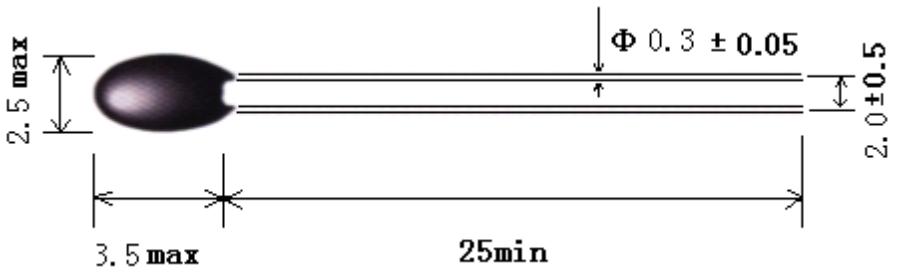
Main technical parameters of temperature measurement thermistor

Specifications Model	$MF52A_1103J3950$
Product Standards	Q/320115SHD03-2008

1、Dimensions （unit：mm）



2、material

Encapsulation material	Colour	Lead material
Modified epoxy resin	black	Tinned steel wire

3、Model Description

MF52	A1	103	J	3950
Bead-type temperature measurement type NTC Thermistor	Lead wire is tinned steel wire	resistance	Resistance tolerance	B value （25/50）
		10×10^3=10KΩ	±5%	3950K

4、Electrical performance

	project	sign	Test Conditions	unit	Performance requirements
4.1	25 ℃ zero power resistance value	R_{25}	Ta = 25 ± 0.05 ° C Test power ≤ 0.1mW Flow liquid test	KΩ	10±5%
4.2	B value	$B_{25/50}$	B=[(Ta×Tb)/(Tb-Ta)]× ln(Ra/Rb) Tb=50℃±0.1℃	K	3950±2%
4.3	Dissipation factor	δ	In still air	mW/℃	≥2
4.4	The time constant	τ	In still air	sec	≤7
4.5	insulation resistance	/	100V/DC 1min	MΩ	≥100

4.6	operating temperature	/	/	℃	-55 ~ 125
4.7	Temperature characteristic	/	/	/	See table 1
4.8	Resistance error	/	/	/	See Schedule 2

. 5、Reliable performance test

	project	Test conditions and methods	technical requirements
5.1	solderability	The lead immersed in 235 ± 5 ℃ tin solution, the tin surface from the bottom of the body 6mm, time 2 to 3 seconds	Solder in the lead part of the surface coating evenly, smooth, the area of 95% or more
5.2	Resistance to soldering Heat	Will lead into the liquid to 265 + 5 ℃, liquid level in resistance from 6 mm, 5 +	No sexual damage， R25 ΔR/R≤±2%
5.3	Terminals Strength	tensile force：5N，time：10 秒	无可见性损伤， R25 ΔR/R≤±2%
5.4	Instantaneous temperature	-55℃30min→25℃5min→125℃30min →25℃5min，repeatedly5次, recover4	No sexual damage， R25 ΔR/R≤±2%
5.5	high temperature	temperature：125℃， time：16 hour	No sexual damage， R25 ΔR/R≤±2%
5.6	cold	temperature：-55℃，time：2hour	No sexual damage， R25 ΔR/R≤±2%
5.7	cyclone	air pressure：40±0.1Kpa， time:4hour	No sexual damage， R25 ΔR/R≤±2%
5.8	The steady state temperature	temperature：40℃， humidity：93%， time： 500±12hour	No sexual damage， R25 ΔR/R≤±2%， withstand voltage≥700V/AC 1min insulation resistance≥100MΩ
5.9	Alternating hot and humid	temperature：25~40℃， humidity：90%，time：24 hour	No sexual damage， R25 ΔR/R≤±2%， withstand voltage≥700V/AC 1min insulation resistance≥100MΩ
5.10	Limit the long resistance temperature zero power	temperature: 125℃ ±2℃, time:1000±24 hour	No sexual damage， R25 ΔR/R≤±2%
5.11	vibration	frequency domain：10~500HZ， amplitude：0.75mm	No sexual damage， R25 ΔR/R≤±2%
5.12	collision	accelerated speed：250m/S^2，pulse duration： 6mS，number of collision ：4000	No sexual damage， R25 ΔR/R≤±2%

6、 welding condition

In resistance welding, the welding of the root of at least 6 mm, the welding temperature should be lower than 350 ℃, welding time should be short as far as possible.

7、storage condition

7.1 Storage temperature: - 10 ℃ to 40 ℃;

7.2 Storage humidity: less than 75% RH;

7.3 Avoid being stored in an environment with corrosive gases and light;

7.4 Reseal the package after opening;

8、认证

8.1 QMSC ISO9001:2000 (01110Q20002R3M)

8.2 EMS ISO14001:2004 (01107E2002R0M))

8.3 SGS ROSH (SHR09071693476002C)

8.4 CQC (CQC07001019009)

8.5 UL 1434 (File # E240991)

attached list **1**

R25=10KΩprecision:±5% B25/50=3950K B25/85=4021K precision:±2%(P163-6)

temperature (℃)	resistance (KΩ)			resistance accuracy (%)		Temp Accuracy (℃)	
	least value	central value	maximum value	ΔR	-ΔR	ΔT	-ΔT
-55	511.063	583.542	664.635	13.890	-12.420	2.000	-1.787
-54	486.251	554.647	631.083	13.780	-12.330	1.992	-1.783
-53	462.457	526.968	598.975	13.660	-12.240	1.985	-1.778
-52	439.666	500.480	568.282	13.540	-12.150	1.977	-1.773
-51	417.855	475.159	538.970	13.420	-12.050	1.969	-1.768
-50	397.002	450.974	511.004	13.310	-11.960	1.961	-1.763
-49	377.082	427.897	484.345	13.190	-11.870	1.953	-1.758
-48	358.069	405.892	458.953	13.070	-11.780	1.945	-1.753
-47	339.934	384.927	434.786	12.950	-11.680	1.937	-1.748
-46	322.650	364.967	411.801	12.830	-11.590	1.929	-1.743
-45	306.187	345.975	389.955	12.710	-11.500	1.921	-1.738
-44	290.515	327.915	369.203	12.590	-11.400	1.913	-1.732
-43	275.605	310.751	349.502	12.470	-11.300	1.904	-1.727
-42	261.428	294.448	330.809	12.340	-11.210	1.896	-1.722
-41	247.952	278.969	313.080	12.220	-11.110	1.887	-1.716
-40	235.150	264.279	296.274	12.100	-11.020	1.879	-1.710
-39	222.992	250.344	280.348	11.980	-10.920	1.870	-1.705
-38	211.451	237.130	265.262	11.860	-10.820	1.861	-1.699
-37	200.499	224.603	250.977	11.740	-10.730	1.853	-1.693
-36	190.108	212.733	237.455	11.620	-10.630	1.844	-1.687
-35	180.254	201.487	224.658	11.490	-10.530	1.835	-1.681
-34	170.911	190.836	212.551	11.370	-10.440	1.826	-1.675
-33	162.054	180.750	201.098	11.250	-10.340	1.817	-1.669
-32	153.660	171.201	190.268	11.130	-10.240	1.807	-1.663
-31	145.706	162.163	180.028	11.010	-10.140	1.798	-1.656
-30	138.170	153.610	170.348	10.890	-10.050	1.789	-1.650
-29	131.032	145.516	161.198	10.770	-9.953	1.779	-1.643
-28	124.271	137.858	152.550	10.650	-9.856	1.770	-1.637
-27	117.867	130.614	144.377	10.530	-9.759	1.760	-1.630
-26	111.804	123.761	136.655	10.410	-9.661	1.750	-1.623
-25	106.062	117.280	129.359	10.290	-9.564	1.740	-1.616
-24	100.626	111.149	122.465	10.180	-9.467	1.731	-1.609
-23	95.479	105.351	115.952	10.060	-9.370	1.721	-1.602
-22	90.606	99.867	109.799	9.945	-9.273	1.711	-1.595
-21	85.992	94.681	103.986	9.828	-9.176	1.700	-1.588
-20	81.624	89.776	98.494	9.711	-9.079	1.690	-1.580
-19	77.489	85.137	93.306	9.595	-8.983	1.680	-1.573
-18	73.574	80.750	88.404	9.479	-8.886	1.669	-1.565
-17	69.867	76.600	83.773	9.363	-8.790	1.659	-1.557

R25=10KΩ precision:±5%B25/50=3950K B25/85=4021K precision:±2%(P163-6)

temperature (℃)	resistance (KΩ)			resistance accuracy (%)		Temp Accuracy (℃)	
	least value	central value	maximum value	ΔR	-ΔR	ΔT	-ΔT
-16	66.357	72.676	79.397	9.248	-8.694	1.648	-1.550
-15	63.033	68.963	75.263	9.134	-8.598	1.638	-1.542
-14	59.886	65.451	71.355	9.020	-8.503	1.627	-1.534
-13	56.905	62.129	67.663	8.906	-8.407	1.616	-1.526
-12	54.082	58.986	64.173	8.793	-8.312	1.605	-1.518
-11	51.409	56.012	60.874	8.681	-8.217	1.594	-1.509
-10	48.876	53.198	57.756	8.569	-8.123	1.583	-1.501
-9	46.477	50.534	54.808	8.457	-8.028	1.572	-1.492
-8	44.204	48.013	52.021	8.346	-7.934	1.561	-1.484
-7	42.050	45.627	49.385	8.236	-7.840	1.550	-1.475
-6	40.008	43.368	46.892	8.126	-7.747	1.538	-1.466
-5	38.074	41.229	44.535	8.017	-7.653	1.527	-1.457
-4	36.240	39.204	42.304	7.908	-7.560	1.515	-1.448
-3	34.501	37.285	40.194	7.800	-7.467	1.503	-1.439
-2	32.852	35.468	38.197	7.692	-7.375	1.491	-1.430
-1	31.289	33.747	36.307	7.585	-7.283	1.480	-1.421
0	29.806	32.116	34.517	7.479	-7.191	1.468	-1.411
1	28.399	30.570	32.824	7.373	-7.099	1.456	-1.402
2	27.065	29.105	31.220	7.267	-7.008	1.443	-1.392
3	25.798	27.716	29.701	7.162	-6.917	1.431	-1.382
4	24.597	26.399	28.262	7.058	-6.826	1.419	-1.372
5	23.456	25.150	26.899	6.954	-6.736	1.406	-1.362
6	22.373	23.965	25.607	6.851	-6.646	1.394	-1.352
7	21.344	22.842	24.383	6.749	-6.556	1.381	-1.342
8	20.367	21.776	23.223	6.647	-6.467	1.369	-1.332
9	19.439	20.764	22.123	6.545	-6.378	1.356	-1.321
10	18.539	19.783	21.057	6.442	-6.287	1.345	-1.312
11	17.720	18.892	20.090	6.344	-6.201	1.330	-1.300
12	16.924	18.026	19.152	6.244	-6.113	1.317	-1.289
13	16.167	17.204	18.261	6.145	-6.025	1.304	-1.278
14	15.448	16.423	17.416	6.047	-5.937	1.291	-1.267
15	14.764	15.681	16.614	5.949	-5.850	1.277	-1.256
16	14.113	14.976	15.852	5.851	-5.764	1.264	-1.245
17	13.494	14.306	15.129	5.754	-5.677	1.251	-1.234
18	12.904	13.669	14.442	5.658	-5.592	1.237	-1.222
19	12.344	13.063	13.790	5.562	-5.506	1.223	-1.211
20	11.810	12.487	13.170	5.467	-5.421	1.210	-1.199
21	11.302	11.939	12.580	5.372	-5.336	1.196	-1.187
22	10.818	11.418	12.020	5.278	-5.251	1.182	-1.176
23	10.357	10.921	11.488	5.185	-5.167	1.168	-1.164

R25=10KΩ precision:±5%B25/50=3950K B25/85=4021K precision:±2%(P163-6)

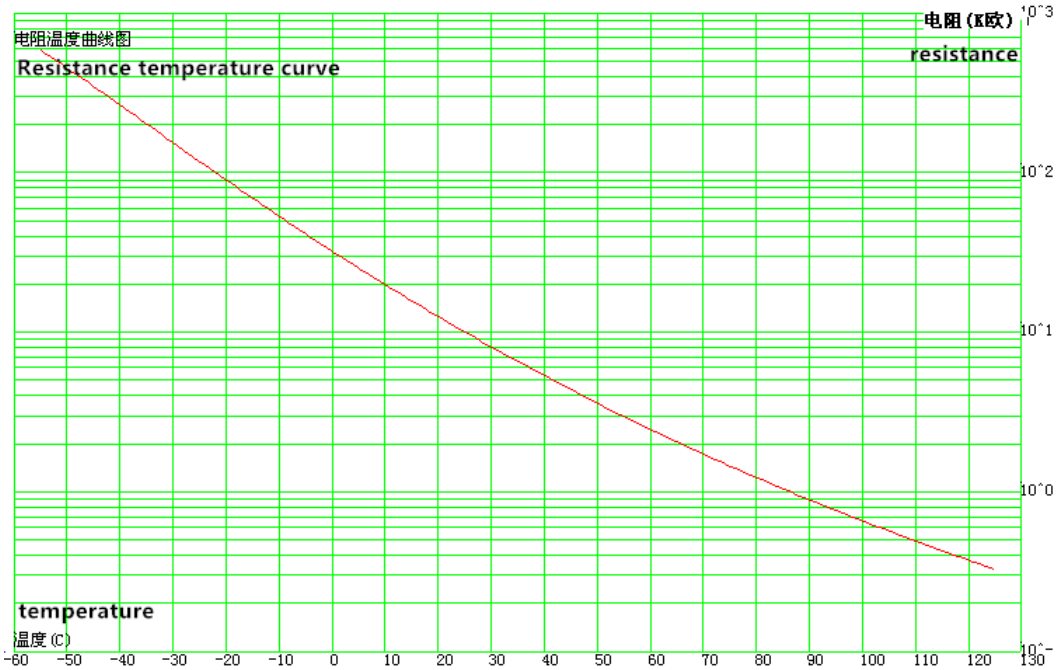
temperature (℃)	resistance (KΩ)			resistance accuracy (%)		Temp Accuracy (℃)	
	least value	central value	maximum value	ΔR	-ΔR	ΔT	-ΔT
24	9.918	10.449	10.981	5.092	-5.083	1.154	-1.152
25	9.500	10.000	10.500	5.000	-5.000	1.140	-1.140
26	9.085	9.571	10.059	5.091	-5.083	1.167	-1.165
27	8.690	9.164	9.639	5.183	-5.165	1.195	-1.191
28	8.315	8.775	9.238	5.274	-5.247	1.223	-1.217
29	7.957	8.405	8.856	5.365	-5.329	1.252	-1.243
30	7.617	8.052	8.492	5.455	-5.410	1.280	-1.270
31	7.292	7.716	8.144	5.545	-5.491	1.309	-1.296
32	6.984	7.396	7.812	5.635	-5.571	1.338	-1.323
33	6.689	7.090	7.496	5.724	-5.651	1.367	-1.350
34	6.409	6.798	7.194	5.813	-5.730	1.397	-1.377
35	6.142	6.520	6.905	5.901	-5.808	1.426	-1.404
36	5.887	6.255	6.630	5.989	-5.887	1.456	-1.431
37	5.644	6.002	6.366	6.077	-5.964	1.486	-1.458
38	5.412	5.760	6.115	6.164	-6.042	1.516	-1.486
39	5.191	5.529	5.875	6.251	-6.119	1.546	-1.513
40	4.980	5.309	5.645	6.338	-6.195	1.577	-1.541
41	4.778	5.098	5.425	6.424	-6.271	1.607	-1.569
42	4.586	4.897	5.216	6.509	-6.346	1.638	-1.597
43	4.402	4.704	5.015	6.595	-6.421	1.669	-1.625
44	4.227	4.521	4.823	6.680	-6.496	1.700	-1.653
45	4.059	4.345	4.639	6.764	-6.570	1.732	-1.682
46	3.899	4.177	4.463	6.849	-6.644	1.763	-1.711
47	3.746	4.016	4.295	6.932	-6.717	1.795	-1.739
48	3.600	3.863	4.134	7.016	-6.790	1.827	-1.768
49	3.461	3.716	3.979	7.099	-6.862	1.859	-1.797
50	3.339	3.588	3.845	7.174	-6.927	1.896	-1.831
51	3.199	3.440	3.690	7.264	-7.005	1.924	-1.856
52	3.077	3.311	3.554	7.346	-7.076	1.957	-1.885
53	2.960	3.188	3.425	7.428	-7.147	1.990	-1.915
54	2.848	3.069	3.300	7.509	-7.217	2.023	-1.944
55	2.741	2.956	3.181	7.590	-7.287	2.056	-1.974
56	2.638	2.848	3.066	7.670	-7.356	2.090	-2.004
57	2.540	2.744	2.956	7.750	-7.425	2.123	-2.034
58	2.446	2.644	2.851	7.830	-7.493	2.157	-2.064
59	2.356	2.548	2.750	7.910	-7.562	2.191	-2.095
60	2.269	2.457	2.653	7.989	-7.629	2.226	-2.125
61	2.186	2.369	2.560	8.067	-7.696	2.260	-2.156
62	2.107	2.284	2.471	8.146	-7.763	2.295	-2.187

R25=10KΩ precision:±5%B25/50=3950K B25/85=4021K precision:±2%(P163-6)

temperature (℃)	resistance (KΩ)			resistance accuracy (%)		Temp Accuracy (℃)	
	least value	central value	maximum value	ΔR	-ΔR	ΔT	-ΔT
63	2.031	2.204	2.385	8.224	-7.830	2.329	-2.218
64	1.958	2.126	2.302	8.301	-7.896	2.364	-2.249
65	1.888	2.051	2.223	8.379	-7.962	2.400	-2.280
66	1.821	1.980	2.147	8.456	-8.027	2.435	-2.312
67	1.756	1.911	2.074	8.532	-8.092	2.471	-2.343
68	1.695	1.845	2.004	8.609	-8.156	2.506	-2.375
69	1.635	1.782	1.937	8.684	-8.220	2.542	-2.406
70	1.578	1.721	1.872	8.760	-8.284	2.578	-2.438
71	1.524	1.663	1.809	8.835	-8.348	2.615	-2.470
72	1.471	1.606	1.749	8.910	-8.411	2.651	-2.503
73	1.421	1.552	1.692	8.985	-8.473	2.688	-2.535
74	1.372	1.500	1.636	9.059	-8.536	2.725	-2.567
75	1.326	1.450	1.583	9.133	-8.597	2.762	-2.600
76	1.281	1.402	1.531	9.206	-8.659	2.799	-2.633
77	1.238	1.356	1.482	9.279	-8.720	2.836	-2.665
78	1.196	1.312	1.434	9.352	-8.781	2.874	-2.698
79	1.157	1.269	1.388	9.425	-8.841	2.912	-2.732
80	1.118	1.228	1.344	9.497	-8.902	2.950	-2.765
81	1.081	1.188	1.302	9.569	-8.961	2.988	-2.798
82	1.046	1.150	1.261	9.641	-9.021	3.026	-2.832
83	1.012	1.113	1.221	9.712	-9.080	3.065	-2.866
84	0.979	1.078	1.183	9.783	-9.139	3.104	-2.899
85	0.947	1.044	1.146	9.853	-9.197	3.143	-2.933
86	0.917	1.011	1.111	9.924	-9.255	3.182	-2.967
87	0.888	0.979	1.077	9.994	-9.313	3.221	-3.002
88	0.860	0.948	1.044	10.060	-9.370	3.261	-3.036
89	0.832	0.919	1.012	10.130	-9.427	3.300	-3.071
90	0.806	0.891	0.982	10.200	-9.484	3.340	-3.105
91	0.781	0.863	0.952	10.270	-9.541	3.380	-3.140
92	0.757	0.837	0.923	10.330	-9.597	3.420	-3.175
93	0.733	0.811	0.896	10.400	-9.652	3.461	-3.210
94	0.710	0.787	0.869	10.470	-9.708	3.502	-3.245
95	0.689	0.763	0.844	10.540	-9.763	3.542	-3.280
96	0.668	0.740	0.819	10.610	-9.818	3.583	-3.316
97	0.647	0.718	0.795	10.670	-9.872	3.624	-3.351
98	0.628	0.697	0.772	10.740	-9.927	3.666	-3.387
99	0.609	0.676	0.750	10.810	-9.981	3.707	-3.423
100	0.591	0.657	0.728	10.870	-10.030	3.749	-3.459
101	0.573	0.637	0.707	10.940	-10.080	3.791	-3.495
102	0.556	0.619	0.687	11.000	-10.140	3.833	-3.531

R25=10KΩ precision:±5%B25/50=3950K B25/85=4021K precision:±2%(P163-6)

temperature (℃)	resistance (KΩ)			resistance accuracy (%)		Temp Accuracy (℃)	
	least value	central value	maximum value	ΔR	-ΔR	ΔT	-ΔT
103	0.540	0.601	0.667	11.070	-10.190	3.875	-3.568
104	0.524	0.584	0.649	11.130	-10.240	3.918	-3.604
105	0.508	0.567	0.630	11.200	-10.290	3.961	-3.641
106	0.494	0.551	0.613	11.260	-10.350	4.004	-3.678
107	0.479	0.535	0.596	11.330	-10.400	4.047	-3.715
108	0.465	0.520	0.579	11.390	-10.450	4.090	-3.752
109	0.452	0.505	0.563	11.450	-10.500	4.133	-3.789
110	0.439	0.491	0.548	11.520	-10.550	4.177	-3.827
111	0.427	0.477	0.533	11.580	-10.600	4.221	-3.864
112	0.415	0.464	0.518	11.640	-10.650	4.265	-3.902
113	0.403	0.451	0.504	11.700	-10.700	4.309	-3.939
114	0.392	0.439	0.491	11.770	-10.750	4.353	-3.977
115	0.381	0.427	0.478	11.830	-10.800	4.398	-4.015
116	0.370	0.415	0.465	11.890	-10.850	4.442	-4.054
117	0.360	0.404	0.453	11.950	-10.900	4.487	-4.092
118	0.350	0.393	0.441	12.010	-10.950	4.532	-4.130
119	0.341	0.383	0.429	12.070	-10.990	4.578	-4.169
120	0.331	0.373	0.418	12.130	-11.040	4.623	-4.208
121	0.322	0.363	0.407	12.190	-11.090	4.669	-4.246
122	0.314	0.353	0.396	12.250	-11.140	4.715	-4.285
123	0.305	0.344	0.386	12.310	-11.190	4.761	-4.325
124	0.297	0.335	0.376	12.370	-11.230	4.807	-4.364
125	0.289	0.326	0.367	12.430	-11.280	4.853	-4.403



attached list 2