MPX5010-MPXV5010-MPVZ5010

Integrated silicon pressure sensor on-chip signal conditioned, temperature compensated and calibrated

Rev. 14 — 17 May 2024   **Product data sheet**

1   General description

The MPxx5010 series piezoresistive transducers are state-of-the-art monolithic silicon pressure sensors designed for a wide range of applications, but particularly those employing a microcontroller or microprocessor with A/D inputs. This transducer combines advanced micromachining techniques, thin-film metallization, and bipolar processing to provide an accurate, high level analog output signal that is proportional to the applied pressure. The axial port has been modified to accommodate industrial grade tubing.

2   Features and benefits

- 5.0% maximum error over 0° to 85° C
- Ideally suited for microprocessor or microcontroller-based systems
- Durable epoxy unibody and thermoplastic (PPS) surface mount package
- Temperature compensated over –40° to +125° C
- Patented silicon shear stress strain gauge
- Available in differential and gauge configurations
- Available in surface mount (SMT) or through-hole (DIP) configurations

3   Applications

- Hospital beds
- HVAC
- Respiratory systems
- Process control
- Washing machine water level measurement (Reference AN1950)
- Ideally suited for microprocessor or microcontroller-based systems
- Appliance liquid level and pressure measurement

4 Ordering information

Table 1. Ordering information

Type number	Package		Version
	Name	**Description**	
Unibody package (MPX5010 series)			
MPX5010DP	SENSOR4F	sensor package, 6 terminals, 2.54 mm pitch, 17.78 mm x 29.48 mm x 10.67 body	SOT1756-1
MPX5010GP	SENSOR6F	sensor package, 6 terminals, 2.54 mm pitch, 17.78 mm x 29.47 mm x 8.01 mm body	SOT1852-1
Small outline package (MPXV5010 series)			
MPXV5010DP	S08	plastic, small outline package, 8 terminals, 2.54 mm pitch, 12.06. mm x 12.06 mm x 7.62 mm body	SOT1693-1
MPXV5010GC6T1	S08	plastic, small outline package, 8 terminals, 2.54 mm pitch, 10.67. mm x 10.67 mm x 12.96 mm body	SOT1854-1
MPXV5010GC7U	S08	plastic, small outline package, 8 terminals, 2.54 mm pitch, 10.67. mm x 10.67 mm x 12.96 mm body	SOT1863-1
MPXV5010GP	S08	plastic, small outline package, 8 terminals, 2.54 mm pitch, 12.06. mm x 12.06 mm x 7.62 mm body	SOT1693-3
Small outline package (Media resistant gel) (MPVZ5010 series)			
MPVZ5010GW6U	S08	plastic, small outline package, 8 terminals, 2.54 mm pitch, 1.07 mm x 1.07 mm x 1.99 mm body	SOT1691-2
MPVZ5010GW7U	S08	plastic, small outline package, 8 terminals, 2.54 mm pitch, 1.07 mm x 1.07 mm x 1.99 mm body	SOT1691-1

4.1 Ordering options

Table 2. Ordering options

ORDERING INFORMATION							
Device Name	**Case No.**	**# of Ports**			**Pressure Type**		**Device Marking**
		None	Single	Dual	Gauge	Differential	Absolute	
Unibody Package (MPX5010 Series)								
MPX5010DP	867C			•		•		MPX5010DP
MPX5010GP	867B		•		•			MPX5010GP
Small Outline Package (MPXV5010 Series)								
MPXV5010DP	1351			•		•		MPXV5010DP
MPXV5010GC6T1	482A		•		•			MPXV5010G
MPXV5010GC7U	482C		•		•			MPXV5010G
MPXV5010GP	1369		•		•			MPXV5010GP
Small Outline Package (Media Resistant Gel) (MPVZ5010 Series)								
MPVZ5010GW6U	1735		•		•			MZ5010GW
MPVZ5010GW7U	1560		•		•			MZ5010GW

MPX5010

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5   Block diagram

Figure 1 shows a block diagram of the internal circuitry integrated on a pressure sensor chip.
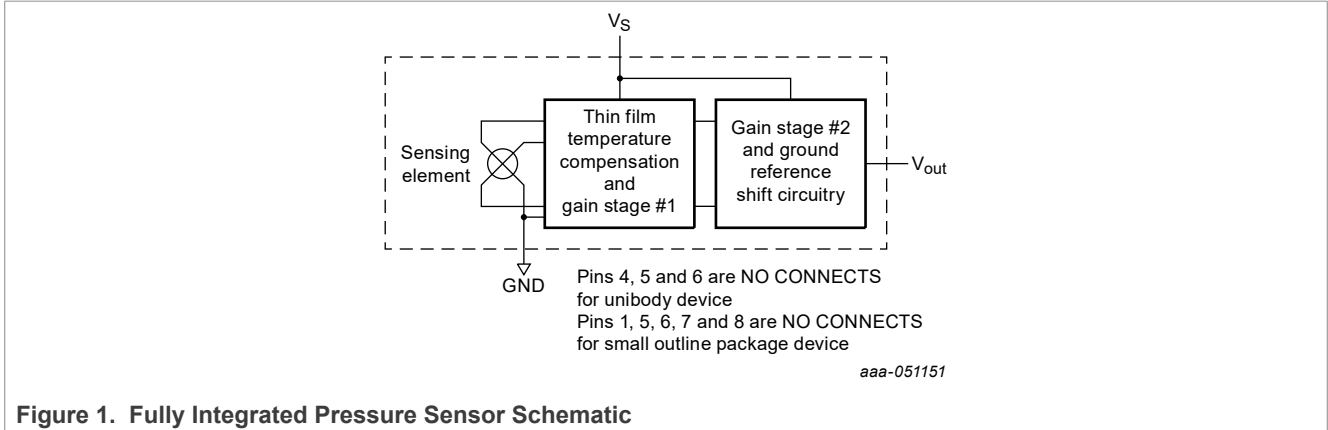

Figure 1. Fully Integrated Pressure Sensor Schematic

6   Pinning information
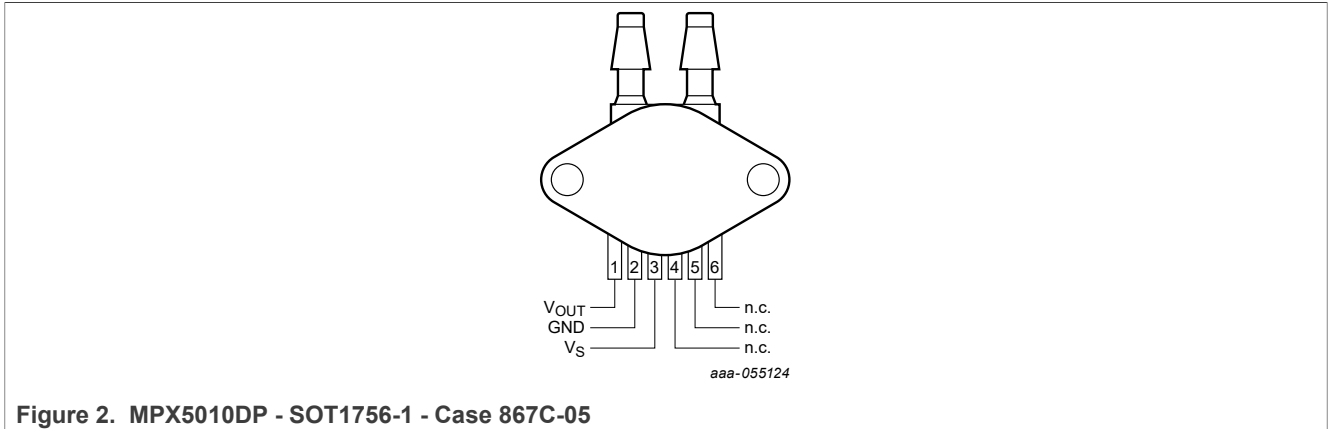
6.1 Pinning - Unibody packages

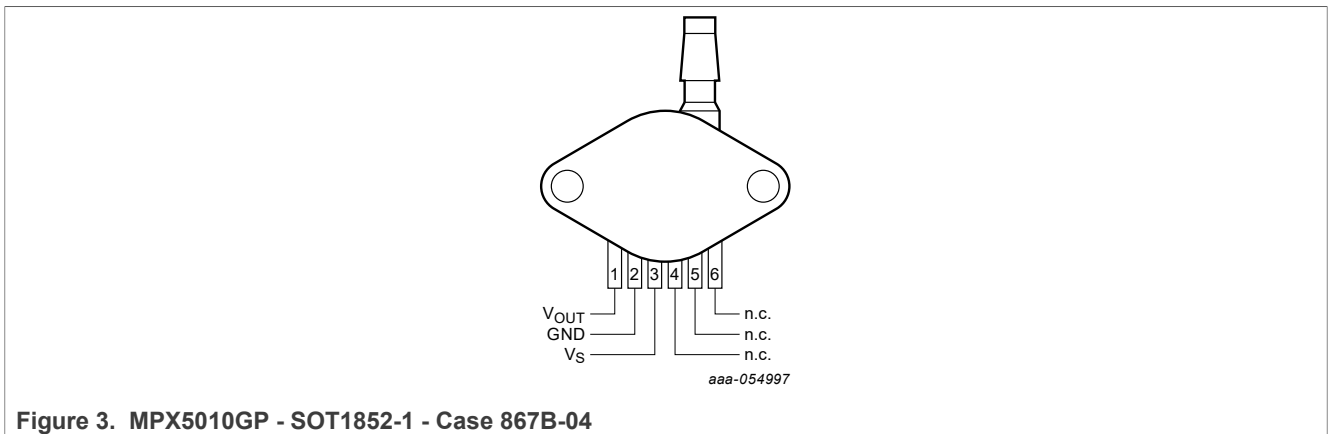**Figure 2. MPX5010DP - SOT1756-1 - Case 867C-05**

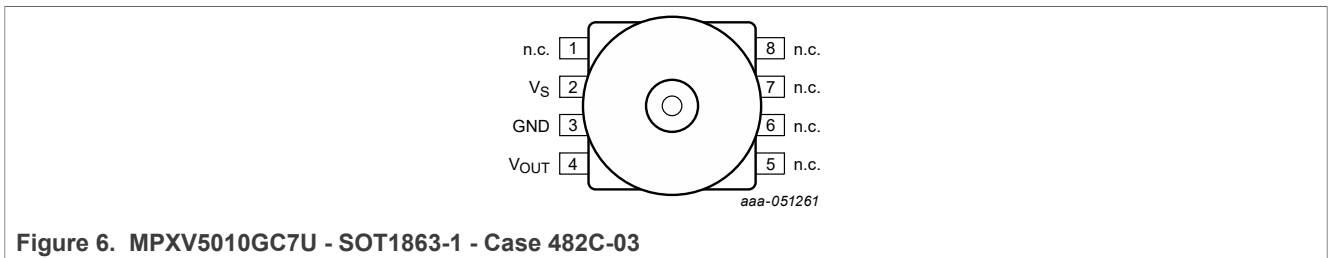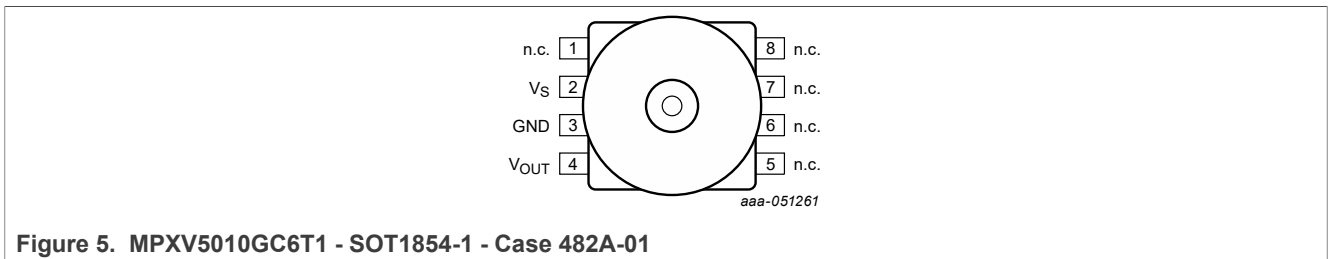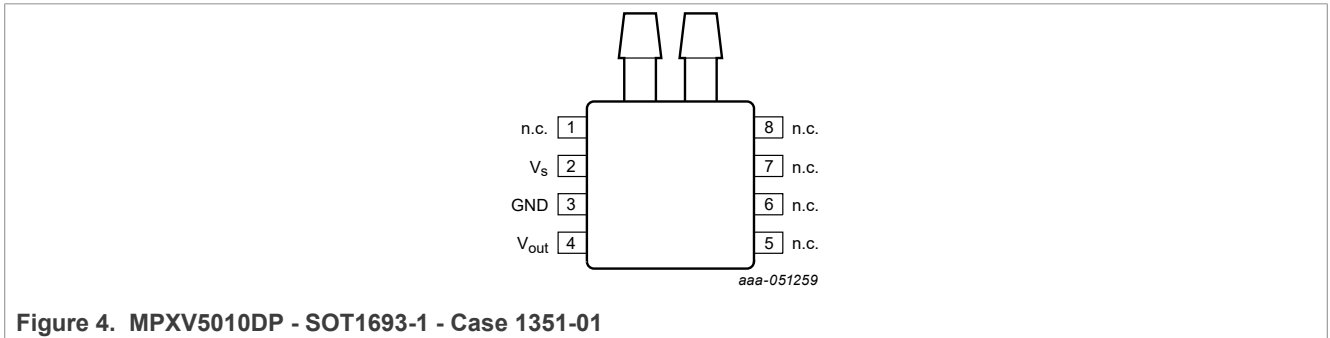**Figure 3. MPX5010GP - SOT1852-1 - Case 867B-04**

6.2 Pin description - Unibody packages

Table 3. Pin descriptions - Unibody pacakages

This table defines the pin configuration for the Unibody packages indentified in Table 1.

Symbol	Pin	Description
V_{OUT}	1	V_{OUT}
GND	2	Ground
V_S	3	Supply voltage
N.C.	4	No connect
N.C.	5	No connect
N.C.	6	No connect

6.3 Pinning - Small Outline packages

Figure 4. MPXV5010DP - SOT1693-1 - Case 1351-01

Figure 5. MPXV5010GC6T1 - SOT1854-1 - Case 482A-01

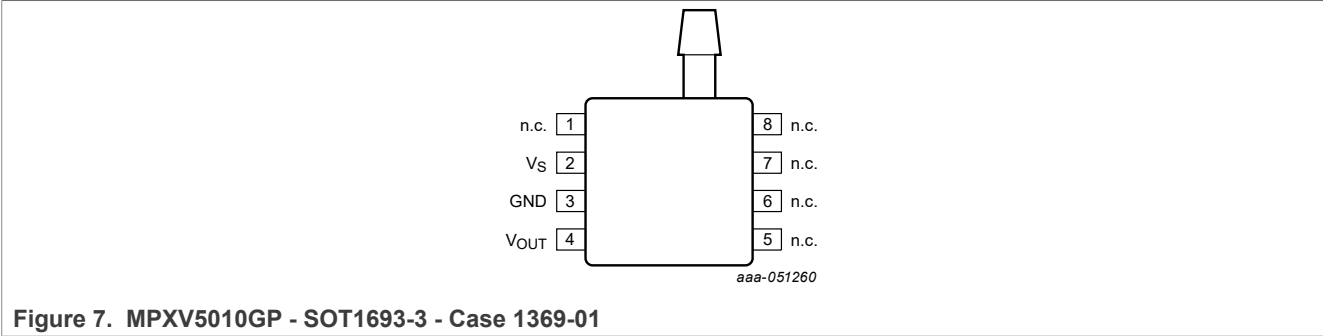**Figure 6. MPXV5010GC7U - SOT1863-1 - Case 482C-03**

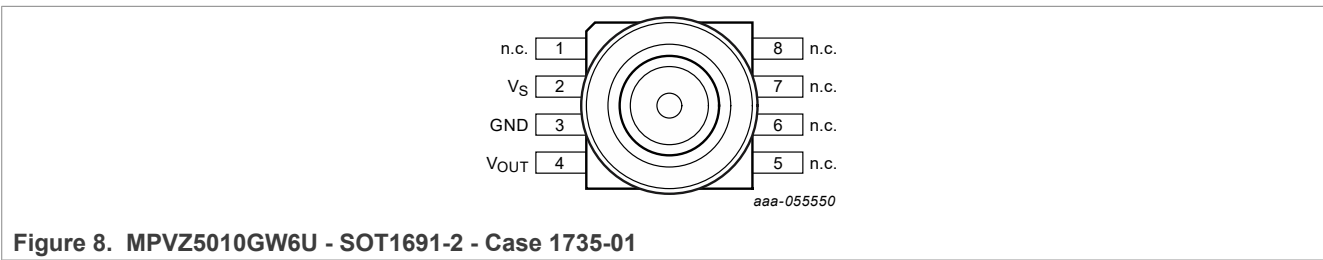**Figure 7. MPXV5010GP - SOT1693-3 - Case 1369-01**

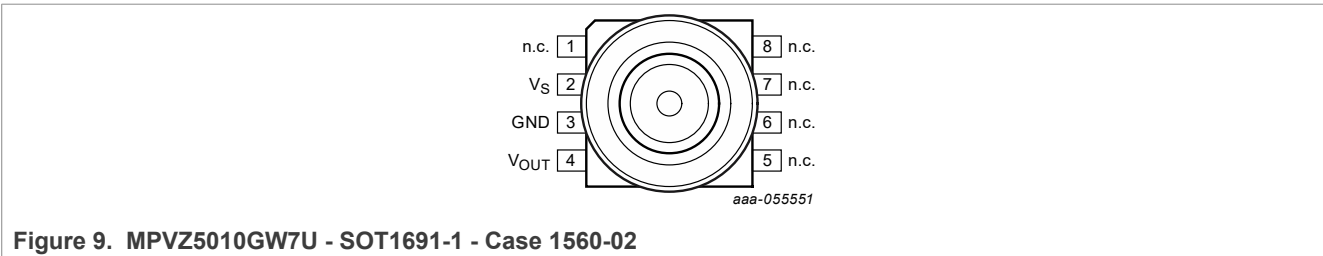**Figure 8. MPVZ5010GW6U - SOT1691-2 - Case 1735-01**

Figure 9. MPVZ5010GW7U - SOT1691-1 - Case 1560-02

6.4 Pin description - Small Outline packages

Table 4. Pin descriptions - Small Outline packages

This table defines the pin configuration for the Small Outline packages indentified in Table 1.

Symbol	Pin	Description
N.C.	1	No connect
V_S	2	Supply voltage
GND	3	Ground
V_{OUT}	4	V_{OUT}
N.C.	5	No connect
N.C.	6	No connect
N.C.	7	No connect
N.C.	8	No connect

7 Limiting values

Table 5. Limiting values[1]

Rating	Symbol	Value	Unit
Maximum Pressure (P1 > P2)	P_{max}	40	kPa
Storage Temperature	T_{stg}	–40 to +125	°C
Operating Temperature	T_A	–40 to +125	°C

[1] Exposure beyond the specified limits may cause permanent damage or degradation to the device.

8 Recommended operating conditions

Table 6. Recommended operating conditions
V_S = 5.0 Vdc, T_A = 25°C unless otherwise noted, P1 > P2. Decoupling circuit shown in [Figure 11](#) required to meet specification.)

Characteristic	Symbol	Min	Typ	Max	Unit
Pressure Range	P_{OP}	0	—	10 1019.78	kPa mm H_2O
Supply Voltage[1]	V_S	4.75	5.0	5.25	Vdc
Supply Current	I_o	—	5.0	10	mAdc
Minimum Pressure Offset [2](0 to 85°C) @ V_S = 5.0 Volts	V_{off}	0	0.2	0.425	Vdc
Full Scale Output[3](0 to 85°C) @ V_S = 5.0 Volts	V_{FSO}	4.475	4.7	4.925	Vdc
Full Scale Span[4](0 to 85°C) @ V_S = 5.0 Volts	V_{FSS}	4.275	4.5	4.725	Vdc
Accuracy[5](0 to 85°C)	—	—	—	±5.0	%V_{FSS}
Sensitivity	V/P	—	450 4.413	—	mV/kPa mV/ kPA H_2O
Response Time[6]	t_R	—	1.0	—	ms
Output Source Current at Full Scale Output	I_{O+}	—	0.1	—	mAdc
Warm-Up Time[7]	—	—	20	—	ms
Offset Stability[8]	—	—	± 0.5	—	%V_{FSS}

[1] Device is ratiometric within this specified excitation range.
[2] Offset (V_{off}) is defined as the output voltage at the minimum rated pressure.
[3] Full Scale Output (V_{FSO}) is defined as the output voltage at the maximum or full rated pressure.
[4] Full Scale Span (V_{FSS}) is defined as the algebraic difference between the output voltage at full rated pressure and the output voltage at the minimum rated pressure.
[5] Accuracy (error budget) consists of the following:
    Linearity: Output deviation from a straight line relationship with pressure over the specified pressure range.
    Temperature Hysteresis: Output deviation at any temperature within the operating temperature range, after the temperature is cycled to and from the minimum or maximum operating temperature points, with zero differential pressure applied.
    Pressure Hysteresis: Output deviation at any pressure within the specified range, when this pressure is cycled to and from the minimum or maximum rated pressure, at 25°C.
    TcSpan: Output deviation over the temperature range of 0° to 85°C, relative to 25°C.
    TcOffset: Output deviation with minimum rated pressure applied, over the temperature range of 0° to 85°C, relative to 25°C.
    Variation from Nominal:The variation from nominal values, for Offset or Full Scale Span, as a percent of V_{FSS}, at 25°C.

[6] Response Time is defined as the time for the incremental change in the output to go from 10% to 90% of its final value when subjected to a specified step change in pressure.

[7] Warm-up Time is defined as the time required for the product to meet the specified output voltage after the Pressure has been stabilized.

[8] Offset Stability is the product's output deviation when subjected to 1000 hours of Pulsed Pressure, Temperature Cycling with Bias Test.

9 On-chip temperature compensation and calibration

The performance over temperature is achieved by integrating the shear-stress strain gauge, temperature compensation, calibration and signal conditioning circuitry onto a single monolithic chip.

Figure 10 illustrates the differential or gauge configuration in the basic chip carrier (Case 482). A fluorosilicone gel isolates the die surface and wire bonds from the environment, while allowing the pressure signal to be transmitted to the sensor diaphragm.

The MPxx5010G series pressure sensor operating characteristics, and internal reliability and qualification tests are based on use of dry air as the pressure media. Media, other than dry air, may have adverse effects on sensor performance and long-term reliability. Contact the factory for information regarding media compatibility in your application.

Figure 11 shows the recommended decoupling circuit for interfacing the integrated sensor to the A/D input of a microprocessor or microcontroller. Proper decoupling of the power supply is recommended.

Figure 12 shows the sensor output signal relative to pressure input. Typical, minimum, and maximum output curves are shown for operation over a temperature range of 0° to 85°C using the decoupling circuit shown in Figure 11. The output will saturate outside of the specified pressure range.
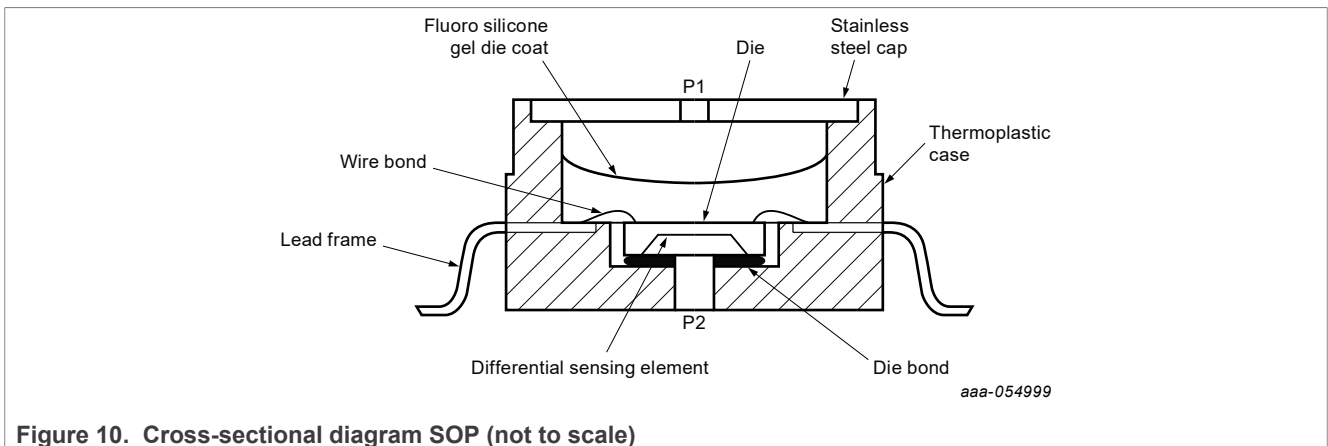

aaa-054999

Figure 10. Cross-sectional diagram SOP (not to scale)
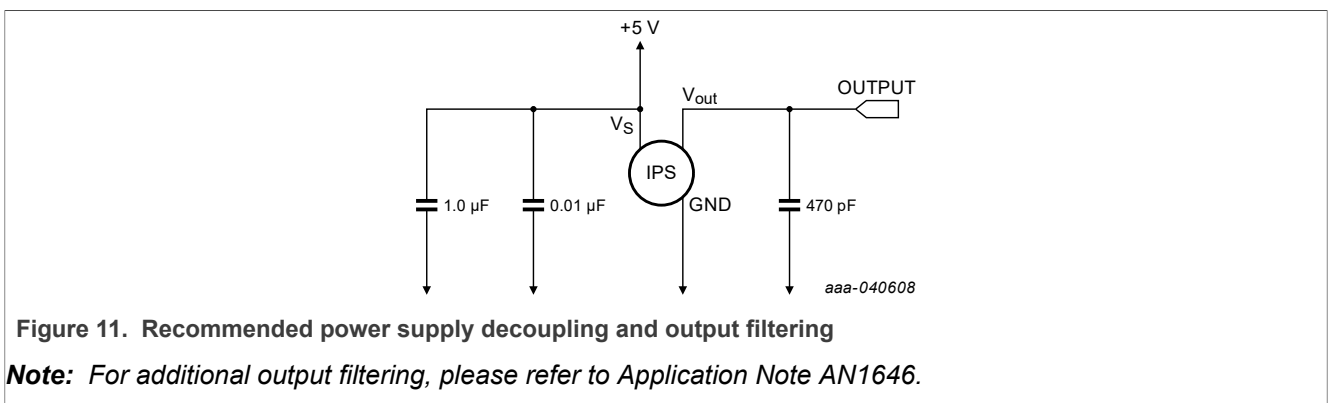

aaa-040608

Figure 11. Recommended power supply decoupling and output filtering

Note: *For additional output filtering, please refer to Application Note AN1646.*
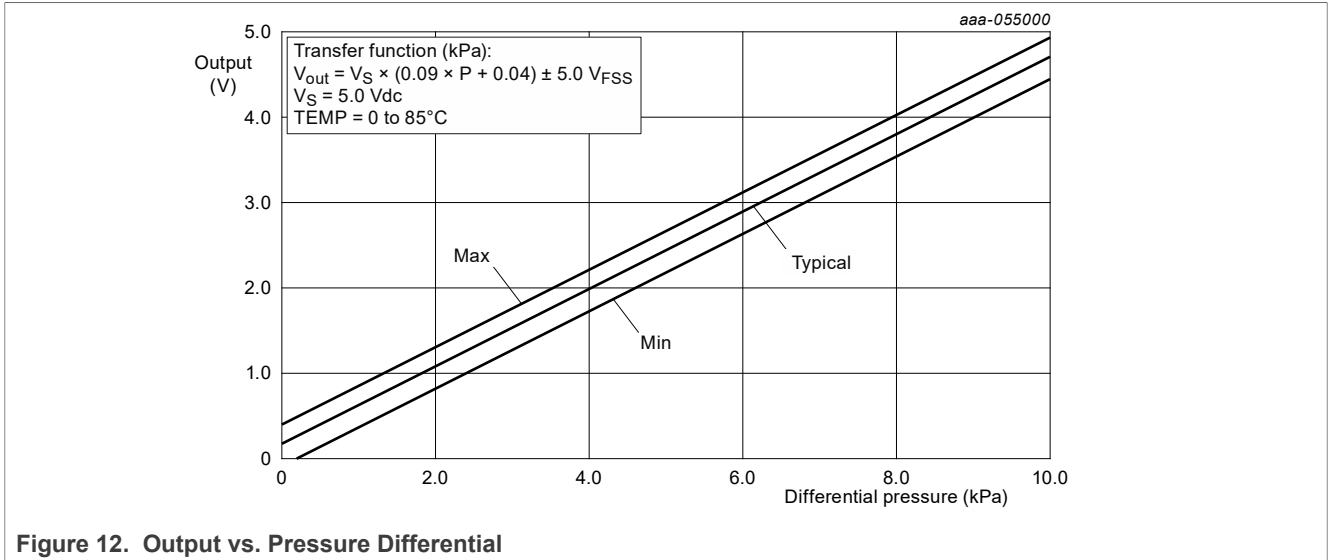
Figure 12. Output vs. Pressure Differential

Nominal Transfer Value:

$$V_{OUT} = V_S \times (0.09 \times P + 0.04)$$
$$\pm (Pressure\ Error\ \times Temp.\ Factor\ \times\ 0.09\ \ V_S)$$
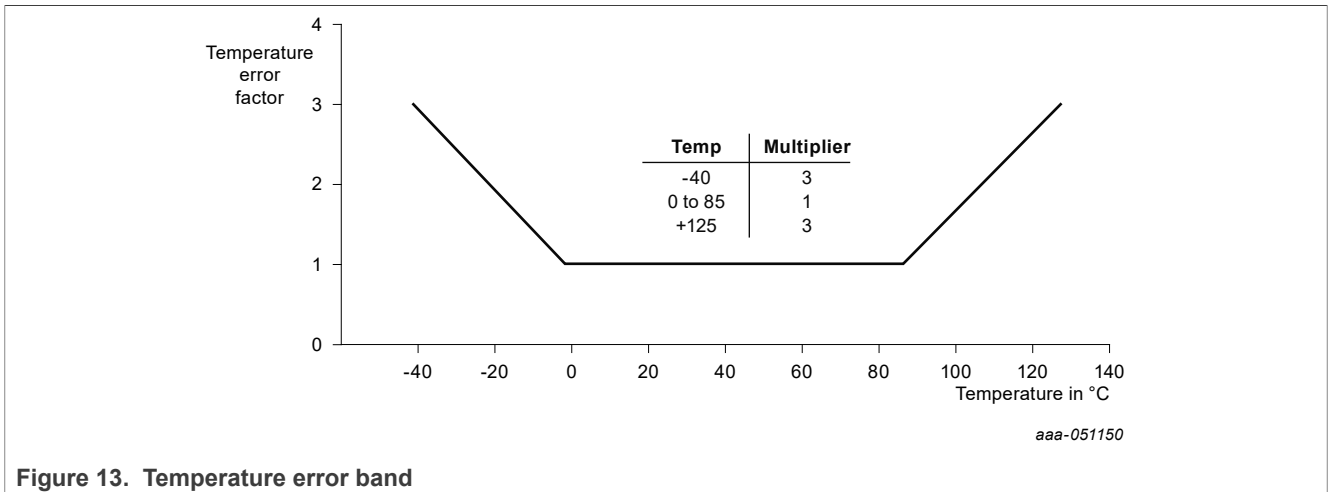$$V_S = 5.0\ V\ \pm 0.25\ Vdc$$

Figure 13. Temperature error band

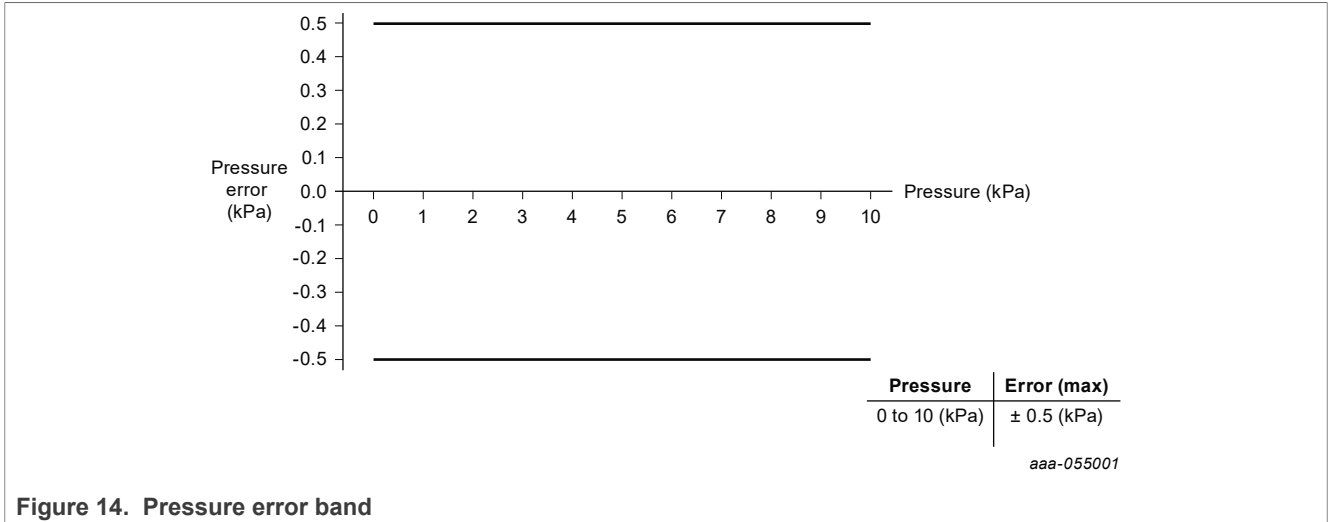| Pressure	Error (max)
0 to 10 (kPa)	± 0.5 (kPa)

aaa-055001

Figure 14. Pressure error band

10 Pressure (P1) / Vacuum (P2) side identification table

NXP designates the two sides of the pressure sensor as the Pressure (P1) side and the Vacuum (P2) side. The Pressure (P1) side is the side containing fluorosilicone gel which protects the die from harsh media. The MPX pressure sensor is designed to operate with positive differential pressure applied, P1 > P2.
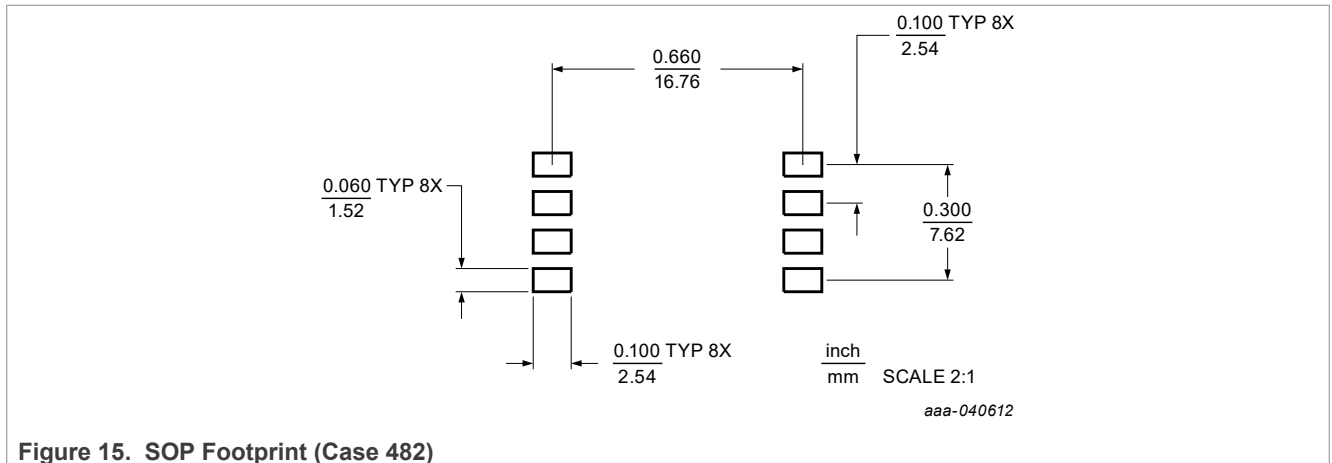
The Pressure (P1) side may be identified by using Table 7.

Table 7. Pressure (P1) side identification

Part Number	Case Type	Pressure (P1) Side Identifier
MPX5010DP	867C	Side with Part Marking
MPX5010GP	867B	Side with Port Attached
MPXV5010DP	1351	Side with Part Marking
MPXV5010GC6T1	482A	Side with Port Attached
MPXV5010GC7U	482C	Side with Port Attached
MPXV5010GP	1369	Side with Port Attached
MPVZ5010GW6U	1735	Vertical Port Attached
MPVZ5010GW7U	1560	Vertical Port Attached

11 Minimum recommended footprint for surface mounted applications

Surface mount board layout is a critical portion of the total design. The footprint for the surface mount packages must be the correct size to ensure proper solder connection interface between the board and the package. With the correct footprint, the packages will self align when subjected to a solder reflow process. It is always recommended to design boards with a solder mask layer to avoid bridging and shorting between solder pads.

Figure 15. SOP Footprint (Case 482)
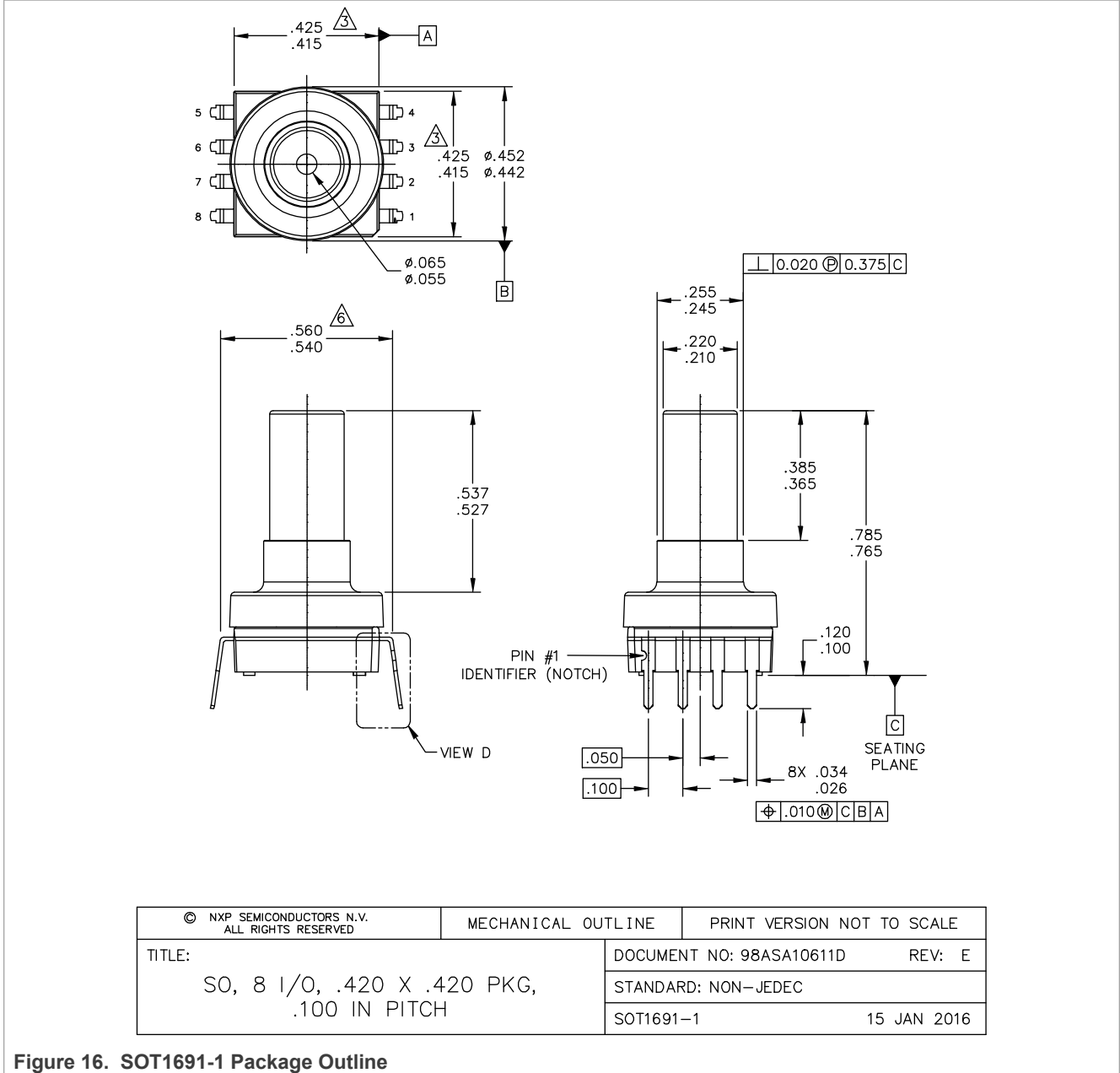
12 Package outline

Figure 16. SOT1691-1 Package Outline

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VIEW D

© NXP SEMICONDUCTORS N.V. ALL RIGHTS RESERVED	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE
TITLE: SO, 8 I/O, .420 X .420 PKG, .100 IN PITCH	DOCUMENT NO: 98ASA10611D REV: E	
	STANDARD: NON−JEDEC	
	SOT1691−1	15 JAN 2016

Figure 17. SOT1691-1 Package Outline Detail

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M — 1994.

2. CONTROLLING DIMENSION: INCH.

⚠️3. DIMENSIONS DO NOT INCLUDE MOLD PROTRUSION.

4. MAXIMUM MOLD PROTRUSION IS .006.

5. ALL VERTICAL SURFACES 5˚ TYPICAL DRAFT.

⚠️6. DIMENSION TO CENTER OF LEAD WHEN FORMED PARALLEL.

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TITLE: SO, 8 I/O, .420 X .420 PKG, .100 IN PITCH	DOCUMENT NO: 98ASA10611D REV: E	
	STANDARD: NON—JEDEC	
	SOT1691—1	15 JAN 2016

Figure 18. SOT1691-1 Package Outline Notes

Figure 19. SOT1691-2 Package Outline

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0°−15°

.011
.009

.071
.061

7°
0°

VIEW D

© NXP SEMICONDUCTORS N.V. ALL RIGHTS RESERVED	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE	
TITLE: SO, 8 I/O, .420 X .420 PKG, .100 IN PITCH	DOCUMENT NO: 98ASA10686D		REV: C
	STANDARD: NON−JEDEC		
	SOT1691−2	15 JAN 2016	

Figure 20. SOT1691-2 Package Outline Detail

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NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M — 1994.

2. CONTROLLING DIMENSION: INCH.

△3 DIMENSIONS DO NOT INCLUDE MOLD PROTRUSION.

4. MAXIMUM MOLD PROTRUSION IS .006.

5. ALL VERTICAL SURFACES 5° TYPICAL DRAFT.

△6 DIMENSION TO CENTER OF LEAD WHEN FORMED PARALLEL.

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TITLE: SO, 8 I/O, .420 X .420 PKG, .100 IN PITCH	DOCUMENT NO: 98ASA10686D REV: C	
	STANDARD: NON—JEDEC	
	SOT1691—2 15 JAN 2016	

Figure 21. SOT1691-2 Package Outline Notes

Figure 22. SOT1693-1 Package Outline

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NOTES:

1. CONTROLLING DIMENSION: INCH

2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M−1994.

3. DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PPROTRUSIONS.
   MOLD FLASH AND PROTRUSIONS SHALL NOT EXCEED .006 PER SIDE.

4. DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR
   PROTRUSION SHALL BE .008 MAXIMUM.

```
STYLE 1:                STYLE 2:
  PIN 1: GND               PIN 1: N/C
  PIN 2: +Vout             PIN 2: Vs
  PIN 3: Vs                PIN 3: GND
  PIN 4: −Vout             PIN 4: Vout
  PIN 5: N/C               PIN 5: N/C
  PIN 6: N/C               PIN 6: N/C
  PIN 7: N/C               PIN 7: N/C
  PIN 8: N/C               PIN 8: N/C
```

© NXP SEMICONDUCTORS N. V. ALL RIGHTS RESERVED	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE	
TITLE: 8 LD SNSR, DUAL PORT	DOCUMENT NO: 98ASA99255D		REV: B
	STANDARD: NON−JEDEC		
	SOT1693−1		14 MAR 2016

Figure 23. SOT1693-1 Package Outline Notes

Figure 24. SOT1693-3 Package Outline

NOTES:
1. CONTROLLING DIMENSION: INCH

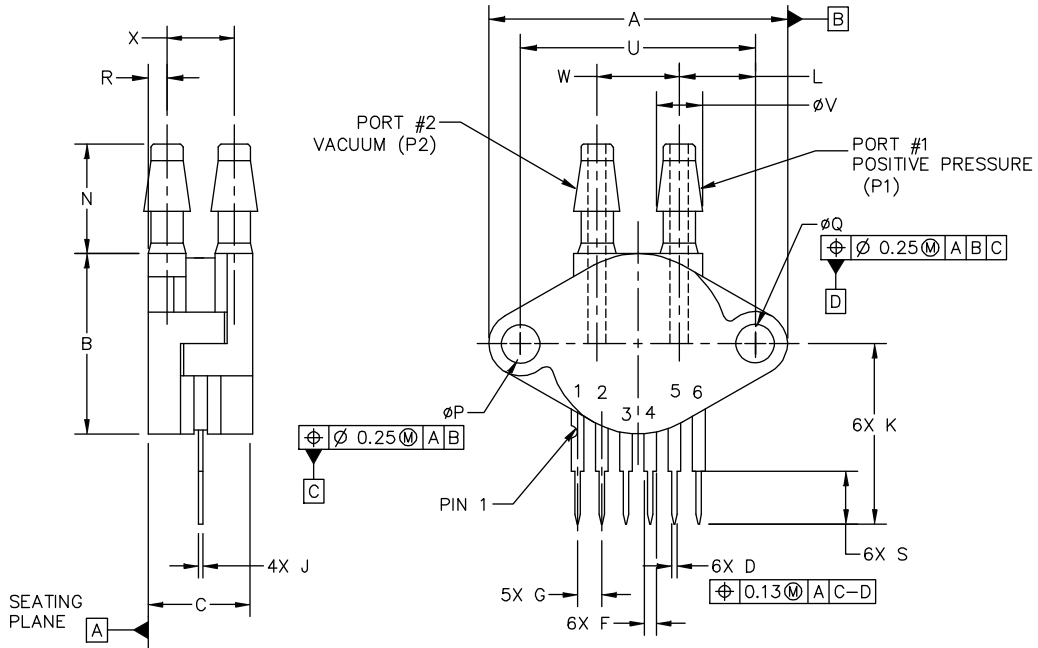2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M−1994.

3. DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PPROTRUSIONS.
   MOLD FLASH AND PROTRUSIONS SHALL NOT EXCEED .006 (0.152) PER SIDE.

4. DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR
   PROTRUSION SHALL BE .008 (0.203) MAXIMUM.

DIM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX	DIM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.300	.330	7.62	8.38	θ	0˙	7˙	0˙	7˙
A1	.002	.010	0.05	0.25	−	---	---	---	---
b	.038	.042	0.96	1.07	−	---	---	---	---
D	.465	.485	11.81	12.32	−	---	---	---	---
E	.717 BSC		18.21 BSC		−	---	---	---	---
E1	.465	.485	11.81	12.32	−	---	---	---	---
e	.100 BSC		2.54 BSC		−	---	---	---	---
F	.245	.255	6.22	6.47	−	---	---	---	---
K	.120	.130	3.05	3.30	−	---	---	---	---
L	.061	.071	1.55	1.80	−	---	---	---	---
M	.270	.290	6.86	7.36	−	---	---	---	---
N	.080	.090	2.03	2.28	−	---	---	---	---
P	.009	.011	0.23	0.28	−	---	---	---	---
T	.115	.125	2.92	3.17	−	---	---	---	---

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TITLE: 8 LD SOP, SIDE PORT	DOCUMENT NO: 98ASA99303D REV: E	
	STANDARD: NON−JEDEC	
	SOT1693−3	14 MAR 2016

Figure 25. SOT1693-3 Package Outline Notes

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DIM	MILLIMETERS MIN	MAX
A	29.08	29.85
B	17.40	18.16
C	10.29	11.05
D	0.68	0.84
F	1.22	1.63
G	2.54 BSC	
J	0.36	0.41
K	17.65	18.42
L	7.37	7.62
N	10.67	11.18

DIM	MILLIMETERS MIN	MAX
P	⌀3.89	⌀4.04
Q	⌀3.89	⌀4.04
R	1.60	2.11
S	5.59	6.10
U	23.11 BSC	
V	4.62	4.93
W	7.87	8.38
X	6.30	7.06

NOTES:

1. DIMENSIONS ARE IN MILLIMETERS.

2. DIMENSIONS AND TOLERANCES PER ASME Y14.5M−1994.

3. 867C−01 THRU −04 OBSOLATE, NEW STANDARD 867C−05.

3. STYLE 1:

PIN 1: V OUT 5: V2
2: GROUND 6: V EX
3: VCC
4: V1

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MECHANICAL OUTLINE   PRINT VERSION NOT TO SCALE

TITLE:

SENSOR, 4 LEAD UNIBODY

DOCUMENT NO: 98ASB42797B   REV: H

STANDARD: NON−JEDEC

SOT1756−1   29 JAN 2016
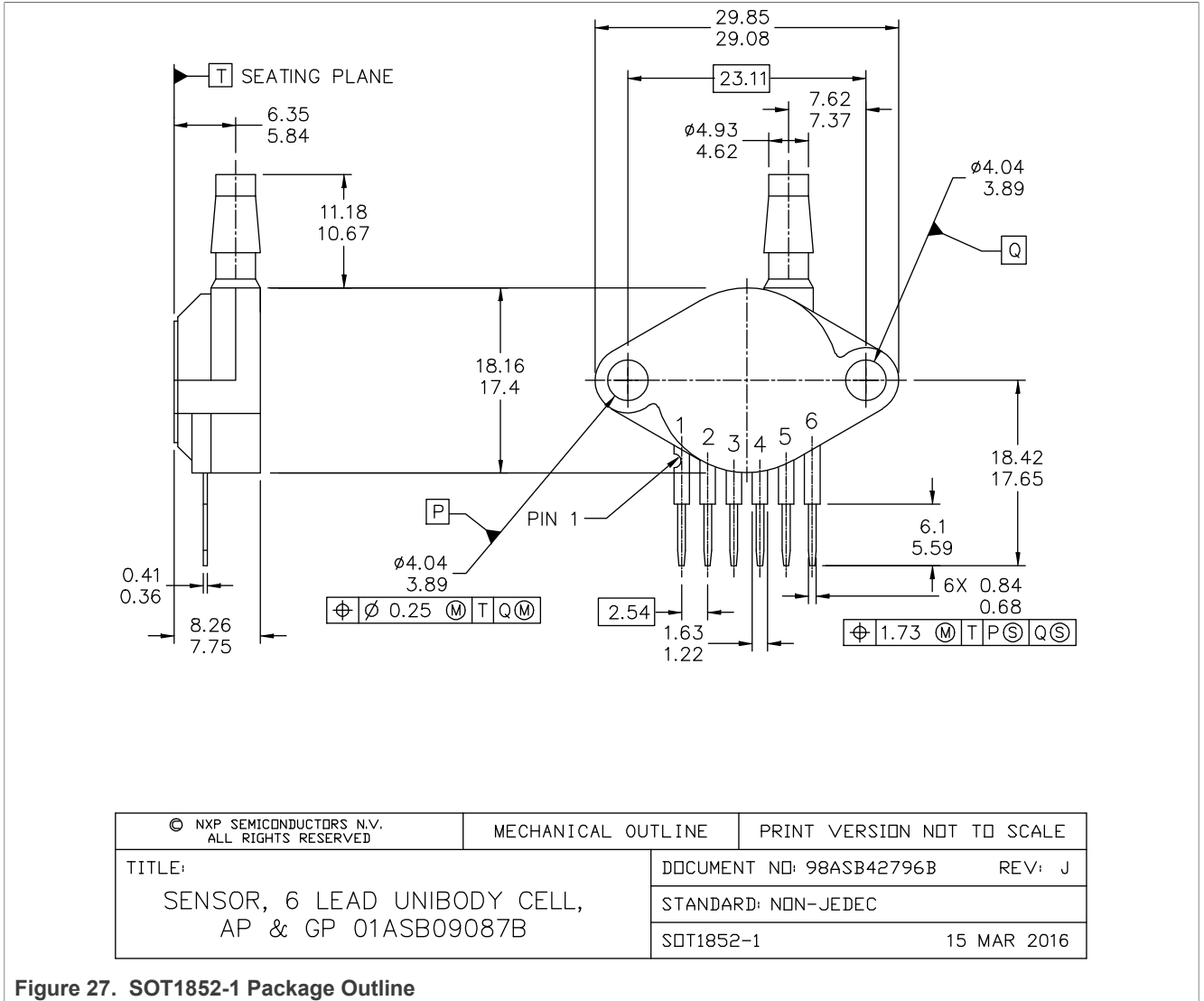
Figure 26. SOT1756-1 Package Outline

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Figure 27. SOT1852-1 Package Outline

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NOTES:

1. DIMENSIONS ARE IN MILLIMETERS.

2. DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.

3. 867B-01 THRU -3 OBSOLETE, NEW STANDARD 867B-04.


      STYLE 1:

      PIN 1: V OUT
          2: GROUND
          3: VCC
          4: V1
          5: V2
          6: V EX
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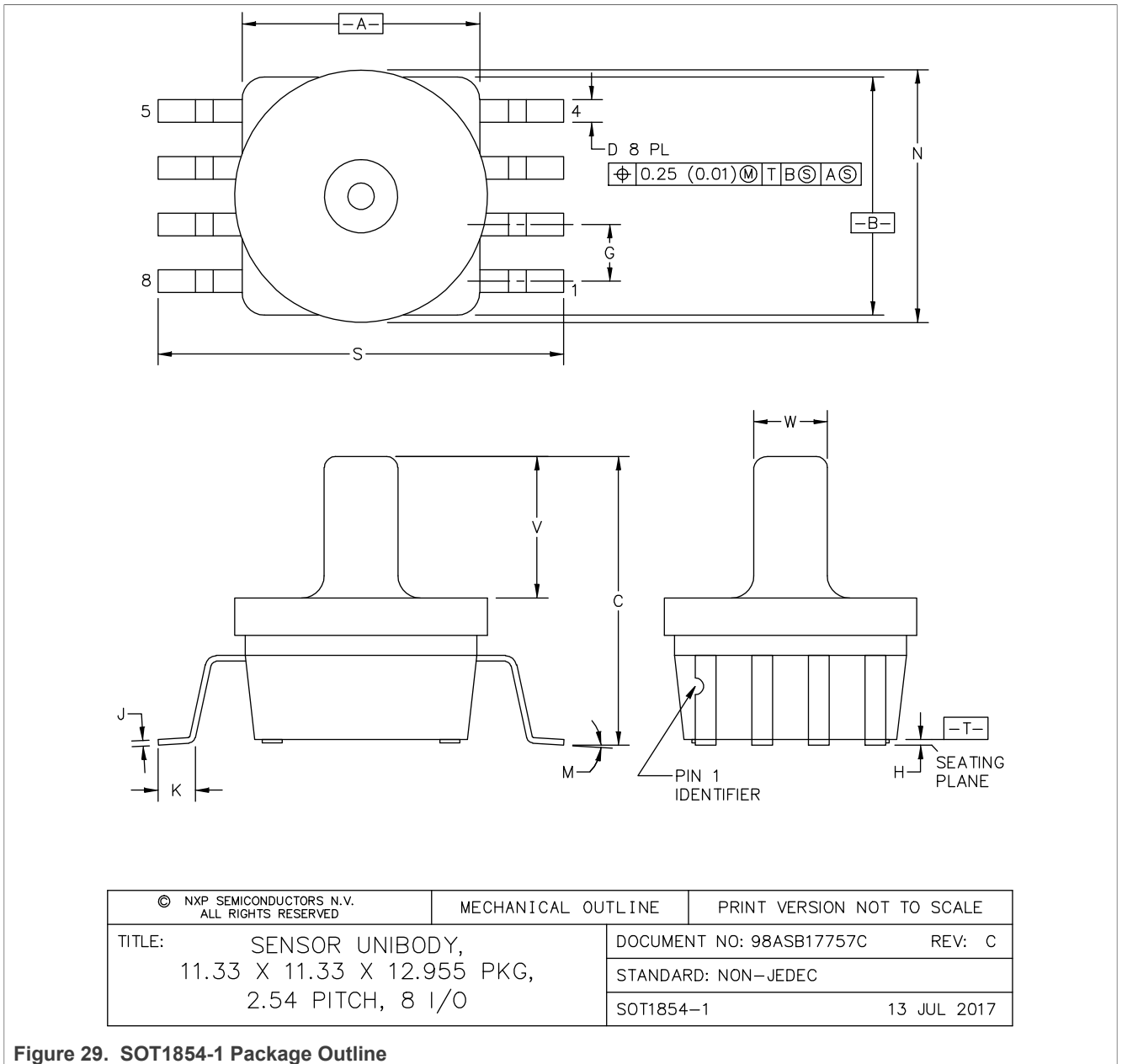
© NXP SEMICONDUCTORS N.V. ALL RIGHTS RESERVED	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE
TITLE: SENSOR, 6 LEAD UNIBODY CELL, AP & GP 01ASB09087B	DOCUMENT NO: 98ASB42796B REV: J	
	STANDARD: NON-JEDEC	
	SOT1852-1 15 MAR 2016	

Figure 28. SOT1852-1 Package Outline Notes

© NXP SEMICONDUCTORS N.V. ALL RIGHTS RESERVED	MECHANICAL OUTLINE	PRINT VERSION NOT TO SCALE	
TITLE: SENSOR UNIBODY, 11.33 X 11.33 X 12.955 PKG, 2.54 PITCH, 8 I/O	DOCUMENT NO: 98ASB17757C		REV: C
	STANDARD: NON-JEDEC		
	SOT1854-1		13 JUL 2017

Figure 29. SOT1854-1 Package Outline

MPX5010

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NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M−1982.

2. CONTROLLING DIMENSION: INCH.

3. DIMENSION 'A' AND 'B' DO NOT INCLUDE MOLD PROTUSION.

4. MAXIMUM MOLD PROTRUSION 0.15 (0.006).

5. ALL VERTICAL SURFACES 5˚ TYPICAL DRAFT.

DIM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	0.415	0.425	10.54	10.79
B	0.415	0.425	10.54	10.79
C	0.500	0.520	12.70	13.21
D	0.038	0.042	0.96	1.07
G	0.100	BSC	2.54	BSC
H	0.002	0.010	0.05	0.25
J	0.009	0.011	0.23	0.28
K	0.061	0.071	1.55	1.80
M	0°	7°	0°	7°
N	0.444	0.448	11.28	11.38
S	0.709	0.725	18.01	18.41
V	0.245	0.255	6.22	6.48
W	0.115	0.125	2.92	3.17

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TITLE: SENSOR UNIBODY, 11.33 X 11.33 X 12.955 PKG, 2.54 PITCH, 8 I/O	DOCUMENT NO: 98ASB17757C REV: C	
	STANDARD: NON−JEDEC	
	SOT1854−1 13 JUL 2017	

Figure 30. SOT1854-1 Package Outline Notes

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TITLE: SENSOR UNIBODY, 11.33 X 11.33 X 12.955 PKG, 2.54 PITCH, 8 I/O	DOCUMENT NO: 98ASB17759C REV: F	
	STANDARD: NON—JEDEC	
	SOT1863—1 24 OCT 2017	

Figure 31. SOT1863-1 Package Outline

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M—1982.

2. CONTROLLING DIMENSION: INCH.

3. DIMENSION 'A' AND 'B' DO NOT INCLUDE MOLD PROTUSION.

4. MAXIMUM MOLD PROTRUSION 0.15 (0.006).

5. ALL VERTICAL SURFACES 5˙ TYPICAL DRAFT.

6. DIMENSION 'S' TO CENTER OF LEAD WHEN FORMED PARALLEL.

7. 482C—01 AND —02 OBSOLETE. NEW STANDARD 482C—03.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.54	10.79	0.415	0.425
B	10.54	10.79	0.415	0.425
C	12.70	13.21	0.500	0.520
D	0.66	0.864	0.026	0.034
G	2.54	BSC	0.100	BSC
J	0.23	0.28	0.009	0.011
K	2.54	3.05	0.100	0.120
M	0°	15°	0°	15°
N	11.28	11.38	0.444	0.448
S	13.72	14.22	0.540	0.560
V	6.22	6.48	0.245	0.255
W	2.92	3.17	0.115	0.125

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TITLE: SENSOR UNIBODY, 11.33 X 11.33 X 12.955 PKG, 2.54 PITCH, 8 I/O	DOCUMENT NO: 98ASB17759C	REV: F
	STANDARD: NON—JEDEC	
	SOT1863—1	24 OCT 2017

Figure 32. SOT1863-1 Package Outline Notes

13 Revision history

Table 8. Revision history

Document ID	Release date	Description
MPX5010 v.14	17 May 2024	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. Legal texts have been adapted to the new company name where appropriate. • Section 4, Table 1 and Section 4.1 Table 2, removed devices MPX5010GS, MPX5010GSX, MPXV5010G6U, MPXV5010GC6U, MPVZ5010G7U, and MPVZ5010 G6U. • Section 8, Table 6, Sensitivity Unit: Revised "mV/mm" to "mV/kPa".
MPX5010 v.13	October 2012	• Deleted references to device number MPVZ5010G6T1, MPVZ5010G6U/T1 and MPVZ5010G6U/6T1 throughout the document.

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Legal information

Data sheet status

Document status[1][2]	Product status[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL https://www.nxp.com.

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