

Temperature Measurement NTC Thermistor



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Applications

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PART NUMBER

Example: RND 155MF52A2 202J3470

RND 155MF52A2	202	J	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	$B = [(Ta \times Tb) / (Tb - Ta)] \times \ln(Ra / Rb)$ 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%

Temperature Measurement NTC Thermistor

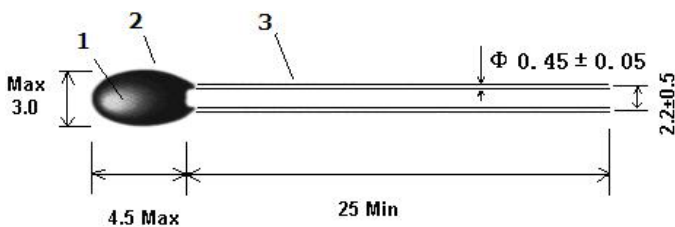
Caution

- 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

Temperature Measurement

NTC Thermistor



R&T Table

R25=2K Ω TOLERANCE:±5%				B25/50=3470K TOLERANCE:±1% P234-20			
TEMP(°C)	RESISTANCE(K Ω)			RESISST-TOL(%)		TEMP-TOL(°C)	
	MIN	CENTER	MAX	Δ R	$-\Delta$ R	Δ T	$-\Delta$ T
-55	79.050	86.404	94.205	9.029	-8.511	1.403	-1.322
-54	74.093	80.933	88.183	8.958	-8.451	1.405	-1.326
-53	69.541	75.912	82.660	8.888	-8.392	1.407	-1.329
-52	65.347	71.289	77.576	8.820	-8.334	1.409	-1.332
-51	61.470	67.019	72.885	8.752	-8.278	1.411	-1.334
-50	57.879	63.065	68.543	8.686	-8.222	1.412	-1.337
-49	54.543	59.394	64.515	8.621	-8.167	1.414	-1.339
-48	51.439	55.981	60.771	8.557	-8.113	1.415	-1.342
-47	48.544	52.800	57.284	8.493	-8.059	1.417	-1.344
-46	45.841	49.830	54.032	8.431	-8.006	1.418	-1.346
-45	43.312	47.055	50.993	8.368	-7.953	1.419	-1.348
-44	40.944	44.456	48.150	8.307	-7.901	1.420	-1.351
-43	38.724	42.022	45.487	8.246	-7.849	1.421	-1.353
-42	36.640	39.739	42.992	8.186	-7.797	1.422	-1.355
-41	34.683	37.595	40.650	8.126	-7.746	1.423	-1.356
-40	32.843	35.582	38.452	8.066	-7.695	1.424	-1.358
-39	31.113	33.689	36.386	8.007	-7.645	1.425	-1.360
-38	29.485	31.908	34.445	7.948	-7.595	1.425	-1.362
-37	27.952	30.233	32.619	7.890	-7.545	1.426	-1.364
-36	26.508	28.656	30.900	7.832	-7.495	1.427	-1.366
-35	25.147	27.170	29.283	7.775	-7.446	1.428	-1.367
-34	23.865	25.771	27.760	7.718	-7.397	1.429	-1.369
-33	22.655	24.452	26.326	7.661	-7.348	1.429	-1.371
-32	21.515	23.209	24.974	7.605	-7.300	1.430	-1.372
-31	20.439	22.037	23.701	7.550	-7.252	1.431	-1.374
-30	19.423	20.931	22.500	7.494	-7.204	1.431	-1.376
-29	18.465	19.888	21.368	7.439	-7.157	1.432	-1.377
-28	17.559	18.904	20.300	7.385	-7.110	1.432	-1.379
-27	16.705	17.974	19.292	7.331	-7.063	1.433	-1.380

Temperature Measurement

NTC Thermistor



-26	15.897	17.097	18.341	7.277	-7.016	1.433	-1.382
-25	15.134	16.268	17.444	7.224	-6.970	1.434	-1.383
-24	14.413	15.486	16.596	7.171	-6.924	1.434	-1.385
-23	13.732	14.746	15.796	7.118	-6.879	1.434	-1.386
-22	13.087	14.047	15.040	7.066	-6.833	1.435	-1.387
-21	12.477	13.386	14.325	7.015	-6.788	1.435	-1.389
-20	11.900	12.761	13.649	6.964	-6.744	1.435	-1.390
-19	11.354	12.169	13.010	6.913	-6.700	1.435	-1.391
-18	10.836	11.609	12.406	6.862	-6.656	1.435	-1.392
-17	10.346	11.079	11.834	6.813	-6.612	1.436	-1.393
-16	9.882	10.577	11.292	6.763	-6.569	1.435	-1.394
-15	9.442	10.101	10.779	6.714	-6.526	1.435	-1.395
-14	9.024	9.650	10.293	6.665	-6.483	1.435	-1.396
-13	8.628	9.223	9.833	6.617	-6.441	1.435	-1.397
-12	8.253	8.817	9.396	6.569	-6.398	1.435	-1.397
-11	7.896	8.432	8.982	6.521	-6.357	1.434	-1.398
-10	7.557	8.067	8.589	6.474	-6.315	1.434	-1.398
-9	7.235	7.719	8.216	6.427	-6.274	1.433	-1.399
-8	6.929	7.390	7.861	6.381	-6.233	1.432	-1.399
-7	6.638	7.076	7.524	6.335	-6.192	1.432	-1.399
-6	6.361	6.778	7.204	6.289	-6.152	1.431	-1.400
-5	6.097	6.494	6.900	6.244	-6.112	1.430	-1.400
-4	5.846	6.224	6.610	6.198	-6.072	1.429	-1.400
-3	5.607	5.967	6.334	6.154	-6.032	1.428	-1.400
-2	5.379	5.722	6.072	6.109	-5.993	1.427	-1.399
-1	5.162	5.488	5.821	6.065	-5.954	1.425	-1.399
0	4.935	5.246	5.561	6.017	-5.911	1.429	-1.404
1	4.757	5.054	5.356	5.977	-5.876	1.423	-1.398
2	4.568	4.851	5.139	5.934	-5.838	1.421	-1.398
3	4.387	4.658	4.932	5.891	-5.799	1.419	-1.397
4	4.215	4.473	4.734	5.848	-5.761	1.418	-1.397
5	4.050	4.296	4.546	5.806	-5.723	1.416	-1.396
6	3.893	4.128	4.366	5.763	-5.685	1.414	-1.395
7	3.742	3.966	4.193	5.721	-5.648	1.413	-1.394
8	3.598	3.812	4.029	5.679	-5.610	1.411	-1.394
9	3.460	3.665	3.871	5.637	-5.573	1.409	-1.393
10	3.328	3.524	3.721	5.596	-5.536	1.407	-1.392
11	3.202	3.388	3.577	5.555	-5.499	1.405	-1.391
12	3.081	3.259	3.439	5.514	-5.462	1.403	-1.390
13	2.965	3.135	3.306	5.473	-5.426	1.402	-1.390
14	2.853	3.016	3.180	5.432	-5.389	1.400	-1.389
15	2.747	2.902	3.059	5.391	-5.353	1.399	-1.389
16	2.644	2.793	2.942	5.351	-5.316	1.398	-1.389

Temperature Measurement

NTC Thermistor



17	2.546	2.688	2.831	5.311	-5.280	1.397	-1.389
18	2.452	2.588	2.724	5.271	-5.244	1.397	-1.390
19	2.361	2.491	2.622	5.231	-5.208	1.398	-1.392
20	2.275	2.399	2.523	5.191	-5.172	1.402	-1.397
21	2.191	2.310	2.429	5.151	-5.137	1.408	-1.404
22	2.111	2.225	2.339	5.112	-5.101	1.422	-1.419
23	2.034	2.143	2.252	5.072	-5.065	1.454	-1.452
24	1.961	2.064	2.168	5.033	-5.030	1.570	-1.569
25	1.900	2.000	2.100	5.000	-5.000	1.570	-1.570
26	1.820	1.916	2.013	5.044	-5.040	1.193	-1.192
27	1.753	1.847	1.941	5.083	-5.075	1.288	-1.286
28	1.689	1.780	1.871	5.122	-5.110	1.334	-1.331
29	1.627	1.716	1.804	5.160	-5.145	1.366	-1.362
30	1.568	1.654	1.740	5.199	-5.180	1.392	-1.387
31	1.511	1.594	1.678	5.237	-5.214	1.416	-1.409
32	1.456	1.537	1.618	5.276	-5.249	1.438	-1.430
33	1.404	1.482	1.561	5.314	-5.283	1.459	-1.450
34	1.353	1.430	1.506	5.352	-5.318	1.479	-1.469
35	1.305	1.379	1.453	5.390	-5.352	1.499	-1.488
36	1.258	1.330	1.402	5.428	-5.386	1.519	-1.507
37	1.213	1.283	1.353	5.466	-5.420	1.538	-1.525
38	1.170	1.238	1.306	5.504	-5.454	1.558	-1.543
39	1.129	1.195	1.261	5.542	-5.487	1.577	-1.561
40	1.089	1.153	1.217	5.579	-5.521	1.596	-1.580
41	1.051	1.113	1.175	5.617	-5.555	1.616	-1.598
42	1.014	1.074	1.135	5.654	-5.588	1.635	-1.616
43	0.979	1.037	1.096	5.691	-5.621	1.654	-1.634
44	0.945	1.001	1.059	5.728	-5.654	1.674	-1.652
45	0.912	0.967	1.023	5.765	-5.687	1.693	-1.670
46	0.880	0.934	0.988	5.802	-5.720	1.713	-1.689
47	0.850	0.902	0.955	5.838	-5.753	1.733	-1.707
48	0.821	0.871	0.923	5.875	-5.785	1.752	-1.726
49	0.793	0.842	0.892	5.911	-5.817	1.772	-1.744
50	0.766	0.814	0.862	5.948	-5.850	1.792	-1.763
51	0.740	0.786	0.833	5.984	-5.882	1.813	-1.782
52	0.715	0.760	0.806	6.020	-5.914	1.833	-1.800
53	0.691	0.735	0.779	6.055	-5.945	1.853	-1.819
54	0.668	0.710	0.754	6.091	-5.977	1.874	-1.839
55	0.646	0.687	0.729	6.127	-6.008	1.894	-1.858
56	0.624	0.665	0.706	6.162	-6.040	1.915	-1.877
57	0.604	0.643	0.683	6.197	-6.071	1.936	-1.896
58	0.584	0.622	0.661	6.232	-6.102	1.957	-1.916
59	0.565	0.602	0.640	6.267	-6.133	1.978	-1.936

Temperature Measurement

NTC Thermistor



60	0.547	0.583	0.619	6.302	-6.163	1.999	-1.955
61	0.529	0.564	0.600	6.336	-6.194	2.021	-1.975
62	0.512	0.546	0.581	6.370	-6.224	2.042	-1.995
63	0.496	0.529	0.563	6.404	-6.254	2.064	-2.015
64	0.480	0.512	0.545	6.438	-6.284	2.086	-2.036
65	0.465	0.496	0.528	6.472	-6.313	2.108	-2.056
66	0.450	0.481	0.512	6.506	-6.343	2.130	-2.077
67	0.436	0.466	0.497	6.539	-6.372	2.152	-2.097
68	0.423	0.452	0.481	6.572	-6.401	2.175	-2.118
69	0.410	0.438	0.467	6.605	-6.430	2.197	-2.139
70	0.397	0.425	0.453	6.638	-6.459	2.220	-2.160
71	0.385	0.412	0.439	6.671	-6.488	2.243	-2.181
72	0.373	0.399	0.426	6.703	-6.516	2.266	-2.203
73	0.362	0.388	0.414	6.735	-6.544	2.289	-2.224
74	0.351	0.376	0.402	6.767	-6.573	2.312	-2.245
75	0.341	0.365	0.390	6.799	-6.600	2.335	-2.267
76	0.331	0.354	0.379	6.831	-6.628	2.359	-2.289
77	0.321	0.344	0.368	6.862	-6.656	2.383	-2.311
78	0.312	0.334	0.357	6.894	-6.683	2.406	-2.333
79	0.303	0.325	0.347	6.925	-6.710	2.430	-2.355
80	0.294	0.315	0.337	6.956	-6.737	2.455	-2.377
81	0.286	0.306	0.328	6.986	-6.764	2.479	-2.400
82	0.277	0.298	0.319	7.017	-6.790	2.503	-2.422
83	0.270	0.289	0.310	7.047	-6.817	2.528	-2.445
84	0.262	0.281	0.301	7.078	-6.843	2.552	-2.468
85	0.255	0.274	0.293	7.108	-6.869	2.577	-2.490
86	0.248	0.266	0.285	7.137	-6.895	2.602	-2.513
87	0.241	0.259	0.277	7.167	-6.921	2.627	-2.536
88	0.234	0.252	0.270	7.197	-6.947	2.652	-2.559
89	0.228	0.245	0.263	7.226	-6.972	2.677	-2.583
90	0.222	0.238	0.256	7.255	-6.998	2.702	-2.606
91	0.216	0.232	0.249	7.284	-7.023	2.727	-2.629
92	0.210	0.226	0.242	7.313	-7.048	2.753	-2.653
93	0.204	0.220	0.236	7.342	-7.073	2.778	-2.676
94	0.199	0.214	0.230	7.371	-7.098	2.804	-2.700
95	0.193	0.208	0.224	7.399	-7.122	2.830	-2.724
96	0.188	0.203	0.218	7.428	-7.147	2.856	-2.748
97	0.183	0.197	0.212	7.456	-7.171	2.881	-2.771
98	0.178	0.192	0.207	7.484	-7.196	2.907	-2.795
99	0.174	0.187	0.201	7.513	-7.220	2.933	-2.819
100	0.169	0.183	0.196	7.541	-7.244	2.960	-2.843
101	0.165	0.178	0.191	7.569	-7.269	2.986	-2.867
102	0.161	0.173	0.186	7.597	-7.293	3.012	-2.891

Temperature Measurement NTC Thermistor



103	0.156	0.169	0.182	7.625	-7.317	3.038	-2.915
104	0.152	0.164	0.177	7.653	-7.341	3.064	-2.940
105	0.148	0.160	0.173	7.680	-7.365	3.091	-2.964
106	0.145	0.156	0.168	7.708	-7.389	3.117	-2.988
107	0.141	0.152	0.164	7.736	-7.412	3.143	-3.012
108	0.137	0.148	0.160	7.764	-7.436	3.170	-3.036
109	0.134	0.144	0.156	7.792	-7.460	3.196	-3.060
110	0.130	0.141	0.152	7.819	-7.484	3.223	-3.084
111	0.127	0.137	0.148	7.847	-7.508	3.249	-3.109
112	0.124	0.134	0.144	7.875	-7.532	3.275	-3.133
113	0.120	0.130	0.141	7.903	-7.556	3.302	-3.157
114	0.117	0.127	0.137	7.931	-7.580	3.328	-3.181
115	0.114	0.124	0.133	7.959	-7.604	3.355	-3.205
116	0.111	0.120	0.130	7.987	-7.628	3.381	-3.229
117	0.108	0.117	0.127	8.016	-7.652	3.407	-3.253
118	0.105	0.114	0.123	8.044	-7.677	3.433	-3.276
119	0.103	0.111	0.120	8.073	-7.701	3.459	-3.300
120	0.100	0.108	0.117	8.102	-7.726	3.485	-3.324
121	0.097	0.105	0.114	8.130	-7.750	3.511	-3.347
122	0.095	0.103	0.111	8.160	-7.775	3.537	-3.371
123	0.092	0.100	0.108	8.189	-7.800	3.563	-3.394
124	0.090	0.097	0.105	8.218	-7.825	3.589	-3.417
125	0.087	0.095	0.102	8.248	-7.851	3.615	-3.440

