

# Model SE101

## 0.9mm by 0.9mm Absolute Pressure Sensor Dies



### Description

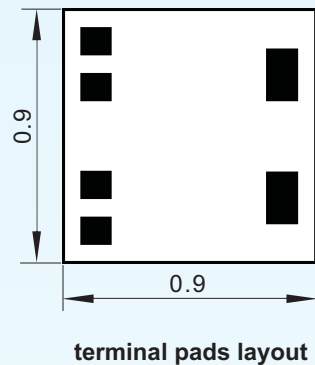
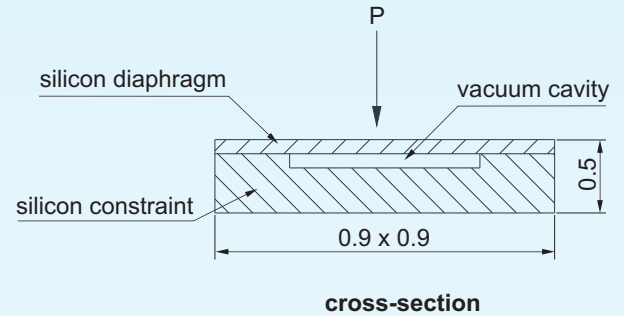
The model SE101 sensor die is designed for automotive application, and is operated on the piezoresistive effect. Manufactured by the 6" silicone micro-machining process, this sensor die has silicon-on-silicon structure with dimensions of 0.9mm x 0.9mm x 0.5mm. Due to its unique design of the pressure 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.

3 different types of packaging are available as options to fit different marketing demands.

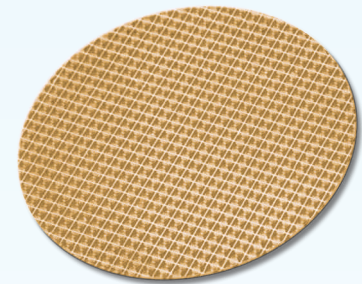
### Dimensions



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 low cost 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)
- automation: mass production of pressure sensors, pressure switches, and pressure controllers

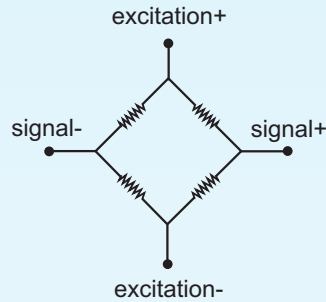
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### Wheatstone Bridge Circuit Diagram



closed-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.

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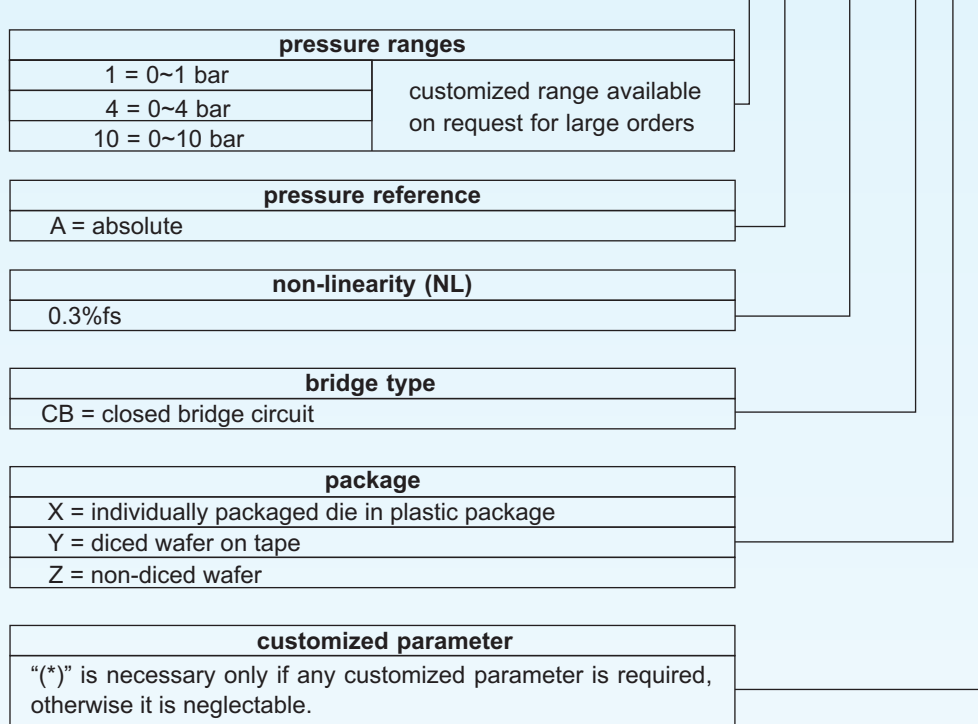
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### Ordering Information

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.

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