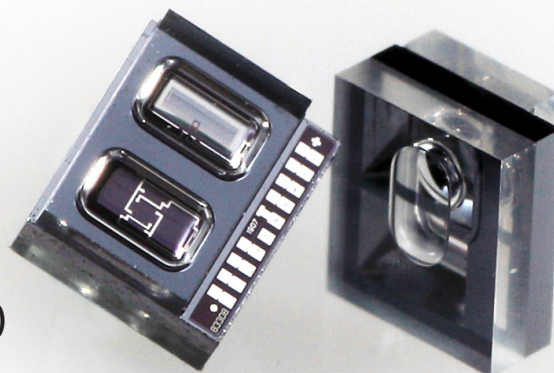


PRESSURE AND ACCELERATION SENSOR DIE

0 to 1300 kPa (0 to 189 psi)

Features

- **Absolute pressure sensor die**
- **On-chip accelerometer**
- **High reliability and low drift over lifetime**
- **High media compatibility**
- **Backside media access**
- **Wide temperature operating range**
- **High static acceleration and shock capability (2000 g)**
- **Single side bond pad access**



Description

The SW412-13 is an uncompensated piezoresistive pressure and acceleration sensor die. It is bulk micromachined and designed for affordable and reliable measurements in a broad range of industrial applications and designs.

SW412-13 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.

The design and performance of SW412-13 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.

SW412-13 is delivered as bare dies in waffle packs, as single wafers, or in wafer lots.

SW412-13
SW412-13W

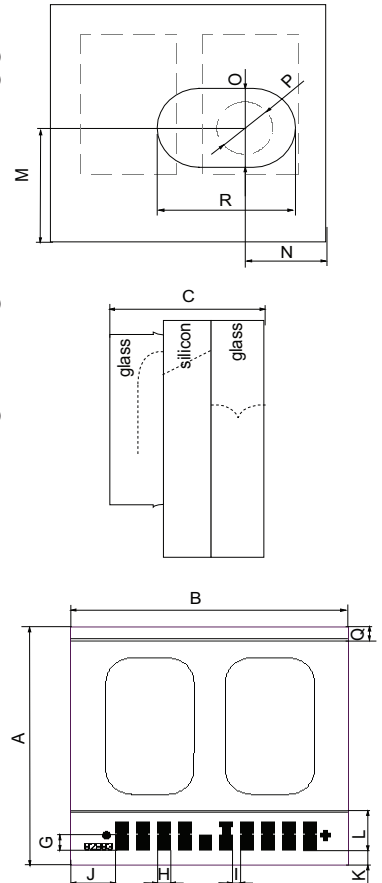
GENERAL CONDITIONS

Parameter	Min	Typ	Max	Unit	Comments
Operating supply voltage		5.0		V	
Operating temperature	-40		125	°C	
Operating pressure	0		1300	kPa	Absolute pressure
Overload pressure	1400			kPa	
Operating acceleration	0		115	g	
Overload acceleration	2000			g	
Diagnostic resistor, accelerometer		4.8		kΩ	
Resonance frequency, accelerometer		6.2		kHz	
Breakdown voltage		14		V	At I=5.0μA
Leakage current		0.2		nA	At Vdd=4.0V

DIM
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R

TYP
2315
2550
1450
525
400
525
150
120
80
380
90
400
1090
745
800
500
90
1330

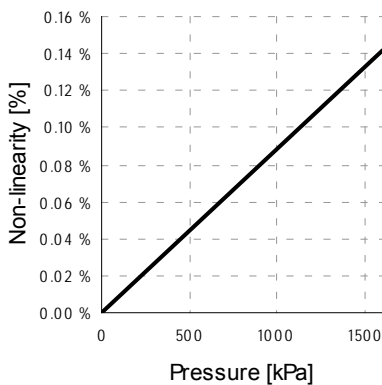
MECHANICAL DIMENSIONS (in μm)



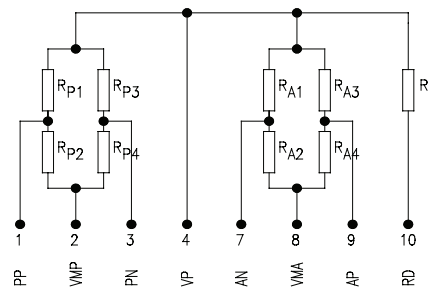
FUNCTIONAL CHARACTERISTICS (@25°C,5V)

Parameter	Typ	Typ	Unit
Bridge resistor	Pressure	Acceleration	
Bridge resistance	3.6	8.0	kΩ
Temp.coeff. bridge resistor (1 st order)	1.5	1.1	10 ⁻³ /°C
Temp.coeff. bridge resistor (2 nd order)	9.0	7.0	10 ⁻⁶ /°C ²
Common mode voltage	0.5*Vdd	0.5*Vdd	V
Sensitivity	Pressure	Acceleration	
Sensitivity	32	35	μV/kPa / μV/Vg
Temp.coeff. sensitivity drift (1 st order)	-2.1	-2.0	10 ⁻³ /°C
Non linearity	See separate chart	±0.1	%FSO
Zero point	Pressure	Acceleration	
Zero point	±2.6	5.0	mV/V
Temp.coeff. zero point drift (1st order)	±12	5.0	μV/V°C

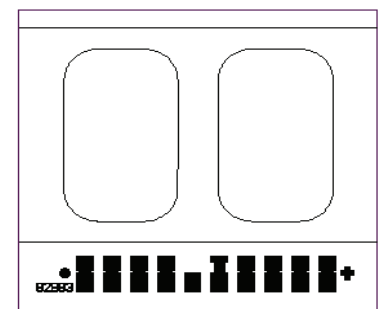
NON-LINEARITY



ELECTRICAL CIRCUIT DIAGRAM



ELECTRICAL CONTACTS



12345678

91 0

ORDERING INFORMATION

Description
10 or 100 dies in waffle packs
Diced wafers on tape

Model
SW412-13
SW412-13W

CONTACT INFORMATION

Sensoror Technologies AS
Phone: +47 3303 5000 - Fax: +47 3303 5005
sales@sensoror.no www.sensoror.com

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