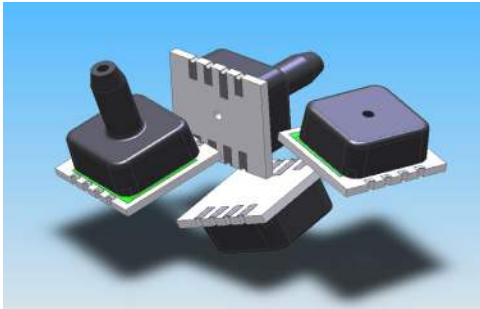


# Surface Mount Basic Pressure Sensors



## Features

- 5 inH2O Full Scale to 100 psi Full Scale Pressures
- 0.5 % linearity
- Small LCC Footprint
- ROHS Compliant

## Applications

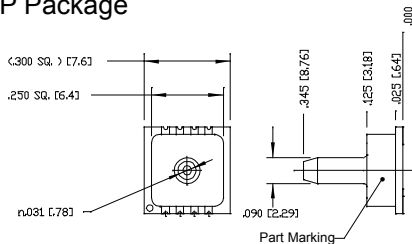
- Medical Instrumentation
- Environmental Controls
- HVAC

## General Description

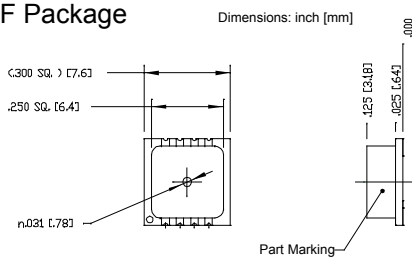
The BASIC Series of pressure sensors use a silicon micromachined (MEMS) pressure sensor in the most basic configuration. The package is a ceramic surface mount configuration to provide the smallest footprint possible. Best temperature compensation is realized when the sensor has a constant current excitation. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like. Specifications are written for constant voltage of 3.0 volts. The output of the device is ratiometric to the supply voltage.

## Physical Dimensions

### LP Package



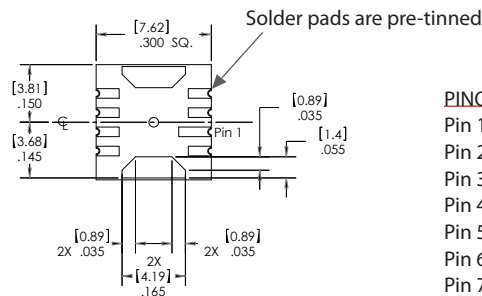
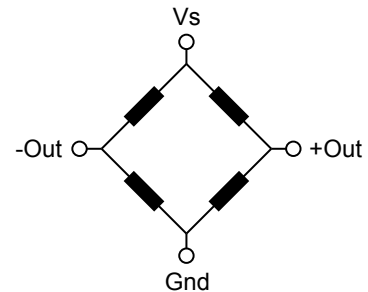
### LF Package



### PART MARKING

- L05G - 5 inH2O
- L10G - 10 inH2O
- 001G - 1 PSIG
- 005G - 5 PSIG
- 015G - 15 PSIG
- 015A - 15 PSIA
- 030G - 30 PSIG
- 060G - 60 PSIG
- 100G - 100 PSIG

## Equivalent Circuit



### PINOUT

- Pin 1: Vs
- Pin 2: +out
- Pin 3: N.C. Reserved
- Pin 4: N.C. Reserved
- Pin 5: N.C. Reserved
- Pin 6: N.C. Reserved
- Pin 7: -out
- Pin 8: Gnd

## Approvals

| MKT   | DATE | MFG   | DATE | ENG   | DATE | QA  | DATE |
|---|------|---|------|---|------|---|------|
| <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      | <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      | <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      | <input type="checkbox"/> As Is <input type="checkbox"/> With Change |      |



## Pressure Sensor Characteristics Maximum Ratings

|  |       |
|--|-------|
| Supply Voltage VS                        | 6 Vdc |
| Lead Temperature<br>(soldering 2-4 sec.) | 270°C |

## Environmental Specifications

|                    |                                 |
|--------------------|---------------------------------|
| Temperature Ranges |                                 |
| Operating          | -25 to 85° C                    |
| Storage            | -40 to 125° C                   |
| Humidity Limits    | 0 to 95% RH<br>(non condensing) |

## Standard Pressure Ranges

| Ported      |             | Non-ported         |         | Sensitivity <sup>(1)</sup> |          |                |
|-------------|-------------|--------------------|---------|----------------------------|----------|----------------|
| Part Number | Part Number | Operating Pressure | Nominal | Std Dev.                   | Units    | Proof Pressure |
| CSM-L05G-LP | CSM-L05G-LF | 0 - 5 inH2O        | 8.40    | ±1.10                      | mV/inH2O | 3 PSI          |
| CSM-L10G-LP | CSM-L10G-LF | 0 - 10 inH2O       | 1.65    | ±0.19                      | mV/inH2O | 3 PSI          |
| CSM-001G-LP | CSM-001G-LF | 0 - 1 PSI          | 22.8    | ±2.60                      | mV/PSI   | 5 PSI          |
| CSM-005G-LP | CSM-005G-LF | 0 - 5 PSI          | 12.0    | ±1.50                      | mV/PSI   | 15 PSI         |
| CSM-015G-LP | CSM-015G-LF | 0 - 15 PSI         | 4.40    | ±0.58                      | mV/PSI   | 45 PSI         |
| CSM-015A-LP | CSM-015A-LF | 0 - 15 PSIA        | 4.40    | ±0.58                      | mV/PSI   | 30 PSI         |
| CSM-030G-LP | CSM-030G-LF | 0 - 30 PSI         | 2.30    | ±0.30                      | mV/PSI   | 100 PSI        |
| CSM-100G-LP | CSM-100G-LF | 0 - 100 PSI        | 0.96    | ±0.13                      | mV/PSI   | 200 PSI        |

## Common Performance Characteristic

| Parameter <sup>(1)</sup>                          | Minimum | Nominal | Maximum | Units   |
|---|---------|---------|---------|---------|
| Offset Voltage                                    | --      | ±1.0    | ±5.0    | mv      |
| Temperature Effect on Offset <sup>(2)</sup>       | --      | ±3      | --      | uV/V/°C |
| Temperature Effect on Resistance <sup>(2,6)</sup> | 2300    | 2600    | 3300    | ppm/°C  |
| Temperature Effect on Span <sup>(2,6)</sup>       | -1700   | -2200   | -2700   | ppm/°C  |
| Linearity error <sup>(4,6)</sup>                  | --      | ±0.2    | ±0.5    | % FSS   |
| Hysteresis error <sup>(6)</sup>                   | --      | ±0.01   | ±0.05   | % FSS   |
| Position Sensitivity (BST-L10G-xx) <sup>(6)</sup> | --      | ±0.01   | ±0.03   | % FSS   |
| Input Resistance <sup>(6)</sup>                   | 2.7     | 3.3     | 4.0     | kohms   |
| Output Resistance <sup>(6)</sup>                  | 2.7     | 3.3     | 4.0     | kohms   |
| Long term stability of span <sup>(3)</sup>        | --      | 0.1     | --      | % FSS   |

### Specification Notes

NOTE 1: ALL PARAMETERS ARE MEASURED AT 3.0 VOLT EXCITATION, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH POSITIVE PRESSURE TO THE SINGLE PORT CONFIGURATION.

NOTE 2: SHIFT IS RELATIVE TO 25°C.

NOTE 3: SHIFT IS WITHIN THE FIRST YEAR OF OPERATION.

NOTE 4: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

NOTE 5: THE SPAN IS THE ALGEBRAIC DIFFERENCE BETWEEN FULL SCALE OUTPUT VOLTAGE AND THE OFFSET VOLTAGE.

NOTE 6: PARAMETER IS CHARACTERIZED AND NOT 100% TESTED. MINIMUM AND MAXIMUM VALUES INDICATED AS A DESIGN REFERENCE.

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