

# Temperature Measurement NTC Thermistor



## Features

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## Applications

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## PART NUMBER

Example: RND 155MF52A2 223J3700

RND 155MF52A2	223	J	3700
Type	Zero Power Resistance @ 25 °C 223 = 22 kΩ	Tolerance F = ± 1% G = ± 2% H = ± 3% J = ± 5%	B Constant 3470 = 3470 K 3700 = 3700 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	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	3700±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°C 30min→25°C 5min→1 25°C 30min→25°C 5min, 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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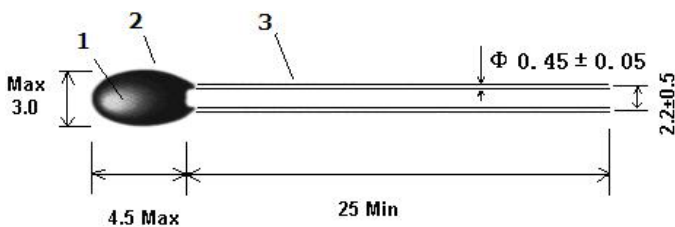
## Caution

- 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:±5%				B25/50=3700K TOLERANCE:±1% P170-5			
TEMP(°C)	RESISTANCE(KΩ)			RESIST-TOL(%)		TEMP-TOL(°C)	
	MIN	CENTER	MAX	△R	-△R	△T	-△T
-55	1476.090	1622.060	1778.000	9.613	-8.998	1.308	-1.224
-54	1383.460	1519.270	1664.250	9.542	-8.939	1.308	-1.225
-53	1295.840	1422.110	1556.780	9.469	-8.878	1.308	-1.226
-52	1213.270	1330.600	1455.640	9.397	-8.818	1.308	-1.227
-51	1135.700	1244.710	1360.760	9.324	-8.757	1.308	-1.228
-50	1063.010	1164.260	1271.970	9.251	-8.696	1.308	-1.230
-49	995.029	1089.070	1189.030	9.178	-8.635	1.308	-1.231
-48	931.528	1018.890	1111.670	9.105	-8.574	1.308	-1.232
-47	872.283	953.460	1039.580	9.033	-8.513	1.308	-1.233
-46	817.048	892.495	972.471	8.961	-8.453	1.309	-1.234
-45	765.577	835.722	910.013	8.889	-8.393	1.309	-1.236
-44	717.628	782.868	851.904	8.818	-8.333	1.309	-1.237
-43	672.965	733.668	797.847	8.747	-8.273	1.309	-1.238
-42	631.359	687.866	747.556	8.677	-8.214	1.309	-1.239
-41	592.597	645.221	700.762	8.608	-8.156	1.309	-1.240
-40	556.474	605.506	657.210	8.539	-8.097	1.309	-1.241
-39	522.800	568.506	616.662	8.470	-8.039	1.309	-1.242
-38	491.396	534.023	578.896	8.402	-7.982	1.309	-1.243
-37	462.098	501.871	543.705	8.335	-7.924	1.308	-1.244
-36	434.751	471.879	510.898	8.268	-7.868	1.308	-1.245
-35	409.213	443.889	480.299	8.202	-7.811	1.308	-1.246
-34	385.352	417.752	451.745	8.136	-7.755	1.308	-1.246
-33	363.047	393.335	425.084	8.071	-7.700	1.307	-1.247
-32	342.185	370.511	400.179	8.007	-7.645	1.307	-1.248
-31	322.663	349.166	376.901	7.943	-7.590	1.306	-1.248
-30	304.386	329.193	355.133	7.879	-7.535	1.306	-1.249
-29	287.265	310.496	334.766	7.816	-7.481	1.305	-1.249
-28	271.220	292.983	315.701	7.754	-7.428	1.305	-1.250
-27	256.175	276.571	297.845	7.691	-7.374	1.304	-1.250

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-26	242.061	261.184	281.113	7.630	-7.321	1.303	-1.251
-25	228.815	246.752	265.428	7.569	-7.268	1.303	-1.251
-24	216.378	233.207	250.718	7.508	-7.216	1.302	-1.251
-23	204.694	220.491	236.914	7.448	-7.164	1.301	-1.251
-22	193.714	208.548	223.956	7.388	-7.112	1.300	-1.252
-21	183.391	197.325	211.787	7.328	-7.061	1.299	-1.252
-20	173.682	186.775	200.354	7.269	-7.010	1.298	-1.252
-19	164.545	176.854	189.607	7.211	-6.959	1.297	-1.252
-18	155.945	167.520	179.503	7.153	-6.909	1.296	-1.252
-17	147.847	158.735	169.998	7.095	-6.858	1.295	-1.252
-16	140.218	150.463	161.054	7.038	-6.809	1.294	-1.252
-15	133.029	142.673	152.634	6.981	-6.759	1.293	-1.252
-14	126.252	135.333	144.705	6.924	-6.710	1.292	-1.252
-13	119.860	128.415	137.235	6.868	-6.661	1.290	-1.251
-12	113.831	121.891	130.196	6.813	-6.612	1.289	-1.251
-11	108.141	115.739	123.560	6.757	-6.564	1.288	-1.251
-10	102.770	109.934	117.302	6.702	-6.516	1.287	-1.251
-9	97.698	104.454	111.399	6.648	-6.468	1.285	-1.250
-8	92.906	99.281	105.828	6.594	-6.420	1.284	-1.250
-7	88.379	94.395	100.569	6.540	-6.373	1.282	-1.250
-6	84.099	89.779	95.603	6.487	-6.326	1.281	-1.249
-5	80.052	85.416	90.912	6.434	-6.279	1.279	-1.249
-4	76.224	81.291	86.479	6.381	-6.233	1.278	-1.248
-3	72.602	77.391	82.289	6.329	-6.187	1.276	-1.248
-2	69.174	73.701	78.327	6.277	-6.141	1.274	-1.247
-1	65.929	70.209	74.579	6.225	-6.096	1.273	-1.246
0	62.747	66.787	70.910	6.172	-6.049	1.273	-1.247
1	59.943	63.773	67.678	6.123	-6.005	1.269	-1.245
2	57.183	60.808	64.501	6.072	-5.960	1.267	-1.244
3	54.567	57.999	61.492	6.022	-5.916	1.266	-1.243
4	52.086	55.336	58.641	5.972	-5.872	1.264	-1.242
5	49.733	52.811	55.940	5.923	-5.828	1.262	-1.241
6	47.500	50.417	53.379	5.874	-5.784	1.260	-1.240
7	45.381	48.145	50.950	5.825	-5.741	1.258	-1.239
8	43.369	45.990	48.646	5.777	-5.697	1.255	-1.238
9	41.458	43.943	46.461	5.728	-5.655	1.253	-1.237
10	39.643	42.000	44.386	5.681	-5.612	1.251	-1.236
11	37.917	40.154	42.416	5.633	-5.569	1.249	-1.235
12	36.277	38.400	40.545	5.586	-5.527	1.246	-1.233
13	34.717	36.733	38.767	5.539	-5.485	1.244	-1.232
14	33.234	35.147	37.078	5.493	-5.444	1.242	-1.230
15	31.823	33.640	35.472	5.446	-5.402	1.239	-1.229
16	30.479	32.206	33.945	5.400	-5.361	1.236	-1.227

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17	29.200	30.841	32.493	5.355	-5.320	1.234	-1.226
18	27.982	29.542	31.111	5.309	-5.279	1.231	-1.224
19	26.822	28.305	29.795	5.264	-5.239	1.228	-1.222
20	25.716	27.127	28.543	5.220	-5.198	1.225	-1.220
21	24.662	26.004	27.350	5.175	-5.158	1.221	-1.217
22	23.658	24.934	26.214	5.131	-5.118	1.217	-1.214
23	22.699	23.914	25.131	5.087	-5.079	1.211	-1.209
24	21.785	22.942	24.099	5.044	-5.039	1.198	-1.197
25	20.900	22.000	23.100	5.000	-5.000	1.196	-1.196
26	20.064	21.129	22.194	5.042	-5.038	1.253	-1.252
27	19.254	20.284	21.316	5.085	-5.077	1.261	-1.259
28	18.481	19.478	20.477	5.127	-5.115	1.276	-1.273
29	17.744	18.708	19.675	5.170	-5.153	1.293	-1.289
30	17.039	17.972	18.909	5.212	-5.191	1.310	-1.305
31	16.367	17.270	18.177	5.254	-5.229	1.328	-1.322
32	15.724	16.598	17.477	5.296	-5.267	1.346	-1.339
33	15.110	15.957	16.808	5.337	-5.304	1.365	-1.356
34	14.523	15.343	16.168	5.379	-5.341	1.383	-1.374
35	13.962	14.756	15.556	5.420	-5.378	1.402	-1.391
36	13.426	14.195	14.970	5.461	-5.415	1.421	-1.409
37	12.913	13.657	14.409	5.501	-5.451	1.440	-1.427
38	12.422	13.143	13.872	5.542	-5.488	1.459	-1.445
39	11.952	12.651	13.357	5.582	-5.524	1.478	-1.463
40	11.503	12.180	12.865	5.622	-5.559	1.498	-1.481
41	11.072	11.729	12.393	5.662	-5.595	1.517	-1.499
42	10.660	11.296	11.940	5.702	-5.631	1.537	-1.518
43	10.265	10.882	11.507	5.741	-5.666	1.556	-1.536
44	9.887	10.485	11.091	5.780	-5.701	1.576	-1.554
45	9.525	10.105	10.693	5.820	-5.736	1.596	-1.573
46	9.178	9.740	10.310	5.859	-5.770	1.616	-1.592
47	8.845	9.390	9.944	5.897	-5.805	1.636	-1.610
48	8.525	9.054	9.592	5.936	-5.839	1.656	-1.629
49	8.219	8.732	9.254	5.974	-5.873	1.676	-1.648
50	7.926	8.423	8.930	6.012	-5.907	1.697	-1.667
51	7.644	8.127	8.619	6.050	-5.941	1.717	-1.686
52	7.374	7.842	8.320	6.088	-5.974	1.738	-1.705
53	7.114	7.569	8.033	6.126	-6.008	1.758	-1.724
54	6.865	7.306	7.757	6.163	-6.041	1.779	-1.744
55	6.626	7.054	7.492	6.201	-6.074	1.800	-1.763
56	6.396	6.812	7.237	6.238	-6.107	1.821	-1.782
57	6.176	6.580	6.992	6.275	-6.139	1.842	-1.802
58	5.964	6.356	6.757	6.311	-6.172	1.863	-1.822
59	5.760	6.141	6.531	6.348	-6.204	1.884	-1.841

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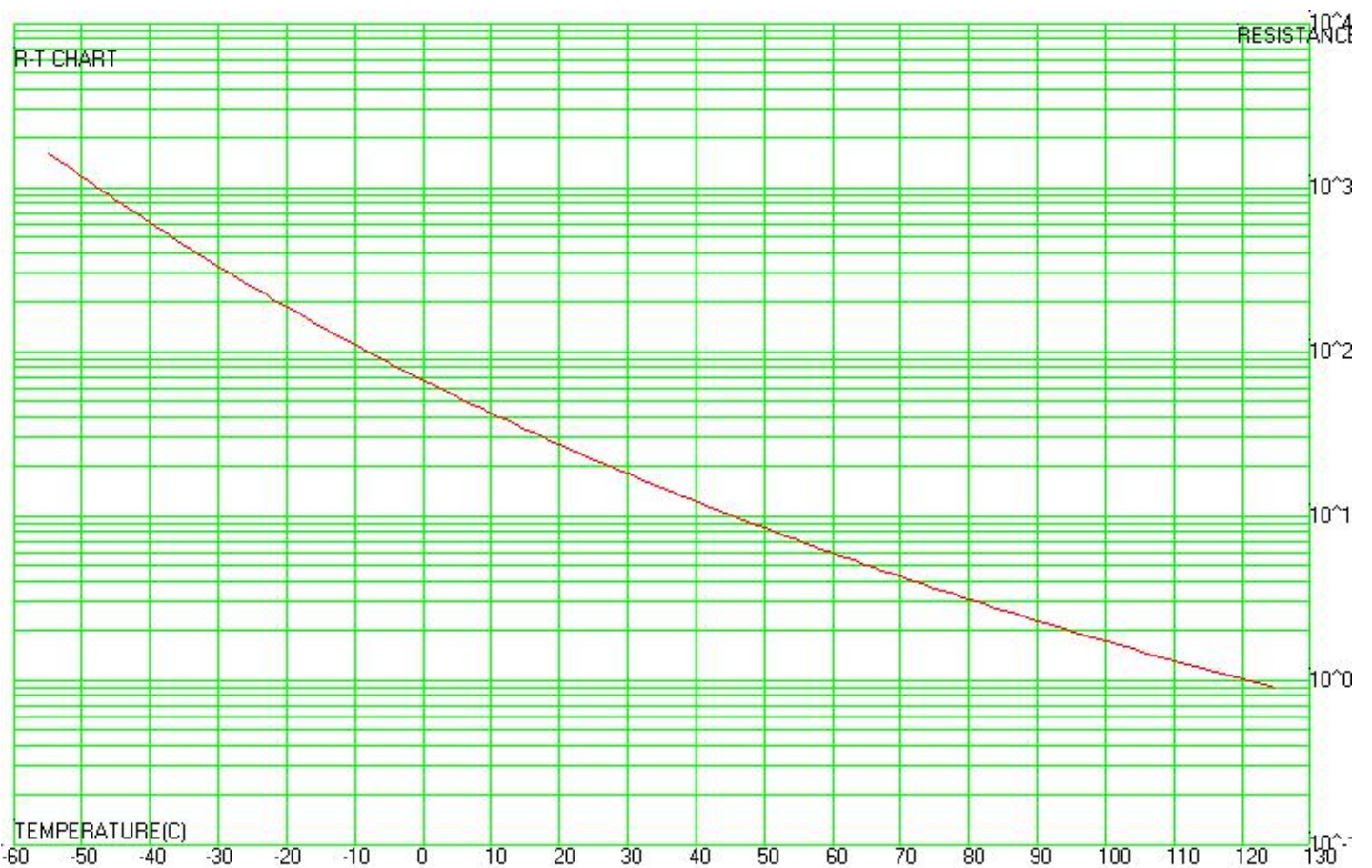
60	5.564	5.934	6.313	6.384	-6.236	1.905	-1.861
61	5.376	5.736	6.104	6.420	-6.268	1.927	-1.881
62	5.195	5.545	5.903	6.457	-6.300	1.948	-1.901
63	5.021	5.361	5.709	6.492	-6.331	1.970	-1.921
64	4.854	5.184	5.523	6.528	-6.363	1.992	-1.941
65	4.693	5.014	5.343	6.564	-6.394	2.013	-1.961
66	4.539	4.850	5.171	6.599	-6.425	2.035	-1.982
67	4.390	4.693	5.004	6.634	-6.456	2.057	-2.002
68	4.247	4.541	4.844	6.669	-6.487	2.079	-2.022
69	4.109	4.395	4.690	6.704	-6.517	2.102	-2.043
70	3.976	4.254	4.541	6.739	-6.548	2.124	-2.064
71	3.848	4.119	4.398	6.773	-6.578	2.146	-2.084
72	3.725	3.989	4.260	6.808	-6.608	2.169	-2.105
73	3.606	3.863	4.127	6.842	-6.638	2.192	-2.126
74	3.492	3.742	3.999	6.876	-6.667	2.214	-2.147
75	3.382	3.625	3.876	6.910	-6.697	2.237	-2.168
76	3.276	3.512	3.756	6.944	-6.726	2.260	-2.189
77	3.174	3.404	3.642	6.977	-6.756	2.283	-2.211
78	3.075	3.299	3.531	7.011	-6.785	2.306	-2.232
79	2.981	3.199	3.424	7.044	-6.814	2.330	-2.253
80	2.889	3.101	3.321	7.077	-6.843	2.353	-2.275
81	2.801	3.007	3.221	7.110	-6.871	2.376	-2.297
82	2.716	2.917	3.125	7.142	-6.900	2.400	-2.318
83	2.633	2.829	3.033	7.175	-6.928	2.424	-2.340
84	2.554	2.745	2.943	7.207	-6.956	2.447	-2.362
85	2.478	2.664	2.857	7.240	-6.984	2.471	-2.384
86	2.404	2.585	2.773	7.272	-7.012	2.495	-2.406
87	2.333	2.509	2.693	7.304	-7.040	2.519	-2.428
88	2.264	2.436	2.615	7.336	-7.067	2.544	-2.451
89	2.197	2.365	2.539	7.367	-7.095	2.568	-2.473
90	2.133	2.297	2.467	7.399	-7.122	2.592	-2.495
91	2.071	2.231	2.396	7.430	-7.149	2.617	-2.518
92	2.011	2.167	2.329	7.461	-7.176	2.641	-2.540
93	1.953	2.105	2.263	7.492	-7.203	2.666	-2.563
94	1.898	2.045	2.199	7.523	-7.229	2.691	-2.586
95	1.843	1.988	2.138	7.554	-7.256	2.716	-2.609
96	1.791	1.932	2.079	7.585	-7.282	2.741	-2.632
97	1.741	1.878	2.021	7.615	-7.308	2.766	-2.655
98	1.692	1.826	1.965	7.645	-7.335	2.791	-2.678
99	1.645	1.775	1.912	7.676	-7.361	2.817	-2.701
100	1.599	1.727	1.860	7.706	-7.386	2.842	-2.724
101	1.555	1.679	1.809	7.736	-7.412	2.868	-2.748
102	1.512	1.633	1.760	7.765	-7.438	2.893	-2.771

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103	1.470	1.589	1.713	7.795	-7.463	2.919	-2.795
104	1.430	1.546	1.667	7.825	-7.488	2.945	-2.818
105	1.392	1.505	1.623	7.854	-7.514	2.971	-2.842
106	1.354	1.464	1.580	7.883	-7.539	2.997	-2.866
107	1.317	1.425	1.538	7.912	-7.564	3.023	-2.890
108	1.282	1.388	1.498	7.941	-7.589	3.049	-2.914
109	1.248	1.351	1.459	7.970	-7.613	3.075	-2.938
110	1.215	1.315	1.421	7.999	-7.638	3.102	-2.962
111	1.183	1.281	1.384	8.028	-7.662	3.128	-2.986
112	1.152	1.248	1.348	8.056	-7.687	3.155	-3.010
113	1.121	1.215	1.313	8.085	-7.711	3.182	-3.035
114	1.092	1.184	1.280	8.113	-7.735	3.208	-3.059
115	1.064	1.153	1.247	8.141	-7.759	3.235	-3.084
116	1.036	1.124	1.215	8.169	-7.783	3.262	-3.108
117	1.009	1.095	1.185	8.197	-7.807	3.289	-3.133
118	0.983	1.067	1.155	8.225	-7.831	3.316	-3.157
119	0.958	1.040	1.126	8.253	-7.855	3.344	-3.182
120	0.934	1.014	1.098	8.281	-7.878	3.371	-3.207
121	0.910	0.988	1.070	8.308	-7.902	3.398	-3.232
122	0.887	0.963	1.043	8.336	-7.925	3.426	-3.257
123	0.864	0.939	1.018	8.363	-7.949	3.453	-3.282
124	0.842	0.916	0.992	8.391	-7.972	3.481	-3.307
125	0.821	0.893	0.968	8.418	-7.995	3.508	-3.332





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