BPS140 Series - 10 mm Analog High Pressure Sensor for Certain Harsh Media

Features
- Compensated output
- Certain harsh media monitoring
- Absolute and gauge types
- Isolated onboard electronics
- Ceramic port
- RoHS compliant

Applications
- Industrial:
  - Refrigerant systems
  - Water level & pressure monitoring
- **Medical Devices (low/medium risk):**
  - Diagnostic/analysis equipment
- **Heavy Equipment:**
  - Oil & fuel systems
  - Exhaust gas pressure sensing

Electrical Characteristics
Supply Voltage (V_S) ........................................................... 4.5 V minimum, 5 V typical, 5.5 V maximum
Supply Current ................................................................................................................................. 10 mA
Short Circuit Current ....................................................................................................................... ±25 mA
Reverse Polarity Current ................................................................................................................... 2.5 mA
Overvoltage Protection .................................................................................................................. 33 V

Performance Characteristics
Operating Temperature ....................................................................................................................... -40 °C to +150 °C (-40 °F to +302 °F)
Storage Temperature ...................................................................................................................... -55 °C to +150 °C (-67 °C to +302 °F)
Output Range V_out**** .................................................................................................................. 10 % to 90 % V_S
Output Clamping Limit V_out**** .................................................................................................... 5 % to 95 % V_S
Resolution (>12 bit DAC) .............................................................................................................. 0.02 % FS
Accuracy @ 25 °C .......................................................................................................................... ±0.25 % FS
Total Error Band @ -40 °C to +150 °C (-40 °F to +302 °F) .............................................................. ±2.5 % FS
Static Proof Pressure ................................................................................................................... 2X full scale PSIA
Burst Pressure ............................................................................................................................. 3X full scale PSIA
Lifetime Drift .................................................................................................................................. ±0.5 % FS

Product Characteristics
Media Compatibility ......................................................................................................................... Harsh media (air, liquid and gas)
Moisture Sensitivity Level .............................................................................................................. 1
ESD Classification (HBM) .............................................................................................................. >4 kV
Marking .......................................................................................................................................... Partial model number, media compatibility, pressure type, pressure rating, lot code
Standard Packaging ...................................................................................................................... 250 pcs./13-inch reel
Weight ........................................................................................................................................... 1.042 grams (0.037 oz)

Cross Section

Basic Circuit Schematic

Note: Power supply decoupling and output filtering included.

Consult factory for custom options such as supply voltage, temperature calibration range, and output range accuracy specification.

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*** Custom engineered solutions. Check with factory for availability.
**** 5 V input voltage.
Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

“Wetted” Materials: Silicon, glass, ceramic
Any material in contact with the media is considered a “wetted” material.

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**Transfer Function Formula**

\[
P_{\text{psi}} = (P_{\text{max}} - P_{\text{min}}) \cdot \left( \frac{V_{\text{out}} - V_{\text{minComp}}}{V_{\text{maxComp}} - V_{\text{minComp}}} \right) + P_{\text{min}}
\]

Where

- \( P_{\text{psi}} \) = Measured Pressure in PSI
- \( P_{\text{max}} \) = Maximum Pressure
- \( P_{\text{min}} \) = Minimum Pressure
- \( V_{\text{minComp}} \) = Minimum Voltage (Usually 0.5 V)
- \( V_{\text{maxComp}} \) = Maximum Voltage (Usually 4.5 V)
- \( V_{\text{out}} \) = Output Voltage

**Product Dimensions**

<table>
<thead>
<tr>
<th>DIMENSIONS: MM (INCHES)</th>
<th>TOLERANCES: 0.3 (0.012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VENT (FOR GAUGE OPTION) ALONG EDGE OF COVER</td>
<td></td>
</tr>
<tr>
<td>Vout</td>
<td>GND</td>
</tr>
<tr>
<td>3.4 (0.134)</td>
<td>3.4 (0.134)</td>
</tr>
<tr>
<td>1.8 (0.071)</td>
<td>4.1 (0.161)</td>
</tr>
</tbody>
</table>

**How To Order**

- **Model Series**: BPS140
- **Media Compatibility**: H = Certain Harsh Media
- **Pressure Type**: A = Absolute, G = Gauge
- **Pressure (psi)**:
  - 015P = 15
  - 030P = 30
- **Terminal Pins**: 1 = No Terminal Pins
- **Port Style**: S = Single Port
- **Packaging Designator**: G = 250 pcs. per 13-inch Reel

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Solder Profile

Notes:
1. No clean solder paste is recommended.
2. Aqueous wash is not recommended.
3. Use of water soluble soldering flux should be avoided due to possible corrosion.
4. Multiple passes through the soldering process is not recommended.
5. Other SMD processes and profiles should be verified by the customer.

Packaging Specification

250 pieces per 13-inch reel.
Meets specifications of EIA-481-1 or EIA-481-2.
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