

## Installation Instructions for the SS340RT and SS440R Series Unipolar Hall-Effect Digital Position Sensors

ISSUE 1  
50045530

### 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 SS340RT.

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

**SS340RT Series:** Use an infrared reflow process with temperatures of 245 °C [473 °F] peak for 10 s max.

**SS440R Series:** 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         | -28.0 | –    | 28.0     | V     |
| Applied output voltage | -0.5  | –    | 28.0     | V     |
| Output current         | –     | –    | 20       | mA    |
| Magnetic flux          | –     | –    | no limit | gauss |

#### Note:

1. 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

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.

Figure 1. SS340RT Rated Supply Voltage

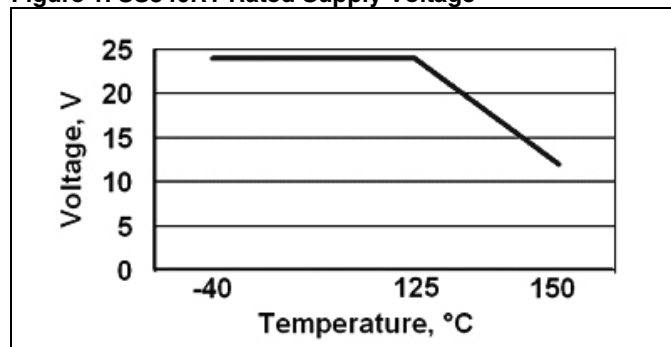
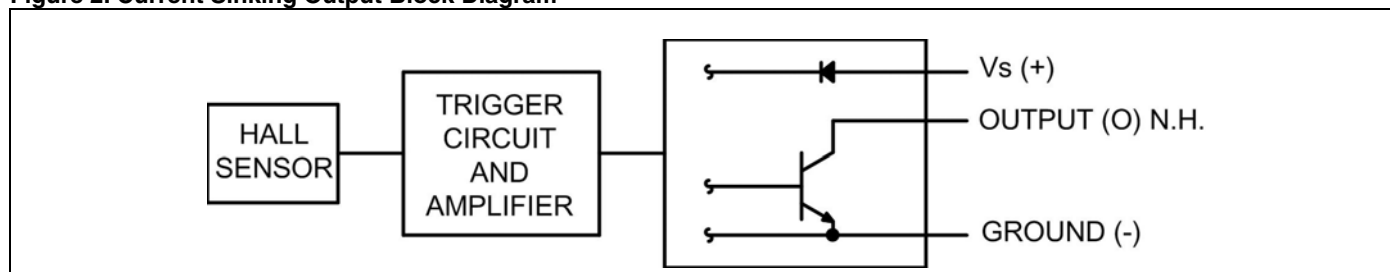


Figure 2. Current Sinking Output Block Diagram



**Table 1. SS340RT and SS440R Series Specifications (At Vs=3.0 to 24 Vdc, 20 mA load, TA = -40 °C to 150 °C [-40 °F to 257 °F])**

| Characteristic                                                      | Condition                                                        | Minimum         | Typical          | Maximum           | Unit    |
|---------------------------------------------------------------------|------------------------------------------------------------------|-----------------|------------------|-------------------|---------|
| Supply voltage: <sup>1</sup><br>SS440R Series                       | -40 °C to 150 °C [-40 °F to 302 °F]                              | 3               | –                | 24                | Vdc     |
| SS340RT Series                                                      | -40 °C to 125 °C [-40 °F to 257 °F]                              | 3               | –                | 24                |         |
| SS340RT Series                                                      | 150 °C [302 °F]                                                  | 3               | –                | 12                |         |
| Supply current                                                      | Vsupply = 5 V at 25 °C [77 °F]<br>Vsupply = 3 V at 25 °C [77 °F] | –               | 4<br>3.5         | 6<br>5            | mA      |
|                                                                     |                                                                  | –               | –                | 8                 |         |
| Vsat                                                                | at 20 mA, gauss >Bop                                             | –               | –                | 0.4               | Vdc     |
| Output leakage current                                              | gauss >Bop                                                       | –               | –                | 10                | µA      |
| Output switching time:<br>rise<br>fall                              | Vsupply = 12 V at 25 °C [77 °F],<br>RL = 1.6 kOhm, CL = 20 pF    | –               | –                | 1.5<br>1.5        | µs      |
|                                                                     |                                                                  | –               | –                | –                 |         |
| Thermal resistance:<br>SS440R Series<br>SS340RT Series              | –                                                                | –               | 233<br>303       | –                 | °C/W    |
|                                                                     |                                                                  |                 |                  |                   |         |
| Operate:<br>SS341RT/SS441R<br>SS343RT/SS443R<br>SS349RT/SS449R      | –                                                                | 35<br>45<br>240 | 85<br>125<br>350 | 135<br>205<br>460 | gauss   |
|                                                                     |                                                                  |                 |                  |                   |         |
|                                                                     |                                                                  |                 |                  |                   |         |
| Release:<br>SS341RT/SS441R<br>SS343RT/SS443R<br>SS349RT/SS449R      | –                                                                | 10<br>40<br>135 | 50<br>90<br>250  | 120<br>180<br>370 | gauss   |
|                                                                     |                                                                  |                 |                  |                   |         |
|                                                                     |                                                                  |                 |                  |                   |         |
| Differential:<br>SS341RT/SS441R<br>SS343RT/SS443R<br>SS349RT/SS449R | –                                                                | 5<br>5<br>30    | 35<br>35<br>100  | 80<br>120<br>170  | gauss   |
|                                                                     |                                                                  |                 |                  |                   |         |
|                                                                     |                                                                  |                 |                  |                   |         |
| Operating temperature                                               | –                                                                | -40 [-40]       | –                | 150 [302]         | °C [°F] |
| Storage temperature                                                 | –                                                                | -40 [-40]       | –                | 150 [302]         | °C [°F] |

**Note:**

1. See Figure 1.

**Figure 3. Wiring Diagrams**

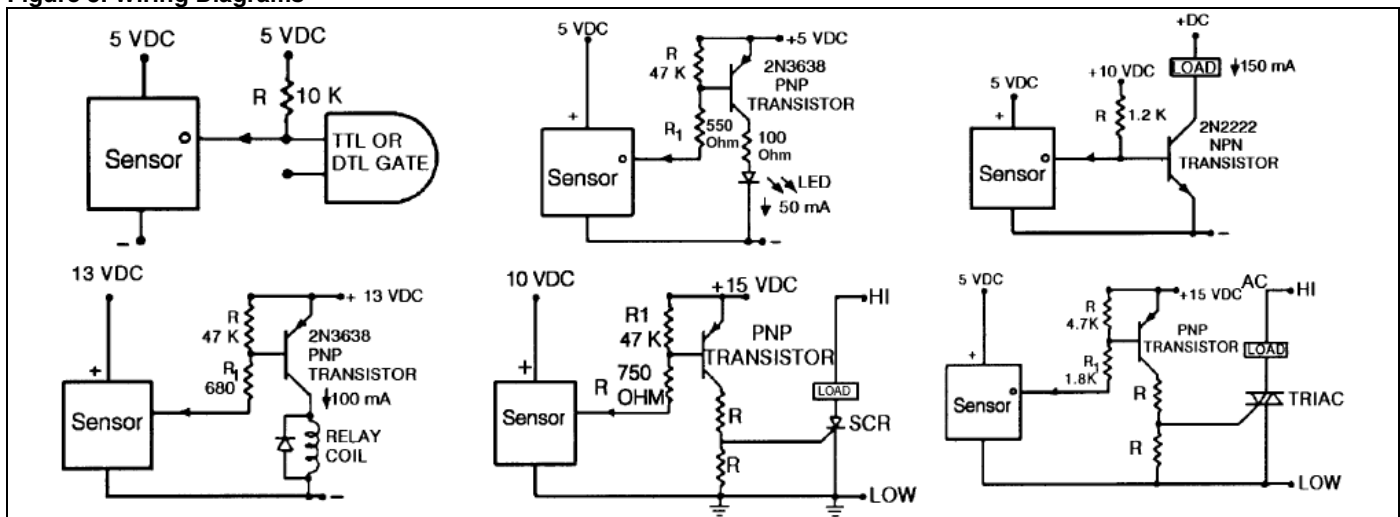


Figure 4. SS340RT Series Mounting/Tape and Reel Dimensions (For reference only. mm/[in])

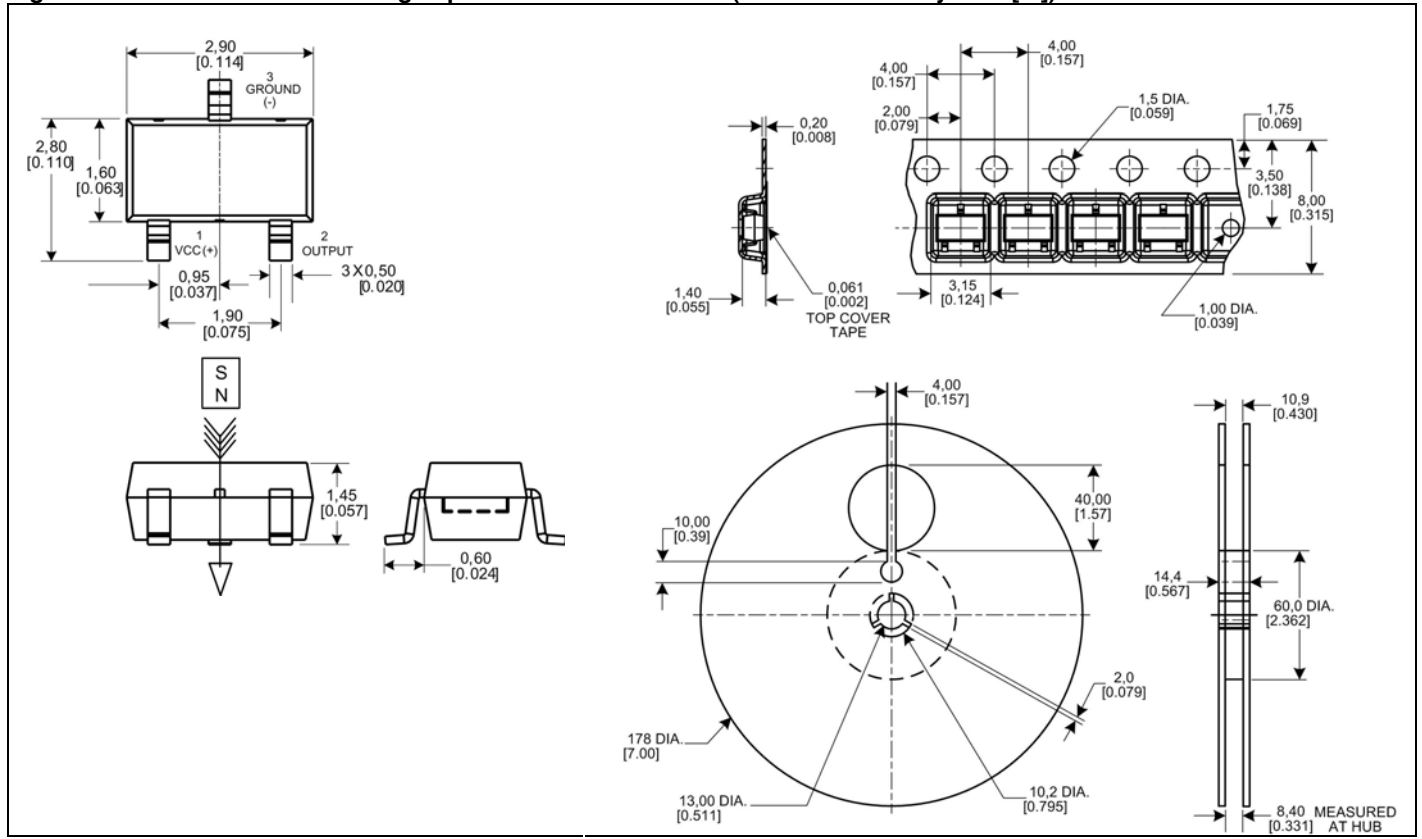
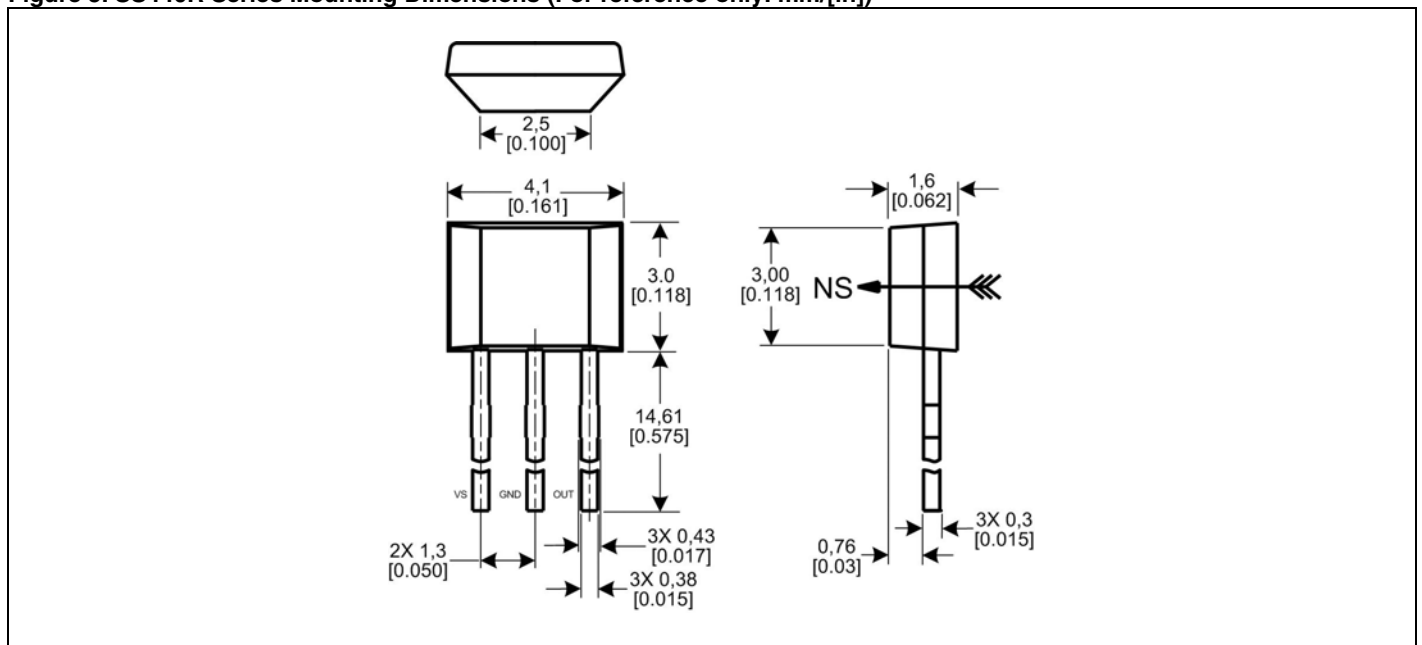


Figure 5. SS440R Series Mounting Dimensions (For reference only. mm/[in])



## **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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