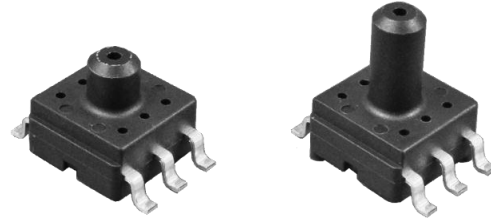


Analog Output Semiconductor Pressure Sensor

AG2 Series

Description

The AG2 pressure sensor series is composed of a silicon piezoresistive pressure sensing chip and a signal conditioning integrated circuit. The low-level signal from the sensing chip is amplified, temperature compensated, calibrated and finally converted to a high level analog output voltage that is proportional with the applied pressure. The AG2 series measures gauge pressure.



AG2*3

AG2*6

Features

- Amplified and temperature compensated analog output
- High accuracy $\pm 1.5\%$ FS
- Supply voltage 3.0, 3.3 & 5.0 Vdc
- Low supply current Max 2 mA at 3.3 Vdc
- Miniature 10.3 mm x 7 mm SMT package
- 3 mm port and 6 mm port available
- Operating temperature -40 to 125°C
- Wide compensated temperature 0 to 85°C
- Pins & Package compatible with Fujikura's XFGM integrated pressure sensor
- Customization available

Applications

- Battery-operated Devices
- Medical Devices
- Industrial Pneumatic Devices
- Consumer Devices

✓ RoHS Compliant

Device Lineup

| Model | Port Length | Pressure Type | Supply Voltage | Accuracy | Pressure Range | | | | | | | | | | | | | |
|-------|--------------------|---------------|----------------|----------------|----------------|-------------------|-----|-----|------|------|------|-------|-----------|----------|--|--|--|--|
| | | | | | -100 | -50 | 0 | 25 | 50 | 100 | 200 | 500 | 700 | 1000 kPa | | | | |
| | | | | | (-15) | (-7) | (3) | (7) | (15) | (30) | (70) | (100) | (150) psi | | | | | |
| AG2 | 6 mm or 3 mm | Gauge | 5.0 Vdc | $\pm 1.5\%$ FS | | | | | | | | | | | | | | |
| | | | 3.0 Vdc | | $\pm 2.0\%$ FS | Same as the above | | | | | | | | | | | | |

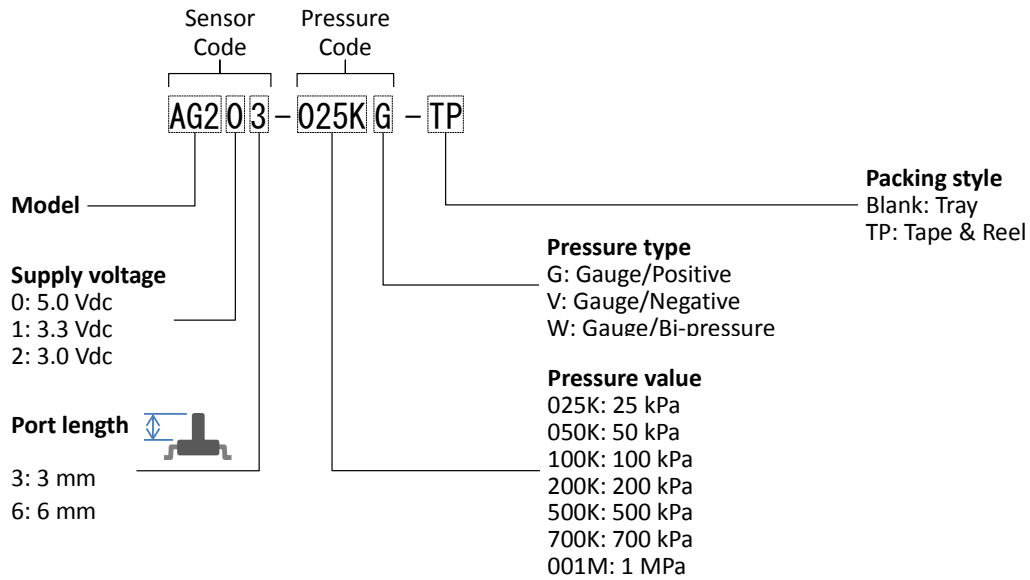
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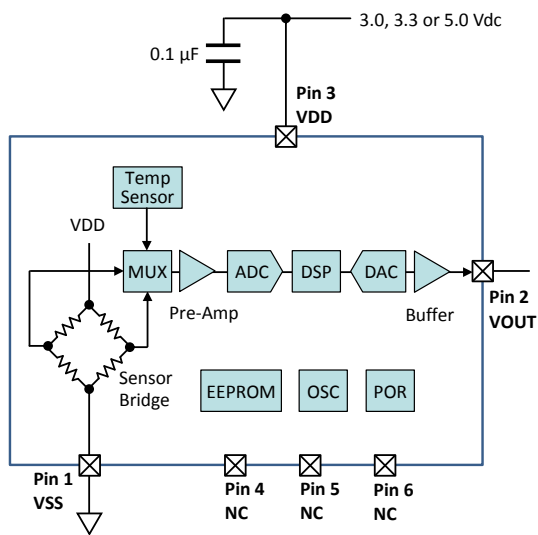
Analog Output Semiconductor Pressure Sensor

AG2 Series

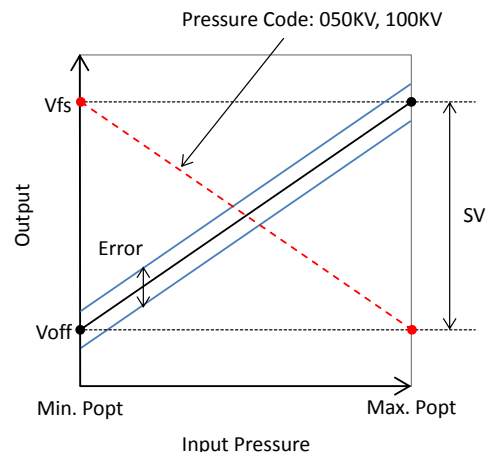
Device Name Code



Block Diagram



Output Characteristics



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Analog Output Semiconductor Pressure Sensor

AG2 Series

Absolute Maximum Ratings

| Item | Symbol | Rating | Unit |
|-----------------------|--------|--------------------------|------|
| Supply Voltage | VDDmax | 6 | Vdc |
| Load Pressure | Pmax+ | See Pressure Range Table | |
| Operating Temperature | Topt | -40 to +125 | °C |
| Storage Temperature | Tstg | -40 to +125 | °C |

General Specifications

| Item | Symbol | Sensor Code | | | Unit |
|-------------------------|--------|---------------------------|-----------|----------|------|
| | | AG20* | AG21* | AG22* | |
| Supply Voltage | VDD | 5.0±0.25 | 3.3±0.165 | 3.0±0.15 | Vdc |
| Type of Pressure | - | Gauge pressure | | | |
| Pressure Media | - | Non-corrosive gases | | | |
| Compensated Temperature | - | 0 to +85 | | | °C |
| Operating Humidity | Hopt | 30 to 85 (non-condensing) | | | %RH |
| Storage Humidity | Hstg | 30 to 85 (non-condensing) | | | %RH |

Pressure Range

| Item | Symbol | Pressure Code | | | | | | | | | | Unit |
|--------------------------------|--------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| | | 025KG | 050KG | 100KG | 200KG | 500KG | 700KG | 001MG | 050KV | 100KV | 100KW | |
| Absolute Maximum Load Pressure | Pmax+ | +50 | +100 | +200 | +400 | +1000 | +1400 | +1500 | +100 | +200 | +200 | kPa |
| Measurement Pressure | Popt | Min. | 0 | 0 | 0 | 0 | 0 | 0 | -50 | -100 | -100 | |
| | | Max. | +25 | +50 | +100 | +200 | +500 | +700 | +1000 | 0 | 0 | |

Electrical Characteristics

Load resistor $R_L = \infty$, Ambient temperature $T_a = 25^\circ\text{C}$

| Sensor Code | Item | Condition | Symbol | Rating | | | Unit | |
|------------------------|--------------------|-------------------------------------|--------|--------|---------|--------|---------|---|
| | | | | Min. | Typ. | Max. | | |
| AG20* VDD = 5.0 Vdc | Offset Voltage | Min. Popt, 050KV & 100KV: Max. Popt | Voff | 0.1325 | 0.2 | 0.2675 | V | |
| | Full Scale Voltage | Max. Popt, 050KV & 100KV: Min. Popt | Vfs | 4.6325 | 4.7 | 4.7675 | V | |
| | Span Voltage | Min. to max. Popt | SV | - | 4.5 | - | V | |
| | Accuracy | 0 to 85°C | Error | -1.5 | - | +1.5 | %FS | |
| | | | | | -0.0675 | - | +0.0675 | V |
| | Output Resolution | | Vrso | - | 2.5 | - | mV | |
| | Supply Current | | Ic | - | - | 3 | mAdc | |
| AG21* VDD = 3.3 Vdc | Offset Voltage | Min. Popt, 050KV & 100KV: Max. Popt | Voff | 0.2595 | 0.3 | 0.3405 | V | |
| | Full Scale Voltage | Max. Popt, 050KV & 100KV: Min. Popt | Vfs | 2.9595 | 3.0 | 3.0405 | V | |
| | Span Voltage | Min. to max. Popt | SV | - | 2.7 | - | V | |
| | Accuracy | 0 to 85°C | Error | -1.5 | - | +1.5 | %FS | |
| | | | | | -0.0405 | - | +0.0405 | V |
| | Output Resolution | | Vrso | - | 1.7 | - | mV | |
| | Supply Current | | Ic | - | - | 2 | mAdc | |
| AG22* VDD = 3.0 Vdc | Offset Voltage | Min. Popt, 050KV & 100KV: Max. Popt | Voff | 0.096 | 0.15 | 0.204 | V | |
| | Full Scale Voltage | Max. Popt, 050KV & 100KV: Min. Popt | Vfs | 2.796 | 2.85 | 2.904 | V | |
| | Span Voltage | Min. to max. Popt | SV | - | 2.7 | - | V | |
| | Accuracy | 0 to 85°C | Error | -2.0 | - | +2.0 | %FS | |
| | | | | | -0.054 | - | +0.054 | V |
| | Output Resolution | | Vrso | - | 1.5 | - | mV | |
| | Supply Current | | Ic | - | - | 2 | mAdc | |
| Common | Response Time | for reference | tr | - | 1 | - | msec. | |
| | Sampling Frequency | | fs | - | 1 | - | kHz | |
| | Load Resistor | VOUT - VSS or VDD - VOOUT | RL | 2.5 | - | - | kΩ | |
| | Load Capacitance | VOOUT - VSS | CL | - | - | 15 | nF | |

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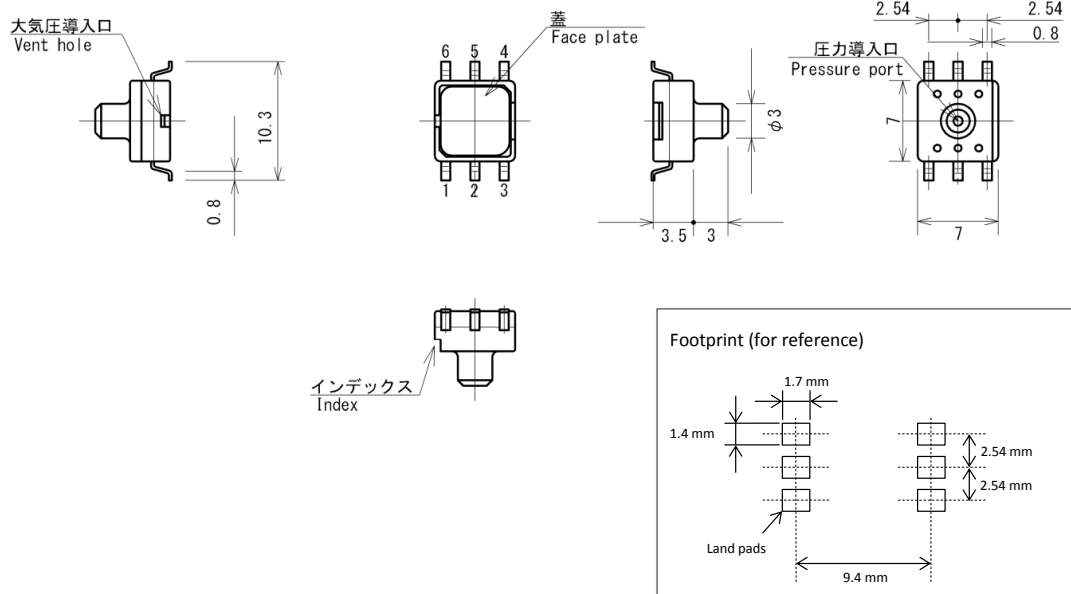
Analog Output Semiconductor Pressure Sensor

AG2 Series

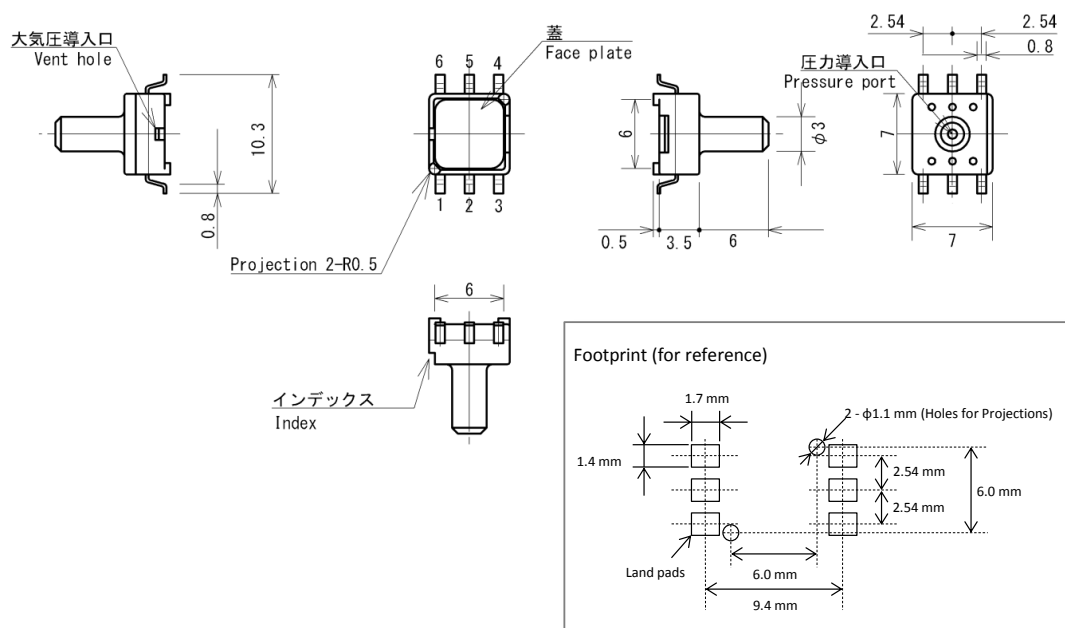
Package Dimensions

unit: mm

Sensor Code: AG2*3



Sensor Code: AG2*6



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