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

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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

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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 Ratings¹

Characteristic	Min.	Тур.	Max.	Unit				
Supply voltage	-0.5	_	7.0	Vdc				
Applied output	-0.5	_	7.0	Vdc				
voltage								
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

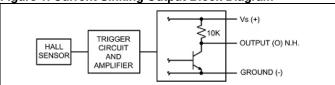
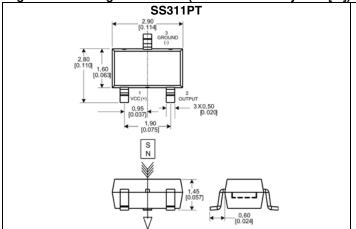


Table 1. SS311PT/SS411P Specifications (At 2.7 Vdc to 7 Vdc supply, 4 mA load, TA = -40 °C to 150 °C [-40 °F to 302 °F]

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]	iss <-140, Vs = 5 V, 25 °C [77°F] – 5.5 –		_	mA	
<u>. </u>	-40 °C to 150 °C [-40 °F to 302 °F]	_	_	14	IIIA	
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	25 0 [11 1]	_	_	1.5		
Thermal resistance:						
SS311PT	_	_	303	_	°C/W	
SS411P	_	_	233	_		
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])



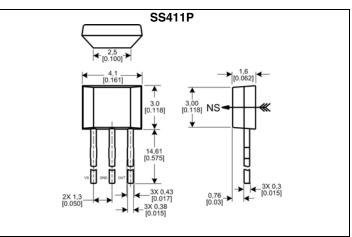
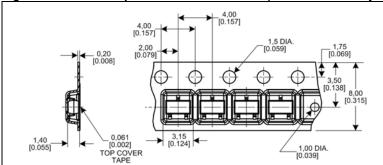
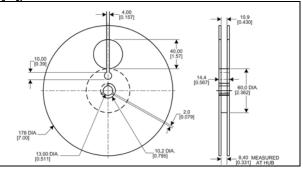


Figure 3. SS311PT Tape and Reel Dimensions (For reference only. mm/[in])





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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.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.

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