Barometric Pressure Sensors

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600 to 1,100 mbar Barometric Pressure



Options:

- Ratiometric Output
- Fixed 4V Output with internal Voltage Reference
- Temperature Compensated (-25C to 85C, -40C to 125C, 5 C to 50C)
- Calibrated Zero and Span

Applications

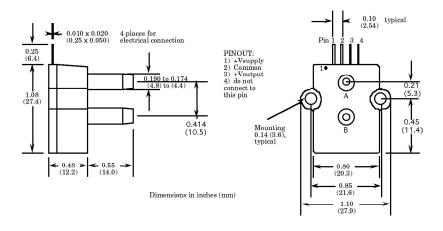
- Medical Instrumentation
- Environmental Controls
- Chemical Analysis

General Description

These Barometric pressure sensors are based upon a proprietary package technology to reduce errors. This model provides a fixed 4-volt output with superior output characteristics. The sensor housing has been designed specifically to reduce package induced parasitic stress and strain. In addition the sensor utilizes a silicon, micromachined (MEMS) structure to provide a very linear output to measured pressure. The sensor embodies a vacuum reference.

These calibrated and temperature compensated sensors give an accurate and stable output over a wide temperature range. Each sensor is internally compensated using an ASIC compensation technique. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like.

Physical Dimensions



Pressure Sensor Ratings		Environmental Specifi	ications
Lead Temperature, max	250°C	Temperature Ranges	
(soldering 2-4 sec.)		Compensated	see below
Burst Pressure	60 psi	Operating	-40 to 125° C
		Storage	-40 to 125° C
		Humidity Limits	0 to 95% RH
			(non condensing)

Standard Pressure Ranges

Part Number	Operating Pressure	Supply Voltage	Compensated Temperature Range
BARO-A-4V	600 - 1100 mbar	4.5 to 5.5 V	5C to 50C
BARO-A-4V-PRIME	600 - 1100 mbar	4.5 to 5.5 V	-25C to 85C
BARO-A-4V-MIL	600 - 1100 mbar	4.5 to 5.5 V	-40C to 125C
BARO-A-4V-PRIME-REF	600 - 1100 mbar	5.5 to 16 V	-25C to 85C

$\label{eq:performance} \textbf{Performance Characteristics for BARO-A-4V}$

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure	600		1100	mBar
Output Voltage @1,100 mbar	4.20	4.25	4.30	volt
Output Voltage @ 600 mbar	0.20	0.25	0.30	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4		0.05	0.25	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

Performance Characteristics for BARO-A-4V-PRIME

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure	600		1100	mBar
Output Voltage @ 1,100 mbar	4.20	4.25	4.30	volt
Output Voltage @ 600 mbar	0.20	0.25	0.30	volt
Offset Temperature Shift (-25°C to 85°C), note 2			<u>+2</u> 0	mvolt
Linearity, hysteresis error, note 4		0.05	0.25	%fs
Span Shift (-25°C to 85°C), note 2			±1	% span

Performance Characteristics for BARO-A-4V-MIL

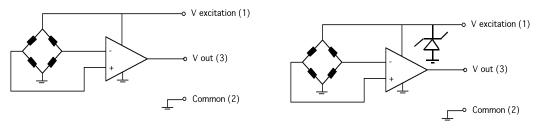
Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure	600		1100	mBar
Output Voltage @ 1,100 mbar	4.20	4.25	4.30	volt
Output Voltage @ 600 mbar	0.20	0.25	0.30	volt
Offset Temperature Shift (-40°C to 125°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4		0.05	0.25	%fs
Span Shift (-40°C to 125°C), note 2			±1	% span

Performance Characteristics for BARO-A-4V-PRIME-REF

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure	600		1100	mBar
Output Voltage @ 1,100 mbar	4.20	4.25	4.30	volt
Output Voltage @ 600 mbar	0.20	0.25	0.30	volt
Offset Temperature Shift (-25°C to 85 °C), note 2			±20	mvolt
Linearity, hysteresis error, note 4		0.05	0.25	%fs
Span Shift (-25°C to 85°C), note 2			±1	% span

Equivalent Circuit

Equivalent Circuit with Internal Voltage Reference



Specification Notes

- Note 1: All parameters are measured at 5.0 volt excitation for ratiometric parts and 12.0 for parts with internal
 - REFERENCE, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED.
- Note 2: Shift is relative to $25^{\circ}C.$
- Note 3: Shift is within the first hour of excitation applied to the device.
- NOTE 4: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

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