Barometric Amplified Pressure Sensors

600 to 1,100 mbar Barometric Pressure Sensor

Preliminary

Features

- •Barometric Pressure Range
- Temperature Compensated
- · Calibrated Zero and Span

Applications

- Medical Instrumentation
- Environmental Monitoring
- Altimeters
- Chemical Analysis

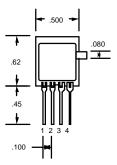
General Description

The Miniature Amplified Output pressure sensors is based upon a proprietary technology to reduce all output offset or common mode errors. This model provides a calibrated amplified output with superior output offset characteristics. Output offset errors due to change in temperature, stability to warm-up, stability to long time period, and position sensitivity are all significantly reduced when compared to conventional compensation methods. In addition the sensor utilizes a silicon, micromachined, stress concentration enhanced structure to provide a very linear output to measured pressure.

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

The output of the device is ratiometric to the supply voltage and operation from any D.C. supply voltage between 4.5 and 5.5 volts.

Physical Dimensions

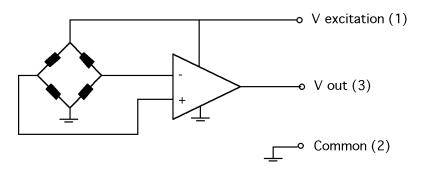


| Pressure Sensor Characteristics Maximum Ratings | | Environmental Specifications | | |
|---|------------------|-------------------------------------|------------------|--|
| Supply Supply Voltage VS | +4.5 to +75.5Vdc | Temperature Ranges | | |
| Lead Temperature (soldering 2-4 sec.) | 250°C | Compensated | see specificatio | |
| | | Operating | -25 to 85° | |
| | | Storage | -40 to 125° | |
| | | Humidity Limits | 0 to 95% R | |
| | | | (non condensing | |

Standard Pressure Ranges

| Part Number | Operating Pressure | Compensated Range |
|---------------------|---------------------------|-------------------|
| BARO-A-4V-MINI | 600 to 1,100 mbar | 5 to 50° C |
| BARO-A-4VMINI-PRIME | 600 to 1,100 mbar | -25 to 85° C |
| BARO-A-4V-MINI-MIL | 600 to 1,100 mbar | -40 to 125° C |

Equivalent Circuit



Performance Characteristics for BARO-A-4V-MINI

| 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-MINI-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 | | | ±20 | 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-MINI-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 |

Specification Notes

Note 1: All parameters are measured at 5.0 volt excitation, for the nominal full scale pressure and room temperature

UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH POSITIVE PRESSURE APPLIED TO THE FRONT PORT.

NOTE 2: SHIFT IS RELATIVE TO 25°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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