

**316 SS Pressure Sensor**  
**0-100 mV Output**  
**Gage, Sealed Gage and Absolute**  
**Temperature Compensated**

- ▶ Medical Instruments
- ▶ Process Control
- ▶ Waste Water Management
- ▶ Refrigeration/Compressors
- ▶ Pressure Transmitters
- ▶ Level Systems



## DESCRIPTION

The Model 154N is a media compatible, compensated, piezoresistive silicon pressure sensor packaged in a 316 stainless steel housing. The sensing package utilizes silicone oil to transfer pressure from the 316 stainless steel diaphragm to the sensing element.

The Model 154N is designed for low pressure applications. A ceramic substrate is attached to the package that contains laser-trimmed resistors for temperature compensation and offset correction. An additional laser-trimmed resistor is included which can be used to adjust sensitivity variations by setting the gain of an external differential amplifier to within  $\pm 1\%$  interchangeability.

Alternatives include cap-ring Models 84 or 86, 1/4 NPT Model 96, and Model 85. High pressure sensors are also available.

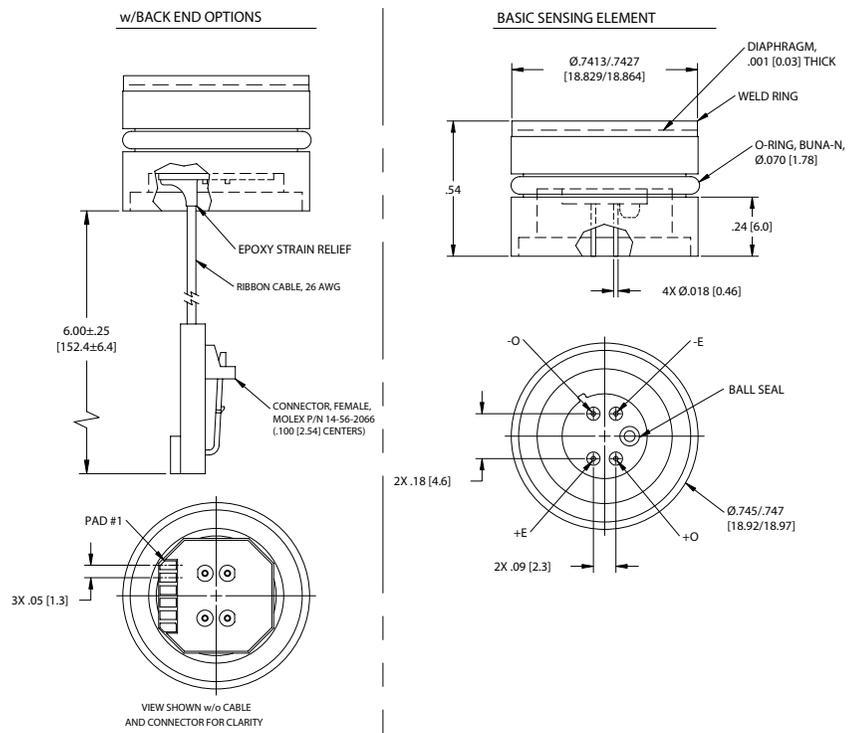
## FEATURES

- ▶ O-ring Mount
- ▶ 0.1% Pressure Non-linearity
- ▶  $-20^{\circ}\text{C}$  To  $+85^{\circ}\text{C}$  Compensated Temperature Range
- ▶ 1.0% Interchangeable Span (Provided By Gain Set Resistor)
- ▶ Solid State Reliability
- ▶ Low Power

## STANDARD RANGES

Range	psig	psia
0 to 5	Contact Factory	Contact Factory
0 to 15	●	●
0 to 30	●	●
0 to 50	●	●
0 to 100	●	●
0 to 300	●	●
0 to 500	●	●

## DIMENSIONS



### PERFORMANCE SPECIFICATIONS

All parameters measured at 1.5mA drive and at 25°C after 10 second warm up, unless otherwise specified. Unless specifically indicated, only those parameters indicated as tested are verified on each part. Parameters are specified for the compensated version only.

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Full Scale Output Span	75	100	150	mV	1, 2
Zero Offset	-1	0	1	mV	2
Pressure Non-linearity	-0.10		0.10	% Span	3
Pressure Hysteresis	-0.05	0.02	0.05	% Span	
Input Resistance	2,000	3,500	4,500	$\Omega$	
Output Resistance	4000		25000	$\Omega$	
Temperature Error - Span	-0.75		0.75	% Span	4
Temperature Error - Zero	-0.5		0.5	% Span	4, 5
Thermal Hysteresis - Span		0.05		% Span	4
Thermal Hysteresis - Zero		0.05		% Span	4
Long Term Stability - Offset		0.1		$\pm\%$ Span/yr.	
Long Term Stability - Span		0.1		$\pm\%$ Span/yr.	
Supply Current	0.5	1.5	2.0	mA	6
Output Load Resistance	5			M $\Omega$	7
Insulation Resistance (50 VDC)	50			M $\Omega$	8
Pressure Overload			3X	Rated	
Compensated Operating Temperature	-20°C to +85°C				9
Operating Temperature Range	-40°C to +125°C				9
Storage Temperature Range	-50°C to +125°C				9
Media - Pressure Port	Liquids and Gases compatible with 316L Stainless Steel				
Media - Reference Port	Compatible with Silicon, Pyrex, Gold, Fluorosilicone Rubber and 316L Stainless Steel				
Weight	24 g				10

- Notes**
- For amplified output circuits, 3.012V  $\pm$  1% interchangeability with gain set resistor. See Application Note TN-003.
  - Measured at vacuum for absolute (A), ambient for gage (G).
  - Best fit straight line.
  - Over Temperature range: -20°C to +85°C Span with respect to +25°C.
  - 15 psi range sensors have a temperature error of  $\pm$ 0.75% (Max) of Zero from -20°C to 85°C.
  - Guarantees output/input ratiometricity.
  - Load resistance to reduce measurement errors due to output loading.
  - Between case and sensing element.
  - Maximum temperature range for product with standard cable and connector is -20°C to +105°C.
  - Weight depends upon configuration (cable, connector).
  - Standard gauge units are not recommended for vacuum applications. For vacuum applications, contact factory.
  - For pressure ranges < 15 psi, consult factory on performance specifications.

### ORDERING INFORMATION

**154N - 050 G - C T**

- Vent (T = Tube, Blank is standard = No Tube)
- Electrical (C = Ribbon Cable with Connector, P = Solder Pads, R = Ribbon Cable, L = Leads, Uncompensated)
- Type (A=Absolute, G=Gage) (Note 11)
- Pressure Range (5 to 500 psi, 050 = 50 psi) (Note 12)
- Model

### CONNECTIONS

PAD NO. / CABLE	FUNCTION
1	+OUT
2	-EX
3	+EX
4	-OUT
5	GAIN
6	GAIN

### APPLICATION SCHEMATIC

