

# 深圳市慧传科技有限公司

Products Specification For Approval

Products No.: JH197-5D-2-103F-3435F

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深圳市慧传科技有限公司

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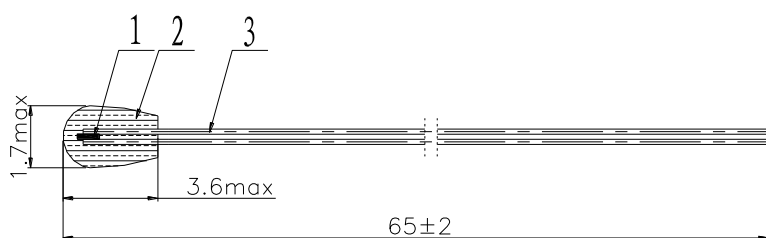
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● **Main Dimensions Parameters(unit: mm)**



Item	Name	Materials and specifications	Unit	Quantity
1	Chip	$R_{25}=10K\Omega\pm 1\%$ , $B_{25/85}=3435K\pm 1\%$	Piece(s)	1
2	Glass shell	The glass's diameter of $\phi 1.6*\phi 1.06*4.0mm$	Piece(s)	1
3	Lead	Dumet wire $\phi 0.25X65mm$	Piece(s)	2

● **Description of Model and Specifications**

Name: NTC single-end glass package thermistor specification:  $R_{25} = 10K\Omega \pm 1\%$ ,  $B_{25/85}=3435K \pm 1\%$

K P D / M F 5 D-2 1 0 3 F 3 4 3 5 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 5D-2—Temperature measuring type single-end glass encapsulated thermistor.

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 3435—The  $B_{25/85}$  value of thermistor, e.g. 3435 means the material coefficient  $B_{25/85}=3435K$

⑦ F—The error of the  $B_{25/85}$  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	$R_{25}$	K $\Omega$	9.9	10	10.1	Constant Temperature 25 $\pm$ 0.05°C	GB/T6663.1-2.2
2	Nominal 85°C Resistance Value	$R_{85}$	K $\Omega$	N/A	1.4513	N/A	Constant Temperature 85 $\pm$ 0.05°C	GB/T6663.1-2.2
3	Material Coefficient (B Value)	$B_{25/85}$	K	3400.65	3435	3469.35	N/A	GB/T6663.1-2.2
4	Dissipation Coefficient	$\delta$	mW°C	$\geq 0.8$			In Still Air	GB/T6663.1-4.10
5	Thermal Time Constant	$\tau$	s	$\leq 5$			In Still Air	GB/T6663.1-4.11
6	Rated Power	PN	mW	$\leq 25$			Within Working Temperature	GB/T6663.1-2.2
7	Working Temperature	TA	°C	-30~+200			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 $200 \pm 2^\circ\text{C}$ for 1,000 hours	No visible damage $\Delta R/R_{25} \leq \pm 2\%$	GB/T6663.1-4.24 IEC600068-2-2/ GB2423-2
2	Wet Heat	Placed in the air at $40 \pm 2^\circ\text{C}$ with Relative Humidity of 90 to 95% for 1,000 hours	No visible damage $\Delta R/R_{25} \leq \pm 2\%$	GB/T6663.1-4.25 IEC60068-2-3/GB2423-3
3	Cold	Placed in the air at $-30 \pm 2^\circ\text{C}$ for 1,000 hours	No visible damage $\Delta R/R_{25} \leq \pm 2\%$	GB/T6663.1-4.23 IEC600068-2-1/GB2423-1
4	Rapidly Changing Temperature	Placed in the air at $-30 \pm 2^\circ\text{C}$ and $+100 \pm 3^\circ\text{C}$ for 30 minutes, respectively, circulate for 20 times with an interval less than 5 seconds	No visible damage $\Delta R/R_{25} < \pm 1\%$	I GB/T6663.1-4.16 IEC60068-2-14/GB2423-22
5	Durability	1mADC, $T_A = 30 \pm 5^\circ\text{C}$ for 1,000 hours	No visible damage $\Delta R/R_{25} \leq \pm 2\%$	GB/T6663.1-4.26
6	Thermal Shock	Placed at $+200 \pm 3^\circ\text{C}$ for 20 minutes then air-cooled in the room temperature for 20 minutes, circulate for 20 times	$\Delta R/R_{25} \leq \pm 1\%$	GB/T6663.1-4.21 EC60068-2-14
7	Solderability	The lead-out end is dipped with flux and immersed in a tin bath at $235 \pm 5^\circ\text{C}$ . The tin surface is 2-2.5mm away from the lower end of NTC body and lasts for $2 \pm 0.5\text{S}$ .	The solder free flow and wetting is good, the tin area is more than 95%.	GB/T6663.1-4.15 IEC60068-2-20/GBT2423-28
8	Welding heat resistance	The solder flux was dipped into the tin bath at $260 \pm 5^\circ\text{C}$ at the lead-out end, and the tin surface was 2~2.5mm away from the bottom of NTC body for a duration of $10 \pm 1\text{s}$	No visible damage $R/R \leq \pm 1\%$	GB/T6663.1-4.14 IEC60068-2-20/GBT2423-28
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: 10N 10s, Bending: $90^\circ\text{C}$ ; twice, 10s Torsion: $180^\circ\text{C}$ ; twice, 10s	No visible damage	GB/T6663.1-4.13 IEC60068-2-21/GBT2423-29
11	The normal temperature drift	Store at room temperature for 10000h.	$\Delta R/R_{25} \leq \pm 5\%$	Factory standard
12	Withstanding Voltage test	Under 700VAC( or 980 V AC insulation voltage) for 1 minute	No breakdown or flashover	GB/T6663.1-4.8
13	Insulation resistance	Under $100 \pm 15\text{VDC}$ for 1 minute	$\geq 100\text{M}\Omega$	GB/T6663.1-4.7

- **Package**

- 500pcs/bag (vacuum)

- **Storage**

Storage temperature: -10 °C ~ +40 °C

Relative Humidity: ≤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

**Since thermistor elements and sensors may be damaged due to improper use, please note the following when using:**

1. Do not apply circuit voltage that exceeds its maximum load power.
2. Do not use over the recommended temperature range.
3. Do not use in the following environments:
  - 1) corrosive gases (C12, NH3, SOX, NOX, etc.)
  - 2) medium with high conductivity (electrolyte, water, brine, etc.)
  - 3) acid, alkali and other organic solvents
  - 4) dusty places

Please consult the sales staff before purchasing the non-specified electrical parameters. If there is no special requirement, the goods will be delivered according to our factory standard. Please refer to the specifications, if you have any questions, please contact our staff, unauthorized misuse of the product damage and all other consequences, we will be responsible.

- **Appendix (NTC thermistor R-T Parameter Chart MF5D)**

## R ---- T 分度表

R <sub>25℃</sub> =10.00KΩ±1%				B <sub>25/85</sub> : 3435			
T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max	T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max
-40	208.81	217.52	226.56	3	23.840	24.296	24.757
-39	196.76	204.84	213.23	4	22.836	23.262	23.694
-38	185.51	193.01	200.80	5	21.881	22.280	22.683
-37	174.99	181.96	189.19	6	20.973	21.346	21.724
-36	165.15	171.63	178.35	7	20.110	20.459	20.812
-35	155.95	161.97	168.21	8	19.289	19.615	19.945
-34	147.33	152.94	158.74	9	18.506	18.812	19.120
-33	139.26	144.48	149.87	10	17.761	18.047	18.335
-32	131.70	136.55	141.57	11	17.051	17.319	17.588
-31	124.60	129.12	133.79	12	16.375	16.624	16.876
-30	117.94	122.15	126.50	13	15.729	15.963	16.198
-29	111.69	115.61	119.66	14	15.113	15.331	15.551
-28	105.81	109.47	113.24	15	14.525	14.729	14.934
-27	100.29	103.70	107.22	16	13.964	14.154	14.346
-26	95.101	98.282	101.56	17	13.428	13.605	13.784
-25	90.216	93.184	96.240	18	12.915	13.081	13.247
-24	85.617	88.388	91.238	19	12.426	12.580	12.735
-23	81.287	83.873	86.532	20	11.957	12.101	12.245
-22	77.206	79.621	82.103	21	11.509	11.643	11.777
-21	73.359	75.614	77.931	22	11.080	11.205	11.330
-20	69.731	71.838	74.001	23	10.670	10.786	10.902
-19	66.308	68.276	70.297	24	10.277	10.384	10.492
-18	63.076	64.916	66.803	25	9.9000	10.000	10.100
-17	60.024	61.744	63.507	26	9.5155	9.6153	9.7153
-16	57.140	58.749	60.396	27	9.1497	9.2493	9.3491
-15	54.415	55.919	57.458	28	8.8015	8.9007	9.0002
-14	51.837	53.244	54.683	29	8.4698	8.5686	8.6676
-13	49.399	50.715	52.060	30	8.1537	8.2519	8.3505
-12	47.091	48.322	49.580	31	7.8523	7.9498	8.0478
-11	44.907	46.058	47.235	32	7.5647	7.6615	7.7587
-10	42.837	43.915	45.015	33	7.2901	7.3861	7.4826
-9	40.877	41.885	42.914	34	7.0278	7.1229	7.2186
-8	39.018	39.962	40.925	35	6.7771	6.8713	6.9661
-7	37.256	38.139	39.040	36	6.5374	6.6306	6.7245
-6	35.584	36.411	37.254	37	6.3081	6.4003	6.4932
-5	33.998	34.772	35.560	38	6.0885	6.1797	6.2716
-4	32.492	33.217	33.954	39	5.8783	5.9684	6.0593
-3	31.063	31.741	32.431	40	5.6769	5.7659	5.8557
-2	29.704	30.339	30.985	41	5.4838	5.5717	5.6604
-1	28.414	29.008	29.612	42	5.2986	5.3854	5.4730
0	27.187	27.743	28.308	43	5.1210	5.2066	5.2931
1	26.012	26.533	27.061	44	4.9505	5.0349	5.1203
2	24.898	25.385	25.879	45	4.7867	4.8700	4.9542

## R ---- T 分度表

R <sub>25℃</sub> =10.00KΩ±1%				B <sub>25/85</sub> : 3435			
T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max	T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max
46	4.6294	4.7115	4.7946	89	1.2568	1.2957	1.3357
47	4.4783	4.5592	4.6411	90	1.2215	1.2596	1.2989
48	4.3330	4.4127	4.4934	91	1.1872	1.2246	1.2631
49	4.1932	4.2717	4.3513	92	1.1539	1.1906	1.2284
50	4.0587	4.1361	4.2145	93	1.1216	1.1576	1.1947
51	3.9293	4.0055	4.0828	94	1.0902	1.1256	1.1619
52	3.8048	3.8797	3.9558	95	1.0598	1.0944	1.1301
53	3.6848	3.7586	3.8335	96	1.0302	1.0642	1.0992
54	3.5692	3.6418	3.7156	97	1.0015	1.0348	1.0692
55	3.4578	3.5292	3.6019	98	0.9736	1.0063	1.0400
56	3.3504	3.4207	3.4922	99	0.9466	0.9786	1.0116
57	3.2468	3.3160	3.3863	100	0.9203	0.9517	0.9841
58	3.1469	3.2150	3.2842	101	0.8948	0.9256	0.9574
59	3.0505	3.1174	3.1855	102	0.8702	0.9004	0.9316
60	2.9575	3.0233	3.0903	103	0.8464	0.8761	0.9066
61	2.8677	2.9324	2.9983	104	0.8235	0.8525	0.8825
62	2.7809	2.8446	2.9094	105	0.8013	0.8298	0.8592
63	2.6972	2.7597	2.8234	106	0.7798	0.8077	0.8366
64	2.6162	2.6777	2.7404	107	0.7590	0.7864	0.8147
65	2.5380	2.5984	2.6600	108	0.7389	0.7658	0.7936
66	2.4624	2.5218	2.5823	109	0.7194	0.7458	0.7731
67	2.3893	2.4477	2.5072	110	0.7006	0.7264	0.7532
68	2.3186	2.3760	2.4345	111	0.6823	0.7077	0.7340
69	2.2503	2.3066	2.3641	112	0.6646	0.6895	0.7153
70	2.1841	2.2395	2.2960	113	0.6474	0.6719	0.6972
71	2.1201	2.1745	2.2300	114	0.6308	0.6548	0.6796
72	2.0582	2.1116	2.1661	115	0.6147	0.6382	0.6626
73	1.9982	2.0506	2.1042	116	0.5990	0.6221	0.6460
74	1.9402	1.9917	2.0443	117	0.5838	0.6065	0.6300
75	1.8840	1.9345	1.9862	118	0.5691	0.5913	0.6144
76	1.8295	1.8791	1.9299	119	0.5548	0.5766	0.5992
77	1.7768	1.8255	1.8754	120	0.5409	0.5623	0.5845
78	1.7257	1.7735	1.8225	121	0.5274	0.5484	0.5702
79	1.6761	1.7231	1.7712	122	0.5143	0.5349	0.5563
80	1.6282	1.6743	1.7215	123	0.5015	0.5218	0.5428
81	1.5816	1.6269	1.6733	124	0.4891	0.5090	0.5296
82	1.5366	1.5810	1.6265	125	0.4771	0.4966	0.5168
83	1.4928	1.5364	1.5811	126	0.4654	0.4845	0.5044
84	1.4504	1.4932	1.5371	127	0.4540	0.4728	0.4923
85	1.4093	1.4513	1.4944	128	0.4429	0.4613	0.4805
86	1.3694	1.4106	1.4529	129	0.4321	0.4502	0.4690
87	1.3308	1.3712	1.4127	130	0.4216	0.4394	0.4579
88	1.2932	1.3329	1.3736	131	0.4114	0.4289	0.4470

## R ---- T 分度表

R <sub>25°C</sub> =10.00KΩ±1%				B <sub>25/85</sub> : 3435			
T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max	T (°C)	R (KΩ) Min	R (KΩ) Center	R (KΩ) Max
132	0.4015	0.4186	0.4364	175	0.1481	0.1559	0.1642
133	0.3918	0.4086	0.4261	176	0.1450	0.1528	0.1609
134	0.3824	0.3989	0.4160	177	0.1421	0.1497	0.1577
135	0.3732	0.3894	0.4063	178	0.1392	0.1467	0.1545
136	0.3642	0.3801	0.3967	179	0.1364	0.1438	0.1515
137	0.3555	0.3711	0.3874	180	0.1337	0.1409	0.1485
138	0.3470	0.3624	0.3783	181	0.1310	0.1381	0.1456
139	0.3388	0.3538	0.3695	182	0.1284	0.1354	0.1428
140	0.3307	0.3455	0.3609	183	0.1259	0.1327	0.1400
141	0.3228	0.3373	0.3525	184	0.1234	0.1301	0.1373
142	0.3152	0.3294	0.3443	185	0.1209	0.1276	0.1346
143	0.3077	0.3217	0.3363	186	0.1186	0.1251	0.1321
144	0.3004	0.3141	0.3285	187	0.1163	0.1227	0.1295
145	0.2933	0.3068	0.3208	188	0.1140	0.1204	0.1271
146	0.2864	0.2996	0.3134	189	0.1118	0.1180	0.1246
147	0.2796	0.2926	0.3062	190	0.1096	0.1158	0.1223
148	0.2730	0.2858	0.2991	191	0.1075	0.1136	0.1200
149	0.2666	0.2791	0.2922	192	0.1055	0.1114	0.1177
150	0.2603	0.2726	0.2854	193	0.1034	0.1093	0.1155
151	0.2539	0.2660	0.2785	194	0.1015	0.1072	0.1133
152	0.2477	0.2596	0.2719	195	0.0995	0.1052	0.1112
153	0.2418	0.2534	0.2655	196	0.0976	0.1032	0.1091
154	0.2360	0.2474	0.2593	197	0.0958	0.1013	0.1071
155	0.2304	0.2416	0.2532	198	0.0940	0.0994	0.1051
156	0.2250	0.2360	0.2474	199	0.0922	0.0975	0.1032
157	0.2198	0.2305	0.2418	200	0.0904	0.0957	0.1013
158	0.2147	0.2253	0.2363	201	0.0889	0.0940	0.0995
159	0.2098	0.2201	0.2310	202	0.0873	0.0924	0.0978
160	0.2050	0.2152	0.2259	203	0.0858	0.0908	0.0961
161	0.2004	0.2104	0.2209	204	0.0843	0.0892	0.0945
162	0.1959	0.2057	0.2160	205	0.0828	0.0877	0.0929
163	0.1916	0.2012	0.2113	206	0.0813	0.0862	0.0913
164	0.1874	0.1968	0.2068	207	0.0799	0.0847	0.0897
165	0.1833	0.1926	0.2023	208	0.0785	0.0832	0.0882
166	0.1793	0.1884	0.1980	209	0.0772	0.0818	0.0867
167	0.1754	0.1844	0.1938	210	0.0758	0.0804	0.0852
168	0.1717	0.1805	0.1898	211	0.0745	0.0790	0.0837
169	0.1680	0.1767	0.1858	212	0.0732	0.0776	0.0823
170	0.1645	0.1730	0.1820	213	0.0719	0.0763	0.0809
171	0.1610	0.1694	0.1782	214	0.0707	0.0750	0.0795
172	0.1576	0.1659	0.1746	215	0.0694	0.0737	0.0782
173	0.1544	0.1625	0.1710	216	0.0682	0.0724	0.0768
174	0.1512	0.1592	0.1675	217	0.0671	0.0712	0.0755

