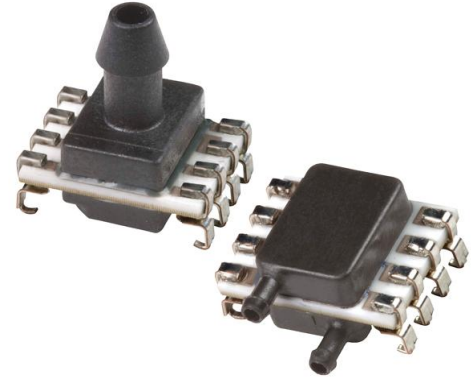


TruStability™ Silicon Pressure Sensors: SSC Series – Standard Accuracy

±2 % Total Error Band,
Analog Output, SMT and DIP,
1 psi to 150 psi



DESCRIPTION

The TruStability™ Standard Accuracy Silicon Ceramic (SSC) Series is a piezoresistive silicon pressure sensor offering a ratiometric analog output for reading pressure over the specified full scale pressure span and temperature range.

The SSC Series is fully calibrated and temperature compensated for sensor offset, sensitivity, temperature effects, and non-linearity using an on-board Application Specific Integrated Circuit (ASIC). Calibrated output values for pressure are updated at approximately 1 kHz.

The SSC Series is calibrated over the temperature range of -20 °C to 85 °C [-4 °F to 185 °F]. The sensor is characterized for operation from a single power supply of either 3.3 Vdc or 5.0 Vdc.

These sensors measure absolute, differential, and gage pressures. The absolute versions have an internal vacuum reference and an output value proportional to absolute pressure. Differential versions allow application of pressure to either side of the sensing diaphragm. Gage and compound versions are referenced to atmospheric pressure and provide an output proportional to pressure variations from atmosphere.

The SSC Series sensors are intended for use with non-corrosive, non-ionic working fluids such as air and dry gases. They are designed and manufactured according to standards in ISO 9001.

FEATURES

- Industry-leading long-term stability
- Extremely tight accuracy of ±0.25 % FSS BFSL*
- Total error band of ±2 % full scale span maximum
- Modular and flexible design offer customers a variety of package styles and options, all with the same industry-leading performance specifications
- Miniature 10 mm x 12.5 mm [0.39 in x 0.49 in] package
- Low operating voltage
- Extremely low power consumption
- Ratiometric 12-bit analog output
- Precision ASIC conditioning and temperature compensated over -20 °C to 85 °C [-4 °F to 185 °F] temperature range
- RoHS compliant
- Virtually insensitive to mounting orientation
- Internal diagnostic functions increase system reliability
- Also available with I²C and SPI digital output, and in SMT and DIP packages
- Absolute, differential, gage and compound types
- Pressure ranges from 1 psi to 150 psi (60 mbar to 10 bar)
- Custom calibration available
- Various pressure port options

* Full Scale Span Best Fit Straight Line

TruStability™ Silicon Pressure Sensors: SSC Series–Standard Accuracy

POTENTIAL APPLICATIONS

- | | |
|---|--|
| <ul style="list-style-type: none"> • Medical: <ul style="list-style-type: none"> - Airflow monitors - Anesthesia machines - Blood analysis machines - Gas chromatography - Gas flow instrumentation - Kidney dialysis machines - Oxygen concentrators - Pneumatic controls - Respiratory machines - Sleep apnea equipment - Ventilators | <ul style="list-style-type: none"> • Industrial: <ul style="list-style-type: none"> - Barometry - Flow calibrators - Gas chromatography - Gas flow instrumentation - HVAC - Life sciences - Pneumatic controls |
|---|--|

Table 1. Absolute Maximum Ratings¹

Parameter	Min.	Max.	Unit
Supply voltage (V_{supply})	-0.3	6.0	V
Voltage on any pin	-0.3	$V_{\text{supply}} + 0.3$	V
ESD susceptibility (human body model)	3	-	kV
Storage temperature	-40 [-40]	85 [185]	°C [°F]
Peak reflow temperature	-	250 [482]	°C [°F]
Peak reflow duration	-	15	s

Table 2. Operating Specifications

Parameter	Min.	Typ.	Max.	Unit
Supply voltage (V_{supply}) ²				
3.3 V	3.0	3.3 ³	3.3	Vdc
5.0 V	4.75	5.0 ³	5.25	
<i>Sensors are either 3.3 or 5.0V based on model selected.</i>				
Supply current				
3.3 V supply	-	1.6	2.1	mA
5.0 V supply	-	2	3	
Compensated temperature range ⁴	-20 [-4]	-	85 [185]	°C [°F]
Operating temperature range ⁵	-40 [-40]	-	85 [185]	°C [°F]
Startup time (power up to data ready)	-	-	5	ms
Response time	-	1	-	ms
Upper output clipping limit	-	-	97.5	% V_{supply}
Lower output clipping limit	2.5	-	-	% V_{supply}
Accuracy ⁶	-	-	±0.25	%FSS BFLS
Total Error Band ⁷	-	-	±2	%FSS ⁸
Output resolution	12	-	-	bits

Table 3. Environmental Specifications

Parameter	Characteristic
Humidity	0 % to 95 % RH, non-condensing
Vibration	MIL-STD-202F, Curve AK (20.7 g random)
Shock	MIL-STD-202F, Method 213B, Condition F
Life ⁹	1 million cycles minimum