



## 1620

### SPECIFICATIONS

- Disposable Blood Pressure Sensor
- AAMI Specifications
- Low Cost Disposable
- Dielectric Gel Barrier
- Fully Tested & Calibrated

### FEATURES

- Low Cost, Medical Applications
- Small Size and Reliable Performance
- Gel Isolation for Liquids
- Operates from 5°C to 40°C
- Compatible for Automated Assembly
- 1% Accuracy for Replacements
- 5.0  $\mu\text{V}/\text{V}/\text{mmHg}$  Sensitivity
- Customization for OEM Applications

### APPLICATIONS

- Surgical Procedures
- Intensive Care Units
- Infusion Pumps
- Kidney Dialysis Machines
- Vacuum Assisted Birth
- Intrauterine Monitoring

The 1620 is a fully piezo resistive silicon pressure sensor for use in invasive blood pressure monitoring. The sensor is designed to be used with automated assembly equipment and can be dropped directly into a customer's disposable blood pressure housing. The sensor is designed to meet the requirements as described in the Association for the Advancement of Medical Instrumentation (AAMI) specification for Blood Pressure Transducers.

The pressure sensor consists of a pressure sensing element mounted on a ceramic substrate. Thick film resistors on the ceramic substrate are laser trimmed for compensation and calibration. A plastic cap is attached to the ceramic substrate to provide an easy method of attachment to the customer's assembly and protection for the sensing element. A dielectric gel is placed over the sensor to provide electrical and fluid isolation.

The products are shipped on a tape and reel. Performance characteristics and packaging can be easily tailored on a special order basis to meet the requirements of specific customers.

### STANDARD RANGES

| Range      | mmHg |
|------------|------|
| -50 to 300 | •    |

## PERFORMANCE SPECIFICATIONS

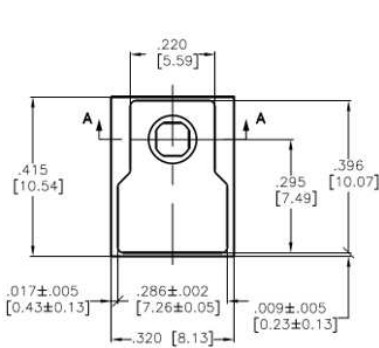
Unless otherwise specified: Supply Voltage: 6.0 V<sub>DC</sub>, Ambient Temperature: 23°C

| PARAMETERS                                     | MIN                                    | TYP  | MAX   | UNITS                                  | NOTES |
|--|--|------|-------|--|-------|
| Operating Pressure Range                       | -50                                    |      | 300   | mmHg                                   |       |
| Over Pressure                                  | 125                                    |      |       | psi                                    |       |
| Zero Pressure Offset                           | -20                                    |      | 20    | mmHg                                   |       |
| Sensitivity                                    | 4.95                                   | 5.00 | 5.05  | μV/V/mmHg                              |       |
| Calibration                                    | 97.5                                   | 100  | 102.5 | mmHg                                   | 1     |
| Linearity and Hysteresis (-30 to 100 mmHg)     | -1                                     |      | 1     | mmHg                                   | 2     |
| Linearity and Hysteresis (100 to 200 mmHg)     | -1                                     |      | 1     | % Output                               | 2     |
| Linearity and Hysteresis (200 to 300 mmHg)     | -1.5                                   |      | 1.5   | % Output                               | 2     |
| Input Impedance                                |  |      |       |  |       |
| 1620-H   | 1200                                   |      | 3200  | Ω                                      |       |
| 1620-J   | 1200                                   |      | 3200  | Ω                                      |       |
| 1620-K   | 325                                    |      | 375   | Ω                                      |       |
| Output Impedance                               | 285                                    |      | 315   | Ω                                      |       |
| Output Symmetry                                | 0.95                                   |      | 1.05  | Ratio                                  | 3     |
| Supply Voltage                                 | 2                                      | 6    | 10    | V <sub>DC</sub> or V <sub>AC</sub> rms |       |
| Risk Current (@ 120 V <sub>AC</sub> rms, 60Hz) |  |      | 2     | μA                                     |       |
| Warm-Up Time                                   |  | 5    |       | Seconds                                |       |
| Frequency Response                             |  | 1200 |       | Hz                                     |       |
| Offset Drift                                   |  |      | 1     | mmHg                                   | 4     |
| Thermal Span Shift                             | -0.1                                   |      | 0.1   | %/°C                                   | 5     |
| Thermal Offset Shift                           | -0.3                                   |      | 0.3   | mmHg/°C                                | 5     |
| Phase Shift (@ 5KHz)                           |  |      | 5     | Degrees                                |       |
| Light Sensitivity (3000 Foot Candle)           |  | 1    |       | mmHg                                   |       |
| Defibrillator withstand (400 joules)           | 5                                      |      |       | Discharges                             | 6     |
| Sterilization (ETO)                            | 3                                      |      |       | Cycles                                 | 7     |
| Operating Temperature                          | 5                                      |      | 40    | °C                                     |       |
| Storage Temperature                            | -25                                    |      | +70   | °C                                     |       |
| Humidity (External)                            | 10-90% (non-condensing)                |      |       |  |       |
| Operating Product Life                         | 168 Hours                              |      |       |  |       |
| Shelf Life                                     | 5 Years                                |      |       |  |       |
| Dielectric Breakdown                           | 10000V <sub>DC</sub>                   |      |       |  |       |
| Media Interface                                | Dielectric Gel                         |      |       |  |       |
| Volume Displacement                            | 4.5 x 10 <sup>-4</sup> mm <sup>3</sup> |      |       |  |       |
| Weight   | 0.5 grams                              |      |       |  |       |

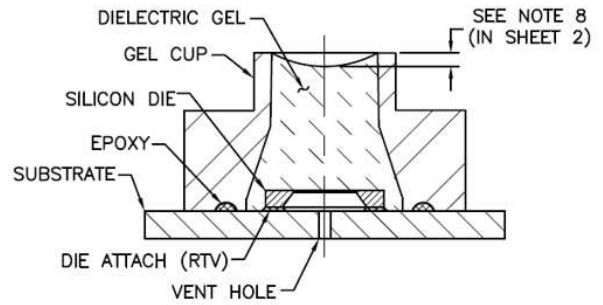
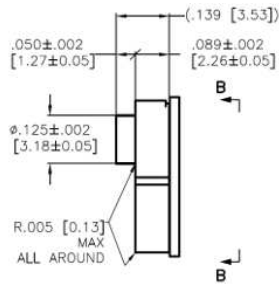
## Notes

- Output of sensor with no pressure applied and a 150kΩ resistor placed across +SUPPLY to +OUTPUT.
- Best fit straight line.
- Defined as common mode symmetry between any output and supply terminal.
- Over an 8 hour time period after a 10 second warm-up.
- Over operating temperature range 5°C–40°C with respect to 23°C.
- One discharge per minute performed by customer.
- Sterilization performed by customer, compatible with ETO, GAMMA, or E-Beam sterilization.
- After curing, meniscus of gel shall be flush to .035" [.89mm] below surface
- This model is not suitable for surface mount operation.

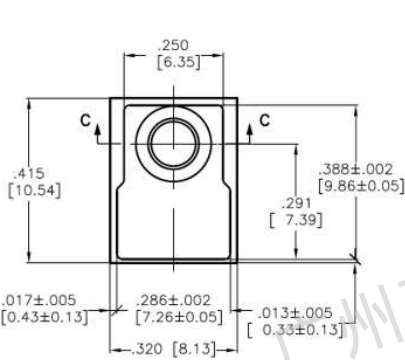
DIMENSIONS



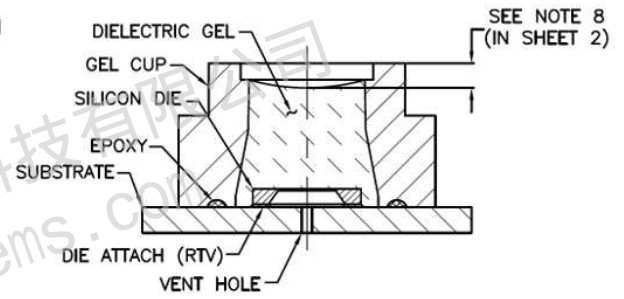
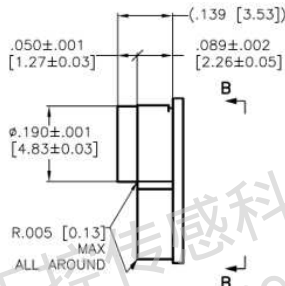
MODEL: 1620-p-N-T



SECTION A-A



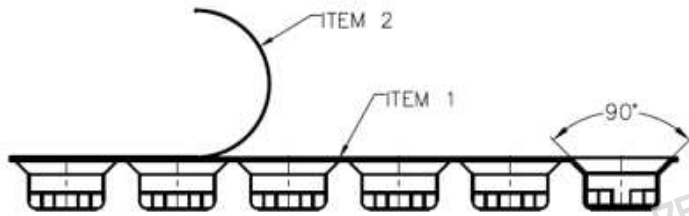
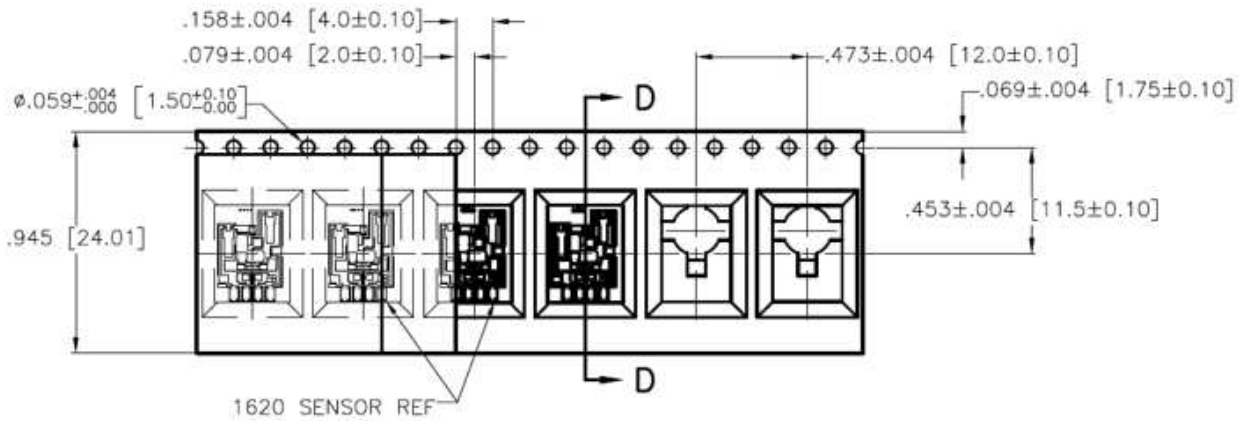
MODEL: 1620-p-W-T



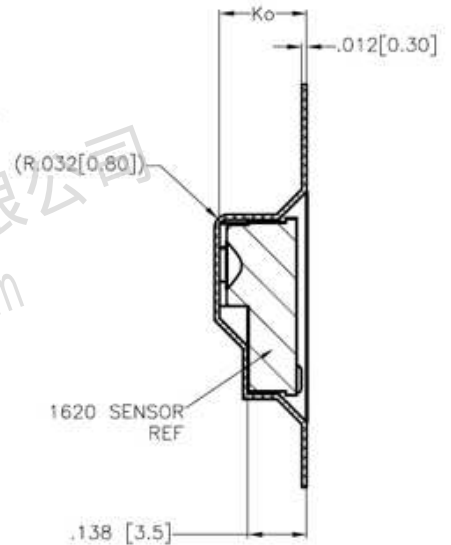
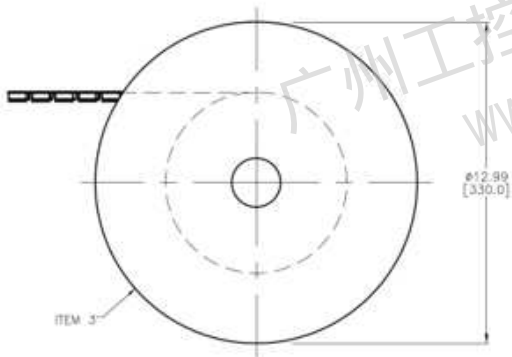
SECTION C-C

\*Dimensions indicated do not include flares.

SHIPPING INFORMATION



REEL SPECIFICATIONS  
1/8 SCALE



SECTION D-D

TAPE AND REEL INFO

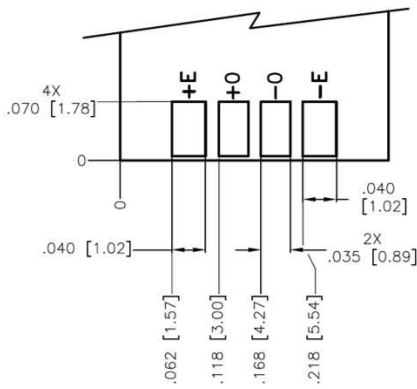
A) MATERIAL:

- ITEM 1, CARRIER TAPE: POLYCARBONATE
- ITEM 2, COVER TAPE: POLYCARBONATE, HEAT PRESSURE SEAL
- ITEM 3, PACKAGING TRAY: PLASTIC

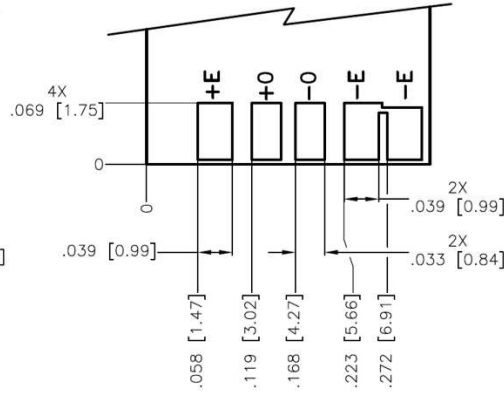
B). TOTAL PEEL STRENGTH SHOULD BE 10 TO 130 GRAMS.

C). REFERENCE DOC: ANSI/EIA-481-C: 8mm THROUGH 200mm EMBOSSED CARRIER TAPING, 8mm AND 12mm PUNCHED CARRIER TAPING OF SURFACE MOUNT COMPONENTS FOR AUTOMATIC HANDLING.

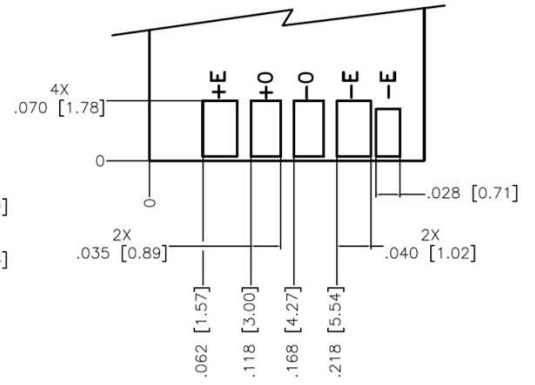
STANDARD PAD CONFIGURATIONS



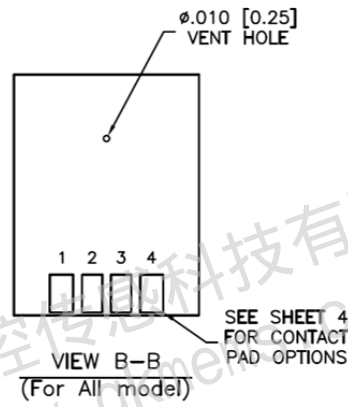
PAD TYPE 'H'



PAD TYPE 'J'

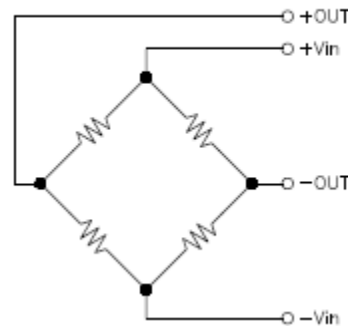


PAD TYPE 'K'

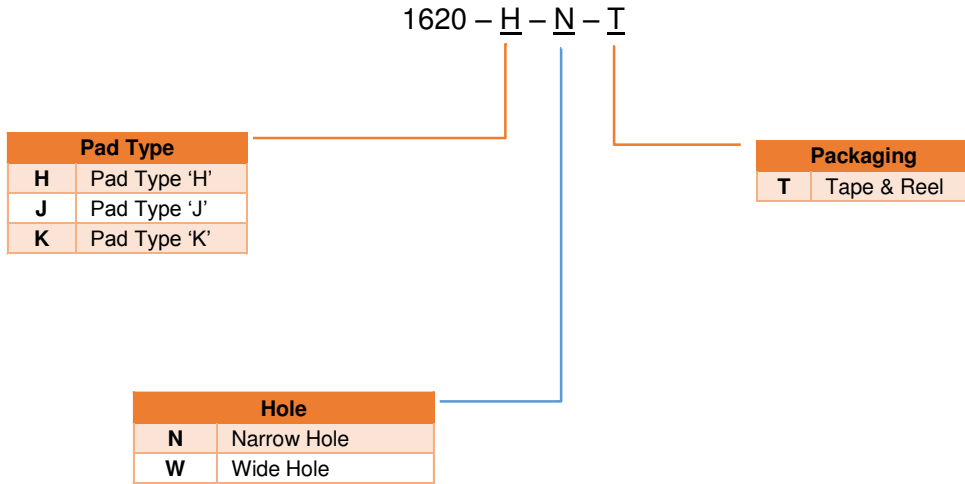


CONNECTIONS

EQUIVALENT CIRCUIT



## ORDERING INFORMATION



广州工控传感科技有限公司  
www.gkmems.com

广州工控传感科技有限公司

电话：400-822-6658

邮箱：gzgk@foxmail.com

网址：www.gkmems.com

地址：广州市天河区珠江西路15号16层