

Product Overview

Novosense NSP1833 Series MEMS pressure sensors are high-performance and high-reliability MEMS ultra-low differential pressure sensor dies, based on the principle of mono-crystalline silicon high sensitivity piezoresistive effect, and manufactured by the advanced MEMS technology. The NSP1833 series MEMS ultra-low differential pressure sensors are guaranteed the accuracy and stability better than 1% FS in overall lifetime, the typical pressure range is 0~±1000Pa, widely used in consumer electronics, medical electronics, industrial controls etc.

The wafer manufactured platform of NSP1833 series MEMS low differential pressure sensor is verified to fulfill the International Automotive Standard IATF16949:2016. Each wafer is inspected both in backside and frontside 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~±1000Pa
- Operating temperature: -40~85°C
- Die size: 2.5x2.5x0.4mm
- Accuracy and stability better than 1%FS
- ROHS & REACH compliant

Applications

- White household
- Consumer
- Medical
- Industrial Controls

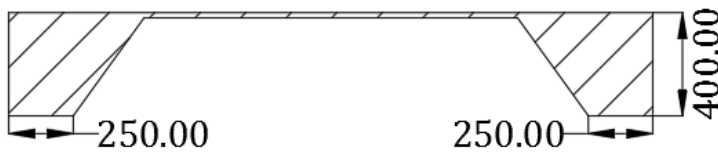
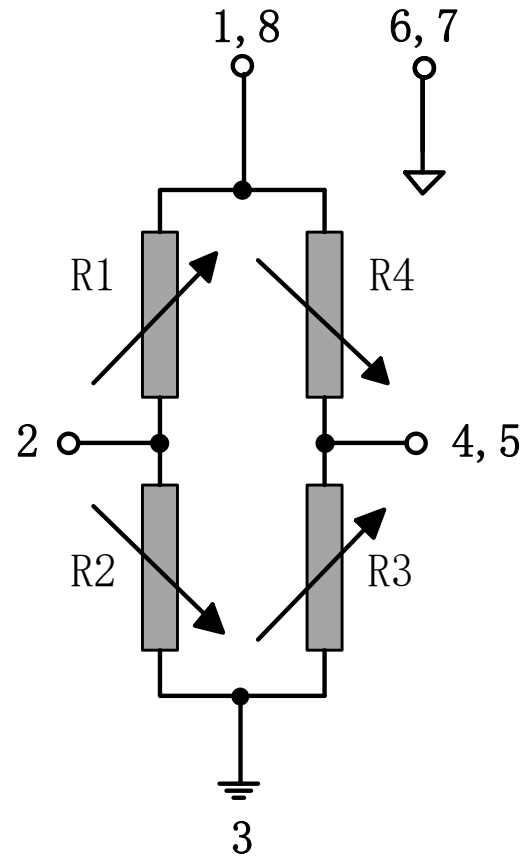
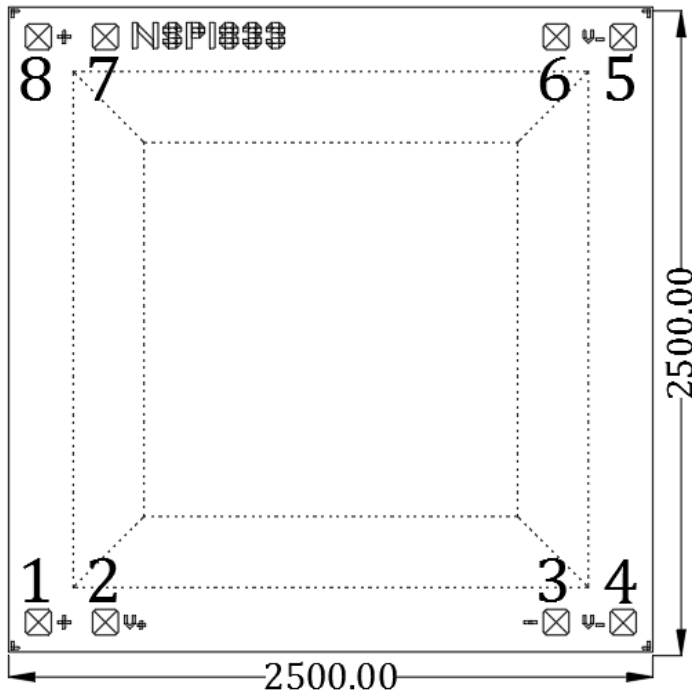
Device Information

Part Number	Span	Die Size
NSP1833-Axx01k	0~±1000Pa	2.5mmx2.5mmx0.4mm

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1. Dimensions And Diagram



Pad NO.	Pad description	Symbol	Value	Coordinate X-Axis (μm)	Coordinate Y-Axis (μm)
1	Positive Supply Voltage	VDD	+5V	115	115
2	Positive Sensor Output	Vout+	-	375	115
3	Negative Supply Voltage	GND	0V	2125	115
4	Negative Sensor Output	Vout-	-	2385	115
5	Negative Sensor Output	Vout-	-	2385	2385
6	Substrate Supply Voltage	VSUB	+5V	2125	2385
7	Substrate Supply Voltage	VSUB	+5V	375	2385
8	Positive Supply Voltage	VDD	+5V	115	2385

Notes:

1. All dimensions are in micron.
2. Bond pad opening size: 100x100um.
3. Bond pad metal: Al, Thickness: 1um.

2. Absolute Maximum Ratings

NO.	Parameters	Symbol	Min	Typ	Max	Unit
1	Supply voltage	VDD			12	V
2	Operating temperature	T _{OP}	-40		85	°C
3	Storage temperature	T _{STG}	-40		125	°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.

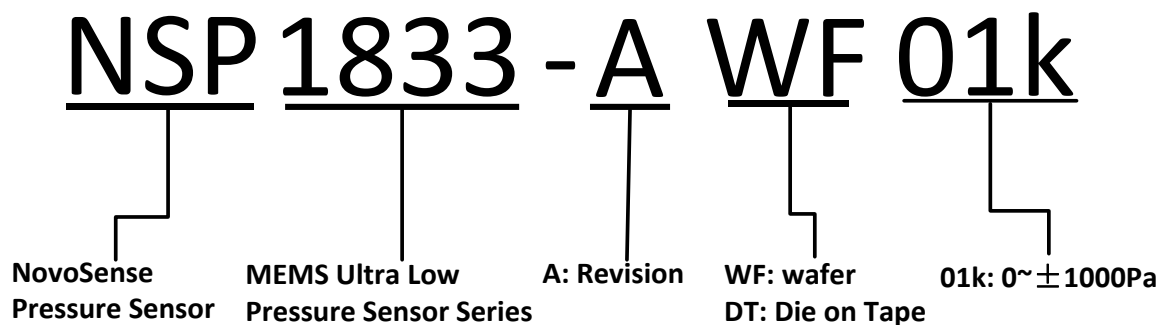
NO.	Parameters	Symbol	Min ³	Typ ^{1, 2}	Max ³	Unit
1	Pressure range ^{3, 7}	Span	-1000	±1000	1000	Pa
2	Full span output	Vout	/	20	50	mV
3	Offset Voltage ⁴	Offset	-30	±5	30	mV
4	Temperature coefficient of span ⁵	TCS	-0.38	-0.28	-0.18	%FS/
5	Temperature coefficient of offset ⁵	TCO	-80	±15	80	μV/°C
6	Temperature coefficient of bridge resistance ⁵	TCR	0.04	0.08	0.12	%FS/
7	Non-linearity ⁶	NL	-0.5	±0.2	0.5	%FS
8	Bridge resistance	R _B	4.3	5.3	6.3	kΩ
9	Pressure hysteresis	P _{HYS}	-0.2	±0.1	0.2	%FS
10	Temperature hysteresis ⁵	T _{HYS}	-0.5	±0.2	0.5	%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 assembly process.
2. Measured at 0~±1000Pa pressure range and for other pressure ranges, please contact Novosense sales.
3. Referring to atmosphere pressure.
4. Output voltage at zero pressure.
5. Measured from -40°C to 85°C.
6. Defined as the best fit straight line and pressure applied onto the front side of the die.
7. Dry non-corrosive and pollution-free gas.

4. Order Information

NO.	Order NO.	Span	Comment
1	NSP1833-AWF01k	0~±1000pa	Wafer
2	NSP1833-ADT01k	0~±1000pa	Die on Tape



5. Revision History

Revision	Description	Date
0.1	Initial Version.	2022/5/17
1.0	Formal Version.	2022/6/6

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