

## Installation Instructions for the SS526DT Series Dual Hall-Effect Sensors with Speed and Direction Outputs

ISSUE 2

PK 80149

### **⚠ 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.**

### **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 may result in product damage.**

### **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 INSTRUCTIONS**

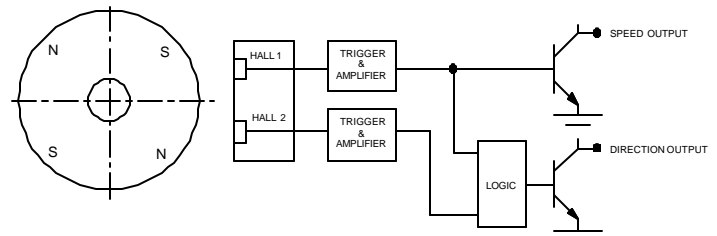
Honeywell recommends an infrared reflow process with peak temperatures not to exceed 245 °C [473 °F] for 10 s maximum.

### **ABSOLUTE MAXIMUM RATINGS\***

Supply Voltage	-0.5 Vdc to +30 Vdc
Voltage Externally Applied to Output	+30 Vdc max. (OFF only) -0.5 Vdc min. (OFF or ON)
Output ON Current	10 mA
Operating Temperature	-40 °C to +150 °C
Storage Temperature	-65 °C to +160 °C
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.

### **BLOCK DIAGRAM**



SENSOR FUNCTION DIAGRAM WITH CUSTOMER SUPPLIED RING MAGNET

**ELECTRICAL CHARACTERISTICS** (over Operating Voltage and Temperature, unless otherwise noted)

Characteristic	Symbol	Test Condition	
Supply Voltage	$V_{cc}$		3.4 Vdc min., 24 Vdc max.
Supply Current Off	$I_{off}$	$V_{cc} = 24 \text{ Vdc}, -40^\circ\text{C} < T < 125^\circ\text{C}, V_{out} = 24\text{Vdc}, B < \text{MIN REL}$	12 mA max.
Supply Current On	$I_{on}$	$V_{cc} = 24 \text{ Vdc}, -40^\circ\text{C} < T < 125^\circ\text{C}, I_{sink} = 5\text{mA}, B > \text{MAX OP}$	14 mA max.
Load Current	$I_{sink}$	$V_{cc} = 24 \text{ Vdc}, -40^\circ\text{C} < T < 125^\circ\text{C}, I_{sink} = 5 \text{ mA}, B > \text{MAX OP}$	5 mA max.
Output Saturation	$V_{sat}$	$V_{cc} = 24 \text{ Vdc}, -40^\circ\text{C} < T < 125^\circ\text{C}, I_{sink} = 5 \text{ mA}, B > \text{MAX OP}$	0.4 Vdc max.
Leakage Current	$I_{leak}$	$V_{cc} = 24 \text{ Vdc}, -40^\circ\text{C} < T < 125^\circ\text{C}, V_{out} = 24\text{Vdc}, B < \text{MIN REL}$	10 $\mu\text{A}$ max.
Circuit Speed to Direction Delay	$T_d$	$V_{cc} = 12 \text{ Vdc}, R_L = 1.6 \text{ k}\Omega, C_L = 20 \text{ pF}$	5 $\mu\text{s}$ max.
Rise Time	$T_r$	$V_{cc} = 12 \text{ Vdc}, R_L = 1.6 \text{ k}\Omega, C_L = 20 \text{ pF}$	1.5 $\mu\text{s}$ max.
Fall Time	$T_f$	$V_{cc} = 12 \text{ Vdc}, R_L = 1.6 \text{ k}\Omega, C_L = 20 \text{ pF}$	1.5 $\mu\text{s}$ max.
Frequency	$T_{op}$	$V_{cc} = 12 \text{ Vdc}, R_L = 1.6 \text{ k}\Omega, C_L = 20 \text{ pF}$	> 1000 Hz min.

**Note:** The listed ratings are for testing at 25 °C per IEC 801-2, level 1. When tested per MIL-Std.-883, method 3015.7 the sensor will meet class 3 (3 kV min.).

**Note:** To prevent damage to the leads, SS500 Series surface mounted sensors are supplied **only** on tape and reel.

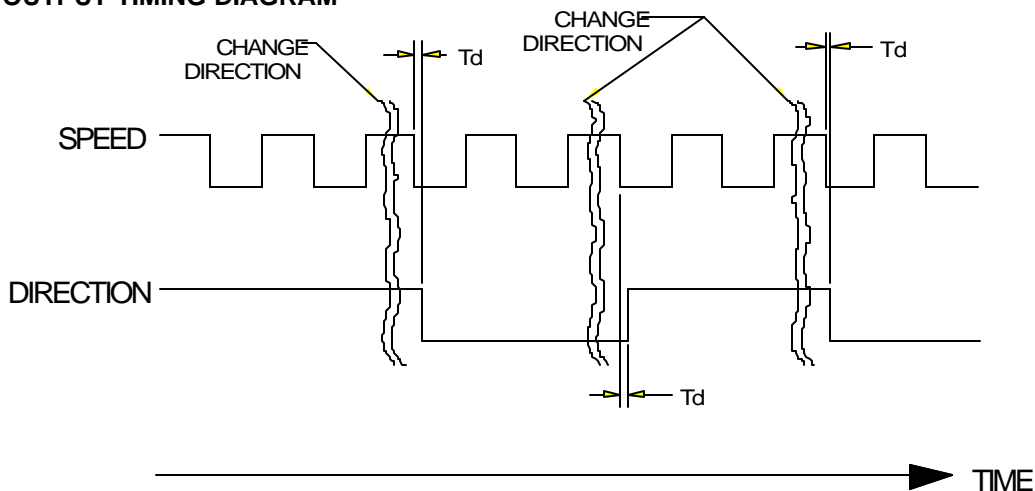
**MAGNETIC CHARACTERISTICS**

Characteristic	Magnetic Field @ -40 °C	Magnetic Field @ -40 °C to 125 °C	
	Typ.	Min.	Max.
Operate Point (Bop)	130 Gauss	60 Gauss	200 Gauss
Release Point (Brp)	-130 Gauss	-60 Gauss	-200 Gauss
Differential (Operate Point - Release Point)	260 Gauss	200 Gauss	320 Gauss
Symmetry $((\text{Operate Point} + \text{Release Point})/2)$	0	-65 Gauss	65 Gauss

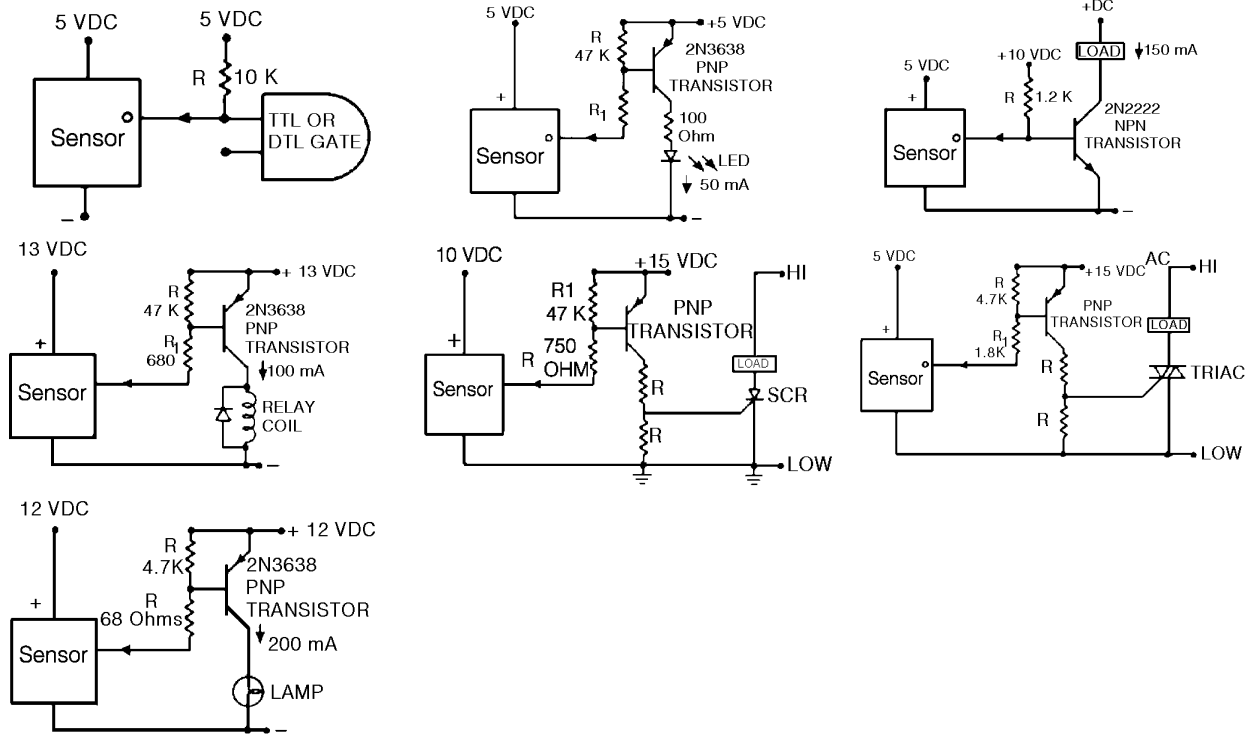
**NOTICE**

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 ( $B_{rp} < \text{applied magnetic field} < B_{op}$ ). Honeywell recommends allowing 10  $\mu\text{s}$  for output voltage to stabilize after supply voltage has reached 5 Vdc.

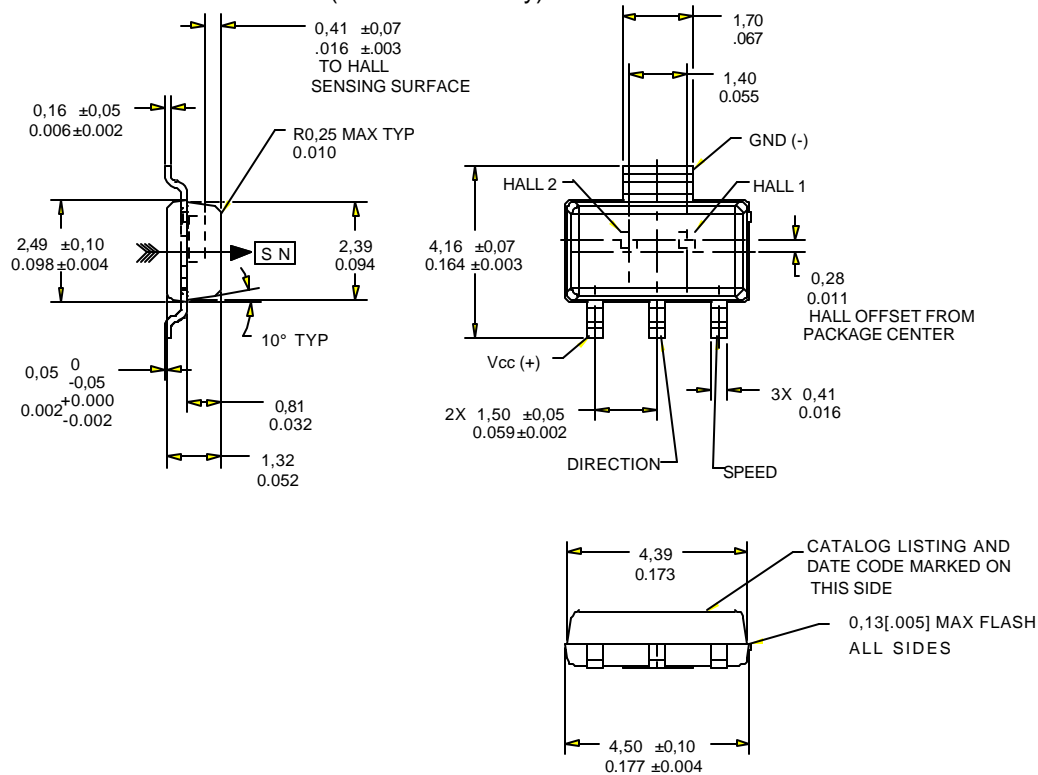
**OUTPUT TIMING DIAGRAM**



**INTERFACE DIAGRAMS**

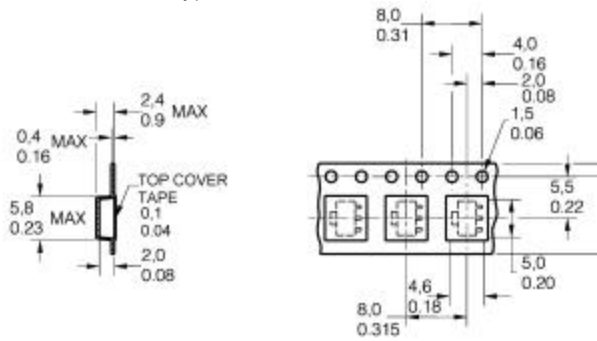


**MOUNTING DIMENSIONS** (for reference only) mm/in



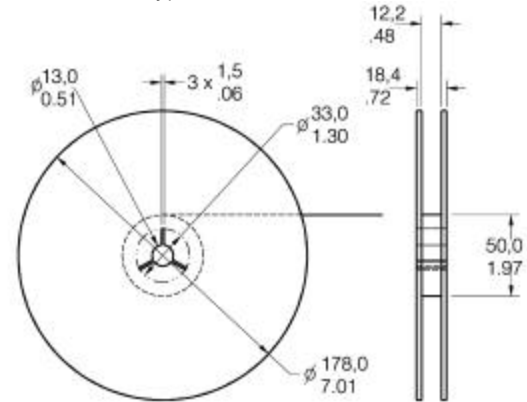
**TAPE DIMENSIONS**

(for reference only) mm/in



**REEL DIMENSIONS**

(for reference only) mm/in



DIRECTION OF FEED FROM REEL

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

**WARRANTY/REMEDY**

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is **in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

For application assistance, current specifications or name of the nearest Authorized Distributor, contact a nearby sales office. Or call:

- 1-800-537-6945 USA
- 1-800-737-3360 Canada
- 1-815-235-6847 International

**FAX**

1-815-235-6545 USA

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