



- **Small, Low Cost OEM Pressure Die**

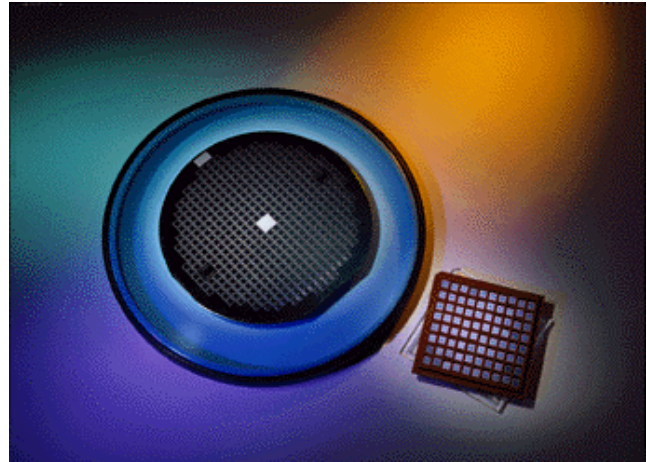
DESCRIPTION

The SM5106 is a very small (1.56mm x 1.56mm) 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.

This sensor is intended for high volume applications where cost is a critical factor, such as consumer tire pressure gauges or disposable pressure monitors. The SM5106 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 OEM manufacturers.

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

Custom pressure ranges available in high-volume applications.



FEATURES

- Available in 15 PSI, 30 PSI, 60 PSI, and 150 PSI ranges
- Very Low Cost
- Small size (1.56 mm square)
- Constant Current or Constant Voltage Drive
- High Millivolt Output

APPLICATIONS

- Automotive Tire
- Engine Control
- Blood Pressure
- Pneumatic Gages
- Hand-held Meters
- Home Appliances

SM5106

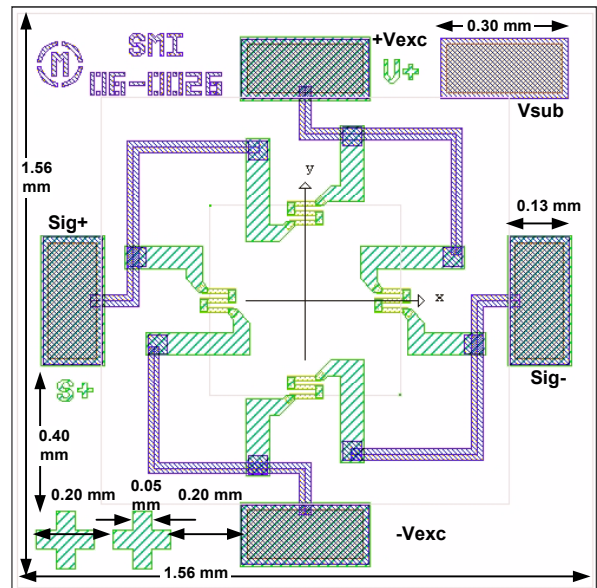
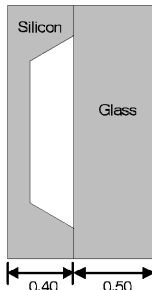
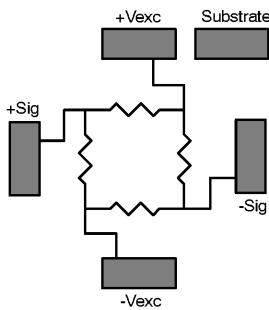
CHARACTERISTICS FOR SM5106 - SPECIFICATIONS

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)	15 PSI	75	100	mV	2
	30 PSI	85	110	mV	
	60 PSI	85	125	mV	
	150 PSI	100	145	mV	
Offset	-35	8	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	-0.45	-0.15	+0.45	%FS	4
Bridge Impedance	4	5	6	kΩ	
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.



**SM5106 (1.56 mm square as sawn)
Covered under USA Mask-Copyright**

See separate Application Notes for typical range of variation in Saw dimensions.

ORDERING INFORMATION:

Model Number

SM5106 - 015 - A

A: Absolute (only)

Pressure range Pressure Type

Pressure Ranges

PSI	5106
15	015
30	030
60	060
150	150

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.