

Installation Instructions for the SS340RT/SS440R Unipolar Digital Hall-Effect Sensor ICs

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 SS340RT.

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

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

SS440R: PC board wave soldering temperature is 250 °C to 260 °C [482 °F to 500 °F] peak for 3 s max.

Table 2. SS340RT/SS440R Absolute Maximum Ratings

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

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.

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.

Figure 1. SS340RT Maximum Rated Supply Voltage vs Temperature

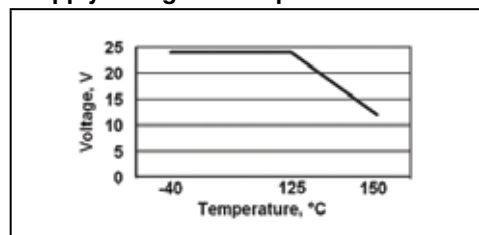


Figure 2. Current Sinking Output Block Diagram

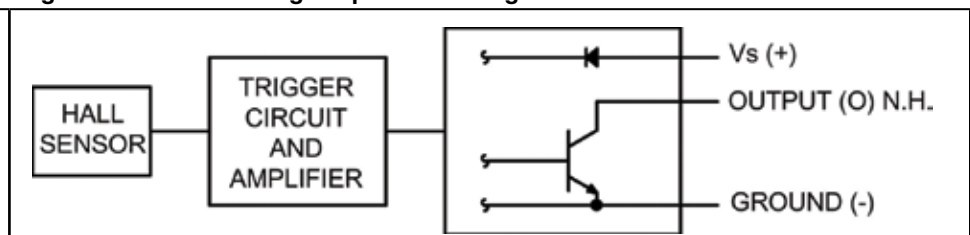


Table 1. SS340RT/SS440R Performance Specifications ($V_{supply} = 3\text{ Vdc to }24\text{ Vdc}$, 20 mA load , $T_A = -40\text{ }^\circ\text{C to }150\text{ }^\circ\text{C}$ [-40 °F to 302 °F] except where otherwise specified.)

Characteristic	Condition	Min.	Typ.	Max.	Unit
Supply voltage:					
SS340RT	150 °C [302 °F]	3	–	12	Vdc
SS340RT	-40 °C to 125 °C [-40 °F to 257 °F]	3	–	24	
SS440R	-40 °C to 150 °C [-40 °F to 302 °F]	3	–	24	
Supply current	$V_{supply} = 5\text{ V at }25\text{ }^\circ\text{C [77 }^\circ\text{F]}$	–	4	6	mA
	$V_{supply} = 3\text{ V at }25\text{ }^\circ\text{C [77 }^\circ\text{F]}$	–	3.5	5	
	–	–	–	8	
Vsat	20 mA, Gauss >Bop	–	–	0.4	Vdc
Output leakage current	Gauss >Bop	–	–	10	µA
Output switching time:					
rise	$V_{supply} = 12\text{ V at }25\text{ }^\circ\text{C [77 }^\circ\text{F]}$, $R_L = 1.6\text{ k}\Omega$, $C_L = 20\text{ pF}$	–	–	1.5	µs
fall		–	–	1.5	
Thermal resistance:					
SS340RT (SOT-23)	–	–	303	–	°C/W
SS440R (flat TO-92-style)	–	–	233	–	
Operate:					
SS341RT/SS441R	–	35	75	135	Gauss
SS343RT/SS443R	–	45	135	205	
SS349RT/SS449R	–	240	305	460	
Release:					
SS341RT/SS441R	–	10	35	120	Gauss
SS343RT/SS443R	–	40	85	180	
SS349RT/SS449R	–	135	225	370	
Differential:					
SS341RT/SS441R	–	5	40	80	Gauss
SS343RT/SS443R	–	5	50	120	
SS349RT/SS449R	–	30	80	170	
Operating temperature	–	-40 [-40]	–	150 [302]	°C [°F]
Storage temperature	–	-40 [-40]	–	150 [302]	°C [°F]

Figure 1. Typical Magnetic Characteristics

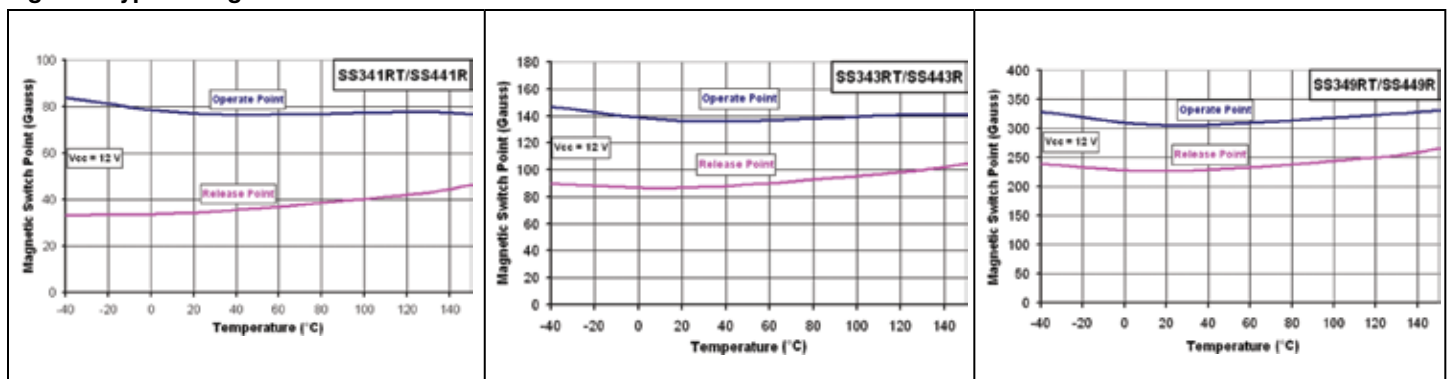


Figure 4. SS340RT Mounting and Tape/Reel Dimensions (For reference only. mm/[in.])

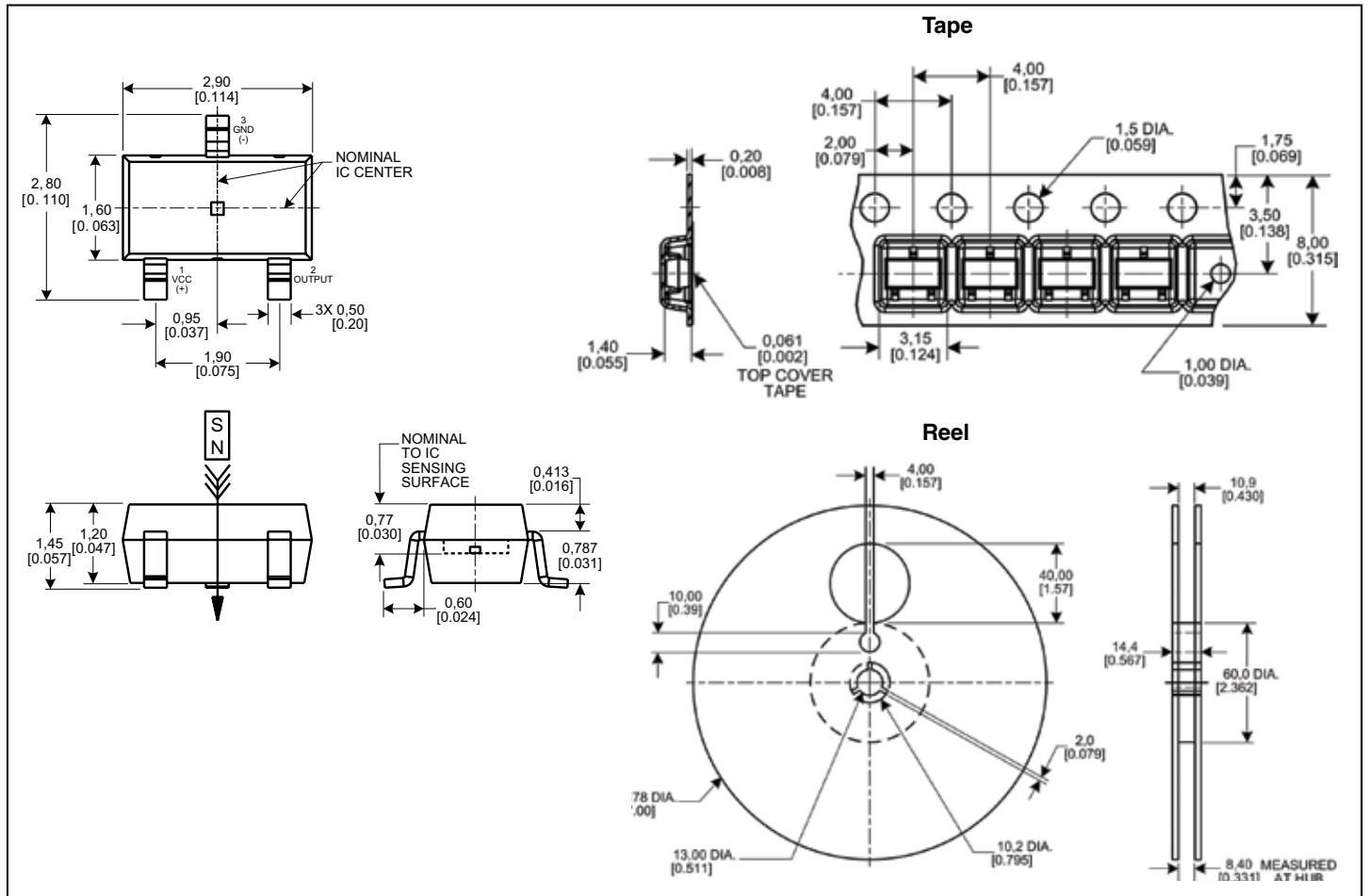


Figure 5. SS440R Mounting Dimensions (For reference only. mm/[in.])

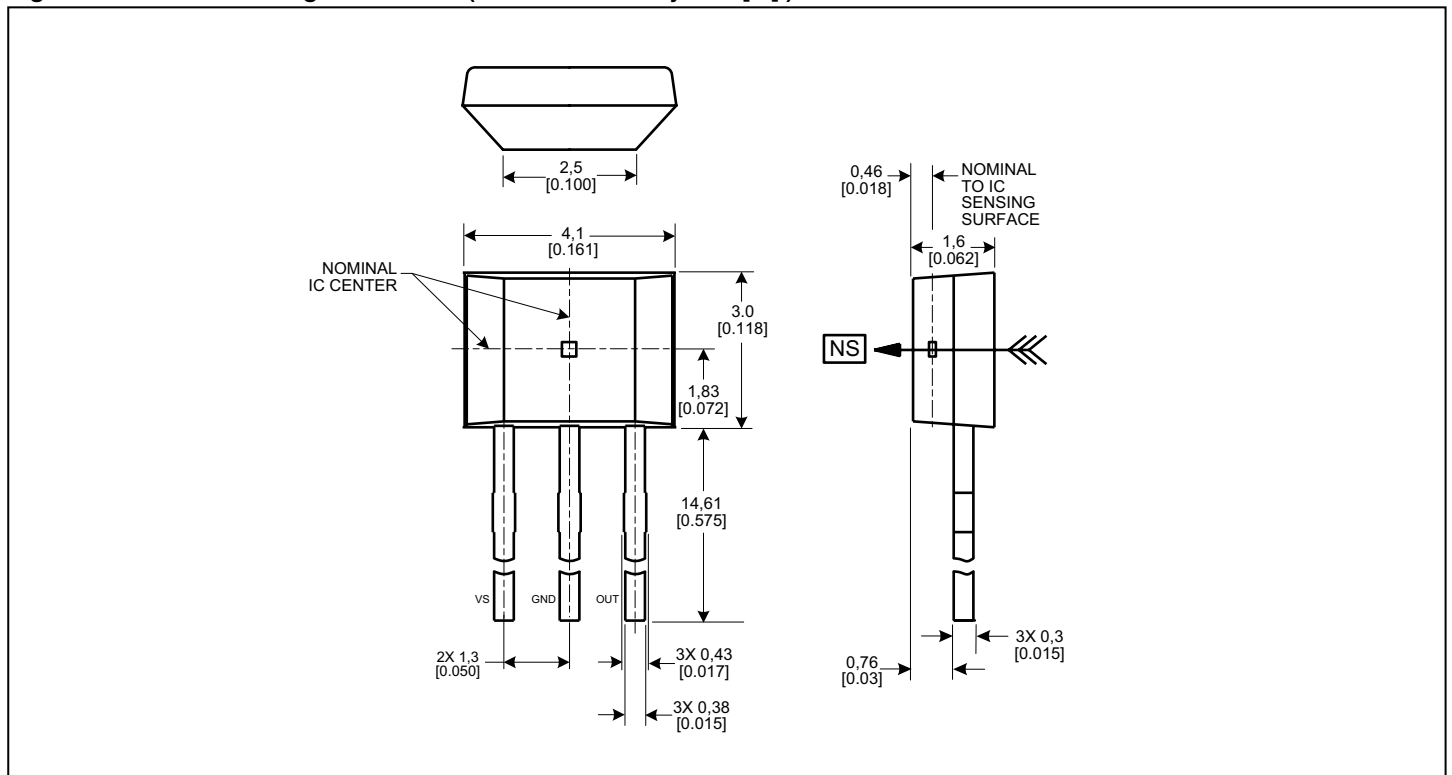
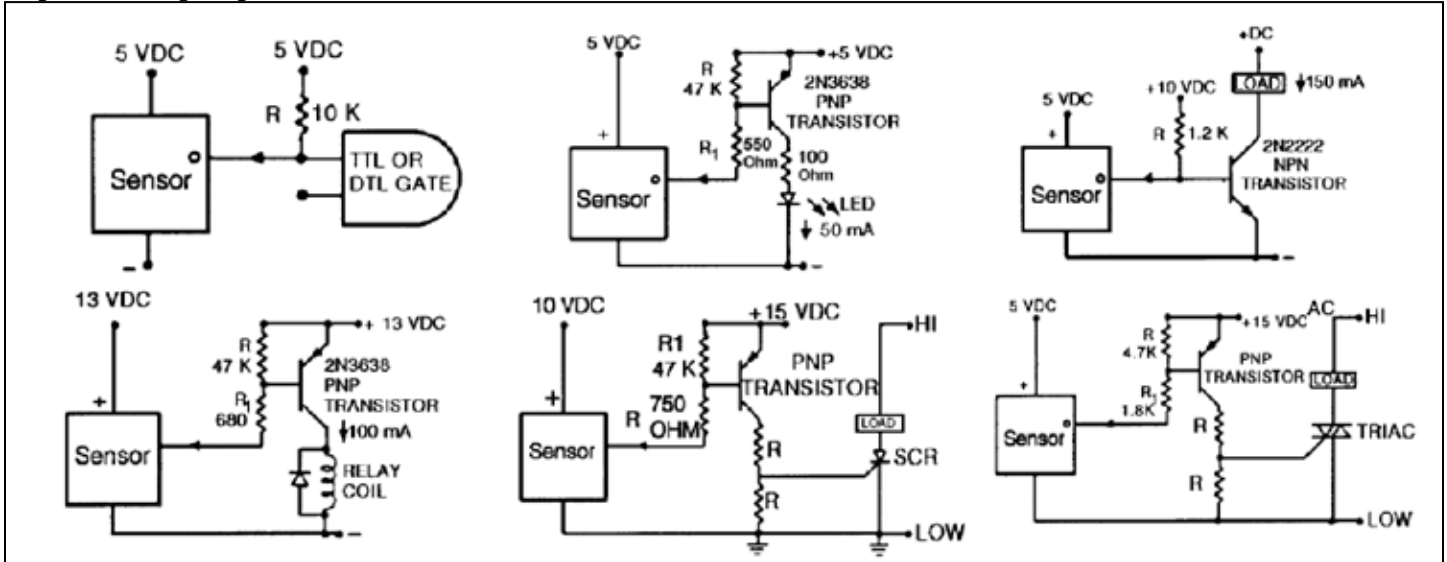


Figure 6. Wiring Diagrams



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

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