

Figure 1.1. The physical photo of ATSC10KF1-E2

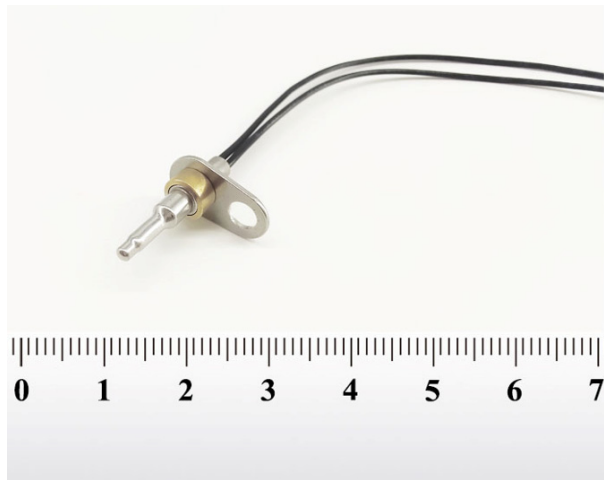


Figure 1.2. The physical photo of ATSC10KF1-E2

MAIN FEATURES

- Glass Encapsulated for Long Term Stability & Reliability
- High Resistance Accuracy: 1%
- Maximum Temp. Range: -40°C to 200°C
- Packaged in Extra Small Metal Shell
- 100 % Lead (Pb)-free and RoHS Compliant

APPLICATION AREAS

- Temperature Sensing
- Temperature Detection
- Transformers
- Electric Motors
- Air Sensors

DESCRIPTIONS

The ATSC10KF1-E2 thermistor assembly is housed by a stainless cap with a brass metal ring. The thermistor inside has glass encapsulation to ensure long time operation, wide temperature range, and no parameter drift of either

short time or long term. Both the cap and the ring are made of metal, making them long time lasting even under harsh environment, such as acid, moisture, etc. The output terminals use a pair of heavy duty PVC insulated wires of 26 AWG. The ends are terminated by a standard 2 pin plug, which can be customized for other types of connectors according to customers need. The length of the wires can also be specified.

SPECIFICATIONS

| Parameters | Value |
|---|--|
| Nominal Resistance @ 25°C | $10\text{K} \pm 1\%$ |
| B Value @ $25^{\circ}\text{C} / 50^{\circ}\text{C}$ | $3950\text{K} \pm 1\%$ |
| B Value @ $25^{\circ}\text{C} / 85^{\circ}\text{C}$ | $3990\text{K} \pm 1\%$ |
| $R@25^{\circ}\text{C} / R@50^{\circ}\text{C}$ | 2.771 |
| $R@25^{\circ}\text{C} / R@85^{\circ}\text{C}$ | 9.271 |
| Metal Head Length | $23 \pm 0.1\text{mm}$ |
| Metal Head Width | $17 \pm 0.1\text{mm}$ |
| Lead Diameter | 1.5mm(26AWG) |
| Lead Length | 150mm(can be customized) |
| Insulation Resistance | $50\text{M}\Omega$ |
| Time Constant | 37.8s (in still air) 1.13s (in water) |

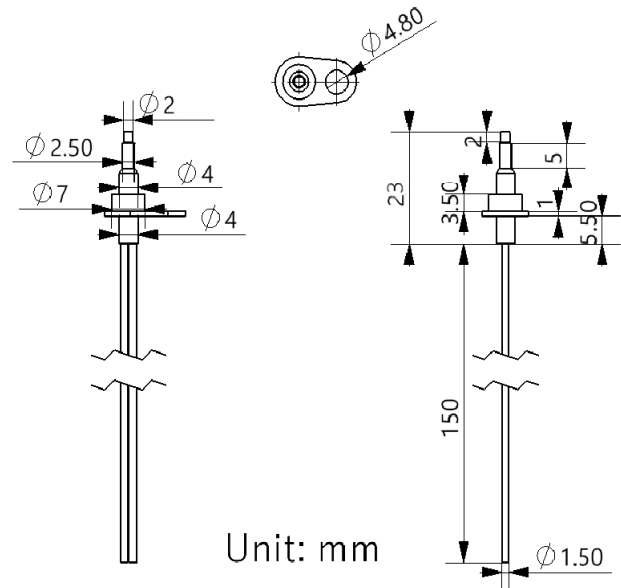


Figure 2. The Front, Top and Side Views of ATSC10KF1-E2

Resistance Temperature Characteristics

| Temp | Resistance | Temp | Resistance | Temp | Resistance | Temp | Resistance | Temp | Resistance |
|------|------------|------|------------|------|------------|------|------------|------|------------|
| °C | KΩ | °C | KΩ | °C | KΩ | °C | KΩ | °C | KΩ |
| -40 | 342.55 | 7 | 23.041 | 54 | 3.1061 | 101 | 0.6639 | 148 | 0.1957 |
| -39 | 320.26 | 8 | 21.935 | 55 | 2.9940 | 102 | 0.6463 | 149 | 0.1912 |
| -38 | 299.57 | 9 | 20.908 | 56 | 2.8858 | 103 | 0.6280 | 150 | 0.1869 |
| -37 | 280.36 | 10 | 19.921 | 57 | 2.7816 | 104 | 0.6102 | 151 | 0.1786 |
| -36 | 262.51 | 11 | 18.984 | 58 | 2.6834 | 105 | 0.5932 | 152 | 0.1745 |
| -35 | 245.92 | 12 | 18.100 | 59 | 2.5871 | 106 | 0.5766 | 153 | 0.1706 |
| -34 | 230.49 | 13 | 17.264 | 60 | 2.4969 | 107 | 0.5605 | 154 | 0.1667 |
| -33 | 216.13 | 14 | 16.471 | 61 | 2.4086 | 108 | 0.5449 | 155 | 0.1629 |
| -32 | 202.77 | 15 | 15.717 | 62 | 2.3244 | 109 | 0.5229 | 156 | 0.1593 |
| -31 | 190.31 | 16 | 15.004 | 63 | 2.2441 | 110 | 0.5153 | 157 | 0.1557 |
| -30 | 178.71 | 17 | 14.327 | 64 | 2.1658 | 111 | 0.5013 | 158 | 0.1523 |
| -29 | 167.89 | 18 | 13.683 | 65 | 2.0915 | 112 | 0.4877 | 159 | 0.1489 |
| -28 | 157.80 | 19 | 13.073 | 66 | 2.0202 | 113 | 0.4745 | 160 | 0.1456 |
| -27 | 148.37 | 20 | 12.494 | 67 | 1.9515 | 114 | 0.4617 | 161 | 0.1424 |
| -26 | 139.58 | 21 | 11.943 | 68 | 1.8854 | 115 | 0.4493 | 162 | 0.1393 |
| -25 | 131.36 | 22 | 11.419 | 69 | 1.8219 | 116 | 0.4371 | 163 | 0.1363 |
| -24 | 123.68 | 23 | 10.923 | 70 | 1.7610 | 117 | 0.4256 | 164 | 0.1333 |
| -23 | 116.49 | 24 | 10.449 | 71 | 1.7022 | 118 | 0.4141 | 165 | 0.1304 |
| -22 | 109.78 | 25 | 10.000 | 72 | 1.6457 | 119 | 0.4032 | 166 | 0.1276 |
| -21 | 103.49 | 26 | 9.5730 | 73 | 1.5916 | 120 | 0.3927 | 167 | 0.1249 |
| -20 | 97.597 | 27 | 9.1658 | 74 | 1.5393 | 121 | 0.3823 | 168 | 0.1222 |
| -19 | 92.091 | 28 | 8.7783 | 75 | 1.4891 | 122 | 0.3724 | 169 | 0.1196 |
| -18 | 86.912 | 29 | 8.4085 | 76 | 1.4406 | 123 | 0.3628 | 170 | 0.1171 |
| -17 | 82.063 | 30 | 8.0586 | 77 | 1.3941 | 124 | 0.3535 | 171 | 0.1146 |
| -16 | 77.525 | 31 | 7.7224 | 78 | 1.3494 | 125 | 0.3445 | 172 | 0.1122 |
| -15 | 73.259 | 32 | 7.4041 | 79 | 1.3063 | 126 | 0.3356 | 173 | 0.1099 |
| -14 | 69.245 | 33 | 7.0995 | 80 | 1.2648 | 127 | 0.3271 | 174 | 0.1076 |
| -13 | 65.485 | 34 | 6.8109 | 81 | 1.2246 | 128 | 0.3189 | 175 | 0.1054 |
| -12 | 61.958 | 35 | 6.5341 | 82 | 1.1861 | 129 | 0.3109 | 176 | 0.1032 |
| -11 | 58.626 | 36 | 6.2711 | 83 | 1.1488 | 130 | 0.3031 | 177 | 0.1011 |
| -10 | 55.508 | 37 | 6.0180 | 84 | 1.1131 | 131 | 0.2955 | 178 | 0.0990 |
| -9 | 530.5 | 38 | 5.7788 | 85 | 1.0786 | 132 | 0.2882 | 179 | 0.0970 |
| -8 | 502.4 | 39 | 5.5496 | 86 | 1.0453 | 133 | 0.2811 | 180 | 0.0950 |
| -7 | 476.2 | 40 | 5.3302 | 87 | 1.0132 | 134 | 0.2742 | 181 | 0.0931 |
| -6 | 451.3 | 41 | 5.1207 | 88 | 0.9823 | 135 | 0.2675 | 182 | 0.0912 |
| -5 | 428.0 | 42 | 4.9211 | 89 | 0.9524 | 136 | 0.2609 | 183 | 0.0894 |
| -4 | 405.8 | 43 | 4.7315 | 90 | 0.9236 | 137 | 0.2546 | 184 | 0.0876 |
| -3 | 385.1 | 44 | 4.5478 | 91 | 0.8957 | 138 | 0.2484 | 185 | 0.0859 |
| -2 | 36.281 | 45 | 4.3740 | 92 | 0.8690 | 139 | 0.2425 | 186 | 0.0842 |
| -1 | 34.407 | 46 | 4.2082 | 93 | 0.8431 | 140 | 0.2367 | 187 | 0.0825 |
| 0 | 32.738 | 47 | 4.0484 | 94 | 0.8181 | 141 | 0.2311 | 188 | 0.0809 |
| 1 | 31.104 | 48 | 3.8944 | 95 | 0.7938 | 142 | 0.2256 | 189 | 0.0793 |
| 2 | 29.568 | 49 | 3.7485 | 96 | 0.7705 | 143 | 0.2203 | 190 | 0.0778 |
| 3 | 28.109 | 50 | 3.6085 | 97 | 0.7481 | 144 | 0.2151 | 191 | 0.0763 |
| 4 | 26.729 | 51 | 3.4764 | 98 | 0.7262 | 145 | 0.2100 | 192 | 0.0748 |
| 5 | 25.428 | 52 | 3.3464 | 99 | 0.7051 | 146 | 0.2052 | 193 | 0.0733 |
| 6 | 24.205 | 53 | 3.2243 | 100 | 0.6825 | 147 | 0.2004 | 194 | 0.0719 |



| Temp | Resistance | Temp | Resistance | Temp | Resistance | Temp | Resistance | Temp | Resistance |
|------|------------|------|------------|------|------------|------|------------|------|------------|
| °C | KΩ | °C | KΩ | °C | KΩ | °C | KΩ | °C | KΩ |
| 195 | 0.0706 | 211 | 0.0524 | 226 | 0.0402 | 241 | 0.0314 | 256 | 0.0248 |
| 196 | 0.0692 | 212 | 0.0514 | 227 | 0.0396 | 242 | 0.0309 | 257 | 0.0244 |
| 197 | 0.0679 | 213 | 0.0505 | 228 | 0.0389 | 243 | 0.0304 | 258 | 0.0241 |
| 198 | 0.0666 | 214 | 0.0496 | 229 | 0.0382 | 244 | 0.0299 | 259 | 0.0237 |
| 199 | 0.0654 | 215 | 0.0487 | 230 | 0.0376 | 245 | 0.0294 | 260 | 0.0234 |
| 200 | 0.0641 | 216 | 0.0479 | 231 | 0.0370 | 246 | 0.0290 | 261 | 0.0230 |
| 201 | 0.0630 | 217 | 0.0470 | 232 | 0.0364 | 247 | 0.0285 | 262 | 0.0227 |
| 202 | 0.0618 | 218 | 0.0462 | 233 | 0.0358 | 248 | 0.0280 | 263 | 0.0223 |
| 203 | 0.0606 | 219 | 0.0454 | 234 | 0.0352 | 249 | 0.0276 | 264 | 0.0220 |
| 204 | 0.0595 | 220 | 0.0446 | 235 | 0.0346 | 250 | 0.0272 | 265 | 0.0217 |
| 205 | 0.0584 | 221 | 0.0439 | 236 | 0.0340 | 251 | 0.0268 | 266 | 0.0214 |
| 206 | 0.0574 | 222 | 0.0431 | 237 | 0.0335 | 252 | 0.0264 | 267 | 0.0210 |
| 207 | 0.0563 | 223 | 0.0424 | 238 | 0.0329 | 253 | 0.0260 | 268 | 0.0207 |
| 208 | 0.0553 | 224 | 0.0416 | 239 | 0.0324 | 254 | 0.0256 | 269 | 0.0204 |
| 209 | 0.0543 | 225 | 0.0409 | 240 | 0.0319 | 255 | 0.0252 | 270 | 0.0201 |
| 210 | 0.0533 | | | | | | | | |

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