

Figure 1.1. The physical photo of ATH10KL2A

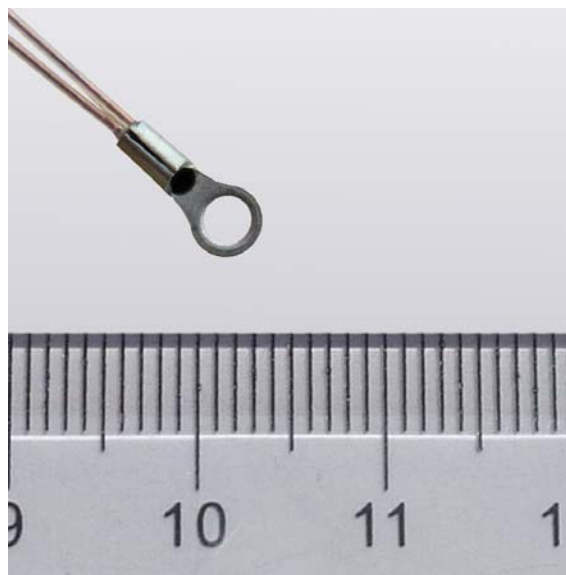


Figure 1.2. The physical photo of ATH10KL2AT63S

MAIN FEATURES

Glass Encapsulated for Long Term Stability & Reliability

High Stability: $<0.1^{\circ}\text{C}/\text{Y}$

High Resistance Accuracy: 1%

Wide Temp. Range: -55°C to 250°C

Packaged in Extra Small Ring Lug

100 % Lead (Pb)-free and RoHS Compliant

APPLICATIONS

Temperature sensing for laser diodes, optical components, etc.

DESCRIPTION

The ATH10KL2A is a thermistor assembly with a glass encapsulated thermistor packaged in an extra compact ring

lug. The ATH10KL2A series thermistor consists of three versions, ATH10KL2A, ATH10KL2AT63 and ATH10KL2AT63S. The ATH10KL2A has bare leads coated with copper, the ATH10KL2AT63S has the leads covered by high temperature plastic tubing and sealed by epoxy, while the ATH10KL2AT63 is the non-sealed version. Comparing with conventional assemblies containing epoxy encapsulated thermistors, ATH10KL2A presents higher long term stability, higher reliability and wider temperature range. In addition, it has a small size and short response time.

The ATH10KL2A series thermistor can be used to measure the temperatures of laser diodes, optical components, etc., with high accuracy and long term stability.

There are some differences among ATH10KL2A, ATH10KL2B and ATH10KL2C. First, the ring sizes of them are different. Second, the thermistor head in ATH10KL2A is the same as ATH10KR8, while the heads in ATH10KL2B and ATH10KL2C are the same as ATH10K1R25. Last, the resistance temperature characteristics in ATH10KL2B and ATH10KL2C are the same, different from ATH10KL2A.

SPECIFICATIONS

| Parameters | Value |
|--|---|
| Nominal Resistance @ 25°C | $10\text{K} \pm 1\%$ |
| B Value @ $25^{\circ}\text{C} / 85^{\circ}\text{C}$ | $3480\text{K} \pm 1\%$ |
| B Value @ $0^{\circ}\text{C} / 100^{\circ}\text{C}$ | $3450\text{K} \pm 1\%$ |
| B Value @ $25^{\circ}\text{C} / 100^{\circ}\text{C}$ | $3497\text{K} \pm 1\%$ |
| Ring Lug Length | $8.1 \pm 0.1\text{mm}$ |
| Ring Lug Width | $3.6 \pm 0.1\text{mm}$ |
| Lead Diameter | 0.15mm |
| Lead Length | $63 \pm 3\text{mm}$ |
| Time Constant | 28.7s (in still air) 0.9s (in water) |

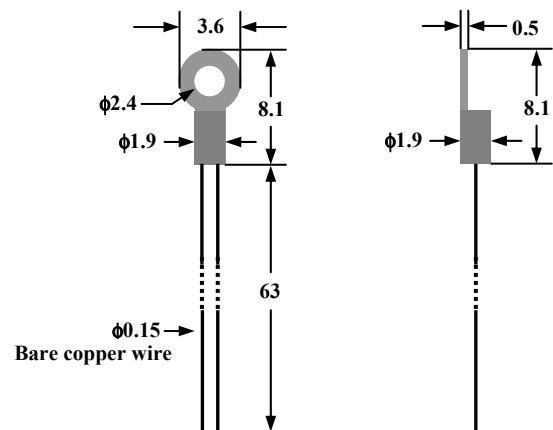


Figure 2. The Front and Side Views of ATH10KL2A



APPLICATION

Use #2 imperial or M2.5 metric screw to mount the thermistor assembly onto a smooth metal surface of the object for which the temperature needs to be measured.

The thermistor lead wires are made of plain copper, make sure that they do not touch each other, nor any other electrically conductive objects.

For high precision applications, use a cover which is made of thermal isolation material to cover the thermistor area, see Figure 3. In this way, the air flow will not affect the temperature sensing accuracy.

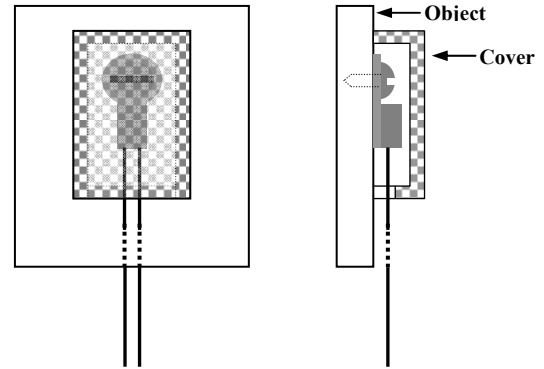


Figure 3. Using an Insulation Cover to Improve Accuracy

Resistance Temperature Characteristics

| T [°C] | R_nom [Ω] | R_min [Ω] | R_max [Ω] | ΔR/R _N [±%] |
|-----------|--------------|-------------|--------------|------------------------|
| -55 | 519911 | 491950 | 547873 | 5,4 |
| -50 | 379894 | 360878 | 398909 | 5,0 |
| -45 | 280697 | 267644 | 293750 | 4,7 |
| -40 | 209603 | 200566 | 218639 | 4,3 |
| -35 | 158088 | 151784 | 164393 | 4,0 |
| -30 | 120372 | 115944 | 124800 | 3,7 |
| -25 | 92484 | 89355 | 95612 | 3,4 |
| -20 | 71668 | 69447 | 73889 | 3,1 |
| -15 | 55993 | 54410 | 57576 | 2,8 |
| -10 | 44087 | 42955 | 45218 | 2,6 |
| -5 | 34971 | 34161 | 35780 | 2,3 |
| 0 | 27936 | 27356 | 28516 | 2,1 |
| 5 | 22468 | 22054 | 22882 | 1,8 |
| 10 | 18187 | 17892 | 18482 | 1,6 |
| 15 | 14813 | 14605 | 15021 | 1,4 |
| 20 | 12136 | 11991 | 12282 | 1,2 |
| 25 | 10000 | 9900 | 10100 | 1,0 |
| 30 | 8284 | 8186 | 8383 | 1,2 |
| 35 | 6899 | 6804 | 6994 | 1,4 |
| 40 | 5774 | 5684 | 5864 | 1,6 |
| 45 | 4856 | 4772 | 4940 | 1,7 |
| 50 | 4103 | 4024 | 4181 | 1,9 |
| 55 | 3482 | 3409 | 3554 | 2,1 |
| 60 | 2967 | 2901 | 3034 | 2,2 |
| 65 | 2539 | 2479 | 2600 | 2,4 |
| 70 | 2182 | 2126 | 2237 | 2,5 |
| 75 | 1882 | 1831 | 1932 | 2,7 |
| 80 | 1629 | 1583 | 1675 | 2,8 |
| 85 | 1415 | 1373 | 1457 | 3,0 |
| 90 | 1234 | 1195 | 1272 | 3,1 |
| 95 | 1079 | 1044 | 1114 | 3,2 |
| 100 | 946,6 | 914,6 | 978,6 | 3,4 |
| 105 | 833,1 | 803,9 | 862,3 | 3,5 |
| 110 | 735,5 | 708,8 | 762,1 | 3,6 |
| 115 | 651,1 | 626,7 | 675,5 | 3,7 |
| 120 | 578,1 | 555,8 | 600,4 | 3,9 |

| T [°C] | R_nom [Ω] | R_min [Ω] | R_max [Ω] | ΔR/R _N [±%] |
|--------|-----------|-----------|-----------|------------------------|
| 125 | 514,6 | 494,2 | 535,1 | 4,0 |
| 130 | 459,4 | 440,6 | 478,1 | 4,1 |
| 135 | 411,1 | 393,8 | 428,3 | 4,2 |
| 140 | 368,8 | 352,9 | 384,6 | 4,3 |
| 145 | 331,6 | 317,0 | 346,2 | 4,4 |
| 150 | 298,9 | 285,4 | 312,3 | 4,5 |
| 155 | 270,0 | 257,5 | 282,4 | 4,6 |
| 160 | 244,4 | 232,9 | 255,9 | 4,7 |
| 165 | 221,7 | 211,1 | 232,4 | 4,8 |
| 170 | 201,6 | 191,7 | 211,5 | 4,9 |
| 175 | 183,6 | 174,5 | 192,8 | 5,0 |
| 180 | 167,6 | 159,1 | 176,1 | 5,1 |
| 185 | 153,3 | 145,4 | 161,2 | 5,2 |
| 190 | 140,4 | 133,1 | 147,8 | 5,3 |
| 195 | 128,9 | 122,0 | 135,8 | 5,3 |
| 200 | 118,5 | 112,1 | 124,9 | 5,4 |
| 205 | 109,1 | 103,1 | 115,1 | 5,5 |
| 210 | 100,7 | 95,05 | 106,3 | 5,6 |
| 215 | 93,01 | 87,76 | 98,27 | 5,7 |
| 220 | 86,08 | 81,14 | 91,01 | 5,7 |
| 225 | 79,78 | 75,15 | 84,41 | 5,8 |
| 230 | 74,05 | 69,70 | 78,40 | 5,9 |
| 235 | 68,83 | 64,74 | 72,93 | 5,9 |
| 240 | 64,08 | 60,22 | 67,93 | 6,0 |
| 245 | 59,73 | 56,09 | 63,36 | 6,1 |
| 250 | 55,75 | 52,32 | 59,18 | 6,2 |



ORDERING INFORMATION

| Quantity | 1 - 9 | 10 - 49 | 50 - 199 | 200 - 499 | ≥ 500 |
|---------------|--------|---------|----------|-----------|--------|
| ATH10KL2A | \$3.80 | \$3.60 | \$3.40 | \$3.20 | \$2.99 |
| ATH10KL2AT63 | \$3.95 | \$3.75 | \$3.55 | \$3.35 | \$3.15 |
| ATH10KL2AT63S | \$4.05 | \$3.85 | \$3.65 | \$3.45 | \$3.25 |

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