

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

## DESCRIPTION

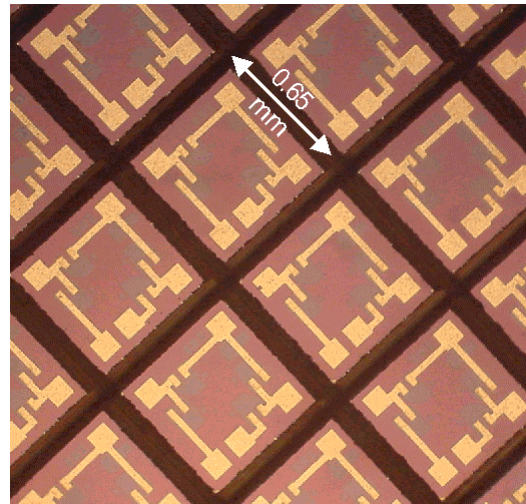
The SM5108 is an extremely small (0.65 mm x 0.65 mm) silicon micromachined piezoresistive pressure sensing chip that has been optimized to provide the highest possible accuracy for a die of this size. This performance is achieved through careful resistor placement and mechanical configuration. The small 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 SM5108 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.

Custom pressure ranges are available in high-volume applications.

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 square)
- 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

# SM5108

## CHARACTERISTICS FOR SM5108 - SPECIFICATIONS

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

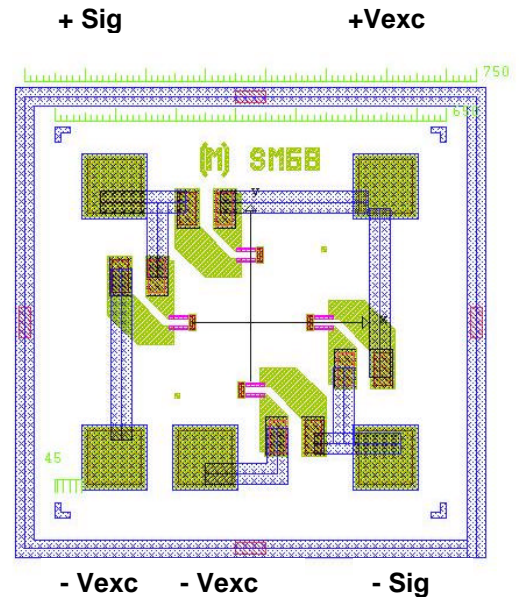
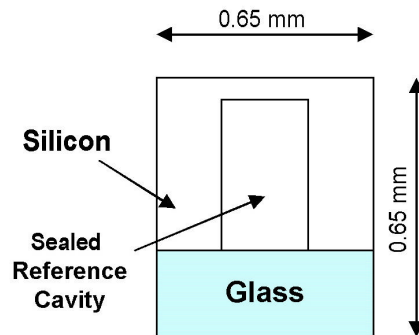
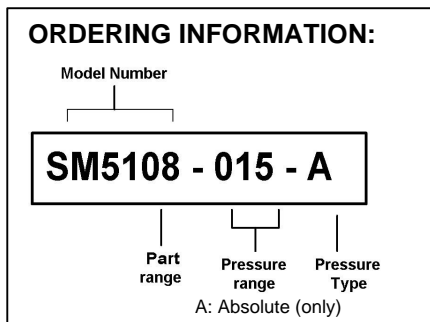
	Min.	Typ.	Max.	Units	Notes
Excitation Voltage	0	5.0	15	V	1
Excitation Current	0	1.5	2.5	mA	1
Span (FS Range)					2
15 PSI	65	100	135	mV	
30 PSI	65	100	135	mV	
60 PSI	65	100	135	mV	
150 PSI	100	150	200	mV	
Offset	-35		35	mV	
TC Span	-24	-19	-15.5	%FS/100°C	3
TC Offset	-7	-1	+7	%FS/100°C	3
TC Resistance	+24	+27.5	+33	%/100°C	3
Linearity	-0.2	-0.07	+0.2	%FS	4
Bridge Impedance	4	5	6	kΩ	
Input Capacitance		<2		pF	
Proof Pressure	3X			Rated FS	
Burst Pressure	5X			Rated FS	
Operating Temperature	-40		+125	°C	
Storage Temperature	-55		+150	°C	

### 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. Measured at 5V constant voltage excitation.
3. Measured from 0 to 70 C
4. Defined as best straight line.

### Pressure Ranges

PSI	5108
15	015
30	030
60	060
150	150



**Top-View of SM5108**  
**(0.65 mm square as sawn)**  
**Total thickness = 0.65 mm**  
**Covered under USA Mask-Copyright**

### Notice:

Silicon Microstructures, Inc. reserves the right to make changes to the product contained in this publication. Silicon Microstructures, Inc. assumes no responsibility for the use of any circuits described herein, conveys no license under any patent or other right, and makes no representation that the circuits are free of patent infringement. While the information in this publication has been checked, no responsibility, however, is assumed for inaccuracies.

Silicon Microstructures, Inc. does not recommend the use of any of its products in life support applications where the failure or malfunction of the product can reasonably be expected to cause failure of a life-support system or to significantly affect its safety or effectiveness. Products are not authorized for use in such applications.