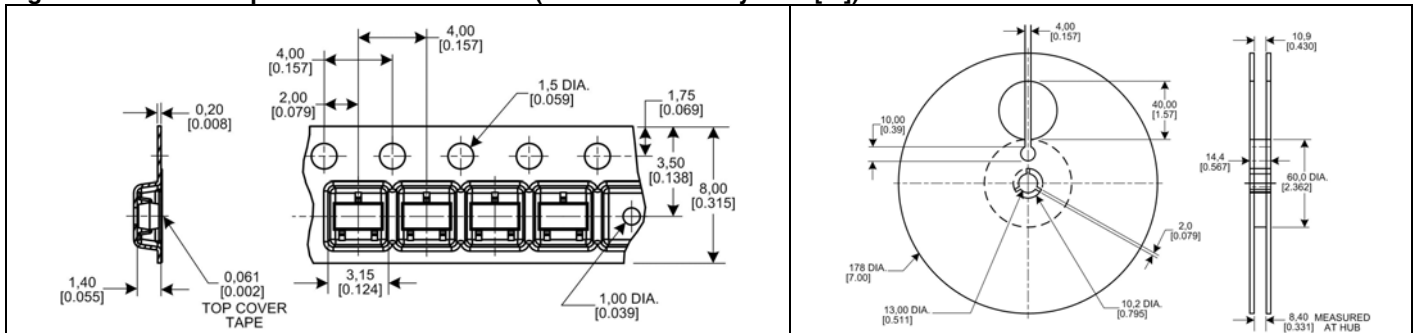


Figure 3. SS311PT Tape and Reel Dimensions (For reference only. mm/[in])



**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

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 +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  
 Minneapolis, MN 55422  
[www.honeywell.com/sensing](http://www.honeywell.com/sensing)

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