

Temperature Measurement NTC Thermistor



Features

- =
- 0
- k
- 0

Applications

- u
- "
- u
- @

PART NUMBER

Example: RND 155MF52A2 272J3950

RND 155MF52A2	272	J	3950
Type	Zero Power Resistance @ 25 °C 272 = 2.7 kΩ	Tolerance F = ± 1% G = ± 2% H = ± 3% J = ± 5%	B Constant 3470 = 3470 K 3950 = 3950 K 4200 = 4200 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	2.7±5%
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≤±2%
2.2	Solderability Temperature : 245±5°C for 2-3sec	coverage area ≥ 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

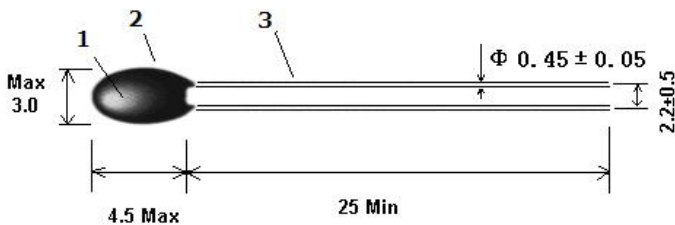
Caution

- 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 soldering iron, the distance between welding place and coating head at least 2mm, welding temp lower than 360°C, and time < 3 secs,
- 3.4 Storage temp: -10°C~40°C ; storage humidity: ≤75% RH;
- 3.5 Avoid putting in air corrosion or sunlight environment;
- 3.6 Remake sealed storage after package opening. The storage life is 1 year. Exceed storage period, can re-inspect per as the items stipulated in the standard. If it meets the requirements, it can still be used.
- 3.7 In the process using heat-shrink tube, blown by hair dryer is not allowed, we suggest put the product into the constant temperature oven and heat shrinkable at 110 °C/10-12 min

Certificate

Quality Control System Certification ISO9001 : 2015, IATF16949:2016
 Environment Management System Certification ISO14001:2015
 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=2.7KΩ TOLERANCE:±5% B25/50=3950K TOLERANCE:±1% P199-1							
TEMP(°C)	RESISTANCE(KΩ)			RESIST-TOL(%)		TEMP-TOL(°C)	
	MIN	CENTER	MAX	△R	-△R	△T	-△T
-55	228.338	251.505	276.329	9.870	-9.211	1.274	-1.189
-54	213.594	235.107	258.139	9.796	-9.150	1.273	-1.189
-53	199.664	219.624	240.975	9.721	-9.088	1.272	-1.189
-52	186.558	205.067	224.848	9.646	-9.025	1.272	-1.190
-51	174.268	191.425	209.747	9.571	-8.963	1.271	-1.191
-50	162.773	178.675	195.642	9.495	-8.900	1.271	-1.191
-49	152.042	166.782	182.493	9.420	-8.837	1.270	-1.192
-48	142.040	155.702	170.253	9.344	-8.774	1.270	-1.193
-47	132.726	145.393	158.871	9.270	-8.712	1.270	-1.193
-46	124.058	135.806	148.294	9.195	-8.650	1.269	-1.194
-45	115.997	126.895	138.469	9.121	-8.588	1.269	-1.194
-44	108.500	118.614	129.346	9.047	-8.526	1.268	-1.195
-43	101.529	110.918	120.873	8.974	-8.464	1.267	-1.195
-42	95.045	103.766	113.003	8.902	-8.403	1.267	-1.196
-41	89.014	97.117	105.692	8.830	-8.343	1.266	-1.196
-40	83.402	90.934	98.899	8.758	-8.282	1.265	-1.197
-39	78.178	85.183	92.583	8.687	-8.223	1.265	-1.197
-38	73.313	79.830	86.709	8.616	-8.163	1.264	-1.197
-37	68.780	74.846	81.243	8.546	-8.104	1.263	-1.197
-36	64.555	70.203	76.155	8.477	-8.045	1.262	-1.198
-35	60.615	65.876	71.416	8.408	-7.986	1.261	-1.198
-34	56.939	61.842	66.999	8.339	-7.928	1.260	-1.198
-33	53.507	58.078	62.882	8.271	-7.870	1.259	-1.198
-32	50.301	54.565	59.041	8.204	-7.813	1.258	-1.198
-31	47.306	51.284	55.457	8.137	-7.756	1.257	-1.198
-30	44.506	48.219	52.110	8.070	-7.699	1.255	-1.198
-29	41.887	45.353	48.984	8.004	-7.642	1.254	-1.197
-28	39.437	42.674	46.062	7.938	-7.586	1.253	-1.197
-27	37.143	40.168	43.331	7.873	-7.530	1.251	-1.197

Temperature Measurement NTC Thermistor



-26	34.995	37.822	40.776	7.808	-7.474	1.250	-1.197
-25	32.983	35.626	38.385	7.744	-7.419	1.249	-1.196
-24	31.097	33.569	36.147	7.680	-7.364	1.247	-1.196
-23	29.329	31.641	34.051	7.616	-7.309	1.246	-1.196
-22	27.670	29.835	32.088	7.553	-7.255	1.244	-1.195
-21	26.114	28.141	30.249	7.490	-7.200	1.243	-1.195
-20	24.654	26.552	28.524	7.427	-7.146	1.241	-1.194
-19	23.283	25.061	26.907	7.365	-7.093	1.239	-1.194
-18	21.996	23.662	25.390	7.304	-7.039	1.238	-1.193
-17	20.787	22.348	23.967	7.242	-6.986	1.236	-1.192
-16	19.650	21.114	22.631	7.181	-6.933	1.234	-1.192
-15	18.582	19.955	21.376	7.121	-6.881	1.233	-1.191
-14	17.577	18.866	20.198	7.061	-6.829	1.231	-1.190
-13	16.633	17.842	19.091	7.001	-6.777	1.229	-1.189
-12	15.744	16.879	18.051	6.942	-6.725	1.227	-1.189
-11	14.907	15.973	17.073	6.883	-6.673	1.225	-1.188
-10	14.120	15.121	16.153	6.824	-6.622	1.223	-1.187
-9	13.378	14.319	15.288	6.766	-6.571	1.221	-1.186
-8	12.680	13.564	14.474	6.708	-6.521	1.219	-1.185
-7	12.022	12.853	13.708	6.651	-6.470	1.217	-1.184
-6	11.401	12.184	12.987	6.594	-6.420	1.215	-1.183
-5	10.817	11.553	12.308	6.537	-6.371	1.213	-1.182
-4	10.265	10.958	11.668	6.481	-6.321	1.211	-1.181
-3	9.745	10.397	11.065	6.425	-6.272	1.209	-1.180
-2	9.254	9.868	10.497	6.369	-6.223	1.206	-1.179
-1	8.791	9.369	9.961	6.314	-6.174	1.204	-1.177
0	8.365	8.911	9.469	6.261	-6.127	1.200	-1.175
1	7.940	8.454	8.978	6.205	-6.078	1.199	-1.175
2	7.550	8.034	8.528	6.151	-6.030	1.197	-1.173
3	7.181	7.638	8.103	6.097	-5.982	1.194	-1.172
4	6.832	7.263	7.702	6.044	-5.935	1.192	-1.170
5	6.502	6.909	7.323	5.991	-5.888	1.189	-1.169
6	6.190	6.574	6.965	5.938	-5.841	1.187	-1.167
7	5.895	6.258	6.626	5.886	-5.795	1.184	-1.165
8	5.616	5.958	6.306	5.834	-5.749	1.181	-1.164
9	5.351	5.675	6.003	5.782	-5.703	1.178	-1.162
10	5.100	5.406	5.716	5.731	-5.657	1.175	-1.160
11	4.863	5.152	5.445	5.680	-5.611	1.172	-1.158
12	4.638	4.911	5.188	5.630	-5.566	1.169	-1.156
13	4.425	4.683	4.945	5.579	-5.521	1.166	-1.154
14	4.222	4.467	4.714	5.530	-5.477	1.163	-1.152
15	4.031	4.262	4.496	5.480	-5.432	1.159	-1.149
16	3.848	4.068	4.289	5.431	-5.388	1.156	-1.147

Temperature Measurement NTC Thermistor



17	3.676	3.883	4.092	5.382	-5.344	1.152	-1.144
18	3.512	3.708	3.906	5.333	-5.301	1.148	-1.141
19	3.356	3.542	3.729	5.285	-5.257	1.144	-1.138
20	3.208	3.384	3.561	5.237	-5.214	1.139	-1.134
21	3.067	3.234	3.402	5.189	-5.171	1.133	-1.129
22	2.933	3.092	3.251	5.142	-5.128	1.125	-1.122
23	2.806	2.956	3.107	5.095	-5.086	1.114	-1.112
24	2.685	2.828	2.970	5.048	-5.044	1.085	-1.084
25	2.565	2.700	2.835	5.000	-5.000	1.082	-1.082
26	2.458	2.589	2.719	5.043	-5.039	1.208	-1.207
27	2.352	2.478	2.604	5.089	-5.081	1.196	-1.194
28	2.251	2.372	2.494	5.135	-5.122	1.205	-1.202
29	2.155	2.272	2.390	5.181	-5.163	1.218	-1.214
30	2.063	2.176	2.290	5.226	-5.204	1.233	-1.228
31	1.976	2.085	2.195	5.271	-5.244	1.250	-1.243
32	1.893	1.998	2.105	5.316	-5.285	1.266	-1.259
33	1.814	1.916	2.018	5.360	-5.325	1.284	-1.275
34	1.738	1.837	1.936	5.404	-5.364	1.301	-1.292
35	1.666	1.762	1.858	5.448	-5.404	1.319	-1.309
36	1.598	1.690	1.783	5.492	-5.443	1.337	-1.325
37	1.533	1.621	1.711	5.536	-5.482	1.356	-1.343
38	1.470	1.556	1.643	5.579	-5.521	1.374	-1.360
39	1.411	1.494	1.578	5.622	-5.560	1.393	-1.377
40	1.354	1.434	1.516	5.665	-5.598	1.411	-1.395
41	1.300	1.378	1.456	5.708	-5.636	1.430	-1.412
42	1.248	1.323	1.399	5.751	-5.674	1.449	-1.430
43	1.199	1.271	1.345	5.793	-5.712	1.468	-1.448
44	1.152	1.222	1.293	5.835	-5.749	1.488	-1.466
45	1.106	1.174	1.243	5.877	-5.787	1.507	-1.484
46	1.063	1.129	1.196	5.918	-5.824	1.526	-1.502
47	1.022	1.086	1.151	5.960	-5.860	1.546	-1.520
48	0.983	1.044	1.107	6.001	-5.897	1.566	-1.539
49	0.945	1.005	1.066	6.042	-5.933	1.586	-1.557
50	0.909	0.967	1.026	6.083	-5.970	1.605	-1.576
51	0.875	0.931	0.988	6.123	-6.006	1.625	-1.594
52	0.842	0.896	0.951	6.164	-6.041	1.646	-1.613
53	0.810	0.863	0.916	6.204	-6.077	1.666	-1.632
54	0.780	0.831	0.883	6.244	-6.112	1.686	-1.651
55	0.751	0.800	0.851	6.283	-6.147	1.707	-1.670
56	0.723	0.771	0.820	6.323	-6.182	1.727	-1.689
57	0.697	0.743	0.790	6.362	-6.217	1.748	-1.708
58	0.672	0.716	0.762	6.401	-6.251	1.769	-1.727
59	0.647	0.691	0.735	6.440	-6.285	1.790	-1.747

Temperature Measurement NTC Thermistor



60	0.624	0.666	0.709	6.479	-6.319	1.811	-1.766
61	0.602	0.642	0.684	6.517	-6.353	1.832	-1.786
62	0.580	0.620	0.660	6.555	-6.387	1.853	-1.806
63	0.560	0.598	0.637	6.593	-6.420	1.875	-1.825
64	0.540	0.577	0.615	6.631	-6.453	1.896	-1.845
65	0.521	0.557	0.594	6.669	-6.486	1.918	-1.865
66	0.503	0.538	0.574	6.706	-6.519	1.939	-1.885
67	0.485	0.520	0.555	6.743	-6.551	1.961	-1.906
68	0.469	0.502	0.536	6.780	-6.584	1.983	-1.926
69	0.453	0.485	0.518	6.817	-6.616	2.005	-1.946
70	0.437	0.469	0.501	6.854	-6.648	2.028	-1.967
71	0.423	0.453	0.484	6.890	-6.680	2.050	-1.987
72	0.408	0.438	0.468	6.926	-6.711	2.072	-2.008
73	0.395	0.423	0.453	6.962	-6.743	2.095	-2.029
74	0.382	0.409	0.438	6.998	-6.774	2.117	-2.050
75	0.369	0.396	0.424	7.033	-6.805	2.140	-2.071
76	0.357	0.383	0.410	7.069	-6.835	2.163	-2.092
77	0.345	0.371	0.397	7.104	-6.866	2.186	-2.113
78	0.334	0.359	0.384	7.139	-6.896	2.209	-2.134
79	0.323	0.347	0.372	7.173	-6.926	2.232	-2.155
80	0.313	0.336	0.361	7.208	-6.956	2.256	-2.177
81	0.303	0.326	0.349	7.242	-6.986	2.279	-2.198
82	0.293	0.316	0.338	7.276	-7.016	2.303	-2.220
83	0.284	0.306	0.328	7.310	-7.045	2.326	-2.242
84	0.275	0.296	0.318	7.344	-7.074	2.350	-2.264
85	0.267	0.287	0.308	7.378	-7.103	2.374	-2.286
86	0.258	0.278	0.299	7.411	-7.132	2.398	-2.308
87	0.250	0.270	0.290	7.444	-7.161	2.422	-2.330
88	0.243	0.262	0.281	7.477	-7.190	2.446	-2.352
89	0.235	0.254	0.273	7.510	-7.218	2.470	-2.374
90	0.228	0.246	0.265	7.543	-7.246	2.495	-2.397
91	0.221	0.239	0.257	7.575	-7.274	2.519	-2.419
92	0.215	0.232	0.249	7.608	-7.302	2.544	-2.442
93	0.208	0.225	0.242	7.640	-7.330	2.569	-2.464
94	0.202	0.218	0.235	7.672	-7.357	2.593	-2.487
95	0.196	0.212	0.228	7.704	-7.385	2.618	-2.510
96	0.190	0.206	0.222	7.735	-7.412	2.643	-2.533
97	0.185	0.200	0.215	7.767	-7.439	2.668	-2.556
98	0.180	0.194	0.209	7.798	-7.466	2.694	-2.579
99	0.174	0.188	0.203	7.829	-7.493	2.719	-2.602
100	0.169	0.183	0.198	7.860	-7.519	2.744	-2.625
101	0.164	0.178	0.192	7.891	-7.546	2.770	-2.648
102	0.160	0.173	0.187	7.922	-7.572	2.795	-2.672

Temperature Measurement NTC Thermistor



103	0.155	0.168	0.181	7.953	-7.599	2.821	-2.695
104	0.151	0.163	0.176	7.984	-7.625	2.847	-2.719
105	0.147	0.159	0.172	8.014	-7.651	2.872	-2.742
106	0.142	0.154	0.167	8.044	-7.677	2.898	-2.766
107	0.138	0.150	0.162	8.075	-7.703	2.924	-2.789
108	0.135	0.146	0.158	8.105	-7.728	2.950	-2.813
109	0.131	0.142	0.153	8.135	-7.754	2.976	-2.837
110	0.127	0.138	0.149	8.165	-7.780	3.002	-2.861
111	0.124	0.134	0.145	8.195	-7.805	3.029	-2.885
112	0.120	0.131	0.141	8.225	-7.831	3.055	-2.908
113	0.117	0.127	0.137	8.255	-7.856	3.081	-2.932
114	0.114	0.124	0.134	8.284	-7.881	3.108	-2.956
115	0.111	0.120	0.130	8.314	-7.907	3.134	-2.980
116	0.108	0.117	0.127	8.344	-7.932	3.160	-3.004
117	0.105	0.114	0.123	8.374	-7.957	3.187	-3.028
118	0.102	0.111	0.120	8.403	-7.982	3.214	-3.053
119	0.099	0.108	0.117	8.433	-8.007	3.240	-3.077
120	0.096	0.105	0.114	8.462	-8.033	3.267	-3.101
121	0.094	0.102	0.111	8.492	-8.058	3.293	-3.125
122	0.091	0.099	0.108	8.522	-8.083	3.320	-3.149
123	0.089	0.096	0.105	8.551	-8.108	3.347	-3.173
124	0.086	0.094	0.102	8.581	-8.133	3.374	-3.197
125	0.084	0.091	0.099	8.611	-8.158	3.400	-3.222

