



DATE May 31, 2019

No. V-70200-E

Messrs. _____

SPECIFICATION

Semiconductor Pressure Sensor

Model: AP3 & AG3-X1 Series

Project: _____

Distributor: _____

Reference: _____

A handwritten signature in black ink that reads 'Y. Uchiyumi'.

Yoshiyuki Uchiyumi, Application Engineer
Sensor Business Unit, Electronics Business Company
Fujikura Ltd.

Fujikura Ltd.

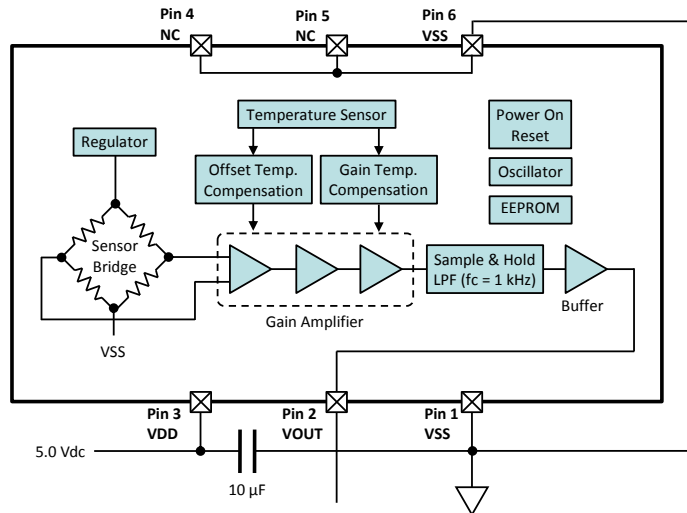
Table of Contents

- 1. General2
- 2. Principle.....2
- 3. Device Lineup2
- 4. RoHS2
- 5. Block Diagram and Pin Connections3
- 6. Drop-in Replacement3
- 7. Device Name Code4
- 8. Absolute Maximum Ratings.....5
- 9. General Specifications5
- 10. Electrical Characteristics.....6
- 11. Output Voltage versus Input Pressure7
- 12. Transfer Function.....8
- 13. Operating Sequence9
- 14. Device Marking.....9
- 15. Soldering10
- 16. Dimensions and Weights10
- 17. Ordering Information11
- 18. Tape & Reel Information.....11
- 19. Footprint for PCB designing (Reference)12
- 20. Handling Notes13
- 21. Notes13
- Appendix: Dimension Drawing14
 - 9-772-001 APxxN14
 - 9-772-002 APxxR.....15
 - 9-772-003 AGxx316
 - 9-772-004 AGxx617

Table shown below is revision records of this specification

| Rev. | Date | Name | Comment | Mark |
|------|--------------|------------|---------|------|
| Est. | May 31, 2019 | Y. Uchiumi | Issued | |

5. Block Diagram and Pin Connections



| Pin Assignment | | Pin No. | Pin Name | I/O | Type | Function | |
|----------------|-----|---------|----------|-----|--------|---------------------------|----|
| AP3 | AG3 | | | | | | |
| | | 1 | VSS | - | - | Common voltage connection | *1 |
| | | 2 | VOOUT | O | Analog | Analog output | |
| | | 3 | VDD | - | - | Power supply connection | *2 |
| | | 4 | NC | - | - | Non connection | *3 |
| | | 5 | NC | - | - | Non connection | *3 |
| | | 6 | VSS | - | - | Common voltage connection | *1 |

Notes:

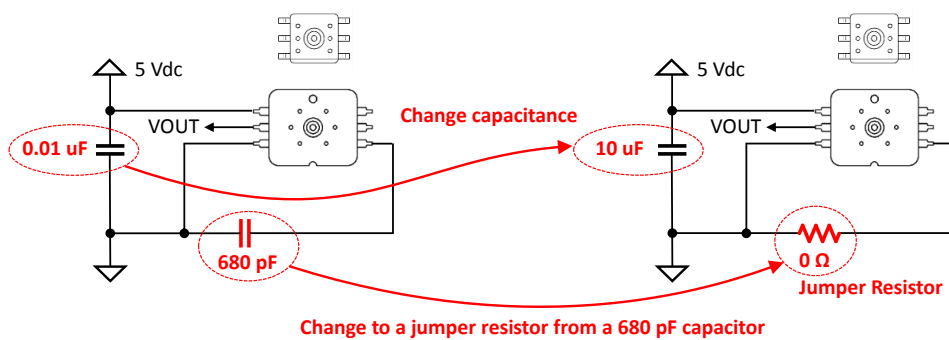
- *1) Both Pin 1 and Pin 4 must be connected to VSS.
- *2) Put a 10 µF capacitor between Pin3 (VDD) and VSS.
- *3) Pin assignment of Pin 4 and 5 is NC (Non connection). But these pins are connected to Pin 6 internally. Pin 4 and 5 are also available to connect to VSS.

6. Drop-in Replacement

Drop-in replacement is available for 5 V products.





XFPM/XFGM Sensor

AP3/AG3-X1 Sensor



7. Device Name Code

The Device name code is consisted of Sensor code, Pressure code, Custom ID and Packing style. For the exact ordering device number, please refer to Chapter 11 Ordering Information.

| | | | | | | | |
|--------------------|----------|----------|----------------------|-------------|----------|------------------------------|--|
| Sensor Code | | | Pressure Code | | | | |
| AG3 | 0 | 6 | - | 050K | G | - | X1 - <input type="text"/> |
| | | | | | | Packing | STICK: Stick (AP3) TP: Tape & Reel (AG3) Blank: Tray |
| | | | | | | Custom ID | X1: XFPM/XFGM compatible Ver. 1 |
| | | | | | | Pressure type | G: Gauge Positive pressure V: Gauge Negative pressure W: Gauge Compound pressure |
| | | | | | | Pressure value | 025K: 25 kPa 050K: 50 kPa 100K: 100 kPa 200K: 200 kPa 500K: 500 kPa 700K: 700 kPa 001M: 1 MPa |
| | | | | | | Pin direction for AP3 | N: Normal  R: Opposite  |
| | | | | | | Port length for AG3 | 3: 3 mm  6: 6 mm  |
| | | | | | | Supply voltage | 0: 5.0 Vdc 1: 3.3 Vdc 2: 3.0 Vdc |
| Model | | | | | | | AP3: DIP Smooth Analog Output AG3: SMD Smooth Analog Output |

8. Absolute Maximum Ratings

| Item | Condition | | Symbol | Rating | | Unit |
|-----------------------|---------------|-------|--------|---------|---------|------|
| | | | | Min. | Max. | |
| Load Pressure | Pressure Code | 025KG | Pmax+ | - | +50 | kPa |
| | | 050KG | | - | +100 | kPa |
| | | 100KG | | - | +200 | kPa |
| | | 200KG | | - | +400 | kPa |
| | | 500KG | | - | +1.0 | MPa |
| | | 700KG | | - | +1.4 | MPa |
| | | 001MG | | - | +1.5 | MPa |
| | | 050KV | | - | +100 | kPa |
| | | 100KV | | - | +200 | kPa |
| | | 100KW | | - | +200 | kPa |
| Supply Voltage | | | VDDmax | - | 6 | Vdc |
| Input Voltage | | | VIN | VSS-0.3 | VDD+0.3 | V |
| Operating Temperature | | | Topt | -40 | +105 | °C |
| Storage Temperature | | | Tstg | -40 | +105 | °C |

Note:

- *1) Absolute maximum ratings are the limits that the device will withstand without damage.

9. General Specifications

| Item | Condition | | Symbol | Rating | | | Unit |
|-------------------------|----------------|--------------|--------|---------------------|------|-------|------|
| | | | | Min. | Typ. | Max. | |
| Supply Voltage | Sensor Code | AP30x, AG30x | VDD | 4.75 | 5 | 5.25 | Vdc |
| | | AP31x, AG31x | | 3.135 | 3.3 | 3.465 | |
| | | AP32x, AG32x | | 2.85 | 3.0 | 3.15 | |
| Type of Pressure | | | - | Gauge pressure | | | |
| Pressure Media | | | - | Non-corrosive gases | | | |
| Pressure Range | Pressure Code | 025KG | Popt | 0 | - | +25 | kPa |
| | | 050KG | | 0 | - | +50 | kPa |
| | | 100KG | | 0 | - | +100 | kPa |
| | | 200KG | | 0 | - | +200 | kPa |
| | | 500KG | | 0 | - | +500 | kPa |
| | | 700KG | | 0 | - | +700 | kPa |
| | | 001MG | | 0 | - | +1 | MPa |
| | | 050KV | | -50 | - | 0 | kPa |
| | | 100KV | | -100 | - | 0 | kPa |
| | | 100KW | | -100 | - | +100 | kPa |
| Compensated Temperature | | | - | 0 | - | +60 | °C |
| Operating Humidity | Non-condensing | | Hopt | 30 | - | 85 | %RH |
| Storage Humidity | Non-condensing | | Hstg | 30 | - | 85 | %RH |
| Dielectric Strength | | | - | - | - | 1 | mA |
| Insulation Resistance | | | - | 100 | - | - | MΩ |

Notes:

- *1) Output voltage (Vout) is not perfectly ratio-metric with the power supply voltage (VDD).
 *2) Gauge pressure is defined as the difference between applied pressure to the pressure port and atmospheric pressure of the device.
 *3) Ensure the pressure media contains no particulates. The device is not compatible with liquids.
 *4) Pressure range is defined as the measurable pressure range of the device. Do not expose intentionally beyond minimum Popt and maximum Popt.
 *5) Please also refer to Chapter 12 Transfer Function.
 *6) Do not wet the device with dew.
 *7) Dielectric strength is defined as the leakage current between all pins and the package with AC 500, 1 minute.
 *8) Insulation resistance is defined as the resistance value between all pins and the package with DC 500 V.

10. Electrical Characteristics

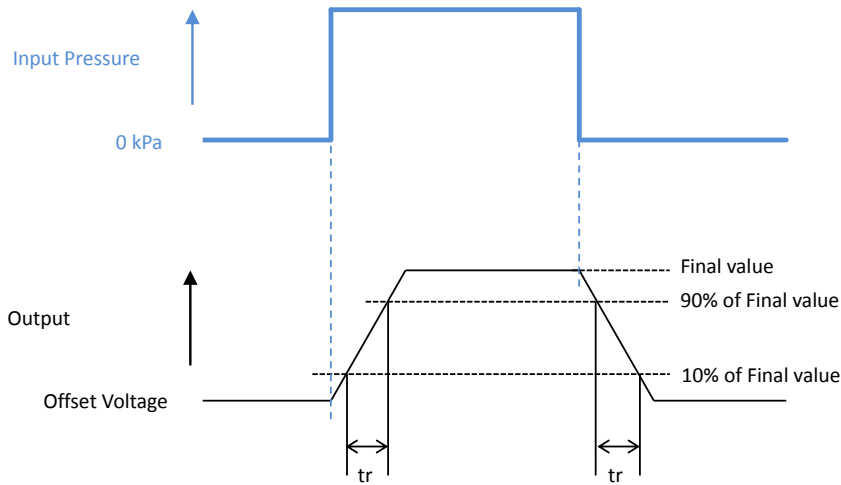
Load resistor $R_L = \infty$, Ambient temperature $T_a = 25^\circ\text{C}$

| Item | Condition | Symbol | Rating | | | Unit | | |
|--|--------------------------|-----------------|---------|--------|---------|--------|-------|-------|
| | | | Min. | Typ. | Max. | | | |
| Sensor Code: AP30x, AG30x (VDD = 5.0 Vdc) | | | | | | | | |
| Offset Voltage | Pressure type | G, W: Min. Popt | Voff | 0.1325 | 0.2 | 0.2675 | V | *1, 2 |
| | | V: Max. Popt | | | | | | |
| Full Scale Voltage | Pressure type | G, W: Max. Popt | Vfs | 4.6325 | 4.7 | 4.7675 | V | *3 |
| | | V: Min. Popt | | | | | | |
| Span Voltage | Min. to max. Popt | SV | - | 4.5 | - | V | *4 | |
| Accuracy | 0 to 60°C | Error | -1.5 | - | +1.5 | %FS | *5, 6 | |
| | | | -0.0675 | - | +0.0675 | V | | |
| Supply Current | | Ic | - | - | 6 | mAdc | *7 | |
| Sensor Code: AP31x, AG31x (VDD = 3.3 Vdc) | | | | | | | | |
| Offset Voltage | Pressure type | G, W: Min. Popt | Voff | 0.2595 | 0.3 | 0.3405 | V | *1, 2 |
| | | V: Max. Popt | | | | | | |
| Full Scale Voltage | Pressure type | G, W: Max. Popt | Vfs | 2.9595 | 3.0 | 3.0405 | V | *3 |
| | | V: Min. Popt | | | | | | |
| Span Voltage | Min. to max. Popt | SV | - | 2.7 | - | V | *4 | |
| Accuracy | 0 to 60°C | Error | -1.5 | - | +1.5 | %FS | *5, 6 | |
| | | | -0.0405 | - | +0.0405 | V | | |
| Supply Current | | Ic | - | - | 5 | mAdc | *7 | |
| Sensor Code: AP32x, AG32x (VDD = 3.0 Vdc) | | | | | | | | |
| Offset Voltage | Pressure type | G, W: Min. Popt | Voff | 0.096 | 0.15 | 0.204 | V | *1, 2 |
| | | V: Max. Popt | | | | | | |
| Full Scale Voltage | Pressure type | G, W: Max. Popt | Vfs | 2.796 | 2.85 | 2.904 | V | *3 |
| | | V: Min. Popt | | | | | | |
| Span Voltage | Min. to max. Popt | SV | - | 2.7 | - | V | *4 | |
| Accuracy | 0 to 60°C | Error | -2.0 | - | +2.0 | %FS | *5, 6 | |
| | | | -0.054 | - | +0.054 | V | | |
| Supply Current | | Ic | - | - | 5 | mAdc | *7 | |
| Response Time | for reference | tr | - | 1 | - | msec. | *8 | |
| Load Resistor | VOUT - VSS or VDD - VOUT | RL | 9.5 | - | - | kΩ | *7 | |
| Load Capacitance | VOUT - VSS | CL | - | - | 50 | pF | *9 | |

Notes:

- *1) Offset voltage (Voff) is defined as the output voltage at minimum Popt. In case of pressure type V, Offset voltage (Voff) is defined as the output voltage at maximum Popt.
- *2) Offset error is calibration error of offset voltage at production. It does not include Long term offset drift. It would be suggested that applications have Auto-zeroing function.
- *3) Full scale voltage (Vfs) is defined as the output voltage at maximum Popt. In case of the pressure type V, Full scale voltage (Vfs) is defined as the output voltage at minimum Popt.
- *4) Output span voltage (SV) is defined as the voltage difference between Offset voltage (Voff) and Full scale voltage (Vfs).
- *5) Accuracy consists of the following:
 - Non-linearity
 - Temperature errors over the temperature range 0 to 60°C
 - Pressure hysteresis
 - Calibration errors of sensitivity and offset
- *6) The unit of Accuracy "%FS" is defined as a percent error by Span voltage (SV).
- *7) Supply Current (Ic) is increased depending on the value of Load resistor (RL).

*8) Response time (t_r) is defined as the time for the change in output voltage from 10% to 90% or from 90% to 10% of its final value when the input pressure makes a step change.



*9) Do not put Load capacitance (CL) that is over 50 pF between VOUT and VSS.

11. Output Voltage versus Input Pressure

Temperature = 0 to 60°C

| Item | Pressure type | | | | | |
|--------------|----------------------|--------|----------------------|-------|---------------------------------------|----------|
| | G: Positive Pressure | | V: Negative Pressure | | W: Compound Pressure | |
| Graph | | | | | | |
| Sensor Code | VDD | Voff | Vfs | SV | $V_{0\text{ kPa}}$ (Pressure type: W) | Error |
| AP30x, AG30x | 5.0 V | 0.2 V | 4.7 V | 4.5 V | 2.45 V | ±1.5 %FS |
| AP31x, AG31x | 3.3 V | 0.3 V | 3.0 V | 2.7 V | 1.65 V | ±1.5 %FS |
| AP32x, AG32x | 3.0 V | 0.15 V | 2.85 V | 2.7 V | 1.5 V | ±2.0 %FS |

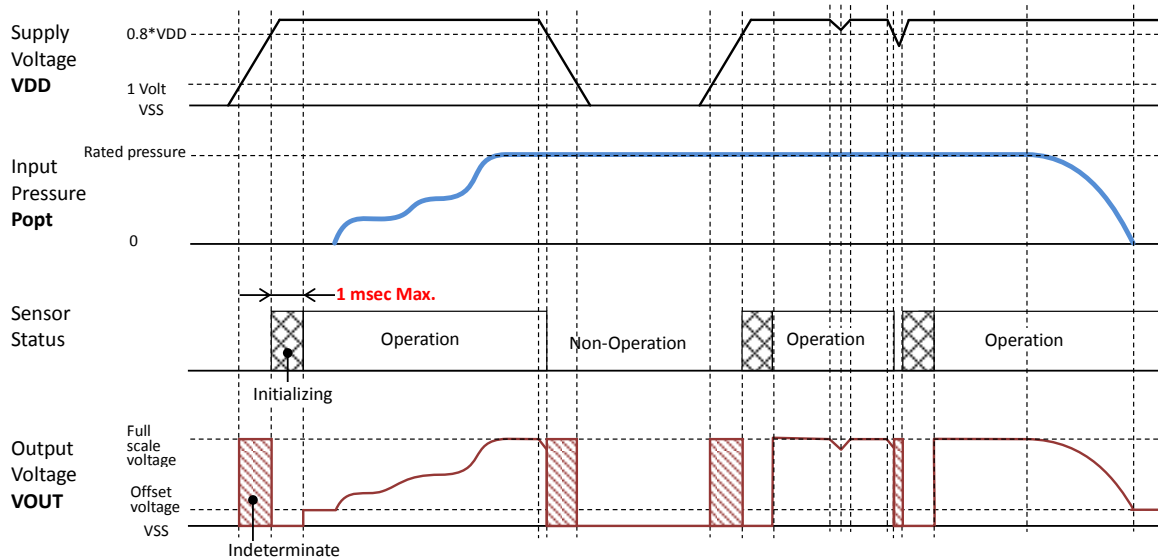
12. Transfer Function

| Item | Rating | | | | | | | | | | | | | | | | | | |
|------------------------------|--|-----------------|---------------|--------------|----------|---------|----------------------|------------------|------------------|-----|-------|-----|------|---|-----|----|-----|-----|-----|
| Transfer Function | $V_{out} (V) = VDD \times ((P \times \alpha) + \beta) \pm (\text{Pressure Error} \times \text{Temperature Error Multiplier} \times \alpha \times VDD)$ $P (kPa) = \frac{V_{out} \pm (\text{Pressure Error} \times \text{Temperature Error Multiplier} \times \alpha \times VDD) - \beta}{\alpha}$ | | | | | | | | | | | | | | | | | | |
| Parameters | Sensor Code | VDD (*1) | Pressure Code | P (kPa) | α | β | Pressure Error (kPa) | | | | | | | | | | | | |
| | AP30x AG30x | 5.0 ± 0.25V | 025KG | 0 to +25 | 9/250 | 1/25 | 0.375 | | | | | | | | | | | | |
| | | | 050KG | 0 to +50 | 9/500 | 1/25 | 0.75 | | | | | | | | | | | | |
| | | | 100KG | 0 to +100 | 9/1000 | 1/25 | 1.5 | | | | | | | | | | | | |
| | | | 200KG | 0 to +200 | 9/2000 | 1/25 | 3.0 | | | | | | | | | | | | |
| | | | 500KG | 0 to +500 | 9/5000 | 1/25 | 7.5 | | | | | | | | | | | | |
| | | | 700KG | 0 to +700 | 9/7000 | 1/25 | 10.5 | | | | | | | | | | | | |
| | | | 001MG | 0 to +1000 | 9/10000 | 1/25 | 15 | | | | | | | | | | | | |
| | | | 050KV | -50 to 0 | -9/500 | 1/25 | 0.75 | | | | | | | | | | | | |
| | | | 100KV | -100 to 0 | -9/1000 | 1/25 | 1.5 | | | | | | | | | | | | |
| | | | 100KW | -100 to +100 | 9/2000 | 49/100 | 3.0 | | | | | | | | | | | | |
| | AP31x AG31x | 3.3 ± 0.165V | 025KG | 0 to +25 | 9/275 | 1/11 | 0.375 | | | | | | | | | | | | |
| | | | 050KG | 0 to +50 | 9/550 | 1/11 | 0.75 | | | | | | | | | | | | |
| | | | 100KG | 0 to +100 | 9/1100 | 1/11 | 1.5 | | | | | | | | | | | | |
| | | | 200KG | 0 to +200 | 9/2200 | 1/11 | 3.0 | | | | | | | | | | | | |
| | | | 500KG | 0 to +500 | 9/5500 | 1/11 | 7.5 | | | | | | | | | | | | |
| | | | 700KG | 0 to +700 | 9/7700 | 1/11 | 10.5 | | | | | | | | | | | | |
| | | | 001MG | 0 to +1000 | 9/11000 | 1/11 | 15 | | | | | | | | | | | | |
| | | | 050KV | -50 to 0 | -9/550 | 1/11 | 0.75 | | | | | | | | | | | | |
| | | | 100KV | -100 to 0 | -9/1100 | 1/11 | 1.5 | | | | | | | | | | | | |
| | | | 100KW | -100 to +100 | 9/2200 | 1/2 | 3.0 | | | | | | | | | | | | |
| | AP32x AG32x | 3.0 ± 0.15V | 025KG | 0 to +25 | 9/250 | 1/20 | 0.5 | | | | | | | | | | | | |
| | | | 050KG | 0 to +50 | 9/500 | 1/20 | 1 | | | | | | | | | | | | |
| | | | 100KG | 0 to +100 | 9/1000 | 1/20 | 2 | | | | | | | | | | | | |
| | | | 200KG | 0 to +200 | 9/2000 | 1/20 | 4 | | | | | | | | | | | | |
| | | | 500KG | 0 to +500 | 9/5000 | 1/20 | 10 | | | | | | | | | | | | |
| | | | 700KG | 0 to +700 | 9/7000 | 1/20 | 14 | | | | | | | | | | | | |
| | | | 001MG | 0 to +1000 | 9/10000 | 1/20 | 20 | | | | | | | | | | | | |
| | | | 050KV | -50 to 0 | -9/500 | 1/20 | 1 | | | | | | | | | | | | |
| | | | 100KV | -100 to 0 | -9/1000 | 1/20 | 2 | | | | | | | | | | | | |
| | | | 100KW | -100 to +100 | 9/2000 | 1/2 | 4 | | | | | | | | | | | | |
| Temperature Error Multiplier | <table border="1"> <caption>Temperature Error Multiplier Data</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Error Multiplier</th> </tr> </thead> <tbody> <tr> <td>-40</td> <td>4.273</td> </tr> <tr> <td>-20</td> <td>3.91</td> </tr> <tr> <td>0</td> <td>1.0</td> </tr> <tr> <td>60</td> <td>1.0</td> </tr> <tr> <td>100</td> <td>4.0</td> </tr> </tbody> </table> | | | | | | | Temperature (°C) | Error Multiplier | -40 | 4.273 | -20 | 3.91 | 0 | 1.0 | 60 | 1.0 | 100 | 4.0 |
| Temperature (°C) | Error Multiplier | | | | | | | | | | | | | | | | | | |
| -40 | 4.273 | | | | | | | | | | | | | | | | | | |
| -20 | 3.91 | | | | | | | | | | | | | | | | | | |
| 0 | 1.0 | | | | | | | | | | | | | | | | | | |
| 60 | 1.0 | | | | | | | | | | | | | | | | | | |
| 100 | 4.0 | | | | | | | | | | | | | | | | | | |

Note:

*1) Output voltage (Vout) is not perfectly ratio-metric with the power supply voltage (VDD).

13. Operating Sequence



Notes:

- *1) The status of VOUT, PDET and PTH are indeterminate when supply voltage is under 0.8*VDD.
- *2) Initializing process is started when supply voltage reaches 0.8*VDD,. At initializing process, PDET is fixed 0.9*VDD and over, and VOUT is fixed 0.1*VDD and under.

14. Device Marking

| Items | | Marking | | | | | | | | | |
|---------------|-----------------|---------|-------------------------------|----------|---|--------|-----|-----|-----|-----|-----|
| | Production Lot | Y | Last digit of Production year | | | 0 to 9 | | | | | |
| | | M | Production month | | | Jan | Feb | Mar | Apr | May | Jun |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | Jul | Aug | Sep |
| 7 | 8 | 9 | X | Y | Z | | | | | | |
| DD | Production date | | | 01 to 31 | | | | | | | |
| Sensor Code | AP30x | | | AP30 | | | | | | | |
| | AG30x | | | AG30 | | | | | | | |
| | AP31x | | | AP31 | | | | | | | |
| | AG31x | | | AG31 | | | | | | | |
| | AP32x | | | AP32 | | | | | | | |
| | AG32x | | | AG32 | | | | | | | |
| Pressure Code | 025KG | | | 025K | | | | | | | |
| | 050KG | | | 050K | | | | | | | |
| | 100KG | | | 100K | | | | | | | |
| | 200KG | | | 200K | | | | | | | |
| | 500KG | | | 500K | | | | | | | |
| | 700KG | | | 700K | | | | | | | |
| | 001MG | | | 001M | | | | | | | |
| | 050KV | | | 050V | | | | | | | |
| 100KV | | | 100V | | | | | | | | |
| 100KW | | | 100W | | | | | | | | |
| Custom ID | | X1 | | | | | | | | | |

Note:

- *1) Pin direction of AP3 or Port length of AG3 is not marked on the face plate.

15. Soldering

| Process | Sensor Code | Condition | | |
|----------------------------|-------------|---|-------------|---|
| Hand soldering | AP3xx | Soldering iron temperature: 350°C max. Soldering time: 3 seconds max. / each pin | *1, 2 | |
| Wave soldering | AP3xR | Soldering bath temperature: 260°C max. Soldering time: 5 seconds max. | *1, 2 | |
| Reflow soldering | AG3xx | Soldering Profile | | |
| | | | | |
| | | A | Ramp up | 2 to 4 °C / sec. |
| | | B | Pre-heating | 150 to 180 °C 60 to 120 sec. |
| | | C | Ramp up | 2 to 4 °C / sec. |
| | | D | Heating | Above 230 °C, 45 sec. max. 245 °C max., 10 sec. max. |
| E | Ramp down | 2 to 4 °C / sec. | | |
| Moisture Sensitivity Level | AG3xx | Level 1 | *5 | |

Notes:

- *1) NEVER wash the device with any washing liquid. NEVER wash the device with any ultrasonic washing machine.
- *2) Do not put the solder and flux on the device's package.
- *3) Temperature means the surface temperature of the device's package.
- *4) Do not reflow more than twice.
- *5) This device is classified as moisture sensitivity level (MSL) 1 that is defined in Jedec standard J-STD-20. Floor life time is unlimited. However, the plating of pins is silver (Ag) that could be discolored to black or brown by sulfur in the environment. Discoloration of pins could impact soldering reliability. The device should be sealed in the embossed carrier tape before soldering.

16. Dimensions and Weights

Refer to the following drawing as attached.

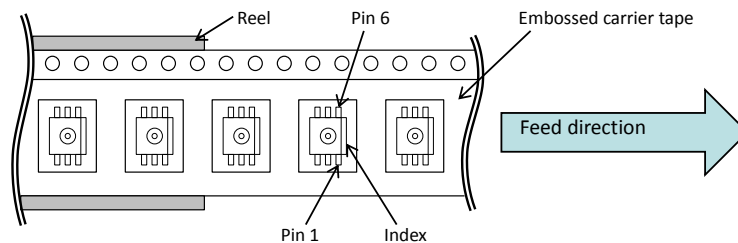
| Sensor Code | Dimension Drawing | Weights |
|-------------|-------------------|-------------------|
| AP3xN | 9-772-001 | approx. 1.4 grams |
| AP3xR | 9-772-002 | |
| AG3x3 | 9-772-003 | approx. 0.3 grams |
| AG3x6 | 9-772-004 | approx. 0.4 grams |

17. Ordering Information

| Model | Package | Supply Voltage | Pin Direction | Packing | Ordering Device Number | Qty./Packing |
|-------|---------|----------------|---------------|-------------|----------------------------------|--------------|
| AP3 | DIP | 5.0 Vdc | Normal | Tray | AP30N- [Pressure Code] -X1 | 150 Pcs/Tray |
| | | | | Stick | AP30N- [Pressure Code] -X1-STICK | 40 Pcs/Stick |
| | | | Opposite | Tray | AP30R- [Pressure Code] -X1 | 150 Pcs/Tray |
| | | | | Stick | AP30R- [Pressure Code] -X1-STICK | 40 Pcs/Stick |
| | | 3.3 Vdc | Normal | Tray | AP31N- [Pressure Code] -X1 | 150 Pcs/Tray |
| | | | | Stick | AP31N- [Pressure Code] -X1-STICK | 40 Pcs/Stick |
| | | | Opposite | Tray | AP31R- [Pressure Code] -X1 | 150 Pcs/Tray |
| | | | | Stick | AP31R- [Pressure Code] -X1-STICK | 40 Pcs/Stick |
| | | 3.0 Vdc | Normal | Tray | AP32N- [Pressure Code] -X1 | 150 Pcs/Tray |
| | | | | Stick | AP32N- [Pressure Code] -X1-STICK | 40 Pcs/Stick |
| | | | Opposite | Tray | AP32R- [Pressure Code] -X1 | 150 Pcs/Tray |
| | | | | Stick | AP32R- [Pressure Code] -X1-STICK | 40 Pcs/Stick |
| | | | Port Length | | | |
| AG3 | SMD | 5.0 Vdc | 3 mm | Tray | AG303- [Pressure Code] -X1 | 300 Pcs/Tray |
| | | | | Tape & Reel | AG303- [Pressure Code] -X1-TP | 500 Pcs/Reel |
| | | | 6 mm | Tray | AG306- [Pressure Code] -X1 | 300 Pcs/Tray |
| | | | | Tape & Reel | AG306- [Pressure Code] -X1-TP | 500 Pcs/Reel |
| | | 3.3 Vdc | 3 mm | Tray | AG313- [Pressure Code] -X1 | 300 Pcs/Tray |
| | | | | Tape & Reel | AG313- [Pressure Code] -X1-TP | 500 Pcs/Reel |
| | | | 6 mm | Tray | AG316- [Pressure Code] -X1 | 300 Pcs/Tray |
| | | | | Tape & Reel | AG316- [Pressure Code] -X1-TP | 500 Pcs/Reel |
| | | 3.0 Vdc | 3 mm | Tray | AG323- [Pressure Code] -X1 | 300 Pcs/Tray |
| | | | | Tape & Reel | AG323- [Pressure Code] -X1-TP | 500 Pcs/Reel |
| | | | 6 mm | Tray | AG326- [Pressure Code] -X1 | 300 Pcs/Tray |
| | | | | Tape & Reel | AG326- [Pressure Code] -X1-TP | 500 Pcs/Reel |

| Pressure Range | Pressure Code |
|------------------|---------------|
| 0 to +25 kPa | 025KG |
| 0 to +50 kPa | 050KG |
| 0 to +100 kPa | 100KG |
| 0 to +200 kPa | 200KG |
| 0 to +500 kPa | 500KG |
| 0 to +700 kPa | 700KG |
| 0 to +1 MPa | 001MG |
| -50 to 0 kPa | 050KV |
| -100 to 0 kPa | 100KV |
| -100 to +100 kPa | 100KW |

18. Tape & Reel Information



19. Footprint for PCB designing (Reference)

| Sensor Code | Footprint |
|-------------|-----------|
| AP3xN | |
| AP3xR | |
| AG3x3 | |
| AG3x6 | |

Notes:

- *1) These footprints are for reference. Please evaluate well these footprints, before your mass production.
- *2) When designing your PCB, please also refer to the outline diagrams.

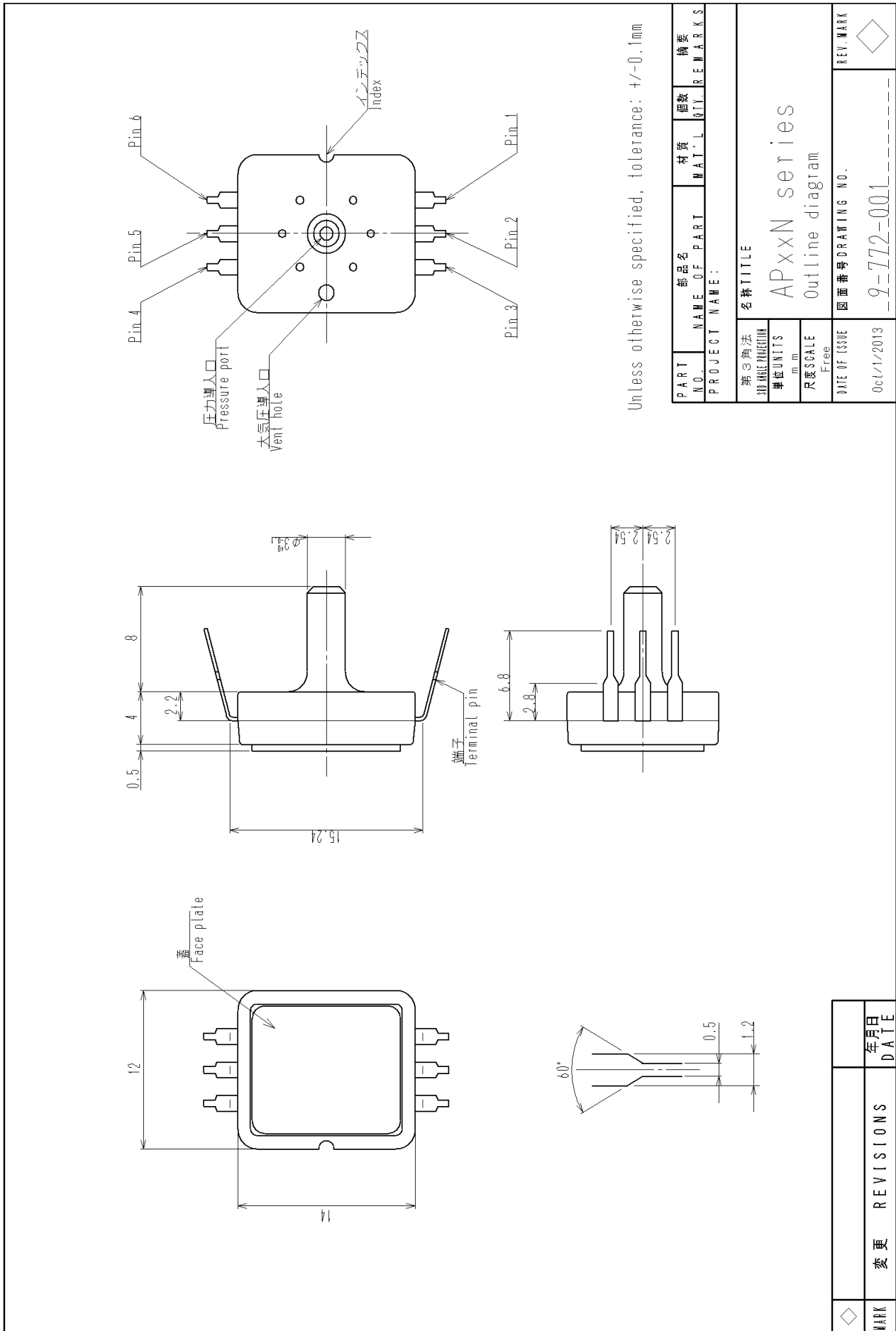
20. Handling Notes

Plating of pins is silver (Ag). Silver has physical property that is discolored to black or brown by sulfur. There are notes for handling as below:

- To prevent discoloration of pins, please keep the devices sealed in static shielding bags before soldering.
- Do not solder the devices that have discolored pins.
- After soldering, pins would be discolored in black or brown in atmosphere. However it does not impact reliability of the device.

21. Notes

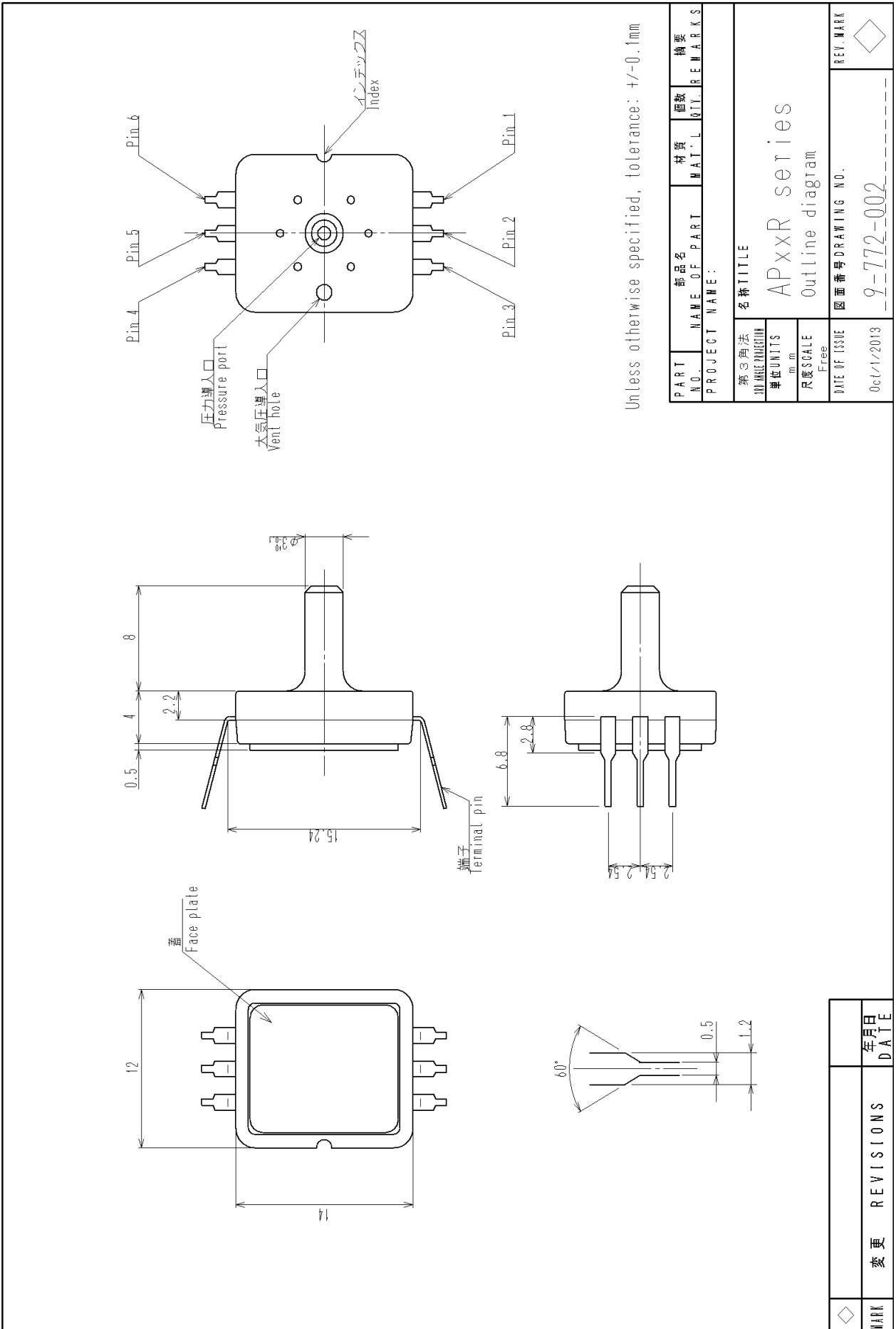
- Fujikura reserves all rights.
- This document is subject to change without notice.
- Limitation, usage, environment, standard warranty and so on are listed on Fujikura web site.
- Please refer to the latest specifications.

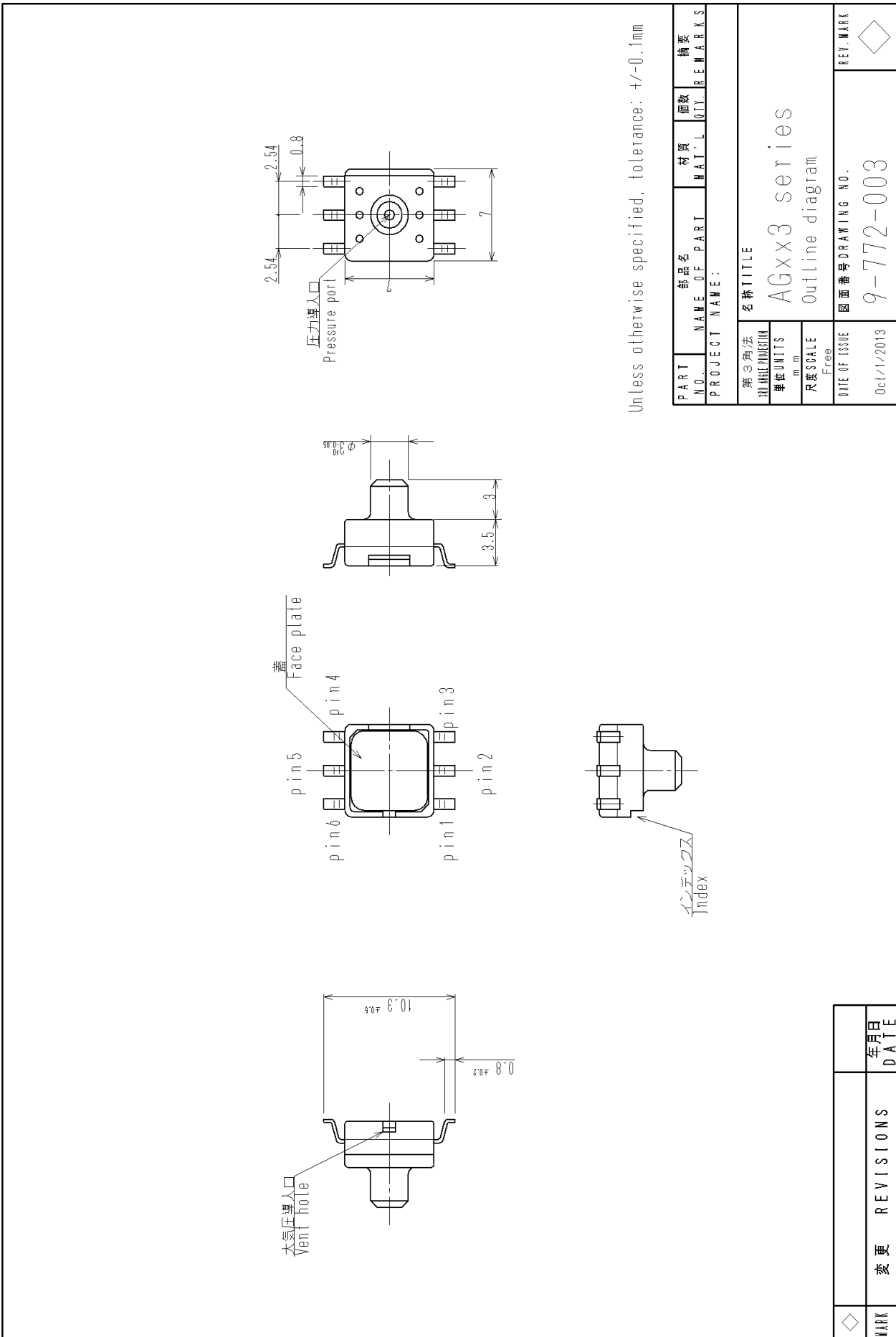


Unless otherwise specified, tolerance: $\pm 0.1\text{mm}$

| | | | | |
|--------------------------|------------------|------|---------|----|
| PART NO. | 部品名 | 材質 | 個数 | 備考 |
| NAME OF PART | MAT'L | QTY. | REMARKS | |
| PROJECT NAME : | | | | |
| 名称 TITLE | | | | |
| APxxN series | | | | |
| Outline diagram | | | | |
| 第3角法 3rd ANGLE METHOD | | | | |
| 単位 UNITS mm | | | | |
| 尺変 SCALE Free | | | | |
| DATE OF ISSUE | 図面番号 DRAWING NO. | | | |
| 0c1/1/2013 | 9-772-001 | | | |
| | REV. MARK | | | |
| | ◇ | | | |

| | | |
|------|--------------|----------|
| MARK | 変更 REVISIONS | 年月日 DATE |
| ◇ | | |

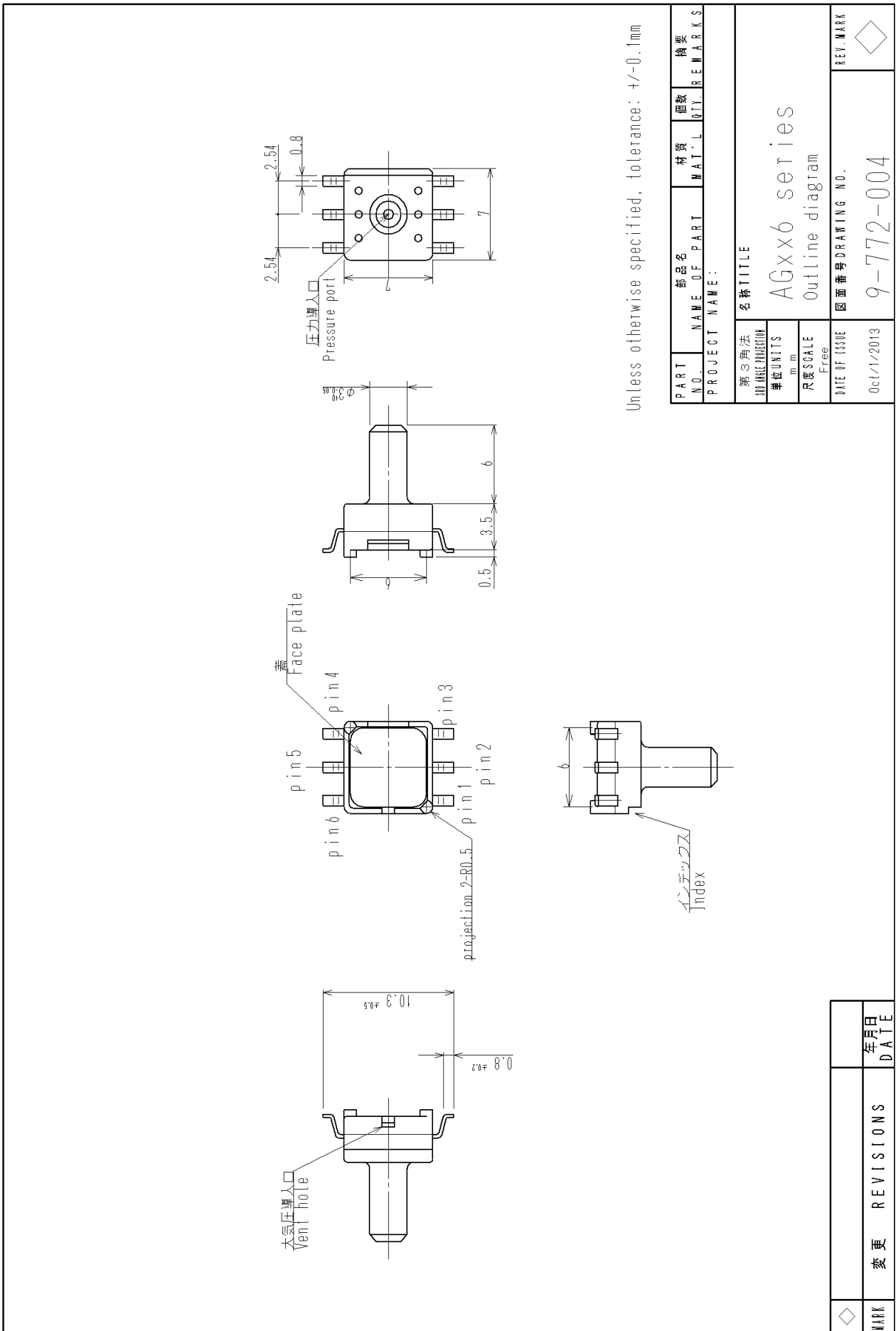




Unless otherwise specified, tolerance: $\pm 0.1\text{mm}$

| | | | | |
|-----------------------------|-----------------|-----------|----|----|
| PART NO. | 部品名 | 材質 | 数量 | 概要 |
| PROJECT NAME: | | | | |
| 名称TITLE | | | | |
| AGx3 series | | | | |
| Outline diagram | | | | |
| 第3角法 3/4 VIEW PROJECTION | | | | |
| 単位UNITS mm | | | | |
| 尺度SCALE Free | | | | |
| DATE OF ISSUE 0ct/1/2013 | 図面番号DRAWING NO. | REV. MARK | | |
| | 9-772-003 | ◇ | | |

| | | | |
|---|------|--------------|----------|
| ◇ | MARK | 変更 REVISIONS | 年月日 DATE |
|---|------|--------------|----------|



Unless otherwise specified, tolerance: $\pm 0.1\text{mm}$

| | | | | |
|--------------------------|------------------|------------|---------|-----------|
| PART NO. | 部品名 | 材質 | 個数 | 摘要 |
| PROJECT NAME : | NAME OF PART | MAT'L QTY. | REMARKS | |
| 第3角法 3rd ANGLE METHOD | 名称/TITLE | | | |
| 単位/UNITS mm | AGxx6 series | | | |
| 尺規/SCALE Free | Outline diagram | | | |
| DATE OF ISSUE | 図面番号/DRAWING NO. | | | REV. MARK |
| 0ct/1/2013 | 9-772-004 | | | ◇ |

| | | | | |
|---|------|----|-----------|-------------|
| ◇ | MARK | 変更 | REVISIONS | 年月日 DATE |
|---|------|----|-----------|-------------|

Headquarter Switzerland:
Pewatron AG
Thurgauerstrasse 66
CH-8050 Zurich
Phone +41 44 877 35 00
info@pewatron.com

Office Germany:
Pewatron Deutschland GmbH
Edisonstraße 16
D-85716 Unterschleißheim
Phone +49 89 374 288 87 00
info.de@pewatron.com



PEWATRON
SENSORS · POWER SOLUTIONS

We are here for you. Addresses and Contacts.

Sales Germany & Austria

Geometrical sensors Other products

Kurt Stritzelberger
Phone +49 89 374 288 87 22
kurt.stritzelberger@pewatron.com

Pressure sensors Other products

Gerhard Vetter
Phone +49 89 374 288 87 26
gerhard.vetter@pewatron.com

Gas sensors and modules

Peter Felder
Phone +41 44 877 35 05
peter.felder@pewatron.com

Sales Switzerland & Liechtenstein

Postcode 3000 – 9999

Basil Frei
Phone +41 44 877 35 18
basil.frei@pewatron.com

Postcode 1000 – 2999

Christian Mohrenstecher
Phone +41 76 444 57 93
christian.mohrenstecher@pewatron.com

Sales International Key Accounts

Peter Felder
Phone +41 44 877 35 05
peter.felder@pewatron.com

Sales Other Countries / Product Management

Pressure Sensors Load Cells

Philipp Kistler
Phone +41 44 877 35 03
philipp.kistler@pewatron.com

Gas sensors Gas sensor modules

Dr. Thomas Clausen
Phone +41 44 877 35 13
thomas.clausen@pewatron.com

Flow / Level / Medical products

Dr. Adriano Pittarelli
Phone +49 89 374 288 87 67
adriano.pittarelli@pewatron.com

Power supplies

Sebastiano Leggio
Phone +41 44 877 35 06
sebastiano.leggio@pewatron.com

Linear position sensors Angle sensors

Eric Letsch
Phone +41 44 877 35 14
eric.letsch@pewatron.com

Accelerometers Sensor elements

Christoph Kleye
Phone +49 89 374 288 87 61
christoph.kleye@pewatron.com

Drive technology

CH Postcode 5000 – 9999 / DE

Roman Homa
Phone +41 76 444 00 86
roman.homa@pewatron.com

Drive technology

CH Postcode 1000 – 4999 / AT / IT / FR

Christian Mohrenstecher
Phone +41 76 444 57 93
christian.mohrenstecher@pewatron.com

Harald Thomas

Phone +49 89 374 288 87 23
harald.thomas@pewatron.com