

# Temperature Measurement NTC Thermistor



## Features

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## Applications

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## PART NUMBER

Example: RND 155MF52A2 471J3470

RND 155MF52A2	471	J	3470
Type	Zero Power Resistance @ 25 °C 471 = 470 Ω	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	Ω	470±5%
1.2	B-value	B25/50	$B = [(Ta \times Tb) / (Tb - Ta)] \times \ln(Ra / Rb)$ Tb=50°C±0.01°C	K	3470±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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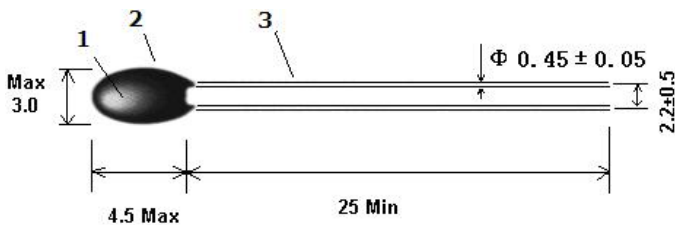
## Caution

- 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/10-12min

## 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=470Ω TOLERANCE:±5%				B25/50=3470K TOLERANCE:±1% P234-20			
TEMP(°C)	RESISTANCE(KΩ)			RESIST-TOL(%)		TEMP-TOL(°C)	
	MIN	CENTER	MAX	△R	-△R	△T	-△T
-55	18.576	20.304	22.138	9.029	-8.511	1.403	-1.322
-54	17.412	19.019	20.723	8.958	-8.451	1.405	-1.326
-53	16.342	17.839	19.425	8.888	-8.392	1.407	-1.329
-52	15.356	16.752	18.230	8.820	-8.334	1.409	-1.332
-51	14.445	15.749	17.128	8.752	-8.278	1.411	-1.334
-50	13.601	14.820	16.107	8.686	-8.222	1.412	-1.337
-49	12.817	13.957	15.161	8.621	-8.167	1.414	-1.339
-48	12.088	13.155	14.281	8.557	-8.113	1.415	-1.342
-47	11.408	12.408	13.461	8.493	-8.059	1.417	-1.344
-46	10.772	11.710	12.697	8.431	-8.006	1.418	-1.346
-45	10.178	11.057	11.983	8.368	-7.953	1.419	-1.348
-44	9.621	10.447	11.315	8.307	-7.901	1.420	-1.351
-43	9.100	9.875	10.689	8.246	-7.849	1.421	-1.353
-42	8.610	9.338	10.103	8.186	-7.797	1.422	-1.355
-41	8.150	8.834	9.552	8.126	-7.746	1.423	-1.356
-40	7.718	8.361	9.036	8.066	-7.695	1.424	-1.358
-39	7.311	7.916	8.550	8.007	-7.645	1.425	-1.360
-38	6.929	7.498	8.094	7.948	-7.595	1.425	-1.362
-37	6.568	7.104	7.665	7.890	-7.545	1.426	-1.364
-36	6.229	6.734	7.261	7.832	-7.495	1.427	-1.366
-35	5.909	6.385	6.881	7.775	-7.446	1.428	-1.367
-34	5.608	6.056	6.523	7.718	-7.397	1.429	-1.369
-33	5.324	5.746	6.186	7.661	-7.348	1.429	-1.371
-32	5.056	5.454	5.869	7.605	-7.300	1.430	-1.372
-31	4.803	5.178	5.569	7.550	-7.252	1.431	-1.374
-30	4.564	4.918	5.287	7.494	-7.204	1.431	-1.376
-29	4.339	4.673	5.021	7.439	-7.157	1.432	-1.377
-28	4.126	4.442	4.770	7.385	-7.110	1.432	-1.379
-27	3.925	4.224	4.533	7.331	-7.063	1.433	-1.380

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-26	3.735	4.017	4.310	7.277	-7.016	1.433	-1.382
-25	3.556	3.823	4.099	7.224	-6.970	1.434	-1.383
-24	3.387	3.639	3.900	7.171	-6.924	1.434	-1.385
-23	3.227	3.465	3.712	7.118	-6.879	1.434	-1.386
-22	3.075	3.301	3.534	7.066	-6.833	1.435	-1.387
-21	2.932	3.145	3.366	7.015	-6.788	1.435	-1.389
-20	2.796	2.998	3.207	6.964	-6.744	1.435	-1.390
-19	2.668	2.859	3.057	6.913	-6.700	1.435	-1.391
-18	2.546	2.728	2.915	6.862	-6.656	1.435	-1.392
-17	2.431	2.603	2.781	6.813	-6.612	1.436	-1.393
-16	2.322	2.485	2.653	6.763	-6.569	1.435	-1.394
-15	2.218	2.373	2.533	6.714	-6.526	1.435	-1.395
-14	2.120	2.267	2.419	6.665	-6.483	1.435	-1.396
-13	2.027	2.167	2.310	6.617	-6.441	1.435	-1.397
-12	1.939	2.072	2.208	6.569	-6.398	1.435	-1.397
-11	1.855	1.981	2.110	6.521	-6.357	1.434	-1.398
-10	1.776	1.895	2.018	6.474	-6.315	1.434	-1.398
-9	1.700	1.814	1.930	6.427	-6.274	1.433	-1.399
-8	1.628	1.736	1.847	6.381	-6.233	1.432	-1.399
-7	1.559	1.662	1.768	6.335	-6.192	1.432	-1.399
-6	1.494	1.592	1.693	6.289	-6.152	1.431	-1.400
-5	1.432	1.526	1.621	6.244	-6.112	1.430	-1.400
-4	1.373	1.462	1.553	6.198	-6.072	1.429	-1.400
-3	1.317	1.402	1.488	6.154	-6.032	1.428	-1.400
-2	1.264	1.344	1.426	6.109	-5.993	1.427	-1.399
-1	1.213	1.289	1.368	6.065	-5.954	1.425	-1.399
0	1.159	1.232	1.306	6.017	-5.911	1.429	-1.404
1	1.117	1.187	1.258	5.977	-5.876	1.423	-1.398
2	1.073	1.140	1.207	5.934	-5.838	1.421	-1.398
3	1.031	1.094	1.159	5.891	-5.799	1.419	-1.397
4	0.990	1.051	1.112	5.848	-5.761	1.418	-1.397
5	0.951	1.009	1.068	5.806	-5.723	1.416	-1.396
6	0.914	0.970	1.026	5.763	-5.685	1.414	-1.395
7	0.879	0.932	0.985	5.721	-5.648	1.413	-1.394
8	0.845	0.895	0.946	5.679	-5.610	1.411	-1.394
9	0.813	0.861	0.909	5.637	-5.573	1.409	-1.393
10	0.782	0.828	0.874	5.596	-5.536	1.407	-1.392
11	0.752	0.796	0.840	5.555	-5.499	1.405	-1.391
12	0.724	0.765	0.808	5.514	-5.462	1.403	-1.390
13	0.696	0.736	0.777	5.473	-5.426	1.402	-1.390
14	0.670	0.708	0.747	5.432	-5.389	1.400	-1.389
15	0.645	0.682	0.718	5.391	-5.353	1.399	-1.389
16	0.621	0.656	0.691	5.351	-5.316	1.398	-1.389

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17	0.598	0.631	0.665	5.311	-5.280	1.397	-1.389
18	0.576	0.608	0.640	5.271	-5.244	1.397	-1.390
19	0.555	0.585	0.616	5.231	-5.208	1.398	-1.392
20	0.534	0.563	0.593	5.191	-5.172	1.402	-1.397
21	0.515	0.542	0.570	5.151	-5.137	1.408	-1.404
22	0.496	0.522	0.549	5.112	-5.101	1.422	-1.419
23	0.478	0.503	0.529	5.072	-5.065	1.454	-1.452
24	0.460	0.485	0.509	5.033	-5.030	1.570	-1.569
25	0.446	0.470	0.493	5.000	-5.000	1.570	-1.570
26	0.427	0.450	0.473	5.044	-5.040	1.193	-1.192
27	0.412	0.434	0.456	5.083	-5.075	1.288	-1.286
28	0.397	0.418	0.439	5.122	-5.110	1.334	-1.331
29	0.382	0.403	0.424	5.160	-5.145	1.366	-1.362
30	0.368	0.388	0.408	5.199	-5.180	1.392	-1.387
31	0.355	0.374	0.394	5.237	-5.214	1.416	-1.409
32	0.342	0.361	0.380	5.276	-5.249	1.438	-1.430
33	0.330	0.348	0.366	5.314	-5.283	1.459	-1.450
34	0.318	0.336	0.354	5.352	-5.318	1.479	-1.469
35	0.306	0.324	0.341	5.390	-5.352	1.499	-1.488
36	0.295	0.312	0.329	5.428	-5.386	1.519	-1.507
37	0.285	0.301	0.318	5.466	-5.420	1.538	-1.525
38	0.275	0.291	0.307	5.504	-5.454	1.558	-1.543
39	0.265	0.280	0.296	5.542	-5.487	1.577	-1.561
40	0.256	0.271	0.286	5.579	-5.521	1.596	-1.580
41	0.247	0.261	0.276	5.617	-5.555	1.616	-1.598
42	0.238	0.252	0.266	5.654	-5.588	1.635	-1.616
43	0.230	0.243	0.257	5.691	-5.621	1.654	-1.634
44	0.222	0.235	0.248	5.728	-5.654	1.674	-1.652
45	0.214	0.227	0.240	5.765	-5.687	1.693	-1.670
46	0.206	0.219	0.232	5.802	-5.720	1.713	-1.689
47	0.199	0.212	0.224	5.838	-5.753	1.733	-1.707
48	0.193	0.204	0.216	5.875	-5.785	1.752	-1.726
49	0.186	0.197	0.209	5.911	-5.817	1.772	-1.744
50	0.180	0.191	0.202	5.948	-5.850	1.792	-1.763
51	0.174	0.184	0.195	5.984	-5.882	1.813	-1.782
52	0.168	0.178	0.189	6.020	-5.914	1.833	-1.800
53	0.162	0.172	0.183	6.055	-5.945	1.853	-1.819
54	0.157	0.167	0.177	6.091	-5.977	1.874	-1.839
55	0.151	0.161	0.171	6.127	-6.008	1.894	-1.858
56	0.146	0.156	0.165	6.162	-6.040	1.915	-1.877
57	0.142	0.151	0.160	6.197	-6.071	1.936	-1.896
58	0.137	0.146	0.155	6.232	-6.102	1.957	-1.916
59	0.132	0.141	0.150	6.267	-6.133	1.978	-1.936

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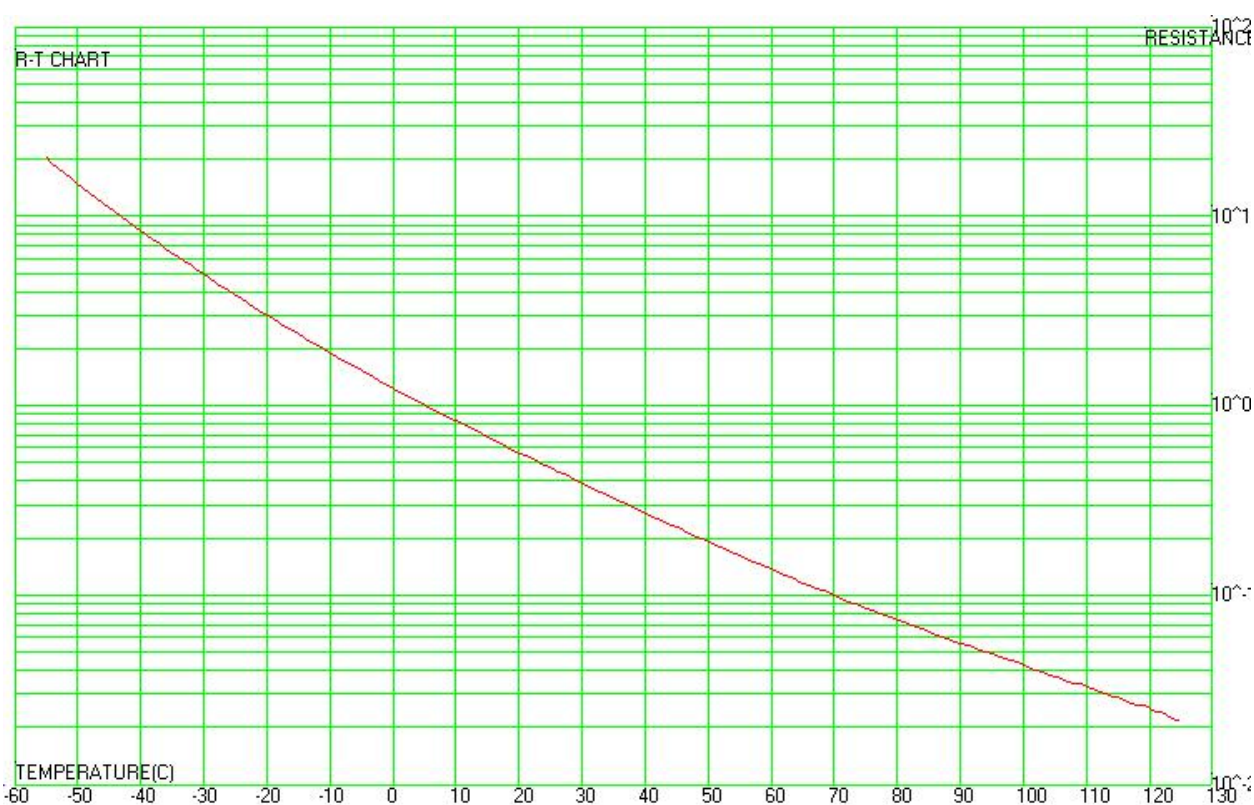
60	0.128	0.137	0.145	6.302	-6.163	1.999	-1.955
61	0.124	0.132	0.141	6.336	-6.194	2.021	-1.975
62	0.120	0.128	0.136	6.370	-6.224	2.042	-1.995
63	0.116	0.124	0.132	6.404	-6.254	2.064	-2.015
64	0.112	0.120	0.128	6.438	-6.284	2.086	-2.036
65	0.109	0.116	0.124	6.472	-6.313	2.108	-2.056
66	0.105	0.113	0.120	6.506	-6.343	2.130	-2.077
67	0.102	0.109	0.116	6.539	-6.372	2.152	-2.097
68	0.099	0.106	0.113	6.572	-6.401	2.175	-2.118
69	0.096	0.103	0.109	6.605	-6.430	2.197	-2.139
70	0.093	0.099	0.106	6.638	-6.459	2.220	-2.160
71	0.090	0.096	0.103	6.671	-6.488	2.243	-2.181
72	0.087	0.093	0.100	6.703	-6.516	2.266	-2.203
73	0.085	0.091	0.097	6.735	-6.544	2.289	-2.224
74	0.082	0.088	0.094	6.767	-6.573	2.312	-2.245
75	0.080	0.085	0.091	6.799	-6.600	2.335	-2.267
76	0.077	0.083	0.089	6.831	-6.628	2.359	-2.289
77	0.075	0.080	0.086	6.862	-6.656	2.383	-2.311
78	0.073	0.078	0.084	6.894	-6.683	2.406	-2.333
79	0.071	0.076	0.081	6.925	-6.710	2.430	-2.355
80	0.069	0.074	0.079	6.956	-6.737	2.455	-2.377
81	0.067	0.072	0.077	6.986	-6.764	2.479	-2.400
82	0.065	0.070	0.074	7.017	-6.790	2.503	-2.422
83	0.063	0.068	0.072	7.047	-6.817	2.528	-2.445
84	0.061	0.066	0.070	7.078	-6.843	2.552	-2.468
85	0.059	0.064	0.068	7.108	-6.869	2.577	-2.490
86	0.058	0.062	0.067	7.137	-6.895	2.602	-2.513
87	0.056	0.060	0.065	7.167	-6.921	2.627	-2.536
88	0.055	0.059	0.063	7.197	-6.947	2.652	-2.559
89	0.053	0.057	0.061	7.226	-6.972	2.677	-2.583
90	0.052	0.056	0.060	7.255	-6.998	2.702	-2.606
91	0.050	0.054	0.058	7.284	-7.023	2.727	-2.629
92	0.049	0.053	0.057	7.313	-7.048	2.753	-2.653
93	0.048	0.051	0.055	7.342	-7.073	2.778	-2.676
94	0.046	0.050	0.054	7.371	-7.098	2.804	-2.700
95	0.045	0.049	0.052	7.399	-7.122	2.830	-2.724
96	0.044	0.047	0.051	7.428	-7.147	2.856	-2.748
97	0.043	0.046	0.049	7.456	-7.171	2.881	-2.771
98	0.042	0.045	0.048	7.484	-7.196	2.907	-2.795
99	0.040	0.044	0.047	7.513	-7.220	2.933	-2.819
100	0.039	0.043	0.046	7.541	-7.244	2.960	-2.843
101	0.038	0.041	0.045	7.569	-7.269	2.986	-2.867
102	0.037	0.040	0.043	7.597	-7.293	3.012	-2.891

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103	0.036	0.039	0.042	7.625	-7.317	3.038	-2.915
104	0.035	0.038	0.041	7.653	-7.341	3.064	-2.940
105	0.034	0.037	0.040	7.680	-7.365	3.091	-2.964
106	0.034	0.036	0.039	7.708	-7.389	3.117	-2.988
107	0.033	0.035	0.038	7.736	-7.412	3.143	-3.012
108	0.032	0.034	0.037	7.764	-7.436	3.170	-3.036
109	0.031	0.034	0.036	7.792	-7.460	3.196	-3.060
110	0.030	0.033	0.035	7.819	-7.484	3.223	-3.084
111	0.029	0.032	0.034	7.847	-7.508	3.249	-3.109
112	0.029	0.031	0.034	7.875	-7.532	3.275	-3.133
113	0.028	0.030	0.033	7.903	-7.556	3.302	-3.157
114	0.027	0.029	0.032	7.931	-7.580	3.328	-3.181
115	0.026	0.029	0.031	7.959	-7.604	3.355	-3.205
116	0.026	0.028	0.030	7.987	-7.628	3.381	-3.229
117	0.025	0.027	0.029	8.016	-7.652	3.407	-3.253
118	0.024	0.026	0.029	8.044	-7.677	3.433	-3.276
119	0.024	0.026	0.028	8.073	-7.701	3.459	-3.300
120	0.023	0.025	0.027	8.102	-7.726	3.485	-3.324
121	0.022	0.024	0.026	8.130	-7.750	3.511	-3.347
122	0.022	0.024	0.026	8.160	-7.775	3.537	-3.371
123	0.021	0.023	0.025	8.189	-7.800	3.563	-3.394
124	0.021	0.022	0.024	8.218	-7.825	3.589	-3.417
125	0.020	0.022	0.024	8.248	-7.851	3.615	-3.440



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