SILICON MICROSTRUCTURES INCORPORATED
Member of the ELMOS Group

SM5108C
Ultra-Small, Low-Cost, OEM Pressure Die

- ***For Extremely High-Volume Applications***
- ***Ultra-Small, Low Cost OEM Pressure Die***

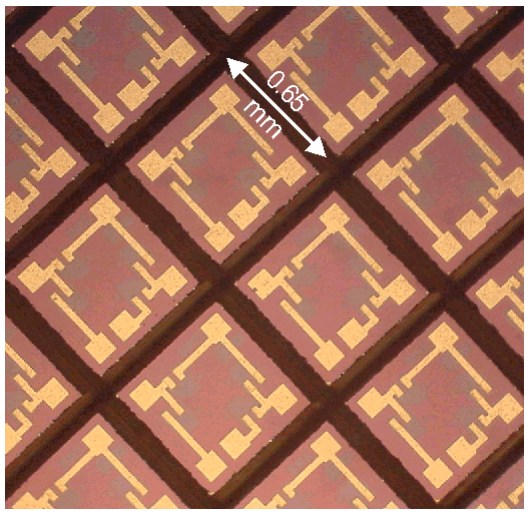
DESCRIPTION

The SM5108C is a extremely small (0.65 mm x 0.65 mm) silicon micromachined piezoresistive pressure sensing chip that has been optimized to provide the highest possible accuracy for a die of this size. This performance is achieved through careful resistor placement and mechanical configuration. The small die results in a significant cost saving when compared to larger sensor die. Over 24,000 die come on a 150 mm wafer.

This sensor is intended for high volume applications where cost is a critical factor, such as consumer tire pressure gauges or disposable pressure gauges. The SM5108C is available as an absolute pressure sensor in full-scale ranges of 15 PSI, 30 PSI, 60 PSI, and 150 PSI. It is designed to be mounted on ceramic or PC board substrates by high-volume OEM manufacturers.

Die are probed, diced, and visually inspected and shipped on tape in rings.

Minimum order quantities apply to this product.



FEATURES

- Available in 15 PSI, 30 PSI, 60 PSI, and 150 PSI ranges
- Extremely Low Cost
- Small size (0.65 mm x 0.65 mm)
- Constant Current or Constant Voltage Drive
- High Millivolt Output

APPLICATIONS

- Automotive Tire Pressure Monitoring
- Engine Control
- Barometric Sensing
- Pneumatic Gages
- Hand-held Meters
- Home Appliances

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CHARACTERISTICS FOR SM5108C - *SPECIFICATIONS*

All parameters are measured at 5.000V supply at room temperature, unless otherwise specified.

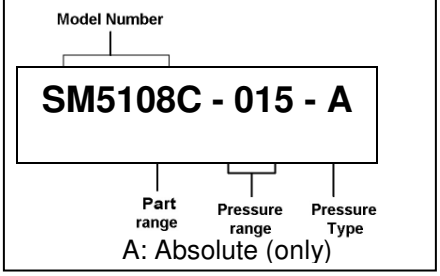
	Min.	Typ.	Max.	Units	Notes
Excitation Voltage	0	5.0	10	V	1
Excitation Current	0	1.5	2.5	mA	1
Span (FS Range)					2
15 PSI	95	127	160	mV	
30 PSI	65	100	135	mV	
60 PSI	65	100	135	mV	
150 PSI	100	150	200	mV	
Zero Offset	-35		35	mV	
TC Span	-24	-19	-15.5	%FS/100℃	2, 3
TC Offset	-7	-1	+7	%FS/100℃	2, 3
TC Resistance	+24	+27.5	+33	%/100℃	2, 3
Linearity	-0.2	-0.07	+0.2	%FS	2, 4
Bridge Impedance	4	5	6	kΩ	
Input Capacitance		<2		pF	2
Proof Pressure	3X			Rated FS	2
Burst Pressure	5X			Rated FS	2
Operating Temperature	-40		+125	℃	2
Storage Temperature	-40		+150	℃	2

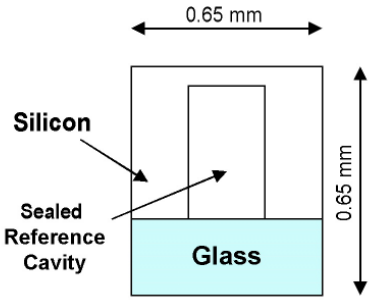
Notes:
1. Bridge may be driven with positive or negative excitation; positive output for positive pressure applied to circuit side of die when bridge is driven with positive voltage.
2. Tested on a sample basis.
3. Measured from 0 to 70℃
4. Defined as best straight line.

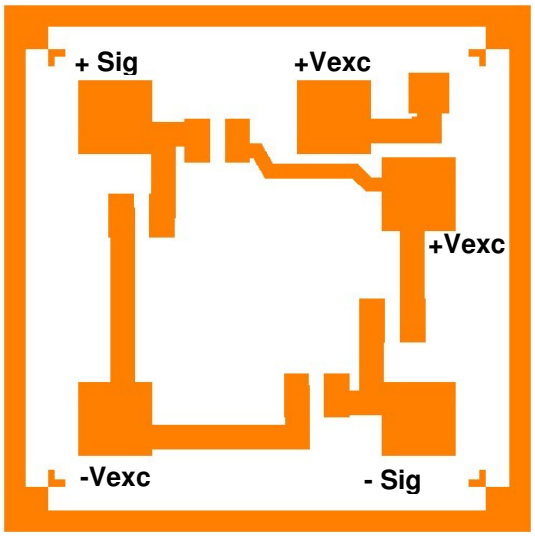
Pressure Ranges

PSI	5108C
15	015
30	030
60	060
150	150

ORDERING INFORMATION:







Top-View of SM5108C
(0.65 mm square as sawn)
Total thickness = 0.65 mm

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