Honeywell

# Installation Instructions for the **SS360NT/SS360ST/SS460S High Sensitivity Latching Digital Hall-Effect Sensor ICs**

*ISSUE 1*
*50074541*

**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 SS360NT or the SS360ST.

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

**SS360NT and SS360ST**: Use an infrared reflow process with temperatures of 245 °C [473 °F] peak for 10 s max.

**SS460S:** 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[1]**

| Characteristic | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|
| Supply voltage | -26.0 | – | 26.0 | Vdc |
| Applied output voltage | -0.5 | – | 26.0 | Vdc |
| Output current | – | – | 20.0 | 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.

## 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 5 V.

**Table 2. SS360NT/SS360ST/SS460S Performance Specifications**
**(At 3 Vdc to 24 Vdc supply, 20 mA load, $T_A$ = -40 ºC to 150 ºC [-40 ºF to 302 ºF] unless otherwise specified.)**

| Characteristic | Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Supply voltage | -40 °C to 150 °C [-40 °F to 302 °F] | 3 | – | 24 | Vdc |
| Supply current | Vsupply =3 V at 25 °C [77 °F] | –<br>–<br>– | 3.5<br>3.5<br>– | 6<br>5<br>8 | mA |
| Vsat | Gauss >55 | – | – | 0.6 | V |
| Output leakage current | Gauss >55 | – | – | 10 | µA |
| Rise/fall time<br>rise<br>fall | Vsupply = 12 V at 25 °C [77 °F]<br>$R_L$ =1.6 kOhm, $C_L$ = 20 pF | –<br>–<br>– | –<br>–<br>– | 1.5<br>1.5<br>1.5 | µs |
| Thermal resistance:<br>SS460S (Flat TO-92)<br>SS360NT/ST (SOT-23 | – | <br>–<br>– | <br>233<br>303 | <br>–<br>– | °C/W |
| 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 | Vsupply = 4 Vdc to 24 Vdc | -40 [-40] | – | 150 [302] | °C [°F] |
| Storage temperature | – | -40 [-40] | – | 165 [329] | °C [°F] |

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

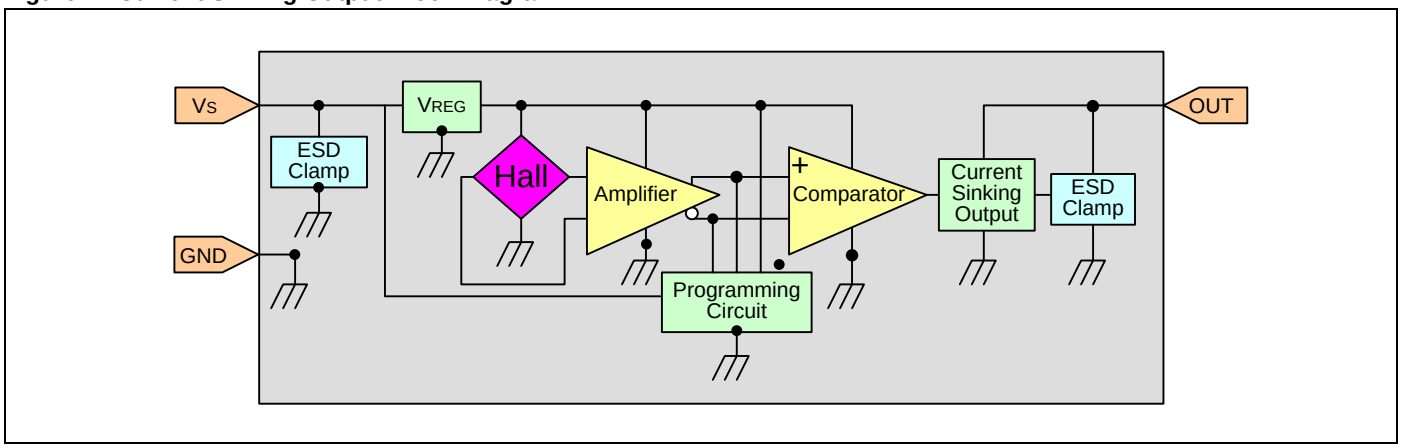



**Figure 2. Typical Magnetic Characteristics vs Ambient Temperature and Supply Voltage**

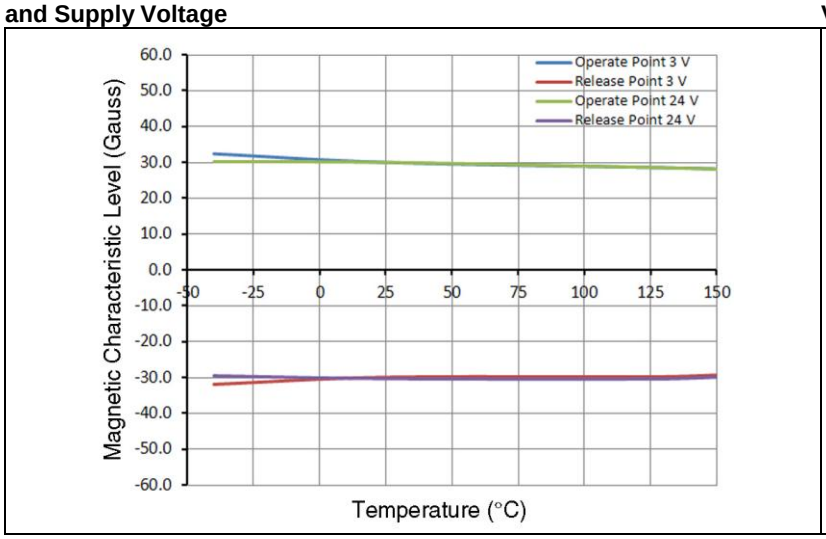



**Figure 3. SS360NT and SS360ST Rated Supply Voltage vs Temperature**

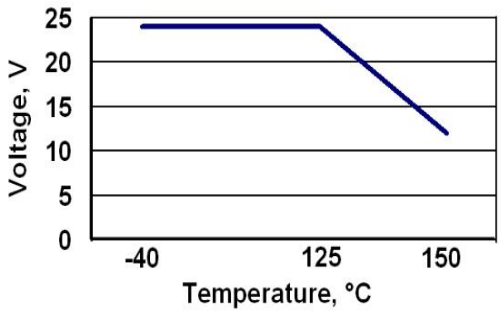



**Figure 4. Magnetic Activation**

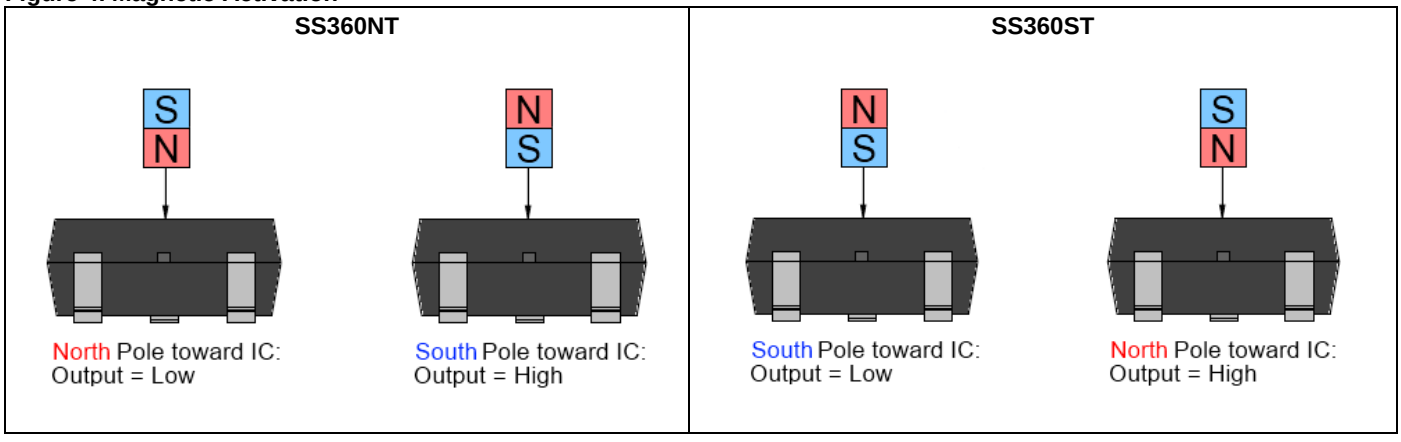


**Figure 5. SS360NT/SS360ST Mounting and Tape/Reel Dimensions (For reference only. mm/[in].)**

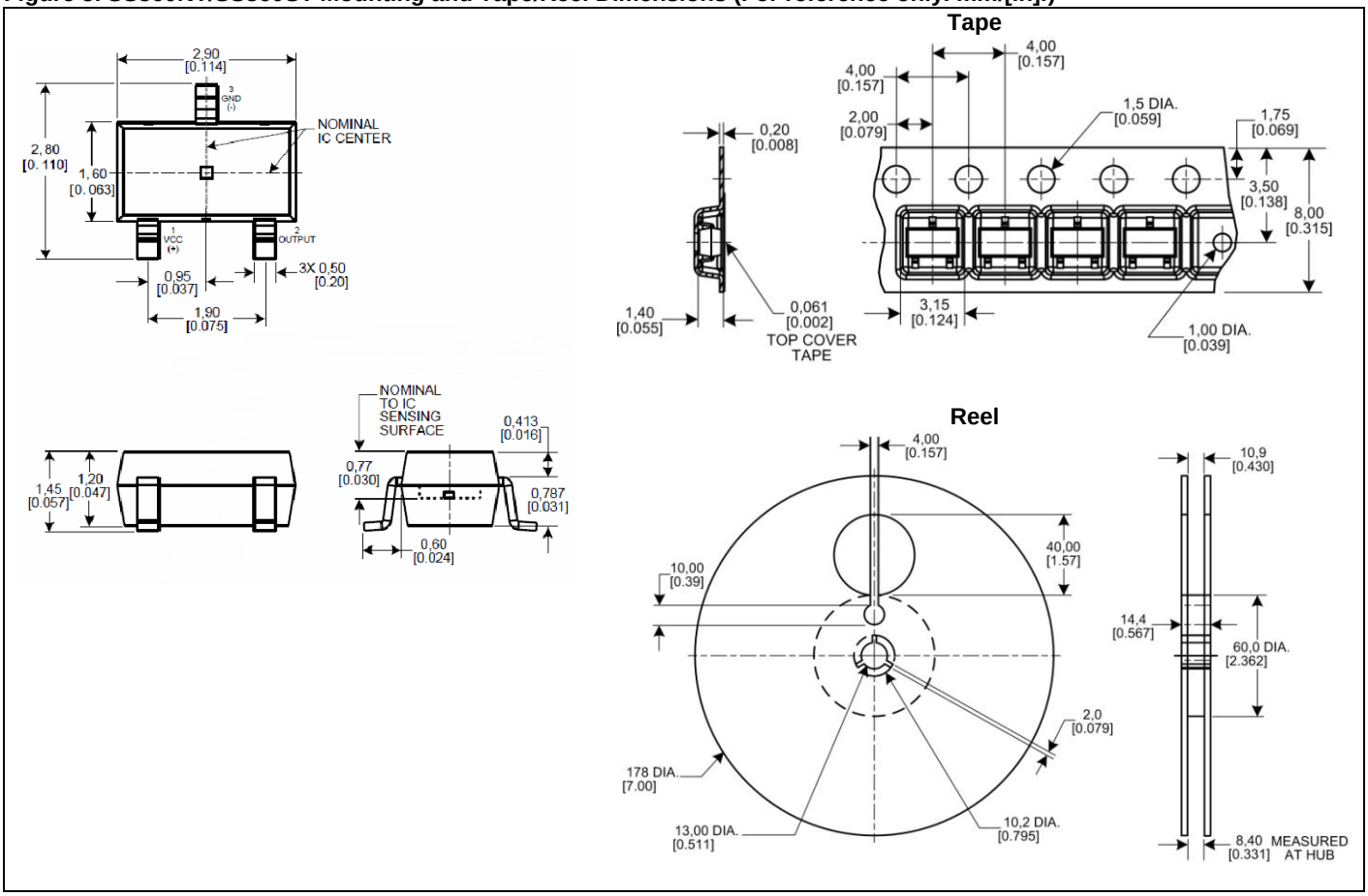
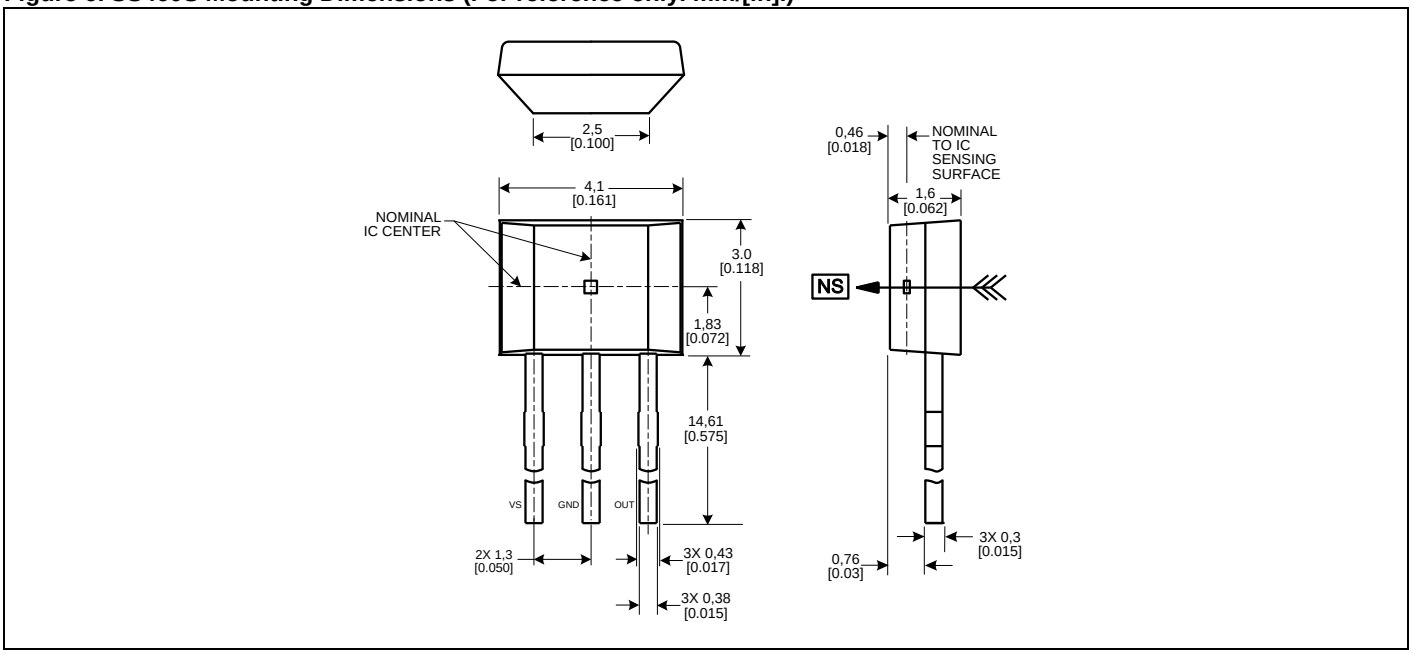



**Figure 6. SS460S Mounting Dimensions (For reference only. mm/[in].)**



# SS360NT/SS360ST/SS460S

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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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50074541-1-EN
June 2012