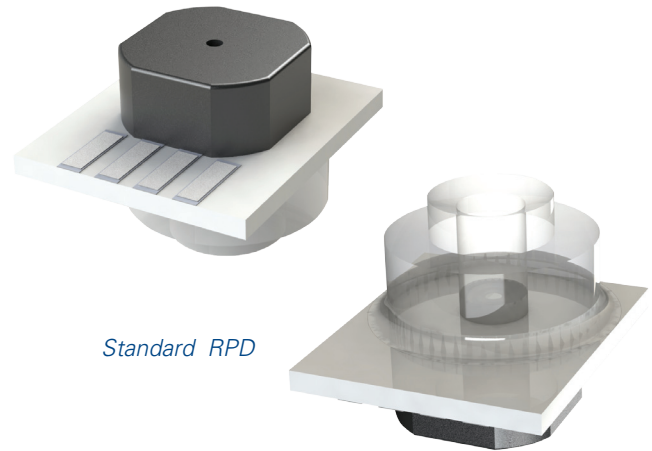**MERIT SENSOR**™

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.

Standard RPD

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
- 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
- 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

RoHS Compliant

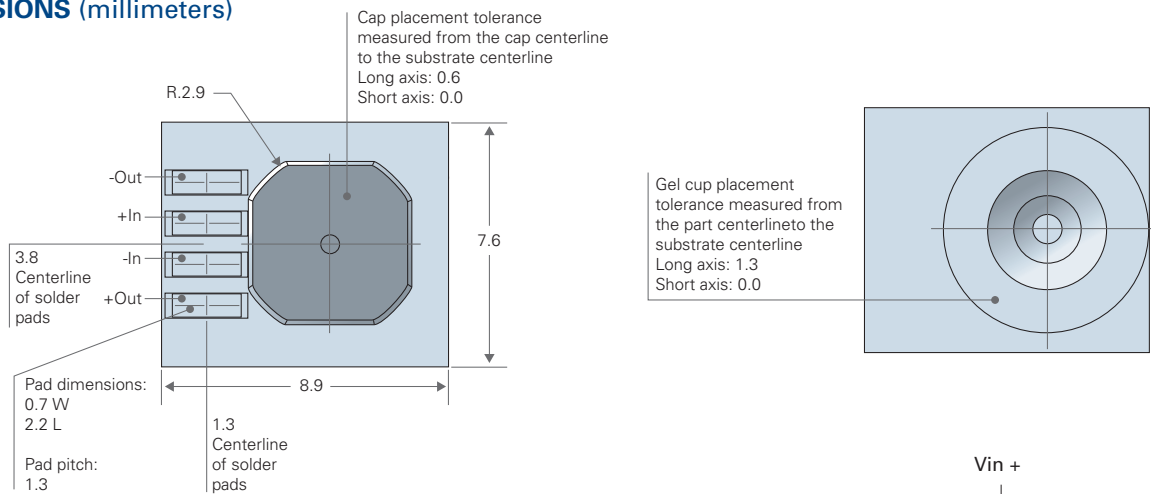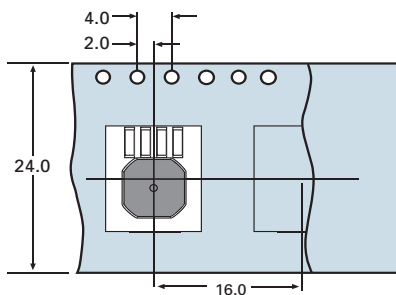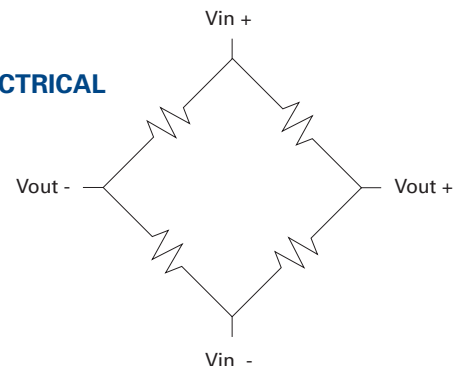### RPD Series Part Number Configurator

R XX - XXXX - XX

Impedance
1 = 5kohm Closed Bridge

Constraint
2 = Gage

PSI
0015 = 15 psi
0030 = 30 psi
0100 = 100 psi
0300 = 300 psi
0500 = 500 psi

Port
1 = Gel Tube/ No Gel
2 = Gel Tube/ Gel*
3 = Face Seal

Cap
1 = Square Ceramic Cap

* Not Available above 100psi

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1600 W. Merit Parkway · South Jordan, Utah · 84095 · USA

RPDseriesDS.005

MERIT SENSOR™

SPECIFICATIONS

Parameter	Minimum	Typical	Maximum	Units	Notes
Electrical & Environmental					
Excitation (In)		5	15	V	Maximum: 3 mA
Impedance	4000	5000	6000	Ω	
Operating Temperature	-40		85	°C	Sentium® technology
Storage Temperature	-55		100	°C	
Performance					
Offset	-10	0	10	mV/V	Zero pressure; gage only; @25°C
Non-linearity	-0.2	0	0.2	% FSO	Best Fit Straight Line; @25°C
Pressure Hysteresis	-0.1	0	0.1	% FSO	@25°C
Temp Coeff – Zero	-25	0	25	µV/V/°C	-40°C to 85°C
Temp Coeff – Resistance	2300	2800	3300	PPM/°C	-40°C to 85°C
Temp Coeff – Sensitivity	-1500	-2200	-2500	PPM/°C	-40°C to 85°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	
50 psi (3.4 bar; 345 KPa)	100	125	150	mV	
100 psi (6.9 bar; 689 KPa)	120	150	180	mV	Closed bridge only
300 psi (20.7 bar; 2068 KPa)	120	150	180	mV	
500 psi (34.5 bar; 3447 KPa)	140	175	210	mV	

DIMENSIONS (millimeters)

Cap placement tolerance measured from the cap centerline to the substrate centerline
Long axis: 0.6
Short axis: 0.0

R.2.9

-Out
+In
-In
+Out

3.8 Centerline of solder pads

7.6

Pad dimensions:
0.7 W
2.2 L

Pad pitch:
1.3

1.3 Centerline of solder pads

8.9

Gel cup placement tolerance measured from the part centerline to the substrate centerline
Long axis: 1.3
Short axis: 0.0

PACKAGING AND SHIPPING (millimeters)

4.0
2.0
24.0
16.0

ELECTRICAL

Vin +

Vout -

Vout +

Vin -

X-ON Electronics

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