

# Model SE101 Absolute Pressure Sensor Dies

## Description

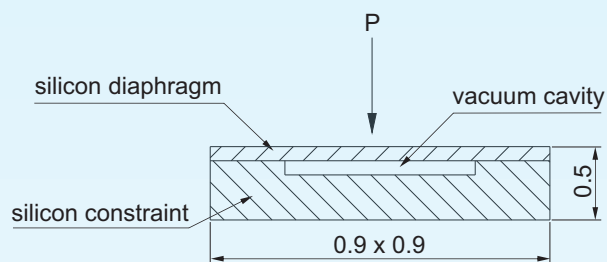
Model SE101 piezoresistive sensor die is specially designed for high-volume applications, e.g., medical devices, automotive industry, and consumer electronics. This sensor die is manufactured through 6" wafer silicon-on-silicon process by MEMS technology. It features a miniature dimensions of 0.9mm x 0.9mm x 0.5mm. Thanks to its unique design of the pressure diaphragm, the SE101 possesses not only high sensitivity but also extraordinary overload pressure (proof pressure and burst pressure).

As a non-signal-conditioning sensor die, the SE101 is available in a closed-bridge circuit with 4 solder pads.

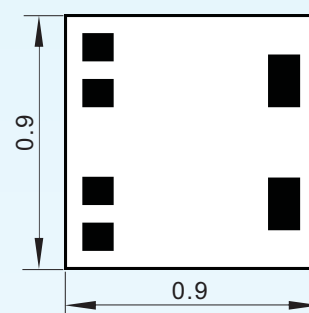
Before packing, each SE101 sensor die is individually tested and qualified to its specifications.

Three different types of packaging are available as options to fit different marketing demands. These three types can be found in Ordering Information.

## Dimensions



cross-section

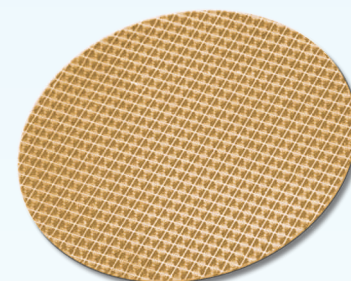


terminal pads layout

Note: All dimensions are in mm.

## Features

- excellent non-linearity up to:  $\pm 0.3\%$ fs
- designed for absolute pressure applications
- small foot-print, high product rate per wafer for cost-effective application
- high sensitivity and extraordinary overload pressure



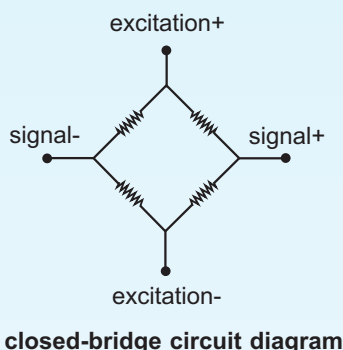
6" SE101 wafer

## Applications

- medical: clinical devices and patient monitoring systems (e.g. dialysis instruments)
- automotive: tire pressure monitoring, engine control, and suspension control
- consumer: consumer electronics, barometers (or altimeters), and depth gauges (e.g., diving watches)

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## Wheatstone Bridge Circuit Diagram



## Technical Data

Parameters		Units	Specifications	Notes
pressure ranges		bar	0~1, ~4, ~10	1
pressure reference			absolute	
proof pressure		%fs	500	2
burst pressure		%fs	1000	2
full scale output (fso)		mV	≥ 75	3 & 4
excitation	voltage	Vdc	5 (typical), or any voltage in the range of 1, ..., 10Vdc	
	current	mA	1 (typical), or any current in the range of 0.2, ..., 2mA	
zero offset		mV	≤ ±30	4
non-linearity (NL)		%fs	≤ ±0.3	5
hysteresis (HY)		%fs	≤ ±0.3	
repeatability (RP)		%fs	≤ ±0.1	
long-term stability		%fs/year	≤ ±0.2	
bridge resistance		kΩ	5±1	
storage temperature range		°C	-55 ~ +150	
operating temperature range		°C	-40 ~ +125	
temp. coeff. (TC) of bridge resistance		%/°C	0.11 ±0.02	6
TC of zero offset		%fso/°C	≤ ±0.05	7
TC of SPAN		%fso/°C	≤  -0.21	7
thermal HY of zero offset		%fso/°C	≤ ±0.3	
dimensions		mm	0.9 x 0.9 x 0.5	

General conditions for measurements: temperature = 25°C, humidity = 40%RH.

Notes: 1. Customized pressure ranges available on request. Consult BCM SENSOR.

2. fs refers to full scale pressure or rated pressure.
3. Measured at full scale pressure.
4. Measured at 5Vdc excitation.
5. Calculated according to Terminal Base Line (the endpoint method).
6. Calculated as a rate of resistance change between -40°C and 125°C, and normalized by the resistance at 25°C.
7. Calculated as a rate of output change between -40°C and 125°C, and normalized by the output at 25°C, when the die is not temperature compensated.

## BCM SENSOR TECHNOLOGIES BVBA

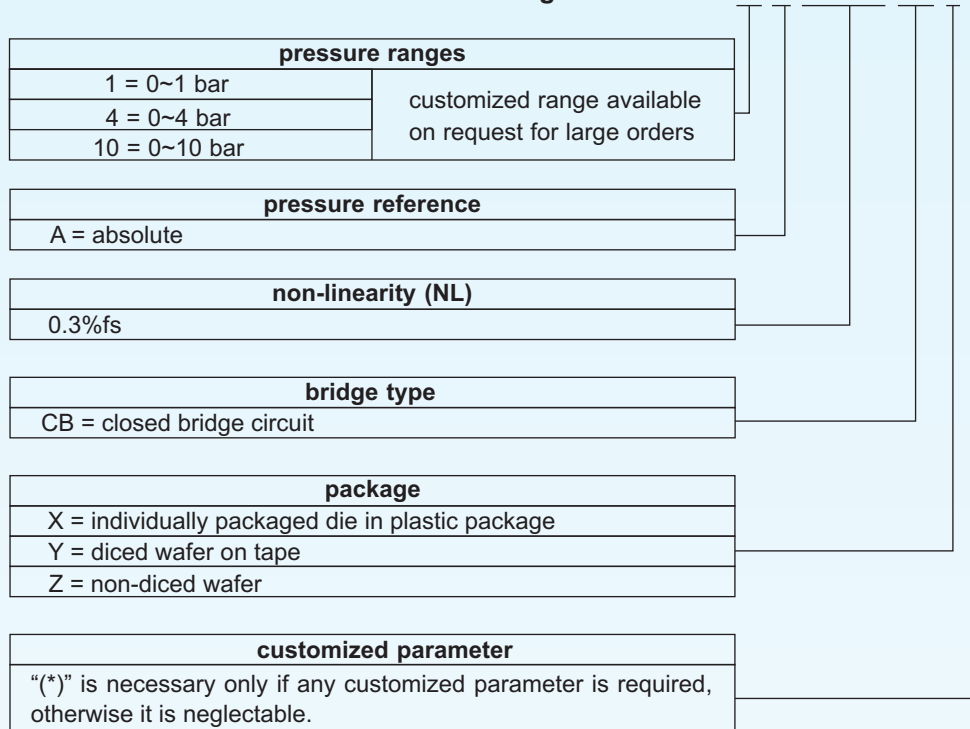
# Model SE101

## Absolute Pressure Sensor Dies



### Ordering Information

ordering code: **SE101-10-A-0.3%fs-CB-Y-(\*)**



### Examples of Ordering Code

- standard sensor die:      model-pressure range-pressure reference-NL-bridge type-package  
**SE101-10-A-0.3%fs-CB-Y**

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

**BCM SENSOR TECHNOLOGIES BVBA**

