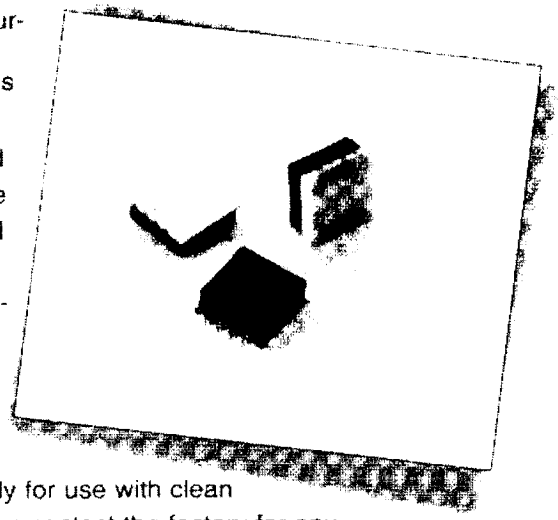
SX SMT SERIES

SENSYM SX SMT SERIES
0 to 15 psi and 0 to 150 psi
Surface Mount Packages

General Description

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



The SX series SMT product features the standard SX chip in a ceramic surface mount package. The standard version features a low profile ceramic lid to better withstand high temperatures while the ported device offers convenient tube attach particularly for gage applications. All SMT parts offer a 4-pin closed bridge configuration for electrical connection with additional pads provided for mechanical support.

The SX SMT series devices are designed primarily for use with clean dry gases such as air, nitrogen and the like. Please contact the factory for any additional media compatibility information. For further technical information, please contact your local SenSym representative or the SenSym factory.

Features

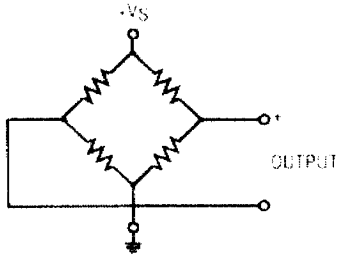
- ***Small Surface Mount Packages***
- ***Gage and Absolute Pressures***
- ***Low Profile and Ported Packages***
- ***Low Cost***

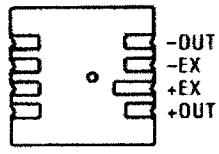
Applications

- ***Medical Instrumentation***
- ***Barometers/Altimeters***
- ***Industrial Controls***

Equivalent Circuit

Equivalent Circuit





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Characteristics (all devices)

Environmental Specifications

Temperature Ranges:

Operating	–40°C to 125°C
Storage	–55°C to +125°C

Maximum Ratings

Supply voltage: V_S = +12 V_{dc}

Lead Temperature

(Soldering 2-4 seconds) 250°C

Maximum Pressure [10]

SX01	20 psi
SX05	20 psi
SX15	30 psi
SX30	60 psi
SX100	150 psi
SX150	200 psi

Standard Pressure Ranges

Part Number	Operating Pressure	Sensitivity (2) Nominal	Std Dev.	Units
SX01GSMT(P)	1 psi	3.90	±0.40	mV/V/psi
SX05GSMT(P)	5 psi	2.70	±0.38	mV/V/psi
SX15(A,G)SMT(P)	15 psi	1.50	±0.25	mV/V/psi
SX30(A,G)SMT(P)	30 psi	0.66	±0.06	mV/V/psi
SX100(A,G)SMT	100 psi	0.30	±0.05	mV/V/psi
SX150(A,G)SMT	150 psi	0.14	±0.02	mV/V/psi

Performance Characteristic (For All Devices) [1]

Characteristic	Min	Typical	Max	Unit
Temperature Coefficient of Span [6, 9]	–2400	–2150	–1900	ppm/°C
Zero Pressure Offset T_A = 25°C [11]	–35	–20	0	mV
Temperature Coefficient of Offset [5, 9]	—	+4	—	µV/V/°C
Combined Linearity and Hysteresis [3]	—	0.2	0.5	%FS
Long Term Stability of Offset and Sensitivity [8]	—	0.1	—	mV
Response Time (10% to 90%) [7]	—	100	—	µs
Input Resistance T_A = 25°C	—	4.1	—	kΩ
Temperature Coefficient of Resistance [5, 9]	+690	+750	+810	ppm/°C
Output Impedance	—	4.1	—	kΩ
Repeatability [4]	—	0.5	—	%FS

See notes on following page

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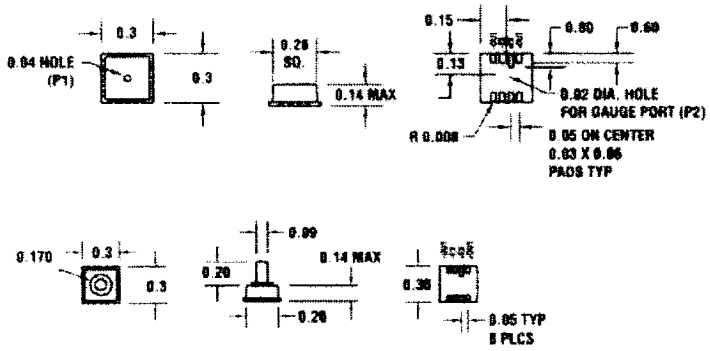
Physical Dimensions

Standard Low Profile SMT Package

Ported "P" SMT Package



Specification Notes:

Note 1: Reference Conditions: Supply Voltage, Vs = 5Vdc, T_A = 0°C to 70°C, Common-mode Line Pressure = 0 psig, Pressure Applied to P1' unless otherwise noted.

Note 2: 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 3: See Definition of Terms.
Hysteresis - the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.

Note 4: Difference in output at any pressure with the operating pressure range and temperature within 0 °C to +70°C after: 100 temperature cycles, 0°C to +70°C
1.0 million pressure cycles, 0 psi to full-scale span.

Note 5: Slope of the best straight line from 0°C to +70°C.

Note 6: This is the best straight line fit for operation between 0°C and 70°C. For operation outside this temperature, contact factory for more specific application information.

Note 7: Response time for a 0 psi to full-scale span pressure step change.

Note 8: Long term stability over a one year period.

Note 9: This parameter is not 100% tested. It is guaranteed by process design and tested on a sample basis only. Temp coefficient of span for the 1 and 5 psi devices is -2550ppm/C to -2050ppm/C.

Note 10: If the maximum pressure is exceeded, even momentarily, the package may leak or burst, or the pressure sensing die may fracture.

Ordering Information

Pressure Range	Standard SMT Package Absolute	Gage	Ported SMT Package Absolute	Gage
0 - 1 psi	—	SX01GSMT	—	SX01GSMTP
0 - 5 psi	—	SX01GSMT	—	SX05GSMTP
0 - 15 psi	SX15ASMT	SX15GSMT	SX15ASMTP	SX15GSMTP
0 - 30 psi	SX30ASMT	SX30GSMT	SX30ASMTP	SX30GSMTP
0 - 100 psi	SX100ASMT	SX100GSMT	—	—
0 - 150 psi	SX150ASMT	SX150GSMT	—	—

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