

Temperature Measurement NTC Thermistor



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Applications

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PART NUMBER

Example: RND 155MF52A2 473J3950

RND 155MF52A2	473	J	3950
Type	Zero Power Resistance @ 25 °C 473 = 47 kΩ	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	kΩ	47±5%
1.2	B-value	B25/50	$B = [(Ta \times Tb) / (Tb - Ta)] \times \ln(Ra / Rb)$ Tb=50°C±0.01°C	K	3950±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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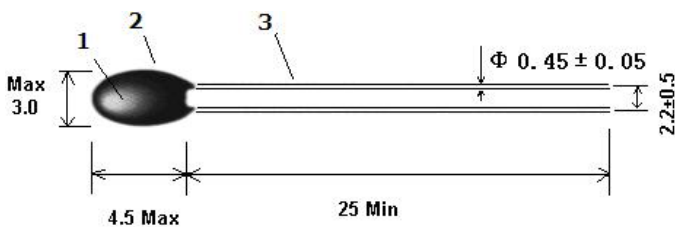
Caution

- 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 the soldering iron welding, the welding place at least 2 mm space from coating layer and the welding temperature should be lower than 300 °C, welding time < 3 sec.
- 3.4 Storage temp : -10°C ~ 40°C ; storage humidity : ≤75% RH;
- 3.5 Avoid air corrosion or sunlight;
- 3.6 Remake sealed storage after package opening

Certificate

Quality Control System Certification ISO9001 : 2008 (01112Q20216R4M)
Environment Management System Certification ISO14001:2015(01116E30085R3M)
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=47KΩ TOLERANCE:±5% B25/50=3950K TOLERANCE:±1% P182-6B							
TEMP(°C)	RESISTANCE(KΩ)			RESIST-TOL(%)		TEMP-TOL(°C)	
	MIN	CENTER	MAX	△R	-△R	△T	-△T
-55	3495.000	3844.600	4218.590	9.727	-9.093	1.292	-1.208
-54	3213.640	3532.100	3872.420	9.634	-9.016	1.295	-1.212
-53	2968.580	3260.150	3571.390	9.547	-8.943	1.297	-1.214
-52	2752.720	3020.780	3306.650	9.463	-8.873	1.298	-1.217
-51	2560.640	2807.940	3071.420	9.383	-8.807	1.299	-1.219
-50	2388.150	2616.950	2860.500	9.306	-8.742	1.299	-1.220
-49	2232.010	2444.180	2669.820	9.231	-8.680	1.299	-1.222
-48	2089.660	2286.780	2496.230	9.159	-8.619	1.299	-1.223
-47	1959.100	2142.500	2337.220	9.088	-8.560	1.299	-1.223
-46	1838.730	2009.570	2190.800	9.018	-8.501	1.298	-1.224
-45	1727.260	1886.560	2055.400	8.949	-8.443	1.298	-1.224
-44	1623.680	1772.310	1929.720	8.881	-8.386	1.297	-1.225
-43	1527.130	1665.890	1812.720	8.814	-8.329	1.296	-1.225
-42	1436.920	1566.520	1703.550	8.747	-8.273	1.295	-1.225
-41	1352.480	1473.570	1601.490	8.680	-8.217	1.294	-1.225
-40	1273.340	1386.500	1505.930	8.614	-8.161	1.293	-1.225
-39	1199.070	1304.830	1416.380	8.548	-8.105	1.292	-1.225
-38	1129.320	1228.190	1332.370	8.482	-8.049	1.291	-1.225
-37	1063.780	1156.220	1253.540	8.417	-7.994	1.290	-1.225
-36	1002.180	1088.600	1179.530	8.352	-7.938	1.289	-1.225
-35	944.269	1025.080	1110.030	8.286	-7.883	1.288	-1.225
-34	889.815	965.389	1044.760	8.221	-7.828	1.287	-1.225
-33	838.615	909.296	983.469	8.157	-7.773	1.286	-1.225
-32	790.478	856.590	925.911	8.092	-7.718	1.285	-1.225
-31	745.224	807.071	871.865	8.028	-7.663	1.284	-1.225
-30	702.687	760.551	821.123	7.964	-7.608	1.283	-1.225
-29	662.707	716.855	773.488	7.900	-7.553	1.282	-1.225
-28	625.135	675.815	728.776	7.836	-7.499	1.281	-1.225
-27	589.831	637.274	686.812	7.773	-7.444	1.280	-1.225

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-26	556.660	601.083	647.429	7.710	-7.390	1.279	-1.225
-25	525.495	567.102	610.472	7.647	-7.336	1.277	-1.225
-24	496.216	535.195	575.791	7.585	-7.282	1.276	-1.225
-23	468.710	505.236	543.247	7.523	-7.229	1.275	-1.225
-22	442.867	477.106	512.707	7.461	-7.176	1.274	-1.225
-21	418.586	450.691	484.046	7.400	-7.123	1.273	-1.225
-20	395.771	425.885	457.144	7.339	-7.070	1.272	-1.225
-19	374.329	402.585	431.892	7.279	-7.018	1.271	-1.225
-18	354.176	380.698	408.183	7.219	-6.966	1.270	-1.225
-17	335.230	360.133	385.919	7.160	-6.914	1.268	-1.225
-16	317.415	340.806	365.007	7.100	-6.863	1.267	-1.225
-15	300.659	322.639	345.360	7.042	-6.812	1.266	-1.224
-14	284.895	305.557	326.897	6.984	-6.761	1.264	-1.224
-13	270.061	289.490	309.541	6.926	-6.711	1.263	-1.224
-12	256.096	274.373	293.220	6.868	-6.661	1.261	-1.223
-11	242.945	260.145	277.867	6.812	-6.611	1.260	-1.223
-10	230.557	246.750	263.419	6.755	-6.562	1.258	-1.222
-9	218.883	234.132	249.819	6.699	-6.513	1.256	-1.221
-8	207.877	222.244	237.010	6.644	-6.464	1.255	-1.221
-7	197.498	211.038	224.943	6.588	-6.416	1.253	-1.220
-6	187.705	200.471	213.570	6.534	-6.368	1.251	-1.219
-5	178.461	190.502	202.846	6.479	-6.320	1.249	-1.218
-4	169.733	181.093	192.730	6.425	-6.272	1.247	-1.217
-3	161.488	172.209	183.183	6.372	-6.225	1.244	-1.216
-2	153.696	163.818	174.170	6.319	-6.178	1.242	-1.215
-1	146.328	155.887	165.656	6.266	-6.132	1.240	-1.213
0	139.401	148.435	157.659	6.214	-6.086	1.237	-1.212
1	132.764	141.299	150.006	6.162	-6.039	1.235	-1.210
2	126.521	134.589	142.813	6.110	-5.994	1.232	-1.209
3	120.608	128.237	136.007	6.059	-5.948	1.230	-1.207
4	115.006	122.221	129.565	6.008	-5.903	1.227	-1.205
5	109.695	116.522	123.464	5.957	-5.858	1.224	-1.203
6	104.659	111.120	117.684	5.907	-5.813	1.221	-1.201
7	99.882	105.998	112.207	5.857	-5.769	1.218	-1.199
8	95.349	101.139	107.013	5.807	-5.725	1.214	-1.197
9	91.044	96.528	102.087	5.758	-5.681	1.211	-1.195
10	86.956	92.151	97.413	5.709	-5.637	1.207	-1.192
11	83.072	87.995	92.976	5.660	-5.593	1.204	-1.190
12	79.381	84.046	88.763	5.612	-5.550	1.200	-1.187
13	75.871	80.293	84.761	5.563	-5.507	1.196	-1.184
14	72.533	76.726	80.958	5.515	-5.464	1.192	-1.181
15	69.357	73.333	77.343	5.468	-5.421	1.187	-1.177
16	66.335	70.106	73.906	5.420	-5.379	1.183	-1.174

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17	63.457	67.035	70.637	5.373	-5.336	1.178	-1.170
18	60.717	64.111	67.526	5.326	-5.294	1.172	-1.165
19	58.107	61.328	64.566	5.279	-5.252	1.166	-1.160
20	55.620	58.677	61.748	5.233	-5.210	1.159	-1.154
21	53.249	56.152	59.064	5.186	-5.168	1.150	-1.146
22	50.989	53.745	56.508	5.140	-5.127	1.138	-1.135
23	48.834	51.451	54.072	5.095	-5.085	1.118	-1.116
24	46.779	49.264	51.751	5.049	-5.044	1.069	-1.068
25	44.650	47.000	49.350	5.000	-5.000	1.066	-1.066
26	42.912	45.189	47.467	5.041	-5.037	1.287	-1.286
27	41.092	43.290	45.492	5.086	-5.078	1.245	-1.243
28	39.356	41.479	43.608	5.131	-5.118	1.244	-1.241
29	37.699	39.750	41.808	5.176	-5.159	1.252	-1.248
30	36.119	38.100	40.089	5.220	-5.199	1.264	-1.259
31	34.610	36.524	38.447	5.265	-5.239	1.277	-1.271
32	33.170	35.019	36.878	5.309	-5.279	1.292	-1.285
33	31.795	33.581	35.379	5.353	-5.318	1.308	-1.299
34	30.481	32.207	33.946	5.397	-5.358	1.324	-1.314
35	29.227	30.895	32.576	5.441	-5.397	1.340	-1.329
36	28.029	29.640	31.266	5.485	-5.436	1.357	-1.345
37	26.884	28.441	30.014	5.528	-5.475	1.374	-1.360
38	25.790	27.295	28.816	5.572	-5.514	1.391	-1.376
39	24.744	26.199	27.670	5.615	-5.553	1.408	-1.392
40	23.745	25.151	26.574	5.658	-5.592	1.425	-1.409
41	22.789	24.149	25.526	5.701	-5.630	1.443	-1.425
42	21.875	23.190	24.522	5.744	-5.668	1.461	-1.441
43	21.001	22.272	23.561	5.787	-5.706	1.479	-1.458
44	20.166	21.395	22.642	5.829	-5.744	1.497	-1.475
45	19.366	20.555	21.762	5.871	-5.782	1.515	-1.492
46	18.601	19.751	20.919	5.914	-5.820	1.533	-1.509
47	17.869	18.981	20.112	5.956	-5.857	1.551	-1.526
48	17.169	18.244	19.339	5.998	-5.894	1.570	-1.543
49	16.498	17.539	18.598	6.040	-5.931	1.589	-1.560
50	15.857	16.863	17.889	6.081	-5.968	1.607	-1.577
51	15.242	16.216	17.209	6.123	-6.005	1.626	-1.595
52	14.654	15.596	16.558	6.164	-6.042	1.645	-1.612
53	14.091	15.003	15.934	6.205	-6.078	1.664	-1.630
54	13.551	14.434	15.335	6.246	-6.114	1.683	-1.648
55	13.034	13.889	14.762	6.287	-6.151	1.703	-1.666
56	12.539	13.366	14.212	6.328	-6.187	1.722	-1.683
57	12.065	12.866	13.685	6.369	-6.222	1.742	-1.702
58	11.610	12.386	13.180	6.409	-6.258	1.761	-1.720
59	11.175	11.925	12.695	6.449	-6.293	1.781	-1.738

Temperature Measurement

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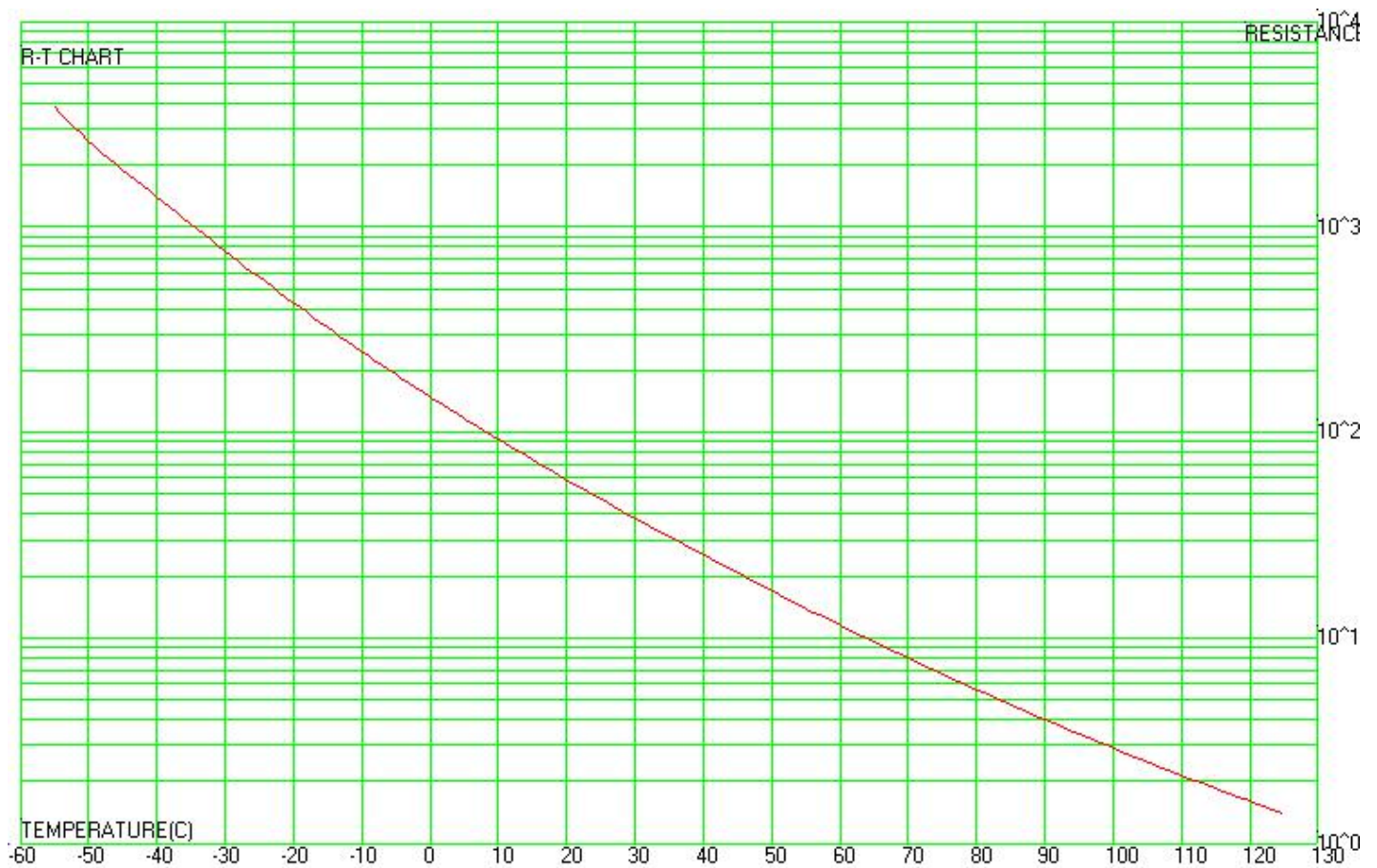


60	10.757	11.484	12.230	6.490	-6.329	1.801	-1.756
61	10.357	11.061	11.784	6.530	-6.364	1.821	-1.775
62	9.973	10.655	11.355	6.569	-6.399	1.841	-1.793
63	9.606	10.266	10.945	6.609	-6.434	1.861	-1.812
64	9.253	9.893	10.550	6.649	-6.468	1.881	-1.830
65	8.914	9.534	10.172	6.688	-6.503	1.902	-1.849
66	8.590	9.191	9.809	6.727	-6.537	1.922	-1.868
67	8.278	8.861	9.460	6.766	-6.571	1.943	-1.887
68	7.979	8.544	9.125	6.805	-6.605	1.964	-1.906
69	7.693	8.240	8.804	6.844	-6.639	1.984	-1.925
70	7.417	7.948	8.495	6.882	-6.673	2.005	-1.944
71	7.153	7.667	8.198	6.921	-6.706	2.026	-1.964
72	6.900	7.398	7.913	6.959	-6.740	2.048	-1.983
73	6.656	7.140	7.639	6.997	-6.773	2.069	-2.003
74	6.422	6.891	7.376	7.035	-6.806	2.090	-2.022
75	6.197	6.652	7.123	7.073	-6.839	2.112	-2.042
76	5.982	6.423	6.880	7.110	-6.871	2.133	-2.062
77	5.774	6.203	6.646	7.148	-6.904	2.155	-2.082
78	5.575	5.991	6.421	7.185	-6.936	2.177	-2.102
79	5.384	5.787	6.205	7.222	-6.969	2.199	-2.122
80	5.200	5.591	5.997	7.259	-7.001	2.221	-2.142
81	5.023	5.403	5.797	7.296	-7.032	2.243	-2.162
82	4.853	5.222	5.605	7.332	-7.064	2.265	-2.183
83	4.689	5.047	5.419	7.369	-7.096	2.288	-2.203
84	4.532	4.880	5.241	7.405	-7.127	2.310	-2.224
85	4.380	4.718	5.069	7.441	-7.158	2.333	-2.244
86	4.235	4.563	4.904	7.477	-7.189	2.356	-2.265
87	4.095	4.414	4.745	7.513	-7.220	2.378	-2.286
88	3.960	4.270	4.592	7.548	-7.251	2.401	-2.307
89	3.830	4.131	4.445	7.584	-7.282	2.424	-2.328
90	3.705	3.998	4.302	7.619	-7.312	2.447	-2.349
91	3.585	3.869	4.166	7.654	-7.342	2.471	-2.370
92	3.469	3.746	4.034	7.689	-7.372	2.494	-2.391
93	3.358	3.626	3.907	7.724	-7.402	2.518	-2.413
94	3.250	3.511	3.784	7.759	-7.432	2.541	-2.434
95	3.147	3.401	3.666	7.793	-7.462	2.565	-2.456
96	3.047	3.294	3.552	7.828	-7.491	2.589	-2.477
97	2.951	3.191	3.442	7.862	-7.521	2.613	-2.499
98	2.859	3.092	3.336	7.896	-7.550	2.637	-2.521
99	2.769	2.996	3.234	7.930	-7.579	2.661	-2.543
100	2.683	2.904	3.135	7.964	-7.608	2.685	-2.565
101	2.600	2.815	3.040	7.997	-7.636	2.709	-2.587
102	2.520	2.729	2.949	8.031	-7.665	2.734	-2.609

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103	2.443	2.646	2.860	8.064	-7.693	2.758	-2.631
104	2.368	2.566	2.774	8.097	-7.722	2.783	-2.654
105	2.296	2.489	2.692	8.130	-7.750	2.808	-2.676
106	2.227	2.415	2.612	8.163	-7.778	2.832	-2.699
107	2.160	2.343	2.535	8.196	-7.806	2.857	-2.721
108	2.095	2.273	2.461	8.228	-7.834	2.882	-2.744
109	2.033	2.206	2.389	8.261	-7.861	2.908	-2.767
110	1.973	2.142	2.319	8.293	-7.889	2.933	-2.790
111	1.914	2.079	2.252	8.325	-7.916	2.958	-2.813
112	1.858	2.019	2.187	8.357	-7.943	2.984	-2.836
113	1.804	1.960	2.125	8.389	-7.970	3.009	-2.859
114	1.751	1.904	2.064	8.420	-7.997	3.035	-2.882
115	1.701	1.849	2.005	8.452	-8.024	3.061	-2.906
116	1.652	1.796	1.949	8.483	-8.050	3.087	-2.929
117	1.604	1.745	1.894	8.515	-8.077	3.113	-2.953
118	1.558	1.696	1.841	8.546	-8.103	3.139	-2.976
119	1.514	1.648	1.790	8.577	-8.129	3.165	-3.000
120	1.471	1.602	1.740	8.608	-8.156	3.191	-3.024
121	1.430	1.557	1.692	8.638	-8.182	3.218	-3.047
122	1.390	1.514	1.645	8.669	-8.207	3.244	-3.071
123	1.351	1.472	1.600	8.699	-8.233	3.271	-3.095
124	1.313	1.432	1.557	8.730	-8.259	3.297	-3.119
125	1.277	1.393	1.515	8.760	-8.284	3.324	-3.144



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