

## Microstructure Pressure Sensors

24PC SMT (1 psi, 5 psi, 15 psi)

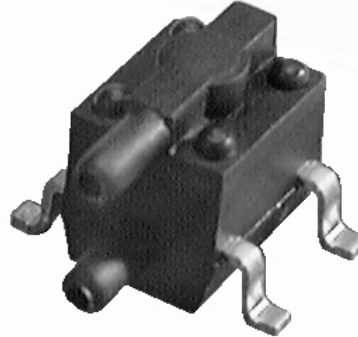
*24PC SMT Series*

### FEATURES

- Alignment pins for position accuracy
- Small package size (less than one half the size of the 24PC) and compact surface mount profile
- 3,18 mm [0.125 in] diameter pick-up feature for use in pick and place machines
- Max peak reflow temperature of 260 °C [500 °F]
- Gage, vacuum gage, differential, wet/wet differential sensing available in one package
- True wet/wet differential sensing
- Proven elastomeric interconnections of the 20PC family
- Sensor consists of only five components
- Elastomeric construction
- Wide operating temperature range of -40 °C to 85 °C [-40 °F to 185 °F]

### TYPICAL APPLICATIONS

- Blood glucose monitors
- Oxygen conservers
- Infusion pumps
- Ventilators
- CPAP (Continuous Positive Airway Pressure) equipment
- Residential fuel cells



The 24PC SMT (Surface Mount Technology) Series provides a small, low cost, high value, pressure sensing solution for use with printed circuit boards (PCBs). Based on the long established reliability and accuracy of the 24PC pressure sensor, the 24PC SMT offers reduced size with true surface mount capability. The smaller size reduces the sensor's footprint on the PCB, thereby reducing the size of the PCB. The 24PC SMT been designed to be used with other PCB SMT components, helping to lower installation costs and eliminate secondary operations.

The sensor features Wheatstone bridge construction, silicon piezoresistive technology, and ratiometric output for proven application flexibility, design simplicity and ease of manufacture.

Although primarily designed for the medical industry, the SMT Series of pressure sensors may be applied in almost any industry that requires a surface mount pressure sensor.

### **⚠ WARNING**

#### **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **⚠ WARNING**

#### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as system installation information.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

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24PC SMT Series

## 24PC SMT PERFORMANCE CHARACTERISTICS (AT 10 VDC $\pm 0.01$ VDC EXCITATION, 25 °C [77 °F])

|                                                               | Min.        | Typ.        | Max.        | Units  |
|---------------------------------------------------------------|-------------|-------------|-------------|--------|
| Excitation Voltage                                            | —           | 10.0        | 12.0        | Vdc    |
| Response Time                                                 | —           | —           | 1.0         | ms     |
| Input Resistance                                              | 4.5 k       | 5.0 k       | 5.5 k       | Ohm    |
| Output Resistance                                             | 4.5 k       | 5.0 k       | 5.5 k       | Ohm    |
| <b>Span P2&gt;P1<sup>(1)</sup></b>                            | <b>Min.</b> | <b>Typ.</b> | <b>Max.</b> |        |
| 0 to 1                                                        | 25.0        | 45.0        | 65.0        | mV     |
| 0 to 5                                                        | 60.0        | 115.0       | 150.0       | mV     |
| 0 to 15                                                       | 160.0       | 225.0       | 290.0       | mV     |
| <b>Null Offset</b>                                            | <b>Min.</b> | <b>Typ.</b> | <b>Max.</b> |        |
| 0 to 1                                                        | -30.0       | 0           | +30.0       | mV     |
| 0 to 5                                                        | -30.0       | 0           | +30.0       | mV     |
| 0 to 15                                                       | -30.0       | 0           | +30.0       | mV     |
| <b>Linearity (BFSL P2&gt;P1)</b>                              |             | <b>Typ.</b> | <b>Max.</b> |        |
| 0 to 1                                                        | —           | $\pm 0.15$  | $\pm 0.4$   | % span |
| 0 to 5                                                        | —           | $\pm 0.10$  | $\pm 0.2$   | % span |
| 0 to 15                                                       | —           | $\pm 0.10$  | $\pm 0.3$   | % span |
| <b>Null Shift 25 °C to 0 °C, 25 °C to 50 °C<sup>(2)</sup></b> |             | <b>Typ.</b> | <b>Max.</b> |        |
| 0 to 1                                                        | —           | $\pm 1.0$   | ---         | mV     |
| 0 to 5                                                        | —           | $\pm 1.0$   | ---         | mV     |
| 0 to 15                                                       | —           | $\pm 1.0$   | ---         | mV     |
| <b>Span Shift 25 °C to 0 °C, 25 °C to 50 °C<sup>(2)</sup></b> |             | <b>Typ.</b> | <b>Max.</b> |        |
| 0 to 1                                                        | —           | $\pm 5.0$   | ---         | % span |
| 0 to 5                                                        | —           | $\pm 5.0$   | ---         | % span |
| 0 to 15                                                       | —           | $\pm 5.0$   | ---         | % span |
| <b>Repeatability and Hysteresis</b>                           |             | <b>Typ.</b> | <b>Max.</b> |        |
| 0 to 1                                                        | —           | $\pm 0.15$  | —           | % span |
| 0 to 5                                                        | —           | $\pm 0.15$  | —           | % span |
| 0 to 15                                                       | —           | $\pm 0.15$  | —           | % span |
| <b>Overpressure P2&gt;P1; P1&gt;P2</b>                        |             | <b>Typ.</b> | <b>Max.</b> |        |
| 0 to 1                                                        | —           | —           | 20          | psi    |
| 0 to 5                                                        | —           | —           | 20          | psi    |
| 0 to 15                                                       | —           | —           | 45          | psi    |

Notes:

1. Span is the algebraic difference between output at maximum rated operating pressures and output at 0 psi.
2. Temperature error is calculated with respect to 25 °C [77 °F].

## SPECIFICATIONS

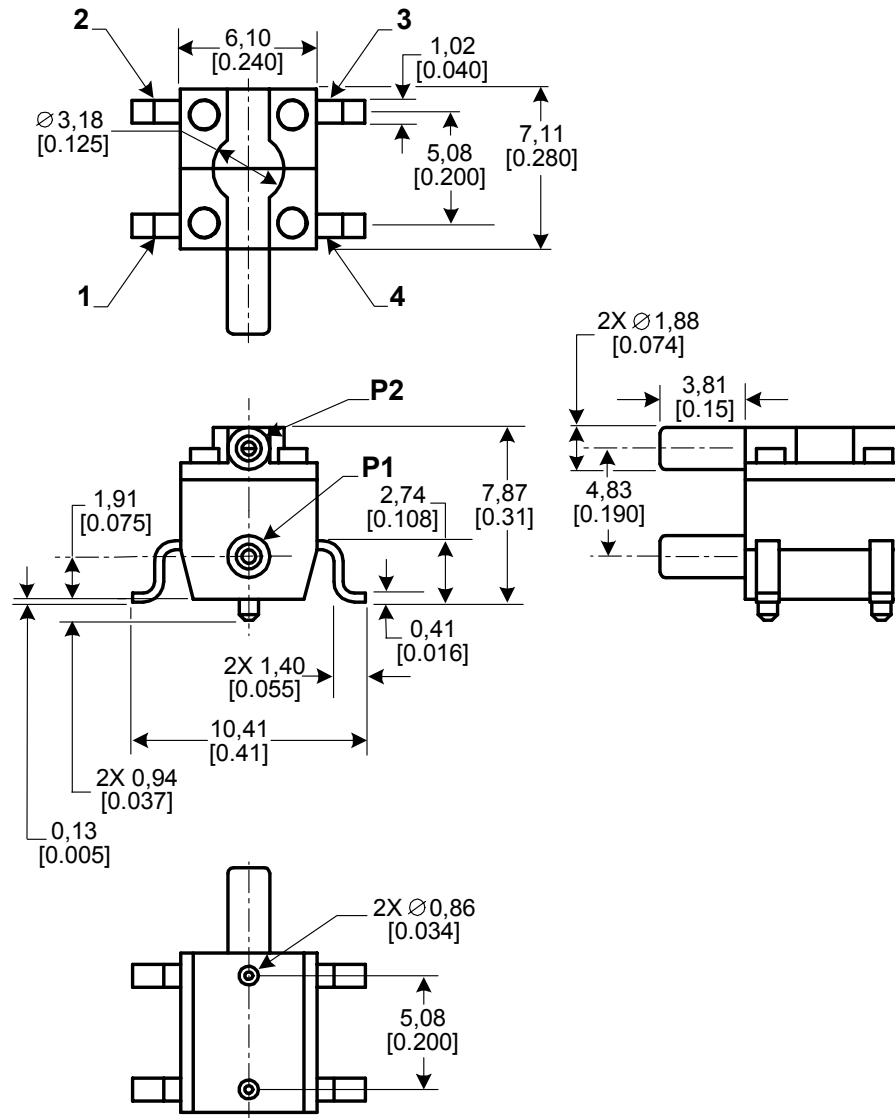
| Characteristic          | Description                                                                                                           |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Storage Temperature     | -55 °C to 100 °C [-67 °F to 212 °F]                                                                                   |
| Operating Temperature   | -40 °C to 85 °C [-40 °F to 185 °F]                                                                                    |
| Compensated Temperature | None                                                                                                                  |
| Alignment Pins          | 0,86 mm [0.034 in] diameter pins extend through PCB                                                                   |
| Port Diameter           | 1,88 mm [0.074 in] diameter uses standard 0,59 mm [0.0625 in] ID tubing                                               |
| Port Orientation        | Parallel to PCB (low profile on board)                                                                                |
| Pick Up Feature         | 3,18 mm [0.125 in] feature on port cover                                                                              |
| SMT Solder              | <ul style="list-style-type: none"> <li>• Sn 96.5 Ag 3.5 No Clean Flux</li> <li>• Sn 63 Pb 37 No Clean Flux</li> </ul> |
| SMT Reflow Profile      | Max peak temperature of 260 °C [500 °F] for 10 seconds                                                                |
| Media Compatibility     | Both ports are limited to media that are compatible with polyphthalamide, fluorosilicone and silicon.                 |
| Shock                   | Qualification tested to 150 g                                                                                         |
| Vibration               | MIL-STD-202. Method 213<br>(150 g half sine 11 ms)                                                                    |
| Weight                  | 0.5 grams [0.0176 oz]                                                                                                 |

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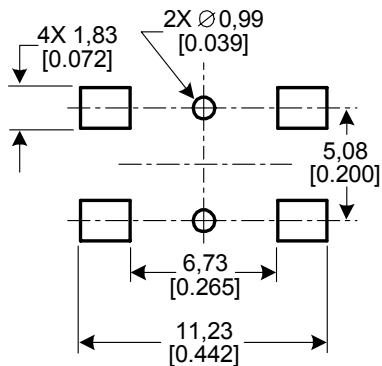
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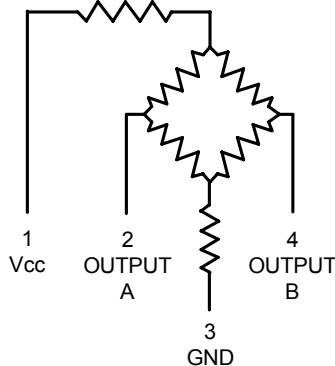
## MOUNTING DIMENSIONS mm[in] (for reference only)



## SUGGESTED LAND PATTERN



## CIRCUIT DIAGRAM



## OUTPUT VOLTAGE

Output A increases as P2 pressure increases.

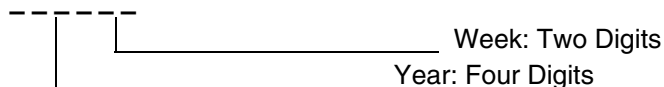
Output B decreases as P2 pressure increases.

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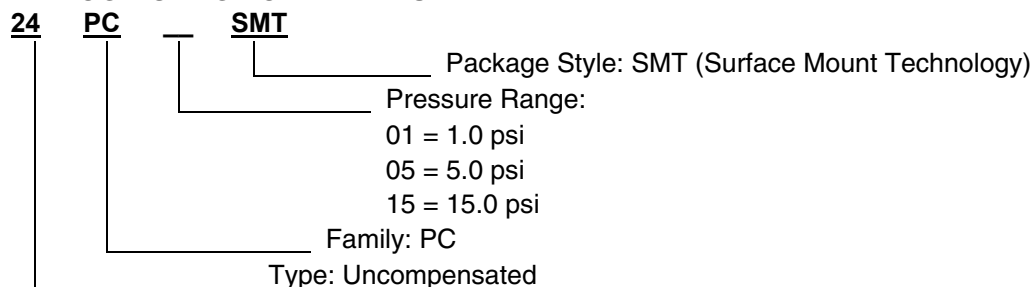
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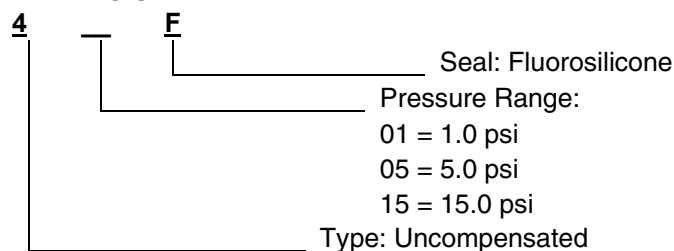
## DATE CODE



## CATALOG LISTING NOMENCLATURE



## BRANDING SCHEME



## TECHNICAL NOTES

Technical Notes that provide further application information on the 24PC SMT are available on the Honeywell web site at: <http://www.honeywell.com/sensing/prodinfo/pressure/20pc>

## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. **The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

For application assistance, current specifications, or name of the nearest Authorized Distributor, check the Honeywell web site or call:

1-800-537-6945 USA  
1-800-737-3360 Canada  
1-815-235-6847 International

### FAX

1-815-235-6545 USA

### INTERNET

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**Honeywell**

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