

Model 301B/302B Series Mono-Block Ceramic Pressure Sensors



Description

The 301B/302B is piezoresistive pressure sensor based on ceramic. By means of thick film technology, the bridge circuit is directly printed at the back of a ceramic pressure diaphragm. Due to excellent corrosion resistance, the other side of the diaphragm can be exposed to measured media without any additional protection.

Owing to mono-block structure, the 301B/302B can be mounted directly in a case by using an O-ring or to a metal fitting.

Compared with the 301B, the 302B has higher output sensitivity. Both of them have standard diameter of 18mm and are temperature compensated. For OEM projects, the sensors can have customized dimensions with or without compensation.

Features

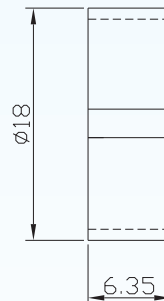
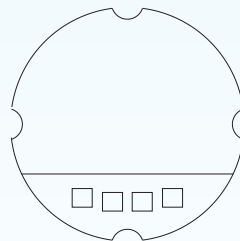
- excellent corrosion resistance
- customer tailored design
- either with or without temperature compensation
- pressure ranges: 2, ..., 400 bar
- impact and vibration resistance
- easy mounting

Applications

- automotive
- liquid level control
- process control systems
- pneumatic and hydraulic controls
- biomedical instrumentation



Dimensions



Note: All dimensions are in mm.

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Technical Data

Parameter	Units	Specifications		Notes
model		301B(a18)	302B(a18)	
pressure medium		compatible with pressure diaphragm		
measuring ranges	bar	0~2, ~5, ~10, ~20, ~25, ~40, ~60, ~100, ~250, ~400		1
pressure references		gauge		
overload pressure	%fs	200		
burst pressure	%fs	300		2
output sensitivity (standard)	mV/V	2.5	3.3	3
conditioned-signal output (option)		0.5~4.5 Vdc ratiometric, 4~20 mA, I2C		
excitation	Vdc	5, ..., 25 (5 for 0.5~4.5 Vdc ratiometric output)		
zero offset	mV	$\leq \pm 0.5$	$\leq \pm 1$	
accuracy	%fs	$\leq \pm 0.5$		4
long-term stability	%fs/1000h	$\leq \pm 0.4$ (@70°C)		
bridge resistance	kΩ	11 $\pm 20\%$		
insulation resistance	MΩ	≥ 200 @50Vdc		
compensated temperature range	°C	0 ~ 70		
operating temperature range	°C	-40 ~ +125		
storage temperature range	°C	-40 ~ +125		
temperature coefficient of zero offset	%fso/°C	$\leq \pm 0.03$		5
temperature coefficient of span	%fso/°C	$\leq \pm 0.02$		5
life time	cycles	10 ⁸		
response time	ms	≤ 1		6
electrical interface		solder pads (standard)		
		PVC flying wires, 100mm		
		flat cable, 16mm (only for conditioned-signal output)		
pressure diaphragm		ceramic (96% Al ₂ O ₃)		
net weight	gram	~3		

General conditions for measurements: media temp. = 25°C $\pm 1^\circ\text{C}$, ambient temp. = 25°C $\pm 1^\circ\text{C}$.

Notes: 1. For customized pressure ranges, consult BCM.

2. "fs" means full scale and refers the maximum working pressure or rated pressure.

3. Measured at full scale pressure.

4. Combined non-linearity, hysteresis, and repeatability.

5. Calculated as a rate of output change between 25°C and 70°C, and normalized by the output at 25°C, when the sensor is not temperature compensated.

6. Response time for a 0 bar to fs step change, 10% to 90% rise time of leading edge.

The listed specifications and dimensions are subject to change without prior notice.

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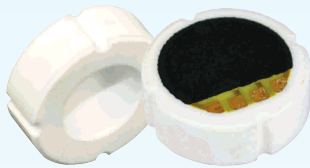
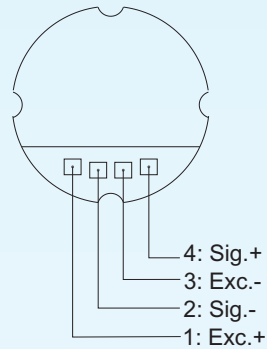
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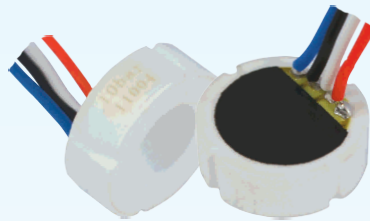
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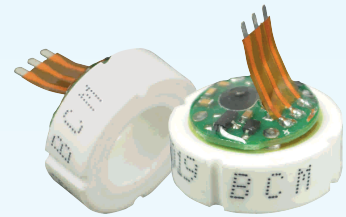
Electrical Interface



solder pads



flying wires
wire length = 100mm



flat cable
cable length = 16mm,
only for conditioned-signal
output (0.5~4.5 V ratiometric)

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Ordering Information

position (pos.) 1: model					
301B(a18)		302B(a18)			
pos. 2: pressure ranges and references					
2bar	G	40bar	G	G: gauge pressure	
5bar	G	60bar	G		
10bar	G	100bar	G		
20bar	G	250bar	G		
25bar	G	400bar	G		
pos. 3: output signal					
2.5mV/V (for 301B(a18))		3.3mV/V (for 302B(a18))		0.5/4.5V = 0.5~4.5 V (ratiometric)	
pos. 4: temperature compensation					
T1 = 0~70 °C					
pos. 5: electrical interface					
SP: solder pads (standard)					
FW: flying wires, PVC, 100mm					
FC: flat cable, 16mm (only for 0.5/4.5 V output)					
pos. 6: customized specifications					
“(*)” is necessary only if any customized parameter is required, otherwise it is neglectable.					
pos. 1	pos. 2	pos. 3	pos. 4	pos. 5	pos. 6

Examples of Ordering Code

- standard sensor:

301B(a18)-25barG-2.5mV/V-T1-SP

- customized sensor:

302B(a18)-50barG-0.5/4.5V-T1-FC-(*).

(*): Customized pressure range = 0~50 barG.

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