



## NTC THERMISTOR R-T CHARACTERISTICS

|      |              |
|------|--------------|
| TYPE | GR15-7A103F* |
|------|--------------|

|         |         |         |
|---------|---------|---------|
| T0 (°C) | T1 (°C) | T2 (°C) |
| 25      | 25      | 50      |

|               |         |                 |       |                 |       |
|---------------|---------|-----------------|-------|-----------------|-------|
| R at T0°C     | 10000 Ω | R+TOLERANCE (%) | 1     | R-TOLERANCE (%) | 1     |
| B (T1°C/T2°C) | 4397 K  | B+TOLERANCE (K) | 43.97 | B-TOLERANCE (K) | 43.97 |

| T (°C) | Rmin (Ω)  | Rnom (Ω)  | Rmax (Ω)  |
|--------|-----------|-----------|-----------|
| 50     | 3.127E+03 | 3.195E+03 | 3.264E+03 |
| 51     | 2.998E+03 | 3.064E+03 | 3.132E+03 |
| 52     | 2.875E+03 | 2.940E+03 | 3.006E+03 |
| 53     | 2.758E+03 | 2.821E+03 | 2.885E+03 |
| 54     | 2.646E+03 | 2.708E+03 | 2.771E+03 |
| 55     | 2.539E+03 | 2.600E+03 | 2.661E+03 |
| 56     | 2.438E+03 | 2.497E+03 | 2.557E+03 |
| 57     | 2.341E+03 | 2.398E+03 | 2.457E+03 |
| 58     | 2.248E+03 | 2.304E+03 | 2.362E+03 |
| 59     | 2.160E+03 | 2.215E+03 | 2.271E+03 |
| 60     | 2.075E+03 | 2.129E+03 | 2.184E+03 |
| 61     | 1.995E+03 | 2.047E+03 | 2.101E+03 |
| 62     | 1.918E+03 | 1.969E+03 | 2.022E+03 |
| 63     | 1.845E+03 | 1.895E+03 | 1.946E+03 |
| 64     | 1.774E+03 | 1.823E+03 | 1.873E+03 |
| 65     | 1.707E+03 | 1.755E+03 | 1.804E+03 |
| 66     | 1.643E+03 | 1.690E+03 | 1.737E+03 |
| 67     | 1.582E+03 | 1.627E+03 | 1.674E+03 |
| 68     | 1.523E+03 | 1.567E+03 | 1.613E+03 |
| 69     | 1.467E+03 | 1.510E+03 | 1.554E+03 |
| 70     | 1.413E+03 | 1.455E+03 | 1.499E+03 |
| 71     | 1.362E+03 | 1.403E+03 | 1.445E+03 |
| 72     | 1.312E+03 | 1.353E+03 | 1.394E+03 |
| 73     | 1.265E+03 | 1.304E+03 | 1.345E+03 |
| 74     | 1.220E+03 | 1.258E+03 | 1.298E+03 |
| 75     | 1.177E+03 | 1.214E+03 | 1.252E+03 |
| 76     | 1.135E+03 | 1.172E+03 | 1.209E+03 |
| 77     | 1.095E+03 | 1.131E+03 | 1.168E+03 |
| 78     | 1.057E+03 | 1.092E+03 | 1.128E+03 |
| 79     | 1.021E+03 | 1.054E+03 | 1.089E+03 |
| 80     | 9.854E+02 | 1.018E+03 | 1.053E+03 |
| 81     | 9.517E+02 | 9.840E+02 | 1.017E+03 |
| 82     | 9.193E+02 | 9.508E+02 | 9.833E+02 |
| 83     | 8.882E+02 | 9.190E+02 | 9.507E+02 |
| 84     | 8.583E+02 | 8.884E+02 | 9.194E+02 |
| 85     | 8.296E+02 | 8.590E+02 | 8.893E+02 |
| 86     | 8.021E+02 | 8.307E+02 | 8.603E+02 |
| 87     | 7.756E+02 | 8.035E+02 | 8.324E+02 |
| 88     | 7.501E+02 | 7.774E+02 | 8.057E+02 |
| 89     | 7.256E+02 | 7.523E+02 | 7.799E+02 |
| 90     | 7.021E+02 | 7.281E+02 | 7.551E+02 |
| 91     | 6.794E+02 | 7.049E+02 | 7.312E+02 |
| 92     | 6.576E+02 | 6.825E+02 | 7.082E+02 |
| 93     | 6.367E+02 | 6.610E+02 | 6.861E+02 |
| 94     | 6.165E+02 | 6.402E+02 | 6.648E+02 |
| 95     | 5.971E+02 | 6.203E+02 | 6.443E+02 |
| 96     | 5.784E+02 | 6.010E+02 | 6.245E+02 |
| 97     | 5.604E+02 | 5.825E+02 | 6.055E+02 |
| 98     | 5.430E+02 | 5.647E+02 | 5.871E+02 |
| 99     | 5.263E+02 | 5.474E+02 | 5.694E+02 |
| 100    | 5.102E+02 | 5.309E+02 | 5.523E+02 |

| T (°C) | Rmin (Ω)  | Rnom (Ω)  | Rmax (Ω)  |
|--------|-----------|-----------|-----------|
| 100    | 5.102E+02 | 5.309E+02 | 5.523E+02 |
| 101    | 4.947E+02 | 5.149E+02 | 5.358E+02 |
| 102    | 4.797E+02 | 4.995E+02 | 5.200E+02 |
| 103    | 4.653E+02 | 4.846E+02 | 5.046E+02 |
| 104    | 4.514E+02 | 4.702E+02 | 4.899E+02 |
| 105    | 4.380E+02 | 4.564E+02 | 4.756E+02 |
| 106    | 4.250E+02 | 4.431E+02 | 4.618E+02 |
| 107    | 4.125E+02 | 4.302E+02 | 4.485E+02 |
| 108    | 4.005E+02 | 4.177E+02 | 4.357E+02 |
| 109    | 3.888E+02 | 4.057E+02 | 4.233E+02 |
| 110    | 3.776E+02 | 3.941E+02 | 4.113E+02 |
| 111    | 3.668E+02 | 3.829E+02 | 3.997E+02 |
| 112    | 3.563E+02 | 3.721E+02 | 3.885E+02 |
| 113    | 3.462E+02 | 3.616E+02 | 3.777E+02 |
| 114    | 3.364E+02 | 3.515E+02 | 3.672E+02 |
| 115    | 3.269E+02 | 3.417E+02 | 3.571E+02 |
| 116    | 3.178E+02 | 3.323E+02 | 3.474E+02 |
| 117    | 3.090E+02 | 3.231E+02 | 3.379E+02 |
| 118    | 3.004E+02 | 3.143E+02 | 3.288E+02 |
| 119    | 2.922E+02 | 3.058E+02 | 3.199E+02 |
| 120    | 2.842E+02 | 2.975E+02 | 3.114E+02 |
| 121    | 2.765E+02 | 2.895E+02 | 3.031E+02 |
| 122    | 2.690E+02 | 2.818E+02 | 2.951E+02 |
| 123    | 2.618E+02 | 2.743E+02 | 2.873E+02 |
| 124    | 2.548E+02 | 2.670E+02 | 2.798E+02 |
| 125    | 2.481E+02 | 2.600E+02 | 2.725E+02 |
| 126    | 2.415E+02 | 2.532E+02 | 2.655E+02 |
| 127    | 2.352E+02 | 2.466E+02 | 2.586E+02 |
| 128    | 2.290E+02 | 2.402E+02 | 2.520E+02 |
| 129    | 2.230E+02 | 2.341E+02 | 2.456E+02 |
| 130    | 2.173E+02 | 2.281E+02 | 2.394E+02 |
| 131    | 2.117E+02 | 2.222E+02 | 2.333E+02 |
| 132    | 2.062E+02 | 2.166E+02 | 2.275E+02 |
| 133    | 2.010E+02 | 2.111E+02 | 2.218E+02 |
| 134    | 1.959E+02 | 2.058E+02 | 2.163E+02 |
| 135    | 1.909E+02 | 2.007E+02 | 2.109E+02 |
| 136    | 1.861E+02 | 1.957E+02 | 2.057E+02 |
| 137    | 1.815E+02 | 1.909E+02 | 2.007E+02 |
| 138    | 1.770E+02 | 1.862E+02 | 1.958E+02 |
| 139    | 1.726E+02 | 1.816E+02 | 1.911E+02 |
| 140    | 1.684E+02 | 1.772E+02 | 1.865E+02 |
| 141    | 1.643E+02 | 1.729E+02 | 1.820E+02 |
| 142    | 1.603E+02 | 1.688E+02 | 1.777E+02 |
| 143    | 1.564E+02 | 1.647E+02 | 1.735E+02 |
| 144    | 1.526E+02 | 1.608E+02 | 1.694E+02 |
| 145    | 1.490E+02 | 1.570E+02 | 1.654E+02 |
| 146    | 1.454E+02 | 1.533E+02 | 1.616E+02 |
| 147    | 1.420E+02 | 1.497E+02 | 1.578E+02 |
| 148    | 1.386E+02 | 1.462E+02 | 1.542E+02 |
| 149    | 1.354E+02 | 1.428E+02 | 1.506E+02 |
| 150    | 1.322E+02 | 1.395E+02 | 1.472E+02 |

## NTC THERMISTOR R-T CHARACTERISTICS

|      |              |
|------|--------------|
| TYPE | GR15-7A103F* |
|------|--------------|

|         |         |         |
|---------|---------|---------|
| T0 (°C) | T1 (°C) | T2 (°C) |
| 25      | 25      | 50      |

|              |         |                 |       |                 |       |
|--------------|---------|-----------------|-------|-----------------|-------|
| R at T0°C    | 10000 Ω | R+TOLERANCE (%) | 1     | R-TOLERANCE (%) | 1     |
| B(T1°C/T2°C) | 4397 K  | B+TOLERANCE (K) | 43.97 | B-TOLERANCE (K) | 43.97 |

| T (°C) | Rmin (Ω)  | Rnom (Ω)  | Rmax (Ω)  |
|--------|-----------|-----------|-----------|
| 150    | 1.322E+02 | 1.395E+02 | 1.472E+02 |
| 151    | 1.291E+02 | 1.363E+02 | 1.438E+02 |
| 152    | 1.261E+02 | 1.332E+02 | 1.405E+02 |
| 153    | 1.232E+02 | 1.301E+02 | 1.374E+02 |
| 154    | 1.204E+02 | 1.272E+02 | 1.343E+02 |
| 155    | 1.177E+02 | 1.243E+02 | 1.313E+02 |
| 156    | 1.150E+02 | 1.215E+02 | 1.284E+02 |
| 157    | 1.124E+02 | 1.188E+02 | 1.255E+02 |
| 158    | 1.099E+02 | 1.161E+02 | 1.228E+02 |
| 159    | 1.074E+02 | 1.136E+02 | 1.201E+02 |
| 160    | 1.050E+02 | 1.111E+02 | 1.175E+02 |
| 161    | 1.027E+02 | 1.086E+02 | 1.149E+02 |
| 162    | 1.004E+02 | 1.063E+02 | 1.124E+02 |
| 163    | 9.823E+01 | 1.040E+02 | 1.100E+02 |
| 164    | 9.608E+01 | 1.017E+02 | 1.077E+02 |
| 165    | 9.400E+01 | 9.953E+01 | 1.054E+02 |
| 166    | 9.197E+01 | 9.740E+01 | 1.031E+02 |
| 167    | 8.999E+01 | 9.533E+01 | 1.010E+02 |
| 168    | 8.807E+01 | 9.331E+01 | 9.886E+01 |
| 169    | 8.620E+01 | 9.135E+01 | 9.680E+01 |
| 170    | 8.437E+01 | 8.944E+01 | 9.480E+01 |
| 171    | 8.259E+01 | 8.757E+01 | 9.284E+01 |
| 172    | 8.086E+01 | 8.576E+01 | 9.094E+01 |
| 173    | 7.918E+01 | 8.399E+01 | 8.908E+01 |
| 174    | 7.753E+01 | 8.226E+01 | 8.727E+01 |
| 175    | 7.593E+01 | 8.058E+01 | 8.550E+01 |
| 176    | 7.437E+01 | 7.894E+01 | 8.378E+01 |
| 177    | 7.285E+01 | 7.734E+01 | 8.211E+01 |
| 178    | 7.137E+01 | 7.579E+01 | 8.047E+01 |
| 179    | 6.992E+01 | 7.427E+01 | 7.887E+01 |
| 180    | 6.851E+01 | 7.279E+01 | 7.732E+01 |
| 181    | 6.714E+01 | 7.134E+01 | 7.580E+01 |
| 182    | 6.580E+01 | 6.993E+01 | 7.432E+01 |
| 183    | 6.449E+01 | 6.856E+01 | 7.287E+01 |
| 184    | 6.322E+01 | 6.722E+01 | 7.146E+01 |
| 185    | 6.197E+01 | 6.591E+01 | 7.009E+01 |
| 186    | 6.076E+01 | 6.463E+01 | 6.874E+01 |
| 187    | 5.958E+01 | 6.339E+01 | 6.743E+01 |
| 188    | 5.842E+01 | 6.217E+01 | 6.615E+01 |
| 189    | 5.730E+01 | 6.098E+01 | 6.490E+01 |
| 190    | 5.620E+01 | 5.983E+01 | 6.368E+01 |
| 191    | 5.513E+01 | 5.870E+01 | 6.250E+01 |
| 192    | 5.408E+01 | 5.760E+01 | 6.133E+01 |
| 193    | 5.306E+01 | 5.652E+01 | 6.020E+01 |
| 194    | 5.206E+01 | 5.547E+01 | 5.909E+01 |
| 195    | 5.108E+01 | 5.444E+01 | 5.801E+01 |
| 196    | 5.013E+01 | 5.343E+01 | 5.695E+01 |
| 197    | 4.920E+01 | 5.245E+01 | 5.591E+01 |
| 198    | 4.829E+01 | 5.149E+01 | 5.490E+01 |
| 199    | 4.740E+01 | 5.055E+01 | 5.391E+01 |
| 200    | 4.653E+01 | 4.963E+01 | 5.294E+01 |

| T (°C) | Rmin (Ω)  | Rnom (Ω)  | Rmax (Ω)  |
|--------|-----------|-----------|-----------|
| 200    | 4.653E+01 | 4.963E+01 | 5.294E+01 |
| 201    | 4.567E+01 | 4.873E+01 | 5.199E+01 |
| 202    | 4.484E+01 | 4.785E+01 | 5.106E+01 |
| 203    | 4.402E+01 | 4.699E+01 | 5.015E+01 |
| 204    | 4.323E+01 | 4.615E+01 | 4.926E+01 |
| 205    | 4.245E+01 | 4.533E+01 | 4.839E+01 |
| 206    | 4.169E+01 | 4.452E+01 | 4.754E+01 |
| 207    | 4.095E+01 | 4.374E+01 | 4.671E+01 |
| 208    | 4.022E+01 | 4.297E+01 | 4.590E+01 |
| 209    | 3.951E+01 | 4.222E+01 | 4.511E+01 |
| 210    | 3.881E+01 | 4.148E+01 | 4.433E+01 |
| 211    | 3.813E+01 | 4.076E+01 | 4.357E+01 |
| 212    | 3.747E+01 | 4.006E+01 | 4.283E+01 |
| 213    | 3.682E+01 | 3.937E+01 | 4.210E+01 |
| 214    | 3.618E+01 | 3.870E+01 | 4.139E+01 |
| 215    | 3.556E+01 | 3.804E+01 | 4.069E+01 |
| 216    | 3.495E+01 | 3.739E+01 | 4.001E+01 |
| 217    | 3.435E+01 | 3.676E+01 | 3.934E+01 |
| 218    | 3.377E+01 | 3.615E+01 | 3.869E+01 |
| 219    | 3.320E+01 | 3.554E+01 | 3.805E+01 |
| 220    | 3.264E+01 | 3.495E+01 | 3.742E+01 |
| 221    | 3.210E+01 | 3.437E+01 | 3.681E+01 |
| 222    | 3.156E+01 | 3.381E+01 | 3.621E+01 |
| 223    | 3.104E+01 | 3.325E+01 | 3.562E+01 |
| 224    | 3.053E+01 | 3.271E+01 | 3.505E+01 |
| 225    | 3.003E+01 | 3.218E+01 | 3.448E+01 |
| 226    | 2.953E+01 | 3.166E+01 | 3.393E+01 |
| 227    | 2.905E+01 | 3.115E+01 | 3.339E+01 |
| 228    | 2.858E+01 | 3.065E+01 | 3.286E+01 |
| 229    | 2.812E+01 | 3.016E+01 | 3.234E+01 |
| 230    | 2.766E+01 | 2.967E+01 | 3.183E+01 |
| 231    | 2.722E+01 | 2.920E+01 | 3.132E+01 |
| 232    | 2.678E+01 | 2.874E+01 | 3.083E+01 |
| 233    | 2.635E+01 | 2.828E+01 | 3.035E+01 |
| 234    | 2.593E+01 | 2.783E+01 | 2.987E+01 |
| 235    | 2.552E+01 | 2.740E+01 | 2.941E+01 |
| 236    | 2.512E+01 | 2.697E+01 | 2.896E+01 |
| 237    | 2.472E+01 | 2.655E+01 | 2.851E+01 |
| 238    | 2.433E+01 | 2.614E+01 | 2.807E+01 |
| 239    | 2.395E+01 | 2.573E+01 | 2.764E+01 |
| 240    | 2.358E+01 | 2.534E+01 | 2.722E+01 |
| 241    | 2.322E+01 | 2.495E+01 | 2.681E+01 |
| 242    | 2.286E+01 | 2.457E+01 | 2.641E+01 |
| 243    | 2.251E+01 | 2.420E+01 | 2.601E+01 |
| 244    | 2.217E+01 | 2.383E+01 | 2.562E+01 |
| 245    | 2.183E+01 | 2.347E+01 | 2.524E+01 |
| 246    | 2.150E+01 | 2.312E+01 | 2.487E+01 |
| 247    | 2.117E+01 | 2.278E+01 | 2.450E+01 |
| 248    | 2.086E+01 | 2.244E+01 | 2.414E+01 |
| 249    | 2.054E+01 | 2.211E+01 | 2.379E+01 |
| 250    | 2.024E+01 | 2.178E+01 | 2.344E+01 |

