

Temperature Measurement NTC Thermistor



Features

- =
- 0
- k
- 0

Applications

- u
- "
- u
- @

PART NUMBER

Example: RND 155MF52A2 103J3950

RND 155MF52A2	103	J	3950
Type	Zero Power Resistance @ 25 °C 103 = 10 kΩ	Tolerance F = ± 1% G = ± 2% H = ± 3% J = ± 5%	B Constant 3600 = 3600 K 3950 = 3950 K 4050 = 4050 K 4500 = 4500 K

Electrical Characteristics

Item	Symbol	Test conditions	Unit	Specification
1.1	Zero Power Resistance at 25°C	R25 Ta=25±0.05°C Test Power≤0.1mW	KΩ	10±1%
1.2	B-value	B25/50 $B = [(Ta \times Tb) / (Tb - Ta)] \times \ln(Ra / Rb)$ Tb=50°C±0.01°C	K	3950±1%
1.3	Thermal dissipation Coefficient	δ In still air	mW/°C	≥2
1.4	Thermal time constant	τ In still air	sec	≤7
1.5	Insulation resistance	/ 100V/DC 1min	MΩ	≥100
1.6	Operating temperature	/	°C	-55°C ~ 125°C
1.7	Maximum rated power	Pmax /	mW	50
1.8	R&T-table	/	/	See attached table
1.9	Resistance tolerance	/	/	See attached curve

Reliability

Item	Test conditions and methods	Technical requirements
2.1	Terminal strength Fixed resistor end, Pull strength : 5±1 N time: 10±1 sec	No obvious damage, R25 ΔR/R≤±3%
2.2	Solderability Temperature : 245±5°C for 2-3sec	the coverage area should be more than 95%.
2.3	Welding heat resistant Tin pan temperature: 260°C ±5°C, immersion depth is apart from the body resistance 6 mm, time 5±1 sec	R25 ΔR/R≤±2%,
2.4	Steady humidity and heat Temp: 40°C±2°C, Humidity: 93±2%, Time : 500hrs	R25 ΔR/R≤±2%,
2.5	Rapid changes in temperature -55°C30min→25°C5min→1 25°C30min→25°C5min , 5cycles	R25 ΔR/R≤±2%
2.6	High temperature storage Temp : 125°C±5°C, Time :1000hrs	R25 ΔR/R≤±2%
2.7	Low temperature storage Temp : -55°C, Time :1000hrs	R25 ΔR/R≤±2%

Temperature Measurement NTC Thermistor

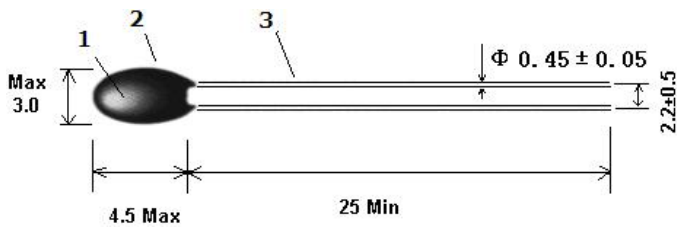
Caution

- 3.1 This product USES: Temperature measurement and control;
- 3.2 Avoid measurement error when current through the thermistor chip resulted in heating element itself;
- 3.3 When the soldering iron welding, the welding place at least 2 mm space from coating layer and the welding temperature should be lower than 300 °C, welding time < 3 sec.
- 3.4 Storage temp : -10°C ~ 40°C; storage humidity : ≤75% RH;
- 3.5 Avoid air corrosion or sunlight
- 3.6 Remake sealed storage after package opening

Certificate

Quality Control System Certification ISO9001 : 2008 (01112Q20216R4M)
Environment Management System Certification ISO14001:2015 (01116E30085R3M)
Environment Test Report RoHS
CQC Safe Certification

Dimensions



No.	Name	Material specifications	Quantity	note
1	element	NTC Thermistor (chip)	1	
2	Modified resin	Coating types of resin	1	Black
3	Lead wire	CP wire	2	Silver

Temperature Measurement NTC Thermistor



R&T Table

R25=10KΩ TOLERANCE:±5%				B25/50=3950K TOLERANCE:±1% P163-6			
TEMP(°C)	RESISTANCE(KΩ)			RESIST-TOL(%)		TEMP-TOL(°C)	
	MIN	CENTER	MAX	△R	-△R	△T	-△T
-55	672.933	739.500	810.619	9.617	-9.001	1.308	-1.224
-54	642.445	705.664	773.167	9.565	-8.958	1.304	-1.222
-53	609.539	669.165	732.787	9.507	-8.910	1.302	-1.220
-52	575.533	631.466	691.103	9.444	-8.857	1.301	-1.220
-51	541.433	593.686	649.354	9.376	-8.801	1.300	-1.220
-50	507.978	556.644	608.447	9.306	-8.742	1.299	-1.220
-49	475.685	520.911	569.010	9.233	-8.682	1.299	-1.221
-48	444.889	486.858	531.454	9.159	-8.620	1.299	-1.223
-47	415.791	454.704	496.016	9.085	-8.557	1.299	-1.224
-46	388.487	424.553	462.808	9.010	-8.495	1.300	-1.225
-45	362.997	396.426	431.850	8.935	-8.432	1.300	-1.227
-44	339.291	370.283	403.096	8.861	-8.369	1.301	-1.228
-43	317.300	346.049	376.459	8.787	-8.307	1.301	-1.230
-42	296.935	323.623	351.827	8.715	-8.246	1.301	-1.231
-41	278.096	302.890	329.069	8.643	-8.185	1.302	-1.233
-40	260.675	283.730	308.051	8.572	-8.125	1.302	-1.234
-39	244.563	266.022	288.639	8.502	-8.066	1.302	-1.235
-38	229.657	249.649	270.702	8.433	-8.007	1.302	-1.236
-37	215.855	234.498	254.115	8.365	-7.950	1.302	-1.237
-36	203.063	220.466	238.761	8.298	-7.893	1.301	-1.238
-35	191.194	207.454	224.533	8.232	-7.837	1.301	-1.238
-34	180.168	195.372	211.330	8.167	-7.782	1.300	-1.239
-33	169.910	184.139	199.062	8.103	-7.727	1.299	-1.239
-32	160.354	173.681	187.646	8.040	-7.673	1.298	-1.239
-31	151.439	163.931	177.009	7.978	-7.620	1.297	-1.239
-30	143.110	154.827	167.084	7.916	-7.567	1.296	-1.238
-29	135.319	146.315	157.809	7.855	-7.515	1.294	-1.238
-28	128.021	138.347	149.131	7.795	-7.463	1.293	-1.237
-27	121.176	130.877	141.001	7.735	-7.411	1.291	-1.237

Temperature Measurement

NTC Thermistor



-26	114.749	123.866	133.374	7.675	-7.360	1.289	-1.236
-25	108.706	117.280	126.213	7.617	-7.310	1.287	-1.235
-24	103.019	111.084	119.481	7.558	-7.260	1.285	-1.234
-23	97.663	105.252	113.146	7.500	-7.209	1.283	-1.233
-22	92.613	99.756	107.181	7.443	-7.160	1.281	-1.232
-21	87.848	94.573	101.558	7.385	-7.110	1.278	-1.231
-20	83.349	89.682	96.254	7.328	-7.061	1.276	-1.229
-19	79.098	85.063	91.249	7.272	-7.012	1.274	-1.228
-18	75.080	80.699	86.522	7.215	-6.963	1.271	-1.227
-17	71.279	76.574	82.056	7.159	-6.914	1.269	-1.225
-16	67.683	72.672	77.835	7.103	-6.865	1.266	-1.224
-15	64.279	68.982	73.843	7.047	-6.817	1.263	-1.222
-14	61.056	65.489	70.068	6.991	-6.768	1.261	-1.220
-13	58.004	62.183	66.496	6.936	-6.720	1.258	-1.219
-12	55.112	59.052	63.116	6.881	-6.672	1.255	-1.217
-11	52.372	56.087	59.916	6.826	-6.624	1.253	-1.215
-10	49.776	53.280	56.887	6.771	-6.576	1.250	-1.214
-9	47.315	50.620	54.020	6.716	-6.528	1.247	-1.212
-8	44.982	48.100	51.304	6.662	-6.480	1.244	-1.210
-7	42.771	45.712	48.733	6.607	-6.432	1.242	-1.209
-6	40.675	43.450	46.297	6.553	-6.385	1.239	-1.207
-5	38.688	41.306	43.991	6.499	-6.337	1.236	-1.205
-4	36.804	39.274	41.806	6.446	-6.290	1.233	-1.203
-3	35.017	37.349	39.737	6.392	-6.243	1.230	-1.202
-2	33.323	35.524	37.776	6.339	-6.196	1.227	-1.200
-1	31.716	33.795	35.919	6.286	-6.149	1.225	-1.198
0	30.156	32.116	34.117	6.232	-6.101	1.223	-1.197
1	28.748	30.601	32.493	6.180	-6.056	1.219	-1.195
2	27.378	29.128	30.914	6.128	-6.010	1.216	-1.193
3	26.078	27.732	29.417	6.076	-5.964	1.213	-1.191
4	24.845	26.408	27.999	6.024	-5.918	1.211	-1.189
5	23.675	25.152	26.655	5.972	-5.872	1.208	-1.187
6	22.566	23.962	25.381	5.921	-5.826	1.205	-1.186
7	21.513	22.833	24.173	5.870	-5.781	1.202	-1.184
8	20.514	21.762	23.029	5.819	-5.735	1.199	-1.182
9	19.566	20.746	21.943	5.769	-5.690	1.196	-1.180
10	18.666	19.783	20.914	5.718	-5.645	1.194	-1.178
11	17.811	18.868	19.938	5.668	-5.601	1.191	-1.177
12	17.000	18.000	19.012	5.619	-5.556	1.188	-1.175
13	16.230	17.177	18.133	5.569	-5.512	1.185	-1.173
14	15.498	16.395	17.300	5.520	-5.468	1.182	-1.171
15	14.803	15.652	16.509	5.471	-5.424	1.180	-1.170
16	14.143	14.947	15.758	5.422	-5.381	1.177	-1.168

Temperature Measurement NTC Thermistor



17	13.515	14.277	15.045	5.374	-5.337	1.174	-1.166
18	12.919	13.641	14.367	5.326	-5.294	1.172	-1.165
19	12.351	13.036	13.724	5.278	-5.251	1.170	-1.164
20	11.812	12.461	13.113	5.231	-5.208	1.168	-1.163
21	11.299	11.915	12.533	5.184	-5.166	1.167	-1.163
22	10.811	11.395	11.981	5.137	-5.124	1.167	-1.164
23	10.347	10.901	11.456	5.090	-5.081	1.171	-1.169
24	9.905	10.431	10.957	5.044	-5.040	1.191	-1.190
25	9.500	10.000	10.500	5.000	-5.000	1.188	-1.188
26	9.075	9.557	10.040	5.047	-5.042	1.119	-1.118
27	8.686	9.151	9.618	5.093	-5.084	1.157	-1.155
28	8.316	8.765	9.216	5.138	-5.125	1.181	-1.178
29	7.963	8.397	8.832	5.183	-5.165	1.203	-1.199
30	7.628	8.047	8.467	5.228	-5.206	1.223	-1.218
31	7.308	7.712	8.119	5.273	-5.246	1.242	-1.236
32	7.003	7.394	7.787	5.317	-5.286	1.261	-1.254
33	6.712	7.090	7.470	5.361	-5.326	1.280	-1.272
34	6.435	6.800	7.168	5.405	-5.365	1.299	-1.290
35	6.171	6.523	6.879	5.449	-5.404	1.318	-1.307
36	5.919	6.259	6.603	5.492	-5.443	1.337	-1.325
37	5.678	6.008	6.340	5.536	-5.482	1.356	-1.343
38	5.448	5.767	6.089	5.579	-5.521	1.375	-1.361
39	5.229	5.537	5.849	5.622	-5.559	1.394	-1.378
40	5.020	5.318	5.619	5.665	-5.597	1.413	-1.396
41	4.820	5.108	5.399	5.707	-5.635	1.432	-1.414
42	4.629	4.907	5.190	5.749	-5.673	1.451	-1.432
43	4.446	4.716	4.989	5.792	-5.711	1.470	-1.450
44	4.272	4.532	4.797	5.834	-5.748	1.490	-1.468
45	4.105	4.357	4.613	5.875	-5.785	1.509	-1.486
46	3.945	4.189	4.437	5.917	-5.822	1.529	-1.504
47	3.793	4.029	4.269	5.958	-5.859	1.548	-1.522
48	3.647	3.875	4.108	5.999	-5.896	1.568	-1.541
49	3.507	3.728	3.954	6.040	-5.932	1.587	-1.559
50	3.373	3.588	3.806	6.081	-5.968	1.607	-1.577
51	3.245	3.453	3.664	6.122	-6.004	1.627	-1.596
52	3.123	3.324	3.528	6.162	-6.040	1.647	-1.614
53	3.005	3.200	3.398	6.203	-6.076	1.667	-1.633
54	2.893	3.081	3.274	6.243	-6.111	1.687	-1.652
55	2.785	2.968	3.154	6.283	-6.146	1.707	-1.670
56	2.682	2.859	3.039	6.322	-6.182	1.728	-1.689
57	2.583	2.754	2.929	6.362	-6.216	1.748	-1.708
58	2.488	2.654	2.824	6.401	-6.251	1.769	-1.727
59	2.397	2.558	2.723	6.441	-6.286	1.789	-1.746

Temperature Measurement NTC Thermistor

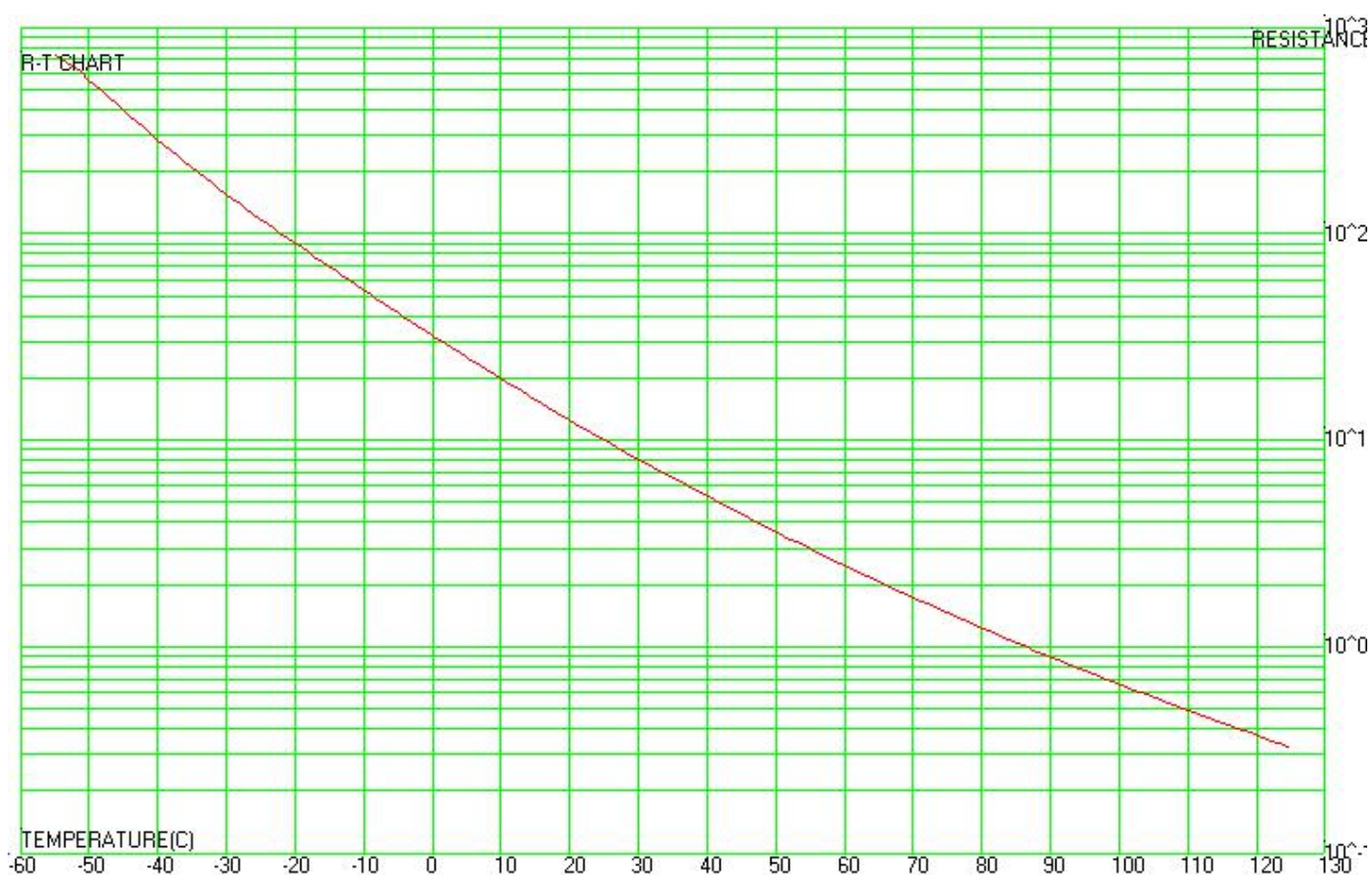


60	2.310	2.466	2.626	6.480	-6.320	1.810	-1.765
61	2.226	2.377	2.532	6.519	-6.354	1.831	-1.785
62	2.146	2.293	2.443	6.557	-6.388	1.852	-1.804
63	2.069	2.211	2.357	6.596	-6.422	1.872	-1.823
64	1.995	2.133	2.274	6.634	-6.456	1.894	-1.843
65	1.924	2.058	2.195	6.672	-6.489	1.915	-1.862
66	1.856	1.986	2.119	6.710	-6.523	1.936	-1.882
67	1.791	1.917	2.046	6.748	-6.556	1.957	-1.901
68	1.728	1.850	1.976	6.786	-6.589	1.979	-1.921
69	1.668	1.786	1.908	6.823	-6.621	2.000	-1.941
70	1.610	1.725	1.843	6.861	-6.654	2.022	-1.961
71	1.555	1.666	1.781	6.898	-6.687	2.044	-1.981
72	1.501	1.610	1.721	6.935	-6.719	2.066	-2.001
73	1.450	1.555	1.664	6.972	-6.751	2.088	-2.021
74	1.401	1.503	1.608	7.008	-6.783	2.110	-2.042
75	1.353	1.452	1.555	7.045	-6.814	2.132	-2.062
76	1.308	1.404	1.504	7.081	-6.846	2.154	-2.083
77	1.264	1.358	1.454	7.117	-6.877	2.177	-2.103
78	1.222	1.313	1.407	7.153	-6.909	2.199	-2.124
79	1.182	1.270	1.361	7.189	-6.940	2.222	-2.145
80	1.143	1.228	1.317	7.224	-6.970	2.244	-2.166
81	1.105	1.189	1.275	7.259	-7.001	2.267	-2.187
82	1.069	1.150	1.234	7.295	-7.032	2.290	-2.208
83	1.035	1.113	1.195	7.330	-7.062	2.313	-2.229
84	1.001	1.078	1.157	7.364	-7.092	2.337	-2.250
85	0.969	1.044	1.121	7.399	-7.122	2.360	-2.271
86	0.938	1.011	1.086	7.433	-7.152	2.383	-2.293
87	0.908	0.979	1.052	7.468	-7.181	2.407	-2.314
88	0.880	0.948	1.019	7.502	-7.211	2.430	-2.336
89	0.852	0.919	0.988	7.536	-7.240	2.454	-2.358
90	0.826	0.890	0.958	7.569	-7.269	2.478	-2.380
91	0.800	0.863	0.929	7.603	-7.298	2.502	-2.402
92	0.775	0.837	0.901	7.636	-7.327	2.526	-2.424
93	0.751	0.811	0.873	7.670	-7.355	2.550	-2.446
94	0.729	0.787	0.847	7.703	-7.384	2.574	-2.468
95	0.706	0.763	0.822	7.736	-7.412	2.599	-2.490
96	0.685	0.740	0.798	7.768	-7.440	2.623	-2.513
97	0.664	0.718	0.774	7.801	-7.468	2.648	-2.535
98	0.645	0.697	0.751	7.833	-7.496	2.673	-2.558
99	0.625	0.676	0.730	7.865	-7.524	2.698	-2.580
100	0.607	0.657	0.708	7.898	-7.551	2.722	-2.603
101	0.589	0.637	0.688	7.929	-7.578	2.747	-2.626
102	0.572	0.619	0.668	7.961	-7.606	2.773	-2.649

Temperature Measurement NTC Thermistor



103	0.555	0.601	0.649	7.993	-7.633	2.798	-2.672
104	0.539	0.584	0.631	8.024	-7.660	2.823	-2.695
105	0.523	0.567	0.613	8.056	-7.686	2.849	-2.718
106	0.508	0.551	0.595	8.087	-7.713	2.874	-2.741
107	0.494	0.535	0.579	8.118	-7.740	2.900	-2.765
108	0.480	0.520	0.563	8.149	-7.766	2.925	-2.788
109	0.466	0.505	0.547	8.180	-7.792	2.951	-2.811
110	0.453	0.491	0.532	8.211	-7.819	2.977	-2.835
111	0.440	0.478	0.517	8.241	-7.845	3.003	-2.858
112	0.428	0.464	0.503	8.272	-7.871	3.029	-2.882
113	0.416	0.451	0.489	8.302	-7.896	3.055	-2.906
114	0.404	0.439	0.476	8.332	-7.922	3.081	-2.930
115	0.393	0.427	0.463	8.363	-7.948	3.107	-2.953
116	0.382	0.415	0.450	8.393	-7.974	3.134	-2.977
117	0.371	0.404	0.438	8.423	-7.999	3.160	-3.001
118	0.361	0.393	0.426	8.453	-8.025	3.187	-3.025
119	0.351	0.382	0.414	8.483	-8.050	3.213	-3.049
120	0.341	0.371	0.403	8.513	-8.076	3.240	-3.073
121	0.332	0.361	0.392	8.543	-8.101	3.266	-3.097
122	0.323	0.351	0.382	8.573	-8.126	3.293	-3.121
123	0.314	0.342	0.371	8.603	-8.152	3.319	-3.145
124	0.305	0.333	0.361	8.633	-8.177	3.346	-3.169
125	0.297	0.324	0.352	8.663	-8.202	3.373	-3.194



Temperature Measurement NTC Thermistor

