



- Back Side Die for Harsh Environment
- Temperature Measurement
- -40°C - 105°C Operating Temperature
- Compact Size – 6 Pin DIP
- $\pm 0.5\%$ Linearity FS
- Analog or 13 Bit Digital Output – SPI/I2C
- Pressure Range: 50-300PSIG
- Resolution: .1 %
- Accuracy: $\pm 1.5\%$ (+.75% with DO)
(includes-Hysteresis, NL, TC,)

DESCRIPTION

The PPS35 is an amplified digitally compensated pressure sensor in a compact 6-pin package. This state of the art MEMS based pressure sensor was designed for applications where size and cost are important but where the media is harsh.

The PPS35 series utilizes MEMS piezo-resistive sensors and a 14-bit sigma delta ADC ASIC. It provides pressure of the media with a response time down to 5 ms. Isolation from the media with a SS cap enables long term stability of the sensor in various liquid media. Please contact the factory for Custom design availability.

APPLICATIONS

- Weather Station
- Small Water Pumps
- Sports Watches
- Aviation
- Industrial Applications

Maximum Environmental Ratings

| | | | |
|---------------------------------|----------------|----------------------|--------------------------|
| Operating Temperature | -40°C to 105°C | Proof pressure | 2x full scale pressure |
| Storage Temperature Range | -40°C to 110°C | Burst pressure | 2.5x full scale pressure |

Application Information

Package

The PPS35 is housed in an 6 PIN Nylon package. The Nylon cover allows for .120" tubing to seal the sensor.

Stability

The silicon MEMS pressure sensor has a SiO₂ base and is mounted to a nylon base with RTV and is sealed with a plastic cover. The special die attach material helps reduce the mechanical stress which results in greater stability over time and temperature.

Additional stability is gained from factory stabilization of all sensors.

Media

The pressure port is tolerant to most media including but not limited to air, gas, and most non-corrosive media.

Wetted parts

The wetted surfaces are SiO₂, Nylon, and Pyrex.

Pressure port

The PPS35-1 has a long cylindrical port with an engineered RTV to protect against water ingress.

Application Examples



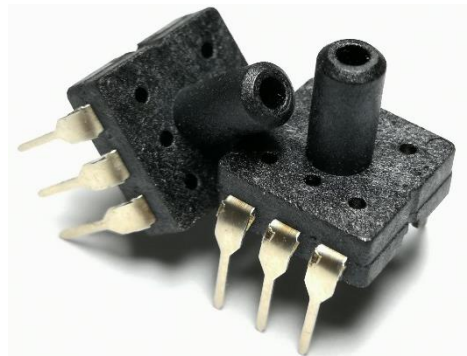
Dive Watch



Satellite Balloon



Skydiving



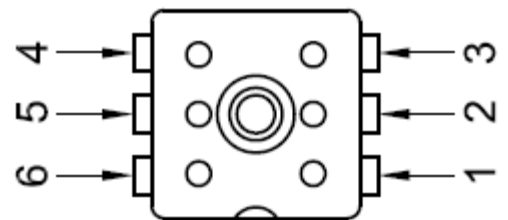
PPS35-1 Digital Output Operational Characteristics

| $V_+ = 5V, V_- = 0V, \text{ Temperature} = 25^\circ\text{C}$ | | | | | |
|--|----------------|------|--------|-----|-----------------------|
| PARAMETER | SYMBOL | Min | Typ | Max | UNITS |
| Supply Voltage | V_{DD} | 4.5 | 5 | 5.5 | V |
| Operating Temperature | T_s | -40 | | 105 | $^\circ\text{C}$ |
| Supply Current (Note 1) | I_{DD} | 2 | 3 | 5 | mA |
| Output | V | .5 | | 4.5 | V |
| Accuracy | | | | | |
| Total Error Band (note 3) | | -1.5 | | 1.5 | %Full Scan |
| Non-Linearity (Note 2) | | -0.5 | | 0.5 | %Full Scan |
| Temperature Error | | -1 | | 1 | PPM/ $^\circ\text{C}$ |
| Response Time | t_R | 4 | 5 | 10 | ms |
| Analog-to-Digital | | | | | |
| Resolution | | | 14 Bit | | Full Scale |
| Temperature Resolution | | | 0.1 | | $^\circ\text{C}$ |
| I2C Interface | | | | | |
| Input Low Level | V_{in_low} | 0 | | .2 | Vdd% |
| Input High Level | V_{in_high} | .8 | | 1 | Vdd% |
| Output Low Level | V_{o_low} | | | .1 | Vdd% |
| Capacitor (Vdd – GND) | C_L | | | 4.7 | μF |
| Pull-Up Resistor | R_{I2C_PU} | 1K | | | Ω |

Notes: 1) Measured at zero pressure. 2) Defined as best straight line 3) Measured from 0-50C. +/- .75% with Digital Output option.

Electrical Pin Configuration

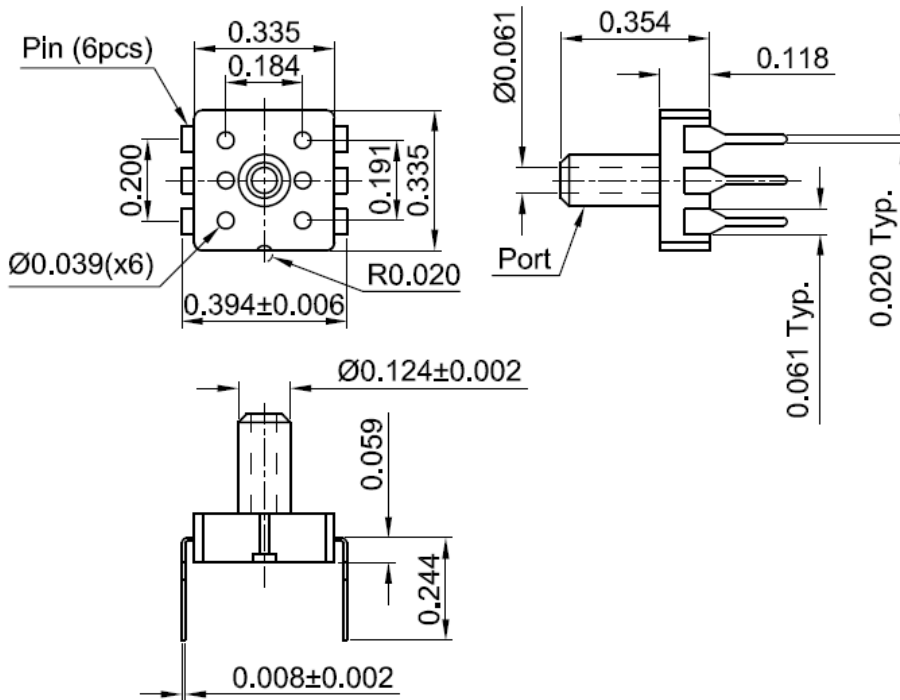
| | | | | | | |
|--------|------|-------|-------|-------|--------|-------|
| Output | Pin1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 |
| Ratio | GND | Test | GND | Vdd | Output | Vdd |
| Output | Pin1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 |
| I2C | GND | SDA | SCL | INT | N/A | Vdd |



Top View

Mechanical Dimensions Inches

Surface Mount DIP Package



Part Number Configuration

PPS35 0 - 50 G 1 0

Model

0=Ratiometric, 1=I2C

0= DIP, 1= SMD J-Clip

1= Single- Port, 2= Custom

(G=Gauge)

Pressure Range 50= 50PSI

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