

## Magneto-resistive Position Sensors

SS552MT Surface Mount Sensor

*SS552MT Series*

### FEATURES

- Low gauss operation can extend sensing distance to one inch or more, depending upon size
- Digital current sinking output
- Omnipolar – can be operated with either north or south magnetic pole
- 0 kHz to over 100 kHz operating speed
- Surface-mount package allows automated, lower cost assembly
- Small size

### TYPICAL APPLICATIONS

- Cylinder position sensing in pneumatic cylinders
- Elevator sensor
- Lid sensor for laptop computers
- Position sensor for material handling equipment
- Geartooth sensor for industrial or automotive applications



SS552MT is a digital position sensor in an SOT-89 style surface-mount package with omnipolar magnetic action. The sensor has magnetoresistive material integrated on silicon and encapsulated in a plastic package. The integrated circuit provides a digital output in response to very low magnetic fields. Though this signal is identical to our digital Hall effect sensors, it can be achieved by magneto-resistive sensors at much greater sensor-to-magnet distances.

Surface-mount packages are mounted directly on the electrical traces on the PC board and attached by an automatic solder reflow operation which requires no holes, so it reduces the cost of the PC board. These packages are supplied on tape and reel and can be automatically placed on PC boards by use of pick-and-place equipment.

SS552MT Series is operated by magnetic fields (North **or** South) **parallel** to the sensor package.

**NOTE:** Due to the inherent high sensitivity of these sensors, stray magnetic fields which are parallel to the IC may affect operation.

### **⚠ 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.**

### **⚠ WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

# Magnetoresistive Position Sensors

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**ELECTRICAL SPECIFICATIONS** over 3.8 Vdc to 30 Vdc and -40 °C to 150 °C [-40 °F to 302 °F] unless otherwise noted

|   | Min.    | Typ.   | Max.   | Remarks                        |
|---|---------|--------|--------|--------------------------------|
| Supply Current (without load) at 25°C, with 16 V supply | –       | 6 mA   | 11 mA  | Max. operated<br>Max. released |
| Supply Voltage  | 3.8 Vdc |        | 30 Vdc |                                |
| Output Voltage (operated)                               | –       | 0.25 V | 0.40 V | Sinking 20 mA max.             |
| Output Leakage Current (released)                       | –       |        | 10 µA  | Leakage into sensor output     |
| Output Switching Time                                   | Rise    | –      | 0.2 µs | 10% to 90%, 1600 Ω, 20 pF load |
|   | Fall    |        | 0.1 µs | 90% to 10%, 1600 Ω, 20 pF load |

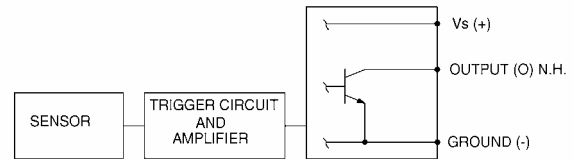
## MAGNETIC CHARACTERISTICS OVER 3.8 TO 30 VDC SUPPLY VOLTAGE

| Temperature Range           | Max. Operate | Min. Release | Max. Differential |
|-----------------------------|--------------|--------------|-------------------|
| -25 to 85°C [-13 to 185°F]  | 25 gauss     | 5 gauss      | 7 gauss           |
| -40 to 150°C [-40 to 302°F] | 25 gauss     | 4 gauss      | 8 gauss           |

## ABSOLUTE MAXIMUM RATINGS\*

|                                      |   |
|--------------------------------------|---|
| Supply Voltage (V <sub>s</sub> )     | -0.5 Vdc to 30 Vdc  |
| Voltage Externally Applied to Output | 30 Vdc max. (OFF cond. only)<br>-0.5 Vdc min. (OFF or ON cond.) |
| Output ON Current                    | 20 mA max.  |
| Temperature                          | -40 °C to 150 °C<br>[-40 °F to 302 °F]                          |
| Magnetic Flux                        | No limit—circuit cannot be damaged by magnetic overdrive        |

## BLOCK DIAGRAM CURRENT SINKING OUTPUT (NPN)



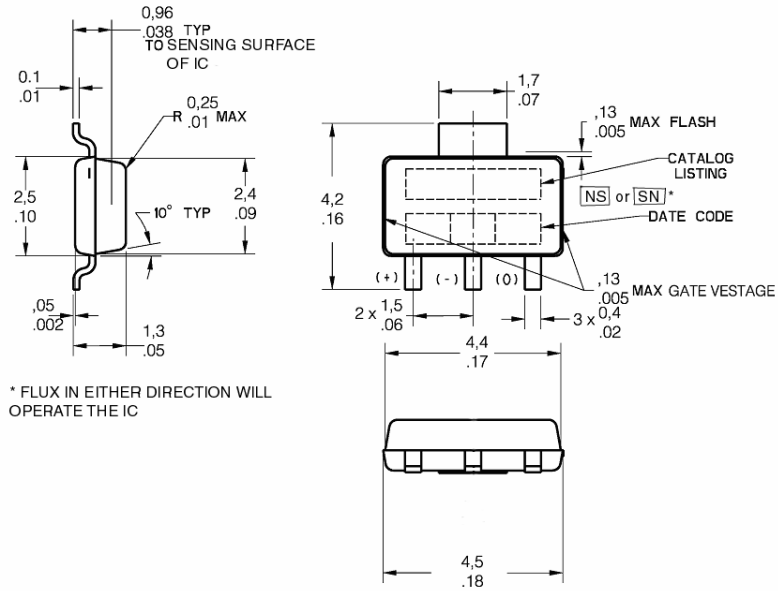
\*Absolute maximum ratings are the extreme limits the device will withstand without damage to the device. However, the electrical and mechanical characteristics are not guaranteed as the maximum limits (above recommended operating conditions) are approached, nor will the device necessarily operate at absolute maximum ratings.

# Magnetostrictive Position Sensors

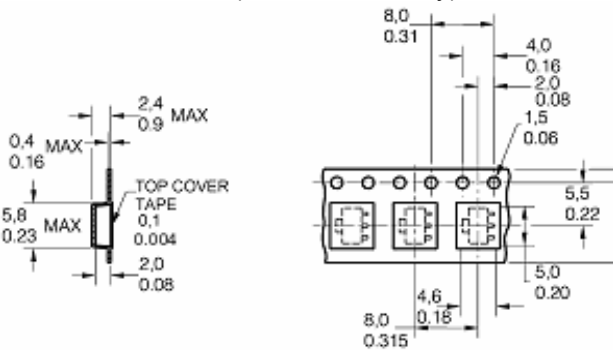
## SS552MT Surface Mount Sensor

## SS552MT Series

### MOUNTING DIMENSIONS

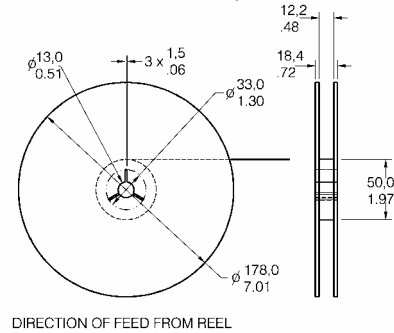


### TAPE DIMENSIONS (for reference only) mm/in



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

### REEL DIMENSIONS (for reference only) mm/in



# Magneto-resistive Position Sensors

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## ORDER GUIDE

| Part number | Description                            |
|-------------|--|
| SS552MT     | Magneto-resistive surface mount sensor |

### 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

#### INTERNET

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**Honeywell**

### Sensing and Control

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