



The Merit Sensor RPD Series uncompensated packaged sensor is designed for the application of a wide range of pressures to the backside of the sensing element. The RPD is a flexible platform with excellent media compatibility. Its small, compact design is ideally suited for medical and industrial applications.

COMPANY: Merit Sensor designs and fabricates MEMS piezoresistive pressure sensors at our Utah, USA engineering and fabrication facility. We focus on the customization of technically superior pressure sensors to solve customers' pressure sensing needs for the medical, industrial, automotive and aerospace industries.

TECHNOLOGY: Merit Sensor utilizes a piezoresistive Wheatstone bridge with a chemically etched silicon diaphragm. All products are RoHS compliant.

CAPABILITIES: Merit Sensor designs, engineers, fabricates, dices, assembles and tests all products from a state-of-the-art facility near Salt Lake City, Utah.

FEATURES

- Uncompensated, packaged pressure sensor
- Pressure Range: 0 to 500psi (0 to 34.474bar)
- Typical average full scale output: 150 mV
- Size: 7.6 x 8.9 x 6.6 mm
- Temperature Range: -40°C to +85°C
- Type: Backside gage or backside absolute
- Media: Air, gases and liquids (to be determined on an application-by-application basis with Merit engineering team)
- Shipping: Tape and reel
- Customization: Pressure range, pressure port, gage or absolute, solder pins
- Excellent performance in both constant current and constant voltage applications
- Simple pressure source attachment and electrical connection
- Designed for a soldered connection to wires, ribbon cable, or flex strip

APPLICATION EXAMPLES

- Medical inflation
- Water pressure and flow management
- Industrial process control



Standard RPD



RPD Package Options



RPD PART CONFIGURATION OPTIONS

Pressure Type

- Gage
- Absolute

Pressure Range (See Specifications Table for Full Range)

- 15psi = 75 mV (typical)
- 50psi = 125 mV (typical)
- 100psi = 150 mV (typical)
- 300psi = 150 mV (typical)
- 500psi = 175 mV (typical)

Package Options

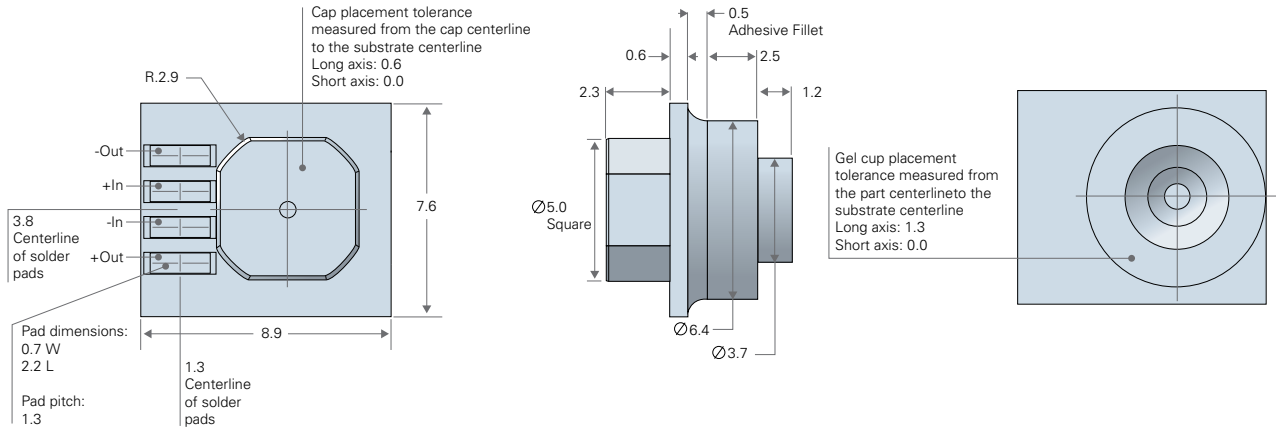
- Polycarbonate pressure port
- Solder pins
- Silicone gel available (up to 100psi)

Note: When requesting a quote, please choose from the options listed above and Merit Sensor will issue a part number.

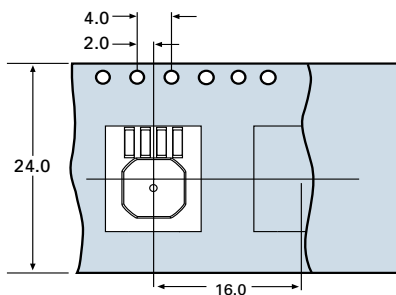
SPECIFICATIONS

| Parameter | Minimum | Typical | Maximum | Units | Notes |
|---|---------|---------|---------|----------------------------------|--|
| Electrical & Environmental | | | | | |
| Excitation (In) | | 5 | 15 | V | Maximum: 3 mA |
| Impedance | 4000 | 5000 | 6000 | Ω | Optional: 3,500 +/- 500 |
| Operating Temperature | -40 | | 85 | $^{\circ}\text{C}$ | Sentium [®] technology |
| Storage Temperature | -55 | | 100 | $^{\circ}\text{C}$ | |
| Performance | | | | | |
| Offset | -10 | 0 | 10 | mV/V | Zero pressure; gage only; @25 $^{\circ}\text{C}$ |
| Non-linearity | -0.2 | 0 | 0.2 | % FSO | Best Fit Straight Line; @25 $^{\circ}\text{C}$ |
| Pressure Hysteresis | -0.1 | 0 | 0.1 | % FSO | @25 $^{\circ}\text{C}$ |
| Temp Coeff – Zero | -25 | 0 | 25 | $\mu\text{V/V}/^{\circ}\text{C}$ | -40 $^{\circ}\text{C}$ to 85 $^{\circ}\text{C}$ |
| Temp Coeff – Resistance | 2300 | 2800 | 3300 | PPM/ $^{\circ}\text{C}$ | -40 $^{\circ}\text{C}$ to 85 $^{\circ}\text{C}$ |
| Temp Coeff – Sensitivity | -1500 | -2200 | -2500 | PPM/ $^{\circ}\text{C}$ | -40 $^{\circ}\text{C}$ to 85 $^{\circ}\text{C}$ |
| Thermal Hysteresis | -0.1 | 0 | 0.1 | % FSO | Zero pressure |
| Burst Pressure | 2X | | | | Room Temperature |
| Full-Scale Output (@ 5 volts Excitation) | | | | | |
| 15 psi (1 bar; 103 KPa) | 60 | 75 | 90 | mV | Closed bridge only |
| 50 psi (3.4 bar; 345 KPa) | 100 | 125 | 150 | mV | |
| 100 psi (6.9 bar; 689 KPa) | 120 | 150 | 180 | mV | |
| 300 psi (20.7 bar; 2068 KPa) | 120 | 150 | 180 | mV | |
| 500 psi (34.5 bar; 3447 KPa) | 140 | 175 | 210 | mV | |

DIMENSIONS (millimeters)



PACKAGING AND SHIPPING (millimeters)



ELECTRICAL

