PRESSURE SENSOR DIE

SW415

PRODUCT BRIEF

KEY FEATURES

- Absolute pressure sensor die
- High reliability and low drift over lifetime
- High media compatibility
- Backside media access
- Wide temperature operating range
- Single side bond pad access

DESCRIPTION

The SW415 is an uncompensated piezoresistive pressure sensor die. It is bulk micromachined and designed for affordable and reliable pressure measurements in a broad range of industrial application and designs.

Media compatibility
SW415 has excellent media compatibility due to the patented triple stack sensor design with buried backside piezoresistive elements. With the backside media access, the piezo resistors will not come in contact with the measurement media. The design improves stability and sensor lifetime compared to many traditional sensor designs.

Design and performance
The design and performance of SW415 makes it ideal for high accuracy measurements, also in harsh environments. The long term stability is outstanding and has been proven in applications during a period of more than 10 years.

The sensor die can be connected to passive compensation and or signal conditioning as required for a given application.

All sensor die products are 100% electrically tested and visually inspected.

SW415 is delivered as bare dies in waffle packs, as single wafers, or in wafer lots.

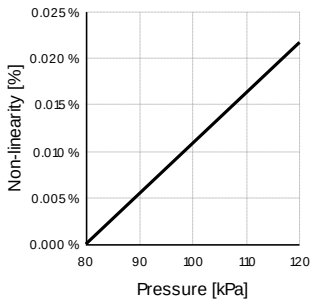
GENERAL CONDITIONS

Parameter	Product	Min	Typ	Max	Comments
Operating supply voltage	SW415-B SW415-2		5.0V		
Operating temperature	SW415-B SW415-2	-40°C		125°C	
Operating pressure	SW415-B SW415-2	80kPa 0kPa		120kPa 200kPa	Absolute pressure
Overload pressure	SW415-B SW415-2	600kPa			
Breakdown voltage	SW415-B SW415-2		14V		At I=5.0µA
Leakage current	SW415-B SW415-2		0.2nA		At Vdd=4.0V

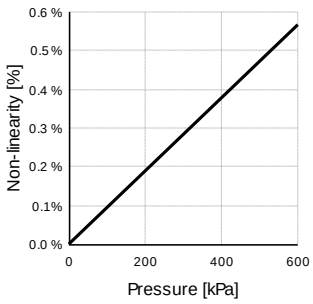
FUNCTIONAL CHARACTERISTICS (@25°C,5V)

Parameter	Typ	Unit
Bridge resistor		
Bridge resistance	12	kΩ
Temp.coeff.bridge resistor (1st order)	1.5	10^{-3}/°C
Temp.coeff.bridge resistor (2nd order)	8.2	10^{-6}/°C^2
Common mode voltage	0.5*Vdd	V
Sensitivity		
Sensitivity	128	µV/VkPa
Temp.coeff.sensitivity drift (1st order)	2.0	10^{-3}/°C
Non linearity	See separate chart	%FSO
Zero point		
Zero point	-5.1/7.2	mV/V
Temp.coeff.zero point (1st order)	±94	µV/V°C

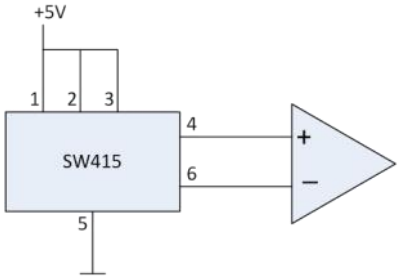
NON-LINEARITY SW415-B



NON-LINEARITY SW415-2



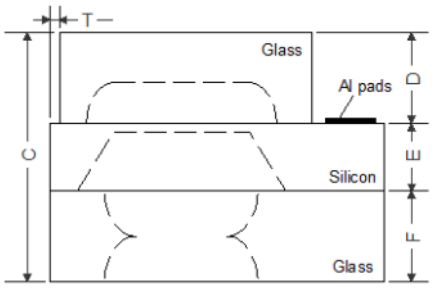
TYPICAL APPLICATION

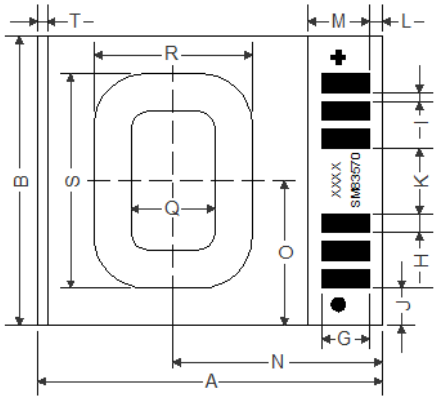


MECHANICAL DIMENSIONS

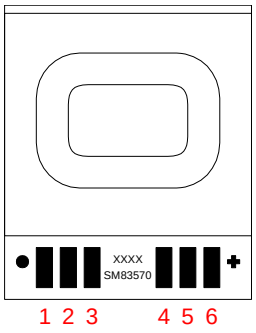
All dimensions in µm.

DIM	TYP
A	1980
B	2480
C	1450
D	525
E	400
F	525
G	198
H	118
I	82
J	280
K	580
L	90
M	450
N	1145
O	1240
Q	500
R	800
S	1300
T	90





ELECTRICAL CONTACTS



ELECTRICAL CIRCUIT DIAGRAM