

Product Overview

Novosense NSP1632 series MEMS pressure sensors are high-performance and high-reliability MEMS absolute pressure sensor dies, based on the principle of mono-crystalline silicon high sensitivity piezoresistive effect, and manufactured by the advanced MEMS technology. The NSP1632 series MEMS absolute pressure sensors are qualified according to AEC-Q103 and guaranteed the accuracy and stability better than 1% FS in overall lifetime, the typical pressure ranges are 0~100kPa and 0~200kPa, widely used in automotive electronics, consumer electronics, industrial controls, etc. The corrosion-resistant Pt metal bond pads make it to be suitable for harsh environment applications such as Turbo-MAP, EGR-MAP, BPS etc. especially.

The wafer manufactured platform of NSP1632 series MEMS absolute pressure sensors is verified to fulfill the International Automotive Standard IATF16949:2016. Each wafer is inspected both in the process and at the end of process by 100% AOI and the electronic AOI wafer map is provided for each wafer. For additional shipping options, please contact Novosense sales.

Key Features

- Pressure range: 0~100kPa, 200kPa
- Operating temperature: -40~150°C
- Die size: 1.0mmx1.0mmx0.4mm
- Accuracy and Stability better than 1%FS

- Optional corrosion-resistant Pt metal bond pad
- IATF16949 certificated manufactured platform
- AEC-Q103 automotive standards qualified
- ROHS & REACH compliant

Applications

- Intake Manifold Pressure Sensor
- Vacuum Booster Pressure Sensor
- Electric Vehicle Battery Pack Pressure Sensor
- Barometric Pressure Sensors
- Industrial Controls

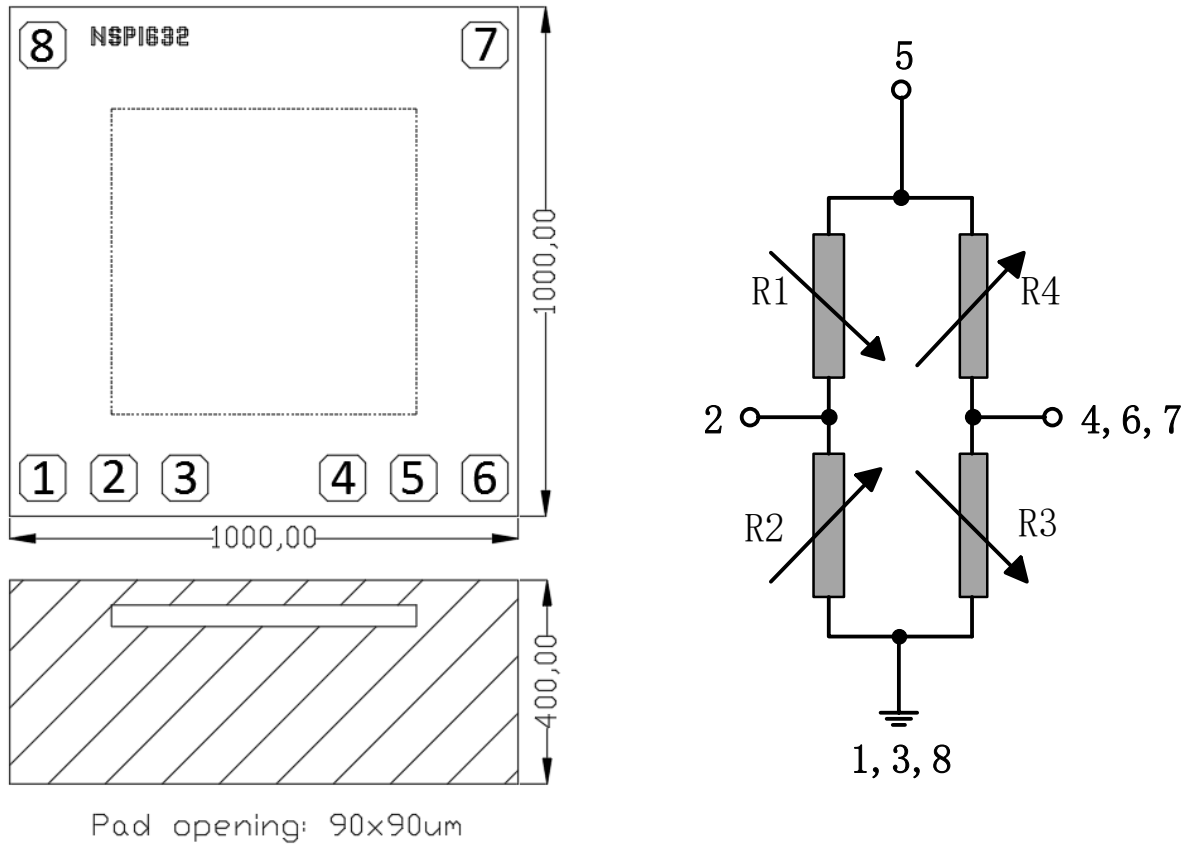
Device Information

Part Number	Span	Bond Pad Metal
NSP1632-Bxx100	0~100kPa	Pt Metal
NSP1632-Bxx200	0~200kPa	Pt Metal

INDEX

1. DIMENSIONS AND DIAGRAM	3
2. ABSOLUTE MAXIMUM RATINGS	4
3. CHARACTERISTIC	5
4. ORDER INFORMATION	6
5. REVISION HISTORY	7

1. Dimensions And Diagram



NO.	Pad description	Symbol	Value	Coordinate X-Axis (μm)	Coordinate Y-Axis (μm)
1	Negative Supply Voltage	GND	0V	65	75
2	Positive Sensor Output	Vout+	-	205	75
3	Negative Sensor Output	GND	0V	345	75
4	Negative Sensor Output	Vout-	-	655	75
5	Positive Supply Voltage	VDD	+5V	795	75
6	Negative Sensor Output	Vout-	-	935	75
7	Negative Sensor Output	Vout-	-	935	925
8	Negative Supply Voltage	GND	0V	65	925

Notes:

1. All dimensions are in micron.
2. Bond pad opening size: 90x90um.
3. Bond pad metal: Pt, Thickness: 200nm.

2. Absolute Maximum Ratings

NO.	Parameters	Symbol	Min	Typ	Max	Unit
1	Supply voltage	VDD			12	V
2	Operating temperature ¹	T _{OP}	-40		150	°C
3	Storage temperature	T _{STG}	-40		150	°C
4	Proof pressure	P _{proof}	3x			FS
5	Burst pressure	P _{Burst}	5x			FS

3. Characteristic

Measured at 5V supply and 25 °C, unless otherwise specified.

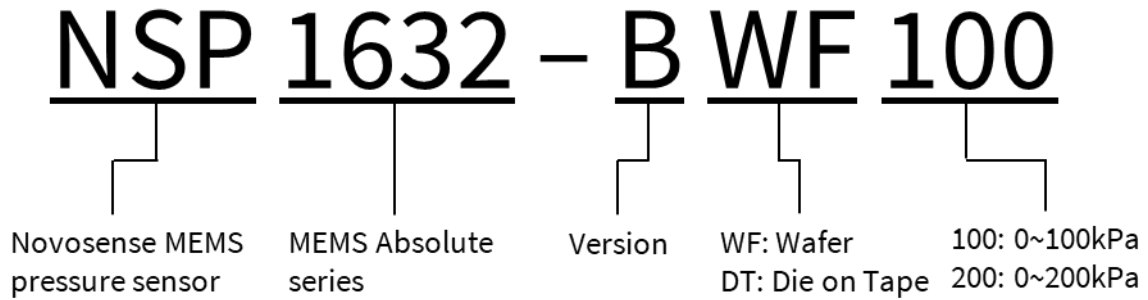
NO.	Parameters	Symbol	Min ³	Typ ^{1, 2}	Max ³	Unit	
1	Pressure range	Span	0	100,200,500	1000	kPa	
2	Full span output	Vout	100kPa	50	80	110	mV
			200kPa	55	85	115	
3	Offset Voltage ³	Offset	-30	±10	30	mV	
4	Temperature coefficient of span ⁴	TCS	-0.25	-0.20	-0.15	%FS/	
5	Temperature coefficient of offset ⁴	TCO	-80	±10	80	μV/°C	
6	Temperature coefficient of bridge resistance ⁴	TCR	0.04	0.08	0.12	%FS/	
7	Non-linearity ⁵	NL _{TS}	-0.3	±0.1	0.3	%FS	
8	Bridge resistance	R _B	4.3	5.3	6.3	kΩ	
9	Pressure hysteresis ⁶	P _{HYS}	-0.1	±0.05	0.1	%FS	
10	Temperature hysteresis ⁵	T _{HYS}	-0.2	±0.1	0.2	%FS	

Notes:

1. Measured on a sample basis and based on special MEMS only package. The sensor performance may change depending on the die attach material and the assemble process.
2. Measured at 0~100kPa pressure range and for the other pressure ranges, please contact Novosense sales.
3. Output voltage at zero pressure.
4. Measured from -40°C to 150°C.
5. Defined as the best fit straight line.
6. Dry non-corrosive and pollution-free gas.

4. Order Information

NO.	Order NO.	Span	Comment
1	NSP1632-BWF100	0~100kpa	Wafer
2	NSP1632-BDT100	0~100kpa	Die on Tape
3	NSP1632-BWF200	0~200kpa	Wafer
4	NSP1632-BDT200	0~200kpa	Die on Tape



5. Revision History

Revision	Description	Date
0.1	Initial Version.	2022/5/16
1.0	Formal Version	2022/6/6

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as any warranty or authorization of, express or implied, including but not limited to accuracy, completeness, merchantability, fitness for a particular purpose or infringement of any third party's intellectual property rights.

You are solely responsible for your use of Novosense' products and applications, and for the safety thereof. You shall comply with all laws, regulations and requirements related to Novosense's products and applications, although information or support related to any application may still be provided by Novosense.

The resources are intended only for skilled developers designing with Novosense' products. Novosense reserves the rights to make corrections, modifications, enhancements, improvements or other changes to the products and services provided. Novosense authorizes you to use these resources exclusively for the development of relevant applications designed to integrate Novosense's products. Using these resources for any other purpose, or any unauthorized reproduction or display of these resources is strictly prohibited. Novosense shall not be liable for any claims, damages, costs, losses or liabilities arising out of the use of these resources.

For further information on applications, products and technologies, please contact Novosense (www.novosns.com).

Suzhou Novosense Microelectronics Co., Ltd