High Stability Thermistor Assembly

ATH10KL2A

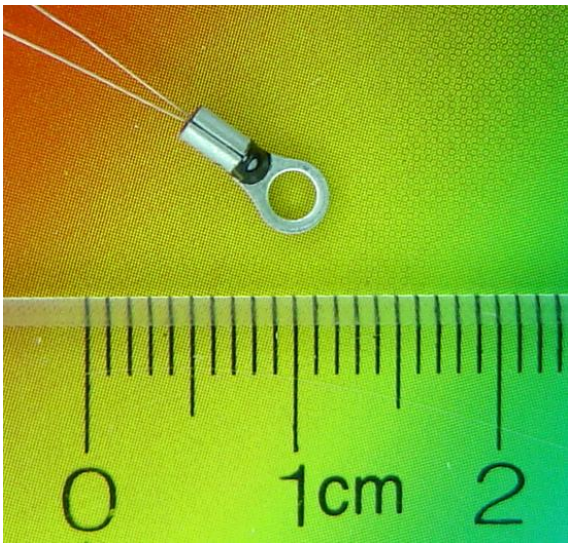

Figure 1.1. The physical photo of ATH10KL2A

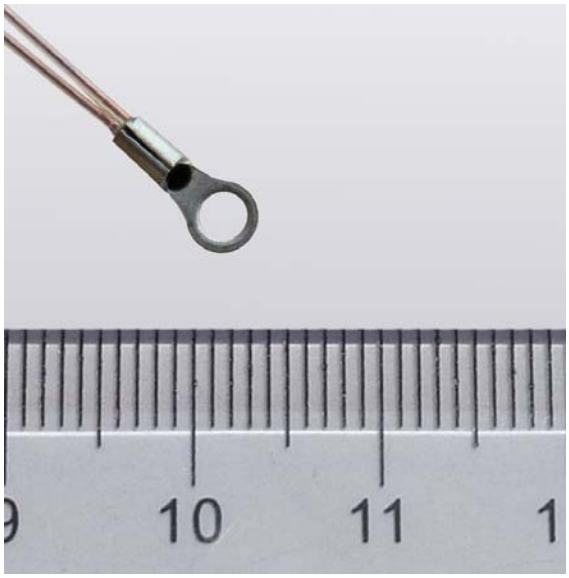

Figure 1.2. The physical photo of ATH10KL2AT63S

MAIN FEATURES

Glass Encapsulated for Long Term Stability & Reliability

High Stability: <0.1°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 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 bear 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 ATH10KL2**A**, ATH10KL2**B** and ATH10KL2**C**. First, the ring sizes of them are different. Second, the thermistor head in ATH10KL2**A** is the same as ATH10KR8, while the heads in ATH10KL2**B** and ATH10KL2**C** are the same as ATH10K1R25. Last, the resistance temperature characteristics in ATH10KL2**B** and ATH10KL2**C** are the same, different from ATH10KL2**A**.

SPECIFICATIONS

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

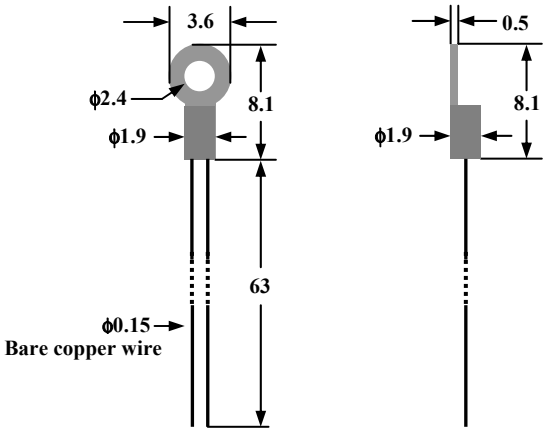

Figure 2. The Front and Side Views of ATH10KL2A

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.

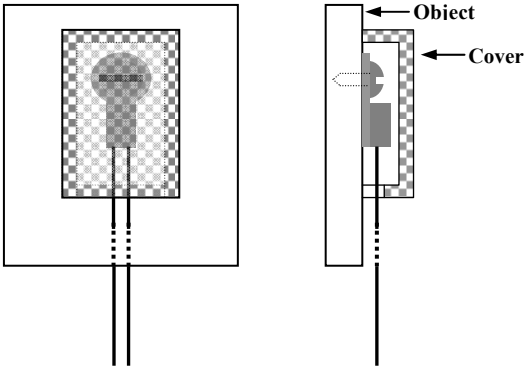

Figure 3. Using an Insulation Cover to Improve Accuracy

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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