

Temperature Measurement NTC Thermistor



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Applications

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PART NUMBER

Example: RND 155MF52A2 223K4200

RND 155MF52A2	223	K	4200
Type	Zero Power Resistance @ 25 °C 223 = 22 kΩ	Tolerance F = ± 1% G = ± 2% H = ± 3% K = ± 10%	B Constant 3470 = 3470 K 3700 = 3700 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	22±5%
1.2	B-value	B25/50	$B = [(Ta \times Tb) / (Tb - Ta)] \times \ln(Ra / Rb)$ Tb=50°C±0.01°C	K	4200±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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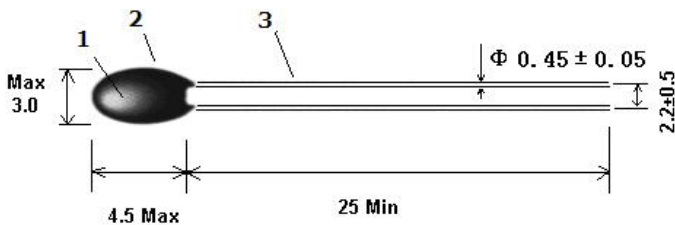
Caution

- 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=22KΩ TOLERANCE:±10%				B25/50=4200K TOLERANCE:±1% P160-5			
TEMP(°C)	RESISTANCE(Ω)			RESIST-TOL(%)		TEMP-TOL(°C)	
	MIN	CENTER	MAX	△R	-△R	△T	-△T
-55	1995.680	2323.200	2677.410	15.240	-14.090	1.915	-1.770
-54	1867.230	2172.200	2501.710	15.160	-14.030	1.918	-1.775
-53	1744.890	2028.500	2334.610	15.090	-13.980	1.921	-1.779
-52	1629.360	1892.870	2177.010	15.010	-13.920	1.924	-1.784
-51	1520.910	1765.660	2029.290	14.930	-13.860	1.928	-1.789
-50	1419.580	1646.880	1891.460	14.850	-13.800	1.931	-1.795
-49	1325.210	1536.330	1763.260	14.770	-13.740	1.935	-1.800
-48	1237.510	1433.660	1644.300	14.690	-13.680	1.939	-1.805
-47	1156.130	1338.460	1534.050	14.610	-13.620	1.942	-1.810
-46	1080.660	1250.240	1431.960	14.530	-13.560	1.946	-1.816
-45	1010.700	1168.510	1337.450	14.450	-13.500	1.949	-1.821
-44	945.835	1092.780	1249.930	14.380	-13.440	1.952	-1.825
-43	885.664	1022.580	1168.860	14.300	-13.380	1.955	-1.830
-42	829.812	957.468	1093.710	14.220	-13.330	1.958	-1.835
-41	777.926	897.015	1023.990	14.150	-13.270	1.961	-1.839
-40	729.680	840.840	959.243	14.080	-13.220	1.964	-1.844
-39	684.775	788.587	899.056	14.000	-13.160	1.967	-1.848
-38	642.936	739.934	843.050	13.930	-13.100	1.969	-1.852
-37	603.914	694.585	790.881	13.860	-13.050	1.972	-1.856
-36	567.483	652.275	742.239	13.790	-12.990	1.974	-1.860
-35	533.441	612.763	696.841	13.720	-12.940	1.976	-1.864
-34	501.601	575.830	654.434	13.650	-12.890	1.978	-1.868
-33	471.796	541.280	614.787	13.580	-12.830	1.980	-1.872
-32	443.877	508.935	577.694	13.510	-12.780	1.982	-1.876
-31	417.706	478.634	542.966	13.440	-12.720	1.984	-1.879
-30	393.158	450.231	510.432	13.370	-12.670	1.986	-1.883
-29	370.122	423.592	479.939	13.300	-12.620	1.988	-1.887
-28	348.495	398.598	451.345	13.230	-12.560	1.990	-1.890
-27	328.182	375.137	424.522	13.160	-12.510	1.992	-1.894

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-26	309.097	353.108	399.352	13.090	-12.460	1.994	-1.898
-25	291.163	332.420	375.727	13.020	-12.410	1.996	-1.902
-24	274.306	312.985	353.547	12.950	-12.350	1.998	-1.905
-23	258.458	294.726	332.721	12.890	-12.300	2.000	-1.909
-22	243.558	277.568	313.164	12.820	-12.250	2.002	-1.913
-21	229.548	261.445	294.797	12.750	-12.200	2.004	-1.917
-20	216.373	246.293	277.546	12.680	-12.140	2.007	-1.921
-19	203.984	232.052	261.343	12.620	-12.090	2.009	-1.925
-18	192.333	218.668	246.123	12.550	-12.040	2.011	-1.929
-17	181.377	206.090	231.828	12.480	-11.990	2.014	-1.933
-16	171.074	194.268	218.401	12.420	-11.930	2.016	-1.938
-15	161.385	183.157	205.788	12.350	-11.880	2.019	-1.942
-14	152.273	172.715	193.942	12.290	-11.830	2.021	-1.947
-13	143.705	162.901	182.815	12.220	-11.780	2.024	-1.951
-12	135.647	153.678	172.363	12.150	-11.730	2.027	-1.956
-11	128.070	145.009	162.546	12.090	-11.680	2.030	-1.960
-10	120.944	136.862	153.325	12.020	-11.630	2.032	-1.965
-9	114.243	129.204	144.663	11.960	-11.570	2.035	-1.970
-8	107.940	122.006	136.525	11.900	-11.520	2.038	-1.975
-7	102.012	115.240	128.880	11.830	-11.470	2.041	-1.979
-6	96.437	108.879	121.698	11.770	-11.420	2.044	-1.984
-5	91.191	102.899	114.949	11.710	-11.370	2.048	-1.989
-4	86.257	97.276	108.606	11.640	-11.320	2.051	-1.994
-3	81.613	91.988	102.645	11.580	-11.270	2.054	-2.000
-2	77.244	87.015	97.042	11.520	-11.220	2.057	-2.005
-1	73.131	82.336	91.773	11.460	-11.170	2.061	-2.010
0	68.650	77.242	86.040	11.390	-11.120	2.077	-2.028
1	65.614	73.792	82.160	11.330	-11.080	2.067	-2.020
2	62.181	69.893	77.777	11.270	-11.030	2.071	-2.026
3	58.947	66.223	73.652	11.210	-10.980	2.074	-2.031
4	55.900	62.766	69.770	11.150	-10.930	2.077	-2.036
5	53.028	59.510	66.115	11.100	-10.890	2.081	-2.042
6	50.321	56.442	62.674	11.040	-10.840	2.084	-2.047
7	47.768	53.550	59.432	10.980	-10.790	2.088	-2.052
8	45.361	50.824	56.377	10.920	-10.750	2.091	-2.058
9	43.089	48.254	53.498	10.860	-10.700	2.094	-2.063
10	40.944	45.829	50.783	10.810	-10.650	2.098	-2.068
11	38.920	43.540	48.223	10.750	-10.610	2.101	-2.074
12	37.008	41.380	45.807	10.690	-10.560	2.105	-2.079
13	35.201	39.340	43.527	10.640	-10.520	2.108	-2.084
14	33.494	37.414	41.374	10.580	-10.470	2.111	-2.090
15	31.880	35.593	39.341	10.530	-10.430	2.115	-2.095
16	30.353	33.872	37.420	10.470	-10.380	2.118	-2.100

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17	28.909	32.244	35.604	10.420	-10.340	2.122	-2.106
18	27.542	30.704	33.888	10.360	-10.290	2.125	-2.111
19	26.248	29.247	32.264	10.310	-10.250	2.129	-2.117
20	25.022	27.868	30.727	10.260	-10.210	2.133	-2.123
21	23.861	26.562	29.273	10.200	-10.160	2.137	-2.129
22	22.760	25.324	27.896	10.150	-10.120	2.142	-2.136
23	21.716	24.151	26.591	10.100	-10.080	2.150	-2.146
24	20.726	23.040	25.355	10.050	-10.040	2.168	-2.166
25	19.800	22.000	24.200	10.000	-10.000	2.171	-2.171
26	18.877	20.985	23.094	10.050	-10.040	2.135	-2.133
27	18.015	20.035	22.060	10.100	-10.080	2.175	-2.171
28	17.197	19.134	21.077	10.150	-10.120	2.204	-2.198
29	16.420	18.278	20.143	10.200	-10.160	2.232	-2.223
30	15.682	17.465	19.256	10.250	-10.200	2.258	-2.248
31	14.981	16.692	18.412	10.300	-10.240	2.284	-2.271
32	14.315	15.957	17.610	10.350	-10.280	2.310	-2.295
33	13.683	15.259	16.846	10.400	-10.320	2.335	-2.319
34	13.081	14.594	16.120	10.450	-10.360	2.361	-2.342
35	12.509	13.962	15.428	10.500	-10.400	2.387	-2.365
36	11.964	13.360	14.769	10.540	-10.440	2.412	-2.389
37	11.446	12.787	14.142	10.590	-10.480	2.438	-2.412
38	10.953	12.241	13.545	10.640	-10.520	2.464	-2.436
39	10.483	11.721	12.975	10.690	-10.560	2.489	-2.459
40	10.036	11.226	12.432	10.740	-10.600	2.515	-2.483
41	9.610	10.754	11.914	10.790	-10.640	2.541	-2.506
42	9.203	10.304	11.421	10.830	-10.680	2.567	-2.530
43	8.816	9.875	10.950	10.880	-10.710	2.593	-2.553
44	8.447	9.466	10.500	10.930	-10.750	2.619	-2.577
45	8.096	9.075	10.071	10.970	-10.790	2.646	-2.601
46	7.760	8.703	9.662	11.020	-10.830	2.672	-2.625
47	7.440	8.347	9.271	11.070	-10.860	2.698	-2.649
48	7.134	8.008	8.898	11.110	-10.900	2.725	-2.673
49	6.843	7.683	8.541	11.160	-10.940	2.751	-2.697
50	6.564	7.374	8.200	11.200	-10.970	2.778	-2.721
51	6.299	7.078	7.875	11.250	-11.010	2.805	-2.745
52	6.045	6.796	7.564	11.290	-11.050	2.832	-2.770
53	5.802	6.526	7.266	11.340	-11.080	2.859	-2.794
54	5.571	6.268	6.982	11.380	-11.120	2.886	-2.819
55	5.350	6.022	6.710	11.430	-11.150	2.914	-2.843
56	5.138	5.786	6.450	11.470	-11.190	2.941	-2.868
57	4.936	5.561	6.201	11.520	-11.220	2.969	-2.893
58	4.743	5.345	5.963	11.560	-11.260	2.996	-2.918
59	4.558	5.139	5.736	11.610	-11.290	3.024	-2.943

Temperature Measurement NTC Thermistor

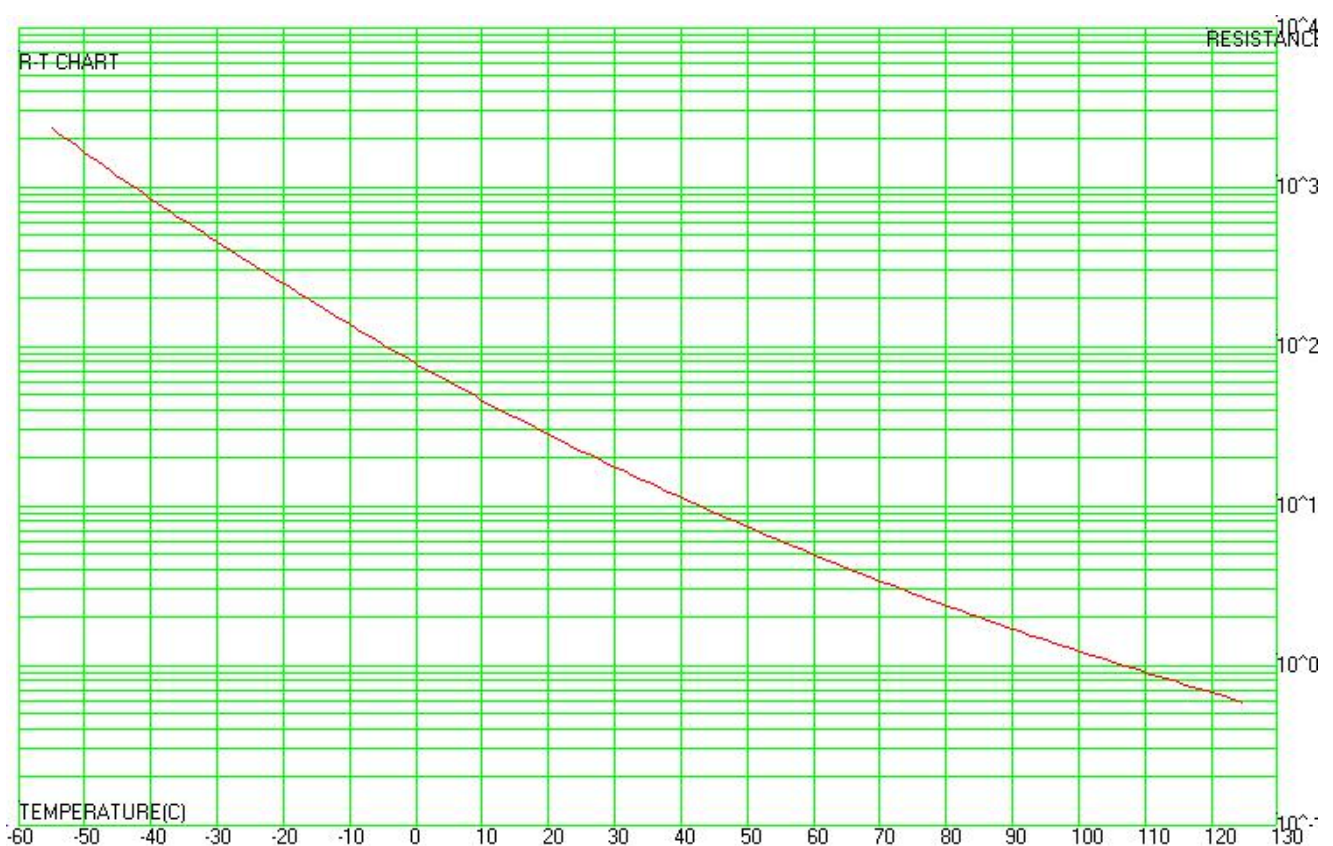


60	4.382	4.942	5.518	11.650	-11.330	3.052	-2.968
61	4.213	4.753	5.309	11.690	-11.360	3.080	-2.993
62	4.051	4.573	5.110	11.740	-11.400	3.108	-3.019
63	3.897	4.400	4.918	11.780	-11.430	3.137	-3.044
64	3.749	4.234	4.735	11.820	-11.470	3.165	-3.070
65	3.607	4.076	4.560	11.870	-11.500	3.194	-3.096
66	3.472	3.925	4.392	11.910	-11.530	3.223	-3.121
67	3.342	3.779	4.231	11.950	-11.570	3.252	-3.147
68	3.218	3.640	4.077	11.990	-11.600	3.281	-3.174
69	3.099	3.507	3.930	12.030	-11.630	3.310	-3.200
70	2.985	3.380	3.788	12.070	-11.670	3.340	-3.226
71	2.876	3.257	3.652	12.120	-11.700	3.369	-3.253
72	2.772	3.140	3.522	12.160	-11.730	3.399	-3.280
73	2.672	3.028	3.398	12.200	-11.760	3.429	-3.306
74	2.576	2.920	3.278	12.240	-11.790	3.459	-3.333
75	2.484	2.817	3.163	12.280	-11.830	3.489	-3.361
76	2.396	2.718	3.053	12.320	-11.860	3.520	-3.388
77	2.311	2.623	2.948	12.360	-11.890	3.550	-3.415
78	2.230	2.532	2.846	12.400	-11.920	3.581	-3.443
79	2.152	2.445	2.749	12.440	-11.950	3.612	-3.470
80	2.078	2.361	2.656	12.480	-11.980	3.643	-3.498
81	2.006	2.280	2.566	12.520	-12.010	3.674	-3.526
82	1.938	2.203	2.480	12.560	-12.040	3.706	-3.555
83	1.872	2.129	2.397	12.590	-12.070	3.738	-3.583
84	1.809	2.058	2.318	12.630	-12.100	3.769	-3.611
85	1.748	1.989	2.242	12.670	-12.130	3.801	-3.640
86	1.690	1.924	2.168	12.710	-12.160	3.833	-3.669
87	1.634	1.860	2.098	12.750	-12.190	3.866	-3.697
88	1.580	1.800	2.030	12.780	-12.220	3.898	-3.726
89	1.528	1.741	1.965	12.820	-12.250	3.931	-3.756
90	1.478	1.685	1.902	12.860	-12.280	3.964	-3.785
91	1.430	1.631	1.842	12.890	-12.310	3.997	-3.814
92	1.384	1.579	1.784	12.930	-12.330	4.030	-3.844
93	1.340	1.529	1.728	12.970	-12.360	4.063	-3.874
94	1.297	1.481	1.674	13.000	-12.390	4.096	-3.903
95	1.256	1.435	1.622	13.040	-12.420	4.130	-3.933
96	1.217	1.390	1.572	13.070	-12.450	4.164	-3.963
97	1.179	1.347	1.524	13.110	-12.470	4.197	-3.994
98	1.142	1.306	1.477	13.150	-12.500	4.231	-4.024
99	1.107	1.266	1.433	13.180	-12.530	4.265	-4.054
100	1.073	1.227	1.389	13.220	-12.560	4.300	-4.085
101	1.040	1.190	1.348	13.250	-12.580	4.334	-4.115
102	1.008	1.154	1.307	13.290	-12.610	4.368	-4.146

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103	0.978	1.119	1.269	13.320	-12.640	4.403	-4.177
104	0.948	1.086	1.231	13.350	-12.660	4.438	-4.208
105	0.920	1.054	1.195	13.390	-12.690	4.472	-4.238
106	0.892	1.022	1.160	13.420	-12.710	4.507	-4.269
107	0.866	0.992	1.126	13.460	-12.740	4.542	-4.300
108	0.840	0.963	1.093	13.490	-12.770	4.577	-4.331
109	0.815	0.935	1.061	13.520	-12.790	4.612	-4.363
110	0.791	0.907	1.030	13.560	-12.820	4.647	-4.394
111	0.768	0.881	1.001	13.590	-12.840	4.682	-4.425
112	0.745	0.855	0.972	13.630	-12.870	4.717	-4.456
113	0.723	0.830	0.944	13.660	-12.900	4.753	-4.487
114	0.702	0.806	0.917	13.690	-12.920	4.788	-4.518
115	0.681	0.783	0.890	13.730	-12.950	4.823	-4.550
116	0.661	0.760	0.865	13.760	-12.970	4.858	-4.581
117	0.642	0.738	0.840	13.790	-13.000	4.894	-4.612
118	0.623	0.717	0.816	13.830	-13.020	4.929	-4.643
119	0.605	0.696	0.792	13.860	-13.050	4.964	-4.674
120	0.587	0.676	0.770	13.890	-13.080	4.999	-4.705
121	0.570	0.656	0.747	13.930	-13.100	5.034	-4.736
122	0.553	0.637	0.726	13.960	-13.130	5.069	-4.766
123	0.537	0.618	0.705	13.990	-13.150	5.104	-4.797
124	0.521	0.600	0.684	14.030	-13.180	5.139	-4.828
125	0.505	0.583	0.665	14.060	-13.200	5.174	-4.858



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