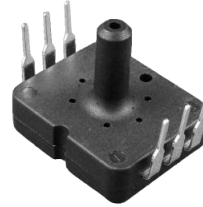


# Digital Output Semiconductor Pressure Sensor

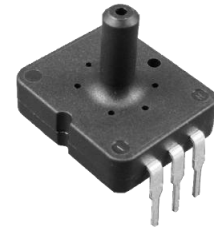
# AP4 Series

## Description

The AP4 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 AP4 series measures gauge pressure.



AP4\*N



AP4\*R

## 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
- Operating temperature -40 to 125°C
- Wide compensated temperature 0 to 85°C
- Package compatible with Fujikura's XFPM integrated pressure sensor
- Customization available

## Applications

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

**RoHS Compliant**

## Device Lineup

Model	Pin Direction	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) psi
AP4	Normal or Opposite	Gauge	5.0 Vdc	$\pm 1.5\%$ FS	025KG									
			3.3 Vdc		050KG									
			3.0 Vdc		100KG									
					200KG									
					500KG									
					700KG									
					001MG									
050KV														
100KV														
100KW														

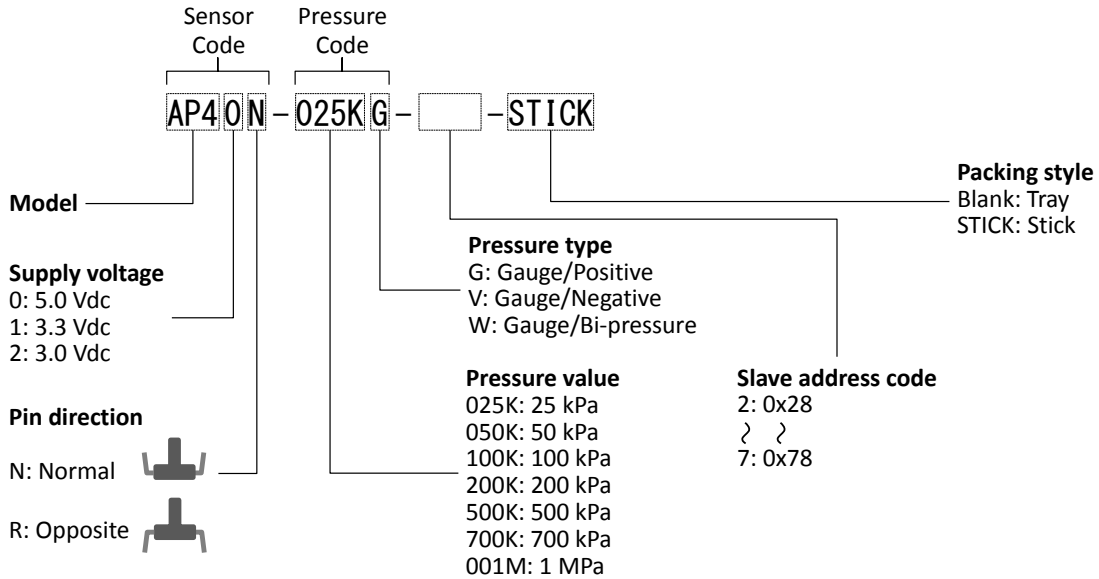
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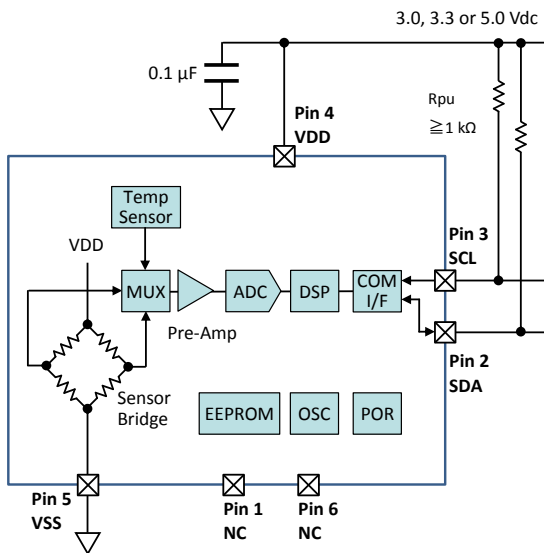
# Digital Output Semiconductor Pressure Sensor

# AP4 Series

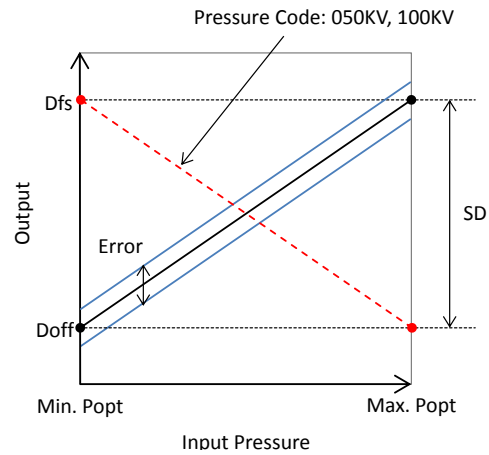
## Device Name Code



## Block Diagram



## Output Characteristics



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# Digital Output Semiconductor Pressure Sensor

# AP4 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
		AP40*	AP41*	AP42*	
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> <span style="border: 1px solid black; padding: 2px;">S</span> Start Condition    <span style="border: 1px solid black; padding: 2px;">S</span> Stop Condition    <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;">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         </p>

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

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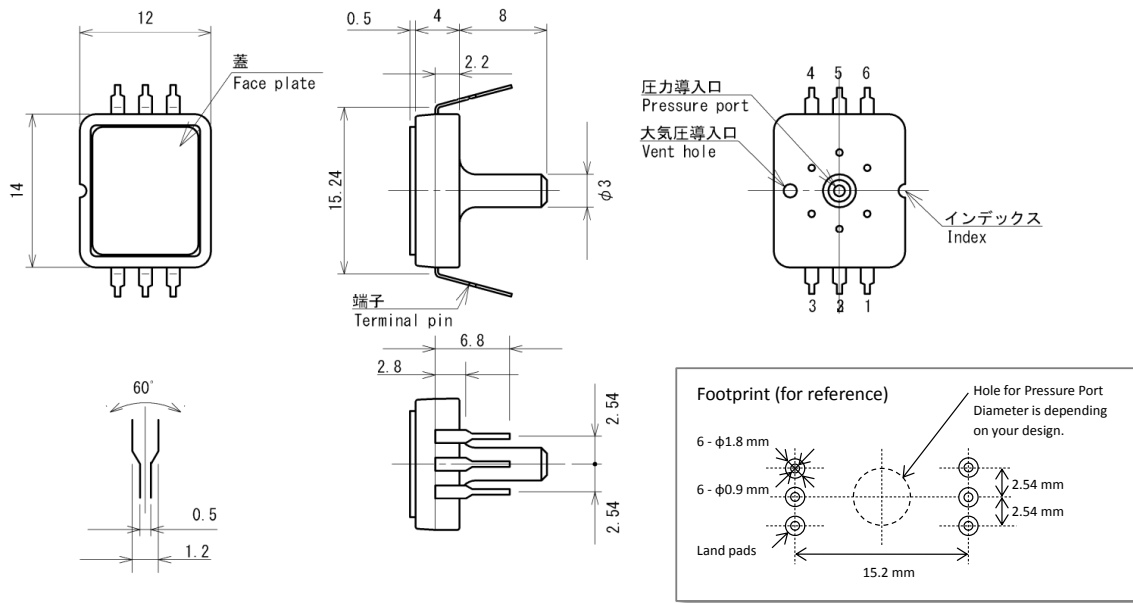
# Digital Output Semiconductor Pressure Sensor

# AP4 Series

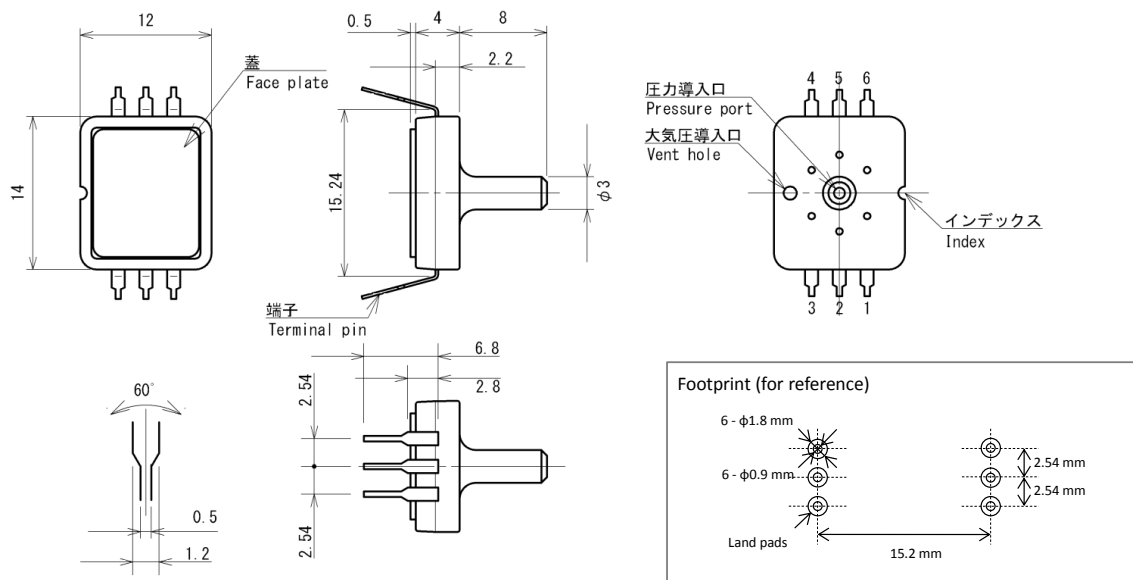
## Package Dimensions

unit: mm

### Sensor Code: AP4\*N



### Sensor Code: AP4\*R



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