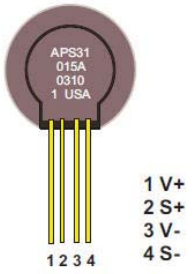
Low Pressure Board Mount

APS30



PIN CONFIGURATION

FIGURE 1

- High Stability, Low Cost
- Backside Pressure for Harsh Environment
- Absolute or Gage
- Constant Current or Voltage Excitation
- Uncompensated Millivolt Output
- 5-300 PSI Pressure Ranges
- Media – Liquid, Air, & Gas

DESCRIPTION

The APS30 is a high performance, harsh environment micro-machined silicon pressure sensor.

This silicon pressure transducer was designed for demanding industrial and commercial applications. The pressure port on the bottom of the MEMS sensor is highly resistant to chemicals.

The alumina ceramic (AL2O3) packaging is very mechanically stable. Isolation of the mechanical stresses on the sensing element contributes to the long term stability of the sensor.

Custom pressures and packaging is available to OEM customers.

APPLICATIONS

- Mil/Aero
- Industrial Automation
- Oil/Gas
- Digital Pressure Gauges
- Compressor
- Pneumatic

Maximum Environmental Ratings

Operating Temperature ……..... -40°C to 85°C
Storage Temperature Range ……. -55°C to 125°C

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

APS30 Operational Characteristics (Gage)

V_+ = 5V, V_- = 0V, Temperature = 25°C

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Excitation Voltage (Note 1)	V_{EX}		5	10	V
Excitation Current	I_{EX}		1.5	3	mA
Span (FS Range) 15 psig 30 psig 60 psig 100 psig	V_{OUT}	 115 130 130 130	 145 165 180 200	 175 195 220 250	mV
Offset (Note 1)	V_{OS}	-50	0	50	mV
Linearity (Note 2)		-0.3		0.3	%FS
Repeatability		-1		1	%FS
Temperature Error (Null and Span) (Note 3)		-.5	.2	+.5	%FS
Bridge Impedance		2.70	3.15	4.00	kΩ
Response Time	t_R		.5	1	ms

Notes:
1) Ratiometric output. 2) Measured at zero pressure differential 3) Defined as best straight line. 4) Measured from 0°C to 70°C.

Application Information

Package

The package body design is made of alumina ceramic, an extremely rigid and stable material that is highly impervious to chemicals. This results in high stability over time.

The sensor package is not sealed. This is necessary for operation of the sensor.

Stability

The small difference in coefficient of thermal expansion between the sensor and package sets the APS30 series apart from other board level pressure sensor designs.

The micromachined pressure sensor has a pyrex base and is mounted with a flexible, chemical resistant material into the ceramic package. The die attach allows for some tolerance of small physical movements and helps isolate the sensor die from other changes due to temperature, sensor mounting, and packaging.

Additional stability is gained from factory stabilization of all sensors.

Pressure port

The F (face seal) port option is a highly reliable connection method that allows direct mounting to a measurement point with methods such as an o-ring or epoxy. 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”. The T (tube) port option is also a reliable connection method if the user finds a tube connection cavity more effective for their design. Pressure ports with tubing barbs are designed for 1/8” OD, flexible tubing.

NOTE: DO NOT apply clamping pressure on the package cover. It is possible to damage the package if excessive pressure is applied. Proper care should be exercised when mounting.

Media

The pressure port is tolerant to most media including but not limited to oil, air, gas, some corrosive media, and salt water.

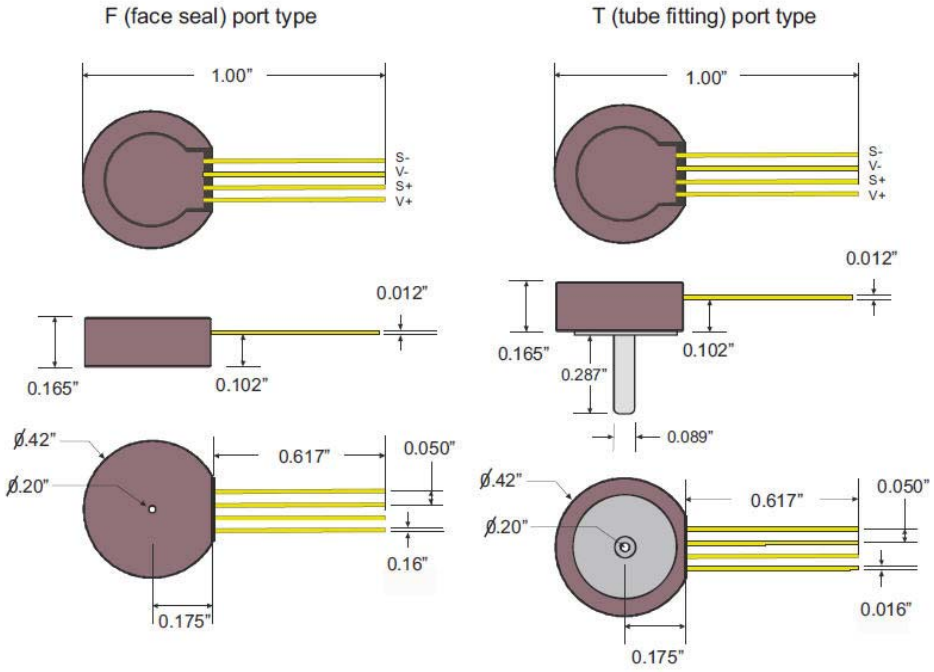
Wetted parts

F (face seal) port option wetted surfaces are composed of alumina ceramic, silicone die attach, pyrex glass and silicon.
T (tube) port option adds 305 stainless steel.

Pressure ranges

Standard pressure ranges are 5, 10, 15,30, 60, and 100 psi in absolute or gage. Custom pressure ranges are available for OEM customers.

Mechanical Dimensions (inches)



Part Number Configuration

APS30T-15G

Model

Type (A=Absolute, G=Gage)

Pressure Range(15=15PSI, 30= 30PSI)

Units (T=Tube, F= Face Seal)

Standard Part Numbers

Model	PSI	Type	Max. Over Pressure
APS30T-15G/A	15	Gauge/Abs	45
APS30T-30G/A	30	Gauge/Abs	90
APS30T-60G/A	60	Gauge/Abs	180
APS30T-100G/A	100	Gauge/Abs	300