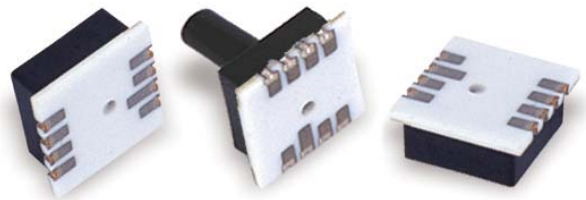


## SX SMT Series

### Microstructure Pressure Sensors

0 psi to 1 psi through  
0 psi to 150 psi



The SX SMT Series provides a most cost-effective method of measuring absolute and gage pressures in a fully packaged sensor. These sensors are designed primarily for use with clean, dry gases such as air and nitrogen.

This series features the standard SX chip in a ceramic, surface mount package. The standard version features a low profile plastic lid to better withstand high temperatures. The optional

ported device offers a tube attachment port that is particularly useful in gage applications.

The 4-pin closed bridge configuration allows electrical connection with additional pads provided for mechanical support. Pulsed power is recommended to achieve maximum accuracy and conserve battery power in portable applications.

#### FEATURES

- Low cost
- Small size
- Absolute or gage pressures
- High-impedance bridge
- Low power consumption

#### POTENTIAL APPLICATIONS

- Pneumatic controls
- Automotive diagnostics
- Medical equipment/ instrumentation
- Dental equipment
- Environmental controls
- Barometric pressure measurement
- Altimeters
- Pneumatic controls
- Battery powered equipment

# SX SMT Series

## SPECIFICATIONS<sup>(1)</sup>

| Characteristic                          | Maximum Rating                      |
|-----------------------------------------|-------------------------------------|
| Supply voltage                          | 12 Vdc                              |
| Operating temperature                   | -40 °C to 125 °C [-40 °F to 257 °F] |
| Storage temperature                     | -55 °C to 125 °C [-67 °F to 257 °F] |
| Lead temperature (soldering 2 s to 4 s) | 250 °C [482 °F]                     |

## STANDARD PRESSURE RANGES FOR SX SERIES<sup>(1)</sup>

| Operating Pressure | Maximum Pressure <sup>(2)</sup> | Sensitivity <sup>(3)</sup> |           | Unit     |
|--------------------|---------------------------------|----------------------------|-----------|----------|
|                    |                                 | Nominal                    | Std. Dev. |          |
| 0 psi to 1 psi     | 20 psi                          | 3.90                       | ±0.40     | mV/V/psi |
| 0 psi to 5 psi     | 20 psi                          | 2.70                       | ±0.38     | mV/V/psi |
| 0 psi to 15 psi    | 30 psi                          | 1.50                       | ±0.25     | mV/V/psi |
| 0 psi to 30 psi    | 60 psi                          | 0.66                       | ±0.06     | mV/V/psi |
| 0 psi to 100 psi   | 150 psi                         | 0.30                       | ±0.05     | mV/V/psi |
| 0 psi to 150 psi   | 200 psi                         | 0.14                       | ±0.02     | mV/V/psi |

## PERFORMANCE SPECIFICATIONS<sup>(1)</sup>

| Characteristic                                               | Min.  | Typ.  | Max.  | Unit    |
|--------------------------------------------------------------|-------|-------|-------|---------|
| Temperature coefficient of span <sup>(4,5)</sup>             | -2400 | -2150 | -1900 | ppm/°C  |
| Zero pressure offset TA                                      | -35.0 | -20.0 | 0     | mV      |
| Temperature coefficient of offset <sup>(6,5)</sup>           | –     | 4     | –     | µV/V/°C |
| Combined, linearity and hysteresis <sup>(7)</sup>            | –     | 0.2   | 0.5   | % FS    |
| Long term stability of offset and sensitivity <sup>(8)</sup> | –     | 0.1   | –     | mV      |
| Response time (10% to 90%) <sup>(9)</sup>                    | –     | 100   | –     | µs      |
| Input resistance TA = 25 °C [77 °F]                          | –     | 4.1   | –     | kΩ      |
| Temperature coefficient of resistance <sup>(4,5)</sup>       | –     | 750   | 810   | ppm/°C  |
| Output impedance                                             | –     | 4.1   | –     | kΩ      |
| Repeatability <sup>(10)</sup>                                | –     | 0.5   | –     | % FSS   |

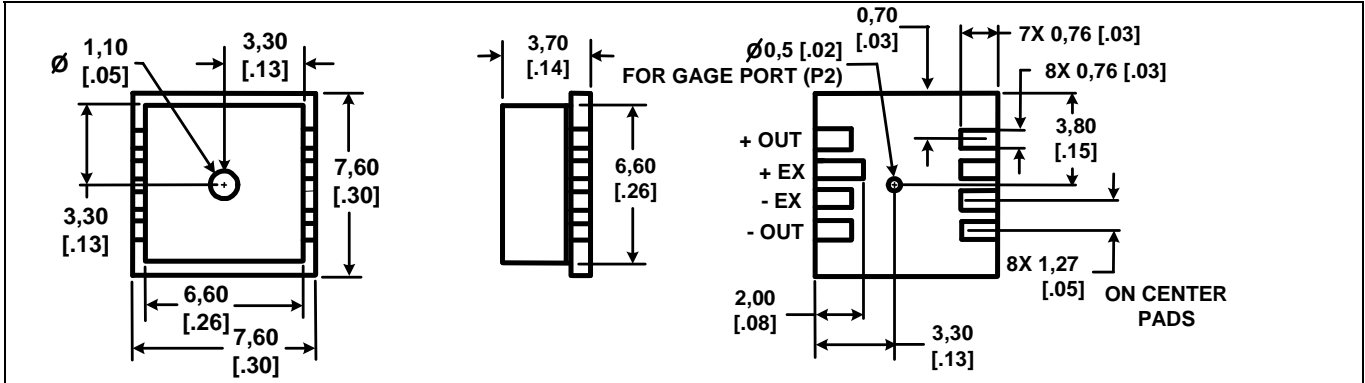
### Notes:

- Reference Conditions: Supply voltage, Vs = 5.0 Vdc, TA = 0 °C to 70 °C [32 °F to 158 °F], common-mode line pressure = 0 psig, pressure applied to P1 unless otherwise noted.
- If maximum pressure is exceeded, even momentarily, the package may leak or burst, or the pressure sensing die may fracture.
- Sensitivity is the ratio of the output signal voltage change to the corresponding input pressure change. The sensitivity is characterized by design and periodic production testing. This parameter is not 100 % tested in production.
- This is the best straight line fit for operation between 0 °C to 70 °C [32 °F to 158 °F]. For operation outside this temperature, contact Honeywell representative for more specific application information.
- This parameter is not 100 % tested. It is guaranteed by process design and tested on a sample basis only. Temperature coefficient of span for the 1.0 psi and 5.0 psi devices is -2550 ppm/°C to -2050 ppm/°C.
- Slope of the best straight line fit for operation between 0 °C to 70 °C [32 °F to 158 °F]. For operation outside this temperature, contact factory for more specific application information.
- Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
- Long-term stability over a one year period.
- Response time for 0 psi to full scale span pressure step change.
- Difference in output at any pressure with the operating pressure range and temperature within 0 °C to 70 °C [32 °F to 158 °F] after 100 temperature cycles 0 °C to 70 °C [32 °F to 158 °F], 1.0 million pressure cycles 0 psi to full-scale span.

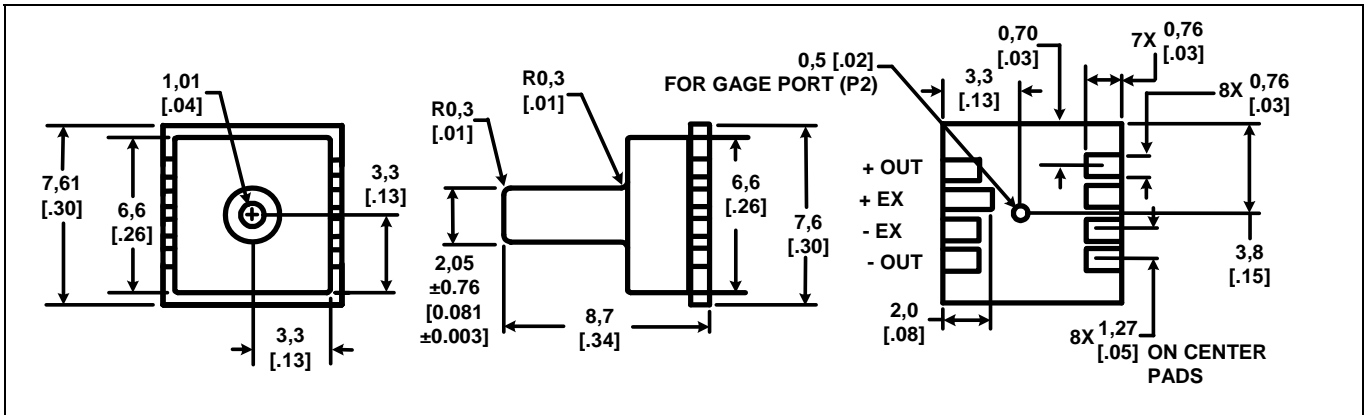
# Microstructure Pressure Sensors

## DIMENSIONAL DRAWINGS (For reference only. mm [in])

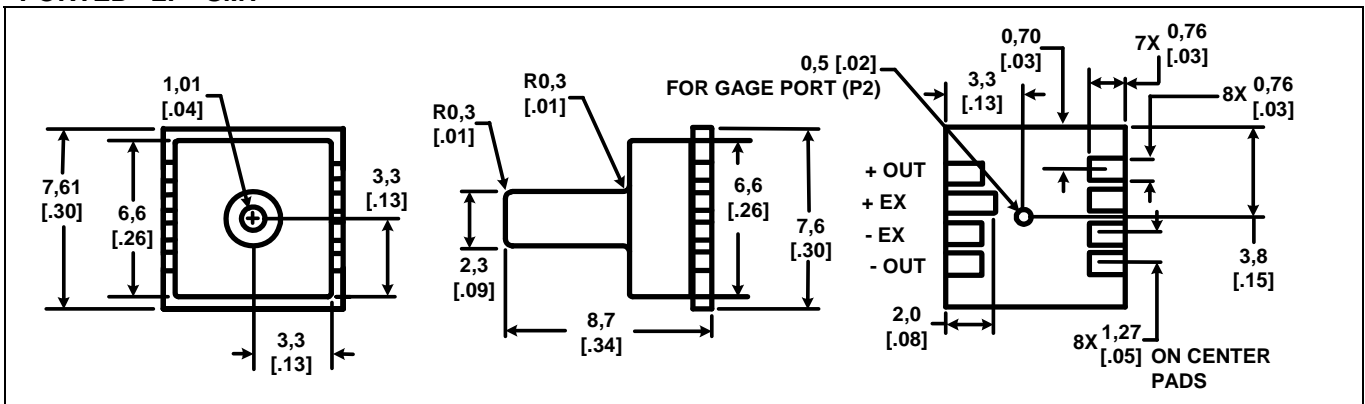
### LOW PROFILE SMT



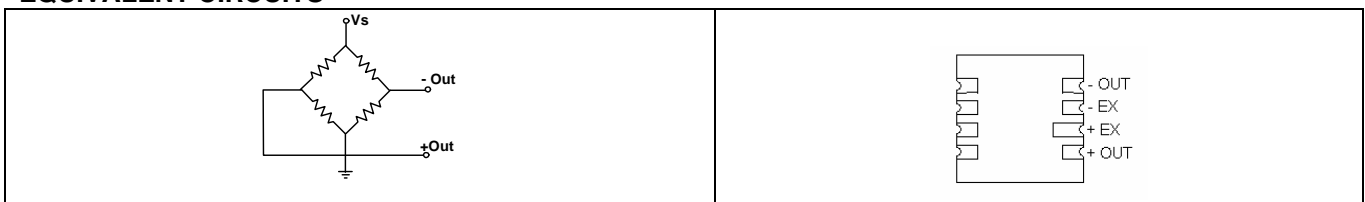
### PORTED "P" SMT



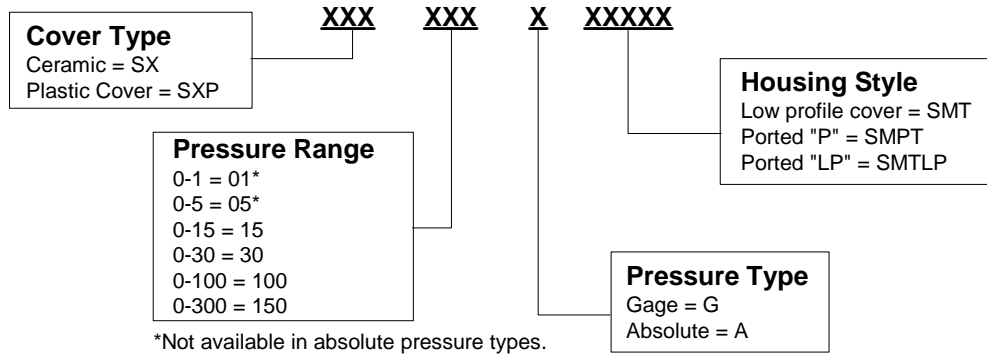
### PORTED "LP" SMT



### EQUIVALENT CIRCUITS



## SX SMT ORDER GUIDE



### ⚠ 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.**

### ⚠ 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

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, 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. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

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.

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.

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