

Temperature Measurement NTC Thermistor



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Applications

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PART NUMBER

Example: RND 155MF52A2 222J3950

RND 155MF52A2	222	J	3950
Type	Zero Power Resistance @ 25 °C 202 = 2.2 kΩ	Tolerance F = ± 1% G = ± 2% H = ± 3% J = ± 5%	B Constant 3470 = 3470 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	2.2±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%

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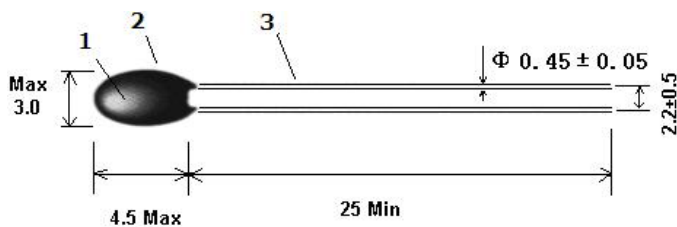
Caution

- 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

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R&T Table

R25=2.2K Ω TOLERANCE: \pm 5%				B25/50=3950K TOLERANCE: \pm 1% P199-1			
TEMP($^{\circ}$ C)	RESISTANCE(Ω)			RESISST-TOL(%)		TEMP-TOL($^{\circ}$ C)	
	MIN	CENTER	MAX	Δ R	$-\Delta$ R	Δ T	$-\Delta$ T
-55	186.053	204.930	225.157	9.870	-9.211	1.274	-1.189
-54	174.040	191.568	210.335	9.796	-9.150	1.273	-1.189
-53	162.689	178.952	196.350	9.721	-9.088	1.272	-1.189
-52	152.010	167.091	183.210	9.646	-9.025	1.272	-1.190
-51	141.996	155.976	170.905	9.571	-8.963	1.271	-1.191
-50	132.629	145.587	159.412	9.495	-8.900	1.271	-1.191
-49	123.886	135.896	148.698	9.420	-8.837	1.270	-1.192
-48	115.736	126.869	138.724	9.344	-8.774	1.270	-1.193
-47	108.147	118.468	129.450	9.270	-8.712	1.270	-1.193
-46	101.085	110.657	120.832	9.195	-8.650	1.269	-1.194
-45	94.516	103.396	112.827	9.121	-8.588	1.269	-1.194
-44	88.407	96.648	105.393	9.047	-8.526	1.268	-1.195
-43	82.727	90.378	98.489	8.974	-8.464	1.267	-1.195
-42	77.444	84.550	92.077	8.902	-8.403	1.267	-1.196
-41	72.530	79.132	86.120	8.830	-8.343	1.266	-1.196
-40	67.957	74.094	80.584	8.758	-8.282	1.265	-1.197
-39	63.700	69.408	75.438	8.687	-8.223	1.265	-1.197
-38	59.736	65.046	70.651	8.616	-8.163	1.264	-1.197
-37	56.043	60.986	66.198	8.546	-8.104	1.263	-1.197
-36	52.600	57.203	62.052	8.477	-8.045	1.262	-1.198
-35	49.390	53.677	58.190	8.408	-7.986	1.261	-1.198
-34	46.394	50.390	54.592	8.339	-7.928	1.260	-1.198
-33	43.598	47.323	51.237	8.271	-7.870	1.259	-1.198
-32	40.986	44.460	48.108	8.204	-7.813	1.258	-1.198
-31	38.546	41.787	45.187	8.137	-7.756	1.257	-1.198
-30	36.264	39.289	42.460	8.070	-7.699	1.255	-1.198
-29	34.130	36.955	39.913	8.004	-7.642	1.254	-1.197
-28	32.134	34.772	37.532	7.938	-7.586	1.253	-1.197
-27	30.265	32.729	35.306	7.873	-7.530	1.251	-1.197

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-26	28.514	30.818	33.225	7.808	-7.474	1.250	-1.197
-25	26.875	29.029	31.277	7.744	-7.419	1.249	-1.196
-24	25.338	27.352	29.453	7.680	-7.364	1.247	-1.196
-23	23.897	25.782	27.746	7.616	-7.309	1.246	-1.196
-22	22.546	24.310	26.146	7.553	-7.255	1.244	-1.195
-21	21.278	22.929	24.647	7.490	-7.200	1.243	-1.195
-20	20.089	21.635	23.242	7.427	-7.146	1.241	-1.194
-19	18.972	20.420	21.924	7.365	-7.093	1.239	-1.194
-18	17.923	19.280	20.688	7.304	-7.039	1.238	-1.193
-17	16.937	18.209	19.528	7.242	-6.986	1.236	-1.192
-16	16.011	17.204	18.440	7.181	-6.933	1.234	-1.192
-15	15.141	16.260	17.417	7.121	-6.881	1.233	-1.191
-14	14.322	15.372	16.457	7.061	-6.829	1.231	-1.190
-13	13.552	14.538	15.555	7.001	-6.777	1.229	-1.189
-12	12.828	13.753	14.708	6.942	-6.725	1.227	-1.189
-11	12.146	13.015	13.911	6.883	-6.673	1.225	-1.188
-10	11.505	12.321	13.162	6.824	-6.622	1.223	-1.187
-9	10.901	11.667	12.457	6.766	-6.571	1.221	-1.186
-8	10.331	11.052	11.794	6.708	-6.521	1.219	-1.185
-7	9.795	10.473	11.170	6.651	-6.470	1.217	-1.184
-6	9.290	9.927	10.582	6.594	-6.420	1.215	-1.183
-5	8.813	9.413	10.029	6.537	-6.371	1.213	-1.182
-4	8.364	8.928	9.507	6.481	-6.321	1.211	-1.181
-3	7.940	8.472	9.016	6.425	-6.272	1.209	-1.180
-2	7.540	8.041	8.553	6.369	-6.223	1.206	-1.179
-1	7.163	7.634	8.116	6.314	-6.174	1.204	-1.177
0	6.816	7.261	7.715	6.261	-6.127	1.200	-1.175
1	6.470	6.888	7.316	6.205	-6.078	1.199	-1.175
2	6.151	6.546	6.949	6.151	-6.030	1.197	-1.173
3	5.851	6.223	6.603	6.097	-5.982	1.194	-1.172
4	5.567	5.918	6.276	6.044	-5.935	1.192	-1.170
5	5.298	5.629	5.967	5.991	-5.888	1.189	-1.169
6	5.044	5.357	5.675	5.938	-5.841	1.187	-1.167
7	4.803	5.099	5.399	5.886	-5.795	1.184	-1.165
8	4.576	4.855	5.138	5.834	-5.749	1.181	-1.164
9	4.360	4.624	4.891	5.782	-5.703	1.178	-1.162
10	4.156	4.405	4.658	5.731	-5.657	1.175	-1.160
11	3.962	4.198	4.436	5.680	-5.611	1.172	-1.158
12	3.779	4.002	4.227	5.630	-5.566	1.169	-1.156
13	3.605	3.816	4.029	5.579	-5.521	1.166	-1.154
14	3.440	3.640	3.841	5.530	-5.477	1.163	-1.152
15	3.284	3.473	3.663	5.480	-5.432	1.159	-1.149
16	3.136	3.314	3.494	5.431	-5.388	1.156	-1.147

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17	2.995	3.164	3.334	5.382	-5.344	1.152	-1.144
18	2.861	3.021	3.183	5.333	-5.301	1.148	-1.141
19	2.734	2.886	3.038	5.285	-5.257	1.144	-1.138
20	2.614	2.757	2.902	5.237	-5.214	1.139	-1.134
21	2.499	2.635	2.772	5.189	-5.171	1.133	-1.129
22	2.390	2.519	2.649	5.142	-5.128	1.125	-1.122
23	2.286	2.409	2.532	5.095	-5.086	1.114	-1.112
24	2.188	2.304	2.420	5.048	-5.044	1.085	-1.084
25	2.090	2.200	2.310	5.000	-5.000	1.082	-1.082
26	2.003	2.109	2.216	5.043	-5.039	1.208	-1.207
27	1.916	2.019	2.122	5.089	-5.081	1.196	-1.194
28	1.834	1.933	2.032	5.135	-5.122	1.205	-1.202
29	1.756	1.851	1.947	5.181	-5.163	1.218	-1.214
30	1.681	1.773	1.866	5.226	-5.204	1.233	-1.228
31	1.610	1.699	1.789	5.271	-5.244	1.250	-1.243
32	1.542	1.628	1.715	5.316	-5.285	1.266	-1.259
33	1.478	1.561	1.645	5.360	-5.325	1.284	-1.275
34	1.416	1.497	1.578	5.404	-5.364	1.301	-1.292
35	1.358	1.435	1.514	5.448	-5.404	1.319	-1.309
36	1.302	1.377	1.453	5.492	-5.443	1.337	-1.325
37	1.249	1.321	1.394	5.536	-5.482	1.356	-1.343
38	1.198	1.268	1.339	5.579	-5.521	1.374	-1.360
39	1.149	1.217	1.286	5.622	-5.560	1.393	-1.377
40	1.103	1.169	1.235	5.665	-5.598	1.411	-1.395
41	1.059	1.122	1.186	5.708	-5.636	1.430	-1.412
42	1.017	1.078	1.140	5.751	-5.674	1.449	-1.430
43	0.977	1.036	1.096	5.793	-5.712	1.468	-1.448
44	0.938	0.995	1.054	5.835	-5.749	1.488	-1.466
45	0.901	0.957	1.013	5.877	-5.787	1.507	-1.484
46	0.866	0.920	0.974	5.918	-5.824	1.526	-1.502
47	0.833	0.885	0.937	5.960	-5.860	1.546	-1.520
48	0.801	0.851	0.902	6.001	-5.897	1.566	-1.539
49	0.770	0.819	0.868	6.042	-5.933	1.586	-1.557
50	0.741	0.788	0.836	6.083	-5.970	1.605	-1.576
51	0.713	0.758	0.805	6.123	-6.006	1.625	-1.594
52	0.686	0.730	0.775	6.164	-6.041	1.646	-1.613
53	0.660	0.703	0.746	6.204	-6.077	1.666	-1.632
54	0.635	0.677	0.719	6.244	-6.112	1.686	-1.651
55	0.612	0.652	0.693	6.283	-6.147	1.707	-1.670
56	0.589	0.628	0.668	6.323	-6.182	1.727	-1.689
57	0.568	0.605	0.644	6.362	-6.217	1.748	-1.708
58	0.547	0.584	0.621	6.401	-6.251	1.769	-1.727
59	0.527	0.563	0.599	6.440	-6.285	1.790	-1.747

Temperature Measurement

NTC Thermistor

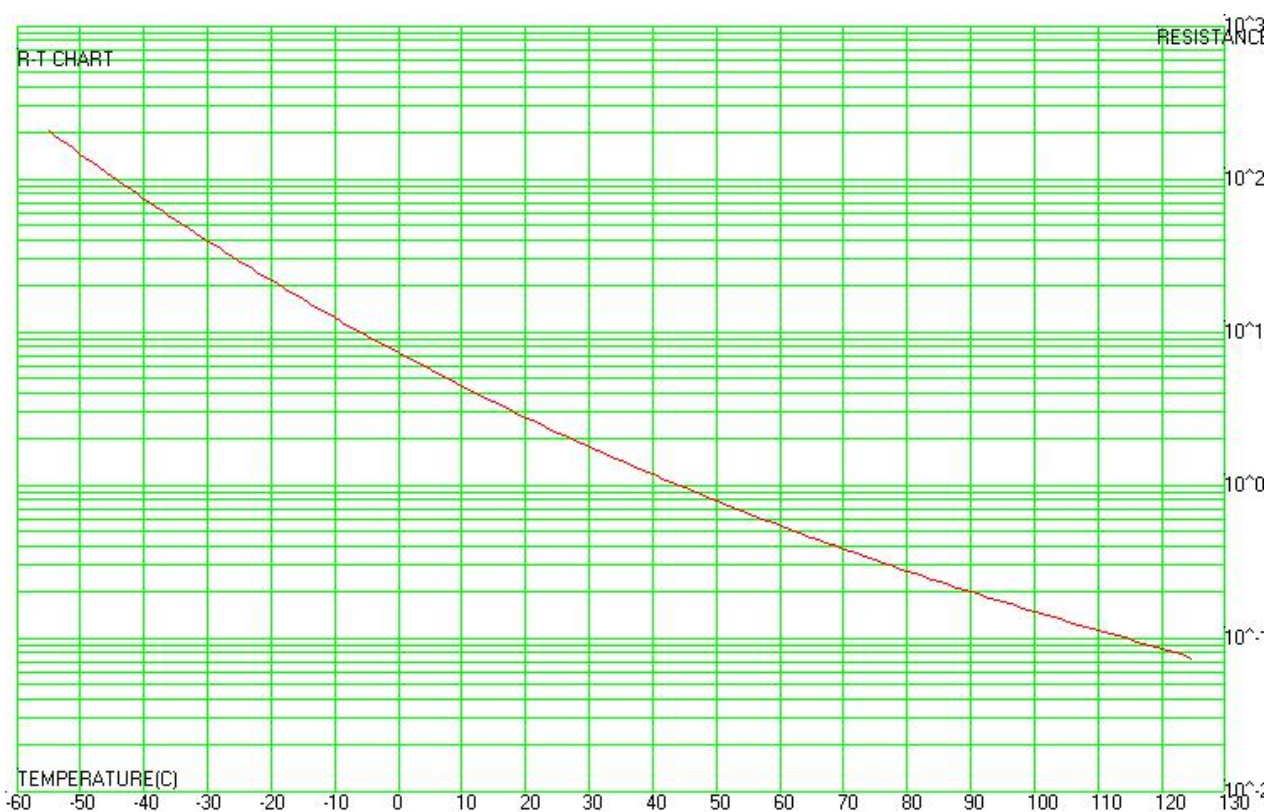


60	0.508	0.543	0.578	6.479	-6.319	1.811	-1.766
61	0.490	0.523	0.557	6.517	-6.353	1.832	-1.786
62	0.473	0.505	0.538	6.555	-6.387	1.853	-1.806
63	0.456	0.487	0.519	6.593	-6.420	1.875	-1.825
64	0.440	0.470	0.501	6.631	-6.453	1.896	-1.845
65	0.424	0.454	0.484	6.669	-6.486	1.918	-1.865
66	0.410	0.438	0.468	6.706	-6.519	1.939	-1.885
67	0.395	0.423	0.452	6.743	-6.551	1.961	-1.906
68	0.382	0.409	0.437	6.780	-6.584	1.983	-1.926
69	0.369	0.395	0.422	6.817	-6.616	2.005	-1.946
70	0.356	0.382	0.408	6.854	-6.648	2.028	-1.967
71	0.344	0.369	0.394	6.890	-6.680	2.050	-1.987
72	0.333	0.357	0.381	6.926	-6.711	2.072	-2.008
73	0.322	0.345	0.369	6.962	-6.743	2.095	-2.029
74	0.311	0.333	0.357	6.998	-6.774	2.117	-2.050
75	0.301	0.323	0.345	7.033	-6.805	2.140	-2.071
76	0.291	0.312	0.334	7.069	-6.835	2.163	-2.092
77	0.281	0.302	0.323	7.104	-6.866	2.186	-2.113
78	0.272	0.292	0.313	7.139	-6.896	2.209	-2.134
79	0.263	0.283	0.303	7.173	-6.926	2.232	-2.155
80	0.255	0.274	0.294	7.208	-6.956	2.256	-2.177
81	0.247	0.265	0.285	7.242	-6.986	2.279	-2.198
82	0.239	0.257	0.276	7.276	-7.016	2.303	-2.220
83	0.231	0.249	0.267	7.310	-7.045	2.326	-2.242
84	0.224	0.241	0.259	7.344	-7.074	2.350	-2.264
85	0.217	0.234	0.251	7.378	-7.103	2.374	-2.286
86	0.210	0.227	0.243	7.411	-7.132	2.398	-2.308
87	0.204	0.220	0.236	7.444	-7.161	2.422	-2.330
88	0.198	0.213	0.229	7.477	-7.190	2.446	-2.352
89	0.192	0.207	0.222	7.510	-7.218	2.470	-2.374
90	0.186	0.200	0.216	7.543	-7.246	2.495	-2.397
91	0.180	0.194	0.209	7.575	-7.274	2.519	-2.419
92	0.175	0.189	0.203	7.608	-7.302	2.544	-2.442
93	0.170	0.183	0.197	7.640	-7.330	2.569	-2.464
94	0.165	0.178	0.191	7.672	-7.357	2.593	-2.487
95	0.160	0.173	0.186	7.704	-7.385	2.618	-2.510
96	0.155	0.168	0.181	7.735	-7.412	2.643	-2.533
97	0.151	0.163	0.175	7.767	-7.439	2.668	-2.556
98	0.146	0.158	0.170	7.798	-7.466	2.694	-2.579
99	0.142	0.153	0.166	7.829	-7.493	2.719	-2.602
100	0.138	0.149	0.161	7.860	-7.519	2.744	-2.625
101	0.134	0.145	0.156	7.891	-7.546	2.770	-2.648
102	0.130	0.141	0.152	7.922	-7.572	2.795	-2.672

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103	0.126	0.137	0.148	7.953	-7.599	2.821	-2.695
104	0.123	0.133	0.144	7.984	-7.625	2.847	-2.719
105	0.119	0.129	0.140	8.014	-7.651	2.872	-2.742
106	0.116	0.126	0.136	8.044	-7.677	2.898	-2.766
107	0.113	0.122	0.132	8.075	-7.703	2.924	-2.789
108	0.110	0.119	0.128	8.105	-7.728	2.950	-2.813
109	0.107	0.116	0.125	8.135	-7.754	2.976	-2.837
110	0.104	0.112	0.122	8.165	-7.780	3.002	-2.861
111	0.101	0.109	0.118	8.195	-7.805	3.029	-2.885
112	0.098	0.106	0.115	8.225	-7.831	3.055	-2.908
113	0.095	0.103	0.112	8.255	-7.856	3.081	-2.932
114	0.093	0.101	0.109	8.284	-7.881	3.108	-2.956
115	0.090	0.098	0.106	8.314	-7.907	3.134	-2.980
116	0.088	0.095	0.103	8.344	-7.932	3.160	-3.004
117	0.085	0.093	0.100	8.374	-7.957	3.187	-3.028
118	0.083	0.090	0.098	8.403	-7.982	3.214	-3.053
119	0.081	0.088	0.095	8.433	-8.007	3.240	-3.077
120	0.078	0.085	0.093	8.462	-8.033	3.267	-3.101
121	0.076	0.083	0.090	8.492	-8.058	3.293	-3.125
122	0.074	0.081	0.088	8.522	-8.083	3.320	-3.149
123	0.072	0.079	0.085	8.551	-8.108	3.347	-3.173
124	0.070	0.076	0.083	8.581	-8.133	3.374	-3.197
125	0.068	0.074	0.081	8.611	-8.158	3.400	-3.222



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