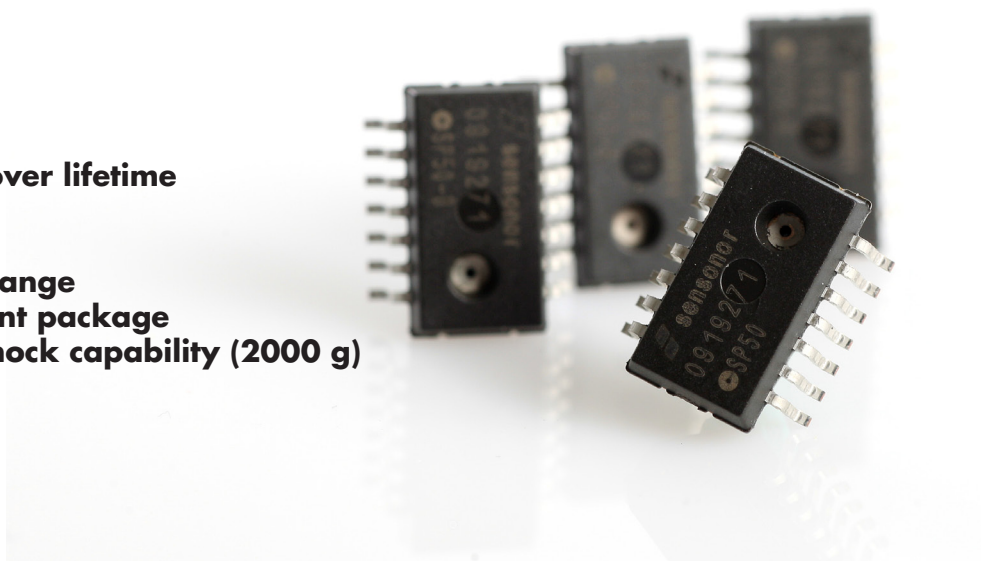


PRESSURE AND ACCELERATION SENSOR

0 to 1300 kPa (0 to 189 psi)

Features

- **Absolute pressure sensor**
- **On-chip accelerometer**
- **High reliability and low drift over lifetime**
- **High media compatibility**
- **Backside media access**
- **Wide temperature operating range**
- **Robust miniature surface mount package**
- **High static acceleration and shock capability (2000 g)**



Description

The SP50-13 is an uncompensated piezoresistive pressure and acceleration sensor. It is bulk micromachined and designed for affordable and reliable measurements in a broad range of industrial applications and designs.

SP50-13 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 SP50-13 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.

SP50-13 is packaged in a proven 14 pin, SOIC package that can be handled by automatic production lines.

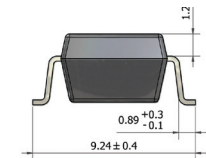
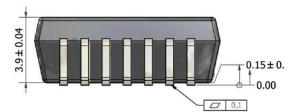
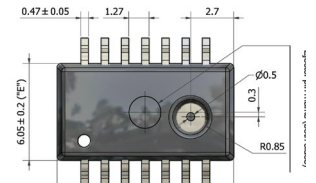
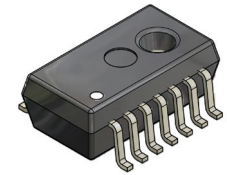
The sensor can be connected to passive compensation and/or signal conditioning as required for a given application.

SP50-13

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

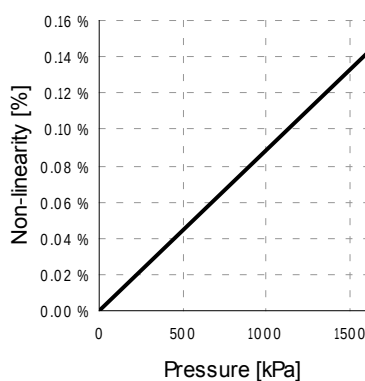
MECHANICAL DIMENSIONS



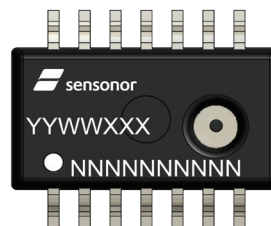
FUNCTIONAL CHARACTERISTICS (@25°C,5V)

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/VkPa / 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



PIN OUT AND LASER MARKING



YYWWXXX : Lot number
NNNNNNNNNN: Product name

PINOUT TABLE

1	NC
2	NC
3	PP
4	PN
5	VDD
6	NEPI
7	VSS
8	VSS
9	RD
10	AP
11	AN
12	NC
13	NC
14	NC

ORDERING INFORMATION

Description
Delivered on blister tape

Model
SP50-13

CONTACT INFORMATION

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

Information furnished by Sensoror Technologies is believed to be accurate and reliable. However, no responsibility is assumed by Sensoror Technologies for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Sensoror Technologies reserves the right to make changes without further notice to any products herein. Sensoror Technologies makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Sensoror Technologies assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. No license is granted by implication or otherwise under any patent or patent rights of Sensoror Technologies. Trademarks and registered trademarks are the property of their respective owners. Sensoror Technologies products are not intended for any application in which the failure of the Sensoror Technologies product could create a situation where personal injury or death may occur. Should Buyer purchase or use Sensoror Technologies products for any such unintended or unauthorized application, Buyer shall indemnify and hold Sensoror Technologies and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable legal fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Sensoror Technologies was negligent regarding the design or manufacture of the part.