

## Microstructure Pressure Sensors

0 psi to 1 psi through 0 psi to 150 psi

*SX SMT Series*

### FEATURES

- Low Cost
- Small Size
- Absolute or Gauge Pressures
- High-Impedance Bridge
- Low Power Consumption

### TYPICAL APPLICATIONS

- Pneumatic Controls
- Automotive Diagnostics
- Medical Equipment/Instrumentation
- Dental Equipment
- Environmental Controls
- Barometric Pressure Measurement
- Altimeters
- Pneumatic Controls
- Battery Powered Equipment



The SX Series surface mount sensors provide the most cost effective method of measuring absolute and gage pressures in a fully packaged sensor. The unique package design allows measurement of both gage and absolute pressure and a ported package option in a true surface mount sensor. Convenient pressure ranges are available to measure gage and absolute pressures for 0 psi to 1 psi to 0 psi to 150 psi.

The SX series of SMT sensors feature 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 SX SMT series sensors are designed primarily for use with clean dry gases such as air, nitrogen, and other like gasses. They offer a 4-pin closed bridge configuration for electrical connection with additional pads provided for mechanical support. Pulsed power is recommended to achieve maximum accuracy and conserve battery power in portable applications.



### 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.**

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

Characteristic	Maximum Ratings
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>

Part Number	Operating Pressure	Maximum Pressure <sup>(2)</sup>	Sensitivity <sup>(3)</sup>		Units
			Nominal	Std Dev.	
SX01GSMT(P)	0 psi to 1 psi	20 psi	3.90	±0.40	mV/mA/psi
SX05GSMT(P)	0 psi to 5 psi	20 psi	2.70	±0.38	mV/mA/psi
SX15(A,G)SMT(P)	0 psi to 15 psi	30 psi	1.50	±0.25	mV/mA/psi
SX30(A,G)SMT(P)	0 psi to 30 psi	60 psi	0.66	±0.06	
SX100(A,G)SMT	0 psi to 100 psi	150 psi	0.30	±0.05	mV/mA/psi
SX150(A,G)SMT	0 psi to 150 psi	200 psi	0.14	±0.02	mV/mA/psi

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

Characteristics	Min	Typ	Max	Units
Temperature Coefficient of Span <sup>(4,5)</sup>	-2400	-2150	-1900	ppm/°C
Zero Pressure Offset T <sub>A</sub>	-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 T <sub>A</sub> = 25 °C [77 °F]	–	4.1	–	kΩ
Temperature Coefficient of Resistance <sup>(4,5)</sup>	690	750	810	ppm/°C
Output Impedance	–	4.1	–	kΩ
Repeatability <sup>(10)</sup>	–	0.5	–	% FSS

## SPECIFICATION NOTES

- Note 1: Reference Conditions: Supply Voltage, V<sub>s</sub> = 5.0 Vdc, T<sub>A</sub> = 0 °C to 70 °C [32 °F to 158 °F], Common-mode Line Pressure = 0 psig, Pressure Applied to P1 unless otherwise noted.
- Note 2: If maximum pressure is exceeded, even momentarily, the package may leak or burst, or the pressure sensing die may fracture.
- Note 3: 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.
- Note 4: 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.
- Note 5: 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
- Note 6: 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.
- Note 7: Hysteresis – the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
- Note 8: Long term stability over a one year period.
- Note 9: Response time for 0 psi to full scale span pressure step change.
- Note 10: 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

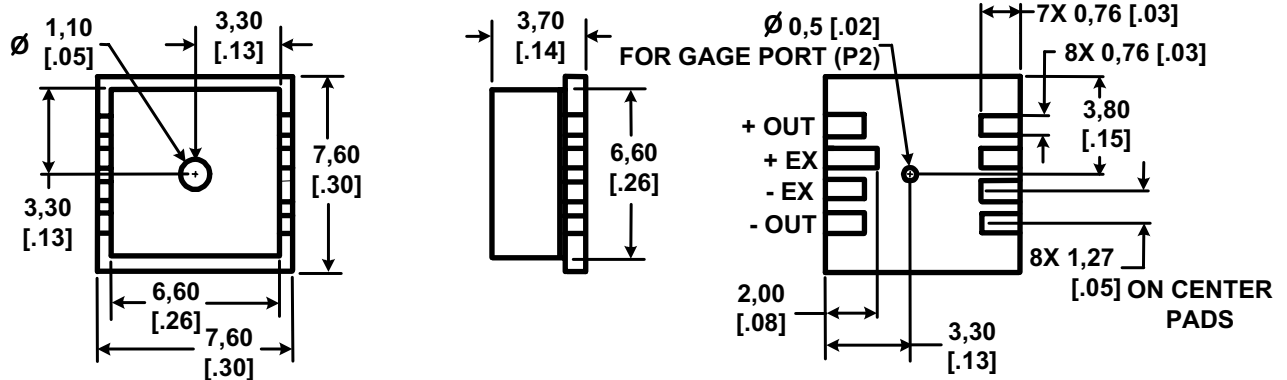
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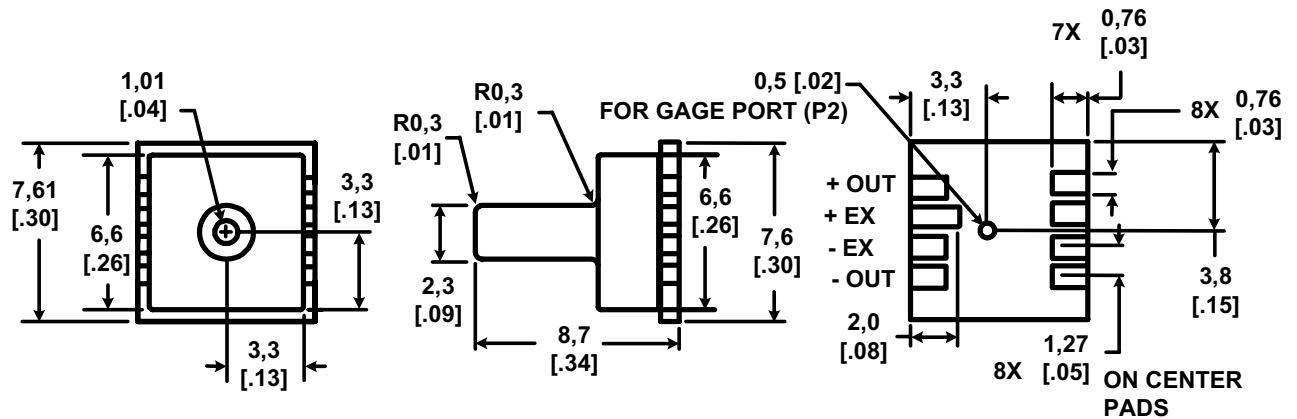
*SX SMT Series*

## DIMENSIONAL DRAWINGS – For Reference Only mm [in]

### LOW PROFILE SMT



### PORTED "P" SMT



## ORDERING INFORMATION

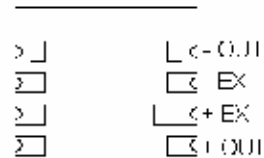
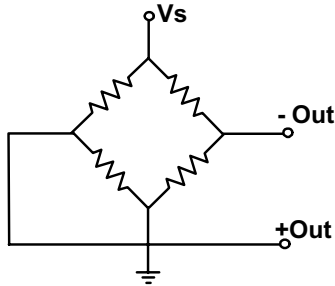
Pressure Range	Standard SMT Package		Ported SMT Package	
	Absolute	Gage	Absolute	Gage
0 psi to 1 psi	–	SX01GSMT	–	SX01GSMT P
0 psi to 5 psi	–	SX05GSMT	–	SX05GSMT P
0 psi to 15 psi	SX15ASMT	SX15GSMT	SX15ASMT P	SX15GSMT P
0 psi to 30 psi	SX30ASMT	SX30GSMT	SX30ASMT P	SX30GSMT P
0 psi to 100 psi	SX100ASMT	SX100GSMT	–	–
0 psi to 150 psi	SX150ASMT	SX150GSMT	–	–

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## EQUIVALENT CIRCUITS



## 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/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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