

Temperature Measurement NTC Thermistor



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Applications

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PART NUMBER

Example: RND 155MF52A2 202F3470

RND 155MF52A2	202	F	3470
Type	Zero Power Resistance @ 25 °C 202 = 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±1%
1.2	B-value	B25/50	$B = [(T_a \times T_b) / (T_b - T_a)] \times \ln(R_a / R_b)$ T _b =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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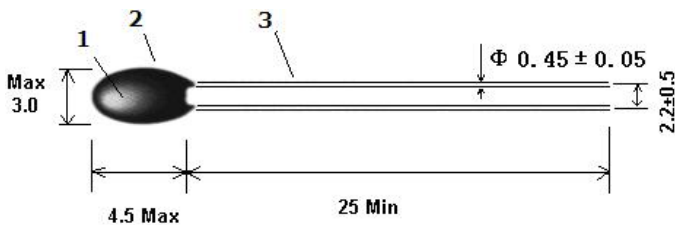
Caution

- 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/10-12 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=2K Ω TOLERANCE: \pm 1%				B25/50=3470K TOLERANCE: \pm 1%(P234-20)			
TEMP($^{\circ}$ C)	RESISTANCE(Ω)			RESISST-TOL(%)		TEMP-TOL($^{\circ}$ C)	
	MIN	CENTER	MAX	Δ R	$-\Delta$ R	Δ T	$-\Delta$ T
-55	82.378	86.404	90.617	4.876	-4.658	0.757	-0.724
-54	77.213	80.933	84.824	4.807	-4.596	0.754	-0.721
-53	72.469	75.912	79.511	4.740	-4.535	0.750	-0.718
-52	68.098	71.289	74.621	4.674	-4.475	0.747	-0.715
-51	64.059	67.019	70.108	4.609	-4.416	0.743	-0.712
-50	60.316	63.065	65.932	4.546	-4.358	0.739	-0.708
-49	56.840	59.394	62.058	4.483	-4.300	0.735	-0.705
-48	53.605	55.981	58.456	4.421	-4.244	0.731	-0.702
-47	50.588	52.800	55.102	4.360	-4.188	0.727	-0.698
-46	47.771	49.830	51.973	4.300	-4.132	0.723	-0.695
-45	45.136	47.055	49.050	4.240	-4.077	0.719	-0.691
-44	42.668	44.456	46.315	4.181	-4.023	0.715	-0.687
-43	40.354	42.022	43.755	4.122	-3.969	0.710	-0.684
-42	38.183	39.739	41.354	4.064	-3.915	0.706	-0.680
-41	36.143	37.595	39.102	4.006	-3.862	0.701	-0.676
-40	34.226	35.582	36.987	3.949	-3.809	0.697	-0.672
-39	32.423	33.689	35.000	3.892	-3.756	0.692	-0.668
-38	30.726	31.908	33.132	3.836	-3.704	0.688	-0.664
-37	29.129	30.233	31.376	3.780	-3.652	0.683	-0.660
-36	27.624	28.656	29.723	3.724	-3.600	0.678	-0.656
-35	26.206	27.170	28.168	3.669	-3.549	0.674	-0.652
-34	24.869	25.771	26.703	3.614	-3.498	0.669	-0.647
-33	23.609	24.452	25.323	3.560	-3.447	0.664	-0.643
-32	22.421	23.209	24.023	3.506	-3.397	0.659	-0.638
-31	21.299	22.037	22.798	3.452	-3.347	0.654	-0.634
-30	20.241	20.931	21.643	3.399	-3.297	0.649	-0.629
-29	19.242	19.888	20.554	3.346	-3.248	0.644	-0.625
-28	18.299	18.904	19.526	3.294	-3.198	0.639	-0.620
-27	17.408	17.974	18.557	3.242	-3.150	0.633	-0.615

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-26	16.567	17.097	17.643	3.190	-3.101	0.628	-0.611
-25	15.772	16.268	16.779	3.139	-3.053	0.623	-0.606
-24	15.020	15.486	15.964	3.088	-3.005	0.617	-0.601
-23	14.310	14.746	15.194	3.038	-2.958	0.612	-0.596
-22	13.638	14.047	14.467	2.988	-2.911	0.606	-0.591
-21	13.002	13.386	13.779	2.938	-2.864	0.601	-0.586
-20	12.401	12.761	13.129	2.889	-2.817	0.595	-0.580
-19	11.832	12.169	12.515	2.840	-2.771	0.589	-0.575
-18	11.293	11.609	11.933	2.791	-2.725	0.584	-0.570
-17	10.782	11.079	11.383	2.743	-2.680	0.578	-0.564
-16	10.298	10.577	10.862	2.696	-2.635	0.572	-0.559
-15	9.839	10.101	10.369	2.649	-2.590	0.566	-0.553
-14	9.404	9.650	9.901	2.602	-2.545	0.560	-0.548
-13	8.992	9.223	9.458	2.555	-2.501	0.554	-0.542
-12	8.600	8.817	9.038	2.509	-2.457	0.548	-0.536
-11	8.228	8.432	8.640	2.463	-2.414	0.541	-0.531
-10	7.875	8.067	8.262	2.418	-2.371	0.535	-0.525
-9	7.540	7.719	7.903	2.373	-2.328	0.529	-0.519
-8	7.221	7.390	7.562	2.328	-2.285	0.522	-0.513
-7	6.917	7.076	7.238	2.284	-2.243	0.516	-0.507
-6	6.629	6.778	6.930	2.240	-2.201	0.509	-0.500
-5	6.354	6.494	6.637	2.196	-2.159	0.503	-0.494
-4	6.092	6.224	6.358	2.153	-2.117	0.496	-0.488
-3	5.843	5.967	6.093	2.110	-2.076	0.489	-0.481
-2	5.605	5.722	5.840	2.067	-2.035	0.482	-0.475
-1	5.379	5.488	5.600	2.024	-1.994	0.475	-0.468
0	5.143	5.246	5.349	1.978	-1.950	0.469	-0.463
1	4.957	5.054	5.152	1.940	-1.913	0.461	-0.455
2	4.760	4.851	4.943	1.898	-1.873	0.454	-0.448
3	4.572	4.658	4.744	1.857	-1.833	0.447	-0.441
4	4.393	4.473	4.554	1.816	-1.793	0.440	-0.434
5	4.221	4.296	4.373	1.775	-1.754	0.433	-0.427
6	4.057	4.128	4.199	1.734	-1.714	0.425	-0.420
7	3.900	3.966	4.034	1.694	-1.675	0.418	-0.413
8	3.750	3.812	3.875	1.653	-1.636	0.410	-0.406
9	3.606	3.665	3.724	1.613	-1.597	0.403	-0.399
10	3.469	3.524	3.579	1.573	-1.559	0.395	-0.392
11	3.337	3.388	3.440	1.534	-1.520	0.388	-0.384
12	3.211	3.259	3.308	1.494	-1.482	0.380	-0.377
13	3.090	3.135	3.180	1.455	-1.444	0.372	-0.369
14	2.974	3.016	3.059	1.415	-1.405	0.365	-0.362
15	2.862	2.902	2.942	1.376	-1.368	0.357	-0.354
16	2.756	2.793	2.830	1.338	-1.330	0.349	-0.347

Temperature Measurement

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17	2.653	2.688	2.723	1.299	-1.292	0.341	-0.340
18	2.555	2.588	2.620	1.260	-1.254	0.334	-0.332
19	2.461	2.491	2.522	1.222	-1.217	0.326	-0.325
20	2.370	2.399	2.427	1.184	-1.180	0.319	-0.318
21	2.284	2.310	2.337	1.145	-1.142	0.313	-0.312
22	2.200	2.225	2.249	1.107	-1.105	0.308	-0.307
23	2.120	2.143	2.166	1.070	-1.068	0.306	-0.306
24	2.043	2.064	2.086	1.032	-1.031	0.322	-0.321
25	1.980	2.000	2.020	1.000	-1.000	0.314	-0.314
26	1.896	1.916	1.936	1.042	-1.041	0.246	-0.246
27	1.827	1.847	1.867	1.080	-1.078	0.273	-0.273
28	1.760	1.780	1.800	1.117	-1.115	0.291	-0.290
29	1.696	1.716	1.735	1.154	-1.151	0.305	-0.304
30	1.634	1.654	1.673	1.191	-1.187	0.319	-0.318
31	1.575	1.594	1.614	1.228	-1.223	0.332	-0.330
32	1.518	1.537	1.557	1.265	-1.259	0.345	-0.343
33	1.463	1.482	1.502	1.302	-1.295	0.357	-0.355
34	1.410	1.430	1.449	1.339	-1.331	0.370	-0.368
35	1.360	1.379	1.398	1.376	-1.367	0.382	-0.380
36	1.311	1.330	1.349	1.412	-1.402	0.395	-0.392
37	1.265	1.283	1.302	1.448	-1.438	0.407	-0.404
38	1.220	1.238	1.256	1.485	-1.473	0.420	-0.417
39	1.176	1.195	1.213	1.521	-1.508	0.433	-0.429
40	1.135	1.153	1.171	1.557	-1.543	0.445	-0.441
41	1.095	1.113	1.130	1.593	-1.578	0.458	-0.454
42	1.057	1.074	1.092	1.629	-1.613	0.471	-0.466
43	1.020	1.037	1.054	1.665	-1.647	0.484	-0.479
44	0.984	1.001	1.018	1.700	-1.682	0.497	-0.491
45	0.950	0.967	0.984	1.736	-1.716	0.510	-0.504
46	0.917	0.934	0.950	1.771	-1.750	0.523	-0.517
47	0.886	0.902	0.918	1.807	-1.784	0.536	-0.529
48	0.855	0.871	0.887	1.842	-1.818	0.549	-0.542
49	0.826	0.842	0.858	1.877	-1.852	0.562	-0.555
50	0.798	0.814	0.829	1.912	-1.885	0.576	-0.568
51	0.771	0.786	0.802	1.946	-1.919	0.589	-0.581
52	0.745	0.760	0.775	1.981	-1.952	0.603	-0.594
53	0.720	0.735	0.750	2.015	-1.985	0.616	-0.607
54	0.696	0.710	0.725	2.050	-2.018	0.630	-0.621
55	0.673	0.687	0.701	2.084	-2.051	0.644	-0.634
56	0.651	0.665	0.679	2.118	-2.084	0.658	-0.647
57	0.629	0.643	0.657	2.151	-2.116	0.672	-0.661
58	0.609	0.622	0.636	2.185	-2.148	0.686	-0.674
59	0.589	0.602	0.615	2.219	-2.180	0.700	-0.688

Temperature Measurement NTC Thermistor

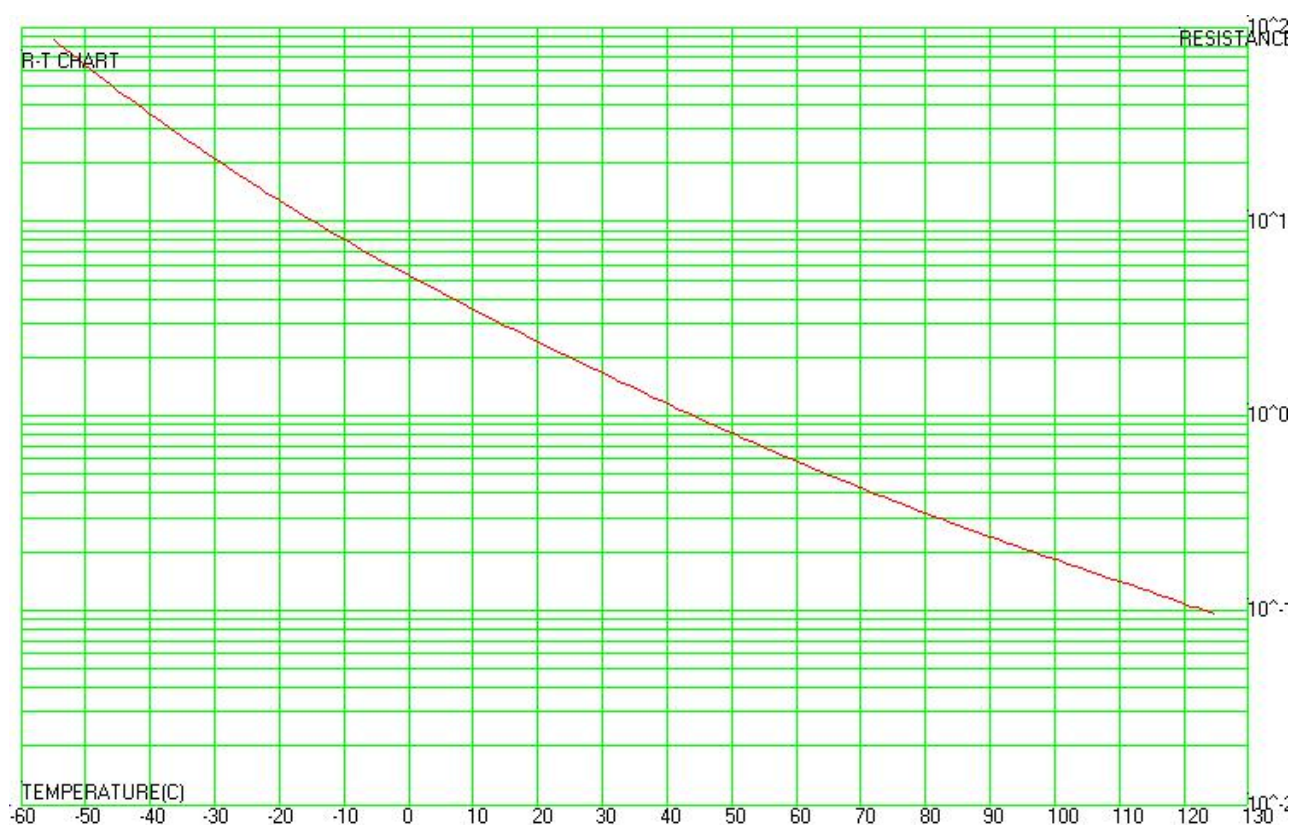


60	0.570	0.583	0.596	2.252	-2.212	0.714	-0.702
61	0.551	0.564	0.577	2.285	-2.244	0.729	-0.715
62	0.534	0.546	0.559	2.318	-2.275	0.743	-0.729
63	0.517	0.529	0.541	2.351	-2.307	0.757	-0.743
64	0.500	0.512	0.525	2.384	-2.338	0.772	-0.757
65	0.485	0.496	0.508	2.416	-2.369	0.787	-0.771
66	0.469	0.481	0.493	2.448	-2.400	0.801	-0.785
67	0.455	0.466	0.478	2.480	-2.430	0.816	-0.800
68	0.441	0.452	0.463	2.512	-2.461	0.831	-0.814
69	0.427	0.438	0.449	2.544	-2.491	0.846	-0.828
70	0.414	0.425	0.436	2.576	-2.521	0.861	-0.843
71	0.401	0.412	0.423	2.607	-2.551	0.876	-0.857
72	0.389	0.399	0.410	2.638	-2.580	0.892	-0.872
73	0.377	0.388	0.398	2.669	-2.610	0.907	-0.887
74	0.366	0.376	0.386	2.700	-2.639	0.922	-0.901
75	0.355	0.365	0.375	2.731	-2.668	0.938	-0.916
76	0.345	0.354	0.364	2.761	-2.697	0.953	-0.931
77	0.335	0.344	0.354	2.791	-2.725	0.969	-0.946
78	0.325	0.334	0.344	2.822	-2.754	0.985	-0.961
79	0.315	0.325	0.334	2.851	-2.782	1.001	-0.976
80	0.306	0.315	0.324	2.881	-2.810	1.017	-0.991
81	0.298	0.306	0.315	2.911	-2.838	1.033	-1.007
82	0.289	0.298	0.306	2.940	-2.866	1.049	-1.022
83	0.281	0.289	0.298	2.969	-2.893	1.065	-1.038
84	0.273	0.281	0.290	2.998	-2.921	1.081	-1.053
85	0.265	0.274	0.282	3.027	-2.948	1.097	-1.069
86	0.258	0.266	0.274	3.056	-2.975	1.114	-1.084
87	0.251	0.259	0.267	3.085	-3.002	1.130	-1.100
88	0.244	0.252	0.259	3.113	-3.029	1.147	-1.116
89	0.237	0.245	0.253	3.141	-3.055	1.163	-1.132
90	0.231	0.238	0.246	3.169	-3.082	1.180	-1.147
91	0.225	0.232	0.239	3.197	-3.108	1.197	-1.163
92	0.219	0.226	0.233	3.225	-3.134	1.214	-1.180
93	0.213	0.220	0.227	3.253	-3.160	1.231	-1.196
94	0.207	0.214	0.221	3.280	-3.186	1.248	-1.212
95	0.202	0.208	0.215	3.308	-3.212	1.265	-1.228
96	0.196	0.203	0.210	3.335	-3.237	1.282	-1.244
97	0.191	0.197	0.204	3.363	-3.263	1.299	-1.261
98	0.186	0.192	0.199	3.390	-3.288	1.317	-1.277
99	0.181	0.187	0.194	3.417	-3.314	1.334	-1.294
100	0.176	0.183	0.189	3.444	-3.339	1.351	-1.310
101	0.172	0.178	0.184	3.471	-3.364	1.369	-1.327
102	0.167	0.173	0.179	3.498	-3.389	1.387	-1.344

Temperature Measurement NTC Thermistor



103	0.163	0.169	0.175	3.525	-3.414	1.404	-1.360
104	0.159	0.164	0.170	3.551	-3.439	1.422	-1.377
105	0.155	0.160	0.166	3.578	-3.464	1.440	-1.394
106	0.151	0.156	0.162	3.605	-3.489	1.458	-1.411
107	0.147	0.152	0.158	3.632	-3.514	1.476	-1.428
108	0.143	0.148	0.154	3.658	-3.539	1.494	-1.445
109	0.139	0.144	0.150	3.685	-3.564	1.512	-1.462
110	0.136	0.141	0.146	3.712	-3.589	1.530	-1.479
111	0.132	0.137	0.142	3.739	-3.614	1.548	-1.496
112	0.129	0.134	0.139	3.766	-3.639	1.566	-1.513
113	0.125	0.130	0.135	3.792	-3.663	1.584	-1.530
114	0.122	0.127	0.132	3.819	-3.689	1.603	-1.548
115	0.119	0.124	0.128	3.846	-3.714	1.621	-1.565
116	0.116	0.120	0.125	3.874	-3.739	1.639	-1.582
117	0.113	0.117	0.122	3.901	-3.764	1.658	-1.600
118	0.110	0.114	0.119	3.928	-3.789	1.676	-1.617
119	0.107	0.111	0.116	3.956	-3.815	1.695	-1.635
120	0.104	0.108	0.113	3.983	-3.840	1.714	-1.652
121	0.101	0.105	0.110	4.011	-3.866	1.732	-1.670
122	0.099	0.103	0.107	4.039	-3.892	1.751	-1.687
123	0.096	0.100	0.104	4.067	-3.918	1.770	-1.705
124	0.093	0.097	0.101	4.096	-3.944	1.788	-1.722
125	0.091	0.095	0.098	4.124	-3.971	1.807	-1.740



Temperature Measurement

NTC Thermistor

