

Products Specification For Approval

Products No.: JH197-58-103F-395F

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深圳市慧传科技有限公司

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Features:

Glass-sealed, solid structure, good heat resistance, applicable for poor working environment;
 High precision in both resistance and B value, good reliability and working stability;
 Rapid respond, high sensitivity; Good consistency and interchangeability;
 High cost performance, economical and practical;
 Small size, lightweight, applicable for automation and mass production.

Certifications:

UL, CE, ROHS, REACH, ISO9000 etc.

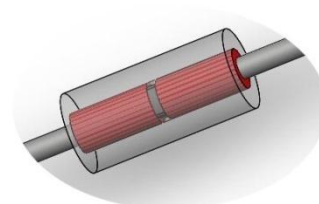
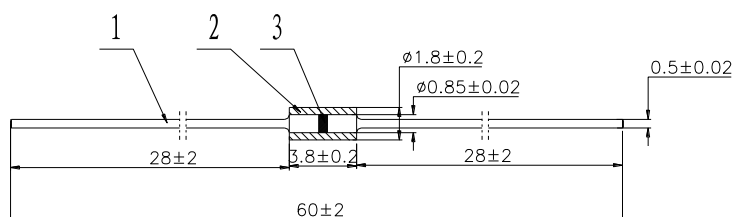
Purpose:

Temperature measurement. Circuit temperature compensation. Temperature measurement and control applications.

Applicable Scope:

Air conditioner and relevant equipment;
 Temperature measurement, control and thermal protection circuits in varieties of household appliances (such as refrigerator, induction cooker, bread cooker, roaster, electronic oven, microwave oven), in equipment in the aspect of industrial/agricultural, medical, environmental protection, meteorological and food processing use;
 Temperature compensation in instrument coil, automobile circuits, IC module, transistor amplifier circuits, quartz crystal oscillation, thermal couple.

Main Dimensions Parameters (unit: mm)



No.	Name	Unit	Amount	Material and/or Specification
1	Dumet Wire	Piece(s)	2	Tinned iron wire
2	Glass Bushing	Piece(s)	1	$\Phi 1.8 \times \Phi 0.85 \times 3.8$
3	Chip	Piece(s)	1	$R_{25} = 10K \Omega \pm 1\%$, $B_{25/50} = 3950K \pm 1\%$

Description of Model and Specifications

Name: NTC Glass-sealed Thermistor Specification: $R_{25} = 10K \Omega \pm 1\%$, $B_{25/50} = 3950K \pm 1\%$

KPD / MF 58 103 F 395 F
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① KPD—Abbreviations for KePengDa.
- ② MF—The code name of negative temperature coefficient (NTC) thermistor.
- ③ 58—Glass Sealed Thermistor of NTC.
- ④ 103—The nominal resistance of thermistor, e.g. 103 represents the particular nominal resistance is $10 \times 10^3 (\Omega)$.
- ⑤ F—The error of resistance of thermistor, e.g. F stands for the particular error as $\pm 1\%$.
- ⑥ 395—The $B_{25/50}$ value of thermistor, e.g. 395 means the material coefficient $B_{25/50} = 3950 (K)$.
- ⑦ F—The error of the $B_{25/50}$ value of thermistor, e.g. F shows such value is $\pm 1\%$.

Key Technical Specifications

NO.	NAME	SIGN	UNIT	MINIMUM	STANDARD	MAXIMUM	EXPERIMENTAL ENVIRONMENT	EXPERIMENTAL STANDARD
1	Nominal 25°C Resistance Value	R ₂₅	KΩ	9.9	10	10.1	Constant Temperature 25±0.05°C	GB/T6663.1-2.2
2	Nominal 50°C Resistance Value	R ₅₀	KΩ	N/A	3.5881	N/A	Constant Temperature 50±0.05°C	GB/T6663.1-2.2
3	Material Coefficient (B Value)	B _{25/50}	K	3910.5	3950	3989.5	N/A	GB/T6663.1-2.2
4	Dissipation Coefficient	δ	mW°C	≥0.8			In Still Air	GB/T6663.1-4.10
5	Thermal Time Constant	τ	s	≤7			In Still Air	GB/T6663.1-4.11
6	Rated Power	P _N	mW	50			Within Working Temperature	GB/T6663.1-2.2
7	NTC Working Temperature	T _A	°C	-40~+150			N/A	GB/T6663.1-4.22

Experimental Test Environment with the Corresponding Parameters

No.	Test Item	Testing Environments	Performance Requirements	Testing Standards
1	Dry Heat	Placed in the air at 150±2°C for 1,000 hours	No visible damage Δ R/R25 ≤ ±2%	GB/T6663.1-4.24 IEC600068-2-2/ GB2423-2
2	Wet Heat	Placed in the air at 40±2°C with Relative Humidity of 90 to 95% for 1,000 hours	No visible damage Δ R/R25 ≤ ±2%	GB/T6663.1-4.25 IEC60068-2-3/GB2423-3
3	Cold	Placed in the air at -40±2°C for 1,000 hours	No visible damage Δ R/R25 ≤ ±2%	GB/T6663.1-4.23 IEC600068-2-1/GB2423-1
4	Rapidly Changing Temperature	Placed in the air at -30±2°C and +100±3°C for 30 minutes, respectively, circulate for 20 times with an interval less than 5 seconds	No visible damage Δ R/R25 < ±1%	I GB/T6663.1-4.16 IEC60068-2-14/GB2423-22
5	Durability	1mADC, T _A =30±5°C for 1,000 hours	No visible damage Δ R/R25 ≤ ±2%	GB/T6663.1-4.26
6	Thermal Shock	Placed at +150±3°C for 20 minutes then air-cooled in the room temperature for 20 minutes, circulate for 20 times	Δ R/R25 ≤ ±1%	GB/T6663.1-4.21 IEC60068-2-14
7	Solderability	The lead-out end is dipped with flux and immersed in a tin bath at 235±5°C. The tin surface is 2-2.5mm away from the lower end of NTC body and lasts for 2±0.5S.	The solder free flow and wetting is good, the tin area is more than 95%.	GB/T6663.1-4.15 IEC60068-2-20/GBT2423-2 8
8	Welding heat resistance	The solder flux was dipped into the tin bath at 260±5°C at the lead-out end, and the tin surface was 2~2.5mm away from the bottom of NTC body for a duration of 10±1s	No visible damage R / R ≤ ±1%	GB/T6663.1-4.14 IEC60068-2-20/GBT2423-2 8

9	Free Fall	Dropped freely onto a wood board, from a height of 1 meters, for 10 times	No visible damage $\Delta R/R \leq \pm 1\%$	GB/T6663.1-4.20 IEC60068-2-32/GBT2423-8
10	Terminal Strength	Tension: 20N 10s, Bending: 90 °C; twice, 10s Torsion: 180 °C; twice, 10s	No visible damage	GB/T6663.1-4.13 IEC60068-2-21/GBT2423-2 9
11	Withstanding Voltage test	Under 700VAC(or 980 V AC insulation voltage) for 1 minute	No breakdown or flashover	GB/T6663.1-4.8
12	Insulation resistance	Under 100 ± 15 VDC for 1 minute	$\geq 100\text{M}\Omega$	GB/T6663.1-4.7
13	Drift at room temperature	Stored at room temperature for 10,000 hours	$\Delta R/R_{25} \leq \pm 5\%$	Workshop Standard

Storage

Storage temperature: $-10\text{ }^{\circ}\text{C} \sim +40\text{ }^{\circ}\text{C}$

Relative Humidity: $\leq 60\%$

Avoid storage in corrosive and light environment. Avoid corrosive gas, direct sunlight, falling from height, weight loading and rapidly changing of temperature.

The storage period: 3 years

Operation suggestion

Safety working temperature: $-30 \sim +200$

Safety Voltage $\leq 9\text{V}$, Safety Current $\leq 5\text{MA}$

Permitted pulling force: 5N for wire with $\Phi = 0.3\text{mm}$; 10N for wire with $\Phi = 0.4\text{mm}$

Plastic type thermistor could damage, incorrect function, keep the following matters:

1. The thermistor is designed according to the specified purpose, not for the specified use.
2. After the designed sensor, for trust evaluation test, confirmed no abnormal before use.
3. Don't give the thermistor circuit voltage exceeds the maximum load power.
4. Do not exceed the range of temperature.
5. Please do not for the environment:
 - 5.1 corrosive atmosphere (C12, NH₃, SOX, NOX etc.)
 - 5.2 High conductivity medium (water, salt water electrolyte, etc.)
 - 5.3 acid, alkali, organic solvent
 - 5.4 dust more place

Waterproof

Underwater or humid environment is prohibited in the usage.

Quick way for testing in the air

<http://www.kpd-ntc.com/News/info/id/139.html> (Testing method one)

<http://www.kpd-ntc.com/News/info/id/140.html> (Testing method two)

Package

packaging with box: 5000pcs/box, box dimension: $260 \times 80 \times 84$ (L \times W \times H) mm

Spare parts with bag: 500pcs/bag (vacuum)

Appendix (NTC thermistor R-T Parameter Chart MF58)

R ---- T 分度表

R _{25℃} =10.00KΩ±1%				B _{25/50} : 3950			
T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max	T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max
-40	278.30	290.74	303.72	9	20.500	20.860	21.224
-39	260.79	272.28	284.24	10	19.546	19.880	20.217
-38	244.65	255.26	266.31	11	18.643	18.952	19.264
-37	229.75	239.56	249.77	12	17.787	18.073	18.362
-36	215.97	225.05	234.49	13	16.975	17.240	17.508
-35	203.20	211.62	220.36	14	16.205	16.451	16.698
-34	191.36	199.16	207.26	15	15.475	15.702	15.930
-33	180.35	187.59	195.10	16	14.781	14.991	15.202
-32	170.10	176.83	183.80	17	14.123	14.316	14.512
-31	160.55	166.81	173.28	18	13.497	13.676	13.856
-30	151.65	157.46	163.48	19	12.903	13.068	13.234
-29	143.32	148.73	154.33	20	12.338	12.490	12.643
-28	135.54	140.57	145.78	21	11.800	11.941	12.082
-27	128.25	132.94	137.79	22	11.289	11.419	11.548
-26	121.41	125.78	130.30	23	10.803	10.922	11.041
-25	114.99	119.07	123.28	24	10.341	10.450	10.559
-24	108.97	112.77	116.69	25	9.9000	10.000	10.100
-23	103.30	106.84	110.50	26	9.4636	9.5634	9.6634
-22	97.958	101.27	104.67	27	9.0496	9.1491	9.2488
-21	92.929	96.015	99.194	28	8.6566	8.7557	8.8550
-20	88.187	91.067	94.032	29	8.2836	8.3821	8.4808
-19	83.711	86.399	89.166	30	7.9293	8.0270	8.1251
-18	79.483	81.993	84.574	31	7.5925	7.6894	7.7867
-17	75.487	77.831	80.239	32	7.2725	7.3684	7.4648
-16	71.708	73.896	76.142	33	6.9680	7.0629	7.1584
-15	68.131	70.173	72.269	34	6.6784	6.7722	6.8667
-14	64.744	66.650	68.606	35	6.4028	6.4954	6.5888
-13	61.534	63.313	65.138	36	6.1404	6.2318	6.3239
-12	58.491	60.152	61.853	37	5.8904	5.9806	6.0715
-11	55.605	57.154	58.741	38	5.6522	5.7411	5.8308
-10	52.866	54.311	55.790	39	5.4252	5.5127	5.6011
-9	50.265	51.613	52.992	40	5.2087	5.2949	5.3820
-8	47.796	49.052	50.337	41	5.0023	5.0871	5.1728
-7	45.449	46.620	47.817	42	4.8053	4.8887	4.9730
-6	43.219	44.310	45.425	43	4.6172	4.6992	4.7822
-5	41.099	42.115	43.152	44	4.4377	4.5183	4.5998
-4	39.082	40.029	40.994	45	4.2662	4.3454	4.4255
-3	37.164	38.045	38.942	46	4.1024	4.1801	4.2589
-2	35.340	36.158	36.992	47	3.9458	4.0221	4.0995
-1	33.603	34.364	35.139	48	3.7961	3.8710	3.9470
0	31.950	32.657	33.376	49	3.6529	3.7264	3.8010
1	30.370	31.026	31.693	50	3.5160	3.5881	3.6613
2	28.878	29.487	30.106	51	3.3850	3.4557	3.5275
3	27.470	28.035	28.609	52	3.2595	3.3289	3.3994
4	26.140	26.664	27.196	53	3.1395	3.2075	3.2766
5	24.883	25.369	25.862	54	3.0245	3.0911	3.1589
6	23.694	24.146	24.603	55	2.9143	2.9796	3.0461
7	22.570	22.989	23.413	56	2.8088	2.8727	2.9379
8	21.507	21.895	22.288	57	2.7076	2.7703	2.8341

R ---- T 分度表

R _{25℃} =10.00KΩ±1%				B _{25/50} : 3950			
T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max	T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max
58	2.6106	2.6720	2.7346	107	0.5342	0.5554	0.5774
59	2.5176	2.5777	2.6390	108	0.5192	0.5400	0.5616
60	2.4283	2.4872	2.5473	109	0.5048	0.5252	0.5463
61	2.3427	2.4004	2.4593	110	0.4909	0.5108	0.5315
62	2.2606	2.3171	2.3747	111	0.4774	0.4969	0.5172
63	2.1817	2.2370	2.2935	112	0.4644	0.4835	0.5033
64	2.1060	2.1601	2.2154	113	0.4517	0.4705	0.4899
65	2.0333	2.0863	2.1404	114	0.4395	0.4579	0.4769
66	1.9634	2.0153	2.0683	115	0.4277	0.4456	0.4643
67	1.8963	1.9471	1.9990	116	0.4162	0.4338	0.4521
68	1.8318	1.8815	1.9323	117	0.4051	0.4223	0.4403
69	1.7698	1.8184	1.8682	118	0.3943	0.4112	0.4288
70	1.7102	1.7577	1.8065	119	0.3838	0.4004	0.4176
71	1.6528	1.6994	1.7471	120	0.3737	0.3899	0.4068
72	1.5977	1.6433	1.6899	121	0.3638	0.3797	0.3963
73	1.5446	1.5892	1.6349	122	0.3542	0.3698	0.3860
74	1.4936	1.5372	1.5819	123	0.3449	0.3602	0.3761
75	1.4445	1.4871	1.5309	124	0.3359	0.3509	0.3664
76	1.3972	1.4389	1.4817	125	0.3271	0.3418	0.3570
77	1.3516	1.3925	1.4344	126	0.3186	0.3329	0.3479
78	1.3078	1.3477	1.3887	127	0.3103	0.3243	0.3390
79	1.2655	1.3046	1.3447	128	0.3022	0.3160	0.3303
80	1.2248	1.2630	1.3023	129	0.2943	0.3078	0.3219
81	1.1856	1.2230	1.2614	130	0.2867	0.2999	0.3137
82	1.1478	1.1844	1.2220	131	0.2801	0.2931	0.3067
83	1.1113	1.1471	1.1840	132	0.2736	0.2864	0.2997
84	1.0762	1.1112	1.1473	133	0.2671	0.2796	0.2927
85	1.0423	1.0766	1.1119	134	0.2607	0.2730	0.2858
86	1.0097	1.0432	1.0777	135	0.2543	0.2663	0.2789
87	0.9782	1.0109	1.0447	136	0.2480	0.2598	0.2722
88	0.9478	0.9798	1.0129	137	0.2418	0.2534	0.2655
89	0.9184	0.9498	0.9821	138	0.2357	0.2471	0.2590
90	0.8901	0.9208	0.9525	139	0.2298	0.2409	0.2526
91	0.8628	0.8928	0.9238	140	0.2240	0.2349	0.2463
92	0.8364	0.8658	0.8961	141	0.2183	0.2290	0.2402
93	0.8109	0.8396	0.8693	142	0.2129	0.2234	0.2343
94	0.7863	0.8144	0.8435	143	0.2076	0.2178	0.2286
95	0.7625	0.7900	0.8185	144	0.2024	0.2125	0.2231
96	0.7396	0.7665	0.7943	145	0.1975	0.2073	0.2177
97	0.7174	0.7437	0.7709	146	0.1927	0.2024	0.2125
98	0.6960	0.7217	0.7484	147	0.1881	0.1976	0.2076
99	0.6753	0.7005	0.7265	148	0.1837	0.1930	0.2028
100	0.6552	0.6799	0.7054	149	0.1795	0.1886	0.1982
101	0.6359	0.6601	0.6850	150	0.1754	0.1844	0.1938
102	0.6174	0.6410	0.6654	151	0.1715	0.1804	0.1896
103	0.5995	0.6226	0.6465	152	0.1679	0.1766	0.1857
104	0.5823	0.6049	0.6283	153	0.1644	0.1729	0.1819
105	0.5656	0.5878	0.6107	154	0.1611	0.1695	0.1783
106	0.5496	0.5713	0.5938	155	0.1579	0.1662	0.1749

R ---- T 分度表

R _{25℃} =10.00KΩ±1%				B _{25/50} : 3950			
T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max	T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max
156	0.1549	0.1631	0.1716				
157	0.1522	0.1602	0.1686				
158	0.1495	0.1574	0.1658				
159	0.1471	0.1549	0.1631				
160	0.1448	0.1525	0.1606				
161	0.1419	0.1495	0.1575				
162	0.1391	0.1465	0.1544				
163	0.1363	0.1436	0.1513				
164	0.1335	0.1407	0.1483				
165	0.1308	0.1379	0.1454				
166	0.1281	0.1351	0.1425				
167	0.1255	0.1324	0.1396				
168	0.1229	0.1297	0.1368				
169	0.1204	0.1271	0.1341				
170	0.1180	0.1245	0.1314				
171	0.1155	0.1220	0.1287				
172	0.1132	0.1195	0.1262				
173	0.1109	0.1171	0.1236				
174	0.1086	0.1147	0.1211				
175	0.1064	0.1124	0.1187				
176	0.1042	0.1101	0.1163				
177	0.1021	0.1079	0.1140				
178	0.1000	0.1057	0.1117				
179	0.0980	0.1036	0.1095				
180	0.0960	0.1015	0.1073				
181	0.0940	0.0995	0.1052				
182	0.0921	0.0975	0.1031				
183	0.0903	0.0956	0.1011				
184	0.0885	0.0937	0.0991				
185	0.0867	0.0918	0.0972				
186	0.0850	0.0900	0.0953				
187	0.0834	0.0883	0.0935				
188	0.0817	0.0866	0.0917				
189	0.0801	0.0849	0.0899				
190	0.0786	0.0833	0.0882				
191	0.0771	0.0817	0.0866				
192	0.0756	0.0802	0.0850				
193	0.0742	0.0787	0.0834				
194	0.0728	0.0772	0.0819				
195	0.0714	0.0758	0.0804				
196	0.0701	0.0744	0.0789				
197	0.0688	0.0730	0.0775				
198	0.0676	0.0717	0.0761				
199	0.0664	0.0704	0.0748				
200	0.0652	0.0692	0.0735				