

- -40 - 125°C Operating Temperature
- Manifold Mount, O-Ring Seal
- Media- Liquid/Gas
- 1.5% Total Error Band
- Temperature Output Pin
- 15-150 PSI Pressure Ranges
- Absolute or Gage
- High Level 1 – 4V Output
- 10V Power Supply

DESCRIPTION

The APS60 is a high performance, low cost, micro-machined silicon pressure sensor. The temperature output pin provides a 3V signal at 25°C with a +10mV/°C rate of change.

The APS60 series utilizes MEMS piezo-resistive sensors pressurized on the passive backside of the silicon.

The sensor element is mounted on a stainless steel pedestal which eliminates package level stress. The package is designed to be mounted on a manifold with an O-ring seal.

APPLICATIONS

- Industrial Controls and Monitoring
- Appliances
- Gas/Liquid Chromatography

Maximum Environmental Ratings

Operating Temperature -40°C to 125°C
 Storage Temperature Range -55°C to 150°C
 Maximum Soldering Temperature 260°C

Proof pressure 3x full scale pressure
 Burst pressure 5x full scale pressure

APS60 Operational Characteristics

$V_+ = 10V$, $V_- = 0V$, Temperature = 25°C

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Excitation Voltage	V_{EX}	0	10	12	V
Excitation Current	I_{EX}		1.5		mA
Current Sourcing Output	I_{OUT}			10	mA
Span (FS Range)	V_{OUT}	3.90	4.0	4.10	V
Offset (Note 1)	V_{OS}	0.95	1.0	1.05	mV
Linearity (Note 2)		-0.3	±0.15	0.3	%FS
Temperature Error (Null and Span) (Note 3)		-5		+5	%FS
Bridge Impedance		2.70	3.15	4.00	kΩ
Response Time	t_R			1	ms
Temperature Sensor Voltage (Note 4)			3.0		V

Notes:

- | | |
|----------------------------------|-------------------------------|
| 1) Measured at zero pressure. | 3) Measured from 0°C to 70°C. |
| 2) Defined as best straight line | 4) +10mV/°C Output. |

Electrical Pin Configuration

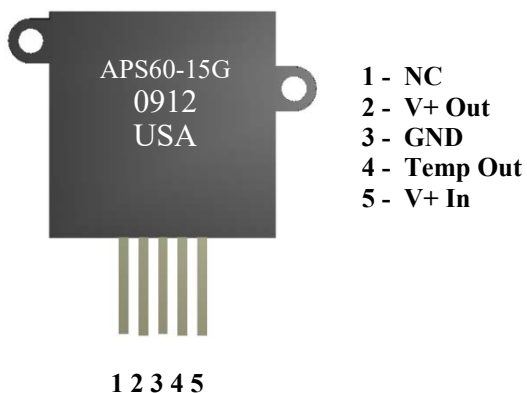


Fig. 1

Application Information

Package

The package body is made of polyester, and is not sealed. This is necessary for operation of the sensor.

Stability

The micro-machined pressure sensor has a Pyrex base and is mounted to a stainless steel pedestal with a flexible, chemical resistant die attach material. Flexible die attach materials help reduce the mechanical stress which results in greater stability over time and temperature.

Additional stability is gained from factory stabilization of all sensors.

Pressure port

The face seal port is a highly reliable connection method that allows direct mounting to a measurement point with an O-ring. An O-ring provides for a leak resistant seal and very robust connection. Designs for O-ring seals may be found in the "Parker O-Ring Handbook". Recommended O-ring characteristics:

AS568A Dash Number	008
Outside Diameter	5/16"
Inside Diameter	3/16"
Width	1/16"
Material	Viton® Fluoroelastomer
Viton® Fluoroelastomer Type	Standard
Durometer	Hard
Durometer Shore	Shore A: 75

Media

The pressure port is tolerant of harsh environments and many different media.

Wetted parts

The wetted surfaces are composed of the silicone die attach, the O-ring material, 316 stainless steel and silicon.

Pressure ranges

Standard pressure ranges are 15, 30, 60 and 100 psi in both gage and absolute types. Custom pressure ranges are available for large orders.

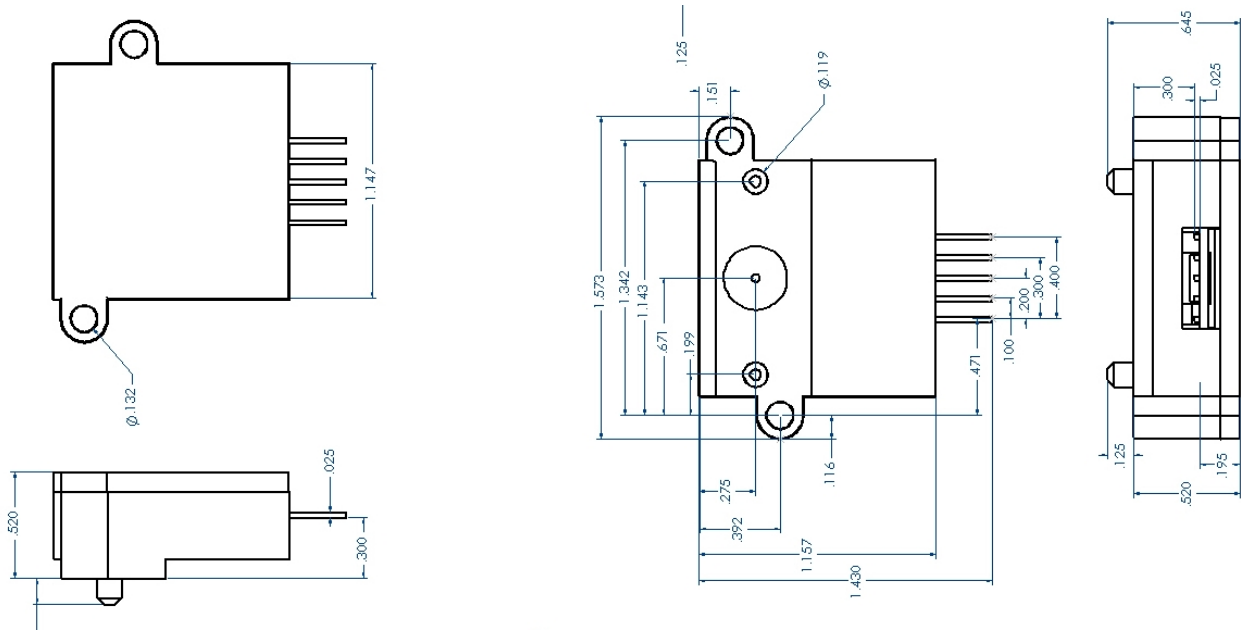
Soldering and contamination

The APS60 series packaging is not sealed due to the need to provide an atmospheric port in gage pressure application. This means that the APS60 series are not suitable for application where flux residue is to be cleaned from the finished circuit assembly. Foreign materials and contamination should be prevented from entering the sensor package cavity.

NOTE:

Proper care should be exercised when mounting. Do not apply excessive clamping pressure on the package cover as it is possible to damage the housing and the sensor.

Mechanical Dimensions (inches)



Part Number Configuration

APS60-30G

Model ———— Type (G=Gage, A=Absolute)
 ———— Pressure Range(15, 30, etc.)

Standard Part Numbers

Model	Pressure Range PSI	Type	Max Over Pressure
APS60-15G	15	Gage	45
APS60-30G	30	Gage	90
APS60-60G	60	Gage	120
APS60-100G	100	Gage	150
APS60-150G	150	Gage	175
APS60-15A	15	Absolute	45
APS60-30A	30	Absolute	90
APS60-60A	60	Absolute	120
APS60-100A	100	Absolute	150
APS60-150A	150	Absolute	175

Notice:

AzSensCo LLC reserves the right to make changes to the product contained in this publication. AzSensCo LLC assumes no responsibility for the use of any circuits described herein, conveys no license under any patent or other right, and makes no representation that the circuits are free of patent infringement. While the information in this publication has been checked, no responsibility, however, is assumed for inaccuracies.

AzSensCo LLC does not recommend the use of any of its products in life support applications where the failure or malfunction of the product can reasonably be expected to cause failure of a life-support system or to significantly affect its safety or effectiveness. Products are not authorized for use in such applications.