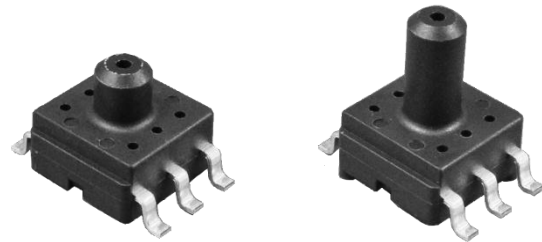


# Digital Output Semiconductor Pressure Sensor

# AG4 Series

## Description

The AG4 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 digital data that is proportional with the applied pressure. The AG4 series measures gauge pressure.



**AG4\*3**

**AG4\*6**

## Features

- Digital output
- High accuracy  $\pm 1.5\%$ FS
- Supply voltage 3.0, 3.3 & 5.0 Vdc
- Low supply current Max 3.5 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
- Package compatible with Fujikura’s XFGM integrated pressure sensor
- Customization available

## Applications

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

**RoHS Compliant**

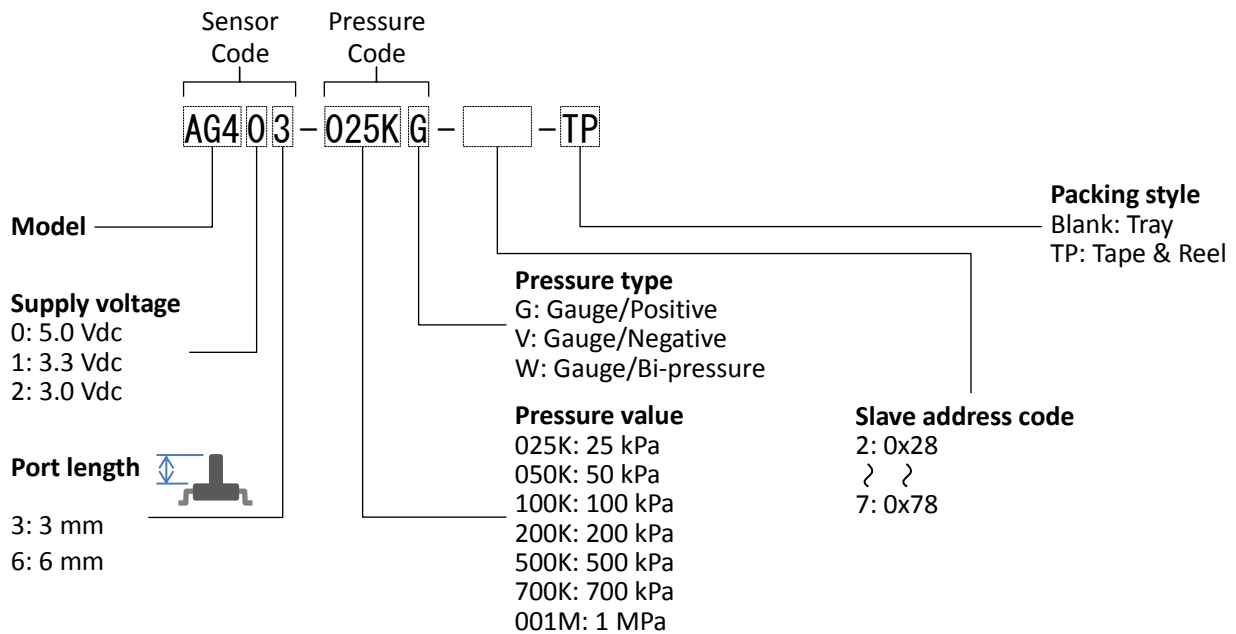
## Device Lineup

Model	Port Length	Pressure Type	Supply Voltage	Accuracy	Pressure Range										
					-100 (-15)	-50 (-7)	0 (3)	25 (7)	50 (15)	100 (30)	200 (70)	500 (100)	700 (150)	1000 kPa (150)	
AG4	6 mm or 3 mm	Gauge	5.0 Vdc 3.3 Vdc 3.0 Vdc	$\pm 1.5\%$ FS											

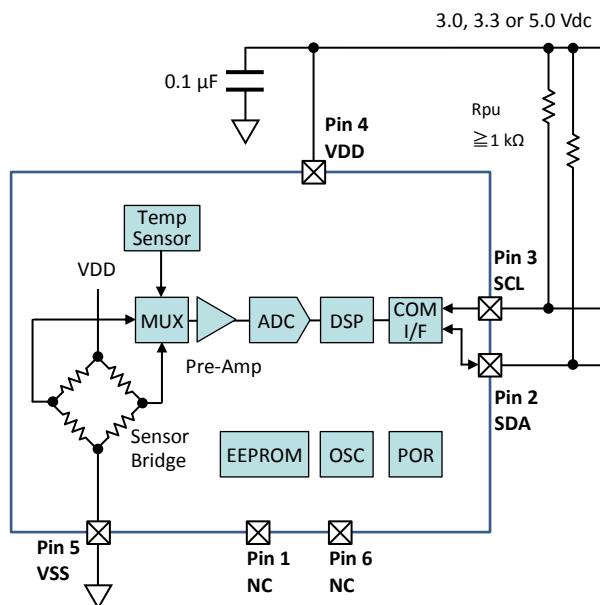
# Digital Output Semiconductor Pressure Sensor

# AG4 Series

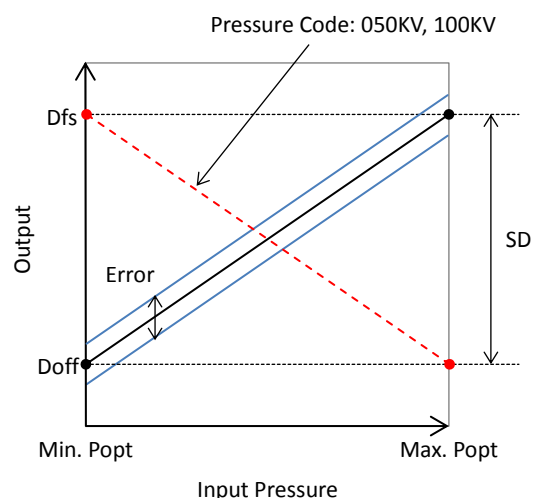
## Device Name Code



## Block Diagram



## Output Characteristics



# Digital Output Semiconductor Pressure Sensor

# AG4 Series

## Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply Voltage	VDDmax	-0.3 to +6	Vdc
Voltage at Digital I/O Pins	Vdiomax	-0.3 to VDD + 0.3	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
		AG40*	AG41*	AG42*	
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

Ambient temperature Ta = 25°C

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

## Communication Interface & Protocol

Item	Content
Interface	I <sup>2</sup> C™
Slave Address	7 bit, 0x28 to 0x78
Measurement Packet	<p>Slave Address [6:0]      Status Bit [13:8]      Pressure Data [7:0]</p> <p>S 6 5 4 3 2 1 0 R A 15 14 13 12 11 10 9 8 A 7 6 5 4 3 2 1 0 N S</p> <p>From Master to Slave      From Slave to Master      From Slave to Master      From Master to Slave</p> <p> <span style="border: 1px solid black; padding: 2px;">S</span> Start Condition      <span style="border: 1px solid black; padding: 2px;">R</span> Read (1)      <span style="border: 1px solid black; padding: 2px;">A</span> ACK      <span style="border: 1px solid black; padding: 2px;">N</span> NACK  <span style="border: 1px solid black; padding: 2px;">S</span> Stop Condition      <span style="border: 1px solid black; padding: 2px;">A</span>      <span style="border: 1px solid black; padding: 2px;">S</span> Slave Address      <span style="border: 1px solid black; padding: 2px;"> </span> Data Bit         </p>

I<sup>2</sup>C™ is a trademark of NXP Semiconductors.

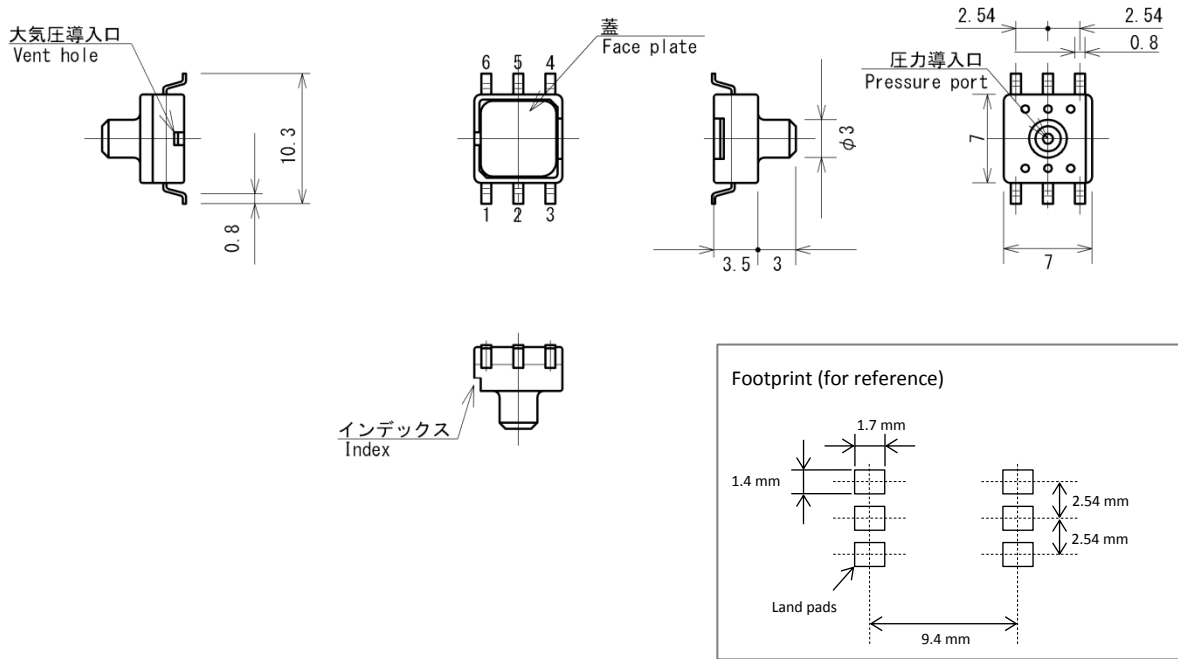
# Digital Output Semiconductor Pressure Sensor

# AG4 Series

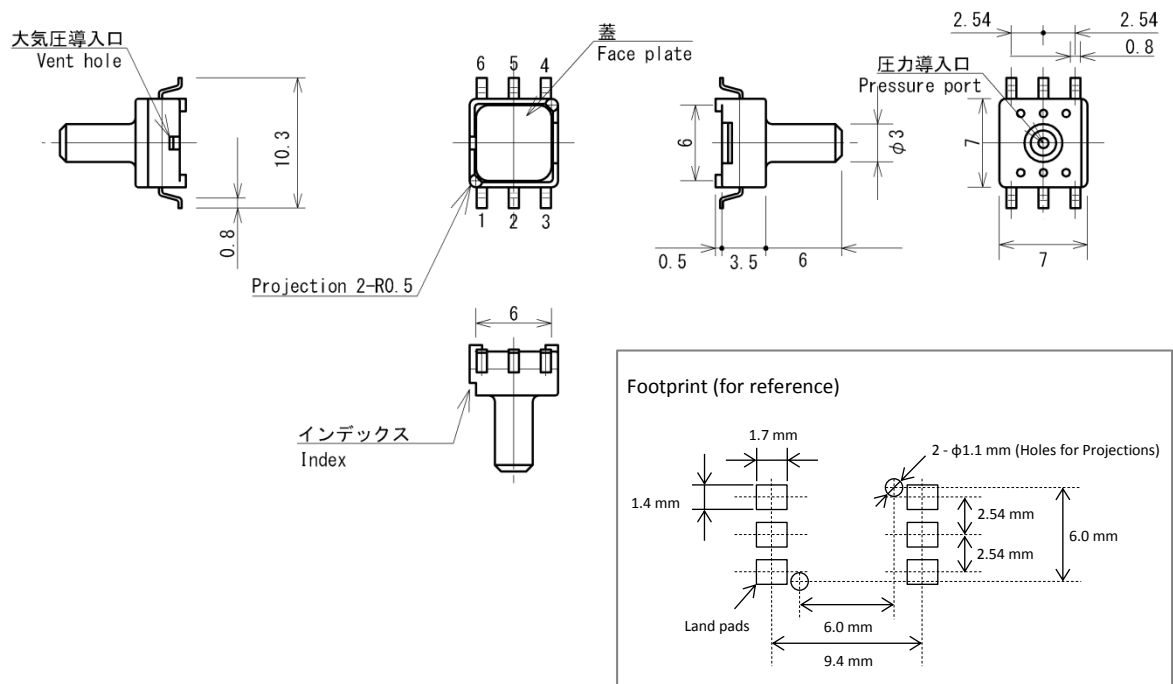
## Package Dimensions

unit: mm

### Sensor Code: AG4\*3



### Sensor Code: AG4\*6



Digital Output  
Semiconductor Pressure Sensor

**AG4 Series**