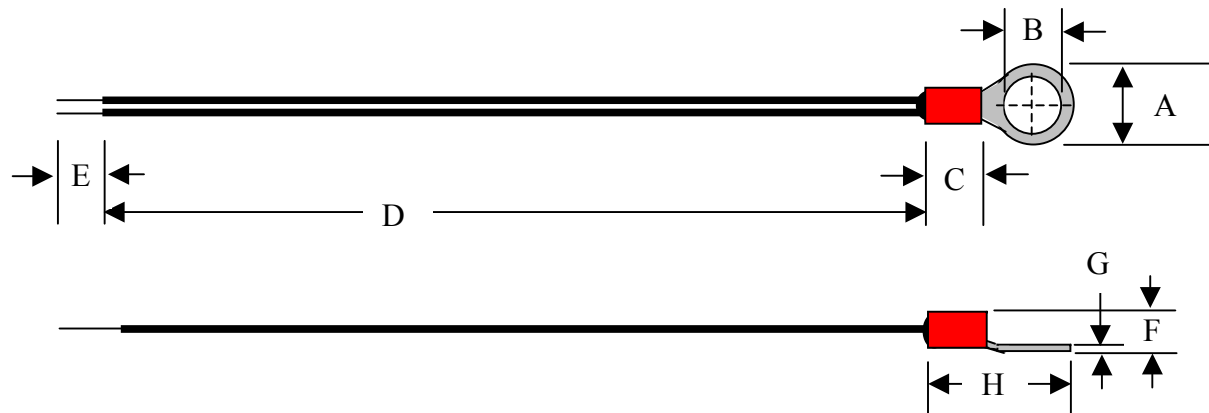


## Part Number: PANR 103395-617



### Electrical Specifications

|                                       |                  |
|---------------------------------------|------------------|
| Resistance @ 25° C                    | 10 kΩ ±2%        |
| Temperature Coefficient of Resistance | -4.40% / °C      |
| Operating Temperature Range           | -50 °C to 180 °C |
| Dissipation Constant                  | 8 mW / °C        |
| Thermal Time Constant                 | 10 seconds       |
| Dielectric Withstanding Voltage       | 4000 VAC         |
| Material Constant (Beta)              | 3950 °K ±1%      |
| ROHS Compliant                        | Yes              |
| MSL (moisture sensitivity level)      | 1                |

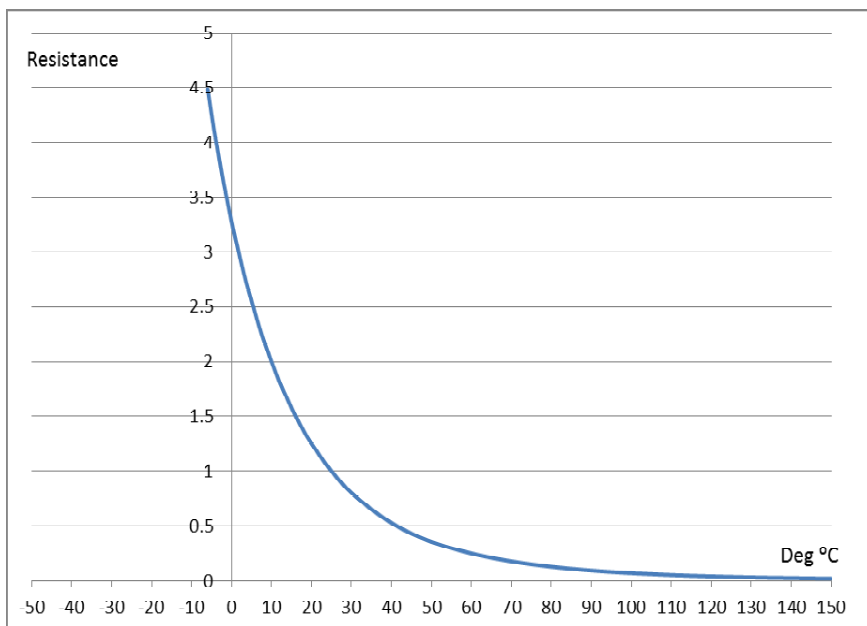
### Mechanical Specifications

|                 |                                  |
|-----------------|----------------------------------|
| A               | 22.2 mm Nom                      |
| B               | 13.08 mm ±0.13mm                 |
| C               | 19.4 mm Nom                      |
| D               | 1,000 mm ± 50mm                  |
| E               | ** 6.0 mm Nom                    |
| F               | 9.0mm Nom                        |
| G               | 1.0 mm Nom                       |
| H               | 46.0 mm nom                      |
| Lead Wire Gauge | 18 AWG stranded Teflon Insulated |
| Ring Lug        | ½" Stud Insulated                |

**\*\* NOTE: DO NOT TIN LEAD WIRES**

|      |         |         |
|------|---------|---------|
| Rev: | Date:   | Change: |
| 0    | 1/20/20 | Issue   |
|      |         |         |
|      |         |         |

|                    |                |                                                                                                                                |
|--------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------|
| DRAWN BY: C. Terry |                | <br><b>Circuit Protection Thermistors</b> |
| DATE: 1/20/20      | REV: 0         |                                                                                                                                |
| ORIG. C. Terry     | APPR: M. Samii | NTC THERMISTOR PROBE                                                                                                           |
| SHEET 1 of 2       |                | PANR 103395-617                                                                                                                |



| Deg C | R <sub>T</sub> /R <sub>25</sub> | Deg C | R <sub>T</sub> /R <sub>25</sub> | Deg C | R <sub>T</sub> /R <sub>25</sub> | Deg C | R <sub>T</sub> /R <sub>25</sub> | Deg C | R <sub>T</sub> /R <sub>25</sub> | Deg C | R <sub>T</sub> /R <sub>25</sub> |
|-------|---------------------------------|-------|---------------------------------|-------|---------------------------------|-------|---------------------------------|-------|---------------------------------|-------|---------------------------------|
| -50   | 66.9745                         | -15   | 7.3476                          | 20    | 1.2515                          | 55    | 0.2948                          | 90    | 0.0924                          | 125   | 0.0353                          |
| -49   | 62.3986                         | -14   | 6.9470                          | 21    | 1.1960                          | 56    | 0.2844                          | 91    | 0.0897                          | 126   | 0.0344                          |
| -48   | 58.1649                         | -13   | 6.5704                          | 22    | 1.1432                          | 57    | 0.2743                          | 92    | 0.0870                          | 127   | 0.0336                          |
| -47   | 54.2458                         | -12   | 6.2164                          | 23    | 1.0931                          | 58    | 0.2646                          | 93    | 0.0845                          | 128   | 0.0328                          |
| -46   | 50.6159                         | -11   | 5.8834                          | 24    | 1.0454                          | 59    | 0.2554                          | 94    | 0.0820                          | 129   | 0.0320                          |
| -45   | 47.2520                         | -10   | 5.5700                          | 25    | 1.0000                          | 60    | 0.2465                          | 95    | 0.0796                          | 130   | 0.0312                          |
| -44   | 44.1331                         | -9    | 5.2751                          | 26    | 0.9568                          | 61    | 0.2379                          | 96    | 0.0773                          | 131   | 0.0304                          |
| -43   | 41.2398                         | -8    | 4.9975                          | 27    | 0.9157                          | 62    | 0.2297                          | 97    | 0.0751                          | 132   | 0.0297                          |
| -42   | 38.5544                         | -7    | 4.7359                          | 28    | 0.8766                          | 63    | 0.2219                          | 98    | 0.0729                          | 133   | 0.0290                          |
| -41   | 36.0608                         | -6    | 4.4895                          | 29    | 0.8393                          | 64    | 0.2143                          | 99    | 0.0708                          | 134   | 0.0283                          |
| -40   | 33.7440                         | -5    | 4.2572                          | 30    | 0.8038                          | 65    | 0.2070                          | 100   | 0.0688                          | 135   | 0.0277                          |
| -39   | 31.5905                         | -4    | 4.0382                          | 31    | 0.7700                          | 66    | 0.2001                          | 101   | 0.0669                          | 136   | 0.0270                          |
| -38   | 29.5877                         | -3    | 3.8317                          | 32    | 0.7378                          | 67    | 0.1933                          | 102   | 0.0650                          | 137   | 0.0264                          |
| -37   | 27.7243                         | -2    | 3.6368                          | 33    | 0.7071                          | 68    | 0.1869                          | 103   | 0.0632                          | 138   | 0.0258                          |
| -36   | 25.9897                         | -1    | 3.4529                          | 34    | 0.6778                          | 69    | 0.1807                          | 104   | 0.0615                          | 139   | 0.0252                          |
| -35   | 24.3743                         | 0     | 3.2791                          | 35    | 0.6498                          | 70    | 0.1747                          | 105   | 0.0598                          | 140   | 0.0246                          |
| -34   | 22.8691                         | 1     | 3.1165                          | 36    | 0.6232                          | 71    | 0.1690                          | 106   | 0.0581                          | 141   | 0.0240                          |
| -33   | 21.4660                         | 2     | 2.9628                          | 37    | 0.5978                          | 72    | 0.1634                          | 107   | 0.0566                          | 142   | 0.0235                          |
| -32   | 20.1574                         | 3     | 2.8176                          | 38    | 0.5735                          | 73    | 0.1581                          | 108   | 0.0550                          | 143   | 0.0230                          |
| -31   | 18.9365                         | 4     | 2.6802                          | 39    | 0.5503                          | 74    | 0.1530                          | 109   | 0.0535                          | 144   | 0.0224                          |
| -30   | 17.7969                         | 5     | 2.5504                          | 40    | 0.5282                          | 75    | 0.1481                          | 110   | 0.0521                          | 145   | 0.0219                          |
| -29   | 16.7327                         | 6     | 2.4275                          | 41    | 0.5071                          | 76    | 0.1433                          | 111   | 0.0507                          | 146   | 0.0215                          |
| -28   | 15.7384                         | 7     | 2.3111                          | 42    | 0.4869                          | 77    | 0.1388                          | 112   | 0.0494                          | 147   | 0.0210                          |
| -27   | 14.8091                         | 8     | 2.2010                          | 43    | 0.4677                          | 78    | 0.1344                          | 113   | 0.0481                          | 148   | 0.0205                          |
| -26   | 13.9402                         | 9     | 2.0968                          | 44    | 0.4492                          | 79    | 0.1301                          | 114   | 0.0468                          | 149   | 0.0201                          |
| -25   | 13.1273                         | 10    | 1.9980                          | 45    | 0.4316                          | 80    | 0.1261                          | 115   | 0.0456                          | 150   | 0.0196                          |
| -24   | 12.3666                         | 11    | 1.9044                          | 46    | 0.4148                          | 81    | 0.1221                          | 116   | 0.0444                          |       |                                 |
| -23   | 11.6544                         | 12    | 1.8157                          | 47    | 0.3987                          | 82    | 0.1183                          | 117   | 0.0433                          |       |                                 |
| -22   | 10.9874                         | 13    | 1.7315                          | 48    | 0.3833                          | 83    | 0.1147                          | 118   | 0.0422                          |       |                                 |
| -21   | 10.3624                         | 14    | 1.6518                          | 49    | 0.3686                          | 84    | 0.1111                          | 119   | 0.0411                          |       |                                 |
| -20   | 9.7765                          | 15    | 1.5761                          | 50    | 0.3545                          | 85    | 0.1077                          | 120   | 0.0400                          |       |                                 |
| -19   | 9.2271                          | 16    | 1.5043                          | 51    | 0.3415                          | 86    | 0.1045                          | 121   | 0.0390                          |       |                                 |
| -18   | 8.7118                          | 17    | 1.4361                          | 52    | 0.3291                          | 87    | 0.1013                          | 122   | 0.0381                          |       |                                 |
| -17   | 8.2281                          | 18    | 1.3714                          | 53    | 0.3172                          | 88    | 0.0982                          | 123   | 0.0371                          |       |                                 |
| -16   | 7.7741                          | 19    | 1.3099                          | 54    | 0.3058                          | 89    | 0.0953                          | 124   | 0.0362                          |       |                                 |

Temperature Vs Resistance Curve

The general equation for measurement to reduce error in Temperature by using Stein Hart & Hart equation.

$$T = 1 / a + b (\ln R_T / R_{25}) + c b (\ln R_T / R_{25})^2 + d (\ln R_T / R_{25})^3$$

| R <sub>T</sub> / R <sub>25</sub> Range | a            | b             | c               | d              |
|----------------------------------------|--------------|---------------|-----------------|----------------|
| 3.279 - 66.97                          | 3.357296E-03 | 2.508334E-04  | 4.189372 E-06   | -6.240867E-08  |
| 0.3507-3.363                           | 3.354016E-03 | 2.541522 E-04 | 3.730922 E-06   | -7.881561E-08  |
| 0.0637-0.3507                          | 3.361395E-03 | 2.582266 E-04 | 5.885012 E-07   | -2.823586 E-08 |
| 0.0169-0.0637                          | 3.351295E-03 | 2.500181 E-04 | -1.7255607 E-07 | -4.356943 E-08 |

This equation is for Beta 3950 °K

R @0°C/ R@50°C = 9.20

R@25°C / R @125°C = 28.30

|                    |                |                                                                                                                                |
|--------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------|
| DRAWN BY: C. Terry |                | <br><b>Circuit Protection Thermistors</b> |
| DATE: 1/20/20      | REV: 0         |                                                                                                                                |
| ORIG. C. Terry     | APPR: M. Samii | NTC THERMISTOR PROBE                                                                                                           |
| SHEET 2 of 2       |                | PANR 103395-617                                                                                                                |