

Temperature Measurement NTC Thermistor



Features

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Applications

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PART NUMBER

Example: RND 155MF52A2 333J3950

RND 155MF52A2	333	J	3950
Type	Zero Power Resistance @ 25 °C 333 = 33 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	33±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%

Temperature Measurement NTC Thermistor

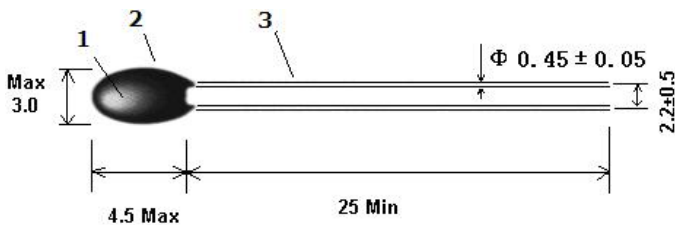
Caution

- 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 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

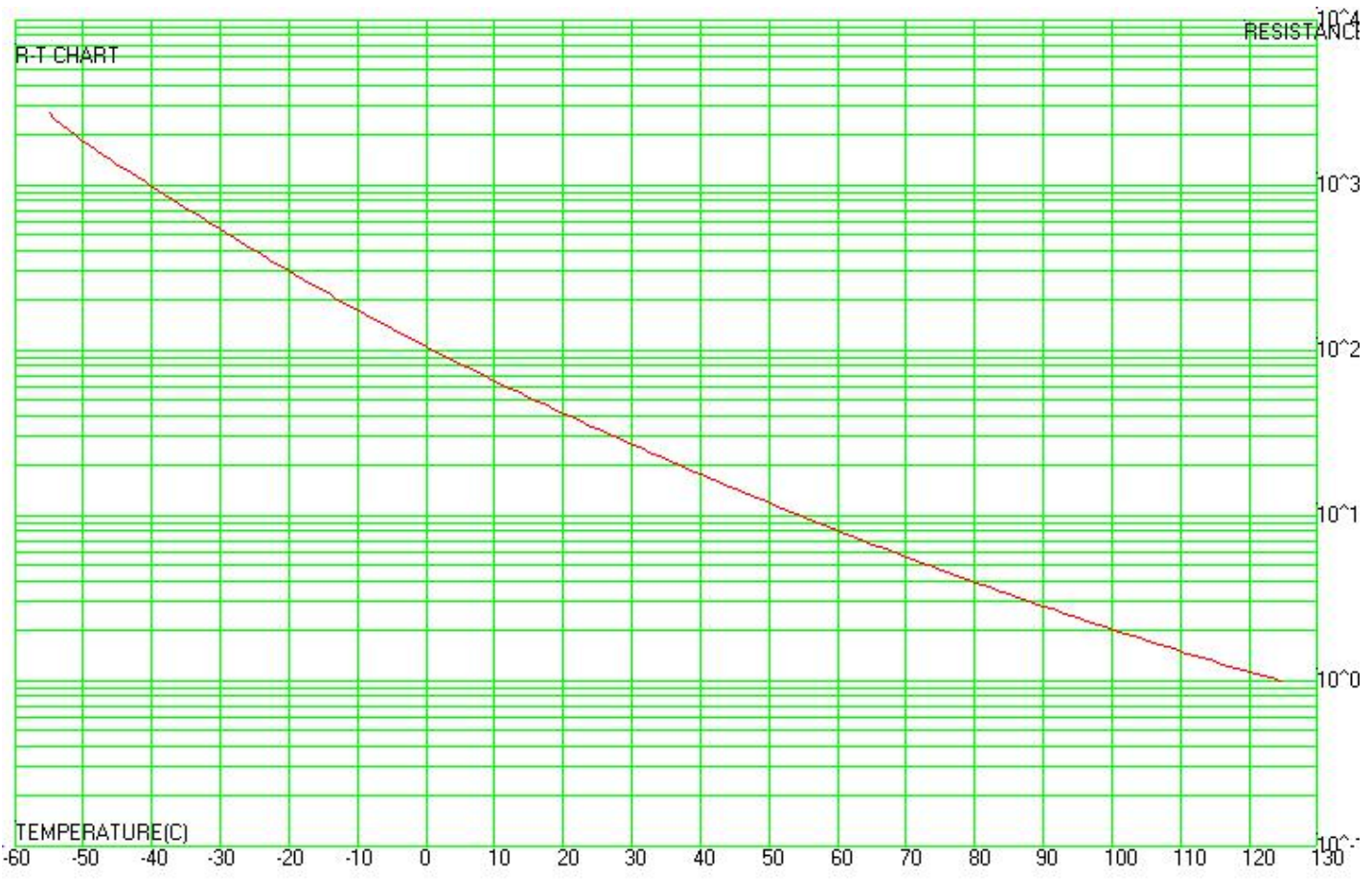
Quality Control System Certification ISO9001 : 2008 (01112Q20216R4M)
 Environment Management System Certification ISO14001:2015(01116E30085R3M)
 Environment Test Report RoHS
 CQC Safe Certification

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

R & T Chart



Temperature Measurement NTC Thermistor



R&T Table

R25=33K Ω TOLERANCE: \pm 5% B25/50=3950K TOLERANCE: \pm 1% P182-6B							
TEMP($^{\circ}$ C)	RESISTANCE(K Ω)			RESISST-TOL(%)		TEMP-TOL($^{\circ}$ C)	
	MIN	CENTER	MAX	Δ R	$-\Delta$ R	Δ T	$-\Delta$ T
-55	2453.930	2699.400	2961.990	9.727	-9.093	1.292	-1.208
-54	2256.390	2479.990	2718.930	9.634	-9.016	1.295	-1.212
-53	2084.320	2289.040	2507.570	9.547	-8.943	1.297	-1.214
-52	1932.760	2120.970	2321.690	9.463	-8.873	1.298	-1.217
-51	1797.890	1971.530	2156.530	9.383	-8.807	1.299	-1.219
-50	1676.790	1837.430	2008.430	9.306	-8.742	1.299	-1.220
-49	1567.150	1716.120	1874.550	9.231	-8.680	1.299	-1.222
-48	1467.210	1605.610	1752.670	9.159	-8.619	1.299	-1.223
-47	1375.540	1504.310	1641.020	9.088	-8.560	1.299	-1.223
-46	1291.020	1410.980	1538.220	9.018	-8.501	1.298	-1.224
-45	1212.760	1324.610	1443.150	8.949	-8.443	1.298	-1.224
-44	1140.030	1244.390	1354.910	8.881	-8.386	1.297	-1.225
-43	1072.240	1169.670	1272.760	8.814	-8.329	1.296	-1.225
-42	1008.900	1099.900	1196.110	8.747	-8.273	1.295	-1.225
-41	949.620	1034.630	1124.450	8.680	-8.217	1.294	-1.225
-40	894.049	973.500	1057.360	8.614	-8.161	1.293	-1.225
-39	841.902	916.162	994.481	8.548	-8.105	1.292	-1.225
-38	792.930	862.349	935.500	8.482	-8.049	1.291	-1.225
-37	746.914	811.814	880.147	8.417	-7.994	1.290	-1.225
-36	703.662	764.342	828.181	8.352	-7.938	1.289	-1.225
-35	662.997	719.739	779.383	8.286	-7.883	1.288	-1.225
-34	624.764	677.826	733.557	8.221	-7.828	1.287	-1.225
-33	588.815	638.442	690.521	8.157	-7.773	1.286	-1.225
-32	555.016	601.435	650.107	8.092	-7.718	1.285	-1.225
-31	523.243	566.667	612.160	8.028	-7.663	1.284	-1.225
-30	493.376	534.004	576.533	7.964	-7.608	1.283	-1.225
-29	465.305	503.323	543.087	7.900	-7.553	1.282	-1.225
-28	438.925	474.508	511.694	7.836	-7.499	1.281	-1.225
-27	414.136	447.448	482.230	7.773	-7.444	1.280	-1.225

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-26	390.846	422.037	454.578	7.710	-7.390	1.279	-1.225
-25	368.965	398.178	428.629	7.647	-7.336	1.277	-1.225
-24	348.407	375.775	404.279	7.585	-7.282	1.276	-1.225
-23	329.094	354.740	381.429	7.523	-7.229	1.275	-1.225
-22	310.949	334.989	359.986	7.461	-7.176	1.274	-1.225
-21	293.901	316.443	339.862	7.400	-7.123	1.273	-1.225
-20	277.881	299.025	320.973	7.339	-7.070	1.272	-1.225
-19	262.827	282.666	303.243	7.279	-7.018	1.271	-1.225
-18	248.677	267.298	286.596	7.219	-6.966	1.270	-1.225
-17	235.374	252.859	270.964	7.160	-6.914	1.268	-1.225
-16	222.866	239.289	256.281	7.100	-6.863	1.267	-1.225
-15	211.101	226.534	242.487	7.042	-6.812	1.266	-1.224
-14	200.033	214.540	229.523	6.984	-6.761	1.264	-1.224
-13	189.617	203.259	217.337	6.926	-6.711	1.263	-1.224
-12	179.812	192.645	205.877	6.868	-6.661	1.261	-1.223
-11	170.578	182.655	195.098	6.812	-6.611	1.260	-1.223
-10	161.880	173.250	184.954	6.755	-6.562	1.258	-1.222
-9	153.683	164.391	175.404	6.699	-6.513	1.256	-1.221
-8	145.956	156.044	166.411	6.644	-6.464	1.255	-1.221
-7	138.668	148.176	157.939	6.588	-6.416	1.253	-1.220
-6	131.793	140.756	149.953	6.534	-6.368	1.251	-1.219
-5	125.303	133.756	142.424	6.479	-6.320	1.249	-1.218
-4	119.174	127.150	135.321	6.425	-6.272	1.247	-1.217
-3	113.385	120.913	128.618	6.372	-6.225	1.244	-1.216
-2	107.914	115.021	122.289	6.319	-6.178	1.242	-1.215
-1	102.741	109.453	116.312	6.266	-6.132	1.240	-1.213
0	97.877	104.220	110.697	6.214	-6.086	1.237	-1.212
1	93.217	99.210	105.323	6.162	-6.039	1.235	-1.210
2	88.834	94.498	100.273	6.110	-5.994	1.232	-1.209
3	84.682	90.038	95.494	6.059	-5.948	1.230	-1.207
4	80.749	85.815	90.971	6.008	-5.903	1.227	-1.205
5	77.020	81.813	86.687	5.957	-5.858	1.224	-1.203
6	73.484	78.020	82.629	5.907	-5.813	1.221	-1.201
7	70.130	74.424	78.783	5.857	-5.769	1.218	-1.199
8	66.947	71.012	75.137	5.807	-5.725	1.214	-1.197
9	63.925	67.775	71.678	5.758	-5.681	1.211	-1.195
10	61.054	64.702	68.396	5.709	-5.637	1.207	-1.192
11	58.327	61.783	65.281	5.660	-5.593	1.204	-1.190
12	55.735	59.011	62.323	5.612	-5.550	1.200	-1.187
13	53.271	56.376	59.513	5.563	-5.507	1.196	-1.184
14	50.927	53.871	56.843	5.515	-5.464	1.192	-1.181
15	48.698	51.489	54.305	5.468	-5.421	1.187	-1.177
16	46.575	49.223	51.891	5.420	-5.379	1.183	-1.174

Temperature Measurement

NTC Thermistor



17	44.555	47.067	49.596	5.373	-5.336	1.178	-1.170
18	42.631	45.014	47.412	5.326	-5.294	1.172	-1.165
19	40.798	43.060	45.333	5.279	-5.252	1.166	-1.160
20	39.052	41.199	43.355	5.233	-5.210	1.159	-1.154
21	37.388	39.425	41.470	5.186	-5.168	1.150	-1.146
22	35.801	37.736	39.676	5.140	-5.127	1.138	-1.135
23	34.288	36.125	37.966	5.095	-5.085	1.118	-1.116
24	32.844	34.589	36.336	5.049	-5.044	1.069	-1.068
25	31.349	33.000	34.650	5.000	-5.000	1.066	-1.066
26	30.130	31.728	33.328	5.041	-5.037	1.287	-1.286
27	28.852	30.395	31.941	5.086	-5.078	1.245	-1.243
28	27.633	29.123	30.618	5.131	-5.118	1.244	-1.241
29	26.470	27.910	29.354	5.176	-5.159	1.252	-1.248
30	25.360	26.751	28.147	5.220	-5.199	1.264	-1.259
31	24.301	25.644	26.994	5.265	-5.239	1.277	-1.271
32	23.289	24.587	25.893	5.309	-5.279	1.292	-1.285
33	22.324	23.578	24.840	5.353	-5.318	1.308	-1.299
34	21.402	22.613	23.834	5.397	-5.358	1.324	-1.314
35	20.521	21.692	22.872	5.441	-5.397	1.340	-1.329
36	19.680	20.811	21.953	5.485	-5.436	1.357	-1.345
37	18.876	19.969	21.073	5.528	-5.475	1.374	-1.360
38	18.108	19.165	20.232	5.572	-5.514	1.391	-1.376
39	17.373	18.395	19.428	5.615	-5.553	1.408	-1.392
40	16.672	17.659	18.658	5.658	-5.592	1.425	-1.409
41	16.001	16.955	17.922	5.701	-5.630	1.443	-1.425
42	15.359	16.282	17.217	5.744	-5.668	1.461	-1.441
43	14.745	15.638	16.543	5.787	-5.706	1.479	-1.458
44	14.159	15.022	15.897	5.829	-5.744	1.497	-1.475
45	13.597	14.432	15.279	5.871	-5.782	1.515	-1.492
46	13.060	13.867	14.687	5.914	-5.820	1.533	-1.509
47	12.546	13.327	14.121	5.956	-5.857	1.551	-1.526
48	12.054	12.810	13.578	5.998	-5.894	1.570	-1.543
49	11.584	12.314	13.058	6.040	-5.931	1.589	-1.560
50	11.133	11.840	12.560	6.081	-5.968	1.607	-1.577
51	10.702	11.386	12.083	6.123	-6.005	1.626	-1.595
52	10.289	10.950	11.626	6.164	-6.042	1.645	-1.612
53	9.893	10.534	11.187	6.205	-6.078	1.664	-1.630
54	9.514	10.134	10.767	6.246	-6.114	1.683	-1.648
55	9.152	9.751	10.365	6.287	-6.151	1.703	-1.666
56	8.804	9.385	9.979	6.328	-6.187	1.722	-1.683
57	8.471	9.033	9.609	6.369	-6.222	1.742	-1.702
58	8.152	8.696	9.254	6.409	-6.258	1.761	-1.720
59	7.846	8.373	8.913	6.449	-6.293	1.781	-1.738

Temperature Measurement

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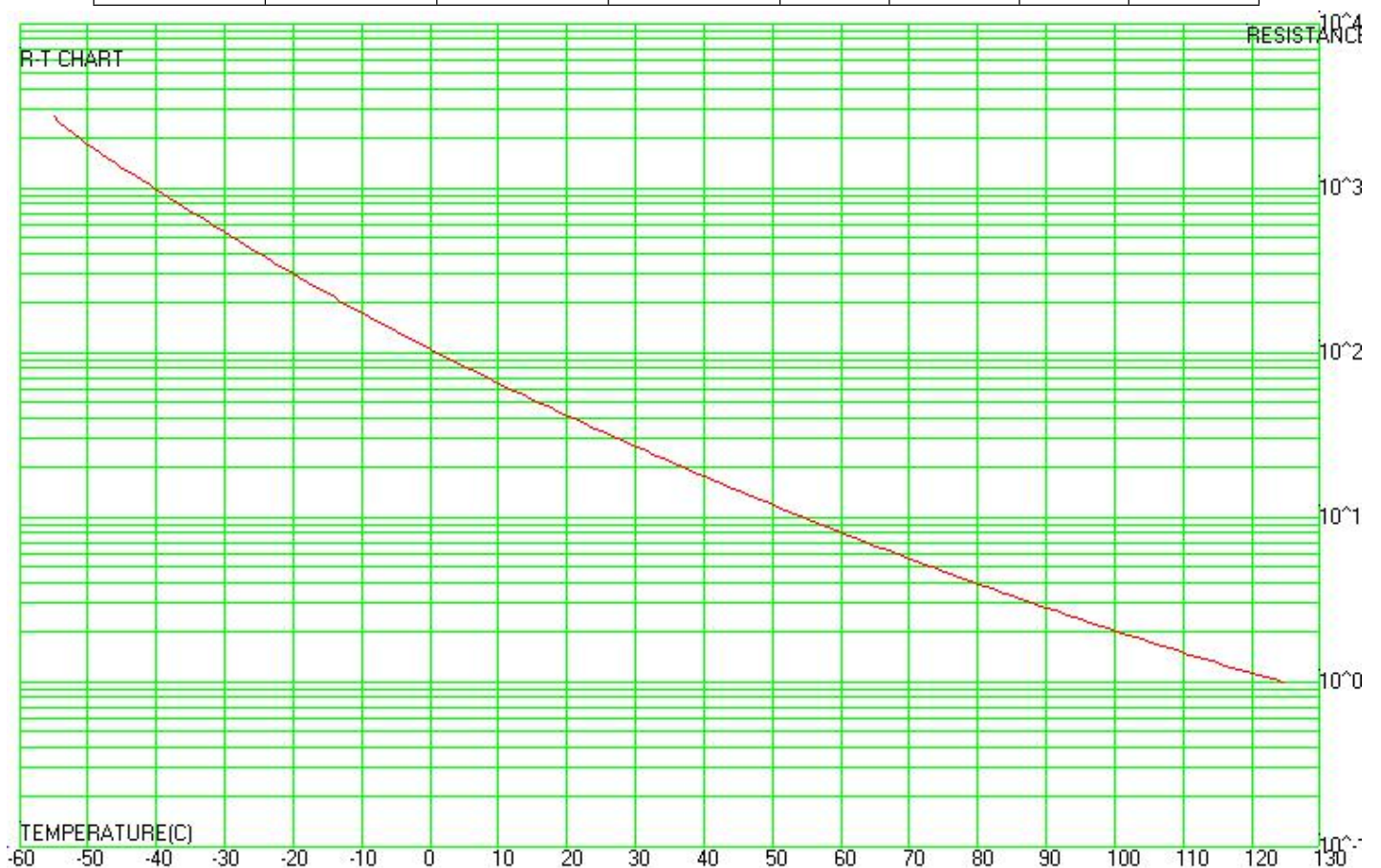


60	7.553	8.063	8.587	6.490	-6.329	1.801	-1.756
61	7.272	7.766	8.273	6.530	-6.364	1.821	-1.775
62	7.002	7.481	7.973	6.569	-6.399	1.841	-1.793
63	6.744	7.208	7.684	6.609	-6.434	1.861	-1.812
64	6.496	6.946	7.408	6.649	-6.468	1.881	-1.830
65	6.259	6.694	7.142	6.688	-6.503	1.902	-1.849
66	6.031	6.453	6.887	6.727	-6.537	1.922	-1.868
67	5.812	6.221	6.642	6.766	-6.571	1.943	-1.887
68	5.602	5.999	6.407	6.805	-6.605	1.964	-1.906
69	5.401	5.785	6.181	6.844	-6.639	1.984	-1.925
70	5.208	5.580	5.964	6.882	-6.673	2.005	-1.944
71	5.022	5.383	5.756	6.921	-6.706	2.026	-1.964
72	4.844	5.194	5.556	6.959	-6.740	2.048	-1.983
73	4.673	5.013	5.364	6.997	-6.773	2.069	-2.003
74	4.509	4.838	5.179	7.035	-6.806	2.090	-2.022
75	4.351	4.671	5.001	7.073	-6.839	2.112	-2.042
76	4.200	4.510	4.830	7.110	-6.871	2.133	-2.062
77	4.054	4.355	4.666	7.148	-6.904	2.155	-2.082
78	3.914	4.206	4.508	7.185	-6.936	2.177	-2.102
79	3.780	4.063	4.357	7.222	-6.969	2.199	-2.122
80	3.651	3.926	4.211	7.259	-7.001	2.221	-2.142
81	3.526	3.793	4.070	7.296	-7.032	2.243	-2.162
82	3.407	3.666	3.935	7.332	-7.064	2.265	-2.183
83	3.292	3.544	3.805	7.369	-7.096	2.288	-2.203
84	3.182	3.426	3.680	7.405	-7.127	2.310	-2.224
85	3.076	3.313	3.559	7.441	-7.158	2.333	-2.244
86	2.973	3.204	3.443	7.477	-7.189	2.356	-2.265
87	2.875	3.099	3.332	7.513	-7.220	2.378	-2.286
88	2.780	2.998	3.224	7.548	-7.251	2.401	-2.307
89	2.689	2.900	3.120	7.584	-7.282	2.424	-2.328
90	2.602	2.807	3.021	7.619	-7.312	2.447	-2.349
91	2.517	2.717	2.925	7.654	-7.342	2.471	-2.370
92	2.436	2.630	2.832	7.689	-7.372	2.494	-2.391
93	2.358	2.546	2.743	7.724	-7.402	2.518	-2.413
94	2.282	2.465	2.657	7.759	-7.432	2.541	-2.434
95	2.209	2.388	2.574	7.793	-7.462	2.565	-2.456
96	2.139	2.313	2.494	7.828	-7.491	2.589	-2.477
97	2.072	2.240	2.417	7.862	-7.521	2.613	-2.499
98	2.007	2.171	2.342	7.896	-7.550	2.637	-2.521
99	1.944	2.104	2.271	7.930	-7.579	2.661	-2.543
100	1.884	2.039	2.201	7.964	-7.608	2.685	-2.565
101	1.825	1.976	2.135	7.997	-7.636	2.709	-2.587
102	1.769	1.916	2.070	8.031	-7.665	2.734	-2.609

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103	1.715	1.858	2.008	8.064	-7.693	2.758	-2.631
104	1.663	1.802	1.948	8.097	-7.722	2.783	-2.654
105	1.612	1.748	1.890	8.130	-7.750	2.808	-2.676
106	1.563	1.695	1.834	8.163	-7.778	2.832	-2.699
107	1.516	1.645	1.780	8.196	-7.806	2.857	-2.721
108	1.471	1.596	1.728	8.228	-7.834	2.882	-2.744
109	1.427	1.549	1.677	8.261	-7.861	2.908	-2.767
110	1.385	1.504	1.628	8.293	-7.889	2.933	-2.790
111	1.344	1.460	1.581	8.325	-7.916	2.958	-2.813
112	1.305	1.417	1.536	8.357	-7.943	2.984	-2.836
113	1.266	1.376	1.492	8.389	-7.970	3.009	-2.859
114	1.230	1.336	1.449	8.420	-7.997	3.035	-2.882
115	1.194	1.298	1.408	8.452	-8.024	3.061	-2.906
116	1.160	1.261	1.368	8.483	-8.050	3.087	-2.929
117	1.126	1.225	1.330	8.515	-8.077	3.113	-2.953
118	1.094	1.191	1.292	8.546	-8.103	3.139	-2.976
119	1.063	1.157	1.256	8.577	-8.129	3.165	-3.000
120	1.033	1.125	1.222	8.608	-8.156	3.191	-3.024
121	1.004	1.093	1.188	8.638	-8.182	3.218	-3.047
122	0.976	1.063	1.155	8.669	-8.207	3.244	-3.071
123	0.948	1.034	1.124	8.699	-8.233	3.271	-3.095
124	0.922	1.005	1.093	8.730	-8.259	3.297	-3.119
125	0.897	0.978	1.063	8.760	-8.284	3.324	-3.144



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