High Stability Thermistor Assembly

ATH100KL2A

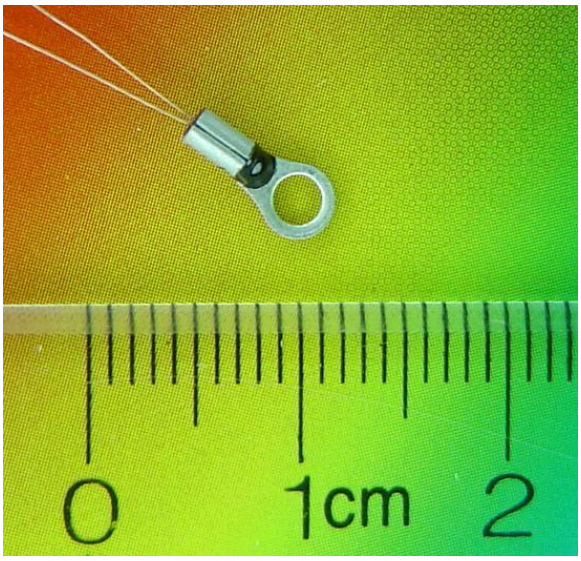

Figure 1.1. The physical photo of ATH100KL2A

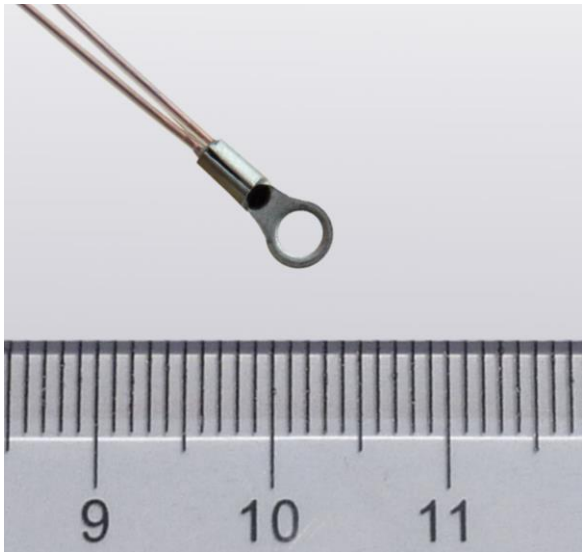

Figure 1.2. The physical photo of ATH100KL2AT63S

MAIN FEATURES

Glass Encapsulated for Long Term Stability & Reliability

High Stability: <0.1°C/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 ATH100KL2A is a thermistor assembly with a glass encapsulated thermistor packaged in an extra compact ring lug. The ATH100KL2A series thermistor consists of three versions, ATH100KL2A, ATH100KL2AT63 and ATH100KL2AT63S. The ATH100KL2A has bear leads coated with copper, the ATH100KL2AT63S has the leads covered by high temperature plastic tubing and sealed by epoxy, while the ATH100KL2AT63 is the non-sealed version. Comparing with conventional assemblies containing epoxy encapsulated thermistors, ATH100KL2A series thermistor presents higher long term stability, higher reliability and wider temperature range. In addition, it has a small size and short response time.

The ATH100KL2A 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 ATH100KL2**A**, ATH100KL2**B** and ATH100KL2**C**. First, the ring sizes of them are different. Second, the thermistor head in ATH100KL2**A** is the same as ATH100KR8, while the heads in ATH100KL2**B** and ATH100KL2**C** are the same as ATH100K1R25. Last, the resistance temperature characteristics in ATH100KL2**B** and ATH100KL2**C** are the same, different from ATH100KL2**A**.

SPECIFICATIONS

Parameters	Value
Nominal Resistance @ 25°C	100K ± 1%
B Value @ 25°C /85°C	4066K ± 1%
B Value @ 0°C /100°C	4036K ± 1%
B Value @ 25°C /100°C	4085K ± 1%
Ring Lug Length	8.1 ± 0.1mm
Ring Lug Width	3.6 ± 0.1mm
Ring Hole Diameter	2.4 ± 0.1mm
Lead Diameter	0.15mm
Lead Length	60 ± 3mm
Time Constant	28.7s (in still air) 0.9s (in water)

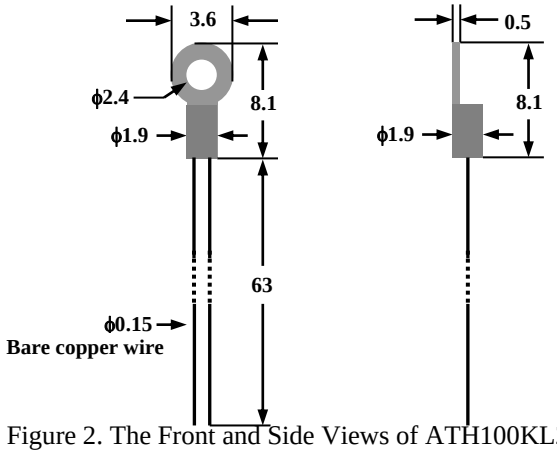

Figure 2. The Front and Side Views of ATH100KL2A

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, or 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.

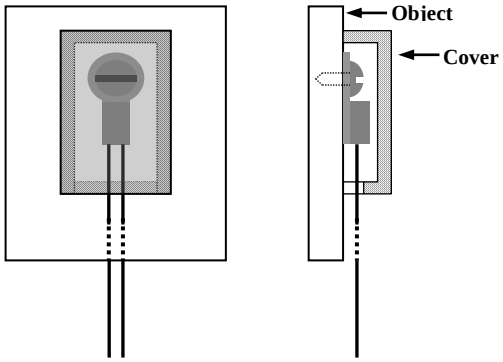

Figure 3. Using an Insulation Cover to Improve Accuracy

Resistance Temperature Characteristics

T[°C]	R nom[Ω]	R min[Ω]	R max[Ω]	ΔR/R[±%]	ΔT[±%]	a[%/K]
-55	9877500	9271000	10484000	6.1	0.8	7.4
-50	6864800	6473400	7256200	5.7	0.8	7.1
-45	4833700	4578300	5089000	5.3	0.8	6.9
-40	3445800	3277400	3614100	4.9	0.7	6.7
-35	2485200	2373300	2597100	4.5	0.7	6.4
-30	1812400	1737300	1887400	4.1	0.7	6.2
-25	1335600	1285000	1386300	3.8	0.6	6.0
-20	994130	959740	1028500	3.5	0.6	5.8
-15	747000	723540	770460	3.1	0.6	5.6
-10	566390	550330	582440	2.8	0.5	5.4
-5	433140	422130	444150	2.5	0.5	5.3
0	333960	326420	341510	2.3	0.4	5.2
5	258500	253360	263640	2.0	0.4	5.0
10	201660	198180	205140	1.7	0.4	4.9
15	158500	156160	160840	1.5	0.3	4.7
20	125470	123920	127020	1.2	0.3	4.6
25	100000	99000	101000	1.0	0.2	4.5
30	80223	79239	81206	1.2	0.3	4.3
35	64759	63823	65695	1.4	0.3	4.2
40	52589	51718	53460	1.7	0.4	4.1
45	42951	42151	43751	1.9	0.5	4.0
50	35272	34544	36000	2.1	0.5	3.9
55	29119	28462	29776	2.3	0.6	3.8
60	24161	23570	24752	2.4	0.7	3.7
65	20144	19615	20674	2.6	0.7	3.6
70	16874	16400	17348	2.8	0.8	3.5
75	14198	13775	14622	3.0	0.9	3.4
80	11998	11620	12376	3.2	0.9	3.3
85	10181	9844	10519	3.3	1.0	3.2
90	8674	8373	8976	3.5	1.1	3.2
95	7419	7149	7688	3.6	1.2	3.1
100	6369	6128	6610	3.8	1.3	3.0
105	5487	5271	5703	3.9	1.3	2.9
110	4744	4550	4937	4.1	1.4	2.9
115	4115	3941	4288	4.2	1.5	2.8
120	3581	3425	3737	4.4	1.6	2.7
125	3126	2985	3266	4.5	1.7	2.7
130	2737	2610	2864	4.6	1.8	2.6
135	2404	2289	2518	4.8	1.8	2.6
140	2117	2013	2220	4.9	1.9	2.5
145	1869	1776	1963	5.0	2.0	2.5

T[°C]	R nom[O]	R min[O]	R max[O]	?R/R[±%]	?T[±°C]	a[%/K]
150	1655	1570	1740	5.1	2.1	2.4
155	1469	1392	1546	5.2	2.2	2.4
160	1307	1237	1377	5.4	2.3	2.3
165	1166	1102	1230	5.5	2.4	2.3
170	1043	984.6	1101	5.6	2.5	2.2
175	934.5	881.4	987.5	5.7	2.6	2.2
180	839.3	790.7	887.8	5.8	2.7	2.1
185	755.4	710.9	799.9	5.9	2.8	2.1
190	681.3	640.5	722.2	6.0	2.9	2.0
195	615.8	578.3	653.3	6.1	3.0	2.0
200	557.6	523.1	592.1	6.2	3.1	2.0
205	505.9	474.1	537.7	6.3	3.3	1.9
210	459.9	430.6	489.2	6.4	3.4	1.9
215	418.8	391.7	445.8	6.5	3.5	1.9
220	382.0	357.0	407.0	6.6	3.6	1.8
225	349.1	325.9	372.2	6.6	3.7	1.8
230	319.5	298.0	341.0	6.7	3.8	1.8
235	292.9	273.0	312.9	6.8	4.0	1.7
240	269.0	250.4	287.5	6.9	4.1	1.7
245	247.3	230.1	264.6	7.0	4.2	1.7
250	227.8	211.7	243.9	7.1	4.3	1.6

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