

Figure 1. The Physical Photo of ATH20K1R3B3950K

MAIN FEATURES

- Glass Encapsulated for Long Term Stability & Reliability
- High Stability: <math><0.1^{\circ}\text{C}/\text{year}</math>
- Small Size: $\phi 1.3\text{mm} \times 2.0\text{mm}$
- High Resistance Accuracy: 1%
- Quick Response Time: 14s
- Wide Temp. Range: -40°C to 250°C
- Leads: Dumet Wires (Copper-Clad FeNi)
- 100% Lead (Pb)-free and RoHS Compliant

APPLICATIONS

The ATH20K1R3B3950K 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 ATH20K1R3B3950K thermistor, which boasts high precision and a glass encapsulation design. In contrast to conventional epoxy-encapsulated thermistors, the ATH20K1R3B3950K offers superior long-term stability and a wider temperature range. Moreover, it has a compact size and a quick response time.

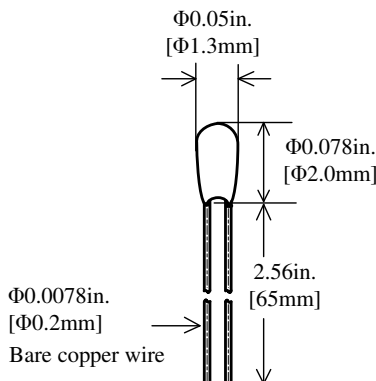


Figure 2. Side View of ATH20K1R3B3950K

SPECIFICATIONS

Parameters	Symbol	Value
Nominal Resistance @ 25°C	R_{25}	$20\text{K} \pm 1\%$
B Value @ $25^{\circ}\text{C} / 50^{\circ}\text{C}$	$B_{25/50}$	$3950\text{K} \pm 1\%$
Thermistor Diameter	D_T	$1.3 \pm 0.2\text{mm}$
Thermistor Length	L_T	$2.0 \pm 0.5\text{mm}$
Lead Diameter	D_L	$0.2 \pm 0.05\text{mm}$
Lead Length	L_L	$65 \pm 2\text{mm}$
Dissipation Factor	δ_{th}	$1.4\text{mW}/^{\circ}\text{C}$
Insulation Resistance	R_{is}	$\geq 100\text{M}\Omega$
Maximum Power @ 25°C	P_{max}	35mW
Time Constant	τ_c	14s (in still air @ $5 \sim 25^{\circ}\text{C}$)

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 ATH20K1R3B3950K 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 ATH20K1R3B3950K 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.

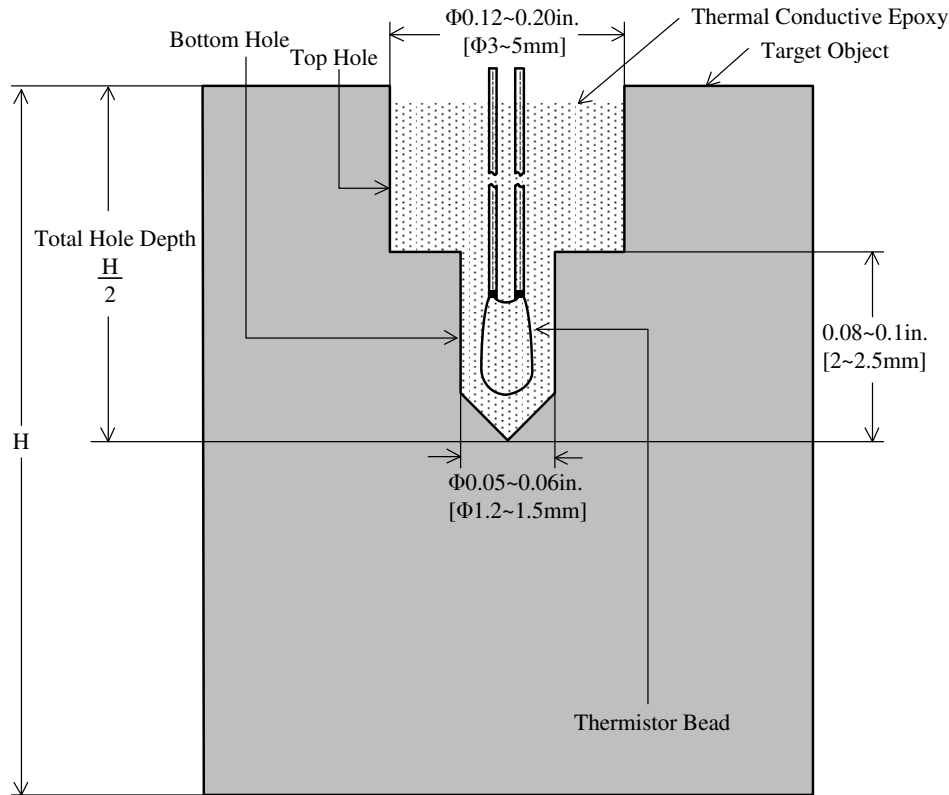


Figure 3. Section View of Recommended Counterbore Hole

PART NUMBER CONVENTION

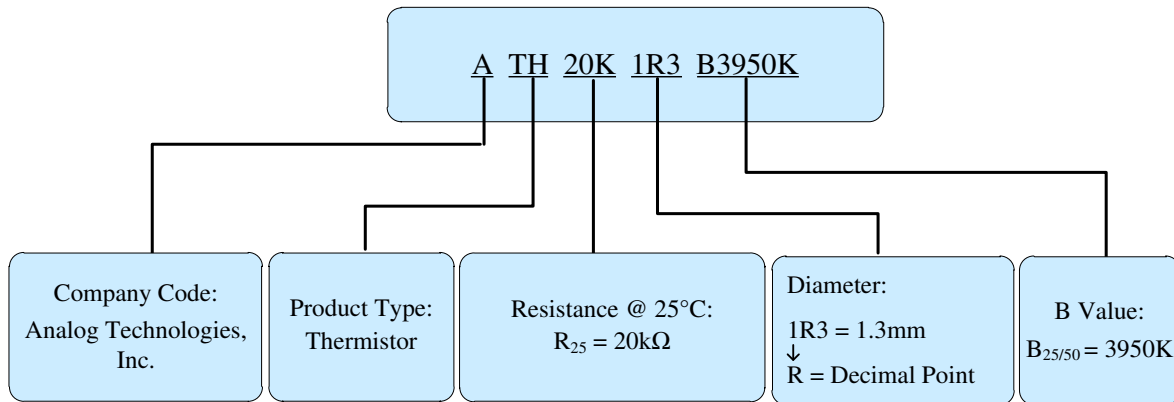


Figure 4. Part Number Convention of ATH20K1R3B3950K



RESISTANCE TEMPERATURE CHARACTERISTICS

$B_{25/50} = 3950K, R_{25} = 20k\Omega, T_R = 25^\circ C, \frac{\Delta R_T}{R_T}: \pm 1\%$

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	1095.551	1152.401	1212.081	5.06	1.10	2.21
-54	1075.441	1131.031	1189.381	5.04	1.13	2.23
-53	1048.001	1101.891	1158.431	5.01	0.86	2.92
-52	1014.891	1066.731	1121.101	4.98	0.71	3.50
-51	977.585	1027.121	1079.071	4.94	0.62	4.00
-50	937.385	984.474	1033.821	4.90	0.55	4.43
-49	895.404	939.949	986.613	4.85	0.51	4.78
-48	852.567	894.539	938.482	4.80	0.47	5.08
-47	809.624	849.038	890.282	4.75	0.45	5.33
-46	767.167	804.077	842.678	4.70	0.42	5.53
-45	725.652	760.137	796.181	4.64	0.41	5.69
-44	685.416	717.576	751.169	4.58	0.39	5.82
-43	646.701	676.647	707.908	4.52	0.38	5.92
-42	609.667	637.517	666.573	4.46	0.37	5.99
-41	574.408	600.287	627.268	4.40	0.36	6.04
-40	540.971	565.001	590.039	4.34	0.36	6.07
-39	509.360	531.662	554.885	4.28	0.35	6.09
-38	479.550	500.242	521.775	4.22	0.35	6.09
-37	451.496	470.691	490.653	4.16	0.34	6.09
-36	425.136	442.941	461.445	4.10	0.34	6.07
-35	400.396	416.912	434.067	4.04	0.33	6.05
-34	377.198	392.521	408.425	3.98	0.33	6.02
-33	355.459	369.677	384.425	3.92	0.33	5.98
-32	335.095	348.291	361.970	3.86	0.32	5.94
-31	316.024	328.274	340.965	3.80	0.32	5.90
-30	298.163	309.539	321.317	3.74	0.32	5.86
-29	281.435	292.003	302.937	3.68	0.32	5.81
-28	265.765	275.584	285.738	3.62	0.31	5.77
-27	251.080	260.208	269.640	3.57	0.31	5.72
-26	237.315	245.802	254.568	3.51	0.31	5.68
-25	224.406	232.301	240.448	3.45	0.31	5.63



B_{25/50} = 3950K, R₂₅ = 20kΩ, T_R = 25°C, ΔR_T/R_T: ± 1%,

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	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
-24	212.294	219.639	227.216	3.40	0.30	5.59
-23	200.924	207.760	214.807	3.34	0.30	5.54
-22	190.245	196.609	203.166	3.29	0.30	5.50
-21	180.208	186.135	192.237	3.23	0.30	5.46
-20	170.771	176.291	181.972	3.18	0.29	5.42
-19	161.891	167.034	172.324	3.12	0.29	5.38
-18	153.532	158.325	163.251	3.07	0.29	5.34
-17	145.658	150.125	154.714	3.02	0.28	5.30
-16	138.237	142.401	146.676	2.96	0.28	5.27
-15	131.238	135.121	139.104	2.91	0.28	5.23
-14	124.635	128.255	131.967	2.86	0.27	5.20
-13	118.401	121.777	125.237	2.81	0.27	5.17
-12	112.513	115.662	118.887	2.76	0.27	5.14
-11	106.950	109.886	112.892	2.70	0.26	5.11
-10	101.689	104.428	107.230	2.65	0.26	5.08
-9	96.714	99.269	101.880	2.60	0.26	5.06
-8	92.006	94.389	96.823	2.55	0.25	5.03
-7	87.549	89.771	92.041	2.50	0.25	5.01
-6	83.328	85.401	87.516	2.45	0.25	4.98
-5	79.330	81.262	83.233	2.40	0.24	4.96
-4	75.540	77.342	79.179	2.35	0.24	4.94
-3	71.947	73.627	75.339	2.30	0.23	4.91
-2	68.540	70.106	71.701	2.25	0.23	4.89
-1	65.307	66.767	68.253	2.21	0.23	4.87
0	62.240	63.601	64.984	2.16	0.22	4.85
1	59.329	60.596	61.884	2.11	0.22	4.83
2	56.565	57.745	58.945	2.06	0.21	4.81
3	53.940	55.039	56.155	2.01	0.21	4.79
4	51.447	52.470	53.508	1.96	0.21	4.77
5	49.078	50.030	50.996	1.92	0.20	4.75
6	46.827	47.713	48.611	1.87	0.20	4.74
7	44.687	45.511	46.346	1.82	0.19	4.72



B_{25/50} = 3950K, R₂₅ = 20kΩ, T_R = 25°C, ΔR_T/R_T: ± 1%,

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	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
8	42.653	43.419	44.194	1.77	0.19	4.70
9	40.719	41.431	42.151	1.73	0.18	4.68
10	38.879	39.541	40.209	1.68	0.18	4.66
11	37.130	37.743	38.364	1.63	0.18	4.64
12	35.465	36.035	36.610	1.59	0.17	4.62
13	33.881	34.410	34.943	1.54	0.17	4.61
14	32.374	32.864	33.358	1.50	0.16	4.59
15	30.939	31.393	31.850	1.45	0.16	4.57
16	29.574	29.994	30.416	1.40	0.15	4.55
17	28.273	28.662	29.053	1.36	0.15	4.54
18	27.035	27.394	27.755	1.31	0.15	4.52
19	25.856	26.188	26.521	1.27	0.14	4.50
20	24.733	25.039	25.346	1.22	0.14	4.48
21	23.663	23.945	24.228	1.18	0.13	4.46
22	22.643	22.903	23.163	1.14	0.13	4.44
23	21.672	21.911	22.150	1.09	0.12	4.42
24	20.746	20.965	21.185	1.05	0.11	4.56
25	19.801	20.001	20.201	1.00	0.11	4.40
26	19.007	19.206	19.406	1.04	0.12	4.20
27	18.189	18.388	18.588	1.08	0.12	4.34
28	17.410	17.609	17.807	1.13	0.13	4.32
29	16.668	16.865	17.063	1.17	0.14	4.31
30	15.961	16.156	16.353	1.21	0.14	4.28
31	15.287	15.481	15.675	1.25	0.15	4.26
32	14.644	14.836	15.029	1.30	0.15	4.25
33	14.031	14.221	14.412	1.34	0.16	4.23
34	13.446	13.634	13.823	1.38	0.16	4.21
35	12.889	13.074	13.261	1.42	0.17	4.18
36	12.357	12.540	12.725	1.47	0.18	4.16
37	11.849	12.030	12.212	1.51	0.18	4.14
38	11.365	11.543	11.723	1.55	0.19	4.12
39	10.903	11.078	11.255	1.59	0.19	4.10



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40	10.461	10.634	10.808	1.63	0.20	4.08
41	10.040	10.210	10.382	1.67	0.21	4.06
42	9.638	9.805	9.974	1.71	0.21	4.04
43	9.253	9.418	9.584	1.76	0.22	4.02
44	8.886	9.048	9.211	1.80	0.22	4.00
45	8.536	8.694	8.854	1.83	0.23	3.98
46	8.200	8.356	8.513	1.87	0.24	3.96
47	7.880	8.032	8.187	1.91	0.24	3.94
48	7.574	7.723	7.875	1.95	0.25	3.92
49	7.281	7.427	7.576	1.99	0.26	3.89
50	7.001	7.145	7.291	2.03	0.26	3.87
51	6.733	6.874	7.017	2.07	0.27	3.86
52	6.476	6.615	6.755	2.11	0.28	3.83
53	6.231	6.367	6.504	2.14	0.28	3.82
54	5.996	6.129	6.264	2.19	0.29	3.79
55	5.772	5.902	6.034	2.22	0.29	3.77
56	5.557	5.684	5.813	2.25	0.30	3.76
57	5.351	5.475	5.602	2.29	0.31	3.74
58	5.153	5.275	5.399	2.33	0.31	3.72
59	4.964	5.083	5.205	2.37	0.32	3.69
60	4.783	4.900	5.019	2.41	0.33	3.66
61	4.609	4.724	4.840	2.44	0.33	3.65
62	4.443	4.555	4.669	2.48	0.34	3.63
63	4.283	4.393	4.504	2.52	0.35	3.62
64	4.130	4.237	4.347	2.56	0.36	3.60
65	3.984	4.088	4.195	2.58	0.36	3.57
66	3.843	3.945	4.050	2.62	0.37	3.55
67	3.708	3.808	3.910	2.65	0.38	3.53
68	3.578	3.676	3.776	2.69	0.38	3.51
69	3.454	3.550	3.648	2.73	0.39	3.49
70	3.334	3.428	3.524	2.77	0.40	3.49
71	3.220	3.311	3.405	2.79	0.40	3.46



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72	3.109	3.199	3.291	2.84	0.41	3.44
73	3.004	3.091	3.181	2.86	0.42	3.41
74	2.902	2.988	3.075	2.89	0.43	3.40
75	2.804	2.888	2.974	2.94	0.43	3.39
76	2.710	2.792	2.876	2.97	0.44	3.37
77	2.620	2.700	2.782	3.00	0.45	3.35
78	2.533	2.611	2.692	3.04	0.46	3.33
79	2.450	2.526	2.605	3.07	0.46	3.31
80	2.369	2.444	2.521	3.11	0.47	3.29
81	2.292	2.365	2.440	3.13	0.48	3.28
82	2.218	2.289	2.363	3.17	0.49	3.25
83	2.146	2.216	2.288	3.20	0.49	3.25
84	2.077	2.145	2.216	3.24	0.50	3.22
85	2.011	2.078	2.146	3.25	0.51	3.20
86	1.947	2.012	2.079	3.28	0.51	3.21
87	1.885	1.949	2.015	3.34	0.52	3.18
88	1.826	1.888	1.953	3.36	0.53	3.15
89	1.769	1.830	1.893	3.39	0.54	3.14
90	1.714	1.773	1.835	3.41	0.55	3.13
91	1.661	1.719	1.779	3.43	0.56	3.08
92	1.609	1.667	1.726	3.51	0.57	3.09
93	1.560	1.616	1.674	3.53	0.57	3.09
94	1.512	1.567	1.624	3.57	0.58	3.06
95	1.467	1.520	1.575	3.55	0.59	3.03
96	1.422	1.475	1.529	3.63	0.60	3.02
97	1.380	1.431	1.484	3.63	0.60	3.04
98	1.338	1.388	1.440	3.67	0.61	3.03
99	1.298	1.347	1.398	3.71	0.61	3.04
100	1.258	1.306	1.355	3.71	0.63	2.95
101	1.223	1.270	1.318	3.74	0.65	2.87
102	1.187	1.233	1.280	3.77	0.64	2.96
103	1.152	1.197	1.244	3.84	0.66	2.92



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104	1.119	1.163	1.208	3.83	0.66	2.88
105	1.087	1.130	1.174	3.85	0.66	2.92
106	1.055	1.097	1.141	3.92	0.67	2.92
107	1.025	1.066	1.109	3.94	0.69	2.86
108	0.996	1.036	1.078	3.96	0.69	2.85
109	0.968	1.007	1.048	3.97	0.70	2.83
110	0.941	0.979	1.019	3.98	0.71	2.81
111	0.914	0.952	0.991	4.04	0.73	2.78
112	0.889	0.926	0.964	4.05	0.72	2.81
113	0.864	0.900	0.938	4.11	0.73	2.83
114	0.840	0.875	0.912	4.11	0.75	2.74
115	0.817	0.852	0.888	4.17	0.76	2.76
116	0.794	0.828	0.864	4.23	0.76	2.78
117	0.773	0.806	0.841	4.22	0.77	2.73
118	0.752	0.784	0.818	4.21	0.77	2.74
119	0.732	0.763	0.797	4.26	0.79	2.69
120	0.712	0.743	0.776	4.31	0.80	2.69
121	0.693	0.723	0.755	4.29	0.79	2.70
122	0.674	0.704	0.736	4.40	0.84	2.63
123	0.656	0.686	0.716	4.37	0.83	2.62
124	0.639	0.668	0.698	4.42	0.84	2.62
125	0.622	0.651	0.680	4.45	0.85	2.61
126	0.606	0.634	0.662	4.42	0.82	2.68
127	0.590	0.617	0.646	4.54	0.85	2.67
128	0.575	0.601	0.629	4.49	0.87	2.58
129	0.560	0.586	0.613	4.52	0.88	2.56
130	0.546	0.571	0.598	4.55	0.90	2.54
131	0.532	0.557	0.583	4.58	0.91	2.51
132	0.518	0.543	0.568	4.60	0.89	2.58
133	0.505	0.529	0.554	4.63	0.91	2.55
134	0.492	0.516	0.540	4.65	0.92	2.52
135	0.480	0.503	0.527	4.67	0.94	2.49



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136	0.468	0.491	0.514	4.68	0.92	2.55
137	0.456	0.478	0.502	4.81	0.96	2.51
138	0.445	0.467	0.489	4.71	0.96	2.46
139	0.434	0.455	0.478	4.84	0.96	2.53
140	0.423	0.444	0.466	4.84	1.02	2.36
141	0.413	0.434	0.455	4.84	1.00	2.42
142	0.403	0.423	0.444	4.85	0.98	2.48
143	0.393	0.413	0.434	4.96	1.03	2.42
144	0.384	0.403	0.423	4.84	0.98	2.48
145	0.375	0.393	0.413	4.83	1.00	2.42
146	0.366	0.384	0.404	4.95	1.06	2.34
147	0.357	0.375	0.394	4.93	1.03	2.40
148	0.348	0.366	0.385	5.05	1.09	2.32
149	0.340	0.358	0.376	5.03	1.06	2.37
150	0.332	0.349	0.367	5.01	1.03	2.44
151	0.324	0.341	0.359	5.13	1.09	2.35
152	0.317	0.333	0.351	5.11	1.13	2.25
153	0.309	0.326	0.343	5.21	1.13	2.30
154	0.302	0.318	0.335	5.19	1.10	2.36
155	0.295	0.311	0.327	5.14	1.14	2.25
156	0.289	0.304	0.320	5.10	1.11	2.30
157	0.282	0.297	0.313	5.22	1.11	2.36
158	0.276	0.290	0.306	5.17	1.15	2.24
159	0.269	0.284	0.299	5.28	1.25	2.11
160	0.263	0.278	0.293	5.40	1.15	2.34
161	0.257	0.271	0.286	5.35	1.12	2.40
162	0.252	0.265	0.280	5.28	1.27	2.08
163	0.246	0.260	0.274	5.38	1.27	2.12
164	0.241	0.254	0.268	5.31	1.13	2.36
165	0.235	0.248	0.262	5.44	1.23	2.22
166	0.230	0.243	0.256	5.35	1.30	2.06
167	0.225	0.238	0.251	5.46	1.30	2.10



$B_{25/50} = 3950K, R_{25} = 20k\Omega, T_R = 25^\circ C, \frac{\Delta R_T}{R_T}: \pm 1\%,$

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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
168	0.220	0.233	0.246	5.58	1.30	2.15
169	0.216	0.228	0.240	5.26	1.20	2.19
170	0.211	0.223	0.235	5.38	1.20	2.24
171	0.206	0.218	0.230	5.50	1.20	2.29
172	0.202	0.213	0.226	5.63	1.33	2.11
173	0.198	0.209	0.221	5.50	1.44	1.91
174	0.193	0.205	0.216	5.61	1.28	2.20
175	0.189	0.200	0.212	5.75	1.28	2.25
176	0.185	0.196	0.207	5.61	1.38	2.04
177	0.182	0.192	0.203	5.47	1.31	2.08
178	0.178	0.188	0.199	5.59	1.31	2.13
179	0.174	0.184	0.195	5.71	1.31	2.17
180	0.170	0.180	0.191	5.83	1.50	1.94
181	0.167	0.177	0.187	5.65	1.43	1.98
182	0.164	0.173	0.183	5.49	1.36	2.02
183	0.160	0.170	0.180	5.88	1.43	2.06
184	0.157	0.166	0.176	5.72	1.36	2.11
185	0.154	0.163	0.173	5.83	1.58	1.84
186	0.151	0.160	0.169	5.63	1.50	1.88
187	0.148	0.157	0.166	5.73	1.29	2.23
188	0.145	0.153	0.163	5.88	1.29	2.29
189	0.142	0.150	0.159	5.67	1.42	2.00
190	0.139	0.147	0.156	5.78	1.70	1.70
191	0.136	0.145	0.153	5.86	1.70	1.72
192	0.134	0.142	0.150	5.63	1.33	2.11
193	0.131	0.139	0.148	6.12	1.42	2.16
194	0.128	0.136	0.145	6.25	1.70	1.84
195	0.126	0.134	0.142	5.97	1.60	1.87
196	0.124	0.131	0.139	5.73	1.50	1.91
197	0.121	0.129	0.137	6.20	1.60	1.94
198	0.119	0.126	0.134	5.95	1.50	1.98
199	0.117	0.124	0.132	6.05	1.88	1.61



$B_{25/50} = 3950K, R_{25} = 20k\Omega, T_R = 25^\circ C, \frac{\Delta R_T}{R_T} : \pm 1\%$,

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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
200	0.114	0.122	0.129	6.15	1.50	2.05
201	0.112	0.119	0.127	6.30	1.50	2.10
202	0.110	0.117	0.124	5.98	1.75	1.71
203	0.108	0.115	0.122	6.09	1.75	1.74
204	0.106	0.113	0.120	6.19	1.75	1.77
205	0.104	0.111	0.118	6.31	1.75	1.80
206	0.102	0.109	0.116	6.42	1.75	1.83
207	0.100	0.107	0.113	6.07	1.63	1.87
208	0.098	0.105	0.111	6.19	1.63	1.90
209	0.097	0.103	0.109	5.83	1.50	1.94
210	0.095	0.101	0.107	5.94	1.50	1.98
211	0.093	0.099	0.106	6.57	1.63	2.02
212	0.091	0.097	0.104	6.70	2.17	1.55
213	0.090	0.096	0.102	6.25	2.00	1.56
214	0.088	0.094	0.100	6.38	1.50	2.13
215	0.087	0.092	0.098	5.98	1.83	1.63
216	0.085	0.091	0.097	6.59	2.00	1.65
217	0.084	0.089	0.095	6.18	1.38	2.25
218	0.082	0.087	0.093	6.32	1.83	1.72
219	0.081	0.086	0.092	6.40	1.83	1.74
220	0.079	0.084	0.090	6.55	1.83	1.79
221	0.078	0.083	0.089	6.63	2.75	1.20
222	0.076	0.082	0.087	6.71	1.83	1.83
223	0.075	0.080	0.086	6.88	1.83	1.88
224	0.074	0.079	0.084	6.33	1.67	1.90
225	0.073	0.077	0.083	6.49	1.67	1.95
226	0.071	0.076	0.081	6.58	2.50	1.32
227	0.070	0.075	0.080	6.67	2.50	1.33
228	0.069	0.074	0.079	6.76	1.67	2.03
229	0.068	0.072	0.077	6.25	1.50	2.08
230	0.067	0.071	0.076	6.34	2.25	1.41
231	0.065	0.070	0.075	7.14	2.50	1.43



$$B_{25/50} = 3950K, R_{25} = 20k\Omega, T_R = 25^\circ C, \frac{\Delta R_T}{R_T}: \pm 1\%$$

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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
232	0.064	0.069	0.074	7.25	2.50	1.45
233	0.063	0.068	0.072	6.62	2.25	1.47
234	0.062	0.067	0.071	6.72	1.50	2.24
235	0.061	0.065	0.070	6.92	1.50	2.31
236	0.060	0.064	0.069	7.03	2.25	1.56
237	0.059	0.063	0.068	7.14	2.25	1.59
238	0.058	0.062	0.067	7.26	2.25	1.61
239	0.057	0.061	0.066	7.38	2.25	1.64
240	0.056	0.060	0.065	7.50	2.25	1.67
241	0.055	0.059	0.064	7.63	2.25	1.69
242	0.055	0.058	0.063	6.90	4.00	0.86
243	0.054	0.058	0.062	6.90	4.00	0.86
244	0.053	0.057	0.061	7.02	2.00	1.75
245	0.052	0.056	0.060	7.14	2.00	1.79
246	0.051	0.055	0.059	7.27	2.00	1.82
247	0.050	0.054	0.058	7.41	2.00	1.85
248	0.050	0.053	0.057	6.60	1.75	1.89
249	0.049	0.052	0.056	6.73	3.50	0.96
250	0.048	0.052	0.055	6.73	3.49	0.96

To ensure optimal performance and reliability, it is recommended to follow proper storage procedures for the ATH20K1R3B3950K 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 ATH20K1R3B3950K 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.

ORDERING INFORMATION

Part Number	Buy Now
ATH20K1R3B3950K	* *

*: both and are our online store icons. Our products can be ordered from either one of them with the same pricing and delivery time.

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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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.