

Model 27 and 37 UltraStable™



Model 27



Model 37

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

DESCRIPTION

The Models 27 and 37 UltraStable™ are high performance, temperature compensated, piezoresistive silicon pressure sensors packaged in TO-8 configurations. It uses Measurement Specialties' proprietary UltraStable™ die to provide excellent performance and long-term stability over wide temperatures.

Gage and differential pressure ranges from 0-15 to 0-250 psi are available. Integral temperature compensation is provided over a range of -20°C to +85°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 ±1%.

Please refer to Models 23 and 33 for information on products with operating pressures less than 0-15 psi.

FEATURES

- TO-8 Package
- -20°C to +85°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
- Environmental Control

STANDARD RANGES

| Range | Model 27 psig | Model 37 psid |
|----------|------------------|------------------|
| 0 to 15 | • | • |
| 0 to 30 | • | • |
| 0 to 50 | • | • |
| 0 to 100 | • | • |
| 0 to 250 | | • |

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PERFORMANCE SPECIFICATIONS

Supply Current: 1.5 mA

Ambient Temperature: 25°C (unless otherwise specified)

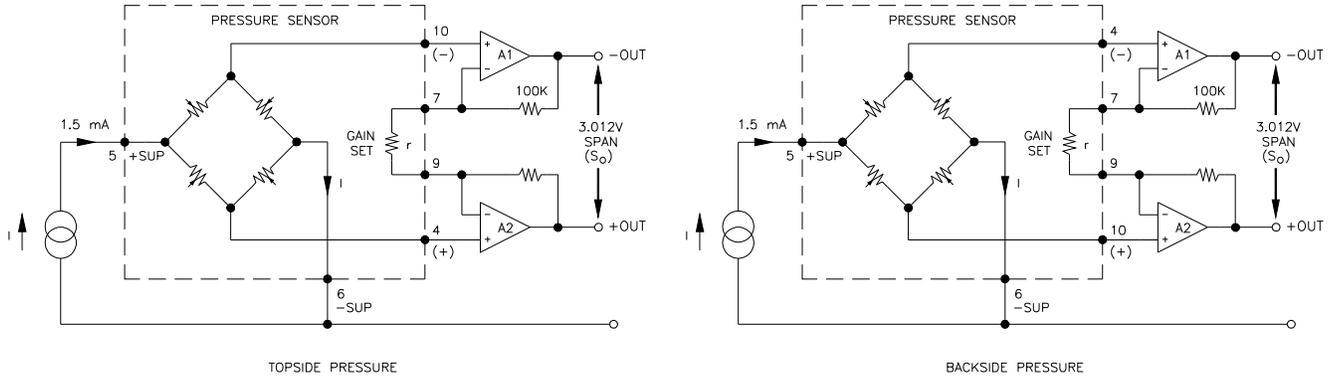
| PARAMETERS | MIN | TYP | MAX | UNITS | NOTES |
|--------------------------------------|---|-------|------|--------|-------|
| Span | 75 | 100 | 150 | mV | 1 |
| Zero Pressure Output | -2 | | 2 | mV | |
| Pressure Non Linearity | -0.1 | ±0.05 | 0.1 | %Span | 2 |
| Pressure Hysteresis | -0.1 | ±0.01 | 0.1 | %Span | |
| Input Resistance | 2200 | 4000 | 5800 | Ω | |
| Output Resistance | | 4200 | | Ω | |
| Temperature Error – Span | -0.5 | ±0.3 | 0.5 | %Span | 3 |
| Temperature Error – Zero | -0.5 | ±0.1 | 0.5 | %Span | 3 |
| Temperature Coefficient – Resistance | | 0.15 | | %/°C | 3 |
| Thermal Hysteresis – Zero | | ±0.05 | | %Span | 3 |
| Short Term Stability (Offset & Span) | | ±0.05 | | %Span | 4 |
| Long Term Stability (Offset & Span) | | ±0.1 | | %Span | 5 |
| Supply Current | 0.5 | 1.5 | 2.0 | mA | |
| Response Time (10% to 90%) | | 1.0 | | mS | 6 |
| Output Noise (10Hz to 1kHz) | | 1.0 | | μV p-p | |
| 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. For 250 psi devices, the minimum span value is 62 mV.
2. Best fit straight line.
3. Maximum temperature error between -20°C and +85°C with respect to 25°C.
4. Short term stability over 7 days with constant current and temperature.
5. Long term stability over a one year period with constant current and temperature.
6. For a zero-to-full scale pressure step change.
7. For topside applications, 2X maximum for 250 psi device. For backside applications, 3X not to exceed 100 psi on all ranges

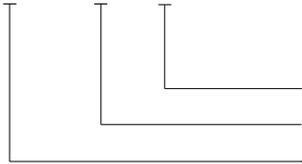
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APPLICATION SCHEMATIC



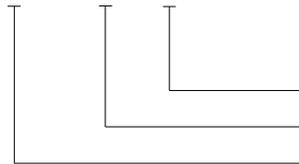
ORDERING INFORMATION

27 - 015 G



Type (G = Gage)
Pressure Range
Model

37 - 015 D



Type (D = Differential)
Pressure Range
Model

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