FEATURES

- **0...5 to 0...100 psi**
- **Low cost sensor element**
- **Internal temperature compensation**
- **Differential, gage and absolute**

APPLICATIONS

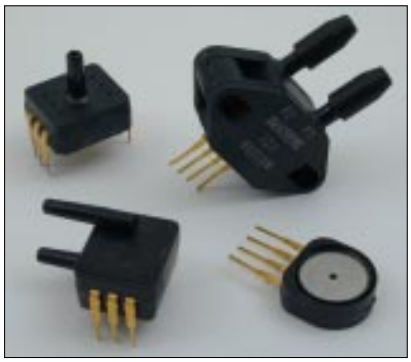
- **Pneumatic controls**
- **Automotive diagnostics**
- **Medical equipment**
- **Dental equipment**
- **Environmental controls**

GENERAL DESCRIPTION

The SCC series offer an extremely low cost sensor element with a temperature stable output when driven with a constant current source. These integrated circuit sensors were designed for extremely cost sensitive applications where precise accuracy over a wide temperature range is not required. This series is intended for use with non-corrosive, non-ionic working fluids such as air and dry gases.

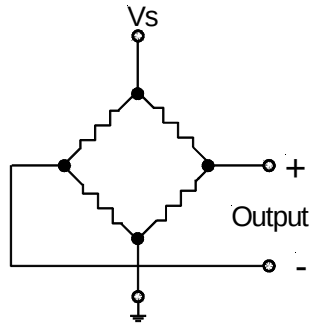
Absolute devices have an internal vacuum reference and an output voltage proportional to applied pressure. The differential devices allow application of pressure to either side of the diaphragm and the devices are thereby available to measure both differential and/or gage pressures.

This product is packaged either in SenSym's standard low cost chip carrier "button" package, a plastic ported "N" package or a dual inline package (DIP). All packages are designed for applications where the sensing element is to be integral to the OEM equipment. These packages can be o-ring sealed, epoxied, and/or clamped onto a pressure fitting. A closed bridge 4-pin SIP configuration is provided for electrical connection to the button package. The DIP package offer a 5-pin open bridge configuration.

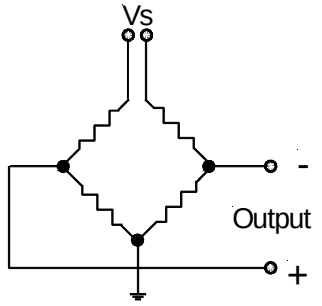


Scale: 1 cm
½ inch

EQUIVALENT CIRCUIT

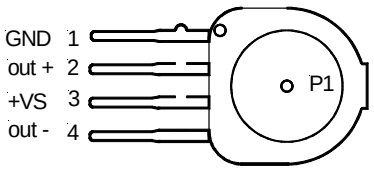


Button Sensor or "N" Package

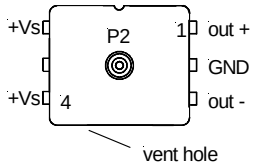


DIP Package

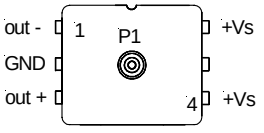
ELECTRICAL CONNECTION



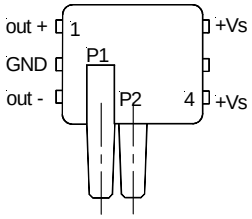
SCC..
button sensor



SCCxxxGD2
DIP



SCCxxxAD2
DIP



SCCxxxD4
DIP

The polarity indicated is for pressure applied to

SCC.../SCC...N	:	P1 (forward gage)
SCC...GD2	:	P2 (backward gage)
SCC...ASO/GSO	:	P1 (forward gage)
SCC...AD2	:	P1 (forward gage)
SCC...DD4	:	P2 (backward gage)

PRESSURE SENSOR CHARACTERISTICS

Maximum ratings (for all devices)

Supply current, I_S	1.5 mA	Humidity	0 to 100 %RH
Temperature ranges		Lead temperature (soldering 4 sec.)	250°C
Compensated	0 to +50°C		
Operating	-40 to +85°C	Common-mode pressure	150 psi
Storage	-55 to +125°C		

PERFORMANCE CHARACTERISTICS (individual models) I_S = 1.0 mA, T_A = 25°C[1]

Part number	Operating pressure range	Proof pressure[9]	Accuracy[2]	Effect on span[3] (0 - 50°C)	Effect on offset[4] (0 - 50°C)	Full-scale span[1,5] (mV)
SCC05(D,G)	0 - 5 psid(g)	20 psi	0.50 %	1.50 %	2.00 %	25 - 65
SCC15A	0 - 15 psia	30 psia	0.50 %	1.50 %	2.00 %	30 - 95
SCC15(D,G)	0 - 15 psid(g)	30 psi	0.50 %	1.50 %	2.00 %	40 - 95
SCC30A	0 - 30 psia	60 psia	0.50 %	1.50 %	2.00 %	60 - 150
SCC30(D,G)	0 - 30 psid(g)	60 psi	0.50 %	1.50 %	2.00 %	60 - 150
SCC100A	0 - 100 psia	150 psia	0.50 %	1.50 %	2.00 %	85 - 225
SCC100(D,G)	0 - 100 psid(g)	150 psi	0.50 %	1.50 %	2.00 %	85 - 225

PERFORMANCE CHARACTERISTICS (all models) I_S = 1.0 mA, T_A = 25°C

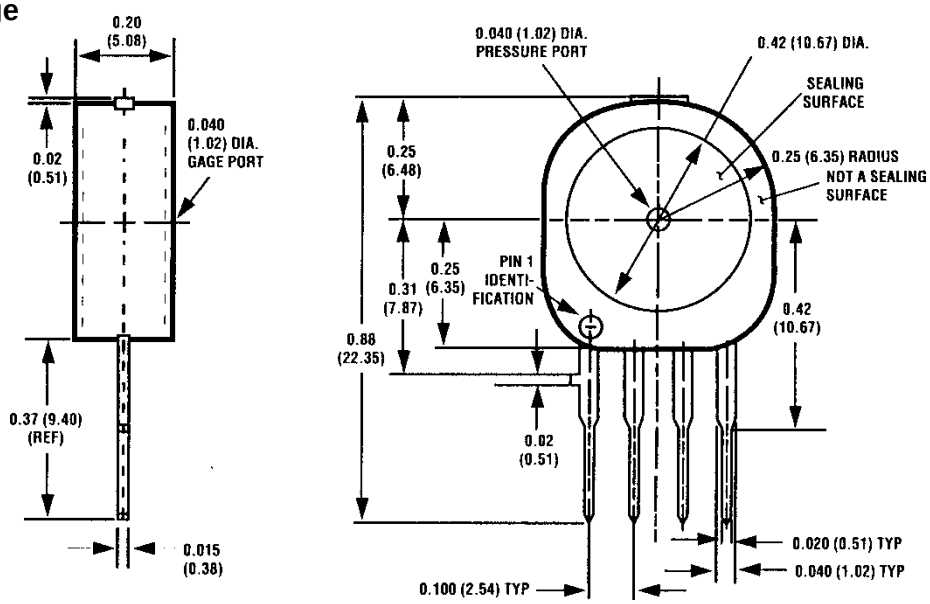
Characteristics	Min.	Typ.	Max.	Unit
Zero pressure offset	-30.0	-10	20.0	mV
Combined linearity, hysteresis, repeatability[2]	---	0.25	0.50	%FSO
Temperature effect on span[3,8]	---	0.25	1.50	%FSO
Temperature effect on offset[4,8]	---	0.50	2.00	%FSO
Long term stability of offset and span[6]	---	0.10	---	mV
Response time (10 to 90 %)[7]	---	0.10	---	ms
Input impedance	4.00	5.00	6.50	kΩ
Output impedance	4.00	5.00	6.50	kΩ

Specification notes:

1. Reference conditions: supply current = 1.0 mA, T_A=25°C, common-mode line pressure = 0 psig, pressure applied to P1, unless otherwise noted.
2. Accuracy is the sum of hysteresis and linearity. Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure. Linearity refers to the best straight line fit as measured for the offset, full-scale and 1/2 full-scale pressure at 25°C.
3. This is the maximum temperature shift for span when measured between 0 and 50°C relative to the 25°C reading. Typical temperature coefficients for span and resistance are -2200 and +2200 ppm/°C respectively.
4. This is the maximum temperature shift for offset when measured between 0 and 50°C relative to the 25°C reading.
5. Span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure.
6. Maximum difference in output at any pressure with the operating pressure range and temperature within 0 to 50°C after:
   a) 100 temperature cycles, 0 to 50°C.
   b) 1.0 million pressure cycles, 0 psi to full-scale span.
7. Response time for a 0 psi to full-scale span pressure step change. 10 to 90 % rise time.
8. Temp. effect on span and offset are guaranteed by design. Therefore these parameters are not 100 % tested.
9. If the proof pressure is exceeded, even momentarily, the package may leak or burst, or the pressure sensing die may fracture. Note: The proof pressure for the forward gage of all devices in the D4-package is the specified value or 100 psi whatever is less. The SCC100D (button package) can be used in forward gage mode only when the pressure doesn't exceed 30 psi, or no special care ist taken.

PHYSICAL DIMENSIONS

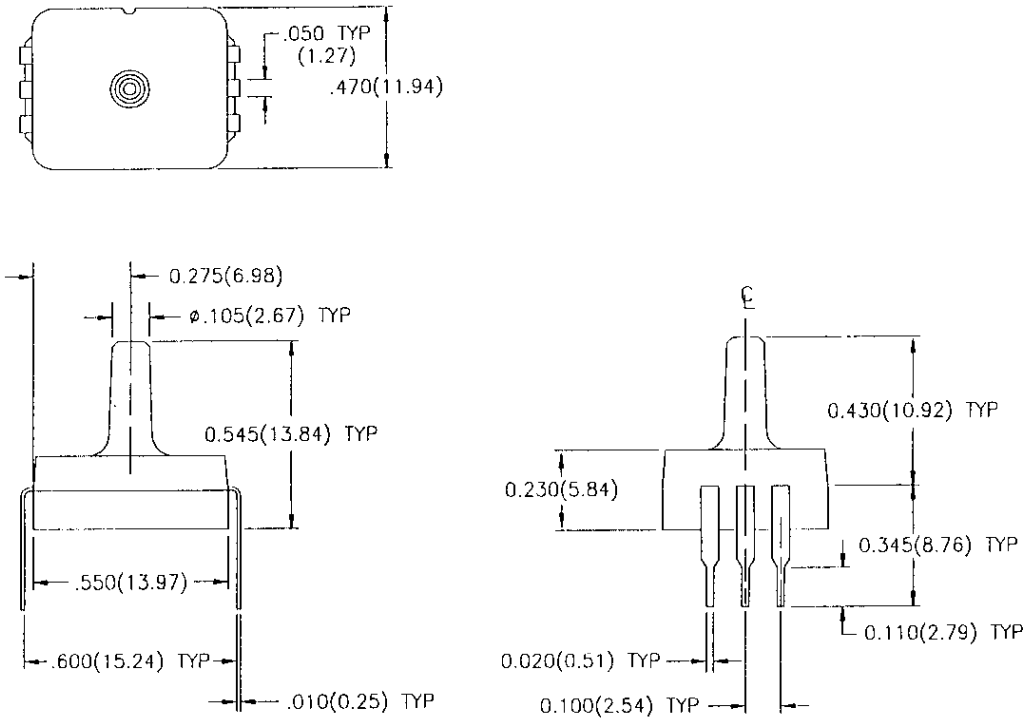
Button package



mass: 1 g

dimensions in inches (mm)

Basic sensor DIP "D2" package

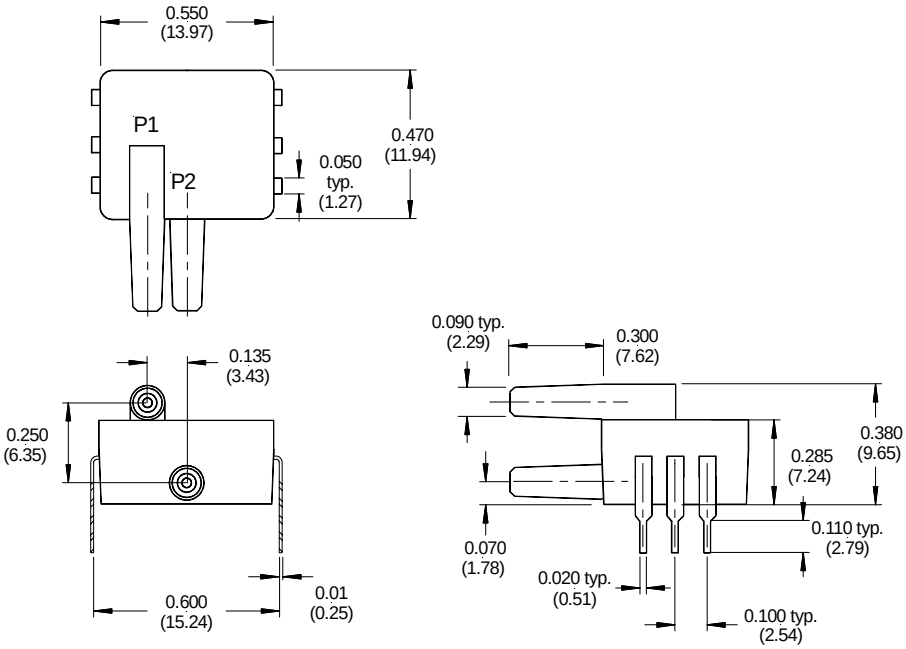


mass: 1 g

dimensions in inches (mm)

PHYSICAL DIMENSIONS (cont.)

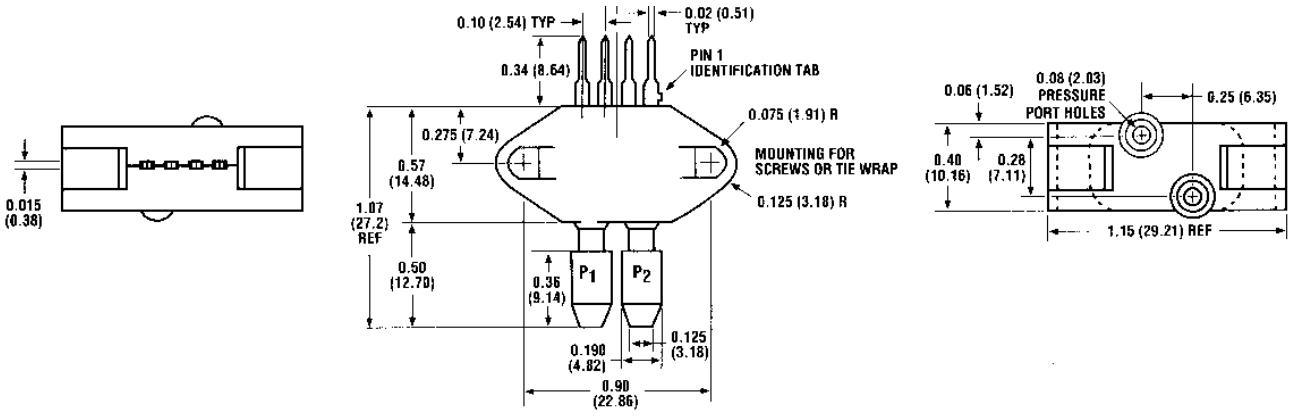
Basic sensor DIP "D4" package



mass: 1 g

dimensions in inches (mm)

N package



mass: 5 g

dimensions in inches (mm)

ORDERING INFORMATION

Pressure range		Part number			
		Button package	"N" package	DIP package single port	DIP package dual port
Absolute pressure	0...15 psi	SCC15A	SCC15AN	SCC15AD2	
	0...30 psi	SCC30A	SCC30AN	SCC30AD2	
	0...100 psi	SCC100A	SCC100AN	SCC100AD2	
Gage pressure	0...5 psi	use differential devices	use differential devices	SCC05GD2	
	0...15 psi			SCC15GD2	
	0...30 psi			SCC30GD2	
	0...100 psi			SCC100GD2	
Differential pressure	0...5 psi	SCC05D	SCC05DN		SCC05DD4
	0...15 psi	SCC15D	SCC15DN		SCC15DD4
	0...30 psi	SCC30D	SCC30DN		SCC30DD4
	0...100 psi	SCC100D	SCC100DN		SCC100DD4