

## Installation Instructions for the SS500 Series Temperature Compensated Hall Effect Sensors

ISSUE 1  
50035318

### 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 will result in product damage.**

#### CAUTION

##### WAVE SOLDER DAMAGE

DO NOT wave solder this product. Wave soldering may negatively affect the sensor performance and reliability. Subjecting the sensor to wave soldering will void Honeywell's warranty.

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

Figure 1. Block Diagram

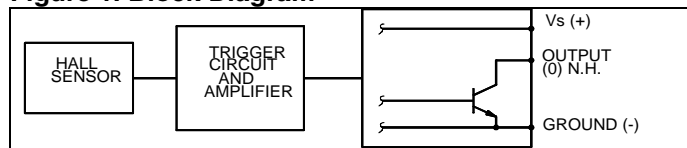


Table 2. Operating Characteristics (over operating voltage and temperature, unless otherwise noted)

Characteristic	Min.	Typ.	Max.	Note
Supply voltage	3.8	—	30	Vdc
Current consumption	—	—	10	mA
Output voltage (operated)	—	0.15	0.40	sinking 20 mA max.
Output current (operated)	—	—	20 mA	—
Output leakage current (released)	—	—	10 $\mu$ A	—
Output switching time	—	—	—	$V_{cc} = 12$ V,
rise, 10% to 90%	—	0.05 $\mu$ s	1.5 $\mu$ s	$R_L = 1.6$ k $\Omega$ ,
fall, 90% to 10%	—	0.15 $\mu$ s	1.5 $\mu$ s	$C_L = 20$ pF
Operating temperature range	-40 $^{\circ}$ C to 125 $^{\circ}$ C [-40 $^{\circ}$ F to 302 $^{\circ}$ F]			

**Note:** To prevent damage to the leads, SS500 Series is supplied **only** on tape and reel.

Table 1. Absolute Maximum Ratings\*

Supply voltage	-1 Vdc to +30 Vdc
Voltage externally applied to output	+30 Vdc max. (OFF only) -0.5 Vdc min. (OFF or ON)
Output ON current	see Table 3
Operating temperature	-50 $^{\circ}$ C to 160 $^{\circ}$ C [-67 $^{\circ}$ F to 320 $^{\circ}$ F]
Storage temperature	-65 $^{\circ}$ C to 160 $^{\circ}$ C [-85 $^{\circ}$ F to 320 $^{\circ}$ F]
Magnetic flux	no limit - circuit cannot be damaged by magnetic overdrive

\*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.

### SOLDERING INSTRUCTIONS

Honeywell recommends an infrared reflow process with peak temperatures not to exceed 245  $^{\circ}$ C [473  $^{\circ}$ F] for 10 seconds maximum.

Table 3. Output Current Absolute Limits

Supply Voltage	Output Current
-1 Vdc to 24 Vdc	50 mA max.
24 Vdc to 25 Vdc	37 mA max.
25 Vdc to 26 Vdc	33 mA max.
26 Vdc to 27 Vdc	28 mA max.
28 Vdc to 29 Vdc	19 mA max.
29 Vdc to 30 Vdc	15 mA max.

**Table 4. Magnetic Characteristics**

Magnetic Type		SS511GT	SS513GT	SS541GT	SS543GT	SS549GT	SS561GT	SS566GT
		Bipolar	Bipolar	Unipolar	Unipolar	Unipolar	Latching	Latching
-40 °C	max. op.	70 G	140 G	135 G	215 G	435 G	110 G	200 G
	min. rel.	-70 G	-140 G	20 G	80 G	210 G	-110 G	-200 G
	min. dif.	15 G	20 G	15 G	25 G	30 G	50 G	200 G
0 °C	max. op.	65 G	140 G	117 G	190 G	400 G	90 G	185 G
	min. rel.	-65 G	-140 G	20 G	80 G	230 G	-90 G	-185 G
	min. dif.	15 G	20 G	15 G	25 G	30 G	50 G	200 G
25 °C	max. op.	60 G	140 G	115 G	180 G	390 G	85 G	180 G
	min. rel.	-60 G	-140 G	20 G	75 G	235 G	-85 G	-180 G
	min. dif.	15 G	20 G	20 G	25 G	30 G	50 G	200 G
85 °C	max. op.	60 G	140 G	120 G	180 G	400 G	85 G	180 G
	min. rel.	-60 G	-140 G	15 G	70 G	215 G	-85 G	-180 G
	min. dif.	12 G	20 G	15 G	15 G	30 G	50 G	190 G
125 °C	max. op.	65 G	140 G	123 G	190 G	410 G	100 G	180 G
	min. rel.	-65 G	-140 G	15 G	60 G	200 G	-100 G	-180 G
	min. dif.	12 G	20 G	8 G	10 G	30 G	50 G	160 G
150 °C	max. op.	70 G	140 G	125 G	200 G	420 G	110 G	185 G
	min. rel.	-70 G	-140 G	10 G	55 G	185 G	-110 G	-185 G
	min. dif.	10 G	20 G	5 G	5 G	30 G	50 G	140 G

## 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 V.

**Figure 2. Interface Diagrams**

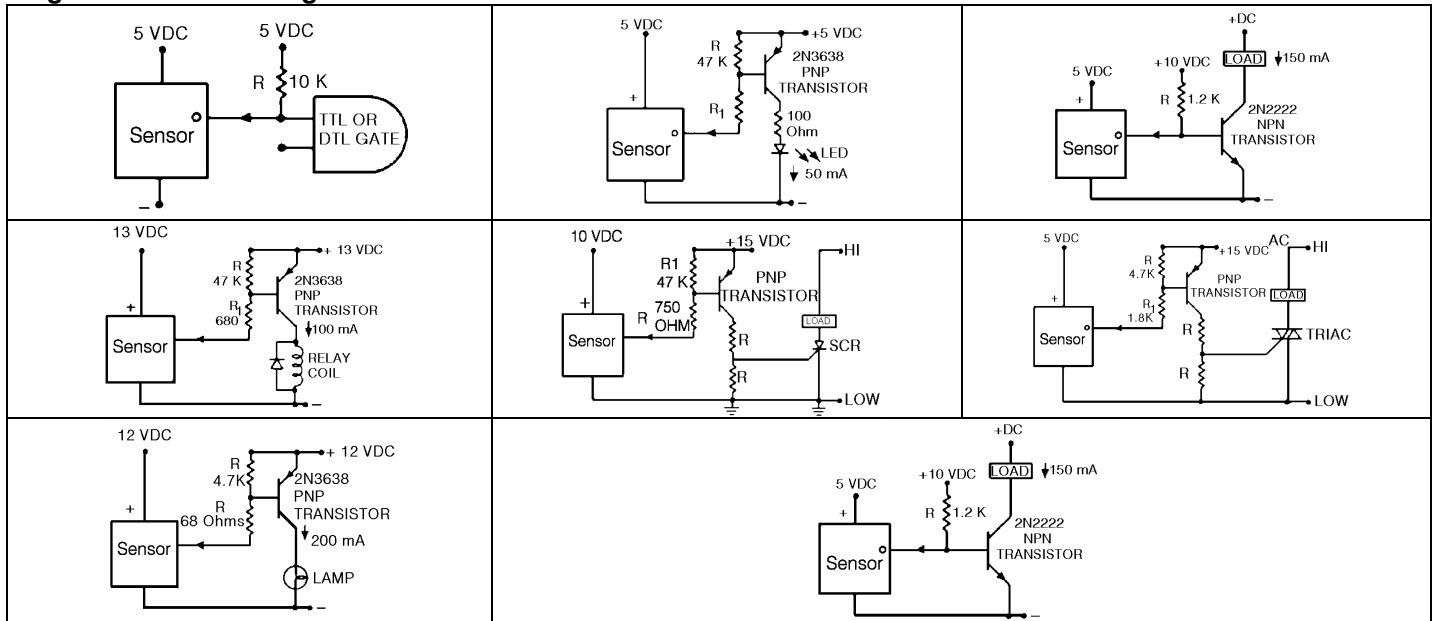


Figure 3. Mounting Dimensions (For reference only: mm/in)

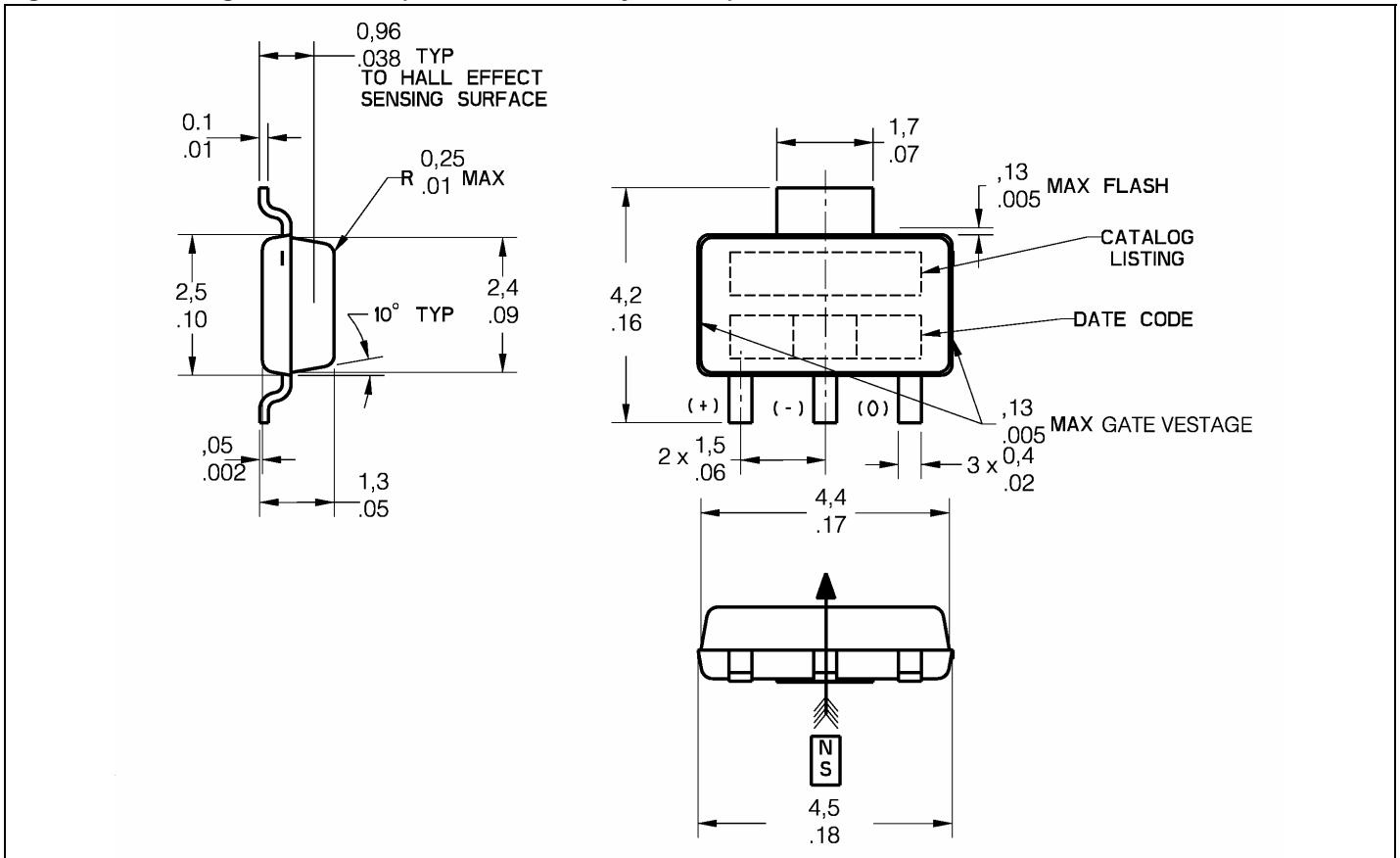
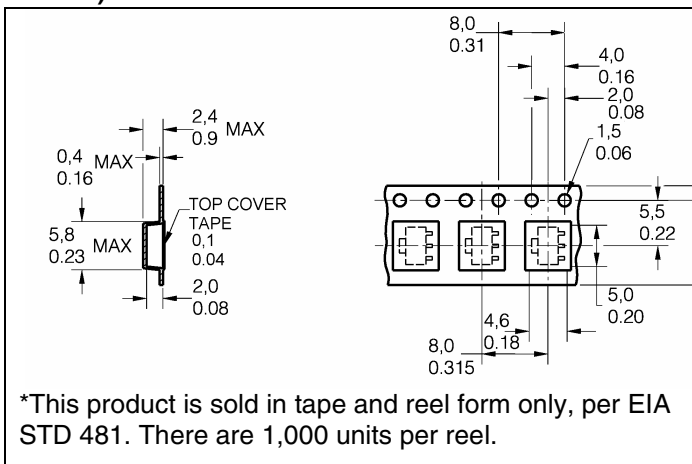
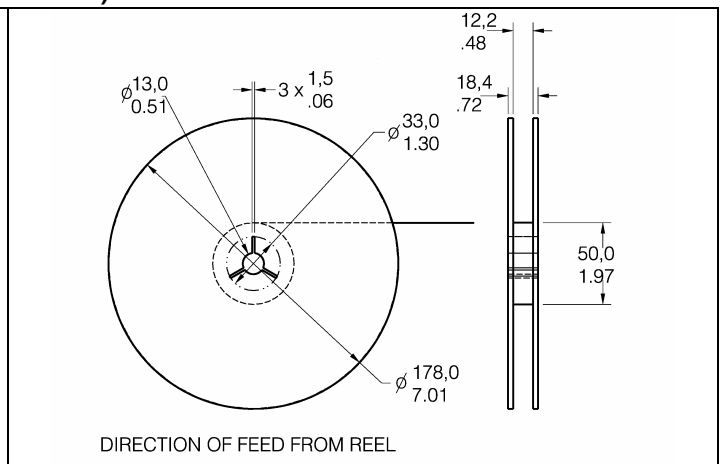


Figure 4. Tape Dimensions (For reference only: mm/in)\*



\*This product is sold in tape and reel form only, per EIA STD 481. There are 1,000 units per reel.

Figure 5. Reel Dimensions (For reference only: mm/in)



DIRECTION OF FEED FROM REEL

## **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**

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