Ultra-Stable Miniature Thermistor

ATH50KR8B3950K0.5%

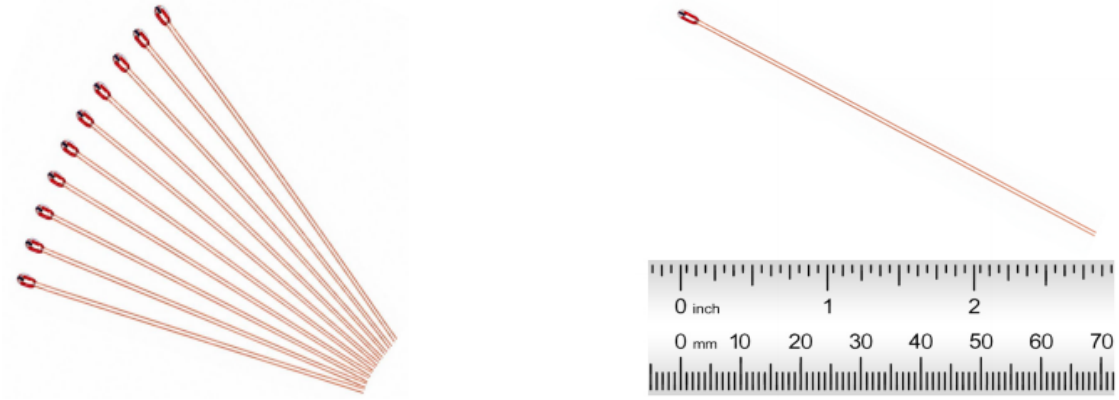


Figure 1. The Physical Photo of ATH50KR8B3950K0.5%

MAIN FEATURES

Glass Encapsulated for Long Term Stability & Reliability
High Stability: <0.1°C/year
Small Size: ϕ0.8mm ×1.8mm
High Resistance Accuracy: 0.5%
Quick Response Time: 2.3s
Wide Temp. Range: −40°C to 300°C
Leads: dumet wires (copper-clad FeNi)
100% Lead (Pb)-free and RoHS Compliant

APPLICATIONS

The ATH50KR8B3950K0.5% 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 ATH50KR8B3950K0.5% thermistor, which boasts high precision and a glass encapsulation design. In contrast to conventional epoxy-encapsulated thermistors, the ATH50KR8B3950K0.5% offers superior long-term stability and a wider temperature range. Moreover, it has a compact size and a quick response time.

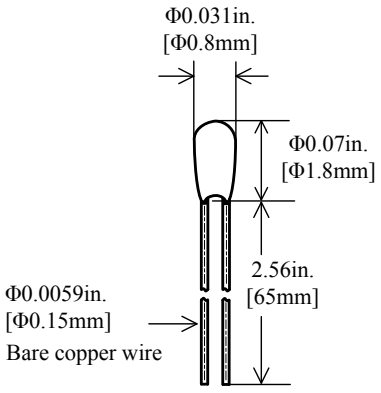


Figure 2. Side View of ATH50KR8B3950K0.5%

SPECIFICATIONS

Parameters	Symbol	Value
Nominal Resistance @ 25°C	R_{25}	50K ±0.5%
B Value @ 25°C /50°C	$B_{25/50}$	3950K ± 1%
Thermistor Diameter	D_T	0.8 ± 0.2mm
Thermistor Length	L_T	1.8 ± 0.5mm
Lead Diameter	D_L	0.15± 0.05mm
Lead Length	L_L	65 ± 2mm
Dissipation Factor	δ_{th}	0.6mW/°C
Insulation Resistance	R_{is}	≥100MΩ
Maximum Power @ 25°C	P_{max}	50mW
Time Constant	τ_c	2.3s (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 ATH50KR8B3950K0.5% 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**.

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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 ATH50KR8B3950K0.5% 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.

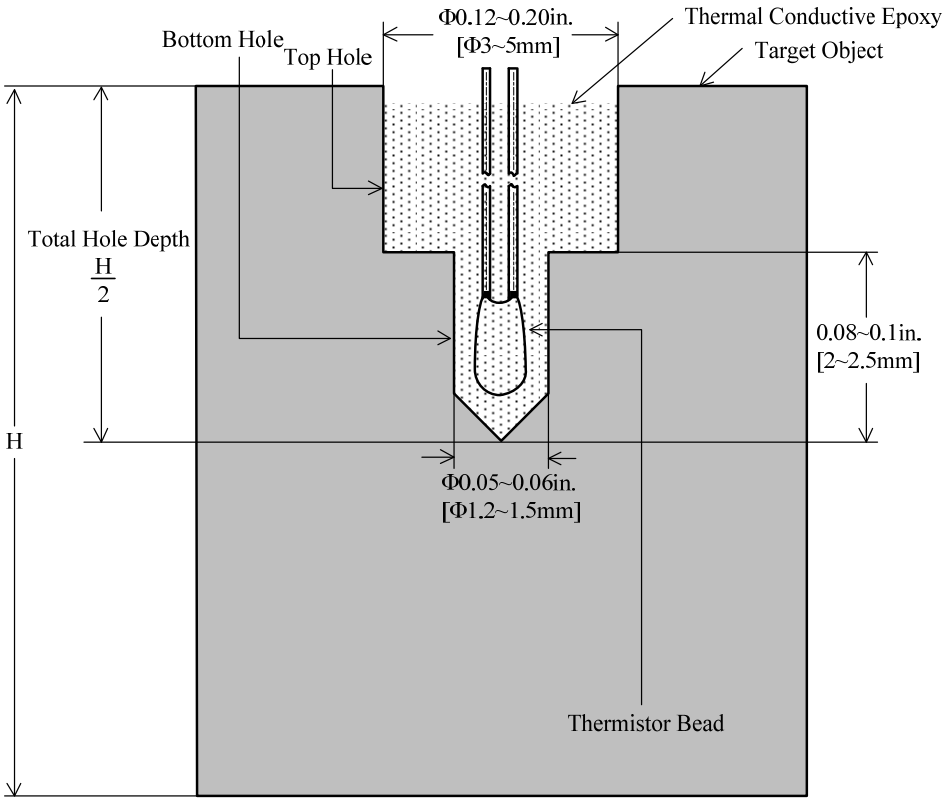


Figure 3. Section View of Recommended Counterbore Hole

PART NUMBER CONVENTION

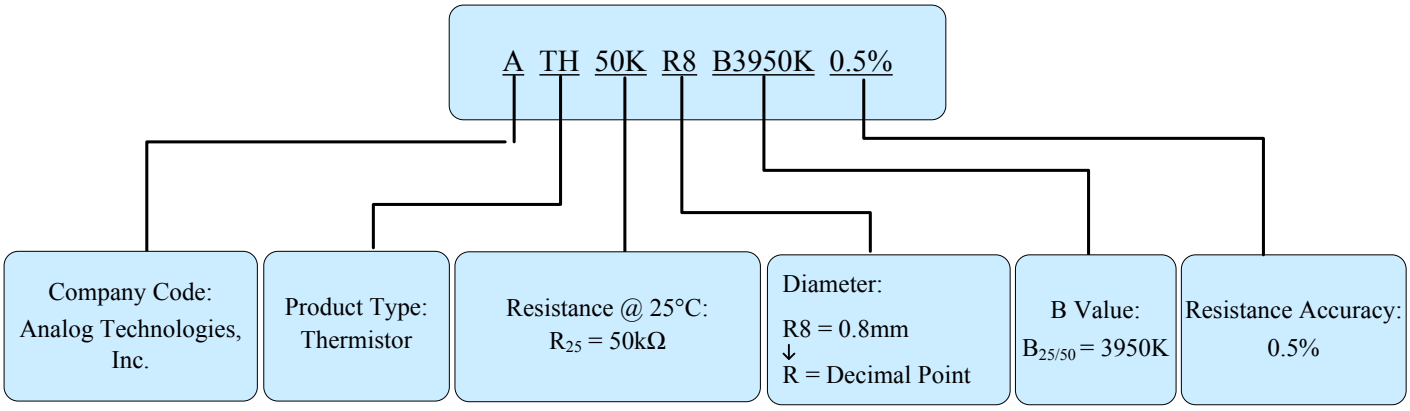


Figure 4. Part Number Convention of ATH50KR8B3950K0.5%

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RESISTANCE TEMPERATURE CHARACTERISTICS

$B_{25/50}$ = 3950K, R_{25} = 50kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 0.5%,

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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
−50	2880.190	3031.779	3183.367	5.00	0.37	6.70
−49	2694.796	2835.036	2975.276	4.95	0.37	6.70
−48	2522.279	2652.053	2781.827	4.89	0.37	6.66
−47	2361.686	2481.806	2601.925	4.84	0.37	6.62
−46	2212.141	2323.352	2434.563	4.79	0.36	6.58
−45	2072.832	2175.821	2278.810	4.73	0.36	6.55
−44	1943.014	2038.411	2133.809	4.68	0.36	6.51
−43	1821.996	1910.383	1998.770	4.63	0.36	6.47
−42	1709.143	1791.053	1872.964	4.57	0.36	6.44
−41	1603.865	1679.791	1755.718	4.52	0.35	6.40
−40	1505.619	1576.015	1646.410	4.47	0.35	6.36
−39	1413.905	1479.186	1544.467	4.41	0.35	6.33
−38	1328.256	1388.808	1449.360	4.36	0.35	6.29
−37	1248.243	1304.420	1360.597	4.31	0.34	6.26
−36	1173.471	1225.599	1277.728	4.25	0.34	6.22
−35	1103.570	1151.952	1200.334	4.20	0.34	6.18
−34	1038.201	1083.114	1128.027	4.15	0.34	6.15
−33	977.048	1018.749	1060.450	4.09	0.33	6.11
−32	919.821	958.546	997.271	4.04	0.33	6.08
−31	866.247	902.216	938.184	3.99	0.33	6.04
−30	816.078	849.491	882.905	3.93	0.33	6.01
−29	769.080	800.125	831.170	3.88	0.32	5.97
−28	725.038	753.886	782.735	3.83	0.32	5.94
−27	683.751	710.563	737.375	3.77	0.32	5.91
−26	645.036	669.958	694.880	3.72	0.32	5.87
−25	608.718	631.887	655.056	3.67	0.31	5.84
−24	574.638	596.180	617.722	3.61	0.31	5.80
−23	542.648	562.679	582.710	3.56	0.31	5.77
−22	512.609	531.238	549.866	3.51	0.31	5.74
−21	484.393	501.719	519.045	3.45	0.30	5.67
−20	458.222	474.350	490.477	3.40	0.30	5.58

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	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
−19	433.765	448.785	463.804	3.35	0.30	5.55
−18	410.515	424.495	438.475	3.29	0.30	5.57
−17	388.478	401.486	414.495	3.24	0.29	5.57
−16	367.640	379.741	391.842	3.19	0.29	5.56
−15	347.969	359.224	370.480	3.13	0.28	5.55
−14	329.422	339.891	350.360	3.08	0.28	5.52
−13	311.951	321.687	331.424	3.03	0.28	5.49
−12	295.500	304.555	313.611	2.97	0.27	5.46
−11	280.014	288.436	296.859	2.92	0.27	5.42
−10	265.436	273.270	281.104	2.87	0.27	5.39
−9	251.712	258.998	266.285	2.81	0.26	5.35
−8	238.786	245.564	252.341	2.76	0.26	5.31
−7	226.609	232.913	239.217	2.71	0.26	5.27
−6	215.131	220.995	226.859	2.65	0.25	5.24
−5	204.308	209.762	215.215	2.60	0.25	5.20
−4	194.095	199.168	204.240	2.55	0.25	5.17
−3	184.455	189.171	193.888	2.49	0.24	5.14
−2	175.349	179.734	184.120	2.44	0.24	5.11
−1	166.743	170.820	174.897	2.39	0.24	5.07
0	158.607	162.396	166.185	2.33	0.23	5.05
1	150.910	154.431	157.952	2.28	0.23	5.02
2	143.627	146.897	150.168	2.23	0.22	4.99
3	136.731	139.769	142.806	2.17	0.22	4.96
4	130.200	133.020	135.840	2.12	0.21	4.94
5	124.013	126.630	129.247	2.07	0.21	4.91
6	118.150	120.577	123.005	2.01	0.21	4.89
7	112.592	114.843	117.094	1.96	0.20	4.86
8	107.323	109.409	111.495	1.91	0.20	4.84
9	102.325	104.258	106.190	1.85	0.19	4.81
10	97.586	99.375	101.163	1.80	0.19	4.79
11	93.089	94.744	96.399	1.75	0.18	4.76
12	88.824	90.354	91.884	1.69	0.18	4.73

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
13	84.776	86.189	87.602	1.64	0.17	4.71
14	80.934	82.239	83.543	1.59	0.17	4.68
15	77.287	78.491	79.694	1.53	0.16	4.65
16	73.825	74.934	76.043	1.48	0.16	4.63
17	70.538	71.559	72.580	1.43	0.16	4.60
18	67.417	68.356	69.294	1.37	0.15	4.57
19	64.452	65.314	66.176	1.32	0.15	4.54
20	61.635	62.426	63.217	1.27	0.14	4.51
21	58.958	59.683	60.407	1.21	0.14	4.48
22	56.414	57.076	57.738	1.16	0.13	4.45
23	53.994	54.598	55.202	1.11	0.12	4.43
24	51.692	52.242	52.792	1.05	0.12	4.40
25	49.501	50.001	50.501	1.00	0.11	4.37
26	47.377	47.868	48.359	1.03	0.12	4.35
27	45.355	45.837	46.319	1.05	0.12	4.33
28	43.429	43.902	44.374	1.08	0.12	4.31
29	41.593	42.056	42.520	1.10	0.13	4.29
30	39.841	40.296	40.750	1.13	0.13	4.27
31	38.169	38.614	39.060	1.15	0.14	4.26
32	36.572	37.008	37.444	1.18	0.14	4.25
33	35.044	35.471	35.898	1.20	0.14	4.24
34	33.581	33.999	34.417	1.23	0.15	4.24
35	32.180	32.589	32.997	1.25	0.15	4.19
36	30.869	31.269	31.670	1.28	0.16	4.12
37	29.619	30.011	30.403	1.31	0.16	4.10
38	28.427	28.811	29.194	1.33	0.16	4.07
39	27.290	27.665	28.040	1.36	0.17	4.05
40	26.204	26.571	26.938	1.38	0.17	4.03
41	25.166	25.526	25.885	1.41	0.18	4.00
42	24.175	24.527	24.878	1.43	0.18	3.98
43	23.228	23.572	23.915	1.46	0.18	3.96
44	22.322	22.658	22.994	1.48	0.19	3.95

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	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
45	21.455	21.784	22.113	1.51	0.19	3.92
46	20.626	20.948	21.269	1.53	0.20	3.91
47	19.832	20.147	20.461	1.56	0.20	3.89
48	19.073	19.380	19.687	1.58	0.20	3.87
49	18.345	18.646	18.946	1.61	0.21	3.86
50	17.648	17.942	18.236	1.64	0.21	3.84
51	16.981	17.268	17.555	1.66	0.22	3.82
52	16.341	16.622	16.902	1.69	0.22	3.81
53	15.729	16.003	16.277	1.71	0.23	3.79
54	15.141	15.409	15.677	1.74	0.23	3.77
55	14.579	14.840	15.102	1.76	0.23	3.75
56	14.039	14.295	14.551	1.79	0.24	3.74
57	13.522	13.772	14.022	1.82	0.24	3.72
58	13.026	13.270	13.515	1.84	0.25	3.70
59	12.551	12.789	13.028	1.86	0.25	3.68
60	12.095	12.328	12.561	1.89	0.26	3.66
61	11.658	11.886	12.114	1.92	0.26	3.64
62	11.239	11.462	11.684	1.94	0.27	3.63
63	10.837	11.055	11.272	1.97	0.27	3.61
64	10.452	10.664	10.877	1.99	0.28	3.59
65	10.082	10.290	10.497	2.02	0.28	3.56
66	9.728	9.931	10.133	2.04	0.29	3.54
67	9.387	9.586	9.784	2.07	0.29	3.53
68	9.061	9.255	9.449	2.10	0.30	3.51
69	8.748	8.937	9.127	2.12	0.30	3.49
70	8.447	8.632	8.817	2.14	0.31	3.46
71	8.158	8.339	8.520	2.17	0.32	3.44
72	7.881	8.058	8.235	2.20	0.32	3.42
73	7.615	7.788	7.961	2.22	0.33	3.40
74	7.359	7.528	7.697	2.24	0.33	3.39
75	7.113	7.278	7.443	2.27	0.34	3.37
76	6.876	7.038	7.200	2.30	0.34	3.35

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	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
77	6.649	6.807	6.965	2.32	0.35	3.33
78	6.430	6.584	6.739	2.35	0.35	3.32
79	6.219	6.370	6.521	2.37	0.36	3.30
80	6.016	6.163	6.311	2.39	0.37	3.28
81	5.822	5.966	6.111	2.42	0.37	3.24
82	5.634	5.776	5.917	2.45	0.38	3.24
83	5.453	5.592	5.730	2.48	0.38	3.24
84	5.278	5.414	5.549	2.50	0.39	3.23
85	5.110	5.242	5.374	2.52	0.39	3.22
86	4.947	5.076	5.206	2.55	0.40	3.20
87	4.790	4.917	5.043	2.57	0.40	3.18
88	4.639	4.763	4.887	2.60	0.41	3.17
89	4.493	4.615	4.736	2.63	0.42	3.15
90	4.353	4.472	4.590	2.65	0.42	3.14
91	4.218	4.334	4.450	2.68	0.43	3.13
92	4.087	4.201	4.315	2.71	0.44	3.11
93	3.962	4.073	4.184	2.73	0.44	3.08
94	3.841	3.950	4.059	2.76	0.45	3.06
95	3.724	3.831	3.937	2.78	0.46	3.05
96	3.612	3.716	3.820	2.80	0.46	3.04
97	3.503	3.605	3.707	2.83	0.47	3.02
98	3.398	3.498	3.598	2.86	0.48	3.00
99	3.297	3.395	3.493	2.89	0.50	2.90
100	3.202	3.301	3.400	3.00	0.51	2.97
101	3.102	3.199	3.296	3.03	0.50	3.05
102	3.011	3.106	3.201	3.06	0.52	2.95
103	2.923	3.016	3.109	3.08	0.53	2.93
104	2.838	2.929	3.020	3.11	0.53	2.92
105	2.756	2.845	2.934	3.13	0.54	2.92
106	2.676	2.763	2.850	3.15	0.54	2.91
107	2.599	2.684	2.770	3.19	0.55	2.89
108	2.525	2.608	2.692	3.20	0.56	2.88

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	Minimum	Nominal	Maximum	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
109	2.452	2.534	2.616	3.24	0.57	2.86
110	2.382	2.463	2.543	3.27	0.57	2.86
111	2.315	2.393	2.472	3.28	0.57	2.86
112	2.249	2.326	2.403	3.31	0.58	2.84
113	2.186	2.261	2.337	3.34	0.59	2.81
114	2.125	2.199	2.273	3.37	0.60	2.80
115	2.066	2.138	2.210	3.37	0.60	2.81
116	2.009	2.079	2.150	3.39	0.61	2.77
117	1.953	2.023	2.092	3.44	0.63	2.74
118	1.900	1.968	2.036	3.46	0.63	2.74
119	1.849	1.915	1.982	3.47	0.65	2.69
120	1.799	1.865	1.930	3.51	0.69	2.55
121	1.756	1.820	1.884	3.52	0.71	2.47
122	1.712	1.775	1.838	3.55	0.70	2.54
123	1.668	1.730	1.792	3.58	0.70	2.57
124	1.625	1.686	1.747	3.62	0.69	2.61
125	1.582	1.642	1.702	3.64	0.69	2.65
126	1.541	1.599	1.658	3.66	0.69	2.66
127	1.499	1.557	1.614	3.69	0.69	2.67
128	1.460	1.516	1.572	3.71	0.70	2.67
129	1.421	1.476	1.531	3.74	0.70	2.67
130	1.383	1.437	1.491	3.76	0.70	2.69
131	1.346	1.399	1.452	3.79	0.71	2.67
132	1.311	1.362	1.414	3.81	0.72	2.64
133	1.276	1.327	1.378	3.84	0.73	2.62
134	1.243	1.293	1.343	3.86	0.74	2.61
135	1.210	1.259	1.308	3.89	0.75	2.60
136	1.179	1.227	1.275	3.92	0.76	2.57
137	1.149	1.196	1.243	3.94	0.77	2.55
138	1.120	1.166	1.212	3.97	0.78	2.53
139	1.092	1.137	1.183	3.99	0.80	2.51
140	1.065	1.109	1.154	4.01	0.80	2.49

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$B_{25/50}$ = 3950K, R_{25} = 50kΩ, T_R = 25°C, $\frac{\Delta R_T}{R_T}$: ± 0.5%,						
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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
141	1.038	1.082	1.126	4.04	0.82	2.46
142	1.013	1.056	1.099	4.06	0.83	2.44
143	0.988	1.030	1.072	4.09	0.84	2.44
144	0.964	1.006	1.047	4.12	0.85	2.41
145	0.941	0.982	1.022	4.14	0.86	2.41
146	0.918	0.958	0.998	4.17	0.87	2.40
147	0.897	0.936	0.975	4.19	0.88	2.38
148	0.875	0.914	0.952	4.21	0.89	2.37
149	0.855	0.893	0.930	4.25	0.90	2.36
150	0.834	0.872	0.909	4.26	0.90	2.36
151	0.815	0.851	0.888	4.29	0.91	2.36
152	0.796	0.832	0.867	4.32	0.92	2.36
153	0.777	0.812	0.847	4.35	0.92	2.36
154	0.759	0.793	0.828	4.37	0.93	2.35
155	0.741	0.775	0.809	4.39	0.94	2.34
156	0.723	0.757	0.790	4.43	0.94	2.35
157	0.706	0.739	0.772	4.45	0.95	2.33
158	0.690	0.722	0.755	4.47	0.96	2.33
159	0.674	0.706	0.737	4.49	0.96	2.34
160	0.658	0.689	0.721	4.52	0.97	2.32
161	0.643	0.674	0.704	4.55	0.99	2.30
162	0.628	0.658	0.688	4.56	1.00	2.29
163	0.614	0.643	0.673	4.60	1.01	2.28
164	0.600	0.629	0.658	4.62	1.02	2.27
165	0.586	0.615	0.644	4.65	1.04	2.23
166	0.574	0.602	0.630	4.67	1.07	2.19
167	0.561	0.589	0.616	4.70	1.08	2.18
168	0.549	0.576	0.603	4.71	1.10	2.14
169	0.537	0.564	0.591	4.74	1.13	2.09
170	0.526	0.552	0.579	4.78	1.04	2.30
171	0.513	0.539	0.564	4.80	0.96	2.51
172	0.500	0.525	0.551	4.82	1.02	2.36

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
173	0.489	0.514	0.539	4.86	1.10	2.21
174	0.478	0.503	0.527	4.86	1.08	2.25
175	0.467	0.491	0.515	4.90	1.14	2.15
176	0.458	0.482	0.505	4.93	1.22	2.02
177	0.448	0.472	0.495	4.94	1.23	2.00
178	0.440	0.463	0.486	4.98	1.19	2.09
179	0.430	0.452	0.475	5.00	1.28	1.95
180	0.423	0.445	0.467	5.03	1.24	2.02
181	0.412	0.434	0.456	5.05	1.22	2.07
182	0.405	0.427	0.449	5.07	1.40	1.81
183	0.398	0.419	0.440	5.11	1.27	2.02
184	0.389	0.410	0.431	5.13	1.22	2.10
185	0.381	0.402	0.422	5.15	1.25	2.05
186	0.373	0.394	0.414	5.17	1.21	2.13
187	0.365	0.385	0.405	5.21	1.37	1.90
188	0.359	0.379	0.399	5.24	1.31	1.99
189	0.350	0.370	0.389	5.26	1.18	2.23
190	0.343	0.363	0.382	5.27	1.26	2.08
191	0.336	0.355	0.374	5.30	1.36	1.95
192	0.330	0.349	0.367	5.32	1.38	1.92
193	0.323	0.341	0.360	5.35	1.29	2.08
194	0.317	0.335	0.352	5.37	1.22	2.20
195	0.309	0.327	0.344	5.40	1.23	2.20
196	0.303	0.320	0.338	5.44	1.47	1.84
197	0.298	0.315	0.332	5.45	1.43	1.91
198	0.291	0.308	0.325	5.49	1.33	2.06
199	0.285	0.302	0.319	5.51	2.35	1.18
200	0.284	0.301	0.318	5.51	1.48	1.86
201	0.275	0.291	0.307	5.55	1.00	2.77
202	0.269	0.285	0.301	5.58	1.38	2.02
203	0.264	0.279	0.295	5.62	1.50	1.88
204	0.259	0.274	0.290	5.63	1.50	1.88

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
205	0.254	0.269	0.284	5.65	1.69	1.67
206	0.250	0.265	0.281	5.69	1.72	1.66
207	0.245	0.260	0.275	5.70	1.47	1.94
208	0.241	0.255	0.270	5.72	1.57	1.82
209	0.237	0.251	0.265	5.76	1.76	1.63
210	0.233	0.247	0.261	5.77	1.78	1.62
211	0.229	0.243	0.257	5.78	1.56	1.85
212	0.224	0.238	0.252	5.82	1.52	1.91
213	0.220	0.234	0.248	5.84	1.82	1.60
214	0.217	0.231	0.244	5.90	1.81	1.63
215	0.213	0.226	0.240	5.90	1.63	1.81
216	0.209	0.222	0.236	5.94	1.67	1.78
217	0.206	0.219	0.232	5.95	1.63	1.83
218	0.202	0.214	0.227	5.99	1.57	1.91
219	0.198	0.210	0.223	6.02	1.60	1.88
220	0.194	0.207	0.219	6.00	1.68	1.79
221	0.191	0.203	0.215	6.06	1.73	1.75
222	0.187	0.199	0.212	6.07	1.75	1.73
223	0.184	0.196	0.208	6.10	1.76	1.73
224	0.181	0.193	0.204	6.10	1.75	1.74
225	0.178	0.189	0.201	6.15	1.77	1.74
226	0.175	0.186	0.197	6.16	1.76	1.75
227	0.171	0.183	0.194	6.21	1.80	1.72
228	0.169	0.180	0.191	6.20	1.80	1.73
229	0.166	0.177	0.188	6.26	1.81	1.73
230	0.163	0.174	0.184	6.25	1.81	1.73
231	0.160	0.171	0.181	6.27	1.81	1.73
232	0.157	0.168	0.178	6.32	1.86	1.70
233	0.154	0.165	0.175	6.37	1.88	1.70
234	0.152	0.162	0.172	6.35	1.87	1.70
235	0.149	0.159	0.170	6.40	1.92	1.66
236	0.147	0.157	0.167	6.41	1.93	1.66

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
237	0.144	0.154	0.164	6.45	1.91	1.69
238	0.142	0.152	0.161	6.46	1.96	1.65
239	0.140	0.149	0.159	6.47	1.97	1.64
240	0.137	0.147	0.156	6.54	1.96	1.67
241	0.135	0.144	0.154	6.51	2.00	1.63
242	0.133	0.142	0.151	6.55	2.07	1.58
243	0.131	0.140	0.149	6.62	2.06	1.61
244	0.128	0.138	0.147	6.62	2.07	1.60
245	0.126	0.135	0.144	6.61	2.13	1.55
246	0.124	0.133	0.142	6.64	2.11	1.58
247	0.122	0.131	0.140	6.67	2.13	1.56
248	0.121	0.129	0.138	6.70	2.16	1.55
249	0.119	0.127	0.136	6.72	2.19	1.53
250	0.117	0.125	0.134	6.74	1.97	1.72
251	0.115	0.123	0.131	6.79	1.90	1.79
252	0.113	0.121	0.129	6.82	2.17	1.57
253	0.111	0.119	0.127	6.84	2.20	1.55
254	0.109	0.117	0.125	6.87	2.18	1.58
255	0.108	0.115	0.123	6.85	2.19	1.56
256	0.106	0.114	0.122	6.91	2.24	1.54
257	0.104	0.112	0.120	6.93	2.28	1.52
258	0.103	0.110	0.118	6.94	2.25	1.54
259	0.101	0.109	0.116	7.00	2.24	1.57
260	0.099	0.107	0.114	6.98	2.26	1.54
261	0.098	0.105	0.113	7.03	2.31	1.52
262	0.096	0.104	0.111	7.09	2.37	1.50
263	0.095	0.102	0.109	7.05	2.40	1.47
264	0.093	0.101	0.108	7.11	2.38	1.49
265	0.092	0.099	0.106	7.11	2.35	1.51
266	0.091	0.098	0.105	7.17	2.41	1.49
267	0.089	0.096	0.103	7.17	2.38	1.51
268	0.088	0.095	0.102	7.23	2.36	1.53

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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	$\frac{\Delta R_T}{R_T}$	$\Delta T_N = \frac{\Delta R_N}{R_{N+1} - R_{N-1}}$	$\alpha = \frac{R_{N-1} - R_{N+1}}{2 \times R_N}$
269	0.087	0.093	0.100	7.23	2.50	1.45
270	0.085	0.092	0.099	7.23	2.46	1.47
271	0.084	0.091	0.097	7.23	2.43	1.49
272	0.083	0.089	0.096	7.28	2.50	1.46
273	0.082	0.088	0.095	7.33	2.58	1.42
274	0.080	0.087	0.093	7.32	2.54	1.44
275	0.079	0.086	0.092	7.37	2.52	1.46
276	0.078	0.084	0.091	7.35	2.58	1.42
277	0.077	0.083	0.089	7.46	2.58	1.44
278	0.076	0.082	0.088	7.45	2.65	1.40
279	0.075	0.081	0.087	7.49	2.63	1.42
280	0.074	0.080	0.086	7.47	2.59	1.44
281	0.073	0.079	0.084	7.52	2.68	1.40
282	0.072	0.077	0.083	7.49	2.64	1.42
283	0.071	0.076	0.082	7.60	2.76	1.38
284	0.070	0.075	0.081	7.64	2.74	1.39
285	0.069	0.074	0.080	7.61	2.69	1.42
286	0.068	0.073	0.079	7.65	2.80	1.37
287	0.067	0.072	0.078	7.62	2.75	1.39
288	0.066	0.071	0.077	7.72	2.75	1.40
289	0.065	0.070	0.076	7.69	2.84	1.35
290	0.064	0.069	0.075	7.72	2.82	1.37
291	0.063	0.068	0.074	7.76	2.79	1.39
292	0.062	0.067	0.073	7.72	2.89	1.34
293	0.061	0.067	0.072	7.82	2.89	1.35
294	0.061	0.066	0.071	7.77	2.83	1.37
295	0.060	0.065	0.070	7.81	2.97	1.31
296	0.059	0.064	0.069	7.90	2.97	1.33
297	0.058	0.063	0.068	7.94	2.94	1.35
298	0.057	0.062	0.067	7.88	3.06	1.29
299	0.057	0.061	0.066	7.90	3.03	1.30
300	0.056	0.061	0.065	8.00	3.03	1.30

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To ensure optimal performance and reliability, it is recommended to follow proper storage procedures for the ATH50KR8B3950K0.5% 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 ATH50KR8B3950K0.5% 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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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.

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