

MODEL 27 Ultrastable

PC Board Mountable Pressure Sensor

0-100 mV Output

Gage Pressure

Wide Temperature Range

- Medical Instrumentation
- Calibration
- Process Control
- Factory Automation
- Air Flow Management
- Leak Detection



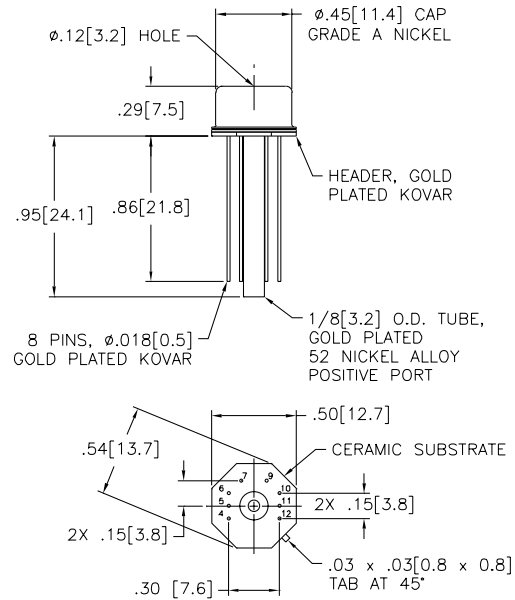
DESCRIPTION

The Model 27 is a high performance, temperature compensated, piezoresistive silicon pressure sensor packaged in a bottom tube TO-8 configuration. It provides excellent performance and long-term stability.

Gage pressure ranges from 0-15 PSI 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 $\pm 1\%$.

Please refer to the low pressure section for information on products with operating pressures less than 0-2 PSI.

DIMENSIONS



DIMENSIONS ARE IN INCHES [mm]

20 Series.eps

FEATURES

- TO-8 Package
- -20°C to +85°C Compensated Temperature Range
- $\pm 0.1\%$ Non-linearity
- $\pm 0.5\%$ Temperature Performance
- 1.0% Interchangeable Span (provided by gain set resistor)
- Solid State Reliability
- Low Power

STANDARD RANGES

Range	psig
0 to 15	•
0 to 30	•
0 to 50	•
0 to 100	•

Internet: www.msiousa.com

Tel: 1-757-766-1500

North America Toll Free: 1-800-745-8008

Fax: 1-757-766-4297

PERFORMANCE SPECIFICATIONS

Supply Current: 1.5mA

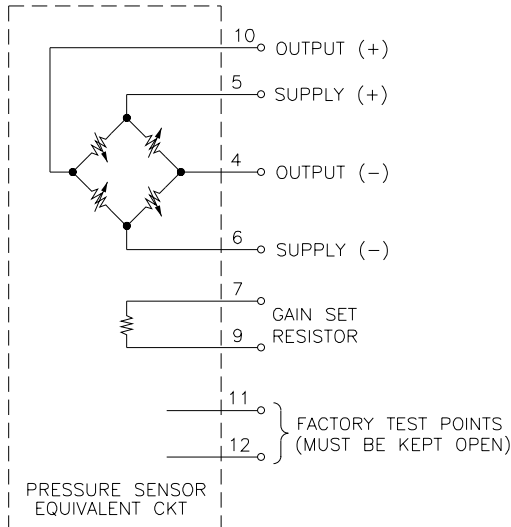
Ambient Temperature: 25°C (Unless otherwise specified)

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Full Scale Output Span, (without gain set resistor)	75	100	150	mV	1
Zero Pressure Output			2	±mV	3
Pressure Non-linearity		0.05	0.1	±% Span	2
Pressure Hysteresis		0.01	0.1	±% Span	
Input Resistance	2500	3500	4500	Ω	
Temperature Error - Span		0.3	0.5	±% Span	3, 4
Temperature Error - Zero		0.1	0.5	±% Span	3, 4
Temperature Coefficient - Resistance		0.145		%/°C	4
Thermal Hysteresis - Zero		0.05		±% Span	4
Short Term Stability of Offset		0.05		±% Span	11
Short Term Stability of Span		0.05		±% Span	11
Long Term Stability of Offset		0.1		±% Span	12
Long Term Stability of Span		0.1		±% Span	12
Supply Current	0.5	1.5	2.0	mA	5
Response Time (10% to 90%)		1.0		msec	6
Output Noise		1.0		µV p-p	7
Output Load Resistance	5			MΩ	8
Insulation Resistance (50 VDC)	50			MΩ	13
Pressure Overload			3X	Rated	9, 14
Operating Temperature	-40°C to +125°C				
Storage Temperature	-50°C to +150°C				
Media	Non-corrosive Gases Compatible with Wetted Materials				10
Weight	3 grams				

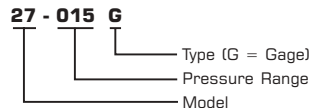
Notes

- Output span of unamplified sensor.
- Best Fit Straight Line.
- For Model 27, compensation resistors are an integral part of the sensor package; no additional external resistors are required. Pins 11 and 12 must be kept open. Model 27 is interchangeable only when used with a gain stage.
- Temperature range: -20°C to +85°C in reference to 25°C.
- Guarantees input/output ratiometricity for span.
- For a zero-to-full scale pressure step change.
- 10 Hz to 1 kHz.
- Prevents increase of TC-Span due to output loading.
- For top side application, 3X or 500 psi maximum, whichever is less. 20 psi for 2 psi and 5 psi versions.
- Wetted materials are glass, ceramic, silicon, RTV, nickel, and gold.
- Normalized offset bridge voltage: 7 days.
- 1 year.
- Between case and sensing element.
- For backside application, 3X not to exceed 100 psi on all ranges.

CONNECTIONS



ORDERING INFORMATION



APPLICATION SCHEMATIC

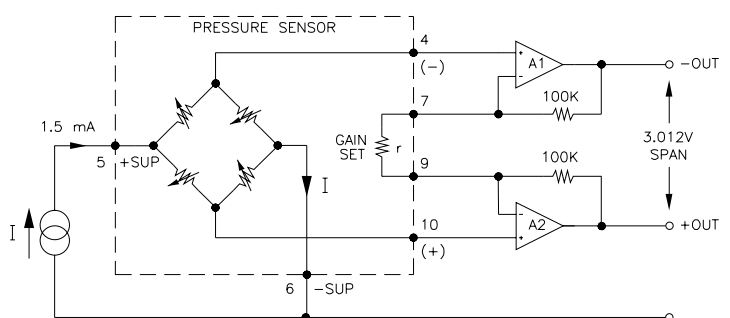


FIGURE 1: BOTTOM ENTRY FOR GAGE