

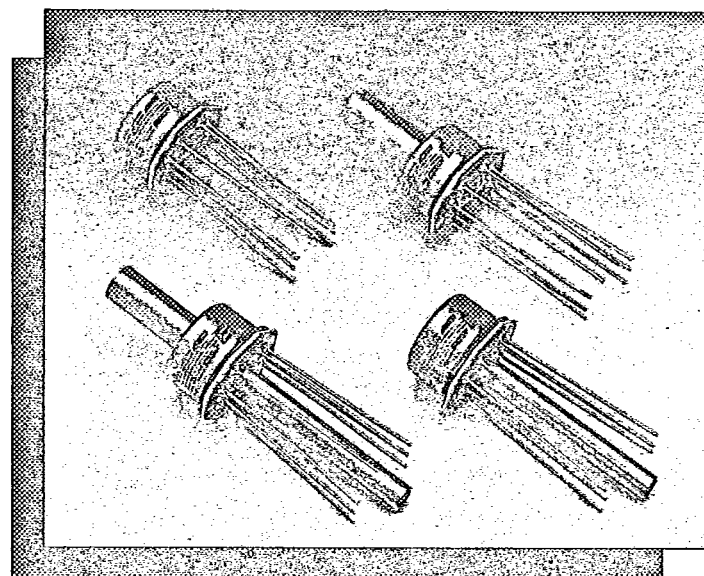
## OEM Pressure Sensor Gage and Differential Interchangeable 25 mV/PSI

### Features

- Temperature Compensated
- $\pm 1\text{mV}$  Zero Output
- Solid State Reliability
- Infinite Resolution
- $\pm 1\%$  Normalized Output Span
- Ratiometric
- Humidity Resistant
- $\pm 0.25\%$  Accuracy
- Low Noise
- Performance Graded

### Typical Applications

- Breathing Monitors
- Spirometers
- Respirators
- Ventilators
- Filtering Systems
- Pressure Switches
- Environmental Control
- Liquid Level
- Air Flow Measurement



### Description

Gage and differential solid state, piezoresistive pressure sensors are available in four TO-8 package configurations that are represented by Models 13-23-33-43. All can be used with non-corrosive media. In addition, the Model 23 is intended for use with corrosive media. Model 33 is the most convenient to use when measuring differential pressures. Each sensor is individually serialized.

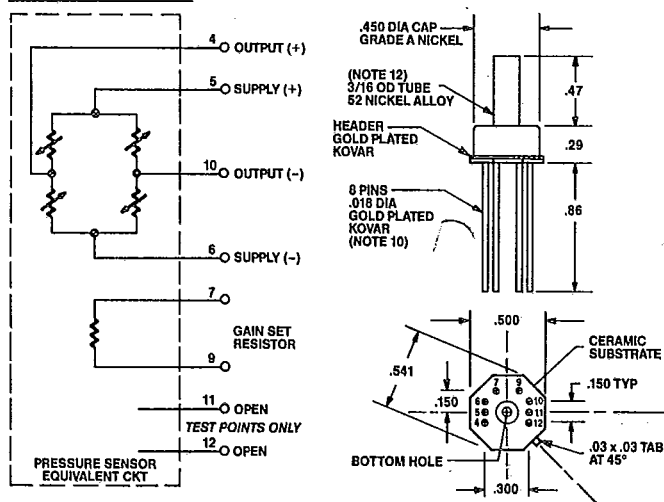
Integral temperature compensation is provided along with calibration over  $0-50^{\circ}\text{C}$  with laser trimmed resistors. No external resistors are required.

An additional laser trimmed resistor is included to normalize pressure sensitivity variations by programming the gain of an external amplifier, thus providing  $\pm 1\%$  interchangeability along with high level output.

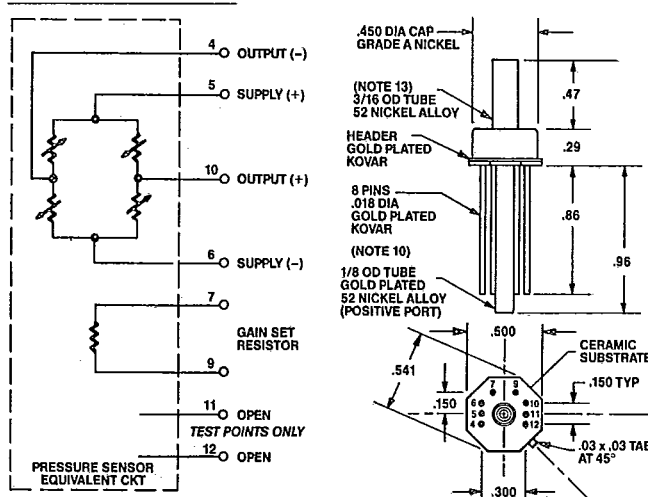
Three performance grades are available for all Models. If normalized output is not required, Models 12-22-32-42 are available, with the same specification, in a 6-lead configuration. Also, if no integral temperature compensation is required, Models 10-20-30-40 can be specified and will be supplied with temperature compensation resistor values.

### Connections/Dimensions

#### Models 13-43



#### Models 23N-33N



\*ALL DIMENSIONS ARE IN INCHES

## Performance Specifications

Supply Current = 1.5mA &amp; Ambient Temperature = 25°C (Unless otherwise specified)

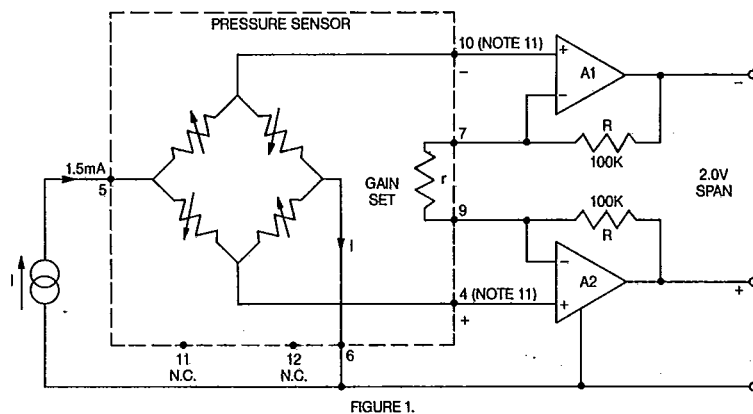
T-65-13

T-65-13

PARAMETER	GRADE									UNITS	NOTES
	A			B			C				
	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX		
Full-Scale Output Scan	30		60	30		60	30		100	mV	2,9
Zero Pressure Output			1			2			5	± mV	2
Linearity			0.20			0.30			0.50	± % Span	3
Pressure Hysteresis			0.15			0.15			0.15	± % Span	
Input & Output Resistance	2500	4400	6000		4400	6000		4400		Ω	
Temperature Coefficient-Span		0.3	0.5			1.0			2.0	± % Span	1,2
Temperature Coefficient-Zero		0.1	0.5			1.0			2.0	± % Span	1,2
Temperature Coefficient-Resistance		.22			.22			.22		%/°C	1
Thermal Hysteresis-Zero		0.3			0.4			0.6		± % Span	1
Supply Current		1.5	2.0		1.5	2.0		1.5	2.0	mA	4
Response Time (10% to 90%)		1.0			1.0			1.0		mS	5
Output Noise		1.0			2.0			5.0		μVp-p	6
Output Load Resistance	6			6			6			MΩ	7
Insulation Resistance (50VDC)	50			50			50			MΩ	
Long Term Stability		0.5			0.5			1.0		± % Span/year	
Pressure Overload			20			20			20	psi	
Operating Temperature	-40°C to +125°C										
Storage Temperature	-55°C to +150°C										
Acceleration	50g Max										
Shock	1000g Peak for 0.5 mS										
Vibration	20g Peak at 10 to 2000 Hz										
Media	Liquids (Models 23N-33N) & Gases (Models 13-43) Compatible with Wetted Materials										8
Weight	3 grams										

## Notes

1. Temperature range: 0-50°C in reference to 25°C.
2. Compensation resistors are an integral part of the sensor package; no additional external resistors are required. Pins 11 and 12 must be kept open. Models 13-23N-33N-43 are interchangeable only when used with a gain stage as shown in Figure 1; see Application Note TN-003.
3. Best fit straight line.
4. Guarantees output/input ratiometricity.
5. For a zero-to-full scale pressure step change.
6. 10Hz to 1kHz.
7. Prevents increase of TC-Span due to output loading.
8. Wetted materials are gold, RTV, silicon and glass on the bottom port (corrosive or non-corrosive media) and nickel and silicone gel on the top port (non-corrosive media).
9. Output span of unamplified sensor.
10. Soldering of lead pins and bottom tube: 250°C for 5 seconds maximum. Heat-sink tube while soldering.
11. Shown for Models 13-43. For Models 23N-33N, reverse pins 4 & 10.
12. Tube shown for Model 13. Model 43 has a 1/8" hole in the cap as opposed to a tube.
13. Tube shown for Model 33N. Model 23N has a 1/8" hole in the cap as opposed to a tube.
14. For gage applications, order Models 13-23N-43. Model 23N is media compatible. Order Model 33N for differential applications.



## Ordering Information

23N B-002 G

Type (G = Gage, D = Differential)

psi Range

Grade

See Note 14

Model

## Represented By

I.C. Sensors products are warranted against defects in material and workmanship for 12 months from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ALL OTHER EXPRESSED OR IMPLIED WARRANTIES. I.C. Sensors reserves the right to make changes to any product herein and assumes no liability arising out of the application or use of any product or circuit described or referenced herein.

# TO-8 SERIES PACKAGE MODEL 33

## PRESSURE SENSOR DIE

