

Installation Instructions for the SS360PT/SS460P High Sensitivity Latching Digital Hall-Effect Sensor ICs with Built-in Pull-Up Resistor

GENERAL INFORMATION

CAUTION

ELECTROSTATIC DISCHARGE DAMAGE

Ensure proper ESD precautions are followed when handling this product.

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 SS360PT.

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

SS360PT: Use an infrared reflow process with temperatures of 245 °C [473 °F] peak for 10 s max.

SS460P: PC board wave soldering temperature is 250 °C to 260 °C [482°F to 500 °F] peak for 3 s max.

Table 2. SS360PT/SS460P Absolute Maximum Ratings¹

Characteristic	Min.	Typ.	Max.	Unit
Supply voltage	-26.0	–	26.0	V
Applied output voltage	-0.5	–	26.0	V
Output current	–	–	20	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 sensor ICs 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 its normal operating value.

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.

Table 1. SS360PT/SS460P Performance Specifications (At 3 Vdc to 24 Vdc supply, 20 mA load, T_A = -40 °C to 125 °C [-40 °F to 257 °F] except where otherwise specified.)

Characteristic	Condition	Min.	Typ.	Max.	Unit
Supply voltage:					
SS360PT	-40 °C to 110 °C [-40 °F to 230 °F]	3	–	24	Vdc
SS360PT	125 °C [257 °F]	3	–	16	
SS460P	-40 °C to 125 °C [-40 °F to 257 °F]	3	–	24	
Supply current	V _{supply} = 3 V at 25 °C [77 °F]	–	3.5	6	mA
	–	–	–	10	
Vsat	Gauss >55	–	–	0.6	V
Output leakage current	Gauss >55	–	–	10	μA
Internal pull-up resistor	–	7.5	10.0	12.5	kOhm
Rise/fall time	V _{supply} = 12 V at 25 °C [77 °F]	–	–	1.5	μs
Thermal resistance:					
SS360PT (SOT-23)	–	–	303	–	°C/W
SS460P (flat TO-92-style)	–	–	233	–	
Operate	-40 °C to 125 °C [-40 °F to 257 °F]	5	30	55	Gauss
Release	-40 °C to 125 °C [-40 °F to 257 °F]	-55	-30	-5	Gauss
Differential	-40 °C to 125 °C [-40 °F to 257 °F]	40	60	80	Gauss
Operating temperature	V _{supply} = 3 Vdc to 24 Vdc	-40 [-40]	–	125 [257]	°C [°F]
Storage temperature:					
SS360PT	–	-40 [-40]	–	150 [302]	°C [°F]
SS460P	–	-40 [-40]	–	165 [329]	

Figure 1. Sensor IC Block Diagram

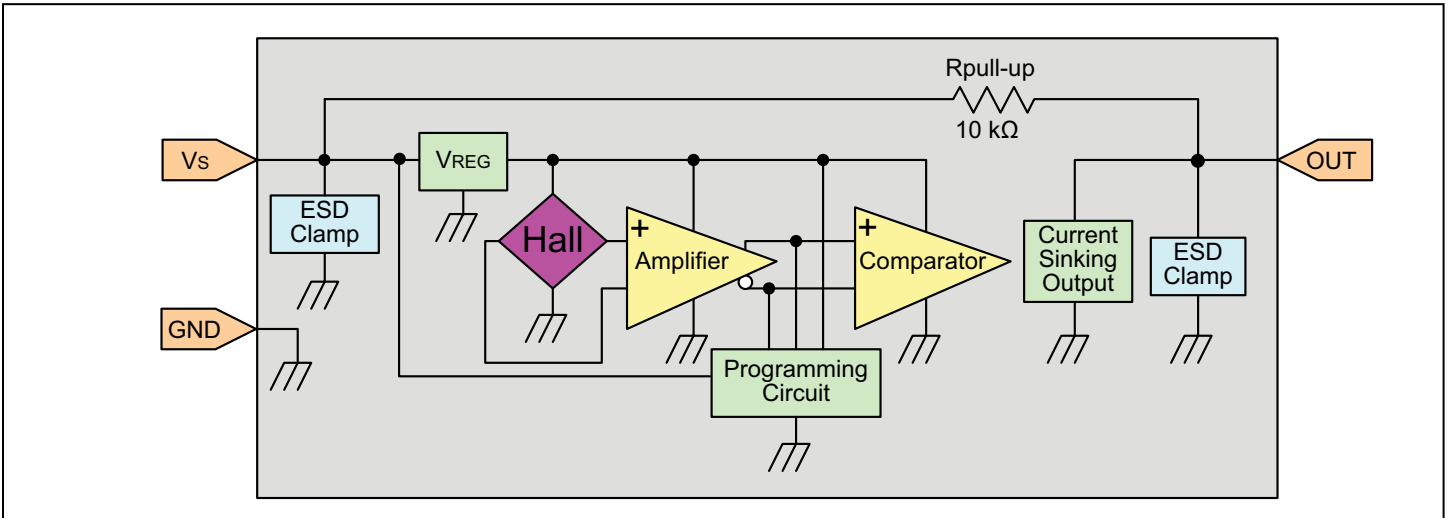


Figure 2. Typical Magnetic Characteristics vs Ambient Temperature at Supply Voltages

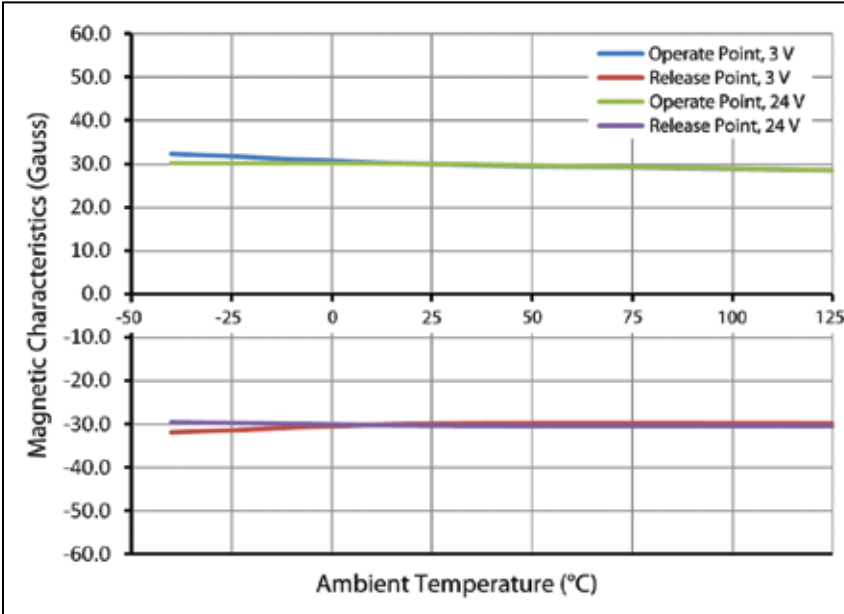


Figure 3. SS360PT Maximum Rated Supply Voltage vs Temperature

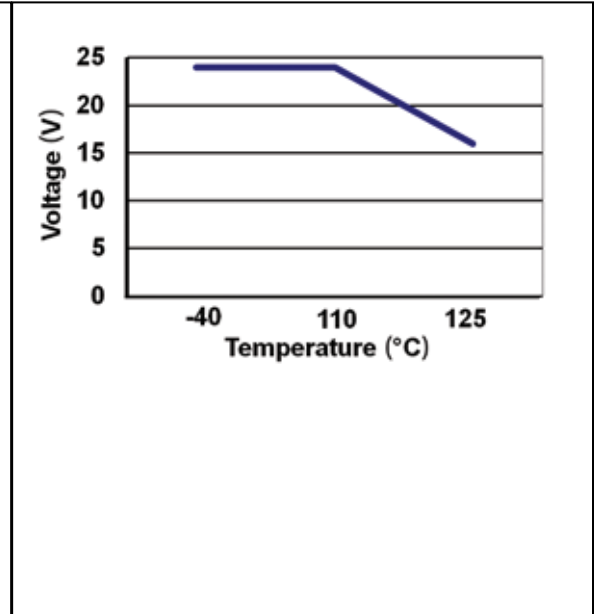


Figure 4. Magnetic Activation

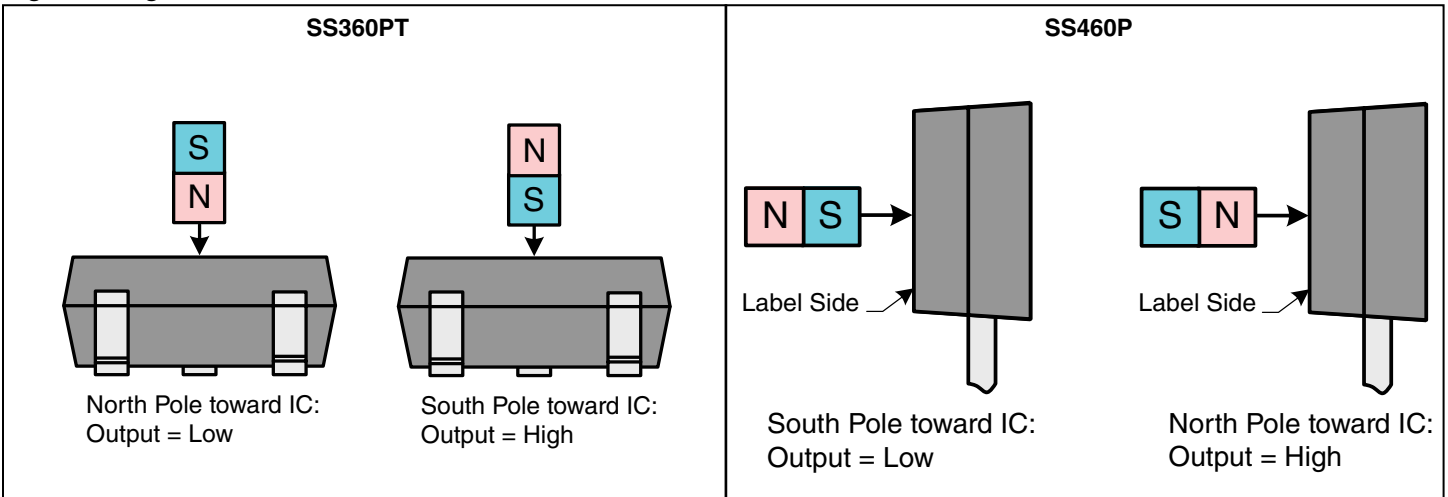


Figure 5. SS360PT Mounting and Tape/Reel Dimensions (For reference only. mm/[in.])

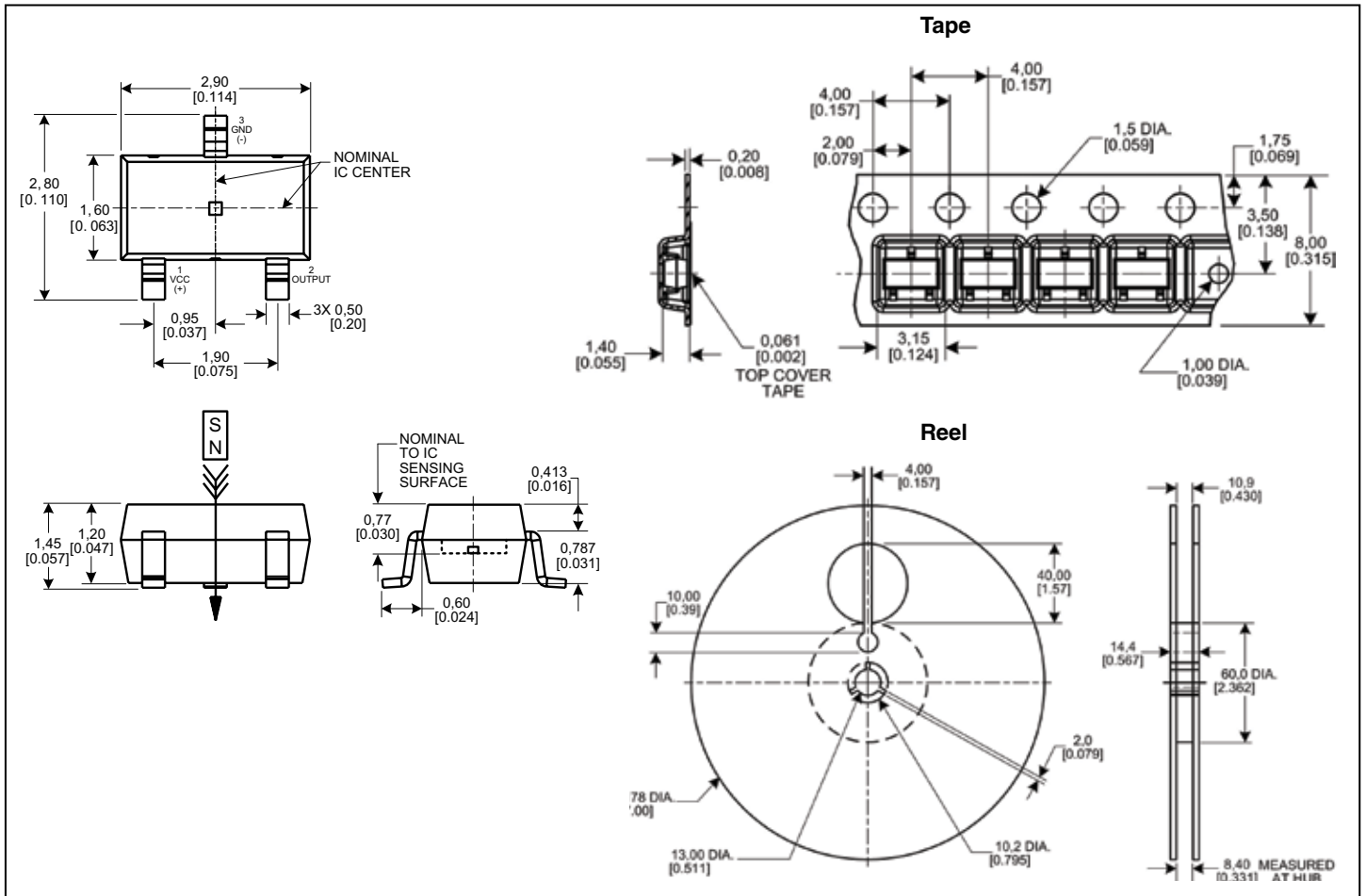
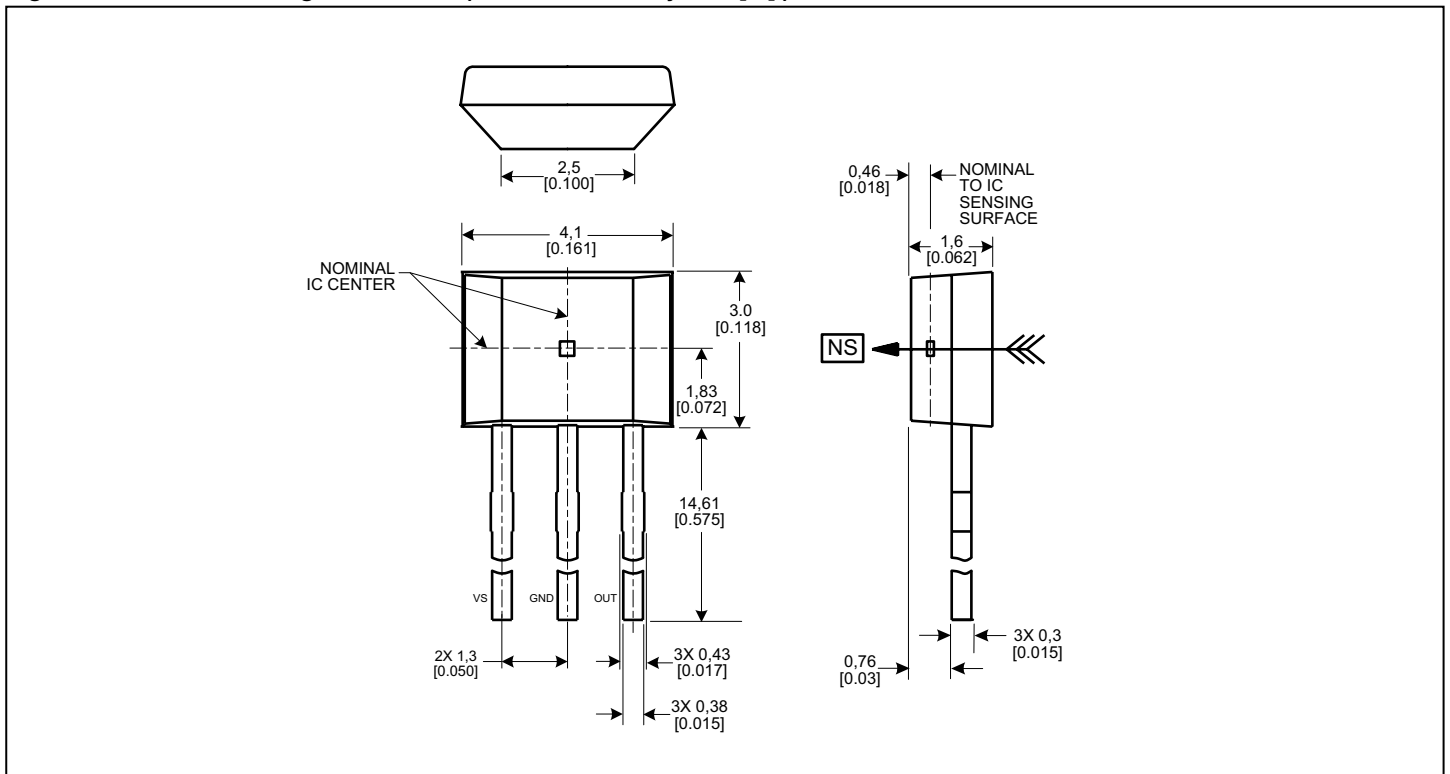


Figure 6. SS460P Mounting Dimensions (For reference only. mm/[in.])



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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