

TruStability™ Board Mount Pressure Sensors

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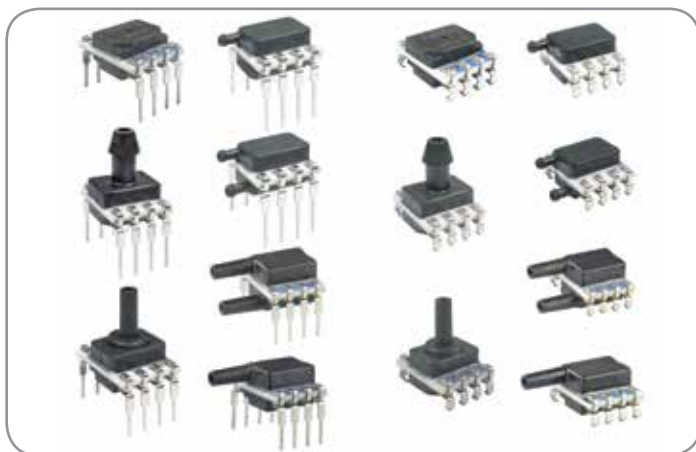
RSC Series—High Resolution, High Accuracy, Compensated

Issue B

±1.6 mbar to ±10 bar | ±160 Pa to ±1 MPa | ±0.5 inH₂O to ±150 psi

24-bit Digital SPI-Compatible Output

Datasheet



DESCRIPTION

The RSC Series is a piezoresistive silicon pressure sensor offering a digital output for reading pressure over the specified full scale pressure span and temperature range. It is calibrated and temperature compensated for sensor offset, sensitivity, temperature effects, and non-linearity using a 24-bit analog-to-digital converter with integrated EEPROM. Pressure data may be acquired at rates between 20 and 2000 samples per second over an SPI interface. It is intended for use with non-corrosive, non-ionic gases, such as air and other dry gases, designed and manufactured according to ISO 9001 standards, and is REACH and RoHS compliant.

VALUE TO CUSTOMERS

- **Enhances performance:** Output accelerates performance through reduced conversion requirements and direct interface to microprocessors. Proprietary Honeywell technology combines high sensitivity with high burst and over pressure while providing industry leading stability (performance factors difficult to achieve in the same sensor), providing flexibility in implementation and minimizing requirements for protecting the sensor without sacrificing ability to sense very small changes in pressure.
- **Cost-effective, high volume solution** with a variety of options.
- **Enhances reliability:** High burst pressures promote system reliability, minimize downtime, and can simplify design. High working pressures allow ultra-low sensors to be used continuously above the calibrated pressure range.
- **Easy to design in:** Package is small when compared to many similar sensors, occupying less area on the PCB. Port and housing options simplify integration. Wide pressure range simplifies use.
- **Meets IPC/JEDEC J-STD-020D.1 Moisture Sensitivity Level 1 requirements:** Allows avoidance of thermal and mechanical damage during solder reflow attachment and/or repair that lesser rated sensors would incur, allows unlimited floor life when stored as specified (simplifying storage and reducing scrap), eliminates lengthy bakes prior to reflow, and allows for lean manufacturing due to stability and usability shortly after reflow.
- **Energy efficient:** Reduces system power requirements and enables extended battery life.

FEATURES

- Pressure range: ±1.6 mbar to ±10 bar | ±160 Pa to ±1 MPa | ±0.5 inH₂O to ±150 psi; absolute range 1 bar to 8 bar | 15 psi to 150 psi
- Pressure types: Absolute: internal vacuum reference and an output value proportional to absolute pressure; Gage: referenced to atmospheric pressure and provide an output proportional to pressure variations from atmosphere; Differential: allows measurement of pressure between the two pressure ports
- Total Error Band: As low as ±0.25 %FSS depending on pressure range (after auto zero)
- Accuracy: ±0.1 %FSS BFSL (Full Scale Span Best Fit Straight Line)
- Compensated temperature range: -40 °C to 85 °C [-40 °F to 185 °F]
- Power consumption: Less than 10 mW, typ.
- Size: Miniature 10 mm x 12,5 mm [0.39 in x 0.49 in] package
- Output: 24-bit digital SPI-compatible
- Meets IPC/JEDEC J-STD-020D.1 Moisture Sensitivity Level 1 requirements

DIFFERENTIATION

- **Industry-leading long-term stability:** Minimizes system calibration needs and significantly reduces downtime.
- **Industry-leading accuracy:** Reduces software to correct system inaccuracies, which minimizes design time, helps improve efficiency, and often simplifies development.
- **Industry-leading flexibility:** Modular design with many package styles and options simplify integration.
- **Total Error Band:** Provides true performance over the compensated temperature range, which eliminates the need to test and calibrate every sensor, thereby reducing manufacturing cost. Improves system accuracy and offers ease of sensor interchangeability due to minimal part-to-part variation (see Figure 1 on page 3).

POTENTIAL APPLICATIONS

- **Medical:** Airflow monitors, anesthesia machines, blood analysis machines, gas chromatography, gas flow instrumentation, hospital room air pressure, kidney dialysis machines, nebulizers, pneumatic controls, respiratory machines, sleep apnea equipment, spirometers, ventilators
- **Industrial:** Barometry, drones, flow calibrators, gas chromatography, gas flow instrumentation, HVAC clogged filter detection, HVAC systems, HVAC transmitters, indoor air quality, life sciences, pneumatic control, VAV (Variable Air Volume) control, weather balloons

PORTFOLIO

Honeywell offers a variety of board mount pressure sensors for potential use in medical and industrial applications. Our categories of pressure sensor measurement include absolute, differential, gage or vacuum gage, with unamplified or amplified sensors and covering a wide pressure range.

TruStability™ Board Mount Pressure Sensors

RSC Series

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