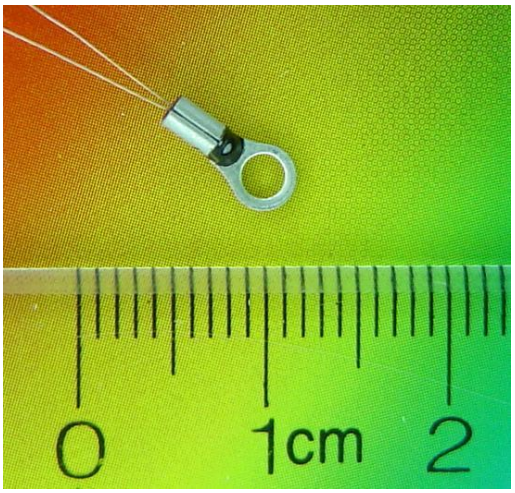

Figure 1.1. The physical photo of ATH10KB3404KL2A

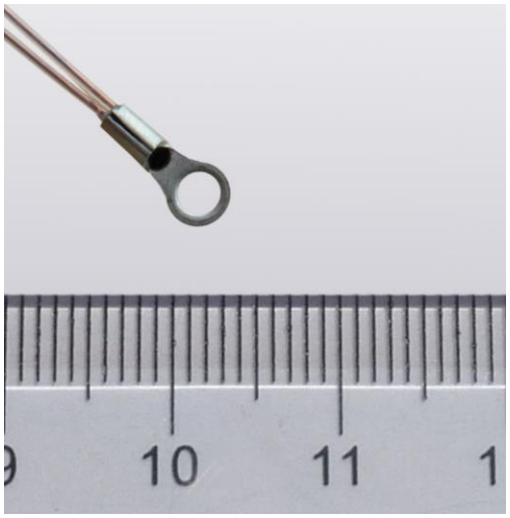

Figure 1.2. The physical photo of ATH10KB3404KL2AT65S

MAIN FEATURES

Glass Encapsulated for Long Term Stability & Reliability

High Stability: <0.1°C/Y

High Resistance Accuracy: 1%

Wide Temp. Range: –40°C to 200°C

Packaged in Extra Small Ring Lug

100 % Lead (Pb)-free and RoHS Compliant

APPLICATIONS

Temperature sensing for laser diodes, optical components, etc.

Note: This thermistor ATH10KB3404KL2A is a replacement for ATH10KL2A.

DESCRIPTION

The ATH10KB3404KL2A is a thermistor assembly with a glass encapsulated thermistor packaged in an extra compact ring lug. The ATH10KB3404KL2A series thermistor consists of three versions, ATH10KB3404KL2AT65S, ATH10KB3404KL2AT65 and ATH10KB3404KL2A. The ATH10KB3404KL2A has bare leads coated with copper, the ATH10KB3404KL2AT65S has the leads covered by high temperature plastic tubing and sealed by epoxy, while the ATH10KB3404KL2AT65 is the non-sealed version. Compared with conventional assemblies containing epoxy encapsulated thermistors, ATH10KB3404KL2A presents higher long term stability, higher reliability and wider temperature range. In addition, it is compact size and has a short response time.

The ATH10KB3404KL2A 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 ATH10KB3404KL2A, ATH10KL2**B** and ATH10KL2**C**. First, the ring sizes are different. Second, the thermistor head in ATH10KB3404KL2A is the same as ATH10KR8B, 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, but different from ATH10KB3404KL2A.

SPECIFICATIONS

Parameters	Symbol	Value
Nominal Resistance @ 25°C	R_{25}	10K ± 1%
B Value @ 25°C /50°C	$B_{25/50}$	3404K ± 1%
B Value @ 25°C /100°C	$B_{25/100}$	3450K ± 1%
Ring Lug Length	D_R	8.1 ± 0.1mm
Ring Lug Width	L_R	3.6 ± 0.1mm
Lead Diameter	D_L	0.15± 0.05mm
Lead Length	L_L	60 ± 5mm
Dissipation Factor	δ_{th}	1.2mW/°C
Insulation Resistance	R_{is}	<10MΩ
Time Constant	τ_c	4s (in still air @5~25°C)

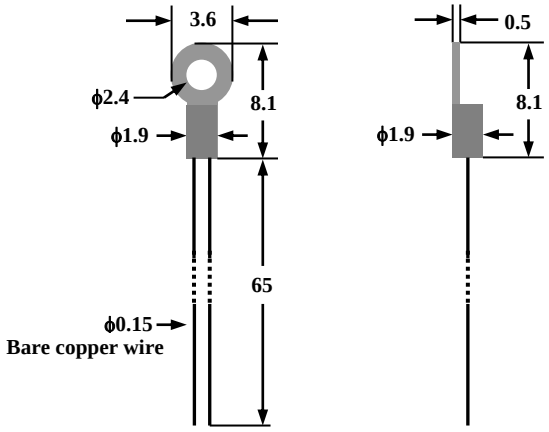

Figure 2. The Front and Side Views of ATH10KB3404KL2A

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.

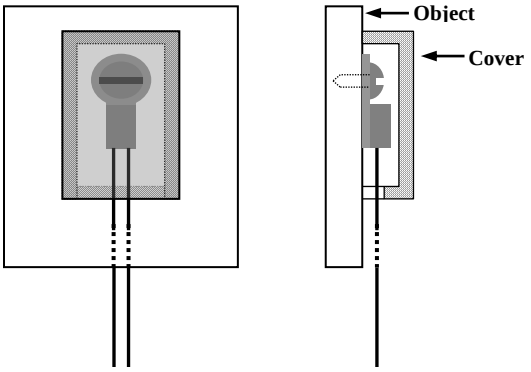

Figure 3. Using an Insulation Cover to Improve Accuracy

Resistance Temperature Characteristics

Table 1. ATH10KB3404KL2A

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
–40	201.119	209.585	218.051	4.04	0.35	5.81
–39	189.880	197.754	205.631	3.98	0.34	5.79
–38	179.358	186.683	194.011	3.92	0.34	5.74
–37	169.500	176.318	183.141	3.87	0.34	5.69
–36	160.260	166.609	172.961	3.81	0.34	5.64
–35	151.596	157.509	163.421	3.75	0.34	5.60
–34	143.466	148.977	154.491	3.70	0.33	5.55
–33	135.835	140.972	146.111	3.64	0.33	5.50
–32	128.668	133.458	138.251	3.59	0.33	5.46
–31	121.934	126.402	130.871	3.53	0.33	5.41
–30	115.603	119.773	123.941	3.48	0.32	5.38
–29	109.630	113.521	117.411	3.43	0.32	5.34
–28	104.011	107.643	111.271	3.37	0.32	5.30
–27	98.722	102.114	105.501	3.32	0.32	5.26
–26	93.741	96.910	100.081	3.27	0.31	5.21
–25	89.049	92.010	94.971	3.22	0.31	5.17
–24	84.627	87.394	90.161	3.17	0.31	5.13
–23	80.457	83.044	85.631	3.12	0.31	5.09
–22	76.523	78.943	81.361	3.06	0.30	5.05
–21	72.811	75.074	77.341	3.01	0.30	5.01

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
–20	69.306	71.423	73.541	2.96	0.30	5.01
–19	65.935	67.914	69.894	2.91	0.29	5.02
–18	62.753	64.603	66.454	2.86	0.29	4.98
–17	59.747	61.478	63.208	2.82	0.28	4.94
–16	56.907	58.526	60.145	2.77	0.28	4.90
–15	54.223	55.737	57.252	2.72	0.28	4.87
–14	51.684	53.101	54.518	2.67	0.28	4.83
–13	49.283	50.609	51.935	2.62	0.27	4.79
–12	47.010	48.251	49.493	2.57	0.27	4.76
–11	44.858	46.020	47.183	2.53	0.27	4.72
–10	42.820	43.908	44.997	2.48	0.26	4.69
–9	40.879	41.898	42.917	2.43	0.26	4.67
–8	39.039	39.993	40.947	2.39	0.26	4.64
–7	37.295	38.188	39.082	2.34	0.25	4.60
–6	35.641	36.478	37.315	2.29	0.25	4.57
–5	34.072	34.856	35.639	2.25	0.25	4.55
–4	32.571	33.305	34.038	2.20	0.24	4.54
–3	31.147	31.833	32.520	2.16	0.24	4.50
–2	29.794	30.437	31.080	2.11	0.24	4.47
–1	28.510	29.112	29.714	2.07	0.23	4.44
0	27.290	27.853	28.417	2.02	0.23	4.41
1	26.125	26.653	27.181	1.98	0.23	4.39
2	25.019	25.513	26.007	1.94	0.22	4.36
3	23.967	24.429	24.891	1.89	0.22	4.33
4	22.966	23.399	23.831	1.85	0.22	4.30
5	22.013	22.419	22.824	1.81	0.21	4.30
6	21.093	21.472	21.851	1.76	0.21	4.30
7	20.218	20.572	20.926	1.72	0.20	4.27
8	19.384	19.715	20.046	1.68	0.20	4.24
9	18.591	18.900	19.209	1.64	0.19	4.21
10	17.835	18.124	18.413	1.59	0.19	4.16
11	17.123	17.393	17.663	1.55	0.19	4.11

1161 Ringwood Ct, #110, San Jose, CA 95131, U. S. A. Tel.: (408) 748-9100, Fax: (408) 770-9187 www.analogtechnologies.com

 Email: staff@analogti.com/sales@analogti.com

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
12	16.443	16.696	16.948	1.51	0.19	4.08
13	15.795	16.031	16.267	1.47	0.18	4.05
14	15.177	15.398	15.618	1.43	0.18	4.02
15	14.587	14.793	14.999	1.39	0.17	4.02
16	14.017	14.209	14.401	1.35	0.17	4.02
17	13.473	13.651	13.830	1.31	0.16	3.99
18	12.953	13.120	13.286	1.27	0.16	3.96
19	12.456	12.612	12.767	1.23	0.16	3.94
20	11.982	12.127	12.272	1.19	0.15	3.92
21	11.528	11.662	11.797	1.15	0.15	3.90
22	11.093	11.218	11.343	1.11	0.14	3.87
23	10.678	10.794	10.910	1.08	0.14	3.84
24	10.281	10.389	10.496	1.04	0.14	3.82
25	9.901	10.001	10.101	1.00	0.13	3.78
26	9.533	9.633	9.733	1.04	0.14	3.74
27	9.181	9.281	9.380	1.07	0.14	3.72
28	8.844	8.943	9.043	1.11	0.15	3.69
29	8.522	8.621	8.720	1.15	0.16	3.66
30	8.213	8.312	8.410	1.19	0.16	3.68
31	7.912	8.010	8.108	1.22	0.17	3.69
32	7.624	7.721	7.818	1.26	0.17	3.67
33	7.347	7.444	7.540	1.30	0.18	3.64
34	7.083	7.179	7.274	1.33	0.18	3.61
35	6.830	6.925	7.019	1.37	0.19	3.58
36	6.590	6.683	6.777	1.40	0.20	3.54
37	6.359	6.452	6.545	1.44	0.21	3.51
38	6.138	6.230	6.322	1.47	0.21	3.49
39	5.926	6.017	6.108	1.51	0.22	3.47
40	5.723	5.813	5.902	1.54	0.22	3.47
41	5.525	5.614	5.702	1.58	0.23	3.47
42	5.335	5.423	5.510	1.61	0.23	3.46
43	5.153	5.239	5.326	1.65	0.24	3.44

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
44	4.978	5.063	5.149	1.68	0.25	3.41
45	4.811	4.894	4.978	1.71	0.25	3.40
46	4.647	4.730	4.813	1.75	0.26	3.40
47	4.491	4.572	4.654	1.78	0.26	3.38
48	4.340	4.421	4.501	1.82	0.27	3.36
49	4.196	4.275	4.354	1.85	0.28	3.35
50	4.057	4.135	4.213	1.88	0.28	3.31
51	3.925	4.001	4.078	1.92	0.29	3.27
52	3.797	3.873	3.948	1.95	0.30	3.25
53	3.675	3.749	3.823	1.98	0.30	3.24
54	3.557	3.630	3.703	2.01	0.31	3.22
55	3.444	3.515	3.587	2.05	0.32	3.20
56	3.334	3.405	3.476	2.08	0.33	3.17
57	3.229	3.299	3.368	2.11	0.33	3.15
58	3.128	3.197	3.265	2.14	0.34	3.14
59	3.031	3.098	3.165	2.17	0.35	3.13
60	2.937	3.003	3.069	2.20	0.35	3.10
61	2.847	2.912	2.977	2.23	0.36	3.07
62	2.761	2.824	2.888	2.26	0.37	3.05
63	2.677	2.740	2.803	2.29	0.38	3.01
64	2.597	2.659	2.720	2.33	0.38	3.01
65	2.519	2.580	2.641	2.36	0.39	3.02
66	2.444	2.503	2.563	2.39	0.39	3.02
67	2.371	2.429	2.488	2.42	0.40	2.98
68	2.300	2.358	2.415	2.45	0.41	2.97
69	2.232	2.289	2.345	2.47	0.42	2.97
70	2.167	2.222	2.278	2.50	0.43	2.93
71	2.105	2.159	2.214	2.53	0.44	2.87
72	2.045	2.098	2.152	2.56	0.45	2.84
73	1.987	2.040	2.092	2.59	0.46	2.82
74	1.931	1.983	2.035	2.62	0.46	2.82
75	1.877	1.928	1.979	2.65	0.46	2.88

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
76	1.822	1.872	1.922	2.68	0.45	2.94
77	1.769	1.818	1.867	2.70	0.46	2.92
78	1.718	1.766	1.815	2.73	0.48	2.89
79	1.669	1.716	1.763	2.76	0.48	2.86
80	1.621	1.668	1.714	2.79	0.49	2.85
81	1.575	1.621	1.667	2.82	0.50	2.84
82	1.531	1.576	1.621	2.85	0.51	2.82
83	1.488	1.532	1.576	2.88	0.51	2.81
84	1.447	1.490	1.534	2.90	0.54	2.68
85	1.410	1.452	1.495	2.94	0.54	2.72
86	1.369	1.411	1.453	2.96	0.53	2.80
87	1.332	1.373	1.414	2.99	0.55	2.69
88	1.297	1.337	1.377	3.01	0.56	2.66
89	1.262	1.302	1.341	3.04	0.56	2.69
90	1.229	1.267	1.306	3.07	0.57	2.68
91	1.196	1.234	1.272	3.09	0.58	2.67
92	1.164	1.201	1.238	3.12	0.57	2.71
93	1.133	1.169	1.206	3.15	0.59	2.65
94	1.103	1.139	1.175	3.17	0.60	2.63
95	1.074	1.109	1.144	3.20	0.60	2.61
96	1.046	1.081	1.116	3.23	0.64	2.54
97	1.019	1.054	1.088	3.25	0.64	2.56
98	0.994	1.027	1.061	3.28	0.64	2.53
99	0.969	1.002	1.035	3.30	0.66	2.50
100	0.944	0.977	1.009	3.33	0.65	2.56
101	0.920	0.952	0.984	3.35	0.65	2.57
102	0.897	0.928	0.959	3.38	0.66	2.53
103	0.874	0.905	0.936	3.40	0.67	2.54
104	0.852	0.882	0.912	3.43	0.67	2.55
105	0.831	0.860	0.890	3.45	0.67	2.56
106	0.809	0.838	0.867	3.48	0.67	2.57
107	0.788	0.817	0.845	3.51	0.68	2.57

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
108	0.768	0.796	0.824	3.53	0.67	2.64
109	0.748	0.775	0.803	3.56	0.69	2.58
110	0.729	0.756	0.783	3.58	0.73	2.45
111	0.712	0.738	0.765	3.61	0.76	2.37
112	0.695	0.721	0.747	3.63	0.76	2.36
113	0.679	0.704	0.730	3.65	0.77	2.34
114	0.663	0.688	0.713	3.68	0.78	2.33
115	0.648	0.672	0.697	3.70	0.79	2.31
116	0.633	0.657	0.682	3.72	0.82	2.28
117	0.618	0.642	0.666	3.75	0.83	2.26
118	0.604	0.628	0.651	3.77	0.84	2.23
119	0.590	0.614	0.637	3.79	0.84	2.28
120	0.577	0.600	0.623	3.81	0.82	2.33
121	0.563	0.586	0.608	3.84	0.80	2.39
122	0.550	0.572	0.594	3.86	0.79	2.45
123	0.537	0.558	0.580	3.89	0.80	2.42
124	0.524	0.545	0.566	3.91	0.81	2.39
125	0.512	0.532	0.553	3.93	0.82	2.35
126	0.499	0.520	0.541	3.96	0.88	2.31
127	0.488	0.508	0.528	3.98	0.83	2.36
128	0.476	0.496	0.516	4.00	0.87	2.32
129	0.465	0.485	0.504	4.03	0.89	2.27
130	0.455	0.474	0.493	4.05	0.90	2.22
131	0.445	0.464	0.483	4.07	0.95	2.16
132	0.436	0.454	0.473	4.09	0.97	2.09
133	0.427	0.445	0.463	4.11	1.00	2.02
134	0.418	0.436	0.454	4.13	1.00	2.06
135	0.409	0.427	0.444	4.16	0.97	2.11
136	0.401	0.418	0.435	4.18	0.94	2.15
137	0.392	0.409	0.427	4.20	1.03	2.08
138	0.384	0.401	0.418	4.22	1.06	2.00
139	0.376	0.393	0.410	4.24	1.06	2.04

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
140	0.369	0.385	0.402	4.26	1.03	2.08
141	0.361	0.377	0.393	4.28	1.00	2.12
142	0.353	0.369	0.385	4.30	1.00	2.17
143	0.346	0.361	0.377	4.32	1.03	2.08
144	0.339	0.354	0.369	4.34	1.07	1.98
145	0.332	0.347	0.362	4.36	1.07	2.02
146	0.325	0.340	0.354	4.38	1.04	2.06
147	0.318	0.333	0.347	4.40	1.04	2.10
148	0.311	0.326	0.340	4.43	1.04	2.15
149	0.305	0.319	0.333	4.45	1.08	2.04
150	0.299	0.313	0.327	4.47	1.08	2.08
151	0.293	0.306	0.320	4.49	1.04	2.12
152	0.287	0.300	0.314	4.51	1.13	2.00
153	0.281	0.294	0.307	4.53	1.08	2.04
154	0.275	0.288	0.301	4.55	1.08	2.08
155	0.269	0.282	0.295	4.57	1.08	2.13
156	0.264	0.276	0.289	4.59	1.14	1.99
157	0.258	0.271	0.283	4.61	1.14	2.03
158	0.253	0.265	0.278	4.63	1.14	2.08
159	0.248	0.260	0.272	4.65	1.20	1.92
160	0.243	0.255	0.267	4.67	1.20	1.96
161	0.238	0.250	0.262	4.69	1.20	2.00
162	0.234	0.245	0.257	4.71	1.15	2.04
163	0.229	0.240	0.252	4.73	1.28	1.88
164	0.224	0.236	0.247	4.75	1.28	1.91
165	0.220	0.231	0.242	4.77	1.22	1.95
166	0.216	0.227	0.237	4.79	1.17	1.98
167	0.212	0.222	0.233	4.81	1.17	2.03
168	0.207	0.218	0.228	4.83	1.31	1.83
169	0.203	0.214	0.224	4.85	1.31	1.87
170	0.199	0.210	0.220	4.87	1.31	1.90
171	0.196	0.206	0.216	4.89	1.25	1.94

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
172	0.192	0.202	0.212	4.91	1.25	1.98
173	0.188	0.198	0.208	4.92	1.25	2.02
174	0.185	0.194	0.204	4.94	1.36	1.80
175	0.181	0.191	0.200	4.96	1.36	1.83
176	0.178	0.187	0.196	4.98	1.29	1.87
177	0.175	0.184	0.193	5.00	1.29	1.90
178	0.171	0.180	0.189	5.02	1.29	1.94
179	0.168	0.177	0.186	5.04	1.50	1.69
180	0.165	0.174	0.183	5.06	1.50	1.72
181	0.162	0.171	0.179	5.07	1.21	2.05
182	0.159	0.167	0.176	5.09	1.21	2.10
183	0.156	0.164	0.173	5.11	1.42	1.83
184	0.153	0.161	0.170	5.13	1.42	1.86
185	0.150	0.158	0.167	5.15	1.70	1.58
186	0.148	0.156	0.164	5.17	1.60	1.60
187	0.145	0.153	0.161	5.18	1.33	1.96
188	0.142	0.150	0.158	5.20	1.33	2.00
189	0.140	0.147	0.155	5.22	1.50	1.70
190	0.137	0.145	0.152	5.24	1.50	1.72
191	0.135	0.142	0.150	5.26	1.50	1.76
192	0.132	0.140	0.147	5.28	1.50	1.79
193	0.130	0.137	0.144	5.29	1.40	1.82
194	0.128	0.135	0.142	5.31	1.40	1.85
195	0.125	0.132	0.139	5.33	1.40	1.89
196	0.123	0.130	0.137	5.35	1.75	1.54
197	0.121	0.128	0.135	5.36	1.75	1.56
198	0.119	0.126	0.132	5.38	1.63	1.59
199	0.117	0.124	0.130	5.40	1.30	2.02
200	0.115	0.121	0.128	5.42	1.30	1.80
$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						

T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
–40	201.119	209.585	218.051	4.04	0.35	5.81
–39	189.880	197.754	205.631	3.98	0.34	5.79
–38	179.358	186.683	194.011	3.92	0.34	5.74
–37	169.500	176.318	183.141	3.87	0.34	5.69
–36	160.260	166.609	172.961	3.81	0.34	5.64
–35	151.596	157.509	163.421	3.75	0.34	5.60
–34	143.466	148.977	154.491	3.70	0.33	5.55
–33	135.835	140.972	146.111	3.64	0.33	5.50
–32	128.668	133.458	138.251	3.59	0.33	5.46
–31	121.934	126.402	130.871	3.53	0.33	5.41
–30	115.603	119.773	123.941	3.48	0.32	5.38
–29	109.630	113.521	117.411	3.43	0.32	5.34
–28	104.011	107.643	111.271	3.37	0.32	5.30
–27	98.722	102.114	105.501	3.32	0.32	5.26
–26	93.741	96.910	100.081	3.27	0.31	5.21
–25	89.049	92.010	94.971	3.22	0.31	5.17
–24	84.627	87.394	90.161	3.17	0.31	5.13
–23	80.457	83.044	85.631	3.12	0.31	5.09
–22	76.523	78.943	81.361	3.06	0.30	5.05
–21	72.811	75.074	77.341	3.01	0.30	5.01
–20	69.306	71.423	73.541	2.96	0.30	5.01
–19	65.935	67.914	69.894	2.91	0.29	5.02
–18	62.753	64.603	66.454	2.86	0.29	4.98
–17	59.747	61.478	63.208	2.82	0.28	4.94
–16	56.907	58.526	60.145	2.77	0.28	4.90
–15	54.223	55.737	57.252	2.72	0.28	4.87
–14	51.684	53.101	54.518	2.67	0.28	4.83
–13	49.283	50.609	51.935	2.62	0.27	4.79
–12	47.010	48.251	49.493	2.57	0.27	4.76
–11	44.858	46.020	47.183	2.53	0.27	4.72
–10	42.820	43.908	44.997	2.48	0.26	4.69
–9	40.879	41.898	42.917	2.43	0.26	4.67
–8	39.039	39.993	40.947	2.39	0.26	4.64

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,

T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
–7	37.295	38.188	39.082	2.34	0.25	4.60
–6	35.641	36.478	37.315	2.29	0.25	4.57
–5	34.072	34.856	35.639	2.25	0.25	4.55
–4	32.571	33.305	34.038	2.20	0.24	4.54
–3	31.147	31.833	32.520	2.16	0.24	4.50
–2	29.794	30.437	31.080	2.11	0.24	4.47
–1	28.510	29.112	29.714	2.07	0.23	4.44
0	27.290	27.853	28.417	2.02	0.23	4.41
1	26.125	26.653	27.181	1.98	0.23	4.39
2	25.019	25.513	26.007	1.94	0.22	4.36
3	23.967	24.429	24.891	1.89	0.22	4.33
4	22.966	23.399	23.831	1.85	0.22	4.30
5	22.013	22.419	22.824	1.81	0.21	4.30
6	21.093	21.472	21.851	1.76	0.21	4.30
7	20.218	20.572	20.926	1.72	0.20	4.27
8	19.384	19.715	20.046	1.68	0.20	4.24
9	18.591	18.900	19.209	1.64	0.19	4.21
10	17.835	18.124	18.413	1.59	0.19	4.16
11	17.123	17.393	17.663	1.55	0.19	4.11
12	16.443	16.696	16.948	1.51	0.19	4.08
13	15.795	16.031	16.267	1.47	0.18	4.05
14	15.177	15.398	15.618	1.43	0.18	4.02
15	14.587	14.793	14.999	1.39	0.17	4.02
16	14.017	14.209	14.401	1.35	0.17	4.02
17	13.473	13.651	13.830	1.31	0.16	3.99
18	12.953	13.120	13.286	1.27	0.16	3.96
19	12.456	12.612	12.767	1.23	0.16	3.94
20	11.982	12.127	12.272	1.19	0.15	3.92
21	11.528	11.662	11.797	1.15	0.15	3.90
22	11.093	11.218	11.343	1.11	0.14	3.87
23	10.678	10.794	10.910	1.08	0.14	3.84
24	10.281	10.389	10.496	1.04	0.14	3.82

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
25	9.901	10.001	10.101	1.00	0.13	3.78
26	9.533	9.633	9.733	1.04	0.14	3.74
27	9.181	9.281	9.380	1.07	0.14	3.72
28	8.844	8.943	9.043	1.11	0.15	3.69
29	8.522	8.621	8.720	1.15	0.16	3.66
30	8.213	8.312	8.410	1.19	0.16	3.68
31	7.912	8.010	8.108	1.22	0.17	3.69
32	7.624	7.721	7.818	1.26	0.17	3.67
33	7.347	7.444	7.540	1.30	0.18	3.64
34	7.083	7.179	7.274	1.33	0.18	3.61
35	6.830	6.925	7.019	1.37	0.19	3.58
36	6.590	6.683	6.777	1.40	0.20	3.54
37	6.359	6.452	6.545	1.44	0.21	3.51
38	6.138	6.230	6.322	1.47	0.21	3.49
39	5.926	6.017	6.108	1.51	0.22	3.47
40	5.723	5.813	5.902	1.54	0.22	3.47
41	5.525	5.614	5.702	1.58	0.23	3.47
42	5.335	5.423	5.510	1.61	0.23	3.46
43	5.153	5.239	5.326	1.65	0.24	3.44
44	4.978	5.063	5.149	1.68	0.25	3.41
45	4.811	4.894	4.978	1.71	0.25	3.40
46	4.647	4.730	4.813	1.75	0.26	3.40
47	4.491	4.572	4.654	1.78	0.26	3.38
48	4.340	4.421	4.501	1.82	0.27	3.36
49	4.196	4.275	4.354	1.85	0.28	3.35
50	4.057	4.135	4.213	1.88	0.28	3.31
51	3.925	4.001	4.078	1.92	0.29	3.27
52	3.797	3.873	3.948	1.95	0.30	3.25
53	3.675	3.749	3.823	1.98	0.30	3.24
54	3.557	3.630	3.703	2.01	0.31	3.22
55	3.444	3.515	3.587	2.05	0.32	3.20
56	3.334	3.405	3.476	2.08	0.33	3.17

1161 Ringwood Ct, #110, San Jose, CA 95131, U. S. A. Tel.: (408) 748-9100, Fax: (408) 770-9187 www.analogtechnologies.com

 Email: staff@analogti.com/sales@analogti.com

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
57	3.229	3.299	3.368	2.11	0.33	3.15
58	3.128	3.197	3.265	2.14	0.34	3.14
59	3.031	3.098	3.165	2.17	0.35	3.13
60	2.937	3.003	3.069	2.20	0.35	3.10
61	2.847	2.912	2.977	2.23	0.36	3.07
62	2.761	2.824	2.888	2.26	0.37	3.05
63	2.677	2.740	2.803	2.29	0.38	3.01
64	2.597	2.659	2.720	2.33	0.38	3.01
65	2.519	2.580	2.641	2.36	0.39	3.02
66	2.444	2.503	2.563	2.39	0.39	3.02
67	2.371	2.429	2.488	2.42	0.40	2.98
68	2.300	2.358	2.415	2.45	0.41	2.97
69	2.232	2.289	2.345	2.47	0.42	2.97
70	2.167	2.222	2.278	2.50	0.43	2.93
71	2.105	2.159	2.214	2.53	0.44	2.87
72	2.045	2.098	2.152	2.56	0.45	2.84
73	1.987	2.040	2.092	2.59	0.46	2.82
74	1.931	1.983	2.035	2.62	0.46	2.82
75	1.877	1.928	1.979	2.65	0.46	2.88
76	1.822	1.872	1.922	2.68	0.45	2.94
77	1.769	1.818	1.867	2.70	0.46	2.92
78	1.718	1.766	1.815	2.73	0.48	2.89
79	1.669	1.716	1.763	2.76	0.48	2.86
80	1.621	1.668	1.714	2.79	0.49	2.85
81	1.575	1.621	1.667	2.82	0.50	2.84
82	1.531	1.576	1.621	2.85	0.51	2.82
83	1.488	1.532	1.576	2.88	0.51	2.81
84	1.447	1.490	1.534	2.90	0.54	2.68
85	1.410	1.452	1.495	2.94	0.54	2.72
86	1.369	1.411	1.453	2.96	0.53	2.80
87	1.332	1.373	1.414	2.99	0.55	2.69
88	1.297	1.337	1.377	3.01	0.56	2.66

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
89	1.262	1.302	1.341	3.04	0.56	2.69
90	1.229	1.267	1.306	3.07	0.57	2.68
91	1.196	1.234	1.272	3.09	0.58	2.67
92	1.164	1.201	1.238	3.12	0.57	2.71
93	1.133	1.169	1.206	3.15	0.59	2.65
94	1.103	1.139	1.175	3.17	0.60	2.63
95	1.074	1.109	1.144	3.20	0.60	2.61
96	1.046	1.081	1.116	3.23	0.64	2.54
97	1.019	1.054	1.088	3.25	0.64	2.56
98	0.994	1.027	1.061	3.28	0.64	2.53
99	0.969	1.002	1.035	3.30	0.66	2.50
100	0.944	0.977	1.009	3.33	0.65	2.56
101	0.920	0.952	0.984	3.35	0.65	2.57
102	0.897	0.928	0.959	3.38	0.66	2.53
103	0.874	0.905	0.936	3.40	0.67	2.54
104	0.852	0.882	0.912	3.43	0.67	2.55
105	0.831	0.860	0.890	3.45	0.67	2.56
106	0.809	0.838	0.867	3.48	0.67	2.57
107	0.788	0.817	0.845	3.51	0.68	2.57
108	0.768	0.796	0.824	3.53	0.67	2.64
109	0.748	0.775	0.803	3.56	0.69	2.58
110	0.729	0.756	0.783	3.58	0.73	2.45
111	0.712	0.738	0.765	3.61	0.76	2.37
112	0.695	0.721	0.747	3.63	0.76	2.36
113	0.679	0.704	0.730	3.65	0.77	2.34
114	0.663	0.688	0.713	3.68	0.78	2.33
115	0.648	0.672	0.697	3.70	0.79	2.31
116	0.633	0.657	0.682	3.72	0.82	2.28
117	0.618	0.642	0.666	3.75	0.83	2.26
118	0.604	0.628	0.651	3.77	0.84	2.23
119	0.590	0.614	0.637	3.79	0.84	2.28
120	0.577	0.600	0.623	3.81	0.82	2.33

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
121	0.563	0.586	0.608	3.84	0.80	2.39
122	0.550	0.572	0.594	3.86	0.79	2.45
123	0.537	0.558	0.580	3.89	0.80	2.42
124	0.524	0.545	0.566	3.91	0.81	2.39
125	0.512	0.532	0.553	3.93	0.82	2.35
126	0.499	0.520	0.541	3.96	0.88	2.31
127	0.488	0.508	0.528	3.98	0.83	2.36
128	0.476	0.496	0.516	4.00	0.87	2.32
129	0.465	0.485	0.504	4.03	0.89	2.27
130	0.455	0.474	0.493	4.05	0.90	2.22
131	0.445	0.464	0.483	4.07	0.95	2.16
132	0.436	0.454	0.473	4.09	0.97	2.09
133	0.427	0.445	0.463	4.11	1.00	2.02
134	0.418	0.436	0.454	4.13	1.00	2.06
135	0.409	0.427	0.444	4.16	0.97	2.11
136	0.401	0.418	0.435	4.18	0.94	2.15
137	0.392	0.409	0.427	4.20	1.03	2.08
138	0.384	0.401	0.418	4.22	1.06	2.00
139	0.376	0.393	0.410	4.24	1.06	2.04
140	0.369	0.385	0.402	4.26	1.03	2.08
141	0.361	0.377	0.393	4.28	1.00	2.12
142	0.353	0.369	0.385	4.30	1.00	2.17
143	0.346	0.361	0.377	4.32	1.03	2.08
144	0.339	0.354	0.369	4.34	1.07	1.98
145	0.332	0.347	0.362	4.36	1.07	2.02
146	0.325	0.340	0.354	4.38	1.04	2.06
147	0.318	0.333	0.347	4.40	1.04	2.10
148	0.311	0.326	0.340	4.43	1.04	2.15
149	0.305	0.319	0.333	4.45	1.08	2.04
150	0.299	0.313	0.327	4.47	1.08	2.08
151	0.293	0.306	0.320	4.49	1.04	2.12
152	0.287	0.300	0.314	4.51	1.13	2.00

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
153	0.281	0.294	0.307	4.53	1.08	2.04
154	0.275	0.288	0.301	4.55	1.08	2.08
155	0.269	0.282	0.295	4.57	1.08	2.13
156	0.264	0.276	0.289	4.59	1.14	1.99
157	0.258	0.271	0.283	4.61	1.14	2.03
158	0.253	0.265	0.278	4.63	1.14	2.08
159	0.248	0.260	0.272	4.65	1.20	1.92
160	0.243	0.255	0.267	4.67	1.20	1.96
161	0.238	0.250	0.262	4.69	1.20	2.00
162	0.234	0.245	0.257	4.71	1.15	2.04
163	0.229	0.240	0.252	4.73	1.28	1.88
164	0.224	0.236	0.247	4.75	1.28	1.91
165	0.220	0.231	0.242	4.77	1.22	1.95
166	0.216	0.227	0.237	4.79	1.17	1.98
167	0.212	0.222	0.233	4.81	1.17	2.03
168	0.207	0.218	0.228	4.83	1.31	1.83
169	0.203	0.214	0.224	4.85	1.31	1.87
170	0.199	0.210	0.220	4.87	1.31	1.90
171	0.196	0.206	0.216	4.89	1.25	1.94
172	0.192	0.202	0.212	4.91	1.25	1.98
173	0.188	0.198	0.208	4.92	1.25	2.02
174	0.185	0.194	0.204	4.94	1.36	1.80
175	0.181	0.191	0.200	4.96	1.36	1.83
176	0.178	0.187	0.196	4.98	1.29	1.87
177	0.175	0.184	0.193	5.00	1.29	1.90
178	0.171	0.180	0.189	5.02	1.29	1.94
179	0.168	0.177	0.186	5.04	1.50	1.69
180	0.165	0.174	0.183	5.06	1.50	1.72
181	0.162	0.171	0.179	5.07	1.21	2.05
182	0.159	0.167	0.176	5.09	1.21	2.10
183	0.156	0.164	0.173	5.11	1.42	1.83
184	0.153	0.161	0.170	5.13	1.42	1.86

$B_{25/50}$ = 3404K, R_{25} = 10kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 1%,						
T (°C)	Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature (±%)	Temperature Measurement Error at a Specific Temperature (±°C)	Temperature Coefficient (%/°C)
	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
185	0.150	0.158	0.167	5.15	1.70	1.58
186	0.148	0.156	0.164	5.17	1.60	1.60
187	0.145	0.153	0.161	5.18	1.33	1.96
188	0.142	0.150	0.158	5.20	1.33	2.00
189	0.140	0.147	0.155	5.22	1.50	1.70
190	0.137	0.145	0.152	5.24	1.50	1.72
191	0.135	0.142	0.150	5.26	1.50	1.76
192	0.132	0.140	0.147	5.28	1.50	1.79
193	0.130	0.137	0.144	5.29	1.40	1.82
194	0.128	0.135	0.142	5.31	1.40	1.85
195	0.125	0.132	0.139	5.33	1.40	1.89
196	0.123	0.130	0.137	5.35	1.75	1.54
197	0.121	0.128	0.135	5.36	1.75	1.56
198	0.119	0.126	0.132	5.38	1.63	1.59
199	0.117	0.124	0.130	5.40	1.30	2.02
200	0.115	0.121	0.128	5.42	1.30	1.80

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