

Figure 1. The Physical Photo of ATH10K1R8B3950K

MAIN FEATURES

- Glass Encapsulated for Long Term Stability & Reliability
- High Stability: <math><0.1^{\circ}\text{C}/\text{year}</math>
- Small Size: $\phi 1.8\text{mm} \times 3.7\text{mm}$
- High Resistance Accuracy: 1%
- Quick Response Time: 20s
- Wide Temp. Range: -55°C to 250°C
- Leads: Tin-plated Copper- Clad Steel Wire. For maximized strength and conductivity, and optimized thermal expansion matching with glass casing
- 100% Lead (Pb)-free and RoHS Compliant

DESCRIPTION

Figure 1 shows the ATH10K1R8B3950K thermistor with its dimensions marked. In contrast to conventional epoxy-encapsulated thermistors, the ATH10K1R8B3950K offers superior long-term stability and a wider temperature range. Moreover, it has a compact size and a quick response time.

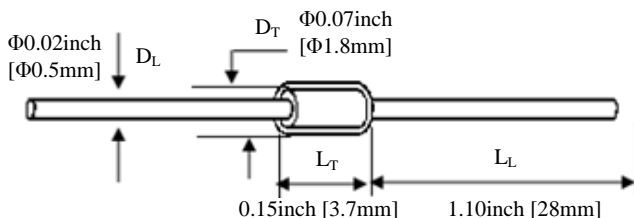


Figure 2. Side View of ATH10K1R8B3950K

SPECIFICATIONS

Parameters	Symbol	Value
Nominal Resistance @ 25°C	R ₂₅	10K ± 1%
B Value @ 25°C /50°C	B _{25/50}	3950K ± 1%
Thermistor Diameter	D _T	1.8 ± 0.2mm
Thermistor Length	L _T	3.7 ± 0.3mm
Lead Diameter	D _L	0.5 ± 0.05mm
Lead Length	L _L	28 ± 1mm
Dissipation Factor	δ _{th}	2mW/°C
Insulation Resistance	R _{is}	≥500MΩ
Maximum Power @ 25°C	P _{max}	50mW
Time Constant	τ _c	20s (in still air @ 5~25°C)

APPLICATION

Comparing with glass encapsulated bead or radial leaded thermistors, this axial leaded thermistor, ATH10K1R8B3950K, offers improved mechanical stability, enhanced heat dissipation, and higher power ratings and is suitable for use in automotive electronics, industrial electronics, and home appliances where cost-sensitive temperature sensing is required.

Axial leaded thermistors are widely employed for temperature measurement in electronic circuits, offering accurate and reliable temperature sensing capabilities. They can be seamlessly integrated into temperature measurement systems, digital thermometers, and other devices that require precise temperature readings.

In addition to temperature measurement, axial leaded thermistors find use in temperature compensation applications within electronic circuits. By incorporating them into temperature-sensitive components or circuits, their temperature-dependent resistance changes can be harnessed to adjust and compensate for temperature variations, ensuring stable operation.

Temperature control systems also benefit from the utilization of axial leaded thermistors. These thermistors serve as temperature sensors, providing valuable feedback for regulating heating or cooling elements in diverse applications like thermostats, ovens, incubators, and environmental chambers.

Axial leaded thermistors are indispensable in power electronics, particularly for thermal protection purposes. They monitor the temperature of power devices such as transistors, MOSFETs, and power modules. If the temperature surpasses a predefined threshold, the thermistor's resistance decreases, triggering a protection circuit to limit power or activate cooling mechanisms.

The automotive industry extensively employs axial leaded thermistors for temperature sensing and control. They play a crucial role in engine management systems, climate control systems, and various other automotive applications that demand precise temperature monitoring and regulation.



Battery temperature monitoring is another vital domain where axial leaded thermistors prove their value. Integrated into battery management systems (BMS), they accurately measure the temperature of battery packs. This information aids in monitoring battery health, preventing overheating, and optimizing charging and discharging processes.

Axial leaded thermistors also find widespread use in consumer electronics for temperature sensing and control.

They are commonly present in smartphones, laptops, tablets, and other electronic devices that require reliable temperature monitoring to ensure safe and efficient operation.

These are just a few examples of the numerous applications where axial leaded thermistors excel. Their compact size, accuracy, and sensitivity to temperature changes make them highly suitable for a broad range of temperature sensing and control needs across various industries.

PART NUMBER CONVENTION

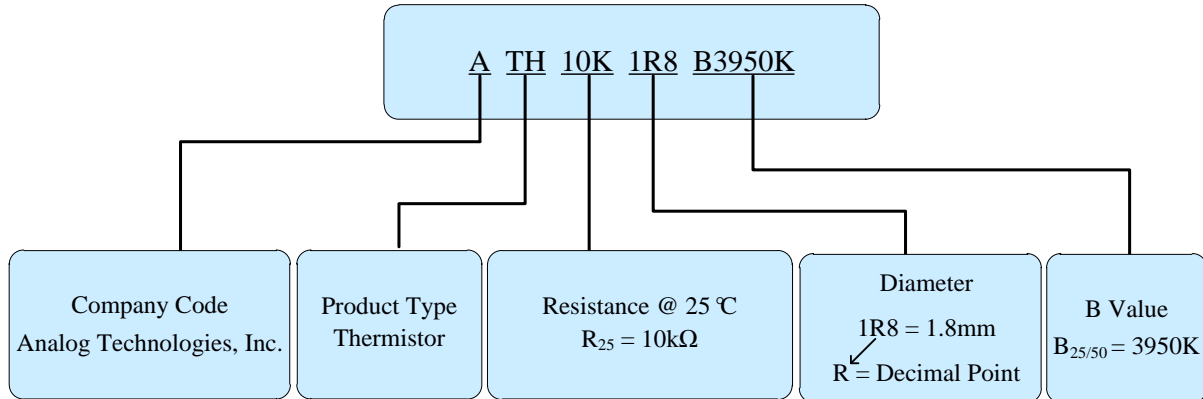


Figure 3. Part Number Convention of ATH10K1R8B3950K

RELIABILITY DATA

No.	Item	Standard	Test conditions and methods	Requirements
1	Terminal Pull Strength and Duration	IEC60068-2-21	Grip thermistor two leads Pull Strength: 5±1N, Time Duration: 10±1s	No Obvious Appearance Damage $\Delta R_{25}/R_{25} \leq \pm 2\%$
2	Solderability	IEC60068-2-20	Temperature: 245°C ± 5°C Time Duration: 2 ~ 3s	Coverage area ≥ 95%.
3	Withstand Soldering Temperature	IEC60068-2-20	Solder Pot Temperature: 260°C ± 5°C Immerse leads 6mm away from thermistor body Time Duration: 5 ± 1s	$\Delta R_{25}/R_{25} \leq \pm 2\%$
4	Humidity and Heat Sustainability	IEC60068-2-78	Temperature: 40°C ± 2°C Humidity: 93% ± 2% Time Duration: 500hrs	$\Delta R_{25}/R_{25} \leq \pm 2\%$
5	Thermal Cycling Sustainability	IEC60068-2-14	-55°C 30min → 25°C 5min → 250°C 30min → 25°C 5min, 5 cycles	$\Delta R_{25}/R_{25} \leq \pm 2\%$
6	High Temperature Storage Sustainability	IEC60068-2-2	Temperature: 250°C ± 5°C Time Duration: 1000hrs	$\Delta R_{25}/R_{25} \leq \pm 2\%$
7	Low Temperature Storage Sustainability	IEC60068-2-1	Temperature: -55°C Time Duration: 1000hrs	$\Delta R_{25}/R_{25} \leq \pm 2\%$

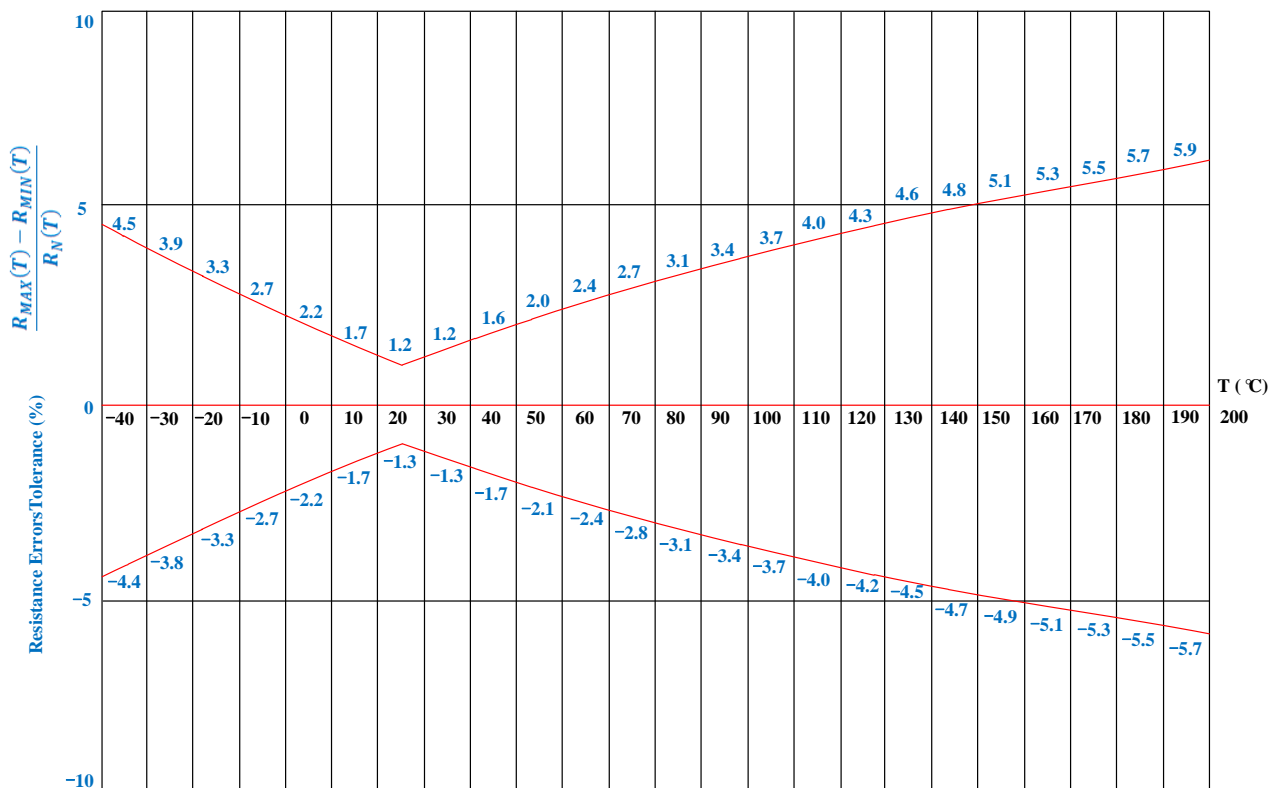


Figure 4. Resistance Tolerance vs. Temperature

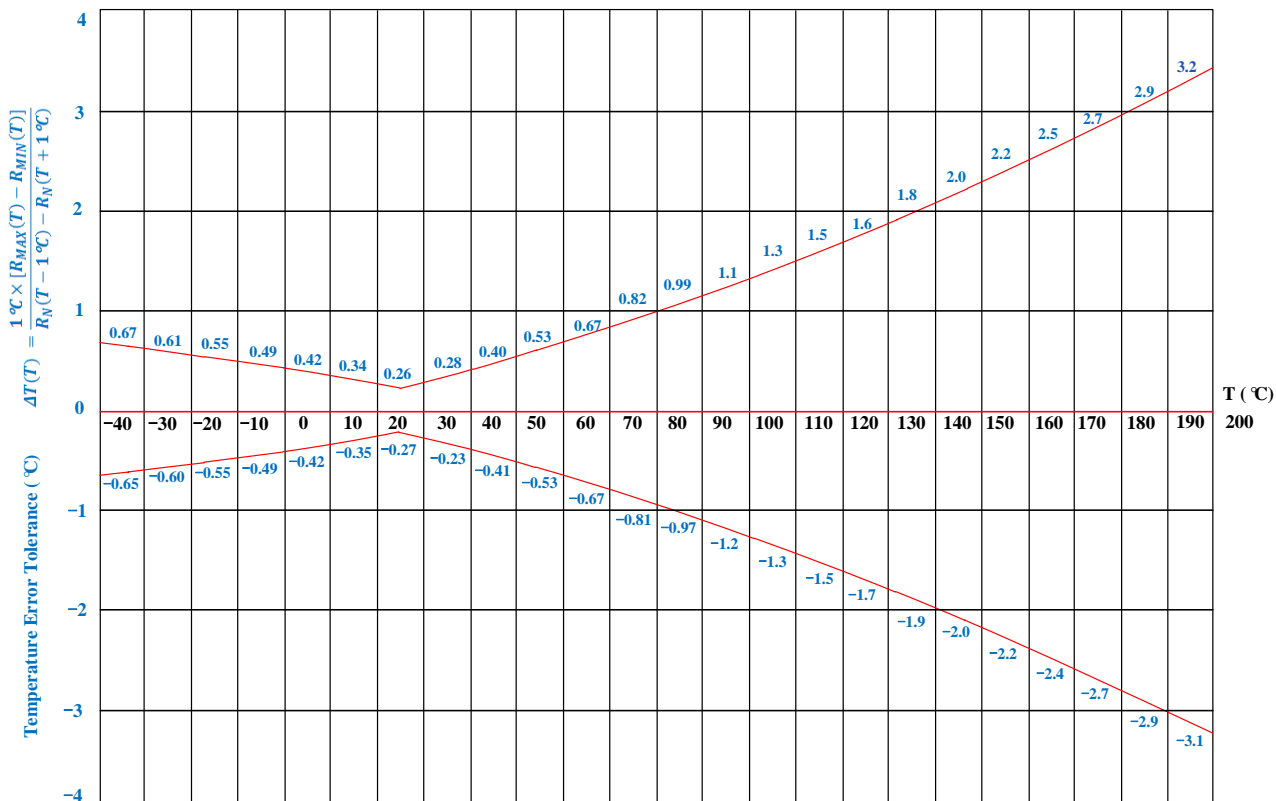


Figure 5. Temperature Tolerance vs. Temperature

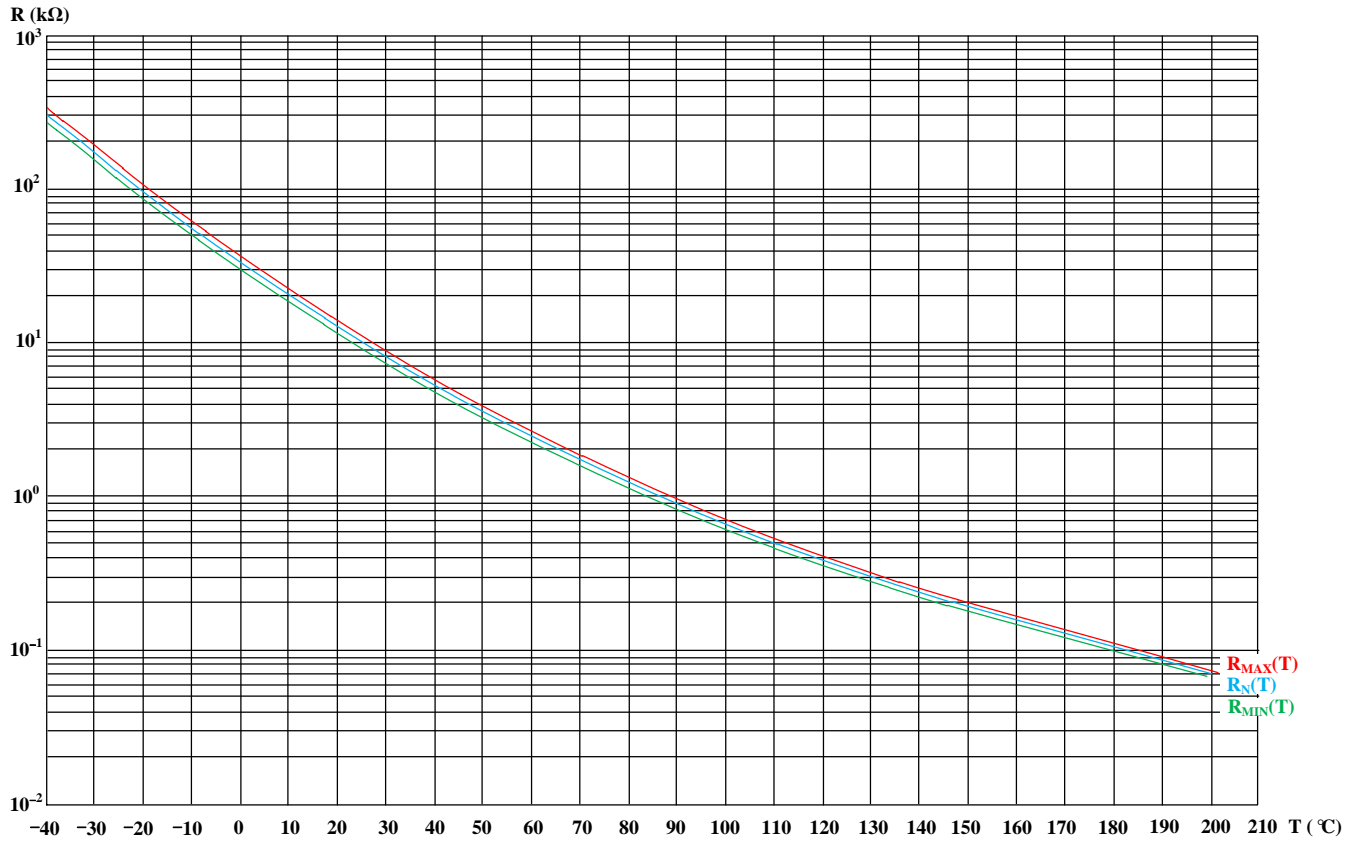


Figure 6. Resistance Tolerance vs. Temperature



RESISTANCE TEMPERATURE CHARACTERISTICS

$B_{25/50} = \ln[R_N(25)/R_N(50)]/[1/(25+273.15)-1/(50+273.15)] = 3950K, R_N(25) = 10k\Omega, \left \frac{R_{MAX}(25) - R_{MIN}(25)}{R_N(25)} \right \leq \pm 1\%$						
T (°C)	Thermistor Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature $\frac{\Delta R_T(T)}{R_N(T)} (\pm\%)$	Temperature Measurement Error at a Specific Temperature $\Delta T(T) (\pm^\circ C)$	Temperature Coefficient $\alpha (\%/^\circ C)$
	Minimum Value	Nominal Value	Maximum Value	$\frac{R_{MAX}(T) - R_{MIN}(T)}{R_N(T)}$	$\Delta T(T) = \frac{1^\circ C \times [R_{MAX}(T) - R_{MIN}(T)]}{R_N(T - 1^\circ C) - R_N(T + 1^\circ C)}$	$\alpha = \frac{R_N(T + 1^\circ C) - R_N(T - 1^\circ C)}{2^\circ C \times R_N(T)}$
	$R_{MIN}(T)$	$R_N(T)$	$R_{MAX}(T)$			
-40	289.721	302.801	316.439	4.41	0.44	4.99
-39	276.067	288.389	301.231	4.36	0.44	5.01
-38	262.312	273.879	285.927	4.31	0.41	5.28
-37	248.649	259.473	270.741	4.26	0.39	5.50
-36	235.239	245.342	255.853	4.20	0.37	5.68
-35	222.212	231.622	241.406	4.14	0.36	5.81
-34	209.665	218.415	227.508	4.08	0.35	5.91
-33	197.666	205.793	214.233	4.03	0.34	5.98
-32	186.258	193.799	201.626	3.96	0.33	6.02
-31	175.461	182.456	189.710	3.90	0.32	6.04
-30	165.281	171.766	178.487	3.84	0.32	6.04
-29	155.708	161.720	167.947	3.78	0.31	6.02
-28	146.724	152.297	158.067	3.72	0.31	5.99
-27	138.305	143.473	148.819	3.66	0.31	5.95
-26	130.422	135.215	140.170	3.60	0.30	5.91
-25	123.043	127.491	132.085	3.55	0.30	5.86
-24	116.138	120.265	124.527	3.49	0.30	5.81
-23	109.673	113.505	117.459	3.43	0.30	5.76
-22	103.619	107.178	110.848	3.37	0.30	5.72
-21	97.946	101.253	104.660	3.32	0.29	5.67
-20	92.626	95.699	98.863	3.26	0.29	5.62
-19	87.632	90.489	93.429	3.20	0.29	5.58
-18	82.942	85.598	88.330	3.15	0.28	5.54
-17	78.533	81.003	83.542	3.09	0.28	5.50
-16	74.384	76.682	79.043	3.04	0.28	5.47
-15	70.478	72.616	74.810	2.98	0.27	5.44
-14	66.797	68.786	70.826	2.93	0.27	5.41
-13	63.327	65.177	67.074	2.87	0.27	5.38
-12	60.052	61.773	63.537	2.82	0.26	5.35
-11	56.961	58.562	60.202	2.77	0.26	5.33
-10	54.041	55.531	57.056	2.71	0.26	5.31
-9	51.282	52.668	54.085	2.66	0.25	5.29
-8	48.674	49.963	51.281	2.61	0.25	5.26
-7	46.208	47.407	48.632	2.56	0.24	5.24
-6	43.876	44.991	46.129	2.50	0.24	5.22
-5	41.670	42.706	43.764	2.45	0.24	5.20
-4	39.582	40.546	41.529	2.40	0.23	5.18



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	Minimum Value	Nominal Value	Maximum Value	$\frac{R_{MAX}(T) - R_{MIN}(T)}{R_N(T)}$	$\Delta T(T) = \frac{1^\circ C \times [R_{MAX}(T) - R_{MIN}(T)]}{R_N(T - 1^\circ C) - R_N(T + 1^\circ C)}$	$\alpha = \frac{R_N(T + 1^\circ C) - R_N(T - 1^\circ C)}{2^\circ C \times R_N(T)}$
	$R_{MIN}(T)$	$R_N(T)$	$R_{MAX}(T)$			
-3	37.607	38.502	39.415	2.35	0.23	5.16
-2	35.737	36.569	37.417	2.30	0.22	5.14
-1	33.968	34.741	35.528	2.25	0.22	5.12
0	32.292	33.011	33.741	2.19	0.22	5.10
1	30.706	31.373	32.051	2.14	0.21	5.08
2	29.205	29.824	30.453	2.09	0.21	5.05
3	27.783	28.358	28.941	2.04	0.20	5.03
4	26.436	26.970	27.511	1.99	0.20	5.01
5	25.161	25.656	26.158	1.94	0.19	4.99
6	23.953	24.412	24.877	1.89	0.19	4.96
7	22.809	23.235	23.666	1.84	0.19	4.93
8	21.725	22.119	22.519	1.79	0.18	4.91
9	20.698	21.064	21.433	1.74	0.17	5.01
10	19.672	20.009	20.349	1.69	0.17	4.87
11	18.802	19.116	19.432	1.65	0.18	4.68
12	17.928	18.218	18.511	1.60	0.17	4.80
13	17.099	17.367	17.638	1.55	0.16	4.77
14	16.313	16.561	16.811	1.50	0.16	4.74
15	15.567	15.796	16.027	1.46	0.15	4.72
16	14.859	15.071	15.285	1.41	0.15	4.68
17	14.188	14.384	14.580	1.36	0.15	4.66
18	13.551	13.731	13.913	1.32	0.14	4.63
19	12.946	13.112	13.279	1.27	0.14	4.60
20	12.371	12.525	12.678	1.23	0.13	4.57
21	11.826	11.967	12.108	1.18	0.13	4.55
22	11.307	11.437	11.567	1.14	0.13	4.52
23	10.814	10.933	11.053	1.09	0.12	4.49
24	10.346	10.455	10.564	1.04	0.12	4.46
25	9.901	10.000	10.101	1.00	0.11	4.43
26	9.468	9.568	9.668	1.05	0.12	4.41
27	9.058	9.157	9.257	1.09	0.12	4.38
28	8.667	8.766	8.865	1.13	0.13	4.35
29	8.296	8.394	8.493	1.17	0.14	4.32
30	7.942	8.040	8.138	1.22	0.14	4.30
31	7.606	7.703	7.800	1.26	0.15	4.28
32	7.285	7.381	7.478	1.31	0.15	4.25
33	6.980	7.075	7.171	1.35	0.16	4.22
34	6.690	6.784	6.878	1.39	0.17	4.19
35	6.413	6.506	6.599	1.43	0.17	4.17
36	6.149	6.241	6.333	1.47	0.18	4.15
37	5.898	5.988	6.079	1.51	0.18	4.12
38	5.658	5.747	5.837	1.56	0.19	4.10



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	$R_{MIN}(T)$	$R_N(T)$	$R_{MAX}(T)$			
39	5.429	5.517	5.605	1.60	0.20	4.08
40	5.211	5.297	5.384	1.63	0.20	4.05
41	5.003	5.088	5.173	1.67	0.21	4.02
42	4.804	4.888	4.972	1.72	0.21	4.01
43	4.614	4.696	4.779	1.76	0.22	3.98
44	4.433	4.514	4.595	1.79	0.23	3.95
45	4.260	4.339	4.419	1.83	0.23	3.94
46	4.095	4.172	4.251	1.87	0.24	3.91
47	3.936	4.013	4.090	1.92	0.25	3.89
48	3.785	3.860	3.936	1.96	0.25	3.87
49	3.641	3.714	3.789	1.99	0.26	3.84
50	3.503	3.575	3.648	2.03	0.27	3.82
51	3.370	3.441	3.513	2.08	0.27	3.81
52	3.244	3.313	3.383	2.10	0.28	3.77
53	3.123	3.191	3.259	2.13	0.28	3.76
54	3.007	3.073	3.141	2.18	0.29	3.74
55	2.896	2.961	3.027	2.21	0.30	3.71
56	2.790	2.853	2.918	2.24	0.30	3.70
57	2.688	2.750	2.814	2.29	0.31	3.67
58	2.590	2.651	2.714	2.34	0.32	3.64
59	2.497	2.557	2.618	2.37	0.33	3.62
60	2.407	2.466	2.525	2.39	0.33	3.61
61	2.321	2.379	2.437	2.44	0.34	3.59
62	2.239	2.295	2.352	2.46	0.34	3.57
63	2.160	2.215	2.271	2.51	0.35	3.54
64	2.084	2.138	2.193	2.55	0.36	3.53
65	2.011	2.064	2.118	2.59	0.37	3.51
66	1.941	1.993	2.046	2.63	0.38	3.49
67	1.874	1.925	1.976	2.65	0.38	3.48
68	1.810	1.859	1.910	2.69	0.39	3.47
69	1.748	1.796	1.846	2.73	0.40	3.42
70	1.689	1.736	1.784	2.74	0.40	3.40
71	1.632	1.678	1.725	2.77	0.41	3.40
72	1.577	1.622	1.668	2.81	0.41	3.39
73	1.524	1.568	1.614	2.87	0.43	3.35
74	1.473	1.517	1.561	2.90	0.44	3.33
75	1.425	1.467	1.510	2.90	0.43	3.34
76	1.378	1.419	1.462	2.96	0.45	3.31
77	1.333	1.373	1.415	2.99	0.46	3.28
78	1.289	1.329	1.370	3.05	0.47	3.27
79	1.248	1.286	1.326	3.03	0.46	3.27
80	1.207	1.245	1.284	3.09	0.48	3.21
81	1.169	1.206	1.244	3.11	0.49	3.19



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	$R_{MIN}(T)$	$R_N(T)$	$R_{MAX}(T)$			
82	1.131	1.168	1.205	3.17	0.49	3.21
83	1.095	1.131	1.167	3.18	0.50	3.18
84	1.061	1.096	1.131	3.19	0.51	3.15
85	1.028	1.062	1.096	3.20	0.51	3.15
86	0.995	1.029	1.063	3.30	0.52	3.16
87	0.965	0.997	1.030	3.26	0.52	3.16
88	0.935	0.966	0.999	3.31	0.53	3.11
89	0.906	0.937	0.969	3.36	0.55	3.04
90	0.878	0.909	0.940	3.41	0.55	3.08
91	0.851	0.881	0.912	3.46	0.56	3.06
92	0.826	0.855	0.885	3.45	0.57	3.04
93	0.801	0.829	0.859	3.50	0.58	3.02
94	0.777	0.805	0.833	3.48	0.58	2.98
95	0.753	0.781	0.809	3.59	0.60	3.01
96	0.731	0.758	0.785	3.56	0.60	2.97
97	0.709	0.736	0.763	3.67	0.61	2.99
98	0.689	0.714	0.741	3.64	0.60	3.01
99	0.668	0.693	0.719	3.68	0.64	2.89
100	0.649	0.674	0.699	3.71	0.64	2.89
101	0.630	0.654	0.679	3.75	0.64	2.91
102	0.612	0.636	0.660	3.77	0.65	2.91
103	0.595	0.617	0.641	3.73	0.64	2.92
104	0.578	0.600	0.623	3.75	0.66	2.83
105	0.561	0.583	0.606	3.86	0.68	2.83
106	0.545	0.567	0.589	3.88	0.69	2.82
107	0.530	0.551	0.573	3.90	0.69	2.81
108	0.515	0.536	0.557	3.92	0.70	2.80
109	0.501	0.521	0.542	3.93	0.71	2.78
110	0.487	0.507	0.528	4.04	0.73	2.76
111	0.474	0.493	0.513	3.96	0.72	2.74
112	0.461	0.480	0.500	4.06	0.75	2.71
113	0.448	0.467	0.486	4.07	0.73	2.78
114	0.436	0.454	0.473	4.07	0.74	2.75
115	0.425	0.442	0.461	4.07	0.78	2.60
116	0.413	0.431	0.449	4.18	0.78	2.67
117	0.402	0.419	0.437	4.18	0.76	2.74
118	0.392	0.408	0.426	4.17	0.81	2.57
119	0.381	0.398	0.415	4.27	0.85	2.51
120	0.371	0.388	0.404	4.25	0.83	2.58
121	0.362	0.378	0.394	4.23	0.80	2.65
122	0.353	0.368	0.384	4.21	0.82	2.58
123	0.343	0.359	0.375	4.46	0.89	2.51
124	0.335	0.350	0.365	4.29	0.83	2.57



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	$R_{MIN}(T)$	$R_N(T)$	$R_{MAX}(T)$			
125	0.326	0.341	0.356	4.40	0.83	2.64
126	0.318	0.332	0.347	4.37	0.85	2.56
127	0.310	0.324	0.339	4.48	0.91	2.47
128	0.302	0.316	0.331	4.59	0.97	2.37
129	0.295	0.309	0.323	4.53	0.93	2.43
130	0.288	0.301	0.315	4.49	0.90	2.49
131	0.281	0.294	0.307	4.42	0.93	2.38
132	0.274	0.287	0.300	4.53	0.93	2.44
133	0.267	0.280	0.293	4.64	0.93	2.50
134	0.261	0.273	0.286	4.58	0.96	2.38
135	0.255	0.267	0.280	4.68	1.04	2.25
136	0.249	0.261	0.273	4.60	1.00	2.30
137	0.243	0.255	0.267	4.71	1.00	2.35
138	0.237	0.249	0.261	4.82	1.00	2.41
139	0.232	0.243	0.255	4.73	1.05	2.26
140	0.227	0.238	0.249	4.62	1.00	2.31
141	0.221	0.232	0.244	4.96	1.05	2.37
142	0.216	0.227	0.238	4.85	1.10	2.20
143	0.212	0.222	0.233	4.73	1.05	2.25
144	0.207	0.217	0.228	4.84	1.05	2.30
145	0.202	0.212	0.223	4.95	1.17	2.12
146	0.198	0.208	0.218	4.81	1.11	2.16
147	0.193	0.203	0.213	4.93	1.11	2.22
148	0.189	0.199	0.209	5.03	1.11	2.26
149	0.185	0.194	0.204	4.90	1.06	2.32
150	0.181	0.190	0.200	5.00	1.19	2.11
151	0.177	0.186	0.196	5.11	1.19	2.15
152	0.173	0.182	0.192	5.22	1.19	2.20
153	0.170	0.178	0.188	5.06	1.29	1.97
154	0.166	0.175	0.184	5.14	1.29	2.00
155	0.163	0.171	0.180	4.97	1.21	2.05
156	0.159	0.168	0.176	5.06	1.21	2.08
157	0.156	0.164	0.173	5.18	1.21	2.13
158	0.153	0.161	0.169	4.97	1.14	2.17
159	0.150	0.157	0.166	5.10	1.14	2.23
160	0.146	0.154	0.162	5.19	1.33	1.95
161	0.143	0.151	0.159	5.30	1.33	1.99
162	0.141	0.148	0.156	5.07	1.25	2.03
163	0.138	0.145	0.153	5.17	1.25	2.07
164	0.135	0.142	0.150	5.28	1.25	2.11
165	0.132	0.139	0.147	5.40	1.25	2.16
166	0.129	0.136	0.144	5.51	1.50	1.84
167	0.127	0.134	0.141	5.22	1.40	1.87



$B_{25/50} = \ln[R_N(25)/R_N(50)]/[1/(25+273.15)-1/(50+273.15)] = 3950K, R_N(25) = 10k\Omega, \left \frac{R_{MAX}(25)-R_{MIN}(25)}{R_N(25)} \right \leq \pm 1\%$						
T (°C)	Thermistor Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature $\frac{\Delta R_T(T)}{R_N(T)} (\pm\%)$	Temperature Measurement Error at a Specific Temperature $\Delta T(T) (\pm^\circ C)$	Temperature Coefficient $\alpha (\%/^\circ C)$
	Minimum Value	Nominal Value	Maximum Value	$\frac{R_{MAX}(T) - R_{MIN}(T)}{R_N(T)}$	$\Delta T(T) = \frac{1^\circ C \times [R_{MAX}(T) - R_{MIN}(T)]}{R_N(T - 1^\circ C) - R_N(T + 1^\circ C)}$	$\alpha = \frac{R_N(T + 1^\circ C) - R_N(T - 1^\circ C)}{2^\circ C \times R_N(T)}$
	$R_{MIN}(T)$	$R_N(T)$	$R_{MAX}(T)$			
168	0.124	0.131	0.138	5.34	1.17	2.29
169	0.122	0.128	0.136	5.47	1.40	1.95
170	0.119	0.126	0.133	5.56	1.40	1.98
171	0.117	0.123	0.130	5.28	1.30	2.03
172	0.115	0.121	0.128	5.37	1.63	1.65
173	0.112	0.119	0.125	5.46	1.30	2.10
174	0.110	0.116	0.123	5.60	1.30	2.16
175	0.108	0.114	0.120	5.26	1.50	1.75
176	0.106	0.112	0.118	5.36	1.20	2.23
177	0.104	0.109	0.116	5.50	1.20	2.29
178	0.102	0.107	0.113	5.14	1.38	1.87
179	0.100	0.105	0.111	5.24	1.38	1.90
180	0.098	0.103	0.109	5.34	1.38	1.94
181	0.096	0.101	0.107	5.45	1.38	1.98
182	0.094	0.099	0.105	5.56	1.38	2.02
183	0.092	0.097	0.103	5.67	1.38	2.06
184	0.090	0.095	0.101	5.79	1.38	2.11
185	0.088	0.093	0.099	5.91	1.38	2.15
186	0.086	0.091	0.097	6.04	1.38	2.20
187	0.085	0.089	0.095	5.62	1.67	1.69
188	0.083	0.088	0.093	5.68	1.67	1.70
189	0.081	0.086	0.091	5.81	1.25	2.33
190	0.079	0.084	0.089	5.95	1.25	2.38
191	0.078	0.082	0.087	5.49	1.50	1.83
192	0.076	0.081	0.086	6.17	1.67	1.85
193	0.075	0.079	0.084	5.70	1.13	2.53
194	0.073	0.077	0.082	5.84	1.50	1.95
195	0.072	0.076	0.080	5.26	1.33	1.97
196	0.070	0.074	0.079	6.08	1.50	2.03
197	0.069	0.073	0.077	5.48	1.33	2.05
198	0.067	0.071	0.076	6.34	1.50	2.11
199	0.066	0.070	0.074	5.71	1.33	2.14
200	0.064	0.068	0.072	5.88	1.33	2.21
201	0.063	0.067	0.071	5.97	1.33	2.24
202	0.062	0.065	0.070	6.15	1.33	2.31
203	0.060	0.064	0.068	6.25	2.00	1.56
204	0.059	0.063	0.067	6.35	1.33	2.38
205	0.058	0.061	0.065	5.74	1.17	2.46
206	0.057	0.060	0.064	5.83	1.75	1.67
207	0.055	0.059	0.063	6.78	2.00	1.69
208	0.054	0.058	0.061	6.03	1.17	2.59
209	0.053	0.056	0.060	6.25	1.17	2.68
210	0.052	0.055	0.059	6.36	1.75	1.82



$B_{25/50} = \ln[R_N(25)/R_N(50)]/[1/(25+273.15)-1/(50+273.15)] = 3950K, R_N(25) = 10k\Omega, \left \frac{R_{MAX}(25)-R_{MIN}(25)}{R_N(25)} \right \leq \pm 1\%$						
T (°C)	Thermistor Resistance (kΩ)			Relative Resistance Variation at a Specific Temperature $\frac{\Delta R_T(T)}{R_N(T)}$ (±%)	Temperature Measurement Error at a Specific Temperature $\Delta T(T)$ (±°C)	Temperature Coefficient α (%/°C)
	Minimum Value	Nominal Value	Maximum Value	$\frac{R_{MAX}(T) - R_{MIN}(T)}{R_N(T)}$	$\Delta T(T) = \frac{1^\circ C \times [R_{MAX}(T) - R_{MIN}(T)]}{R_N(T - 1^\circ C) - R_N(T + 1^\circ C)}$	$\alpha = \frac{R_N(T + 1^\circ C) - R_N(T - 1^\circ C)}{2^\circ C \times R_N(T)}$
	$R_{MIN}(T)$	$R_N(T)$	$R_{MAX}(T)$			
211	0.051	0.054	0.057	5.56	1.50	1.85
212	0.050	0.053	0.056	5.66	1.50	1.89
213	0.049	0.052	0.055	5.77	1.50	1.92
214	0.048	0.051	0.054	5.88	1.50	1.96
215	0.047	0.050	0.053	6.00	1.50	2.00
216	0.046	0.049	0.052	6.12	1.50	2.04
217	0.045	0.048	0.051	6.25	1.50	2.08
218	0.044	0.047	0.050	6.38	1.50	2.13
219	0.043	0.046	0.049	6.52	1.50	2.17
220	0.042	0.045	0.048	6.67	1.50	2.22
221	0.041	0.044	0.047	6.82	1.50	2.27
222	0.040	0.043	0.046	6.98	1.50	2.33
223	0.039	0.042	0.045	7.14	1.50	2.38
224	0.039	0.041	0.044	6.10	1.25	2.44
225	0.038	0.040	0.043	6.25	2.50	1.25
226	0.037	0.040	0.042	6.25	2.50	1.25
227	0.037	0.039	0.042	6.41	1.25	2.56
228	0.036	0.038	0.041	6.58	2.50	1.32
229	0.035	0.038	0.040	6.58	2.50	1.32
230	0.035	0.037	0.039	5.41	1.00	2.70
231	0.034	0.036	0.039	6.94	2.50	1.39
232	0.033	0.036	0.038	6.94	2.50	1.39
233	0.033	0.035	0.037	5.71	2.00	1.43
235	0.032	0.035	0.037	7.14	2.50	1.43
236	0.032	0.034	0.036	5.88	2.00	1.47
237	0.031	0.034	0.036	7.35	2.50	1.47
238	0.031	0.033	0.035	6.06	2.00	1.52
239	0.031	0.033	0.035	6.06	2.00	1.52
240	0.030	0.032	0.034	6.25	2.00	1.56
241	0.030	0.032	0.034	6.25	2.00	1.56
242	0.030	0.032	0.034	6.25	2.00	1.56
243	0.029	0.031	0.033	6.45	2.00	1.61
244	0.029	0.031	0.033	6.45	2.00	1.61
245	0.029	0.031	0.033	6.45	2.00	1.61
246	0.029	0.031	0.033	6.45	2.00	1.61
247	0.028	0.030	0.032	6.67	2.00	1.67
248	0.028	0.030	0.032	6.67	2.00	1.67
249	0.028	0.030	0.032	6.67	2.00	1.67
250	0.028	0.030	0.032	6.67	2.00	1.67



To ensure optimal performance and reliability, it is recommended to follow proper storage procedures for the ATH10K1R8B3950K 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 $-25\text{ }^{\circ}\text{C}$ to $+45\text{ }^{\circ}\text{C}$, 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 SO_x , 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 ATH10K1R8B3950K 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.
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