



82

Constant Voltage

SPECIFICATIONS

- ◆ **316L SS Pressure Sensor**
- ◆ **19mm Diameter Package**
- ◆ **0 - 100mV Output**
- ◆ **Absolute and Gage**
- ◆ **Temperature Compensated**

The 82 constant voltage is a 19 mm small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The 82 constant voltage can be configured for O-ring mounting or threaded process fittings and is designed for OEM applications where compatibility with corrosive media is required.

The sensing package utilizes silicone oil to transfer pressure from the 316L stainless steel diaphragm to the sensing element. A ceramic substrate is attached to the package that contains laser-trimmed resistors for temperature compensation and offset correction.

Please refer to the 82 uncompensated and compensated datasheets for more information on different features of the 82.

FEATURES

- ◆ O-Ring Mount/Threaded Process Fittings
- ◆ -40°C to +125°C Operating Temperature
- ◆ Up to $\pm 0.1\%$ Pressure Non Linearity
- ◆ Solid State Reliability

APPLICATIONS

- ◆ Medical Instruments
- ◆ Process Control
- ◆ Fresh & Waste Water Measurements
- ◆ Partial Vacuum Gas Measurement
- ◆ Pressure Transmitters
- ◆ Tank Level Systems (RV & Industrial)

STANDARD RANGES

| Range | psia | psig |
|----------|------|------|
| 0 to 1 | | ◆ |
| 0 to 5 | ◆ | ◆ |
| 0 to 15 | ◆ | ◆ |
| 0 to 30 | ◆ | ◆ |
| 0 to 50 | ◆ | ◆ |
| 0 to 100 | ◆ | ◆ |
| 0 to 300 | ◆ | ◆ |
| 0 to 500 | ◆ | ◆ |

PERFORMANCE SPECIFICATIONS

Supply Voltage: 10V_{DC}

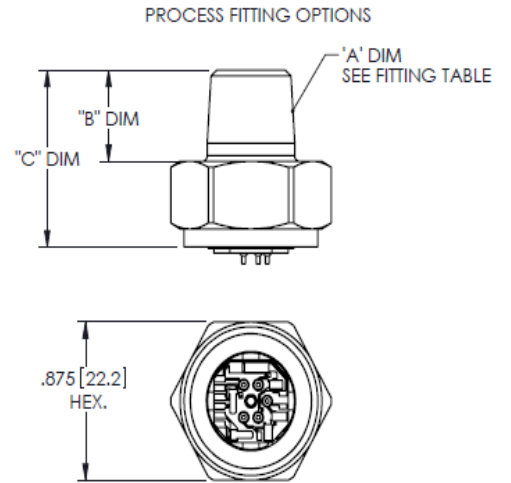
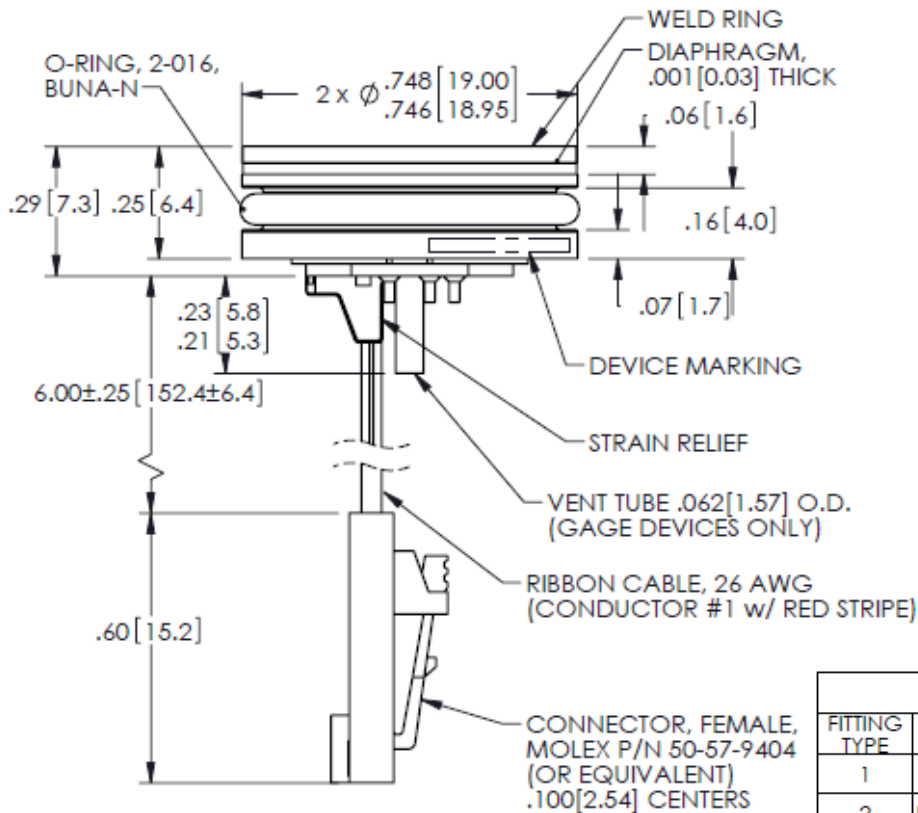
Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS | 001PSI | | | 005PSI | | | ≥015PSI | | | UNITS | NOTES |
|-------------------------------|---|-------|------|--------|-------|------|---------|-------|-------|--------|-------|
| | MIN | TYP | MAX | MIN | TYP | MAX | MIN | TYP | MAX | | |
| Span | 77 | 80 | 83 | 98 | 100 | 102 | 99 | 100 | 101 | mV | 1 |
| Zero Pressure Output | -2 | 0 | 2 | -2 | 0 | 2 | -1 | 0 | 1 | mV | |
| Pressure Non Linearity | -0.3 | | 0.3 | -0.2 | | +0.2 | -0.1 | | 0.1 | %Span | 2 |
| Pressure Hysteresis | -0.10 | ±0.02 | 0.10 | -0.10 | ±0.02 | 0.10 | -0.05 | ±0.02 | 0.05 | %Span | |
| Repeatability | | ±0.02 | | | ±0.02 | | | ±0.02 | | %Span | |
| Input Resistance | 5.5 | 9.0 | 12.5 | 5.5 | 9.0 | 12.5 | 5.5 | 9.0 | 12.5 | KΩ | |
| Output Resistance | 4.0 | | 7.0 | 4.0 | | 7.0 | 4.0 | | 6.0 | KΩ | |
| Thermal Hysteresis – Span | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | +0.25 | %Span | 3 |
| Thermal Hysteresis – Offset | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | +0.25 | %Span | 3 |
| Temperature Error – Span | -1.0 | | 1.0 | -1.0 | | 1.0 | -1.0 | | 1.0 | %Span | 3 |
| Temperature Error – Offset | -1.0 | | 1.0 | -1.0 | | 1.0 | -1.0 | | 1.0 | %Span | 3 |
| Long Term Stability – Span | | ±0.10 | | | ±0.10 | | | ±0.10 | | %Span | 4 |
| Long Term Stability – Offset | | ±0.25 | | | ±0.25 | | | ±0.10 | | %Span | 4 |
| Supply Voltage | | 10 | 14 | | 10 | 14 | | 10 | 14 | V | |
| Output Load Resistance | 5 | | | 5 | | | 5 | | | MΩ | |
| Insulation Resistance (50Vdc) | 50 | | | 50 | | | 50 | | | MΩ | 5 |
| Output Noise (10Hz to 1KHz) | | 1 | | | 1 | | | 1 | | μV p-p | |
| Response Time (10% to 90%) | | 0.1 | | | 0.1 | | | 0.1 | | ms | |
| Pressure Overload | | | 10x | | | 3x | | | 3x | Rated | 6 |
| Pressure Burst | | | 12x | | | 4x | | | 4x | Rated | |
| Operating Temperature | -20 | | +70 | -20 | | +70 | -40 | | +125 | °C | |
| Compensated Temperature | 0 | | +50 | 0 | | +70 | -20 | | +85 | °C | |
| Storage Temperature | -40 | | +125 | -40 | | +125 | -40 | | +125 | °C | 7 |
| Media – Pressure Port | Liquids and Gases compatible with 316L Stainless Steel and Buna-N | | | | | | | | | | 8 |
| Media – Reference Port | Compatible with Silicon, Pyrex, Gold, Fluorosilicone RTV and 316L Stainless Steel | | | | | | | | | | |

Notes

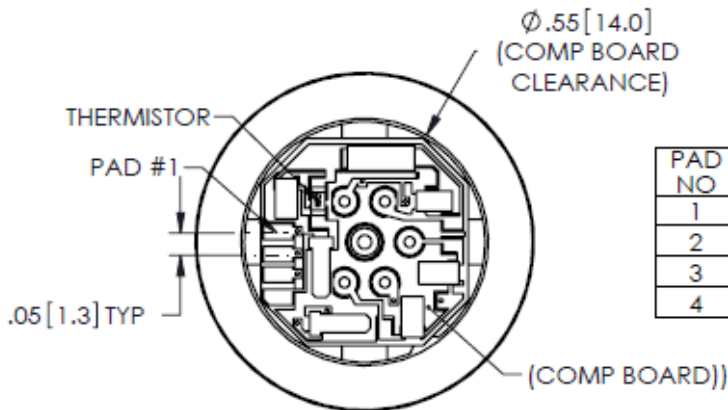
1. Ratiometric to supply voltage.
2. Best fit straight line.
3. Maximum temperature error within the compensated temperature range with respect to 25°C.
4. Long term stability over a one year period with constant current and temperature.
5. Minimum resistance between case and pins.
6. 10 psi maximum for 1 psi devices.
7. Maximum temperature range for product with standard cable and connector is -20°C to +105°C.
8. Gage units not recommended for high vacuum applications. For high vacuum applications consult factory.

DIMENSIONS



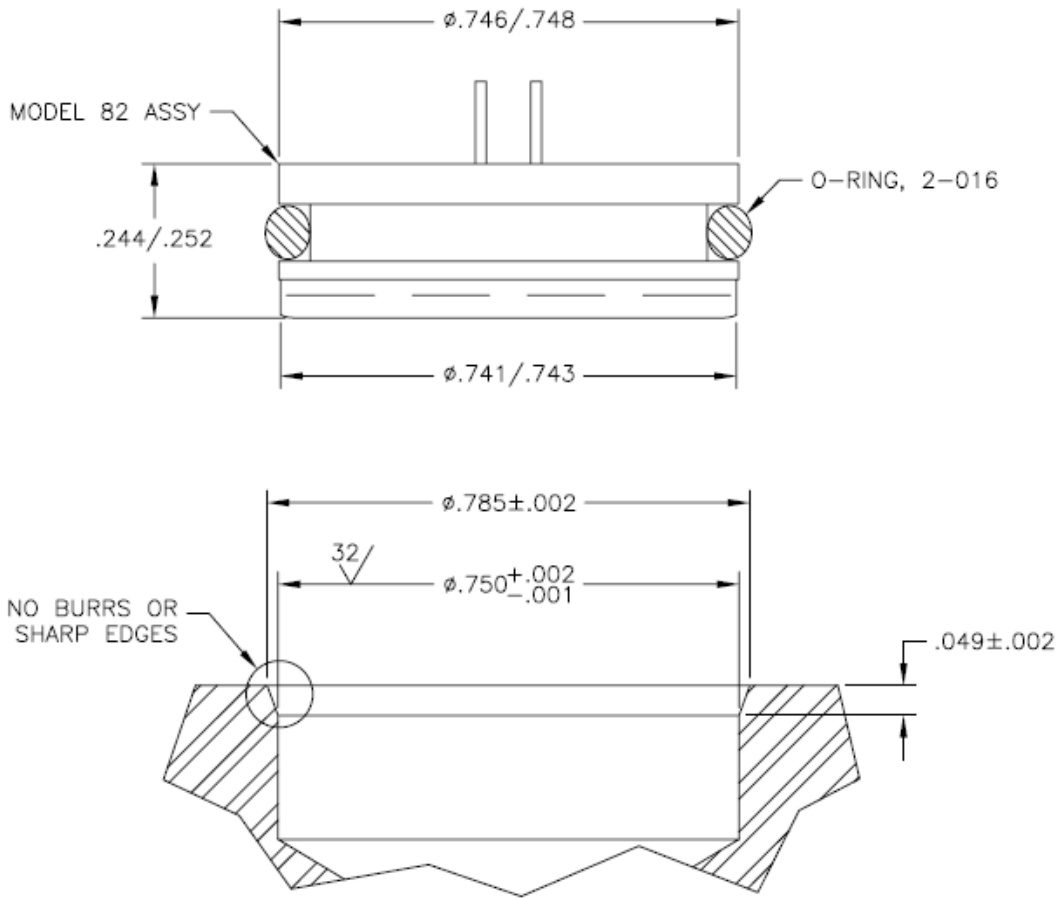
| FITTING TABLE | | | | |
|---------------|-----------|-------------|------------|------------|
| FITTING TYPE | MEMS P/N | 'A' DIM | 'B' DIM | 'C' DIM |
| 1 | IC-7152 | 1/4-18 NPT | .50 [12.7] | .98 [24.9] |
| 2 | IC-D00510 | 1/8-27 NPT | .47 [11.9] | .95 [24.1] |
| 3 | IC-D00511 | 7/16-20 UNF | .33 [8.4] | .80 [20.3] |
| 9 | IC-D00512 | 1/4-19 BSP | .45 [11.4] | .93 [23.3] |

NOTE: FITTING TYPE '1' ASSEMBLY SHOWN ALL DIMS ARE FOR REFERENCE.

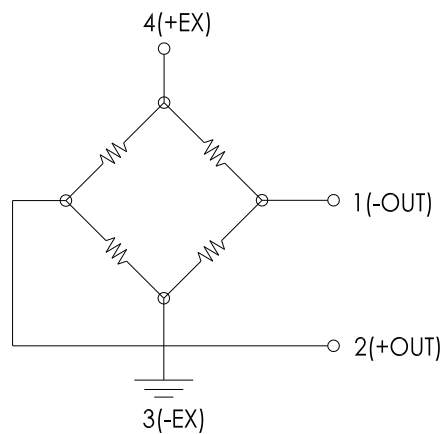


| PAD NO | FUNCTION |
|--------|----------|
| 1 | -OUT |
| 2 | +OUT |
| 3 | -EX |
| 4 | +EX |

VIEW SHOWN W/O CABLE AND CONNECTOR FOR CLARITY



APPLICATION SCHEMATIC



ORDERING INFORMATION

82CV – 030 A – 3 B I

| Pressure Range [Psi] | |
|----------------------|-------------|
| 001 | (Gage Only) |
| 005 | |
| 015 | |
| 030 | |
| 050 | |
| 100 | |
| 300 | |
| 500 | |

| Pressure Type | |
|---------------|----------|
| G | Gage |
| A | Absolute |

| Vent | |
|---------|---------|
| T | Tube |
| [Blank] | No Tube |

| Electrical | |
|------------|--------------------|
| R | Ribbon cable |
| C | Cable w/ Connector |

| Fitting Type | |
|--------------|----------------------|
| [Blank] | No Fitting, Weldable |
| 3 | 7/16-20 UNF |
| 1 | 1/4-18 NPT |
| 2 | 1/8-27 NPT |
| 9 | 1/4-19 BSP |

Refer to Fitting Table for more information

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