

# Model SE103

## Sensor Dies for General Purpose

### Description

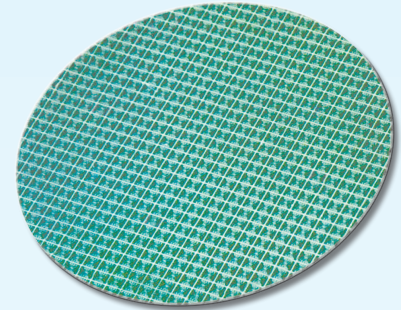
The model SE103 is designed for gauge (relative) or absolute pressure measurements for general purpose. As a piezoresistive sensor die, the SE103 is based on micro-electromechanical systems (MEMS) technology. The die is available in a foot-print of 1.7mm x 1.7mm.

Compared with the SE101, the SE103 has its cavity structure together with its silicon membrane instead of its silicon constraint. This makes the SE103 achieve lower non-linearity error and possible to be used for gauge or differential measurements without its constraint.

Designed as an uncompensated sensor die, the SE103 is available in a closed-bridge circuit of 4 solder pads.

Before packaging, each SE103 sensor die is tested and inspected.

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



SE103 wafer

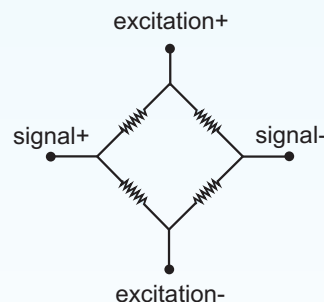
### Features

- pressure ranges: 2.5bar, 5bar, 10bar
- non-linearity up to 0.15%fs
- high reliability and stability
- designed for absolute, gauge or differential pressure applications
- small foot-print, high product rate per wafer for low cost application

### Applications

- metrology applications
- process control systems
- pneumatic and hydraulic systems
- biomedical instruments
- automotive

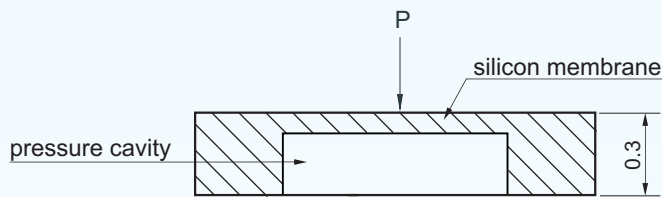
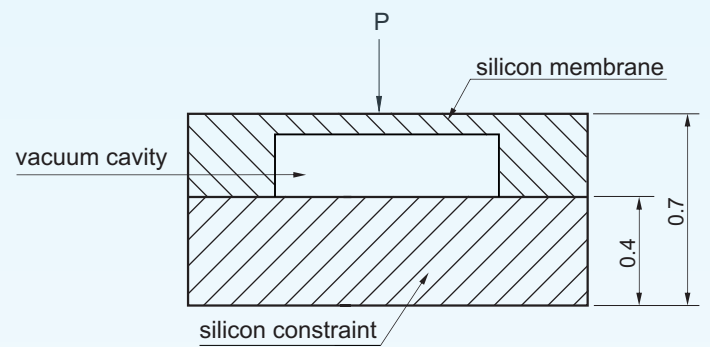
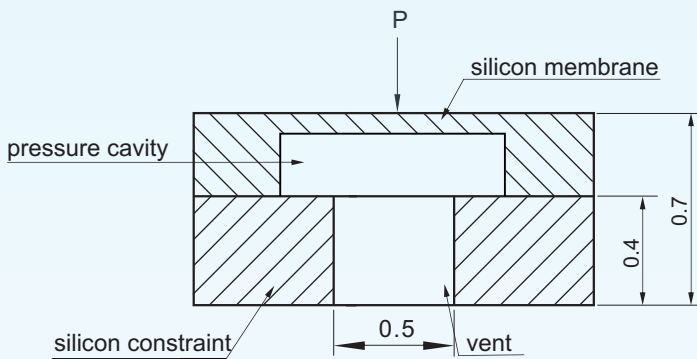
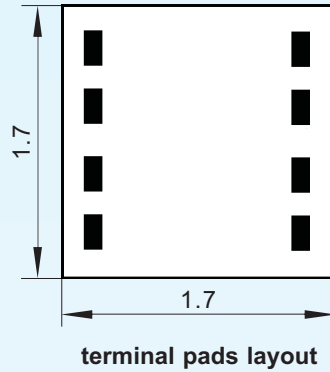
### Wheatstone Bridge Circuit Diagrams



closed-bridge circuit diagram

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## Dimensions



Note: All dimensions in mm.

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### Technical Data

Parameters		Units	Specifications	Notes
pressure ranges		bar	0~2.5, ~5, ~10	1
pressure reference			gauge, absolute	
proof pressure		%fs	700	2 & 3
burst pressure		%fs	1000	2 & 3
full scale output (fso)		mV	≥ 75	4 & 5
excitation	voltage	Vdc	5 (typical), or any voltage in the range of 1.2, ..., 12Vdc	
	current	mA	1 (typical), or any current in the range of 0.2, ..., 2mA	
zero offset		mV	≤ ±25	5
non-linearity (NL)		%fs	≤ ±0.15	6
hysteresis (HY)		%fs	≤ ±0.05	
repeatability (RP)		%fs	≤ ±0.05	
long-term stability		%fs/year	≤ ±0.2	
bridge resistance		kΩ	6±1	
storage temperature range		°C	-55 ~ +150	
operating temperature range		°C	-40 ~ +125	
temp. coeff. (TC) of bridge resistance		%/°C	0.11 ±0.02	7
TC of zero offset		%fso/°C	≤ ±0.03	8
TC of SPAN		%fso/°C	≤  -0.21	8
thermal HY of zero offset		%fso/°C	≤ ±0.05	
dimensions		mm	Refer to its dimensions.	

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. The specification listed in the table applies the case that the pressure is introduced from the top side of sensor die as indicated with "P" in the drawing on the previous page. If the pressure is introduced from the opposite side of sensor die, this specification will be different. Please consult BCM SENSOR.

4. Measured at full scale pressure.

5. Measured at 5Vdc excitation.

6. Calculated according to Terminal Base Line (the endpoint method).

7. Calculated as a rate of resistance change between -40°C and 125°C, and normalized by the resistance at 25°C.

8. 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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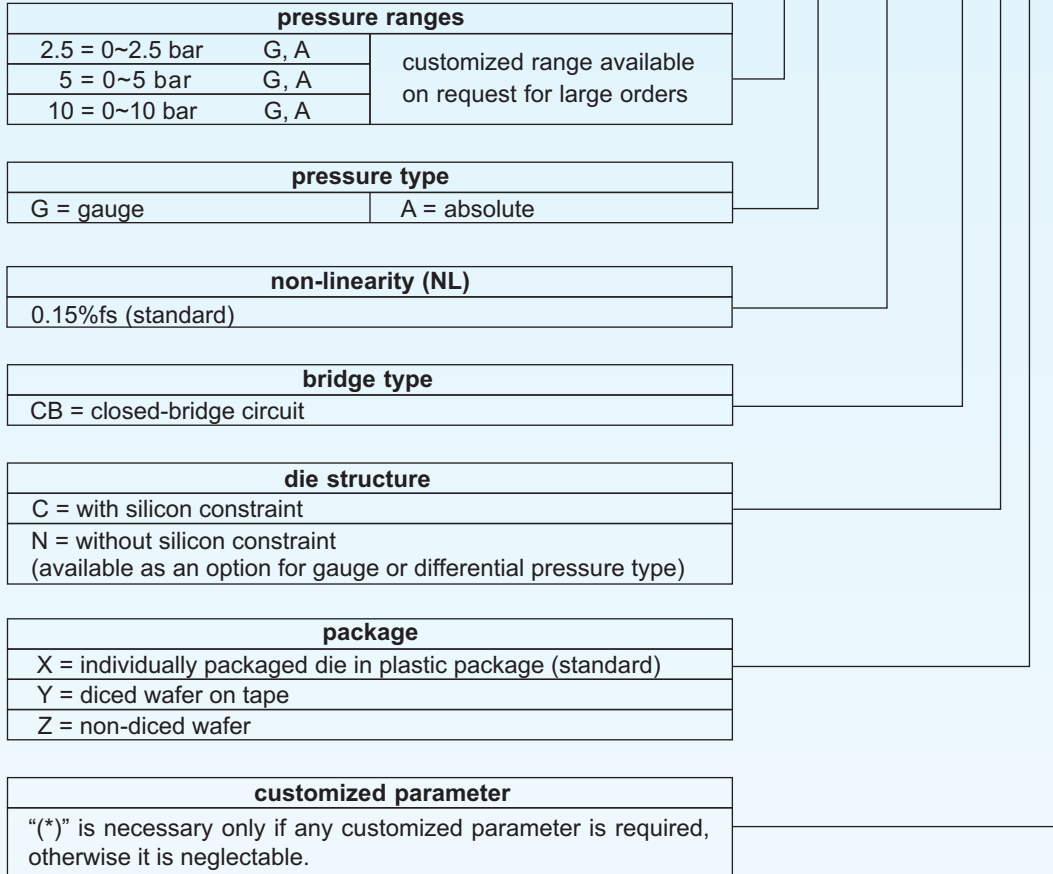
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### Ordering Information

ordering code: SE103-10-A-0.15%fs-CB-C-X-(\*)



### Examples of Ordering Code

- standard sensor die:  
**SE103-10-A-0.15%fs-CB-C-X**

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

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