

DATE 31 January, 2019No. V-70033D-E

Messrs. _____

SPECIFICATION

Semiconductor Pressure Sensor
_____Model: AP4, AG4 Pressure Sensor

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.	General	2
2.	Principle	2
3.	Device Lineup	2
4.	RoHS	2
5.	Block Diagram and Pin Connections	3
6.	Device Name Code	4
7.	Absolute Maximum Ratings	5
8.	General Specifications	5
9.	Electrical Characteristics	6
10.	Communication Interface.....	7
11.	Communication Protocol	8
12.	Output versus Input Pressure.....	9
13.	Transfer Function.....	10
14.	Operating Sequence	10
15.	Device Marking.....	11
16.	Soldering.....	12
17.	Dimensions and Weights.....	12
18.	Ordering Information.....	13
19.	Tape & Reel	13
20.	Footprint for PCB designing (Reference)	14
21.	Handling Notes.....	15
22.	Notes	15
Appendix: Dimension Drawing		16
9-772-001 APxxN		16
9-772-002 APxxR		17
9-772-003 AGxx3		18
9-772-004 AGxx6		19

Table shown below is revision records of this specification

Rev. D	31 Jan., 2019	Y. Uchiumi	Added temperature data	D
Rev. C	18 Mar., 2015	Y. Uchiumi	Change arrangement of Slave address code and Custom ID	C
Rev. B	7 Jan., 2015	Y Uchiumi	Added 700kPa(700KG).	B
Rev. A	29 July, 2014	Y Uchiumi	Correction 10. Communication Interface	A
Est.	15 May, 2014	Y Uchiumi		
	Date	Name	Comment	Mark

1. General

This document describes the specifications of Fujikura Pressure Sensors, AP4 and AG4 series.

2. Principle

Fujikura Pressure Sensor 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 output signal that is proportional to the applied pressure.

3. Device Lineup

This device has the following lineup.

Model	Pressure Type	Supply Voltage	Accuracy	Pressure Range										
				-100 (-15)	-50 (-7)	0	25 (3)	50 (7)	100 (15)	200 (30)	500 (70)	700 (100)	1000 kPa (150) psi	
AP4 AG4	Gauge	5.0 Vdc 3.3 Vdc 3.0 Vdc	±1.5 %FS				025KG							
							050KG							
							100KG							
							200KG							
							500KG							
							700KG							
							001MG							
				050KV										
				100KV										
							100KW							

Features

- ✓ Digital output
- ✓ Low power consumption
- ✓ High accuracy
- ✓ Package compatible with XFPM & XFGM integrated pressure sensor
- ✓ Modification available

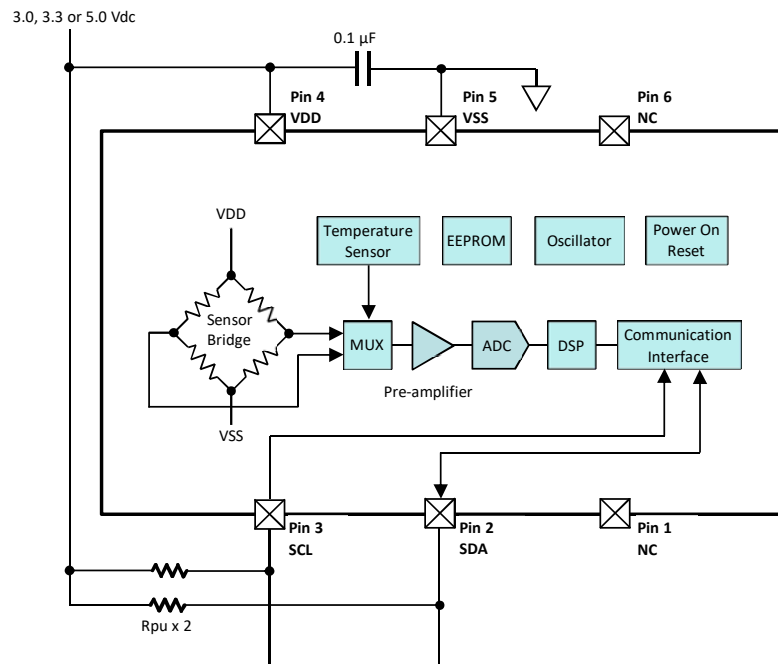
Applications

- ✓ Battery-operated devices
- ✓ Medical devices
- ✓ Industrial pneumatic devices
- ✓ Consumer devices

4. RoHS

This device is compliant with the Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS).

5. Block Diagram and Pin Connections



Pin Assignment		Pin No.	Pin Name	I/O	Type	Function	
AP4	AG4						
		1	NC	-	-	-	*2
		2	SDA	I/O	Digital	Serial bidirectional data	
		3	SCL	I	Digital	Serial clock input	
		4	VDD	-	-	Power supply connection	*1
		5	VSS	-	-	Common voltage connection	
		6	NC	-	-	-	-





Notes:

*1) Put a 0.1 µF capacitor between Pin 4 (VDD) and VSS.

*2) Pin 1 and 6 must be open.

6. Device Name Code 

The device name code is consisted of Sensor code, Pressure code, Slave address code and Packing style. For the exact ordering device number, please refer to Chapter 18 Ordering Information.

Sensor Code	Pressure Code	Slave address code	Packing style
AP4 0 N	025K G	2	Blank
			TP: Tape & Reel
			STICK: Stick
		Custom ID	if applicable (3 characters)
		Slave address code	2: 0x28 ⋮ 7: 0x78
		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 AP4	N: Normal  R: Opposite 
		Port length for AG4	3: 3 mm  6: 6 mm 
		Supply voltage	0: 5.0 Vdc 1: 3.3 Vdc 2: 3.0 Vdc
Model			AP4: DIP / Digital Output AG4: SMD / Digital Output

7. Absolute Maximum Ratings

Item			Symbol	Rating			Unit
				Min.	Typ.	Max.	
Load Pressure	Pressure Code	025KG	Pmax+	-	-	+50	kPa
		050KG		-	-	+100	kPa
		100KG		-	-	+200	kPa
		200KG		-	-	+400	kPa
		500KG		-	-	+1	MPa
		700KG		-	-	+1.4	MPa
		001MG		-	-	+1.5	MPa
		050KV		-	-	+100	kPa
		100KV		-	-	+200	kPa
		100KW	-	-	+200	kPa	
Supply Voltage			VDDmax	-0.3	-	6	Vdc
Voltage at Digital I/O pins			Vdiomax	-0.3	-	VDD+0.3	Vdc
Operating Temperature			Topt	-40	-	+125	°C
Storage Temperature			Tstg	-40	-	+125	°C

Note: Absolute maximum ratings are the limits that the device will withstand without damage.

8. General Specifications

Item		Condition	Symbol	Rating			Unit
				Min.	Typ.	Max.	
Supply Voltage	Sensor Code	AP40x, AG40x	VDD	4.75	5	5.25	Vdc
		AP41x, AG41x		3.135	3.3	3.465	
		AP42x, AG42x		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	-	+85	°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) Supply voltage (VDD) should be constant.
- *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 13 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 V, 1 minute.
- *8) Insulation resistance is defined as the resistance value between all pins and the package with DC 500 V.

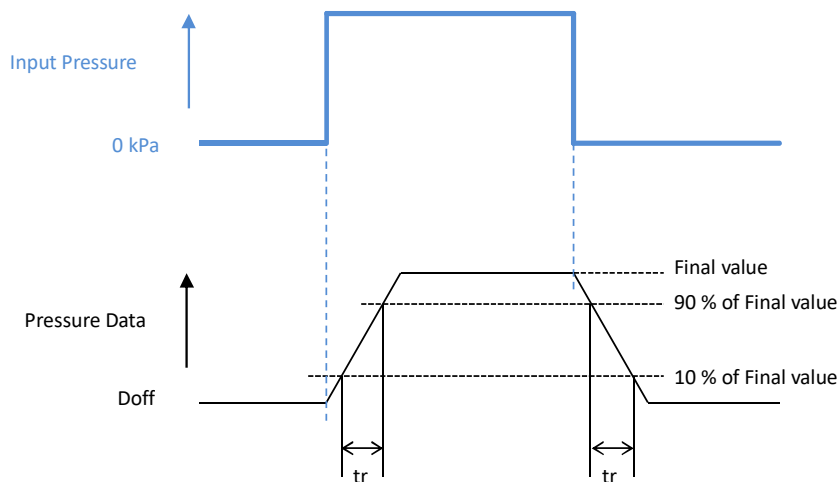
9. Electrical Characteristics

Ambient temperature $T_a = 25^\circ\text{C}$

Item	Condition	Symbol	Rating			Unit	
			Min.	Typ.	Max.		
Offset Pressure Data	Min. Popt, 050KV, 100KV: Max. Popt	Doff	598	819	1040	Count	*1, 2
Full Scale Pressure Data	Max. Popt, 050KV, 100KV: Min. Popt	Dfs	15344	15565	15786	Count	*3
Span Pressure Data	Min. to max. Popt	SD	-	14746	-	Count	*4
Accuracy	0 to 85°C	Error	-1.5	-	+1.5	%FS	*5, 6
Supply Current	VDD = 5 Vdc	Ic	-	-	4.5	mAdc	*7
	VDD = 3.3, 3.0 Vdc		-	-	3.5		
Response Time	for reference	tr	-	1	-	msec.	*8
Temperature Data	for reference	Dtemp	0°C	512	-	Count	*9
			+25°C	768	-		
			+85°C	1382	-		

Notes:

- *1) Offset pressure data (Doff) is defined as the pressure data at minimum Popt. In case of 050KV and 100KV, Offset pressure data (Doff) is defined as the pressure data of maximum Popt.
- *2) Offset error is calibration error of Offset pressure data (Doff) at production. It does not include Long term offset drift. It would be suggested that applications have Auto-zeroing function.
- *3) Full scale pressure data (Dfs) is defined as the pressure data at maximum Popt. In case of 050KV and 100KV, Full scale pressure data (Dfs) is defined as the pressure data of minimum Popt.
- *4) Span pressure data (SD) is defined as the pressure data difference between Offset pressure data (Doff) and Full scale pressure data (Dfs).
- *5) Accuracy consists of the following:
 - Non-linearity
 - Temperature errors over the temperature range 0 to 85°C
 - Pressure hysteresis
 - Calibration errors of sensitivity and offset
- *6) The unit of Accuracy "%FS" is defined as a percent error by Span pressure data (SD).
- *7) We can offer lower power mode products as modification line. Please ask to Fujikura.
- *8) Response time (tr) is defined as the time for the change in the pressure data from 10 % to 90 % or from 90 % to 10 % of its final value when the input pressure makes a step change.



- *9) Temperature Data (Dtmp) is for reference.

10. Communication Interface

Ambient temperature $T_a = 25^\circ\text{C}$

Item	Condition	Symbol	Rating			Unit	
			Min.	Typ.	Max.		
Interface			I ² C™			*1, 2	
Input Low Voltage	Sensor Code	VIL	AP40x, AG40x	0	-	1	V
			AP41x, AG41x	0	-	0.66	V
			AP42x, AG42x	0	-	0.6	V
Input High Voltage	Sensor Code	VIH	AP40x, AG40x	4	-	5	V
			AP41x, AG41x	2.64	-	3.3	V
			AP42x, AG42x	2.4	-	3	V
Output Low Voltage	Sensor Code	VOL	AP40x, AG40x	-	-	0.5	V
			AP41x, AG41x	-	-	0.33	V
			AP42x, AG42x	-	-	0.3	V
SCL clock frequency		f_{SCL}	100	-	400	kHz	
Start condition hold time relative to SCL edge		t_{HDSTA}	0.1	-	-	μsec .	
Minimum SCL clock low width		t_{LOW}	0.6	-	-	μsec .	
Minimum SCL clock high width		t_{HIGH}	0.6	-	-	μsec .	
Start condition setup time relative to SCL edge		t_{SUSTA}	0.1	-	-	μsec .	
Data hold time on SDA relative to SCL edge		t_{HDDAT}	0	-	-	μsec .	
Data setup time on SDA relative to SCL edge		t_{SUDAT}	0.1	-	-	μsec .	
Stop condition setup time on SCL		t_{SUSTO}	0.1	-	-	μsec .	
Bus free time between stop condition and start condition		t_{BUS}	2	-	-	μsec .	
Load Capacitance	Pin2 SDA, 400kHz	C_{max}	-	-	200	pF	
Pull-up Resistor	Pin2 SDA, Pin3 SCL	R_{pu}	1	-	-	k Ω	
Slave address	7 bit		0x28 to 0x78			*4	

Notes:

*1) I²C™ is a trademark of NXP Semiconductors.

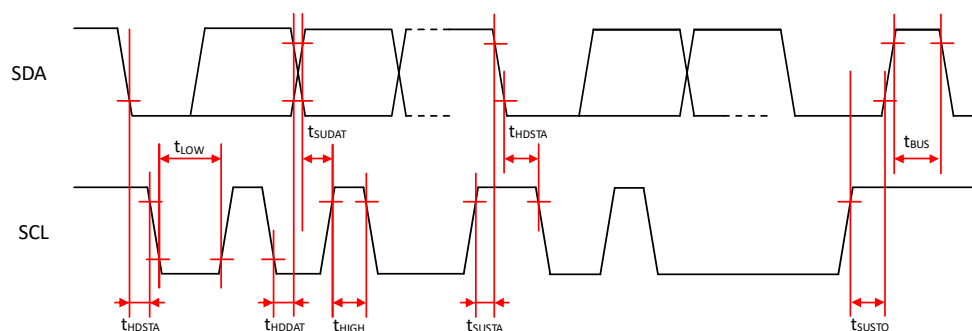
*2) There are three differences in this device protocol compared with the original I²C™ protocol:

- Sending a start-stop condition without any transitions on the CLK line (no clock pulses in between) creates a communication error for the next communication, even if the next start condition is correct and the clock pulse is applied. An additional start condition must be sent, which results in restoration of proper communication.
- The restart condition - a falling SDA edge during data transmission when the CLK clock line is still high - creates the same situation. The next communication fails, and an additional start condition must be sent for correct communication.
- A falling SDA edge is not allowed between the start condition and the first rising SCL edge. If using an I²C™ address with the first bit 0, SDA must be held low from the start condition through the first bit.

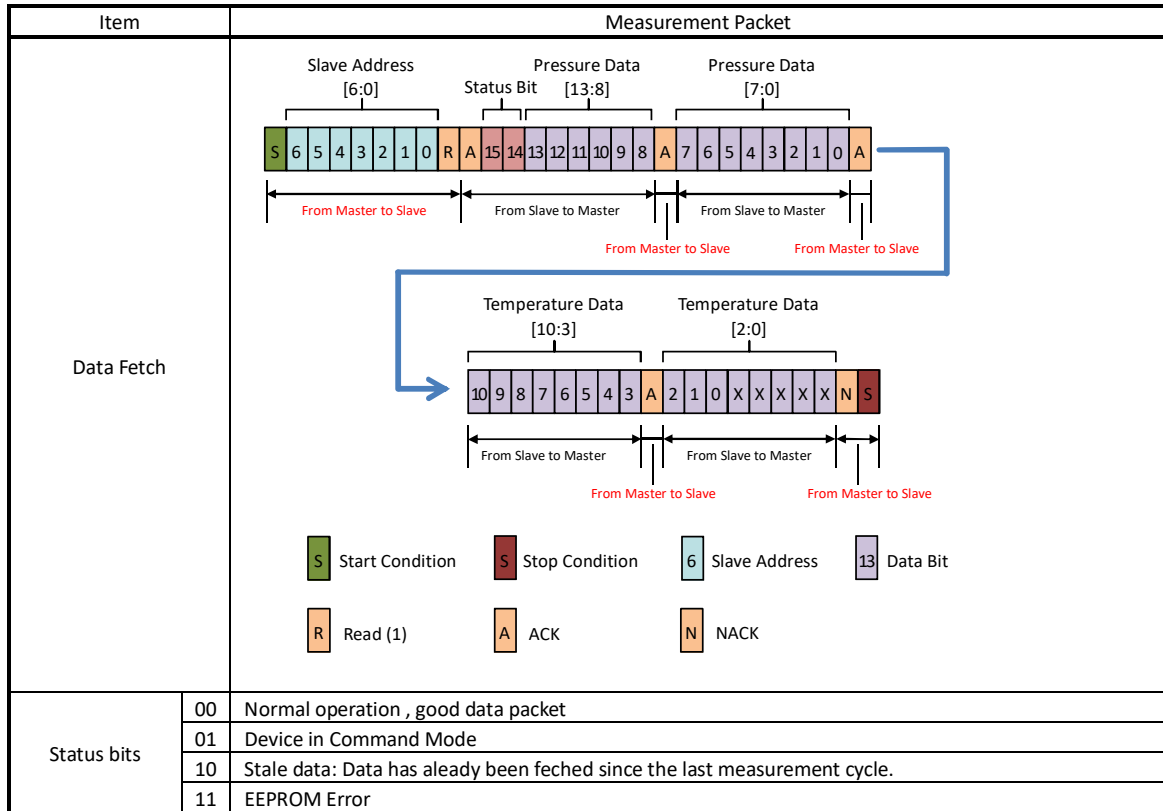
*3) Combined low and high widths must equal or exceed minimum SCLK period.

*4) Slave address is set by the factory. Please designate the slave address in the device name code. If you can accept any address, 0x28 is recommended.

Timing Diagram



11. Communication Protocol



Note:

- *1) If the status bits are 01, the device must be re-started to turn power supply off and on again.
- *2) If a data fetch is performed before or during the first measurement after power-on reset, then “stale” will be returned, but this data is actually invalid because the first measurement has not been completed.
- *3) If the status bits are 11, do not use the device anymore.

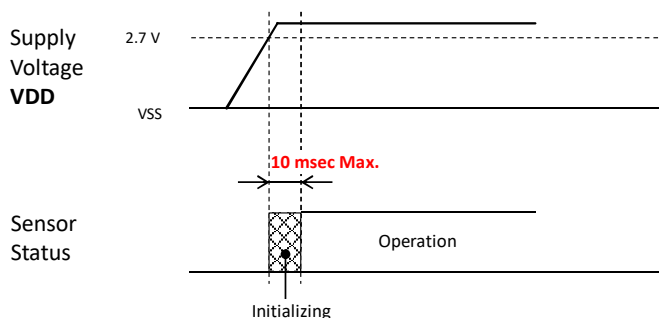
12. Output versus Input Pressure

Pressure Code	Output vs. Input pressure
025KG 050KG 100KG 200KG 500KG 700KG 001MG	<p style="text-align: center;">Temp. = 0 to 85°C</p> <p style="text-align: center;">Input Pressure</p>
050KV 100KV	<p style="text-align: center;">Temp. = 0 to 85°C</p> <p style="text-align: center;">Input Pressure</p>
100KW	<p style="text-align: center;">Temp. = 0 to 85°C</p> <p style="text-align: center;">Input Pressure</p>

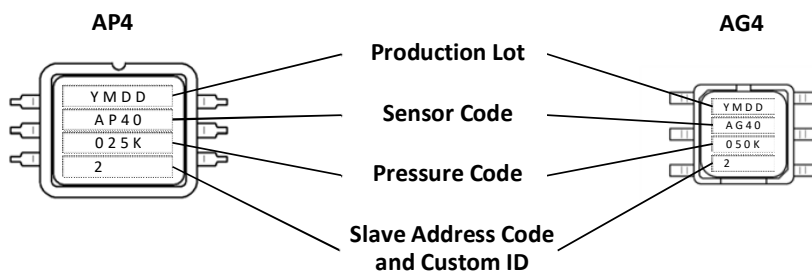
13. Transfer Function

Item	Transfer Function																																																						
Pressure Data	$\text{Pressure Data (Count)} = P \times \alpha + \beta \pm (\text{Error} \times \text{Temperature Error Multiplier})$																																																						
	$P \text{ (kPa)} = \frac{\text{Pressure Data} - \beta \pm (\text{Error} \times \text{Temperature Error Multiplier})}{\alpha}$																																																						
	<table border="1"> <thead> <tr> <th>Pressure Code</th> <th>P (kPa)</th> <th>α</th> <th>β</th> <th>Error</th> </tr> </thead> <tbody> <tr> <td>025KG</td> <td>0 to +25</td> <td>14746/25</td> <td>819</td> <td>221</td> </tr> <tr> <td>050KG</td> <td>0 to +50</td> <td>7373/25</td> <td>819</td> <td>221</td> </tr> <tr> <td>100KG</td> <td>0 to +100</td> <td>7373/50</td> <td>819</td> <td>221</td> </tr> <tr> <td>200KG</td> <td>0 to +200</td> <td>7373/100</td> <td>819</td> <td>221</td> </tr> <tr> <td>500KG</td> <td>0 to +500</td> <td>7373/250</td> <td>819</td> <td>221</td> </tr> <tr> <td>700KG</td> <td>0 to +700</td> <td>7373/350</td> <td>819</td> <td>221</td> </tr> <tr> <td>001MG</td> <td>0 to +1000</td> <td>7373/500</td> <td>819</td> <td>221</td> </tr> <tr> <td>050KV</td> <td>-50 to 0</td> <td>-7373/25</td> <td>819</td> <td>221</td> </tr> <tr> <td>100KV</td> <td>-100 to 0</td> <td>-7373/50</td> <td>819</td> <td>221</td> </tr> <tr> <td>100KW</td> <td>-100 to +100</td> <td>7373/100</td> <td>8192</td> <td>221</td> </tr> </tbody> </table>	Pressure Code	P (kPa)	α	β	Error	025KG	0 to +25	14746/25	819	221	050KG	0 to +50	7373/25	819	221	100KG	0 to +100	7373/50	819	221	200KG	0 to +200	7373/100	819	221	500KG	0 to +500	7373/250	819	221	700KG	0 to +700	7373/350	819	221	001MG	0 to +1000	7373/500	819	221	050KV	-50 to 0	-7373/25	819	221	100KV	-100 to 0	-7373/50	819	221	100KW	-100 to +100	7373/100	8192
Pressure Code	P (kPa)	α	β	Error																																																			
025KG	0 to +25	14746/25	819	221																																																			
050KG	0 to +50	7373/25	819	221																																																			
100KG	0 to +100	7373/50	819	221																																																			
200KG	0 to +200	7373/100	819	221																																																			
500KG	0 to +500	7373/250	819	221																																																			
700KG	0 to +700	7373/350	819	221																																																			
001MG	0 to +1000	7373/500	819	221																																																			
050KV	-50 to 0	-7373/25	819	221																																																			
100KV	-100 to 0	-7373/50	819	221																																																			
100KW	-100 to +100	7373/100	8192	221																																																			
Temperature Data	$\text{Dttmp (Count)} = \frac{2047}{200} \times (T + 50) \quad \longleftrightarrow \quad T \text{ (}^\circ\text{C)} = \frac{200}{2047} \times \text{Dttmp} - 50$																																																						

14. Operating Sequence



15. Device Marking



Items		Marking
Production Lot		
Y	Last digit of Production year	0 to 9
M	Production month	1, 2, 3 to 8, 9, X=Oct., Y=Nov., Z=Dec.
DD	Production date	01 to 31
Sensor Code		
	AP40x	AP40
	AP41x	AP41
	AP42x	AP42
	AG40x	AG40
	AG41x	AG41
	AG42x	AG42
Pressure Code		
	025KG	025K
	050KG	050K
	100KG	100K
	200KG	200K
	500KG	500K
	700KG	700K
	001MG	001M
	050KV	050V
	100KV	100V
	100KW	100W
Slave Address Code		
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
Custom ID		If applicable

*1

*2

Notes:

- *1) Pin direction for AP4 or Port length for AG4 is not marked on the face plate.
- *2) Custom ID will be added when product is customized for a customer.

16. Soldering

Process	Sensor code	Condition																
Hand Soldering	AP4xx	Soldering iron temperature: 350°C max. Soldering time: 3 seconds max.	*1, 2															
Wave Soldering	AP4xR	Soldering bath temperature: 260°C max. Soldering time: 5 seconds max.	*1, 2															
Moisture Sensitivity Level	AG4xx	Level 1	*3															
Reflow Soldering	AG4xx	<div style="text-align: center;"> <p>Soldering Profile</p> <p>Temperature(°C)</p> <p>Time</p> </div> <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>A</th> <th>Ramp up</th> <th>2 to 4°C / sec.</th> </tr> </thead> <tbody> <tr> <th>B</th> <th>Pre-heating</th> <th>150 to 180°C 60 to 120 sec.</th> </tr> <tr> <th>C</th> <th>Ramp up</th> <th>2 to 4°C / sec.</th> </tr> <tr> <th>D</th> <th>Heating</th> <th>Above 230°C, 45 sec. max. 245°C max., 10 sec. max.</th> </tr> <tr> <th>E</th> <th>Ramp down</th> <th>2 to 4°C / sec.</th> </tr> </tbody> </table>	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.	*1 *2 *4 *5
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.																

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) 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.
- *4) Temperature means Surface temperature of the device’s package.
- *5) Do not reflow more than twice.

17. Dimensions and Weights

Refer to the following drawing as attached.

Sensor Code	Dimension Drawing	Weight
AP4xN	9-772-001	approx. 1.4 grams
AP4xR	9-772-002	
AG4x3	9-772-003	approx. 0.3 grams
AG4x6	9-772-004	approx. 0.4 grams

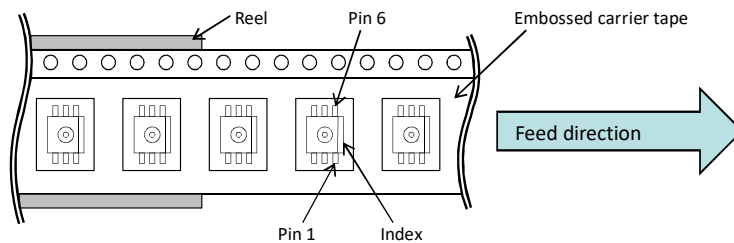
18. Ordering Information

Model	Package	Supply Voltage	Pin Direction	Packing	Ordering Device Number	Qty./Packing	
AP4	DIP	5.0 Vdc	Normal	Tray	AP40N- [Pressure Code] -[Slave]	150 Pcs/Tray	
				Stick	AP40N- [Pressure Code] -[Slave] -STICK	40 Pcs/Stick	
			Opposite	Tray	AP40R- [Pressure Code] -[Slave]	150 Pcs/Tray	
				Stick	AP40R- [Pressure Code] -[Slave] -STICK	40 Pcs/Stick	
			3.3 Vdc	Normal	Tray	AP41N- [Pressure Code] -[Slave]	150 Pcs/Tray
					Stick	AP41N- [Pressure Code] -[Slave] -STICK	40 Pcs/Stick
		Opposite		Tray	AP41R- [Pressure Code] -[Slave]	150 Pcs/Tray	
				Stick	AP41R- [Pressure Code] -[Slave] -STICK	40 Pcs/Stick	
		3.0 Vdc	Normal	Tray	AP42N- [Pressure Code] -[Slave]	150 Pcs/Tray	
				Stick	AP42N- [Pressure Code] -[Slave] -STICK	40 Pcs/Stick	
			Opposite	Tray	AP42R- [Pressure Code] -[Slave]	150 Pcs/Tray	
				Stick	AP42R- [Pressure Code] -[Slave] -STICK	40 Pcs/Stick	
			Port Length				
AG4	SMD	5.0 Vdc	3 mm	Tray	AG403- [Pressure Code] -[Slave]	300 Pcs/Tray	
				Tape & Reel	AG403- [Pressure Code] -[Slave] -TP	500 Pcs/Reel	
			6 mm	Tray	AG406- [Pressure Code] -[Slave]	300 Pcs/Tray	
				Tape & Reel	AG406- [Pressure Code] -[Slave] -TP	500 Pcs/Reel	
		3.3 Vdc	3 mm	Tray	AG413- [Pressure Code] -[Slave]	300 Pcs/Tray	
				Tape & Reel	AG413- [Pressure Code] -[Slave] -TP	500 Pcs/Reel	
			6 mm	Tray	AG416- [Pressure Code] -[Slave]	300 Pcs/Tray	
				Tape & Reel	AG416- [Pressure Code] -[Slave] -TP	500 Pcs/Reel	
		3.0 Vdc	3 mm	Tray	AG423- [Pressure Code] -[Slave]	300 Pcs/Tray	
				Tape & Reel	AG423- [Pressure Code] -[Slave] -TP	500 Pcs/Reel	
			6 mm	Tray	AG426- [Pressure Code] -[Slave]	300 Pcs/Tray	
				Tape & Reel	AG426- [Pressure Code] -[Slave] -TP	500 Pcs/Reel	

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

Slave Address	Slave Address Code
0x28	2
0x38	3
0x48	4
0x58	5
0x68	6
0x78	7

19. Tape & Reel



20. Footprint for PCB designing (Reference)

Sensor Code	Footprint
AP4xN	
AP4xR	
AG4x3	
AG4x6	

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.

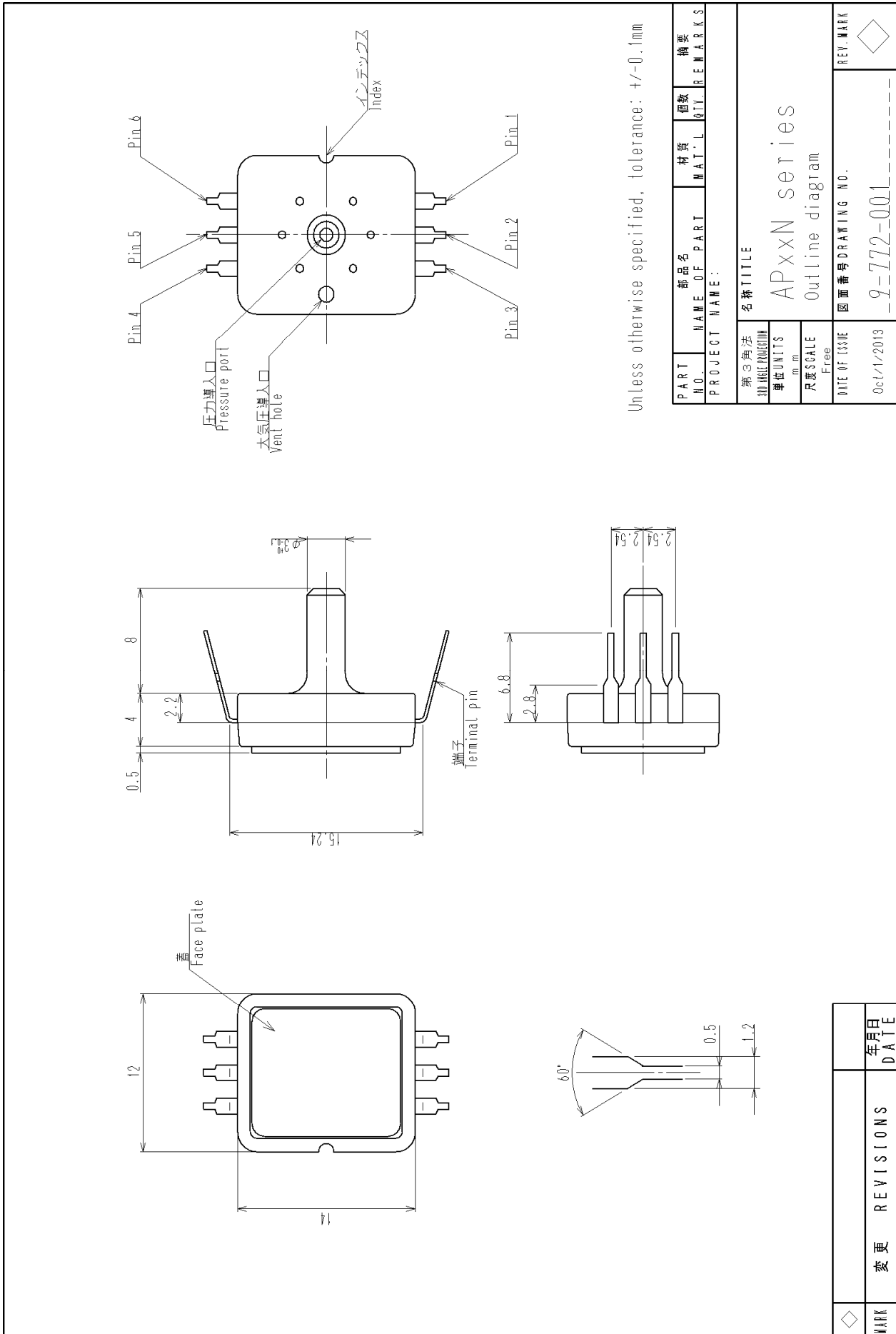
21. Handling Notes

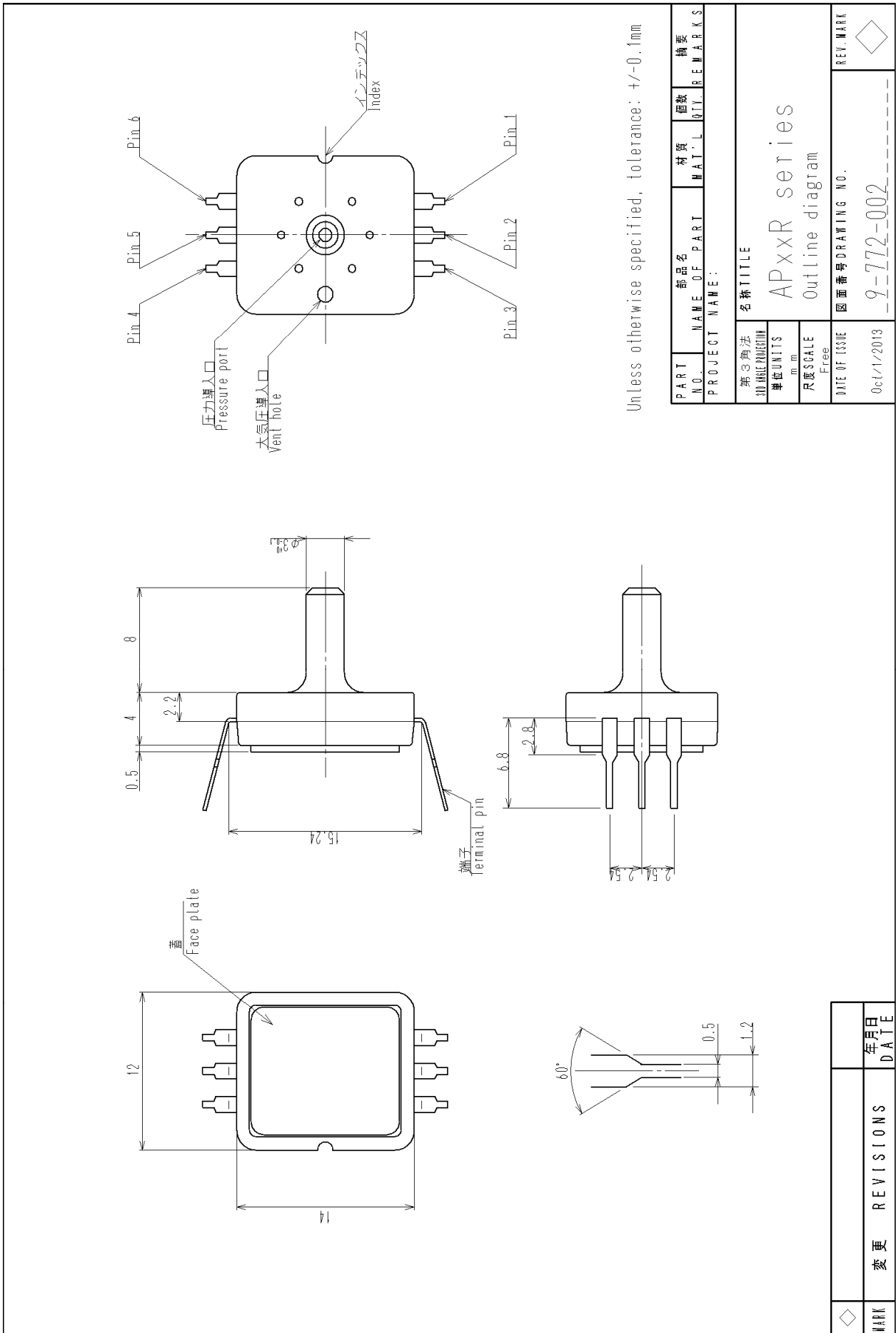
Plating of pins is silver (Ag). Silver has physical property that is discolored to black or brown by sulfur. There are notes for handling as below:

- 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.

22. 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.





Pressure port
Pressure port
Pressure port
Pressure port
Pressure port
Pressure port
Pressure port
Pressure port
Pressure port
Pressure port

蓋
Face plate
pin5
pin6
pin1
pin3
pin2

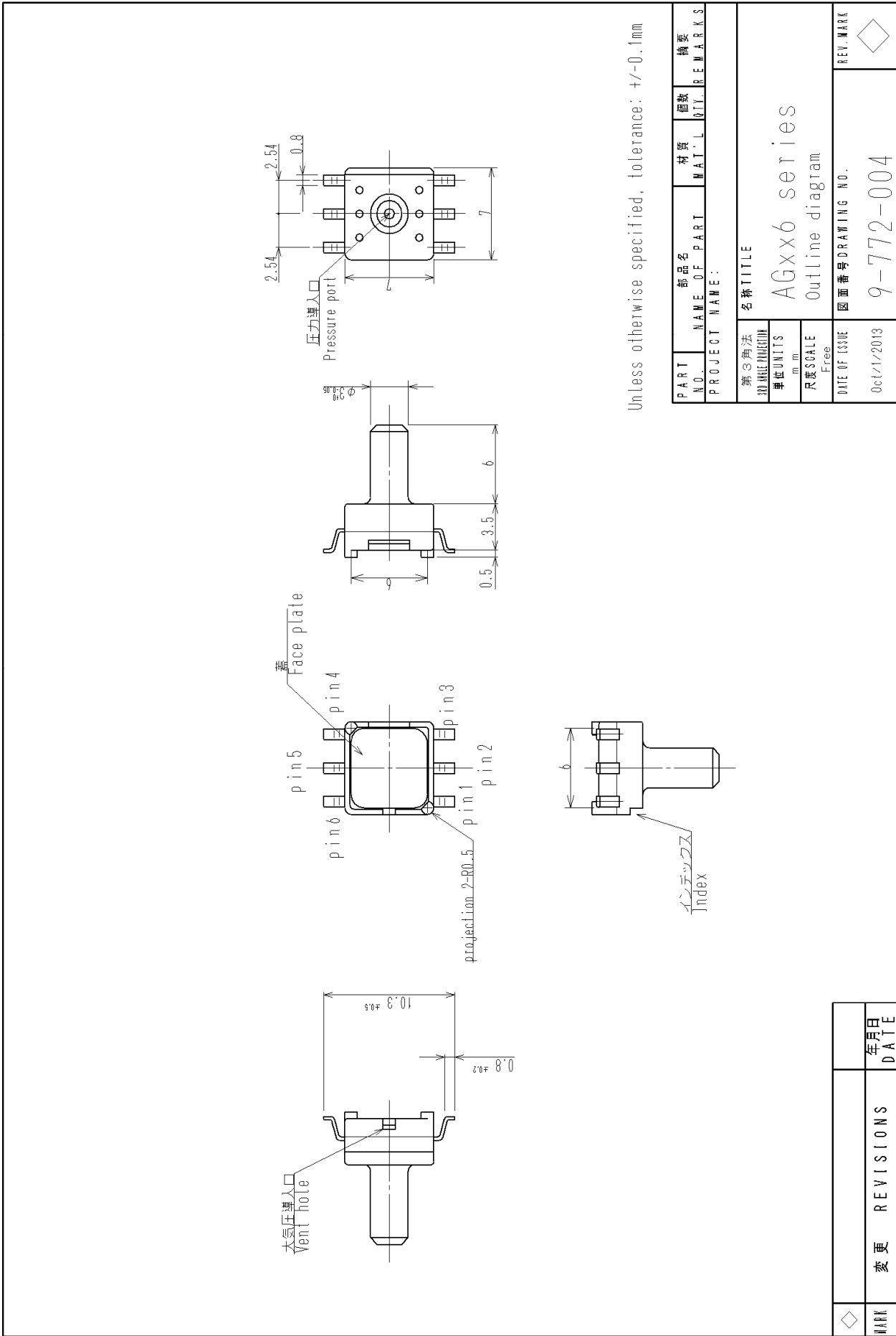
大気圧導入口
Vent hole

インデックス
Index

Unless otherwise specified, tolerance: +/-0.1mm

PART NO.	部品名	材質	個数	摘要
PROJECT NAME:				
名称/TITLE				
AGxx3 series				
Outline diagram				
第3角法				
単位/UNITS				
尺底/SCALE				
Free				
DATE OF ISSUE				
0ct/1/2013				
図面番号/DRAWING NO.				
9-772-003				
REMARK				
◇				

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
名称/TITLE				
AGxx6 series				
Outline diagram				
第3角法 3rd ANGLE PROJECTION				
単位/UNITS mm				
尺底/SCALE Free				
DATE OF ISSUE	図面番号/DRAWING NO.			REMARK
0ct/1/2013	9-772-004			◇

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

We are here for you. Addresses and Contacts.

Headquarter Switzerland:

Angst+Pfister Sensors and Power AG
Thurgauerstrasse 66
CH-8050 Zurich
Phone +41 44 877 35 00
sensorsandpower@angst-pfister.com

Office Germany:

Angst+Pfister Sensors and Power Deutschland GmbH
Edisonstraße 16
D-85716 Unterschleißheim
Phone +49 89 374 288 87 00
sensorsandpower.de@angst-pfister.com

Scan here and get an overview of personal contacts!



sensorsandpower.angst-pfister.com
