Model SE101
Small-Size Absolute Pressure Sensor Dies

Description

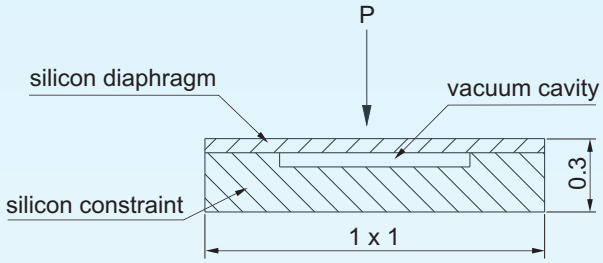
The model SE101 sensor die is designed for automotive application, and is operated on the piezoresistive effect. Manufactured by the 6" silicone micro-machining process, this sensor die has silicon-on-silicon structure with dimensions of 1mm x 1mm x 0.3mm. Due to its unique design of the pressure diaphragm, the SE101 possesses not only high sensitivity but also extraordinary overload pressure (proof pressure and burst pressure).

As a non-singal-conditioning sensor die, the SE101 is available in an open-bridge circuit with 5 solder pads for both bridge adjustment and temperature compensation.

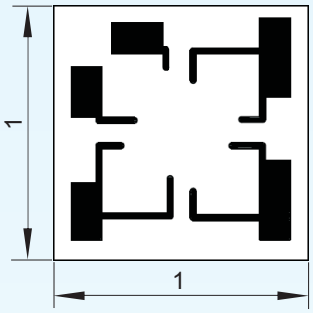
Before packing, each SE101 sensor die is individually tested and qualified to its specifications.

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

Dimensions



cross-section

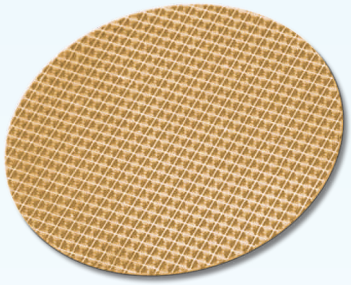


terminal pads layout

Note: All dimensions are in mm.

Features

- excellent non-linearity up to: ±0.25%fs (typical: ±0.15%fs)
- designed for gauge or differential 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

BCM SENSOR TECHNOLOGIES BVBA

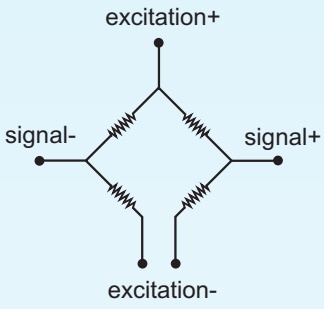
Industriepark Zone 4, Brechtsebaan 2
B-2900 Schoten - Antwerpen, BELGIUM

Tel.: +32-3-238 6469
Fax: +32-3-238 4171

website: www.bcmsensor.com
email: sales@bcmsensor.com

Model SE101
Small-Size Absolute Pressure Sensor Dies

Wheatstone Bridge Circuit Diagram



open-bridge circuit diagram (standard)

Technical Data

Parameters		Units	Specifications	Notes
pressure ranges & reference		bar, A	0~1, ~4, ~10, ~20, ~30	1
proof pressure		%fs	1000, 700 (for 35bar range)	2
burst pressure		%fs	2000, 1500 (for 10bar, 20bar), 1000 (for 35bar)	2
full scale output (fso)		mV	100±30	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	⩽ ±25	4
non-linearity (NL)		%fs	±0.25 (typical: ±0.15)	5
hysteresis (HY)		%fs	⩽ ±0.1	
repeatability (RP)		%fs	⩽ ±0.1	
long-term stability		%fs/year	⩽ ±0.1	
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	⩽ ±0.1	
dimensions		mm	1.0 x 1.0 x 0.3	

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.

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

BCM SENSOR TECHNOLOGIES BVBA

Industriepark Zone 4, Brechtsebaan 2
B-2900 Schoten - Antwerpen, BELGIUM

Tel.: +32-3-238 6469
Fax: +32-3-238 4171

website: www.bcmsensor.com
email: sales@bcmsensor.com

Model SE101
Small-Size Absolute Pressure Sensor Dies

Ordering Information

ordering code: SE101-10-0.25%fs-Y-(*)

pressure ranges			
1 = 0~1 bar	A	30 = 0~30 bar	A
4 = 0~4 bar	A	customized range available as an option	
10 = 0~10 bar	A		
20 = 0~20 bar	A		

non-linearity (NL)
0.25%fs

package
X = individually packaged die in plastic package
Y = diced wafer on tape
Z = non-diced wafer on tape

customized parameter
"(*)" is necessary only if any customized parameter is required, otherwise it is neglectable.

Examples of Ordering Code

- standard sensor die: model-pressure range-NL-package

  SE101-10-0.25%fs-Y

BCM SENSOR TECHNOLOGIES BVBA

Industriepark Zone 4, Brechtsebaan 2
B-2900 Schoten - Antwerpen, BELGIUM

Tel.: +32-3-238 6469
Fax: +32-3-238 4171

website: www.bcmsensor.com
email: sales@bcmsensor.com