Ultra-Stable Miniature Thermistor

ATH5K1R3B3950K

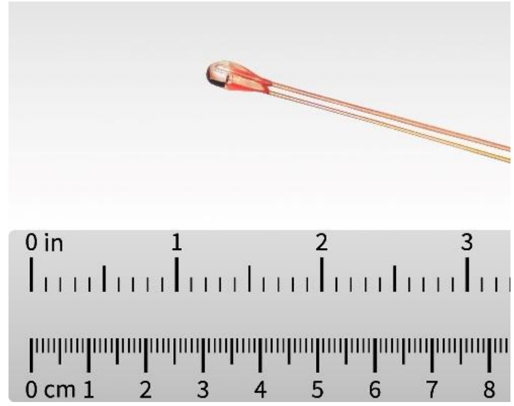

Figure 1. The Physical Photo of ATH5K1R3B3950K

MAIN FEATURES

Glass Encapsulated for Long Term Stability & Reliability
High Stability: <0.1°C/year
Small Size: ϕ1.3mm ×2.0mm
High Resistance Accuracy: 1%
Quick Response Time: 7s
Wide Temp. Range: –40°C to 250°C
Leads: dumet wires (copper-clad FeNi)
100% Lead (Pb)-free and RoHS Compliant

APPLICATIONS

The ATH5K1R3B3950K thermistor is ideal for temperature sensing in high-precision devices such as laser diodes and optical components that require accurate temperature monitoring. In addition, due to its low cost, it is also suitable for use in automotive electronics, industrial electronics, and home appliances where cost-effective temperature sensing is required.

DESCRIPTION

Figure 1 displays the ATH5K1R3B3950K thermistor, which boasts high precision and a glass encapsulation design. In contrast to conventional epoxy-encapsulated thermistors, the ATH5K1R3B3950K offers superior long-term stability and a wider temperature range. Moreover, it has a compact size and a quick response time.

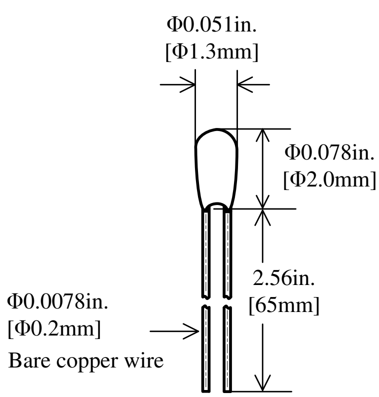

Figure 2. Side View of ATH5K1R3B3950K

SPECIFICATIONS

Parameters	Symbol	Value
Nominal Resistance @ 25°C	R_{25}	5K ± 1%
B Value @ 25°C /50°C	$B_{25/50}$	3950K ± 1%
Thermistor Diameter	D_T	1.3 ± 0.2mm
Thermistor Length	L_T	2.0 ± 0.5mm
Lead Diameter	D_L	0.2± 0.05mm
Lead Length	L_L	65 ± 5mm
Dissipation Factor	δ_{th}	0.9mW/°C
Insulation Resistance	R_{is}	≥100MΩ
Maximum Power @ 25°C	P_{max}	35mW
Time Constant	τ_c	7s (in still air @5~25°C)

APPLICATION

One common issue encountered when potting the thermistor into a solid object to sense its temperature is the formation of air bubbles within the epoxy between the thermistor bead and the target object. These air bubbles can significantly delay the thermistor's response time. To address this problem, it is recommended to drill a deep counterbore hole and use thermal conductive epoxy to pot the thermistor at the bottom of the hole, as illustrated in Figure 3. This method effectively reduces the formation of air bubbles and enhances the thermistor's overall performance.

To prevent the formation of air bubbles during the potting process, it is recommended to cure the epoxy at the temperature specified by the manufacturer. For optimal results, curing should be conducted in a vacuum environment and/or on top of a vibration platform to eliminate any remaining air pockets. By taking these measures, the potting process can be optimized, resulting in accurate temperature sensing with the shortest possible response time.

The ATH5K1R3B3950K thermistor is terminated with leaded bare copper wires. For applications that require insulated lead wires, we offer insulation tubing. For more information, please click **HERE**.

The radial glass bead encapsulation NTC thermistor exhibits superior resistance to heat and climatic conditions and have a long lifetime compared to resin-coated thermistors. It is made of bonding lead wire, gold/silver electrodes and qualified ceramic thermistor chip, which makes it keep stable characteristics. It features long-term stability, reliability, wide temperature range and fast thermal response time. Multiple bead diameters and sensor spec. are available. And they can be easily incorporated into various housing options because of their small size.

Please note that the ATH5K1R3B3950K thermistor is not designed for direct immersion in water or other electrically conductive or corrosive liquids, due to the non-isolated nature of its leads. Doing so may result in inaccurate resistance readings, damage to the thermistor's leads, or pose a safety hazard.

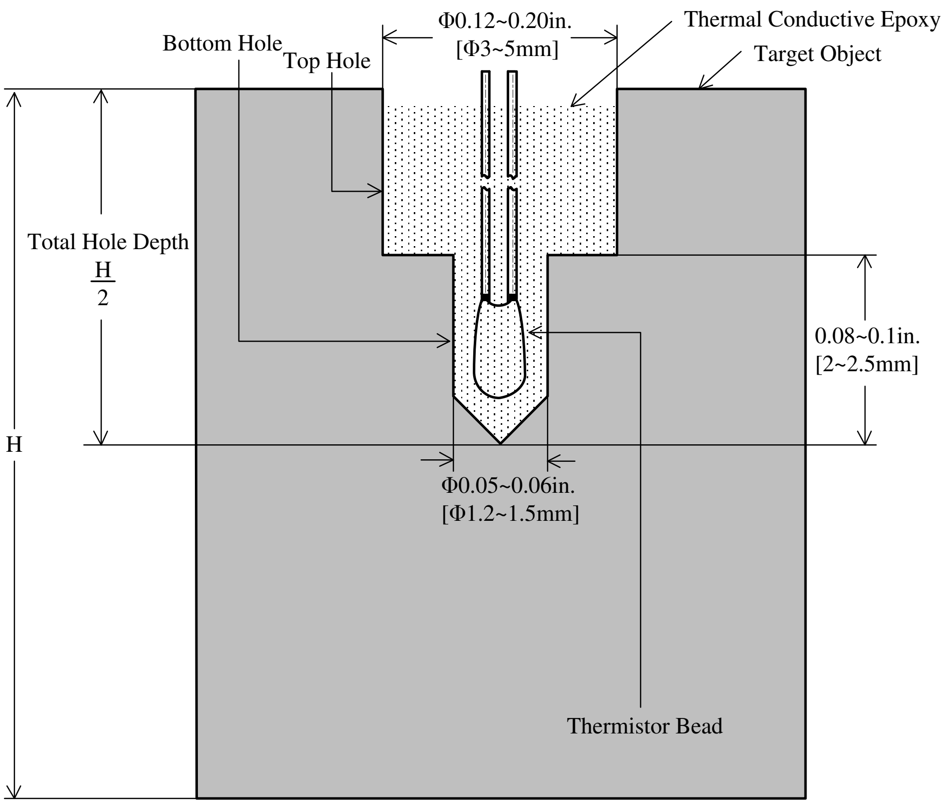

Figure 3. Section View of Recommended Counterbore Hole

PART NUMBER CONVENTION

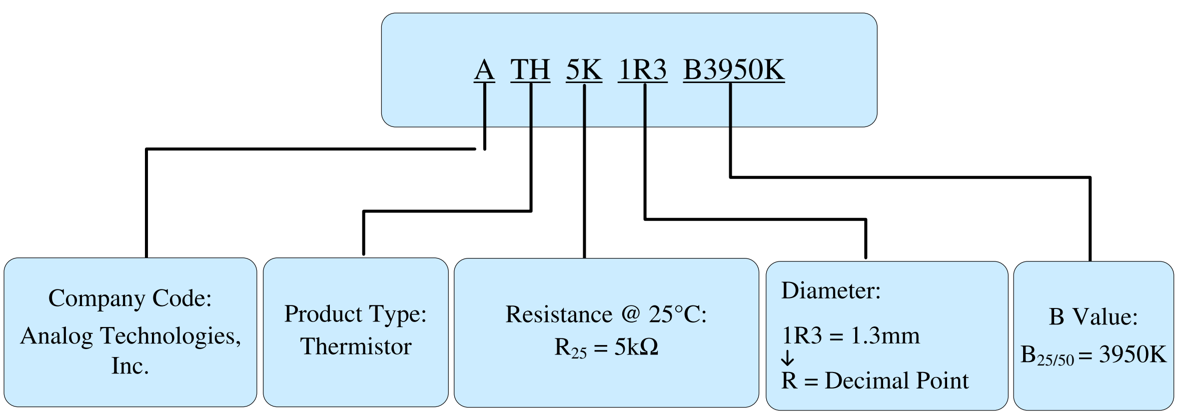

Figure 4. Part Number Convention of ATH5K1R3B3950K

RESISTANCE TEMPERATURE CHARACTERISTICS

$B_{25/50}$ = 3950K, R_{25} = 5kΩ, 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	165.988	173.721	181.795	4.55	0.36	6.33
−39	155.985	163.149	170.624	4.49	0.36	6.32
−38	146.478	153.108	160.022	4.42	0.35	6.38
−37	137.483	143.614	150.003	4.36	0.34	6.42
−36	129.001	134.667	140.568	4.29	0.33	6.44
−35	121.026	126.260	131.708	4.23	0.33	6.45
−34	113.544	118.378	123.406	4.17	0.32	6.45
−33	106.535	111.000	115.640	4.10	0.32	6.43
−32	99.979	104.102	108.384	4.04	0.32	6.41
−31	93.852	97.659	101.612	3.97	0.31	6.38
−30	88.129	91.646	95.294	3.91	0.31	6.34
−29	82.785	86.035	89.403	3.85	0.31	6.30
−28	77.797	80.800	83.911	3.78	0.30	6.26
−27	73.141	75.917	78.791	3.72	0.30	6.22
−26	68.795	71.362	74.017	3.66	0.30	6.17
−25	64.736	67.111	69.565	3.60	0.29	6.12
−24	60.945	63.142	65.411	3.54	0.29	6.08
−23	57.403	59.436	61.535	3.48	0.29	6.03
−22	54.092	55.974	57.916	3.42	0.29	5.98
−21	50.996	52.739	54.536	3.36	0.28	5.94
−20	48.098	49.713	51.376	3.30	0.28	5.89
−19	45.385	46.882	48.422	3.24	0.28	5.85
−18	42.845	44.231	45.658	3.18	0.27	5.80
−17	40.463	41.749	43.071	3.12	0.27	5.76
−16	38.230	39.422	40.647	3.07	0.27	5.72
−15	36.136	37.241	38.376	3.01	0.26	5.68
−14	34.169	35.194	36.247	2.95	0.26	5.64
−13	32.322	33.273	34.249	2.90	0.26	5.60
−12	30.587	31.469	32.374	2.84	0.26	5.56
−11	28.955	29.774	30.613	2.78	0.25	5.52
−10	27.420	28.181	28.959	2.73	0.25	5.49

$B_{25/50}$ = 3950K, R_{25} = 5kΩ, 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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
−9	25.976	26.682	27.404	2.68	0.25	5.45
−8	24.617	25.272	25.941	2.62	0.24	5.42
−7	23.336	23.944	24.565	2.57	0.24	5.38
−6	22.130	22.694	23.270	2.51	0.23	5.35
−5	20.992	21.516	22.051	2.46	0.23	5.32
−4	19.920	20.406	20.902	2.41	0.23	5.28
−3	18.908	19.360	19.820	2.36	0.22	5.25
−2	17.954	18.373	18.799	2.30	0.22	5.22
−1	17.052	17.441	17.837	2.25	0.21	5.34
0	16.150	16.510	16.875	2.20	0.21	5.18
1	15.397	15.732	16.073	2.15	0.22	4.96
2	14.638	14.948	15.264	2.09	0.21	5.10
3	13.920	14.208	14.500	2.04	0.20	5.07
4	13.241	13.508	13.779	1.99	0.20	5.04
5	12.598	12.846	13.098	1.95	0.19	5.01
6	11.991	12.221	12.454	1.89	0.19	4.98
7	11.416	11.629	11.845	1.84	0.19	4.95
8	10.872	11.069	11.269	1.79	0.18	4.92
9	10.357	10.540	10.725	1.75	0.17	5.05
10	9.835	10.004	10.174	1.69	0.17	4.88
11	9.406	9.563	9.722	1.65	0.18	4.66
12	8.968	9.113	9.260	1.60	0.17	4.81
13	8.553	8.687	8.823	1.55	0.16	4.78
14	8.159	8.283	8.409	1.51	0.16	4.74
15	7.786	7.901	8.016	1.46	0.15	4.71
16	7.432	7.538	7.644	1.41	0.15	4.69
17	7.096	7.194	7.292	1.36	0.15	4.66
18	6.777	6.867	6.958	1.32	0.14	4.64
19	6.474	6.557	6.641	1.27	0.14	4.61
20	6.187	6.263	6.340	1.22	0.13	4.57
21	5.914	5.984	6.055	1.18	0.13	4.55
22	5.654	5.719	5.784	1.14	0.13	4.52

$B_{25/50}$ = 3950K, R_{25} = 5kΩ, 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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
23	5.408	5.467	5.527	1.09	0.12	4.49
24	5.173	5.228	5.282	1.04	0.12	4.46
25	4.951	5.001	5.051	1.00	0.11	4.44
26	4.734	4.784	4.834	1.05	0.12	4.41
27	4.529	4.579	4.629	1.09	0.12	4.38
28	4.334	4.383	4.433	1.13	0.13	4.36
29	4.148	4.197	4.247	1.18	0.14	4.32
30	3.972	4.020	4.069	1.21	0.14	4.29
31	3.803	3.852	3.901	1.27	0.15	4.26
32	3.644	3.692	3.740	1.30	0.15	4.24
33	3.491	3.539	3.587	1.36	0.16	4.22
34	3.346	3.393	3.440	1.39	0.17	4.19
35	3.208	3.255	3.301	1.43	0.17	4.16
36	3.077	3.122	3.168	1.46	0.18	4.15
37	2.951	2.996	3.042	1.52	0.18	4.11
38	2.832	2.876	2.921	1.55	0.19	4.09
39	2.718	2.761	2.806	1.59	0.20	4.06
40	2.609	2.652	2.696	1.64	0.20	4.02
41	2.505	2.548	2.591	1.69	0.21	4.00
42	2.406	2.448	2.490	1.72	0.22	3.98
43	2.312	2.353	2.394	1.74	0.22	3.95
44	2.222	2.262	2.303	1.79	0.23	3.93
45	2.135	2.175	2.215	1.84	0.24	3.91
46	2.053	2.092	2.131	1.86	0.24	3.90
47	1.974	2.012	2.051	1.91	0.25	3.85
48	1.899	1.937	1.975	1.96	0.26	3.82
49	1.827	1.864	1.901	1.98	0.26	3.81
50	1.758	1.795	1.831	2.03	0.27	3.79
51	1.693	1.728	1.764	2.05	0.27	3.79
52	1.630	1.664	1.700	2.10	0.28	3.76
53	1.569	1.603	1.638	2.15	0.29	3.71
54	1.512	1.545	1.579	2.17	0.29	3.69

$B_{25/50}$ = 3950K, R_{25} = 5kΩ, 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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
55	1.457	1.489	1.522	2.18	0.30	3.66
56	1.404	1.436	1.468	2.23	0.30	3.66
57	1.353	1.384	1.416	2.28	0.31	3.65
58	1.304	1.335	1.366	2.32	0.32	3.60
59	1.258	1.288	1.319	2.37	0.33	3.57
60	1.213	1.243	1.273	2.41	0.34	3.58
61	1.170	1.199	1.229	2.46	0.35	3.54
62	1.129	1.158	1.186	2.46	0.35	3.50
63	1.090	1.118	1.146	2.50	0.35	3.53
64	1.052	1.079	1.107	2.55	0.36	3.52
65	1.016	1.042	1.069	2.54	0.37	3.45
66	0.981	1.007	1.033	2.58	0.38	3.43
67	0.947	0.973	0.999	2.67	0.39	3.44
68	0.915	0.940	0.966	2.71	0.40	3.40
69	0.884	0.909	0.934	2.75	0.41	3.36
70	0.855	0.879	0.903	2.73	0.41	3.36
71	0.826	0.850	0.873	2.76	0.41	3.35
72	0.799	0.822	0.845	2.80	0.42	3.35
73	0.772	0.795	0.818	2.89	0.43	3.33
74	0.747	0.769	0.791	2.86	0.43	3.32
75	0.723	0.744	0.766	2.89	0.44	3.29
76	0.699	0.720	0.742	2.99	0.46	3.26
77	0.677	0.697	0.718	2.94	0.46	3.23
78	0.655	0.675	0.695	2.96	0.45	3.26
79	0.634	0.653	0.674	3.06	0.48	3.22
80	0.614	0.633	0.653	3.08	0.49	3.16
81	0.594	0.613	0.632	3.10	0.49	3.18
82	0.576	0.594	0.613	3.11	0.50	3.11
83	0.558	0.576	0.594	3.12	0.50	3.12
84	0.540	0.558	0.576	3.23	0.47	3.41
85	0.520	0.538	0.555	3.25	0.51	3.16
86	0.507	0.524	0.542	3.34	0.58	2.86

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
87	0.492	0.508	0.525	3.25	0.53	3.05
88	0.477	0.493	0.510	3.35	0.55	3.04
89	0.462	0.478	0.494	3.35	0.55	3.03
90	0.448	0.464	0.480	3.45	0.57	3.02
91	0.435	0.450	0.466	3.44	0.57	3.00
92	0.422	0.437	0.452	3.43	0.58	2.97
93	0.409	0.424	0.439	3.54	0.58	3.07
94	0.397	0.411	0.426	3.53	0.58	3.04
95	0.386	0.399	0.414	3.51	0.61	2.88
96	0.374	0.388	0.402	3.61	0.64	2.84
97	0.363	0.377	0.390	3.58	0.61	2.92
98	0.353	0.366	0.379	3.55	0.59	3.01
99	0.343	0.355	0.369	3.66	0.62	2.96
100	0.332	0.345	0.357	3.62	0.66	2.75
101	0.323	0.336	0.348	3.72	0.66	2.83
102	0.314	0.326	0.339	3.83	0.66	2.91
103	0.305	0.317	0.329	3.79	0.67	2.84
104	0.297	0.308	0.320	3.73	0.68	2.76
105	0.289	0.300	0.311	3.67	0.69	2.67
106	0.281	0.292	0.303	3.77	0.69	2.74
107	0.273	0.284	0.295	3.87	0.69	2.82
108	0.265	0.276	0.287	3.99	0.69	2.90
109	0.258	0.268	0.279	3.92	0.70	2.80
110	0.251	0.261	0.272	4.02	0.75	2.68
111	0.244	0.254	0.264	3.94	0.71	2.76
112	0.238	0.247	0.257	3.85	0.73	2.63
113	0.231	0.241	0.251	4.15	0.83	2.49
114	0.225	0.235	0.244	4.04	0.73	2.77
115	0.219	0.228	0.238	4.17	0.73	2.85
116	0.213	0.222	0.232	4.28	0.86	2.48
117	0.208	0.217	0.226	4.15	0.82	2.53
118	0.202	0.211	0.220	4.27	0.82	2.61

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
119	0.197	0.206	0.214	4.13	0.77	2.67
120	0.192	0.200	0.209	4.25	0.77	2.75
121	0.187	0.195	0.204	4.36	0.85	2.56
122	0.182	0.190	0.199	4.47	0.94	2.37
123	0.178	0.186	0.194	4.30	0.89	2.42
124	0.173	0.181	0.189	4.42	0.89	2.49
125	0.169	0.177	0.184	4.24	0.83	2.54
126	0.165	0.172	0.180	4.36	0.83	2.62
127	0.161	0.168	0.175	4.17	0.87	2.38
128	0.157	0.164	0.171	4.27	0.88	2.44
129	0.153	0.160	0.167	4.38	0.88	2.50
130	0.149	0.156	0.163	4.49	0.88	2.56
131	0.146	0.152	0.159	4.28	0.93	2.30
132	0.142	0.149	0.155	4.36	0.93	2.35
133	0.139	0.145	0.152	4.48	0.93	2.41
134	0.135	0.142	0.148	4.58	0.93	2.46
135	0.132	0.138	0.145	4.71	0.93	2.54
136	0.129	0.135	0.141	4.44	1.00	2.22
137	0.126	0.132	0.138	4.55	1.00	2.27
138	0.123	0.129	0.135	4.65	1.00	2.33
139	0.120	0.126	0.132	4.76	1.00	2.38
140	0.117	0.123	0.129	4.88	1.00	2.44
141	0.115	0.120	0.126	4.58	1.10	2.08
142	0.112	0.118	0.123	4.66	1.10	2.12
143	0.110	0.115	0.121	4.78	0.92	2.61
144	0.107	0.112	0.118	4.91	1.10	2.23
145	0.105	0.110	0.115	4.55	1.25	1.82
146	0.102	0.108	0.113	5.09	1.10	2.31
147	0.100	0.105	0.110	4.76	1.00	2.38
148	0.098	0.103	0.108	4.85	1.25	1.94
149	0.096	0.101	0.106	4.95	1.25	1.98
150	0.094	0.099	0.103	4.55	0.90	2.53

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
151	0.092	0.096	0.101	4.69	0.90	2.60
152	0.090	0.094	0.099	4.79	1.13	2.13
153	0.088	0.092	0.097	4.89	1.13	2.17
154	0.086	0.090	0.095	5.00	1.50	1.67
155	0.084	0.089	0.093	5.06	1.50	1.69
156	0.082	0.087	0.091	5.17	1.13	2.30
157	0.081	0.085	0.089	4.71	1.00	2.35
158	0.079	0.083	0.087	4.82	1.00	2.41
159	0.077	0.081	0.086	5.56	1.50	1.85
160	0.076	0.080	0.084	5.00	1.33	1.88
161	0.074	0.078	0.082	5.13	1.33	1.92
162	0.073	0.077	0.081	5.19	1.33	1.95
163	0.071	0.075	0.079	5.33	1.33	2.00
164	0.070	0.074	0.078	5.41	1.33	2.03
165	0.068	0.072	0.076	5.56	1.33	2.08
166	0.067	0.071	0.075	5.63	1.33	2.11
167	0.066	0.069	0.073	5.07	1.17	2.17
168	0.065	0.068	0.072	5.15	1.75	1.47
169	0.063	0.067	0.070	5.22	1.17	2.24
170	0.062	0.065	0.069	5.38	1.17	2.31
171	0.061	0.064	0.068	5.47	1.75	1.56
172	0.060	0.063	0.066	4.76	1.50	1.59
173	0.059	0.062	0.065	4.84	1.50	1.61
174	0.057	0.061	0.064	5.74	1.17	2.46
175	0.056	0.059	0.063	5.93	1.17	2.54
176	0.055	0.058	0.062	6.03	1.75	1.72
177	0.054	0.057	0.060	5.26	1.50	1.75
178	0.053	0.056	0.059	5.36	1.50	1.79
179	0.052	0.055	0.058	5.45	1.50	1.82
180	0.051	0.054	0.057	5.56	1.50	1.85
181	0.050	0.053	0.056	5.66	1.50	1.89
182	0.049	0.052	0.055	5.77	1.50	1.92

$B_{25/50}$ = 3950K, R_{25} = 5kΩ, 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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
183	0.049	0.051	0.054	4.90	1.25	1.96
184	0.048	0.050	0.053	5.00	2.50	1.00
185	0.047	0.050	0.052	5.00	2.50	1.00
186	0.046	0.049	0.051	5.10	1.25	2.04
187	0.045	0.048	0.051	6.25	1.50	2.08
188	0.044	0.047	0.050	6.38	1.50	2.13
189	0.044	0.046	0.049	5.43	1.25	2.17
190	0.043	0.045	0.048	5.56	2.50	1.11
191	0.042	0.045	0.047	5.56	2.50	1.11
192	0.041	0.044	0.046	5.68	1.25	2.27
193	0.041	0.043	0.046	5.81	1.25	2.33
194	0.040	0.042	0.045	5.95	2.50	1.19
195	0.039	0.042	0.044	5.95	2.50	1.19
196	0.039	0.041	0.043	4.88	1.00	2.44
197	0.038	0.040	0.043	6.25	2.50	1.25
198	0.037	0.040	0.042	6.25	2.50	1.25
199	0.037	0.039	0.041	5.13	1.00	2.56
200	0.036	0.038	0.040	5.26	2.00	1.32
201	0.035	0.038	0.040	6.58	2.50	1.32
202	0.035	0.037	0.039	5.41	1.00	2.70
203	0.034	0.036	0.039	6.94	2.50	1.39
204	0.034	0.036	0.038	5.56	2.00	1.39
205	0.033	0.035	0.037	5.71	2.00	1.43
206	0.033	0.035	0.037	5.71	2.00	1.43
207	0.032	0.034	0.036	5.88	1.00	2.94
208	0.032	0.033	0.035	4.55	1.50	1.52
209	0.031	0.033	0.035	6.06	2.00	1.52
210	0.031	0.032	0.034	4.69	1.50	1.56
211	0.030	0.032	0.034	6.25	2.00	1.56
212	0.030	0.031	0.033	4.84	1.50	1.61
213	0.029	0.031	0.033	6.45	2.00	1.61
214	0.029	0.030	0.032	5.00	1.50	1.67

$B_{25/50}$ = 3950K, R_{25} = 5kΩ, 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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
215	0.028	0.030	0.032	6.67	2.00	1.67
216	0.028	0.029	0.031	5.17	1.50	1.72
217	0.027	0.029	0.031	6.90	2.00	1.72
218	0.027	0.028	0.030	5.36	1.50	1.79
219	0.026	0.028	0.030	7.14	1.50	0.00
220	0.026	0.028	0.029	5.36	1.50	1.79
221	0.025	0.027	0.029	7.41	2.00	1.85
222	0.025	0.027	0.028	5.56	1.50	1.85
223	0.025	0.026	0.028	5.77	1.50	1.92
224	0.024	0.026	0.027	5.77	1.50	1.92
225	0.024	0.025	0.027	6.00	1.50	2.00
226	0.024	0.025	0.027	6.00	1.50	2.00
227	0.023	0.025	0.026	6.00	1.50	2.00
228	0.023	0.024	0.026	6.25	1.50	2.08
229	0.022	0.024	0.025	6.25	1.50	2.08
230	0.022	0.023	0.025	6.52	1.50	2.17
231	0.022	0.023	0.025	6.52	1.50	2.17
232	0.021	0.023	0.024	6.52	1.50	2.17
233	0.021	0.022	0.024	6.82	1.50	2.27
234	0.021	0.022	0.023	4.55	1.50	2.27
235	0.020	0.022	0.023	6.82	1.50	2.27
236	0.020	0.021	0.023	7.14	1.50	2.38
237	0.020	0.021	0.022	4.76	1.50	2.38
238	0.019	0.021	0.022	7.14	1.50	2.38
239	0.019	0.020	0.022	7.50	1.50	2.50
240	0.019	0.020	0.021	5.00	1.50	2.50
241	0.018	0.020	0.021	7.50	1.50	2.50
242	0.018	0.019	0.021	7.89	1.50	2.63
243	0.018	0.019	0.020	5.26	1.50	2.63
244	0.018	0.019	0.020	5.26	1.00	2.63
245	0.017	0.018	0.020	8.33	1.50	2.78
246	0.017	0.018	0.019	5.56	1.50	2.78

$B_{25/50}$ = 3950K, R_{25} = 5kΩ, 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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
247	0.017	0.018	0.019	5.56	1.50	2.78
248	0.016	0.018	0.019	8.33	1.50	2.78
249	0.016	0.017	0.018	5.88	1.00	2.94
250	0.016	0.017	0.018	5.88	1.00	2.94

To ensure optimal performance and reliability, it is recommended to follow proper storage procedures for the ATH5K1R3B3950K thermistor. Here are some guidelines:

1. Store the thermistors only in their original packaging and do not open the package before storage.
2. The recommended storage temperature is between −25°C to +45°C, with a relative humidity of less than 75% on average and a maximum of 95%. Dew precipitation is not allowed.
3. Do not expose the thermistors to heat or direct sunlight during storage as this may cause deformation of the packing material or sticking of the thermistors, leading to difficulties during mounting.
4. Avoid contamination of the thermistor's surface during storage, handling, and processing.
5. Do not store the thermistor in harmful environments containing corrosive gases like SOx, Cl, etc.
6. After opening the factory seals, such as polyvinyl-sealed packages, it is recommended to use the thermistors as soon as possible.
7. For optimal soldering performance, it is recommended to solder the thermistors within 12 months for SMDs and 24 months for leaded components after shipment from the manufacturer, ATI.

When handling NTC thermistors, it is important to prevent them from being dropped, as this could cause chip-offs and damage to the components. To avoid any damage, components should not be touched with bare hands, and gloves are recommended. It is also important to prevent any contamination of the thermistor surface during handling to ensure accurate readings.

When soldering the ATH5K1R3B3950K thermistor, it is important to use a resin-type or non-activated flux. Insufficient preheating can cause ceramic cracks, so proper preheating is recommended. Rapid cooling by dipping in solvent is not recommended. It is also recommended to completely remove any flux residue after soldering to prevent contamination or damage to the thermistor.

NOTICE

1. It is important to carefully read and follow the warnings, cautions, and product-specific notes provided with electronic components. These instructions are designed to ensure the safe and proper use of the component and to prevent damage to the component or surrounding equipment. Failure to follow these instructions could result in malfunction or failure of the component, damage to surrounding equipment, or even injury or harm to individuals. Always take the necessary precautions and seek professional assistance if unsure about proper use or handling of electronic components.
2. Please note that the products and specifications described in this publication are subject to change without prior notice as we continuously improve our products. Therefore, we recommend checking the product descriptions and specifications before placing an order to ensure that they are still applicable. We also reserve the right to discontinue the production and delivery of certain products, which means that not all products named in this publication may always be available.
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4. ATI warrants its products to perform according to specifications for one year from the date of sale, except when damaged due to excessive abuse. If a product fails to meet specifications within one year of the sale, it can be exchanged free of charge.
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9. ATI retains ownership of all rights for special technologies, techniques, and designs for its products and projects, as well as any modifications, improvements, and inventions made by ATI.
10. Please note that despite operating the passive electronic components as specified, malfunctions or failures before the end of their usual service life may still occur in individual cases due to the current state of the art. Therefore, in customer applications that require a high level of operational safety, especially those in which the malfunction or failure of a passive electronic component could pose a threat to human life or health (such as in accident prevention or life-saving systems), it is essential to ensure through suitable design of the customer application or other measures taken by the customer (such as the installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of a passive electronic component malfunction or failure.

