



SUNWARD

深圳市顺锦丰科技有限公司
SHENZHEN SUNWARD TECHNOLOGY CO., LTD

产品资料

压力传感器

SM5651 SM5652

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SM5651/SM5652

Low Pressure, Constant Current DIP

Low Pressure, Constant Voltage DIP

- **LOW PRESSURE TRANSDUCER FULLY TEMPERATURE COMPENSATED AND CALIBRATED DUAL-IN-LINE PACKAGE**

DESCRIPTION

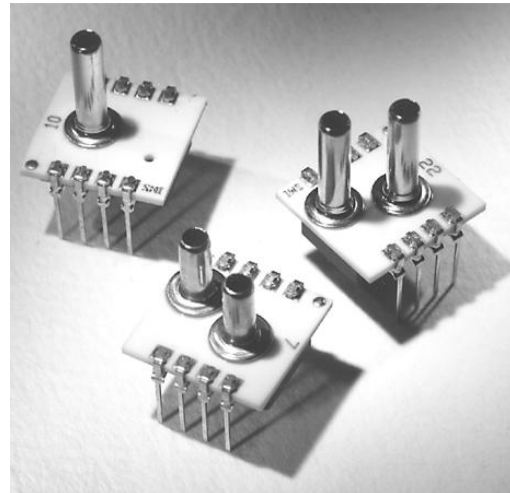
The **SM5650** Series of OEM pressure sensors are fully calibrated, temperature compensated low-pressure sensors in dual in-line packages for printed circuit board mounting. These sensors offer improved performance as well as the option for either constant current or constant voltage excitation. Higher pressure ranges are also available (See **SM5611/SM5612 Datasheet**), resulting in the broadest selection of standard pressure ranges in the industry.

The **SM5600** Series pressure sensors are constructed by attaching a highly stable piezoresistive pressure sensor chip to a ceramic substrate. Thick film resistors on the ceramic are laser trimmed during manufacturing to provide zero offset calibration, temperature compensation for zero offset, and temperature compensation for sensitivity. In the Model **SM5651**, an additional resistor is trimmed to normalize the output of an external differential amplifier to provide span calibration when the sensor is driven by a constant current supply. In the Model **SM5652**, a constant voltage supply can be used and the normalized output span of each sensor can then be easily amplified.

The model **SM5651** is designed for constant current excitation.

The model **SM5652** is designed for constant voltage excitation.

Various electrical pin and pressure port configurations are available for flexibility in matching this product to specific applications.



FEATURES

- Low pressure (from 0-0.15 PSI FS to 0-3.0 PSI FS)
- Constant voltage and constant current versions
- Easy to use dual in-line package (DIP)
- Wide 0-60°C compensated temperature range
- Span calibration to $\pm 2\%$ for low pressure
- Zero offset calibration
- High performance, stable packaged silicon chip
- Gage and differential pressure configurations

APPLICATIONS

- Medical equipment
- Respiration
- HVAC
- Level detection
- Flow measurement
- Industrial control

SM5651/SM5652

CHARACTERISTICS FOR SM5651/SM5652 - SPECIFICATIONS

Test Conditions: Model SM5651 w/excitation = 1.500mA @ 25 °C, Model SM5652 w/excitation = 10.00Vdc @ 25 °C, unless otherwise specified.

| | Min. | Typ. | Max. | Units | Notes |
|--------------------------------|-------|-------|-------|------------|-------------|
| Excitation | | | | | |
| Current (SM5651) | 0.00 | 1.50 | 3.00 | mA | |
| Voltage (SM5652) | 0.00 | 10.00 | 20.00 | V | |
| Output | | | | | |
| Span (SM5651) | 25.0 | 45.0 | 75.0 | mV | 1 |
| Span (SM5652) | 24.5 | 25.0 | 25.5 | mV | 1, 2 |
| Offset | -2.00 | +0.20 | 2.00 | mV | |
| Temperature Performance | | | | | |
| TC Span | -0.65 | +0.20 | 0.65 | %FS | 3 |
| TC Offset | -1.00 | +0.20 | 1.00 | %FS | 3 |
| Temp Hysteresis | -0.30 | +0.05 | 0.30 | %FS | 4 |
| Accuracy | | | | | |
| Linearity | -0.30 | +0.05 | 0.30 | %FS | 5 |
| Repeatability | -0.30 | +0.05 | 0.30 | %FS | |
| Pressure Hysteresis | -0.30 | +0.05 | 0.30 | %FS | |
| Sensitivity Matching | -2.00 | -0.20 | +2.00 | %FS | 1, 6 |
| Impedance (SM5651) | | | | | |
| Z Input | 1.80 | 3.00 | 3.80 | k Ω | |
| Z Output | 2.70 | 3.30 | 3.80 | k Ω | |
| Impedance (SM5652) | | | | | |
| Z Input | 4.50 | 8.00 | 25.00 | k Ω | |
| Z Output | 2.00 | 2.50 | 3.80 | k Ω | |
| Temperature Range | | | | | |
| Calibration | 0 | | 60 | °C | |
| Operating | -40 | | 125 | °C | |
| Storage | -55 | | 125 | °C | |
| Dynamic Characteristics | | | | | |
| Proof Pressure | 10X | | | | FS Pressure |
| Burst Pressure | 15X | | | | FS Pressure |

Notes:

- Positive Pressure is defined as entry on the bottom side of the die; gain, during factory calibration, is set using negative pressure
- For the SM5652, 0.15 PSI range, span is 23.75 (min) to 26.25 (max).
- Measured over a temperature range of 0 to 60 °C.
For 0.15 PSI, TC Span= $\pm 2.0\%$ FS; TC Offset= $\pm 2.0\%$ FS; For 0.3 PSI, TC Span= $\pm 0.75\%$ FS
- For 0.30 PSI, Hysteresis= $\pm 0.45\%$ FS;
For 0.15 PSI, Hysteresis= $\pm 0.65\%$ FS
- Best fit straight line; measured from top-side of die
For 0.30 PSI, Linearity= $\pm 0.5\%$ FS;
For 0.15 PSI, Linearity= $\pm 2.5\%$ FS
- Sensitivity matching relates to part-to-part matching
For 0.15 PSI, Sensitivity Matching= 5.0% FS

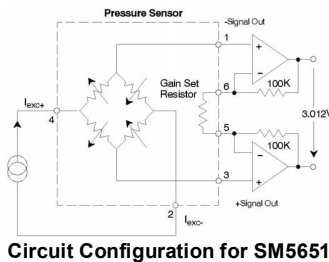
Model 5651 Pin-out

- 1 -Signal Out
- 2 -Iexc
- 3 +Signal Out*
- 4 +Iexc
- 5 Gainset Resistor
- 6 Gainset Resistor

Model 5652 Pin-Out

- 1 -Signal Out
- 2 -Vexc
- 3 +Signal Out*
- 4 +Vexc
- 5 Do Not Connect
- 6 Do Not Connect

*Output increases as pressure is increased on Positive Differential Tube or Absolute Tube
DO NOT connect to "Do Not Connect" pins



Circuit Configuration for SM5651

ORDERING INFORMATION:

Excitation
1: Constant Current
2: Constant Voltage

Pin Configuration
3: Pins opposite direction of tube
5: Surface Mountable Pins opposite side of the tube

SM5652 - 003 - D - 3 - L

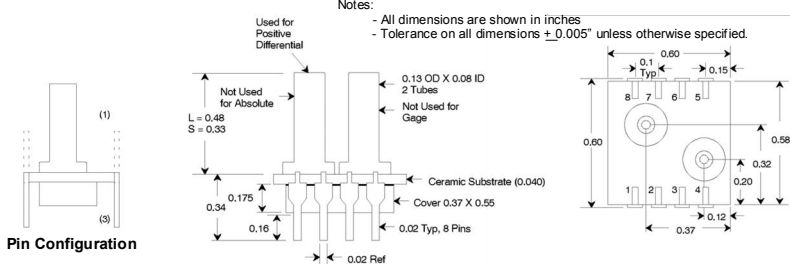
Tube Length
L: Long (0.480" ± 0.005)
N: No Tube
S: Short (0.330" ± 0.005)

Pressure Type
D: Differential (2 Tubes)
G: Gauge (1 Tube)

Other configurations available on large orders. Consult SMI for details.

Pressure Ranges

| PSI | 5651/ 5652 |
|------|------------|
| 0.15 | 001 |
| 0.30 | 003 |
| 0.80 | 008 |
| 1.50 | 015 |
| 3.00 | 030 |



Notes:
- All dimensions are shown in inches
- Tolerance on all dimensions ± 0.005 " unless otherwise specified.

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