

TEWA TERMICO LTD.
A PART OF TEWA ELECTRONICS GROUP

HIGH PRECISION NTC THERMISTORS AND TEMPERATURE SENSORS

SPECIFICATION
Of
NTC CHIP THERMISTOR

PART NUMBER: **TT3-10KC3-BZ**

No. of pages: 4

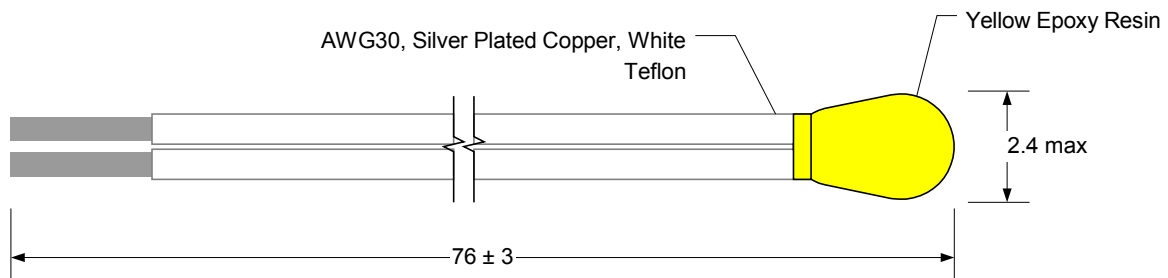
Date: **11.06.2012**

Revision: **00**

FEATURES:

| | |
|---|----------------------|
| No-load resistance at 25°C | 10 000 Ω |
| Temperature Coefficient [alpha] at 25°C | -4.39%/°C |
| Resistance tolerance from 0°C to 70°C | ± 0.2°C |
| Beta(25/85) Constant | 3 977 ± 0.3% |
| Operating temperature range | From - 40°C to 125°C |
| Maximum Exposure Temperature | 150°C |
| Response Time in well stirred liquid bath | ~1s |
| Response Time in still air | ~10s |
| Typical Dissipation Constant in still air | 0.75mW/°C |
| RoHS Compliant | YES |

DRAWING:



Units: [mm]

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R/T CHARACTERISTIC:

| Resistance Tolerance B(25/85) Curve | | | | 10 000 $\pm 0.2^{\circ}\text{C}$ 3977 3 | Ohms at 25°C from 0°C to 70°C $\pm 0.3\%$ | | | |
|--|-----------|-----------|-----------|---|---|----------|----------|--|
| T (oC) | R min | R center | R max | T (oC) | R min | R center | R max | |
| -40 | 324799,59 | 336052,27 | 347304,95 | 0 | 32306,87 | 32650,00 | 32993,13 | |
| -39 | 304235,58 | 314511,87 | 324788,17 | 1 | 30706,44 | 31030,01 | 31353,58 | |
| -38 | 285103,72 | 294487,25 | 303870,78 | 2 | 29194,53 | 29499,73 | 29804,94 | |
| -37 | 267295,83 | 275862,86 | 284429,88 | 3 | 27765,78 | 28053,73 | 28341,68 | |
| -36 | 250712,51 | 258532,62 | 266352,74 | 4 | 26415,17 | 26686,91 | 26958,65 | |
| -35 | 235262,36 | 242399,08 | 249535,81 | 5 | 25138,01 | 25394,52 | 25651,03 | |
| -34 | 220861,32 | 227372,65 | 233883,98 | 6 | 23929,91 | 24172,10 | 24414,29 | |
| -33 | 207432,03 | 213370,94 | 219309,85 | 7 | 22786,78 | 23015,50 | 23244,22 | |
| -32 | 194903,25 | 200318,15 | 205733,04 | 8 | 21704,77 | 21920,83 | 22136,89 | |
| -31 | 183209,37 | 188144,49 | 193079,60 | 9 | 20680,31 | 20884,44 | 21088,58 | |
| -30 | 172289,91 | 176785,69 | 181281,47 | 10 | 19710,01 | 19902,93 | 20095,85 | |
| -29 | 162064,67 | 166182,53 | 170300,39 | 11 | 18790,36 | 18973,11 | 19155,85 | |
| -28 | 152509,61 | 156280,41 | 160051,22 | 12 | 17918,82 | 18091,97 | 18265,12 | |
| -27 | 143576,95 | 147028,98 | 150481,02 | 13 | 17092,62 | 17256,72 | 17420,83 | |
| -26 | 135222,57 | 138381,77 | 141540,96 | 14 | 16309,17 | 16464,73 | 16620,30 | |
| -25 | 127405,73 | 130295,87 | 133186,01 | 15 | 15566,03 | 15713,53 | 15861,04 | |
| -24 | 120088,77 | 122731,67 | 125374,57 | 16 | 14860,92 | 15000,82 | 15140,72 | |
| -23 | 113236,88 | 115652,55 | 118068,23 | 17 | 14191,69 | 14324,41 | 14457,13 | |
| -22 | 106817,83 | 109024,67 | 111231,50 | 18 | 13556,35 | 13682,28 | 13808,21 | |
| -21 | 100801,84 | 102816,71 | 104831,57 | 19 | 12952,98 | 13072,50 | 13192,02 | |
| -20 | 95161,32 | 96999,71 | 98838,10 | 20 | 12379,83 | 12493,29 | 12606,75 | |
| -19 | 89857,41 | 91546,85 | 93236,30 | 21 | 11834,98 | 11942,96 | 12050,93 | |
| -18 | 84881,25 | 86433,31 | 87985,37 | 22 | 11317,13 | 11419,91 | 11522,69 | |
| -17 | 80210,74 | 81636,07 | 83061,40 | 23 | 10824,79 | 10922,65 | 11020,52 | |
| -16 | 75825,39 | 77133,80 | 78442,22 | 24 | 10356,59 | 10449,79 | 10542,99 | |
| -15 | 71706,19 | 72906,73 | 74107,27 | 25 | 9911,22 | 10000,00 | 10088,78 | |
| -14 | 67835,52 | 68936,51 | 70037,50 | 26 | 9487,64 | 9572,04 | 9656,43 | |
| -13 | 64196,98 | 65206,10 | 66215,22 | 27 | 9084,49 | 9164,73 | 9244,98 | |
| -12 | 60775,38 | 61699,71 | 62624,04 | 28 | 8700,67 | 8776,99 | 8853,30 | |
| -11 | 57556,57 | 58402,64 | 59248,71 | 29 | 8335,17 | 8407,76 | 8480,35 | |
| -10 | 54527,41 | 55301,25 | 56075,08 | 30 | 7987,01 | 8056,07 | 8125,14 | |
| -9 | 51668,15 | 52382,84 | 53097,54 | 31 | 7655,13 | 7721,01 | 7786,89 | |
| -8 | 48975,76 | 49635,63 | 50295,51 | 32 | 7338,85 | 7401,70 | 7464,55 | |
| -7 | 46439,57 | 47048,64 | 47657,70 | 33 | 7037,34 | 7097,32 | 7157,30 | |
| -6 | 44049,68 | 44611,64 | 45173,60 | 34 | 6749,85 | 6807,10 | 6864,35 | |
| -5 | 41796,85 | 42315,13 | 42833,42 | 35 | 6475,65 | 6530,31 | 6584,96 | |
| -4 | 39672,46 | 40150,25 | 40628,03 | 36 | 6214,07 | 6266,26 | 6318,45 | |
| -3 | 37668,50 | 38108,73 | 38548,96 | 37 | 5964,46 | 6014,31 | 6064,16 | |
| -2 | 35777,49 | 36182,89 | 36588,29 | 38 | 5726,22 | 5773,84 | 5821,46 | |
| -1 | 33992,45 | 34365,54 | 34738,64 | 39 | 5498,76 | 5544,26 | 5589,77 | |

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| Resistance Tolerance B(25/85) Curve | | | | 10 000 ± 0.2°C 3977 3 | Ohms at 25°C from 0°C to 70°C ±0.3% | | | |
|--|---------|----------|---------|--------------------------------|---|----------|---------|--|
| T (°C) | R min | R center | R max | T (°C) | R min | R center | R max | |
| 40 | 5281,56 | 5325,04 | 5368,53 | 80 | 1245,81 | 1256,07 | 1266,33 | |
| 41 | 5074,09 | 5115,66 | 5157,23 | 81 | 1206,03 | 1216,13 | 1226,24 | |
| 42 | 4875,88 | 4915,62 | 4955,36 | 82 | 1167,71 | 1177,66 | 1187,61 | |
| 43 | 4686,45 | 4724,46 | 4762,46 | 83 | 1130,79 | 1140,59 | 1150,40 | |
| 44 | 4505,40 | 4541,75 | 4578,10 | 84 | 1095,22 | 1104,88 | 1114,53 | |
| 45 | 4332,29 | 4367,06 | 4401,84 | 85 | 1060,95 | 1070,45 | 1079,95 | |
| 46 | 4166,83 | 4200,02 | 4233,21 | 86 | 1027,91 | 1037,26 | 1046,62 | |
| 47 | 4008,56 | 4040,24 | 4071,92 | 87 | 996,06 | 1005,27 | 1014,48 | |
| 48 | 3857,14 | 3887,38 | 3917,63 | 88 | 965,35 | 974,41 | 983,48 | |
| 49 | 3712,23 | 3741,11 | 3769,99 | 89 | 935,73 | 944,66 | 953,58 | |
| 50 | 3573,52 | 3601,10 | 3628,68 | 90 | 907,17 | 915,95 | 924,74 | |
| 51 | 3440,65 | 3467,07 | 3493,48 | 91 | 879,66 | 888,26 | 896,85 | |
| 52 | 3313,42 | 3338,71 | 3364,01 | 92 | 853,13 | 861,53 | 869,94 | |
| 53 | 3191,55 | 3215,78 | 3240,02 | 93 | 827,52 | 835,74 | 843,96 | |
| 54 | 3074,79 | 3098,01 | 3121,24 | 94 | 802,80 | 810,84 | 818,89 | |
| 55 | 2962,91 | 2985,17 | 3007,42 | 95 | 778,94 | 786,81 | 794,68 | |
| 56 | 2855,68 | 2877,01 | 2898,35 | 96 | 755,92 | 763,60 | 771,28 | |
| 57 | 2752,89 | 2773,34 | 2793,79 | 97 | 733,69 | 741,19 | 748,69 | |
| 58 | 2654,32 | 2673,93 | 2693,54 | 98 | 712,21 | 719,54 | 726,87 | |
| 59 | 2559,79 | 2578,59 | 2597,40 | 99 | 691,47 | 698,63 | 705,78 | |
| 60 | 2469,11 | 2487,15 | 2505,18 | 100 | 671,43 | 678,42 | 685,41 | |
| 61 | 2382,11 | 2399,41 | 2416,71 | 101 | 652,03 | 658,89 | 665,75 | |
| 62 | 2298,61 | 2315,22 | 2331,82 | 102 | 633,29 | 640,02 | 646,74 | |
| 63 | 2218,47 | 2234,41 | 2250,34 | 103 | 615,18 | 621,77 | 628,37 | |
| 64 | 2141,53 | 2156,83 | 2172,12 | 104 | 597,66 | 604,14 | 610,61 | |
| 65 | 2067,65 | 2082,33 | 2097,01 | 105 | 580,73 | 587,08 | 593,43 | |
| 66 | 1996,70 | 2010,79 | 2024,88 | 106 | 564,37 | 570,59 | 576,81 | |
| 67 | 1928,53 | 1942,07 | 1955,60 | 107 | 548,55 | 554,64 | 560,73 | |
| 68 | 1863,04 | 1876,04 | 1889,03 | 108 | 533,24 | 539,20 | 545,17 | |
| 69 | 1800,10 | 1812,59 | 1825,07 | 109 | 518,43 | 524,27 | 530,11 | |
| 70 | 1739,61 | 1751,60 | 1763,59 | 110 | 504,10 | 509,82 | 515,55 | |
| 71 | 1681,14 | 1692,97 | 1704,80 | 111 | 490,10 | 495,84 | 501,58 | |
| 72 | 1624,93 | 1636,60 | 1648,27 | 112 | 476,56 | 482,30 | 488,05 | |
| 73 | 1570,87 | 1582,38 | 1593,89 | 113 | 463,45 | 469,20 | 474,96 | |
| 74 | 1518,89 | 1530,23 | 1541,58 | 114 | 450,75 | 456,51 | 462,27 | |
| 75 | 1468,88 | 1480,06 | 1491,25 | 115 | 438,47 | 444,23 | 449,99 | |
| 76 | 1420,79 | 1431,79 | 1442,78 | 116 | 426,57 | 432,33 | 438,09 | |
| 77 | 1374,52 | 1385,32 | 1396,13 | 117 | 415,06 | 420,81 | 426,56 | |
| 78 | 1329,98 | 1340,60 | 1351,22 | 118 | 403,90 | 409,64 | 415,38 | |
| 79 | 1287,10 | 1297,54 | 1307,97 | 119 | 393,09 | 398,82 | 404,55 | |

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|--|--------|----------|--------|--------------------------------|--|----------|--------|--|
| T (°C) | R min | R center | R max | T (°C) | R min | R center | R max | |
| 120 | 382,63 | 388,34 | 394,05 | 136 | 253,20 | 257,82 | 262,45 | |
| 121 | 372,59 | 378,18 | 383,77 | 137 | 246,94 | 251,56 | 256,18 | |
| 122 | 362,87 | 368,33 | 373,80 | 138 | 240,85 | 245,47 | 250,09 | |
| 123 | 353,44 | 358,79 | 364,13 | 139 | 234,95 | 239,56 | 244,17 | |
| 124 | 344,30 | 349,53 | 354,76 | 140 | 229,21 | 233,81 | 238,42 | |
| 125 | 335,44 | 340,55 | 345,67 | 141 | 223,68 | 228,23 | 232,79 | |
| 126 | 326,84 | 331,85 | 336,85 | 142 | 218,30 | 222,81 | 227,32 | |
| 127 | 318,51 | 323,41 | 328,30 | 143 | 213,08 | 217,54 | 222,00 | |
| 128 | 310,42 | 315,22 | 320,01 | 144 | 208,01 | 212,42 | 216,83 | |
| 129 | 302,58 | 307,27 | 311,96 | 145 | 203,07 | 207,44 | 211,80 | |
| 130 | 294,97 | 299,56 | 304,15 | 146 | 198,28 | 202,59 | 206,91 | |
| 131 | 287,47 | 292,08 | 296,68 | 147 | 193,62 | 197,89 | 202,15 | |
| 132 | 280,20 | 284,81 | 289,43 | 148 | 189,08 | 193,31 | 197,53 | |
| 133 | 273,14 | 277,76 | 282,38 | 149 | 184,68 | 188,85 | 193,03 | |
| 134 | 266,30 | 270,92 | 275,54 | 150 | 180,39 | 184,52 | 188,66 | |
| 135 | 259,65 | 264,28 | 268,90 | | | | | |