



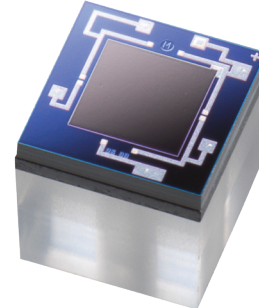
The **J Series** is ideal for high-volume, low-pressure applications.

**COMPANY:** Merit Sensor is a leader in piezoresistive pressure sensing and partners with clients to create high performing solutions for a variety of applications and industries.

**SENTIUM:** Merit Sensor products incorporate a proprietary Sentiium® technology, developed to provide a best-in-class operating temperature range (-40°C to 150°C) and superior stability.

**TECHNOLOGY:** Merit Sensor utilizes a piezoresistive Wheatstone bridge in a design that anodically bonds glass to a chemically etched silicon diaphragm. All products are RoHS compliant.

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



### FEATURES

|             |   |
|-------------|---|
| Range       | 1 to 300 psi (0.07 to 21 bar; 7 to 2100 KPa)      |
| Type        | Absolute, gage, differential and vacuum           |
| Media       | Clean, dry air and non-corrosive gases            |
| Shipping    | Wafers on tape, waffle pack                       |
| Flexibility | Sensitivity, resistance, bridge, constraint, etc. |

### BENEFITS

|             |   |
|-------------|---|
| Performance | Enjoy best-in-class performance due to Merit's proprietary Sentiium technology                            |
| Cost        | Save money over time with high-performing die   |
| Security    | Feel confident doing business with an experienced company backed by a solid parent company (NASDAQ: MMSI) |
| Speed       | Get to market quickly with creative and flexible solutions  |
| Service     | Experience prompt, personal, and professional support   |

### J Series Part Number Configurator

**JXPX-XXXX-XT**

**Impedance**  
1 = 5kohm Bridge  
2 = 3.5kohm Bridge

**Bridge**  
H = ½ Open  
C = Closed

**Constraint**  
V = 1.5 mm Absolute  
W = 1.5 mm Gage  
U = .5 mm Gage  
Z = .89 mm Gage

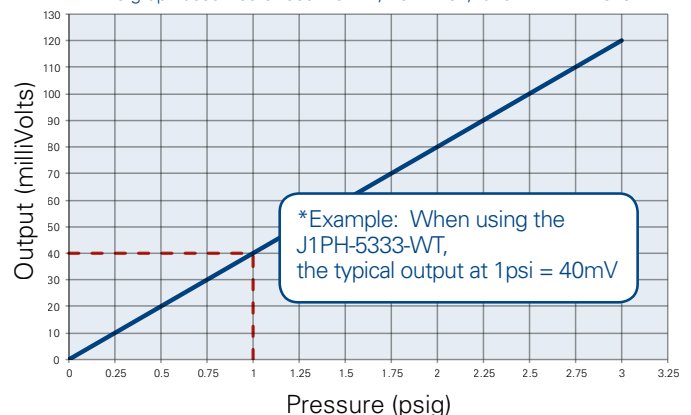
**µV/V/psi**  
5333 = 1psi or 3psi\*  
3200 = 5psi  
1067 = 15psi  
0533 = 30psi  
0320 = 50psi  
0160 = 100psi  
0105 = 150psi  
0053 = 300psi

**Example:**  
**J1PC-3200-WT**  
offers 5kohm impedance, Closed Bridge, 5 psi, and 1.5mm Gage Constraint

### Typical Transfer Function (Sensor pn J1PH-5333-WT):

$$V_{out} = (40 * P) + \text{Offset} \pm \text{Error}$$

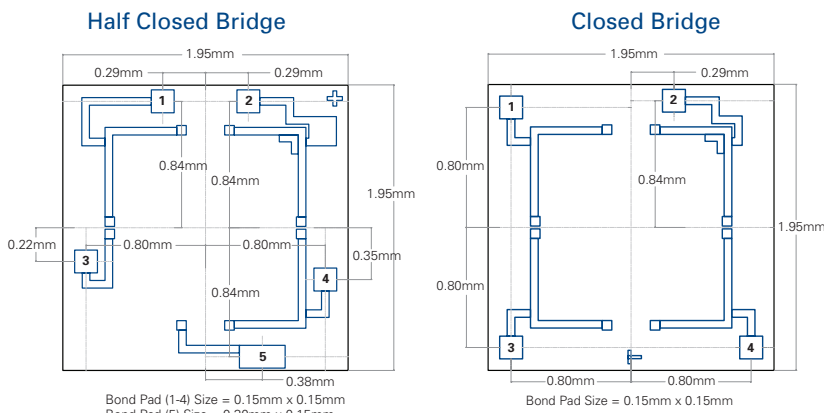
This graph assumes offset = 0mV, Vs = 7.5V, and TEMP = 25°C



## SPECIFICATIONS

| Parameter  | Minimum | Typical     | Maximum | Units                            | Notes   |
|--|---------|-------------|---------|----------------------------------|---|
| <b>Electrical &amp; Environmental</b>                  |         |             |         |                                  |   |
| Excitation   |         | 1.5         |         | mA                               | Maximum: 3 mA   |
| Impedance  | 4000    | 5000        | 6000    | $\Omega$                         |   |
| Operating Temperature                                  | -40     |             | 150     | $^{\circ}\text{C}$               | Sentium® technology   |
| Storage Temperature                                    | -55     |             | 160     | $^{\circ}\text{C}$               |   |
| <b>Performance</b>                                     |         |             |         |                                  |   |
| 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; Tested with Top-side Pressure                |
| Pressure Hysteresis                                    | -0.1    | 0           | 0.1     | % FSO                            | @25°C   |
| Temp Coeff – Zero                                      | -25     | 0           | 25      | $\mu\text{V/V}/^{\circ}\text{C}$ | -40°C to 150°C  |
| Temp Coeff – Resistance                                | 2500    | 3000        | 3500    | PPM/ $^{\circ}\text{C}$          | -40°C to 150°C  |
| Temp Coeff – Sensitivity                               | -1500   | -2000       | -2500   | PPM/ $^{\circ}\text{C}$          | -40°C to 150°C  |
| Thermal Hysteresis                                     |         | <0.05       |         | $\pm$ % FSO                      | Zero pressure 25°C to 125°C   |
| Long-Term Stability                                    |         | <0.1        |         | $\pm$ % FSO                      | Zero pressure   |
| Burst Pressure   | 5X      |             |         |                                  | Full scale pressure   |
| <b>Full-Scale Output (@ 1.5 mA / 7.5 V excitation)</b> |         |             |         |                                  |   |
| 3 psi (0.21 bar; 21 kPa)                               | 95      | 120         | 145     | mV                               | Typical output at 1 psi = 40 mV<br><br>Other outputs available upon request |
| 5 psi (0.34 bar; 34 kPa)                               | 95      | 120         | 145     | mV                               |   |
| 15 psi (1 bar; 103 kPa)                                | 95      | 120         | 145     | mV                               |   |
| 30 psi (2 bar; 207 kPa)                                | 95      | 120         | 145     | mV                               |   |
| 50 psi (3.5 bar; 345 kPa)                              | 95      | 120         | 145     | mV                               |   |
| 100 psi (7 bar; 670 kPa)                               | 95      | 120 <td 145 | mV      |                                  |   |
| 150 psi (10 bar; 1035 kPa)                             | 95      | 120         | 145     | mV                               |   |
| 300 psi (21 bar; 2070 kPa)                             | 95      | 120         | 145     | mV                               |   |

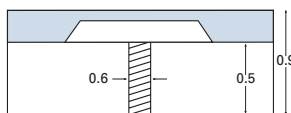
### DIMENSIONS (millimeters, post-cut)



**Note:** Bridge output bond pads ( $V_{-out}$  and  $V_{+out}$ ) correspond to top side pressure. For back side pressure, the bridge outputs are reversed.

Standard Bond Pad  
Metallization = Aluminum

Absolute also; other constraints available



### ELECTRICAL

