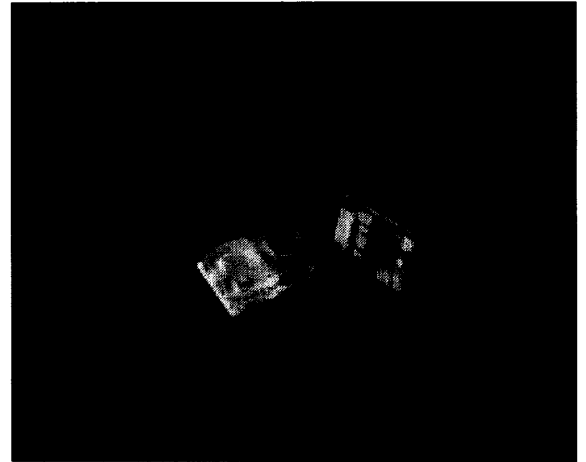


NPC-100 Series *Disposable Medical Pressure Sensor*

NovaSensor's NPC-100 pressure sensor is specifically designed for use in disposable medical applications. The device is compensated and calibrated per the Association for the Advancement of Medical Instrumentation (AAMI) guidelines for industry acceptability. The sensor integrates a high-performance, radiation-tolerant pressure sensor die with temperature compensation circuitry and gel protection in a small, low-cost package.

The NPC-100 is manufactured in a class 1000 clean-room to minimize possible sources of contamination. A specially designed silicon micromachined sensing element is used to meet or exceed all industry requirements while minimizing assembly and test cost for maximum customer value. Thick-film laser-trimming is employed for final compensation and calibration. Sensitivity is maintained to $\pm 1\%$ and linearity is better than 1% in the physiological operating pressure range.

The NPC-100 is batch-manufactured in ceramic-plate form and shipped as an intact array for easy customer automation. This assembly method draws from well-established manufacturing techniques used in the electronics industry in order to produce a quality, high volume product.



FEATURES

- Solid state, high reliability
- Media compatibility
- High performance
- Factory filled with dielectric gel
- Small size
- Fully tested
- Temperature compensated
- Low cost disposable design
- Designed to AAMI specifications

APPLICATIONS

- Medical instrumentation
- Blood pressure measurement
- Infusion pumps
- Kidney dialysis machines

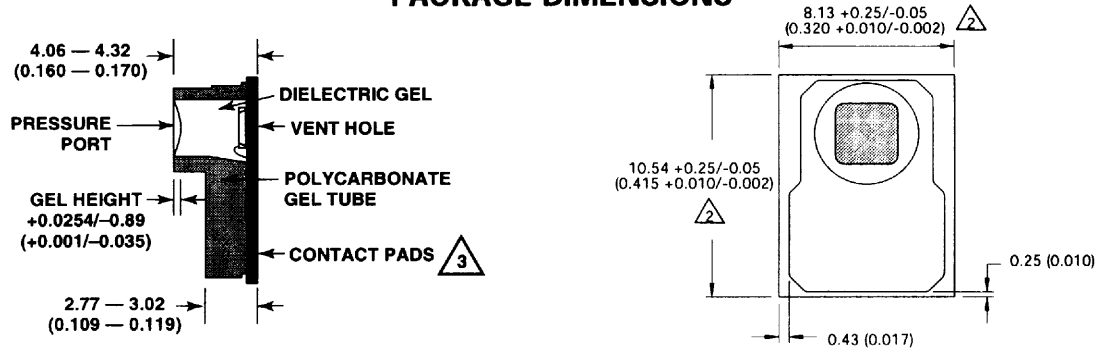
NPC-100 Series Specifications

PARAMETER	VALUE	UNITS	NOTES		
GENERAL					
Pressure Ranges	-30 to 300	mmHg	-0.58 to +5.8 PSI		
Overpressure	125	PSI	Minimum		
ELECTRICAL @ 22°C (72°F) unless otherwise stated					
Input Excitation	1-10	VDC	Calibrated for 6VDC		
Dielectric Breakdown	10,000	VDC			
Risk Current	2	μA	Maximum (per AAMI)		
Input Impedance	1800-3300	Ω			
Output Impedance	285-315	Ω			
ENVIRONMENTAL					
Temperature					
Compensated	+15 to +40	°C	+59 to +104°F		
Operating	+15 to +40	°C	+59 to +104°F		
Storage	-25 to +70	°C	-13 to +158°F		
Humidity	10-90	%			
Light Sensitivity	1	mmHg	Maximum (per AAMI BP22)		
Operating Product Life	168	hours			
Shelf Life	3	years			
MECHANICAL					
Weight	<2	grams			
Volume Displacement	<0.02	mm ³			
Media Interface	Dielectric Gel				
Gel Tube Interface Material	Polycarbonate				
Performance⁽¹⁾		Compensated			
	Units	Min.	Typ.	Max.	Notes
Offset	mmHg	-25	0	+25	
Sensitivity	μV/V/mmHg	4.95	5	5.05	
Calibration	mmHg	97.5	100	102.5	2
Symmetry	%	-	-	±5	
Linearity (-30 to 100 mmHg)	mmHg	-	-	1	
Linearity (100 to 200 mmHg)	% output	-	-	1	
Linearity (200 to 300 mmHg)	% output	-	-	1.5	
Thermal Coefficient Offset	mmHg/°C	-	-	±0.3	3
Thermal Coefficient Span	%/°C	-	-	±0.1	3
Frequency Response	Hz	1200	-	-	
Phase Shift	degrees	-	-	5	
Offset Drift	mmHg/8hrs	-	-	1	4

- Notes:**
1. Assumes 6 VDC and 22°C and after five second warm up unless otherwise specified.
 2. Output of sensor with no pressure applied and a 150kΩ resistor shorted across +VIN to +OUT.
 3. Over a temperature range of +15 to +40°C.
 4. Normalized offset/bridge voltage — 8 hours.

Dimensions and Shipping

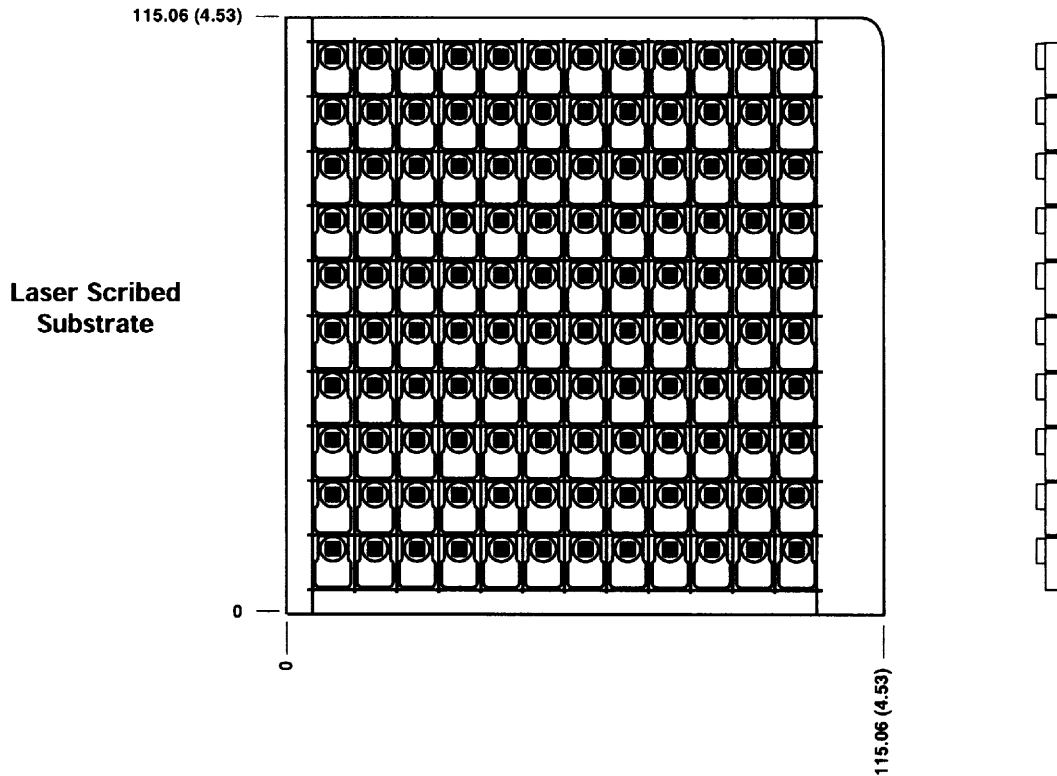
PACKAGE DIMENSIONS



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerances reflect typical flaring during the singulation process.

SHIPPING CONFIGURATION

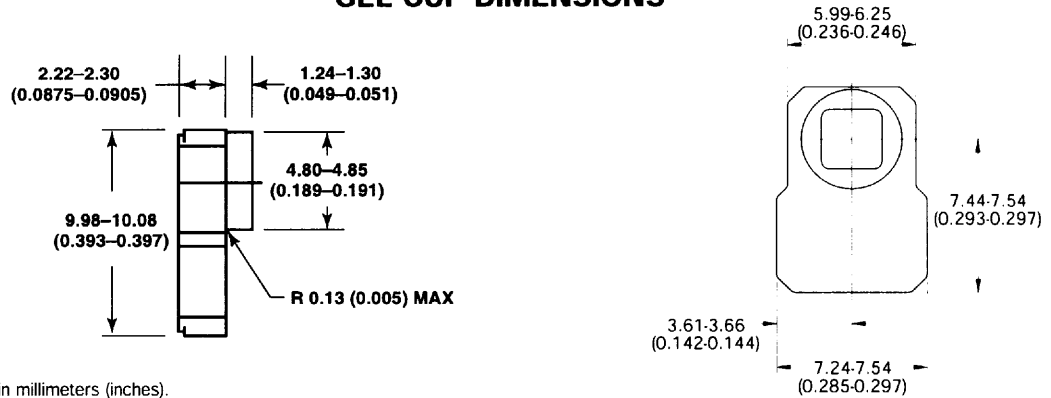


Notes:

1. All dimensions are in millimeters (inches).
2. Sensors are shipped as 120 UP snapstrates and must be singulated by the purchaser.
3. Each plate may include units that have failed visual or electrical parameters as well as good units. Bad units are identified with a dot on the backside of the cell location.
4. Plates are shipped in dust free anti-static containers to prevent contamination of the gel surface.

Schematics and Ordering Information

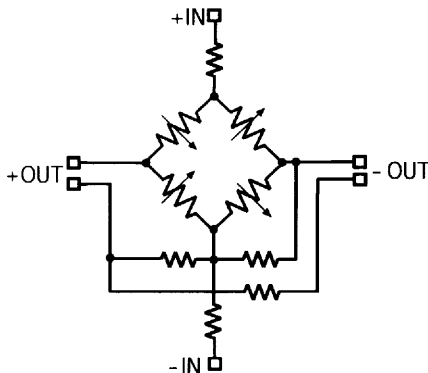
GEL CUP DIMENSIONS



Notes:

1. All dimensions are in millimeters (inches).
2. Material is clear Polycarbonate.

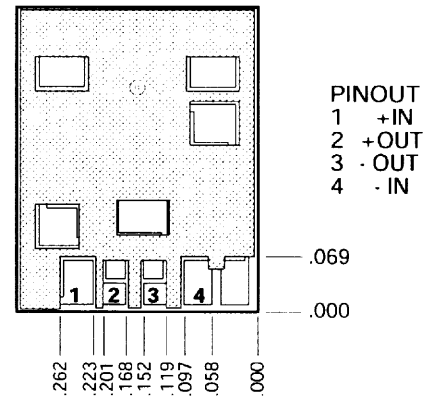
SCHEMATIC DIAGRAM



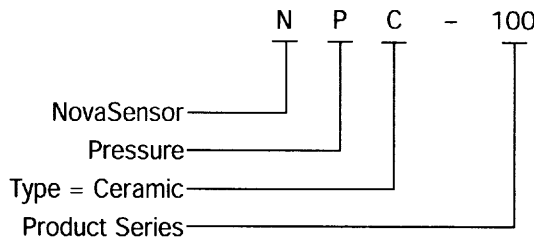
Notes:

1. Dimensions show in inches.
2. Tolerance on electrical pad location is $\pm 0.25\text{mm}$ (± 0.010 in.).
3. Contact pads are suitable for soldering.
4. Split pads IN +OUT and -OUT must be short for proper sensor operation.
5. All dimensions assume a nominal D1 inch distance between edge of pads to the ceramic edge, this distance will vary slightly from part to part.

ELECTRICAL INTERFACE



HOW TO ORDER



Note: Sensors are sold in 120 UP snapstrates.

Sales Terms:

NovaSensor standard sales terms apply. Prices and specifications are subject to change without notice.

Warranty:

NovaSensor warrants its products against defects in material and workmanship for 12 months from date of shipment. Products not subjected to misuse will be repaired or replaced. THE FOREGOING IS IN LIEU OF ANY OTHER EXPRESSED OR IMPLIED WARRANTIES. NovaSensor reserves the right to make changes to any product herein and assumes no liability arising out of the application or use of any product or circuit described or referenced herein.



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SM00039 Rev. A

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