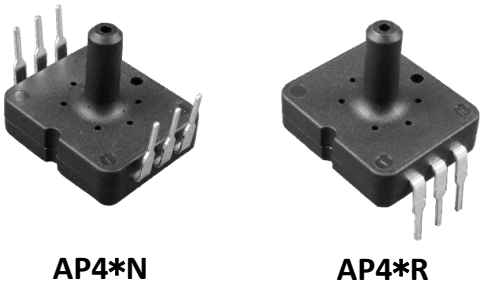


Digital Output
Semiconductor Pressure Sensor

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.



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	-50	0	25	50	100	200	500	700	1000	kPa	
					(-15)	(-7)		(3)	(7)	(15)	(30)	(70)	(100)	(150)	psi	
AP4	Normal or Opposite	Gauge	5.0 Vdc 3.3 Vdc 3.0 Vdc	$\pm 1.5\%$ FS			025K									
							050KG									
							100KG									
							200KG									
							500KG									
							700KG									
							001MG									
						050KV										
						100KV										
						100KW										

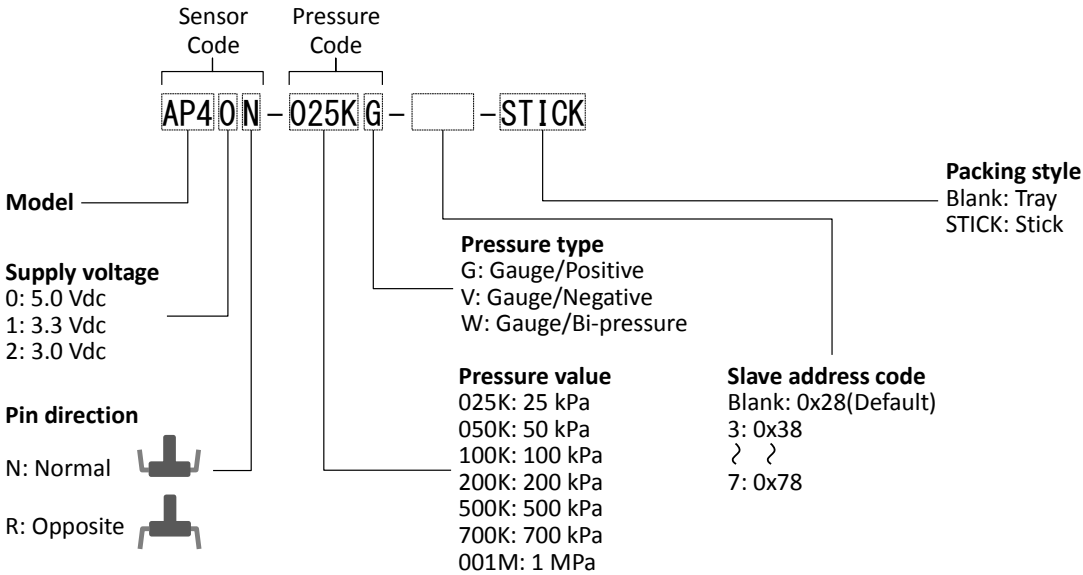
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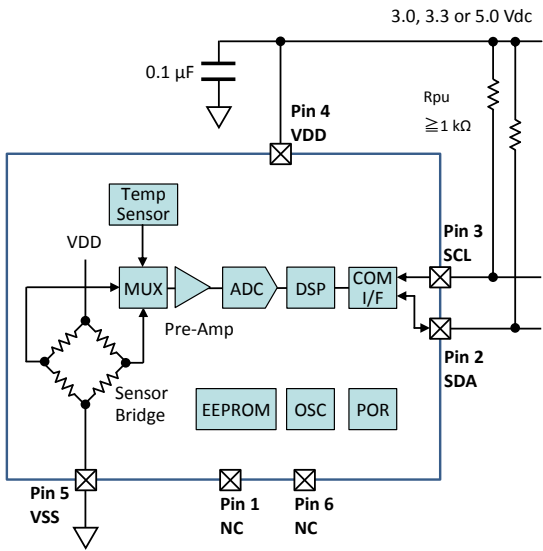
Digital Output
Semiconductor Pressure Sensor

AP4 Series

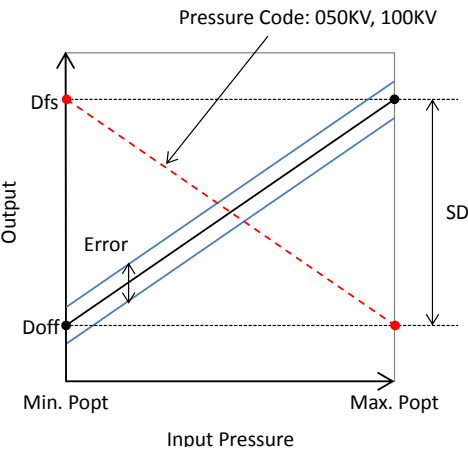
Device Name Code



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	+100

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 ² C™
Slave Address	7 bit, 0x28(Default) to 0x78
Measurement Packet	The diagram shows an I2C measurement packet sequence: Start (S), Slave Address (6 bits), Read (R), Acknowledgment (A), Status Bit (13 bits), Acknowledgment (A), Slave Address (7 bits), and NACK (N). The Status Bit is divided into three sections: Slave Address [6:0], Pressure Data [13:8], and Pressure Data [7:0]. Legend: - S: Start Condition - R: Read (1) - A: ACK - N: NACK - Light blue box: Slave Address - Light purple box: Data Bit - Dark blue box: Stop Condition

I²C™ is a trademark of NXP Semiconductors.

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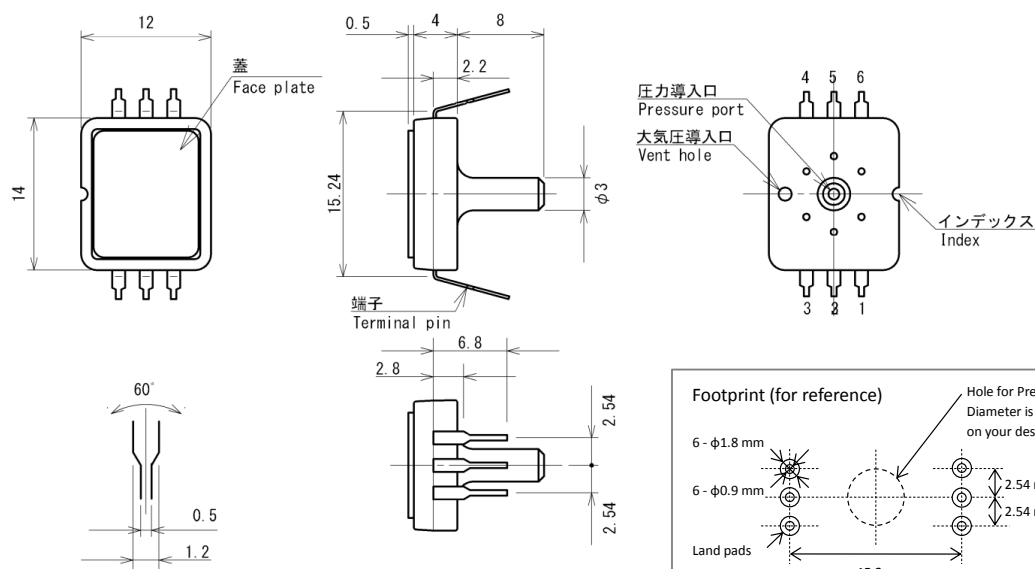
Digital Output Semiconductor Pressure Sensor

AP4 Series

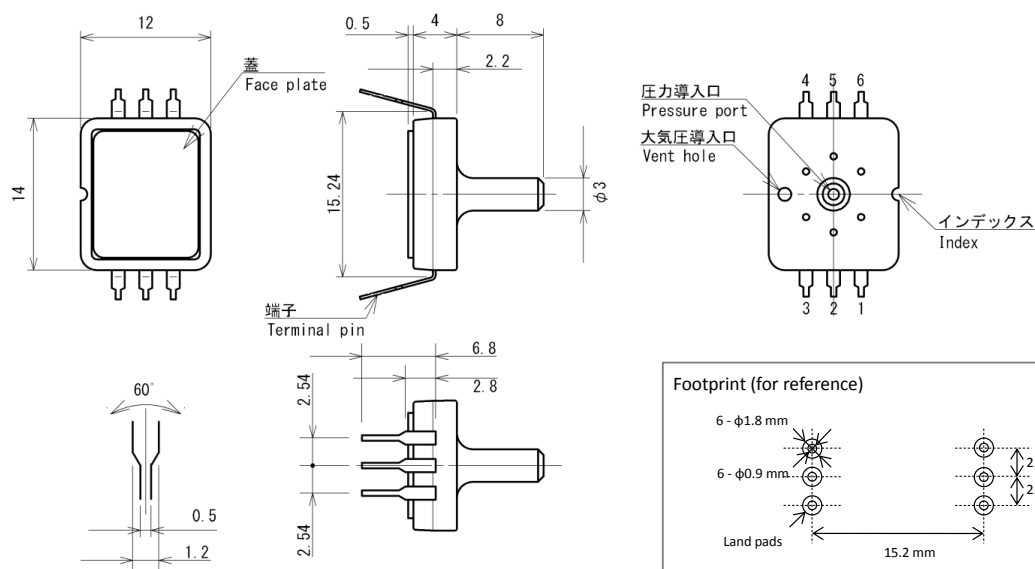
Package Dimensions

unit: mm

Sensor Code: AP4*N



Sensor Code: AP4*R



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