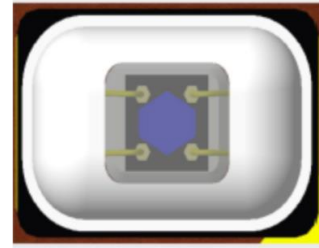




# PUIaudio



Data Sheet

PSA0201700

## General Description

The PSA0201700 is a high-resolution, 0kPa to 700kPa absolute pressure sensor in a compact 4-pin SMD package. Pressure is detected using a Wheatstone resistor array. It features an analog voltage output. It features high-precision, high temperature stability, and wide dynamic range.

## Features

- Pressure range: 0kPa to 700kPa
- 0.12mV/Pa sensitivity
- 0.01%FS/°C temperature coefficient
- 3.3V<sub>DC</sub> nominal power supply voltage

## Applications

- Barometers
- Tire Pressure Monitoring
- Power Pressure
- Wind Tunnels
- Air Pumps
- Water Pumps

## Electrical Characteristics

### Absolute Maximum Ratings (T<sub>A</sub> = 25°C, unless otherwise specified.)

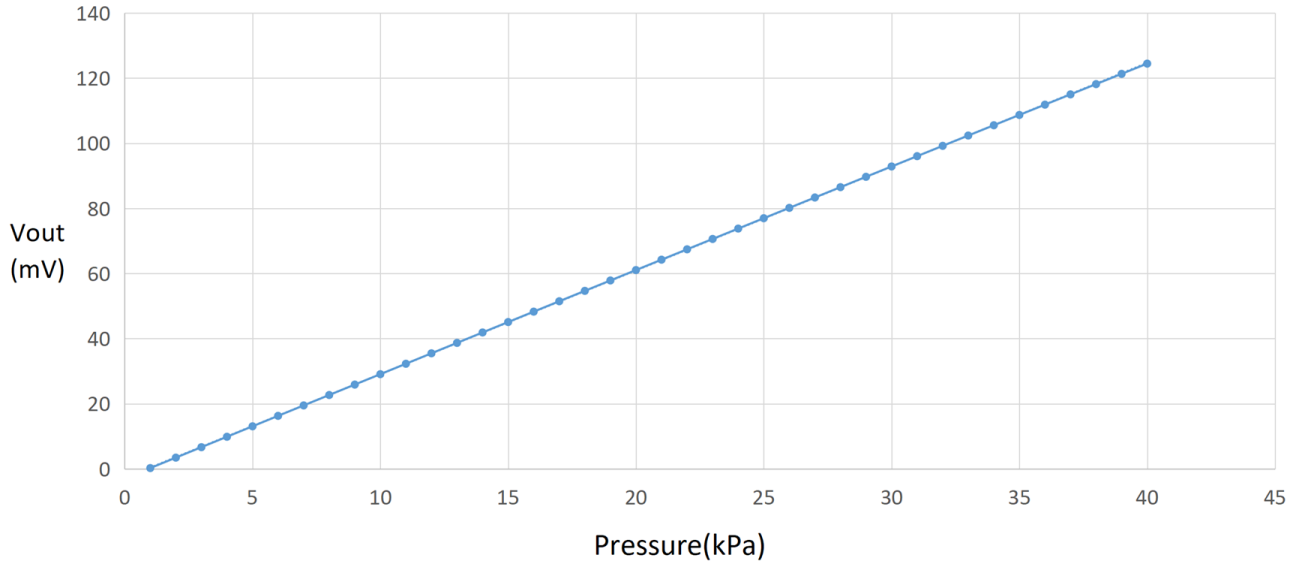
Parameter	Conditions	Minimum	Typical	Maximum	Unit
V <sub>DD</sub>		-0.3		15	Volts
IO Pin		-0.3		V <sub>DD</sub> +0.3	Volts
Burst Pressure				7000	kPa
ESD Class	Human Body Model	-2000		2000	Volts
Storage Temperature		-40		125	°C

### Performance Characteristics (V<sub>DD</sub> = 3.3V, T<sub>A</sub> = 25°C, unless otherwise specified.)

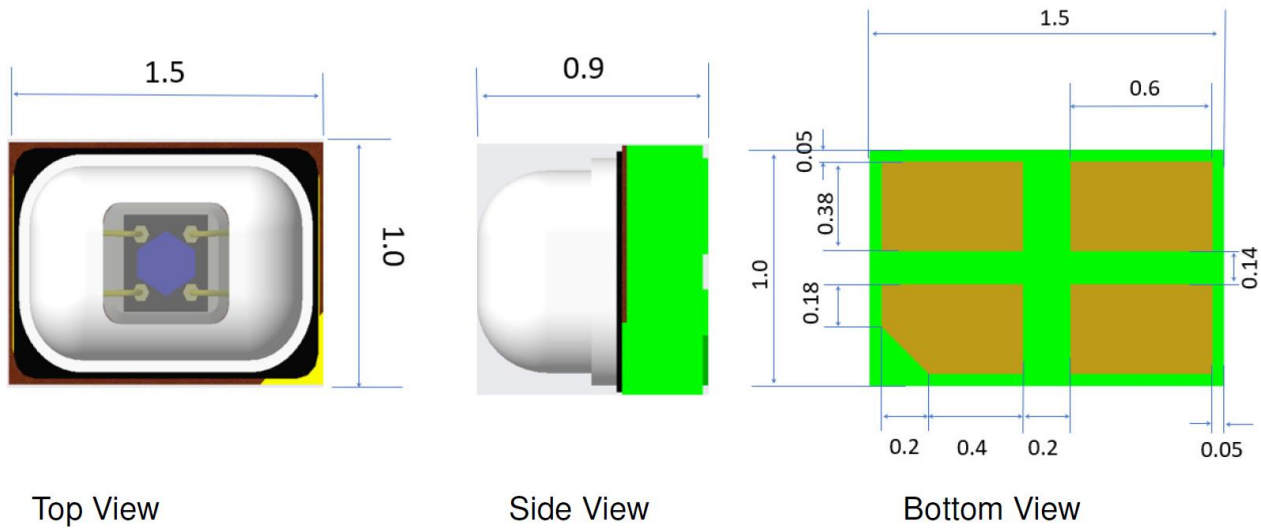
Parameters	Conditions	Minimum	Typical	Maximum	Unit
V <sub>DD</sub>		4.7	5.0	5.3	Volts
I <sub>DD</sub>			1.0	3.0	mA
Operating Temperature		-40		125	°C
Wheatstone Bridge Resistor Element Values		8		10	kΩ
<b>Pressure Characteristics</b>					
Pressure Range		0		700	kPa
Sensitivity			0.078		mV/kPa
Linearity	-20°C ≤ T <sub>A</sub> ≤ 85°C		0.15		%FS
Overload Pressure	Note 1			2100	kPa
Output Offset	Pressure = 0Pa	-10		10	mV
Output Offset Temperature Drift Coefficient (TCO)			0.01		%FS/°C
Sensitivity Temperature Drift Coefficient (TCS)			-0.20		%FS/°C

Note 1: Pressures above this maximum will damage the sensor including the internal pressure sensitive film and the MEMS structures.

## Typical Performance Curves ( $V_{DD} = 3.3V, T_A = 25^{\circ}C.$ )



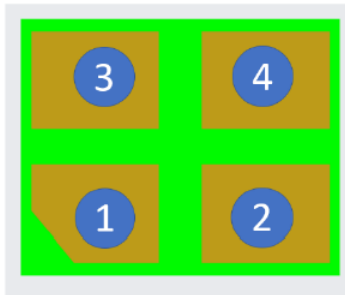
## Dimensions and Pin Definitions (Tolerance: $\pm 0.1mm$ , unless otherwise specified.)



Top View

Side View

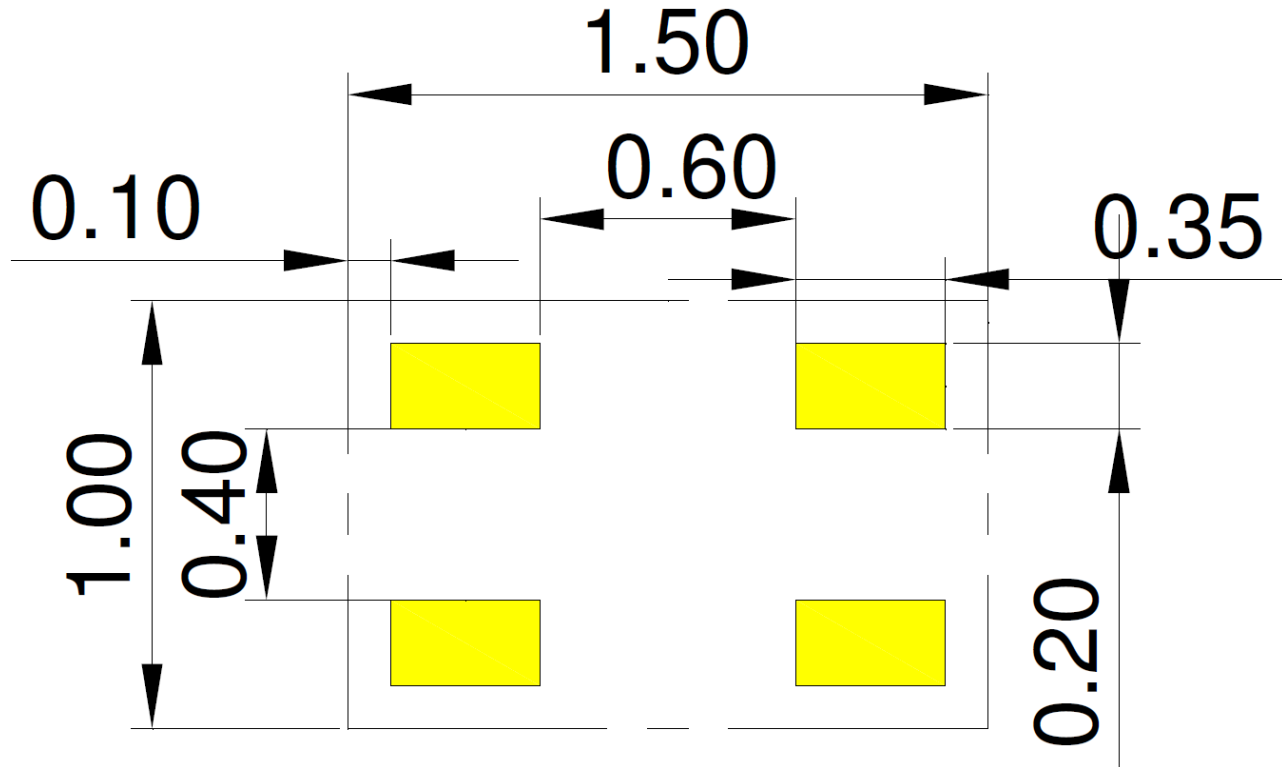
Bottom View



According to the pin number indicated in the left figure (upward view), the four connection modes of the chip are respectively.

1. Pad1→ $V_{dd}$  ; Pad2→ $V_{o-}$  ; Pad3→ $V_{o+}$  ; Pad4→Gnd
2. Pad1→Gnd ; Pad2→ $V_{o+}$  ; Pad3→ $V_{o-}$  ; Pad4→ $V_{dd}$
3. Pad1→ $V_{o+}$  ; Pad2→Gnd ; Pad3→ $V_{dd}$  ; Pad4→ $V_{o-}$
4. Pad1→ $V_{o-}$  ; Pad2→ $V_{dd}$  ; Pad3→Gnd ; Pad4→ $V_{o+}$

**Solder Footprint Dimensions** (Tolerance:  $\pm 0.5\text{mm}$ , unless otherwise specified.)



## Reliability Testing

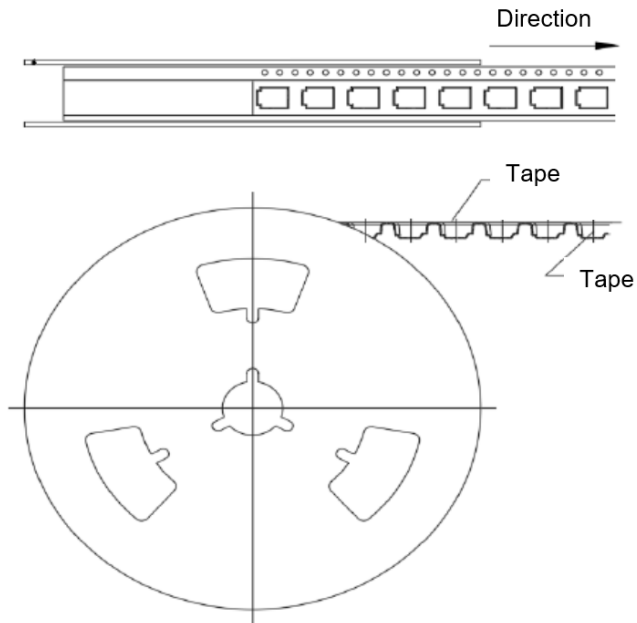
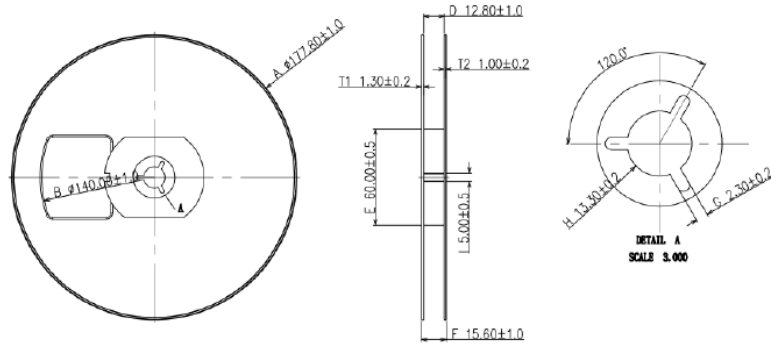
Type of Test	Test Specifications
High Temperature Test	96 hours at $70\pm 3^{\circ}\text{C}$
Low Temperature Test	96 hours at $-30\pm 3^{\circ}\text{C}$
Humidity Test	96 hours at $30\pm 3^{\circ}\text{C}$ with relative humidity at 92~95%
Temperature Cycle Testing	<p>Run for 5 cycles with each cycle consisting of:</p> <p>The diagram illustrates a temperature cycle starting at 25°C. It ramps up to 65°C over 0.5 hours, dwells at 65°C for 6 hours (with 90~95% RH), ramps down to 25°C over 0.5 hours, and dwells at 25°C for 5 hours. This cycle repeats for 5 cycles.</p>
Vibration Test	<p>Frequency: 10~55~10Hz Oct/min Amplitude: 1.5mm                      Duration: 2 hours each of 3 perpendicular directions</p>
Drop Test	Drop the speaker contained in normal box onto the surface of 40mm thick board 10 times from the height of 75cm.
Load Test	Must perform normal with program White-Noise source at Rated Power for 96 Hours

After each test let rest for 6 hours in standard room temperature, the part shall be within  $\pm 3\text{dB}$ .

## Packaging

13in reel : 1,500pcs

1 Box = 4 Reels (6,000pcs)



### Specifications Revisions

Revision	Description	Date
A	Datasheet Released from Engineering	10/30/2023

Note:

1. Unless otherwise specified:
  - A. All dimensions are in millimeters.
  - B. Default tolerances are  $\pm 0.5\text{mm}$  and angles are  $\pm 3^\circ$ .
2. Specifications subject to change or withdrawal without notice.