

Thermistor Specification MF5A-2 Series

This Approval Sheet indicates the property, test condition, structure and dimension of MF5A-2 series NTC thermistors manufactured by NINGBO RHT ELECTRONIC CO.,LTD. It is sincerely for your company's confirmation. Any doubt, Please contact with us by 86 574 56176016, or if there isn't any questions, please refax to confirm. Please inform us if you change your usage way of the thermistor.	Customer : <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Customer</td> <td style="width: 15%;">Confirmer</td> <td style="width: 70%;"></td> </tr> <tr> <td rowspan="2">Confirmation</td> <td>Checker</td> <td></td> </tr> <tr> <td>Time</td> <td></td> </tr> </table>	Customer	Confirmer		Confirmation	Checker		Time	
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Confirmation	Checker								
	Time								

1、 ELECTRICAL CHARACTERISTIC

Item	Symbol	Test Condition	Performance	Unit
1.1 Rated resistance	R25℃	+25 ±0.05℃	10 ±1%	kΩ
1.2 B value	B25/85	+25 ±0.05℃、 +85 ±0.05℃	3435 ±1%	K
1.3 Time constant	τ	In still air	≤10	sec
1.4 Dissipation factor	δ	In still air	≥2.1	mW/℃
1.5 Max.Power	Pmax	Ambient Temp. +25℃	≤60	mW

2、 Reliability test

2.1 Intensity: Fix the thermistor probe, pull the lead wire gradually with force 5N for 10 ±1sec, no visible damage.

2.2 Solderability:

260 ±10℃ 2 ±0.5sec cover the solder joint evenly with solder
 $\Delta R_{25}/R_{25} \leq \pm 3\%$

2.3 Solder heat resist:

260 ±10℃ 5 ±1sec solder 6mm away from thermistor probe
 $\Delta R_{25}/R_{25} \leq \pm 3\%$

2.4 High temp.store (in air)

105 ±3℃ 1000h
 $\Delta R_{25}/R_{25} \leq \pm 3\%$

2.5 Low temp.store (in air)

-40 ±3℃ 1000h
 $\Delta R_{25}/R_{25} \leq \pm 3\%$

2.6 Heat and Humidity Stability

40 ±5℃ 98%RH 1000h $\Delta R_{25}/R_{25} \leq \pm 3\%$

2.7 Temperature shift:

-40 ±5℃ ×30min $\xrightarrow[2 \pm 1 \text{min}]{\text{Nor.Temp}}$ 105 ±3℃ ×30min 10times
 $\Delta R_{25}/R_{25} \leq 2\%$

3、 Operation Notice:

- 3.1 Application: Temperature measure and control;
- 3.2 Operating temperature range: -40℃ ~ +150℃;
- 3.3 Min. cutting length ≥6mm;
- 3.4 Avoid measurement error caused by excessive current;

3.5 While adding heat shrink tube, the outlet of hot air blower should be at least 10mm to the thermistor lest excessive heat shock.

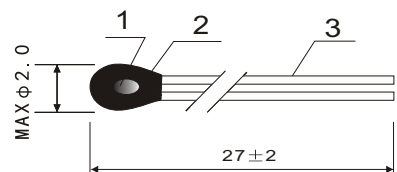


3.6 Cannot be used in water (with steam), high humidity, electrolysis, salt, acid, alkaline and organic solvents and other corrosive environments

3.7 In view of the structural characteristics of epoxy components, users should avoid excessive stretching and bending force from the lead wire on the component encapsulating head when using it. If the lead wire needs to be bent, the bending point or the force point should be controlled on the leads beyond 6 mm below the encapsulating head, so as not to strain the chip, cause resistance drift or even open circuit, especially when the component is heated.

4、 Resistance-Temperature Table: (see accessory)

5、 SIZEDRAWING: unit :mm



Number	Material & spec.
1	Thermistor chip
2	Encapsulating epoxy resin (black)
3	φ0.3CP /Sn Wire



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R-T				TABLE				P/N:			
R(25°C)=10kohm±1%				B(25/85)=3435±1%							
Temp.	Resistance(kΩ)			resistance tol. (%)		Temp.tol. (°C)					
°C	Rmin	R(t)Normal	Rmax	MIN	MAX	MIN	MAX				
-40	187.323	194.919	202.803	-3.9%	4.0%	-0.67	0.69				
-39	177.426	184.520	191.878	-3.8%	4.0%	-0.66	0.69				
-38	168.106	174.732	181.601	-3.8%	3.9%	-0.66	0.68				
-37	159.325	165.515	171.928	-3.7%	3.9%	-0.65	0.68				
-36	151.049	156.833	162.822	-3.7%	3.8%	-0.65	0.67				
-35	143.248	148.654	154.248	-3.6%	3.8%	-0.65	0.67				
-34	135.891	140.944	146.170	-3.6%	3.7%	-0.64	0.66				
-33	128.952	133.676	138.559	-3.5%	3.7%	-0.64	0.66				
-32	122.404	126.821	131.385	-3.5%	3.6%	-0.63	0.65				
-31	116.223	120.354	124.620	-3.4%	3.5%	-0.63	0.65				
-30	110.387	114.251	118.239	-3.4%	3.5%	-0.62	0.64				
-29	104.866	108.481	112.209	-3.3%	3.4%	-0.62	0.64				
-28	99.53	103.035	106.521	-3.3%	3.4%	-0.61	0.63				
-27	94.728	97.893	101.153	-3.2%	3.3%	-0.61	0.63				
-26	90.075	93.037	96.086	-3.2%	3.3%	-0.60	0.62				
-25	85.676	88.449	91.302	-3.1%	3.2%	-0.60	0.62				
-24	81.517	84.113	86.783	-3.1%	3.2%	-0.59	0.61				
-23	77.584	80.014	82.512	-3.0%	3.1%	-0.59	0.60				
-22	73.862	76.138	78.476	-3.0%	3.1%	-0.58	0.60				
-21	70.340	72.471	74.660	-2.9%	3.0%	-0.58	0.59				
-20	67.005	69.002	71.051	-2.9%	3.0%	-0.57	0.59				
-19	63.860	65.731	67.650	-2.8%	2.9%	-0.57	0.58				
-18	60.879	62.633	64.430	-2.8%	2.9%	-0.56	0.58				
-17	58.054	59.698	61.382	-2.8%	2.8%	-0.56	0.57				
-16	55.376	56.916	58.494	-2.7%	2.8%	-0.55	0.56				
-15	52.835	54.279	55.757	-2.7%	2.7%	-0.54	0.56				
-14	50.425	51.779	53.164	-2.6%	2.7%	-0.54	0.55				
-13	48.138	49.407	50.705	-2.6%	2.6%	-0.53	0.55				
-12	45.967	47.157	48.373	-2.5%	2.6%	-0.53	0.54				
-11	43.906	45.022	46.161	-2.5%	2.5%	-0.52	0.53				
-10	41.948	42.995	44.063	-2.4%	2.5%	-0.52	0.53				
-9	40.083	41.064	42.064	-2.4%	2.4%	-0.51	0.52				
-8	38.310	39.230	40.167	-2.3%	2.4%	-0.50	0.51				
-7	36.625	37.487	38.365	-2.3%	2.3%	-0.50	0.51				
-6	35.022	35.830	36.653	-2.3%	2.3%	-0.49	0.50				
-5	33.498	34.255	35.027	-2.2%	2.3%	-0.48	0.49				



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R-T				TABLE				P/N:			
R(25°C)=10kohm±1%				B(25/85)=3435±1%							
Temp.	Resistance(kΩ)			resistance tol. (%)		Temp.tol. (°C)					
°C	Rmin	R(t)Normal	Rmax	MIN	MAX	MIN	MAX				
-4	32.048	32.758	33.480	-2.2%	2.2%	-0.48	0.49				
-3	30.668	31.333	32.010	-2.1%	2.2%	-0.47	0.48				
-2	29.354	29.978	30.612	-2.1%	2.1%	-0.47	0.47				
-1	28.104	28.688	29.282	-2.0%	2.1%	-0.46	0.47				
0	26.913	27.460	28.017	-2.0%	2.0%	-0.45	0.46				
1	25.777	26.291	26.811	-2.0%	2.0%	-0.45	0.45				
2	24.697	25.178	25.665	-1.9%	1.9%	-0.44	0.45				
3	23.668	24.118	24.575	-1.9%	1.9%	-0.43	0.44				
4	22.687	23.109	23.537	-1.8%	1.8%	-0.43	0.43				
5	21.754	22.149	22.549	-1.8%	1.8%	-0.42	0.42				
6	20.868	21.238	21.613	-1.7%	1.8%	-0.41	0.42				
7	20.024	20.371	20.721	-1.7%	1.7%	-0.40	0.41				
8	19.219	19.543	19.871	-1.7%	1.7%	-0.40	0.40				
9	18.450	18.754	19.061	-1.6%	1.6%	-0.39	0.39				
10	17.717	18.002	18.289	-1.6%	1.6%	-0.38	0.39				
11	17.018	17.284	17.553	-1.5%	1.6%	-0.38	0.38				
12	16.350	16.599	16.850	-1.5%	1.5%	-0.37	0.37				
13	15.712	15.945	16.179	-1.5%	1.5%	-0.36	0.36				
14	15.102	15.320	15.539	-1.4%	1.4%	-0.35	0.36				
15	14.520	14.723	14.928	-1.4%	1.4%	-0.35	0.35				
16	13.961	14.151	14.342	-1.3%	1.4%	-0.34	0.34				
17	13.427	13.604	13.782	-1.3%	1.3%	-0.33	0.33				
18	12.915	13.081	13.247	-1.3%	1.3%	-0.32	0.32				
19	12.426	12.581	12.736	-1.2%	1.2%	-0.31	0.32				
20	11.958	12.102	12.246	-1.2%	1.2%	-0.31	0.31				
21	11.510	11.644	11.778	-1.2%	1.2%	-0.30	0.30				
22	11.081	11.206	11.331	-1.1%	1.1%	-0.29	0.29				
23	10.670	10.786	10.902	-1.1%	1.1%	-0.28	0.28				
24	10.277	10.385	10.493	-1.0%	1.0%	-0.27	0.27				
25	9.900	10.000	10.100	-1.0%	1.0%	-0.27	0.27				
26	9.531	9.631	9.731	-1.0%	1.0%	-0.28	0.28				
27	9.179	9.278	9.378	-1.1%	1.1%	-0.29	0.29				
28	8.841	8.940	9.040	-1.1%	1.1%	-0.30	0.30				
29	8.517	8.616	8.715	-1.1%	1.2%	-0.31	0.31				
30	8.207	8.305	8.404	-1.2%	1.2%	-0.32	0.33				
31	7.909	8.007	8.105	-1.2%	1.2%	-0.34	0.34				



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R(25°C)=10kohm±1%				B(25/85)=3435±1%							
Temp.	Resistance(kΩ)			resistance tol. (%)		Temp.tol. (°C)					
°C	Rmin	R(t)Normal	Rmax	MIN	MAX	MIN	MAX				
32	7.625	7.721	7.819	-1.3%	1.3%	-0.35	0.35				
33	7.351	7.447	7.544	-1.3%	1.3%	-0.36	0.36				
34	7.089	7.185	7.280	-1.3%	1.3%	-0.37	0.37				
35	6.838	6.932	7.027	-1.4%	1.4%	-0.38	0.39				
36	6.597	6.690	6.784	-1.4%	1.4%	-0.40	0.40				
37	6.365	6.458	6.551	-1.4%	1.4%	-0.41	0.41				
38	6.143	6.235	6.327	-1.5%	1.5%	-0.42	0.42				
39	5.930	6.021	6.112	-1.5%	1.5%	-0.43	0.44				
40	5.726	5.815	5.905	-1.5%	1.5%	-0.45	0.45				
41	5.529	5.617	5.706	-1.6%	1.6%	-0.46	0.46				
42	5.340	5.427	5.515	-1.6%	1.6%	-0.47	0.48				
43	5.159	5.245	5.331	-1.6%	1.7%	-0.48	0.49				
44	4.984	5.069	5.155	-1.7%	1.7%	-0.50	0.50				
45	4.817	4.900	4.985	-1.7%	1.7%	-0.51	0.52				
46	4.656	4.738	4.821	-1.7%	1.8%	-0.52	0.53				
47	4.501	4.582	4.664	-1.8%	1.8%	-0.54	0.54				
48	4.352	4.432	4.513	-1.8%	1.8%	-0.55	0.56				
49	4.209	4.287	4.367	-1.8%	1.9%	-0.56	0.57				
50	4.071	4.148	4.227	-1.9%	1.9%	-0.58	0.58				
51	3.938	4.014	4.091	-1.9%	1.9%	-0.59	0.60				
52	3.810	3.885	3.961	-1.9%	2.0%	-0.60	0.61				
53	3.687	3.761	3.836	-2.0%	2.0%	-0.61	0.62				
54	3.569	3.642	3.715	-2.0%	2.0%	-0.63	0.64				
55	3.455	3.526	3.599	-2.0%	2.1%	-0.64	0.65				
56	3.345	3.416	3.487	-2.1%	2.1%	-0.66	0.67				
57	3.240	3.309	3.379	-2.1%	2.1%	-0.67	0.68				
58	3.138	3.206	3.275	-2.1%	2.2%	-0.68	0.69				
59	3.040	3.107	3.175	-2.2%	2.2%	-0.70	0.71				
60	2.945	3.011	3.078	-2.2%	2.2%	-0.71	0.72				
61	2.854	2.919	2.984	-2.2%	2.3%	-0.72	0.74				
62	2.766	2.830	2.894	-2.2%	2.3%	-0.74	0.75				
63	2.682	2.744	2.808	-2.3%	2.3%	-0.75	0.77				
64	2.600	2.661	2.724	-2.3%	2.3%	-0.77	0.78				
65	2.521	2.581	2.643	-2.3%	2.4%	-0.78	0.80				
66	2.445	2.504	2.565	-2.4%	2.4%	-0.80	0.81				
67	2.372	2.430	2.489	-2.4%	2.4%	-0.81	0.83				



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R(25°C)=10kohm±1%				B(25/85)=3435±1%					
Temp.	Resistance(kΩ)			resistance tol. (%)		Temp.tol. (°C)			
°C	Rmin	R(t)Normal	Rmax	MIN	MAX	MIN	MAX		
68	2.301	2.358	2.417	-2.4%	2.5%	-0.82	0.84		
69	2.233	2.289	2.346	-2.4%	2.5%	-0.84	0.86		
70	2.167	2.222	2.278	-2.5%	2.5%	-0.85	0.87		
71	2.103	2.157	2.213	-2.5%	2.6%	-0.87	0.89		
72	2.042	2.095	2.149	-2.5%	2.6%	-0.88	0.90		
73	1.983	2.035	2.088	-2.6%	2.6%	-0.90	0.92		
74	1.925	1.976	2.029	-2.6%	2.7%	-0.91	0.93		
75	1.870	1.920	1.972	-2.6%	2.7%	-0.93	0.95		
76	1.816	1.866	1.916	-2.6%	2.7%	-0.94	0.96		
77	1.765	1.813	1.863	-2.7%	2.7%	-0.96	0.98		
78	1.715	1.762	1.811	-2.7%	2.8%	-0.97	1.00		
79	1.666	1.713	1.761	-2.7%	2.8%	-0.99	1.01		
80	1.619	1.665	1.712	-2.8%	2.8%	-1.00	1.03		
81	1.574	1.619	1.666	-2.8%	2.9%	-1.02	1.04		
82	1.530	1.575	1.620	-2.8%	2.9%	-1.03	1.06		
83	1.488	1.532	1.576	-2.8%	2.9%	-1.05	1.08		
84	1.447	1.490	1.534	-2.9%	2.9%	-1.06	1.09		
85	1.408	1.449	1.493	-2.9%	3.0%	-1.08	1.11		
86	1.369	1.411	1.453	-2.9%	3.0%	-1.10	1.12		
87	1.332	1.373	1.414	-2.9%	3.0%	-1.11	1.14		
88	1.296	1.336	1.377	-3.0%	3.1%	-1.13	1.16		
89	1.262	1.301	1.341	-3.0%	3.1%	-1.14	1.17		
90	1.228	1.266	1.306	-3.0%	3.1%	-1.16	1.19		
91	1.196	1.233	1.272	-3.1%	3.1%	-1.17	1.21		
92	1.164	1.201	1.239	-3.1%	3.2%	-1.19	1.22		
93	1.133	1.170	1.207	-3.1%	3.2%	-1.21	1.24		
94	1.104	1.140	1.176	-3.1%	3.2%	-1.22	1.26		
95	1.075	1.110	1.146	-3.2%	3.2%	-1.24	1.28		
96	1.047	1.082	1.117	-3.2%	3.3%	-1.26	1.29		
97	1.020	1.054	1.089	-3.2%	3.3%	-1.27	1.31		
98	0.994	1.027	1.061	-3.2%	3.3%	-1.29	1.33		
99	0.969	1.001	1.035	-3.3%	3.4%	-1.31	1.35		
100	0.944	0.976	1.009	-3.3%	3.4%	-1.32	1.36		
101	0.920	0.952	0.984	-3.3%	3.4%	-1.34	1.38		
102	0.897	0.928	0.960	-3.3%	3.4%	-1.36	1.40		
103	0.875	0.905	0.936	-3.4%	3.5%	-1.37	1.42		



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R(25°C)=10kohm±1%				B(25/85)=3435±1%							
Temp.	Resistance(kΩ)			resistance tol. (%)		Temp.tol. (°C)					
°C	Rmin	R(t)Normal	Rmax	MIN	MAX	MIN	MAX				
104	0.853	0.882	0.913	-3.4%	3.5%	-1.39	1.43				
105	0.832	0.861	0.891	-3.4%	3.5%	-1.41	1.45				
106	0.811	0.840	0.869	-3.4%	3.5%	-1.42	1.47				
107	0.791	0.819	0.848	-3.4%	3.6%	-1.44	1.49				
108	0.772	0.799	0.828	-3.5%	3.6%	-1.46	1.51				
109	0.753	0.780	0.808	-3.5%	3.6%	-1.47	1.52				
110	0.734	0.761	0.789	-3.5%	3.6%	-1.49	1.54				
111	0.717	0.743	0.770	-3.5%	3.7%	-1.51	1.56				
112	0.699	0.725	0.752	-3.6%	3.7%	-1.53	1.58				
113	0.682	0.708	0.734	-3.6%	3.7%	-1.54	1.60				
114	0.666	0.691	0.717	-3.6%	3.7%	-1.56	1.62				
115	0.650	0.675	0.700	-3.6%	3.8%	-1.58	1.63				
116	0.635	0.659	0.684	-3.7%	3.8%	-1.60	1.65				
117	0.620	0.644	0.668	-3.7%	3.8%	-1.61	1.67				
118	0.605	0.629	0.653	-3.7%	3.8%	-1.63	1.69				
119	0.591	0.614	0.638	-3.7%	3.9%	-1.65	1.71				
120	0.577	0.600	0.623	-3.7%	3.9%	-1.67	1.73				
121	0.564	0.586	0.609	-3.8%	3.9%	-1.69	1.75				
122	0.551	0.573	0.595	-3.8%	3.9%	-1.70	1.77				
123	0.538	0.560	0.582	-3.8%	4.0%	-1.72	1.79				
124	0.526	0.547	0.569	-3.8%	4.0%	-1.74	1.81				
125	0.514	0.535	0.556	-3.9%	4.0%	-1.76	1.82				
126	0.502	0.523	0.544	-3.9%	4.0%	-1.78	1.84				
127	0.491	0.511	0.532	-3.9%	4.0%	-1.80	1.86				
128	0.480	0.499	0.520	-3.9%	4.1%	-1.81	1.88				
129	0.469	0.488	0.508	-3.9%	4.1%	-1.83	1.90				
130	0.459	0.478	0.497	-4.0%	4.1%	-1.85	1.92				
131	0.448	0.467	0.486	-4.0%	4.1%	-1.87	1.94				
132	0.438	0.457	0.476	-4.0%	4.2%	-1.89	1.96				
133	0.429	0.447	0.465	-4.0%	4.2%	-1.91	1.98				
134	0.419	0.437	0.455	-4.1%	4.2%	-1.93	2.00				
135	0.410	0.428	0.446	-4.1%	4.2%	-1.95	2.02				
136	0.401	0.418	0.436	-4.1%	4.3%	-1.96	2.04				
137	0.393	0.409	0.427	-4.1%	4.3%	-1.98	2.06				
138	0.384	0.401	0.418	-4.1%	4.3%	-2.00	2.08				
139	0.376	0.392	0.409	-4.2%	4.3%	-2.02	2.10				



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R-T			TABLE		P/N:		
R(25°C)=10kohm±1%			B(25/85)=3435±1%				
Temp.	Resistance(kΩ)			resistance tol. (%)		Temp.tol. (°C)	
°C	Rmin	R(t)Normal	Rmax	MIN	MAX	MIN	MAX
140	0.368	0.384	0.400	-4.2%	4.3%	-2.04	2.12
141	0.360	0.376	0.392	-4.2%	4.4%	-2.06	2.15
142	0.352	0.368	0.384	-4.2%	4.4%	-2.08	2.17
143	0.345	0.360	0.376	-4.2%	4.4%	-2.10	2.19
144	0.337	0.352	0.368	-4.3%	4.4%	-2.12	2.21
145	0.330	0.345	0.361	-4.3%	4.5%	-2.14	2.23
146	0.323	0.338	0.353	-4.3%	4.5%	-2.16	2.25
147	0.317	0.331	0.346	-4.3%	4.5%	-2.18	2.27
148	0.310	0.324	0.339	-4.3%	4.5%	-2.20	2.29
149	0.304	0.318	0.332	-4.4%	4.5%	-2.22	2.31
150	0.297	0.311	0.325	-4.4%	4.6%	-2.24	2.33