



## 23 AND 33

### Standard

#### SPECIFICATIONS

- ◆ **PC Board Mountable Pressure Sensor**
- ◆ **0-100 mV Output**
- ◆ **Current Excitation**
- ◆ **Gage and Differential**
- ◆ **Temperature Compensated**

The 23 and 33 are temperature compensated, piezoresistive silicon pressure sensors packaged in a TO-8 configuration. It provides excellent performance and long-term stability.

Gage and absolute pressure ranges from 0-2 to 0-250 psi are available. Integral temperature compensation is provided over a range of 0-50°C using laser-trimmed resistors. An additional laser-trimmed resistor is included to normalize pressure sensitivity variations by programming the gain of an external differential amplifier. This provides sensitivity interchangeability of  $\pm 1\%$ .

Please refer to the 23 and 33 1 psi datasheets for low pressure applications.

**FEATURES**

- TO-8 Package
- 0°C to 50°C Compensated Temperature Range
- ±0.1% Non Linearity
- 1.0% Interchangeable Span (provided by gain set resistor)
- Solid State Reliability

**APPLICATIONS**

- Medical Instruments
- Process Control
- Factory Automation
- Handheld Calibrators
- Airspeed Measurement

**STANDARD RANGES**

| <b>Range</b> | 23<br><b>psig</b> | 33<br><b>psid</b> |
|--------------|-------------------|-------------------|
| 0 to 2       | *                 | *                 |
| 0 to 5       | *                 | *                 |
| 0 to 10      | *                 | *                 |
| 0 to 15      | *                 | *                 |
| 0 to 30      | *                 | *                 |
| 0 to 50      | *                 | *                 |
| 0 to 100     | *                 | *                 |
| 0 to 250     | *                 | *                 |

## PERFORMANCE SPECIFICATIONS

Supply Current: 1.5mA

Ambient Temperature: 25°C (unless otherwise specified)

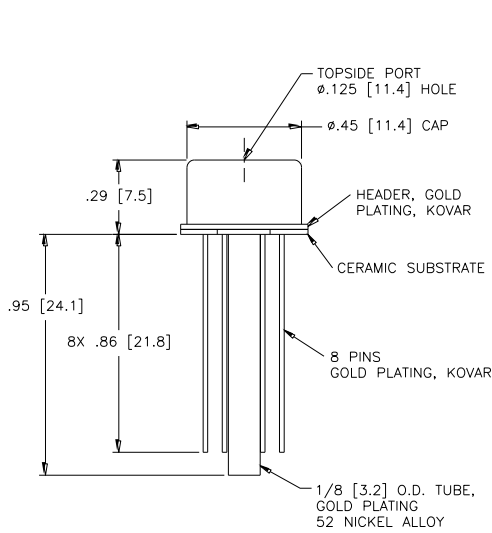
| PARAMETERS                          | MIN   | TYP   | MAX  | UNITS  | NOTES |
|-------------------------------------|---|-------|------|--------|-------|
| Span                                | 75  | 100   | 150  | mV     | 1     |
| Span (2psi version)                 | 30  |       | 60   | mV     | 1     |
| Zero Pressure Output                | -2  |       | 2    | mV     |       |
| Pressure Non Linearity              | -0.1  | ±0.05 | 0.1  | %Span  | 2     |
| Pressure Hysteresis                 | -0.05   | ±0.01 | 0.05 | %Span  |       |
| Input & Output Resistance           | 2500  | 4400  | 6000 | Ω      |       |
| Temperature Error – Span            | -0.5  | ±0.3  | 0.5  | %Span  | 3     |
| Temperature Error – Zero            | -0.5  | ±0.1  | 0.5  | %Span  | 3     |
| Thermal Hysteresis – Zero           |   | ±0.1  |      | %Span  | 3     |
| Supply Current                      |   | 1.5   | 2.0  | mA     |       |
| Response Time (10% to 90%)          |   | 1.0   |      | mS     | 4     |
| Output Noise (10Hz to 1kHz)         |   | 1.0   |      | μV p-p |       |
| Insulation Resistance (50 Vdc)      | 50  |       |      | M Ω    | 5     |
| Long Term Stability (Offset & Span) |   | ±0.2  |      | %Span  | 6     |
| Pressure Overload                   |   |       | 3X   | Rated  | 7     |
| Compensated Temperature             | 0   |       | 50   | °C     |       |
| Operating Temperature               | -40   |       | +125 | °C     |       |
| Storage Temperature                 | -50   |       | +150 | °C     |       |
| Weight                              |   |       | 3    | grams  |       |
| Solder Temperature                  | 250°C Max 5 Sec.  |       |      |        |       |
| Media                               | Non-Corrosive Dry Gases Compatible with Silicon, Pyrex, RTV, Gold, Nickel, and Aluminum |       |      |        |       |

## Notes

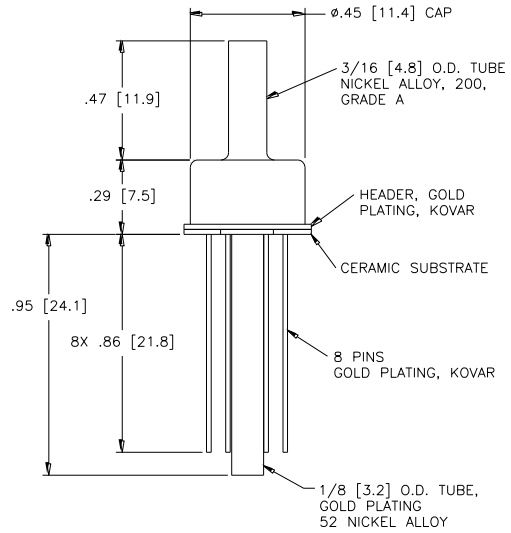
1. Ratiometric to supply current.
2. Best fit straight line.
3. Maximum temperature error between 0°C and 50°C with respect to 25°C. For 2 psi devices, Temperature Error – Zero is ±1.25%.
4. For a zero-to-full scale pressure step change.
5. Minimum resistance between case and pins.
6. Long term stability over a one year period with constant current and temperature.
7. For topside applications, 2X maximum for 250 psi device, 20 psi maximum for 2 and 5 psi devices. For backside applications, 3X not to exceed 100 psi on all ranges.

DIMENSIONS

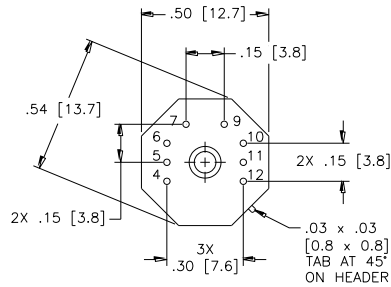
DIMENSIONS ARE IN INCHES [mm]



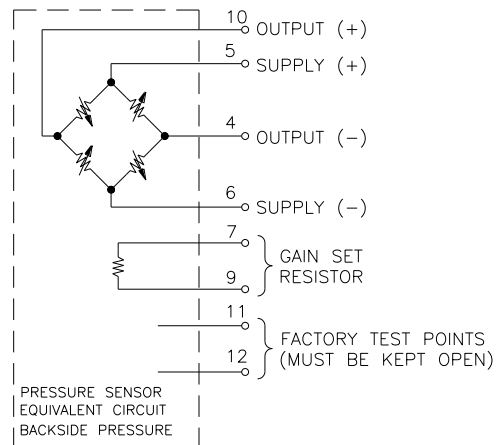
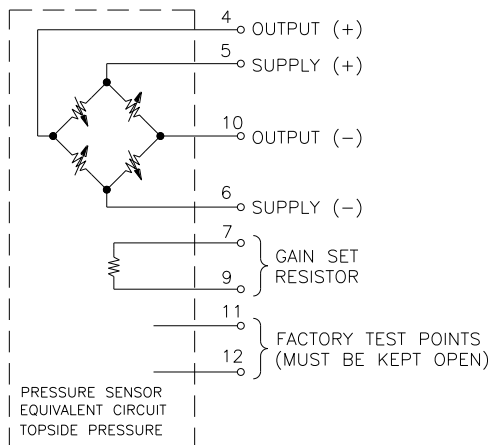
MODEL 23



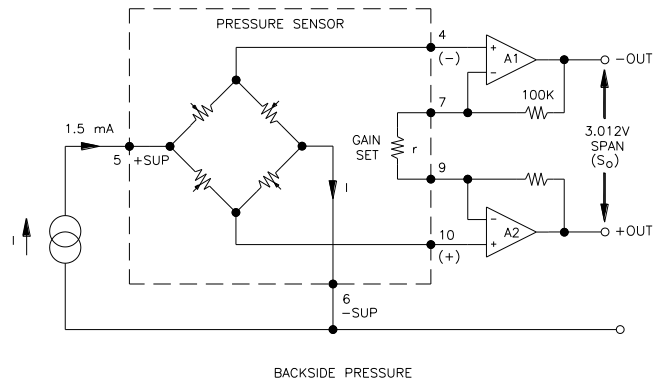
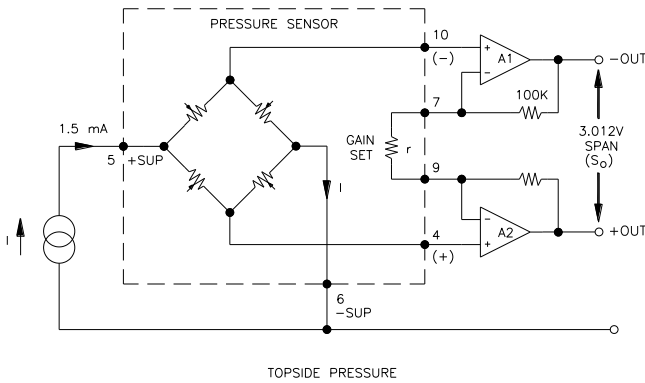
MODEL 33



CONNECTIONS

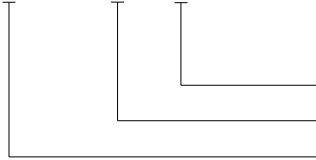


APPLICATION SCHEMATIC



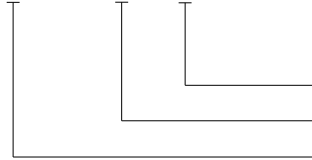
ORDERING INFORMATION

23A - 015 G



Type (G = Gage)  
Pressure Range  
Model

33A - 015 D



Type (D = Differential)  
Pressure Range  
Model

NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity Company  
Tel: 800-522-6752  
[customer-care.frmt@te.com](mailto:customer-care.frmt@te.com)

EUROPE

Measurement Specialties (Europe), Ltd.,  
a TE Connectivity Company  
Tel: 800-440-5100  
[customer-care.bevx@te.com](mailto:customer-care.bevx@te.com)

ASIA

Measurement Specialties (China), Ltd.,  
a TE Connectivity Company  
Tel: 0400-820-6015  
<mailto:customer-care.shzn@te.com>

[TE.com/sensorsolutions](http://TE.com/sensorsolutions)

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