



## DPS SERIES MEMS PIEZORESISTIVE DIFFERENTIAL PRESSURE SENSOR

Voltage Output, High Accuracy, Hermetic

### WORLD CLASS PERFORMANCE

The Sensata DPS Series pressure sensors are ideally suited for environmentally demanding industrial, automotive and heavy vehicle/off road applications. Using a 5V excitation input, the DPS series sensors provide a .5-4.5V output signal proportional to the differential pressure across two points in the medium. This design requires no end user amplification. Custom packaging options are available.

Sensata Technologies has been a leading global supplier of pressure sensors and switches for over 50 years.

### Features & Benefits

- Linear output ratiometric with supply
- Total error band  $\pm 2\%$  full scale
- Broad operating temperature range (-40°C to +135°C)
- EMC protection to >200 V/m
- EEPROM calibration and serialization
- On board error diagnostics
- Custom packages available

### Product Technology

The DPS Series transducer employs a pressure sensitive silicon MEMS diaphragm with embedded piezoresistors connected in a four terminal bridge. Deformation of the diaphragm changes the resistance of the elements and bridge output voltage. The integrated MEMS construction enables high signal output, low hysteresis, and rapid response time. Proprietary noble metal conductors, gel encapsulation, ceramic PCB mount, and isolation of signal conditioning electronics, permit reliable operation in severe media. The transducer operates on a 5 Vdc supply, and provides a linear voltage output. With the added benefits of digital temperature compensation, EEPROM memory, and self diagnostic capability, it is ideal for applications demanding premium accuracy and reliable performance.

### Technical Specifications

<b>Pressure Ranges Available</b> 0-18, 35, 100 kPaD	<b>Electrical</b> Supply Voltage ..... 4.75 to 5.25 Vdc Output range ..... 0.5 to 4.5 Vdc Supply Current ..... 10 mA max Overvoltage Protection ..... +16 V Reverse Voltage Protection ..... -14 V EMC (to 1 GHz) ..... 100 V/m ESD ..... 15 kV
<b>Performance</b> Accuracy..... $\pm 2\%$ F.S. typ (Total Error Band) Thermal Effect on Offset ..... $\pm 0.008\%$ F.S./°C (-15°C to 100°C) Thermal Effect on Span ..... $\pm 0.003\%$ F.S./°C (-15°C to 100°C) Operating Temperature ..... -40°C to +135°C Storage temperature ..... -40°C to +140°C	<b>Physical</b> Proof Pressure ..... > 2x F.S. Burst Pressure ..... > 3x F.S. Drop (any axis) ..... 1m Random Vibration (20-2000 Hz) ..... 16Grms

*Custom packaging available*

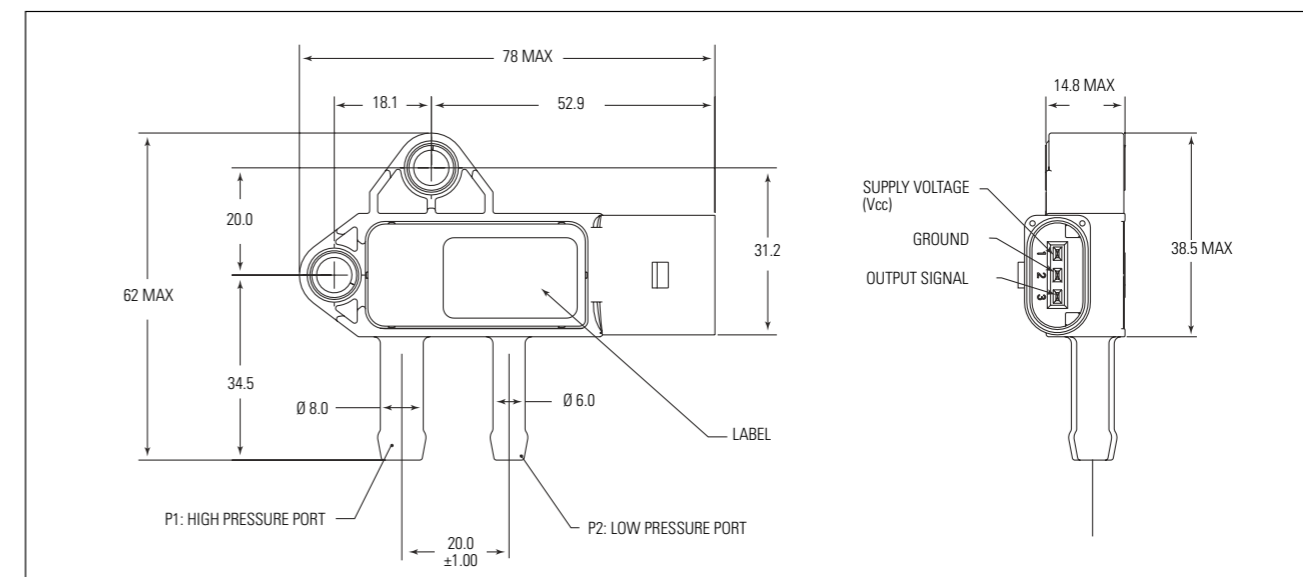
### Applications

- Diesel Particulate Filter
- Venturi Flow Meter
- Air Filter Restriction
- Engine Controls & Monitors

### Markets

- Automotive
- Agriculture & Construction Equipment
- Diesel Engines

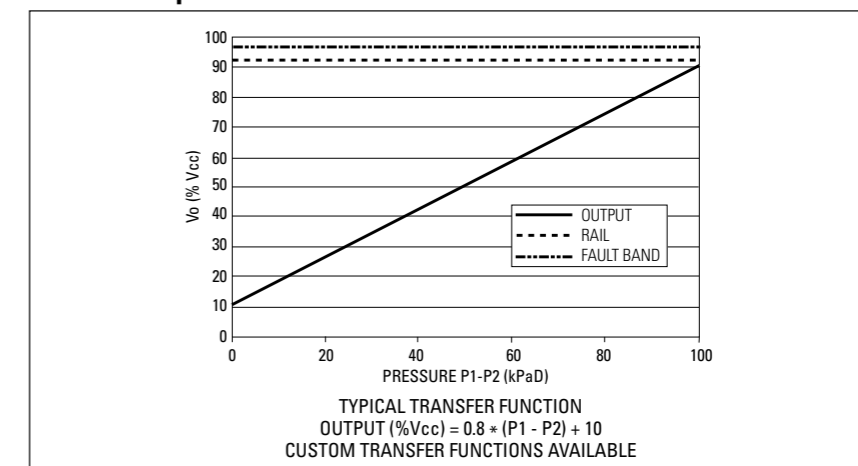
### Typical Dimensions (mm)



### Typical Product Qualification Tests:

- Thermal Cycling
- High Temperature Endurance
- Low Temperature Endurance
- Vibration
- Humidity
- Salt Spray
- Corrosive Media

### Nominal Output Characteristics



### Standard Product Offerings

Specifications	Part #
100 kPa	1 MPP2-2
35 kPa	1 MPP2-1
18 kPa	1 MPP2-3

### Competitive Advantages

Sensata	Competitors	Sensata Advantage
Single sensing die	Two sensing dies	Superior accuracy
Noble metallization	Aluminum metallization	Superior corrosion resistance
Gel protection	Metal diaphragm / oil fill	Superior thermal error
Conditioning electronics isolated from media	Conditioning electronics on chip exposed to media	Superior reliability
Open backside geometry	Constrained backside geometry	Superior resistance to ice damage



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