NOVA SENSOR

# NPP-301 Series

## NovaSensor Surface Mount Pressure Sensor

### Features

- Low-cost surface mount package: SO-8
- Wide operating temperature range: -40°F to 257°F (–40°C to 125°C)
- Static accuracy <0.20% FSO maximum
- Suitable for automated component assembly
- Four element Wheatstone bridge configuration for circuit design flexibility
- Solid-state reliability
- 100, 200 and 700 kPa absolute pressure ranges available

### Applications

- Automotive tire pressure
- Pneumatic controls
- Pressure switches and controllers
- Altimeters and barometers
- Cable leak detection
- Consumer appliances
- Portable gauges and manometers

**Amphenol**

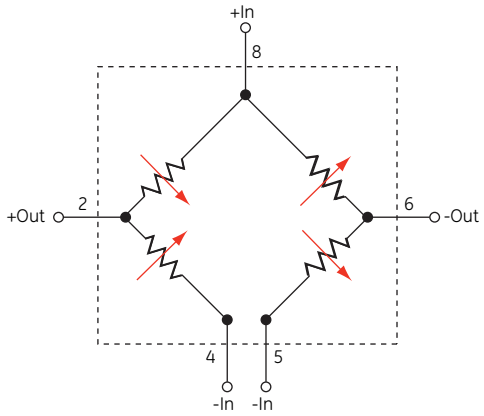
**Advanced Sensors**

# NPP-301 Series Specifications

## Description

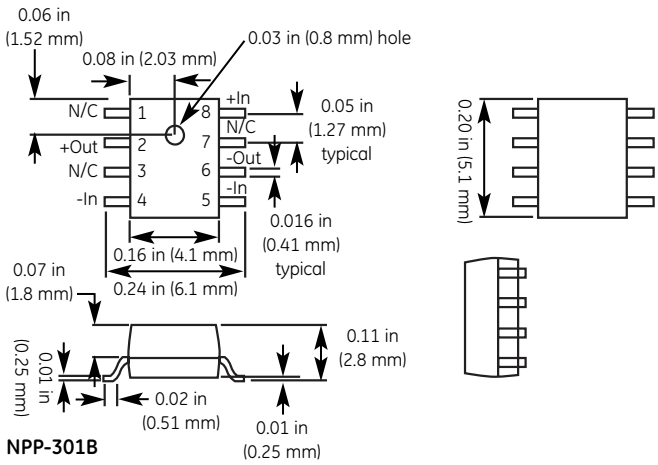
The NPP-301 Series features silicon pressure sensors in surface mount packages. An ultra-small Silicon Fusion Bonded (SFB), ultra-high stability SenStable® piezoresistive chip from NovaSensor is placed in a plastic package that exploits high volume, leadframe package technology to bring forth a low-cost sensor alternative to the OEM user.

The NPP-301 Series produces a voltage output that is linearly proportional to the input pressure. The user can provide NPP Series products with signal conditioning circuitry to amplify the output signal or to maximize OEM value added. The NPP-301 Series is compatible with most non-corrosive gases and dry air.

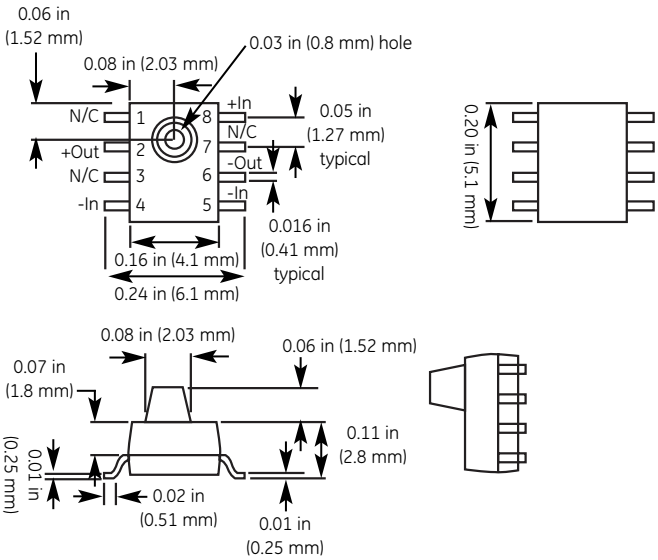



*NPP-301 Series schematic diagram*

**NPP-301A**




**NPP-301B**




*NPP-301 Series package diagram*

# NPP-301 Series Specifications

| Parameter | Value | Units | Notes |
|---|---|---|---|
| **General** | | | |
| Pressure Range | 100 | kPa | ≈15 psi |
| | 200 | kPa | ≈30 psi |
| | 700 | kPa | ≈100 psi |
| Maximum Pressure | 3x | | rated pressure |
| **Electrical @ 77°F (25°C) unless otherwise stated** | | | |
| Excitation | 3.0 | V | 10 VDC maximum |
| Input Impedance | 5,000 ±20% | Ω | |
| Output Impedance | 5,000 ±20% | Ω | |
| **Environmental** | | | |
| Electrostatic Damage (ESD) | Class 1 | | |
| Operating Temperature Range | –40°F to 257°F | | (–40°C to 125°C) |
| **Mechanical** [1] | | | |
| Weight ≈ | 0.0002 | lb | (0.10 g) |
| Media Compatibility | Clean, dry air and non-corrosive gases | | |

| Parameter | Units | Minimum | Type | Maximum | Notes |
|---|---|---|---|---|---|
| **Performance Parameters (Note 2)** | | | | | |
| Offset | mV/V | | ±10 | | |
| Full Scale Output | mV | | 60 ±20 | | |
| Linearity | %FSO | | ±0.20 | | 3 |
| Hysteresis and Repeatability | %FSO | | 0.1 | | |
| Thermal Coefficient of Zero | %FSO/°C | | 0.04 | | 4 |
| Thermal Coefficient of Resistance | %/°C | | 0.3 | | 4 |
| Thermal Coefficient of Sensitivity | %FSO/°C | | –0.2 | | 4 |
| Thermal Hysteresis of Zero | %FSO | | 0.1 | | 5 |
| Long-Term Stability of FSO | %FSO | | 0.2 | | 6 |

*1. Standard IC industry bake operations should be used prior to surface mount operations. Consult NovaSensor for further information.*
*2. Values measured at 3 VDC and 77°F (25°C), unless otherwise noted.*
*3. Best fit straight line.*
*4. Typical coefficients, between 32°F to 158°F (0° to 70°C).*
*5. 32°F to 158°F (0° to 70°C).*
*6. Typical value over one year.*

# Ordering Information

**The code number to be ordered may be specified as follows:**

**NPP**

| Code | Description | Shipping |
|---|---|---|
| 301A-100A | 15 psia (1.03 bar), non-ported | IC tubes |
| 301A-200A | 30 psia (2.06 bar), non-ported | IC tubes |
| 301A-700A | 100 psia (6.89 bar), non-ported | IC tubes |
| 301A-100AT | 15 psia (1.03 bar), non-ported | Tape and reel |
| 301A-200AT | 30 psia (2.06 bar), non-ported | Tape and reel |
| 301A-700AT | 100 psia (6.89 bar), non-ported | Tape and reel |
| 301B-100A | 15 psia (1.03 bar), ported | IC tubes |
| 301B-200A | 30 psia (2.06 bar), ported | IC tubes |
| 301B-700A | 100 psia (6.89 bar), ported | IC tubes |
| 301B-100AT | 15 psia (1.03 bar), ported | Tape and reel |
| 301B-200AT | 30 psia (2.06 bar), ported | Tape and reel |
| 301B-700AT | 100 psia (6.89 bar), ported | Tape and reel |

**NPP -** _____ **Typical model number**

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AAS-920-297B-03/2014

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