

## Specification of Glass Thermistor

PART NUMBER: **TT2-10KC3-13**

No. of pages: 9

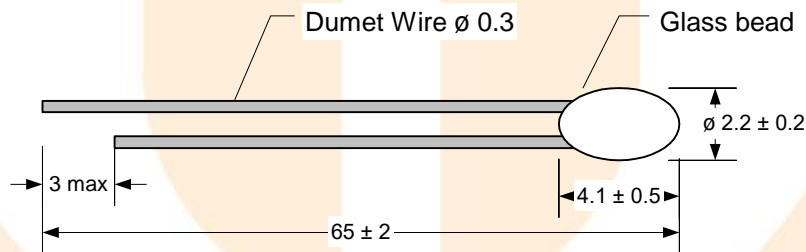
Date: 19.02.2019

Revision: 00

FEATURES:

Element	Glass NTC Thermistor
No-load resistance at 25°C	10 000 Ω
Tolerance at 25°C	± 1%
Beta(25/85) Constant	3 977K ± 1%
Operating temperature range	-40°C ÷ 300°C

DRAWING:



UNITS: [mm]

# TEWA TEMPERATURE SENSORS

HIGH PRECISION NTC THERMISTORS AND TEMPERATURE SENSORS

T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(°C)
-40	292.3	305.6	319.4	4.51%	0.67
-39	275.8	288.2	301.0	4.45%	0.67
-38	260.26	271.7	283.7	4.39%	0.66
-37	245.57	256.22	267.32	4.33%	0.66
-36	231.70	241.61	251.93	4.27%	0.65
-35	218.63	227.85	237.43	4.21%	0.65
-34	206.30	214.88	223.79	4.15%	0.64
-33	194.69	202.66	210.94	4.09%	0.63
-32	183.74	191.15	198.85	4.02%	0.63
-31	173.43	180.32	187.47	3.96%	0.62
-30	163.71	170.12	176.76	3.90%	0.62
-29	154.56	160.51	166.68	3.84%	0.61
-28	145.94	151.47	157.20	3.78%	0.61
-27	137.82	142.97	148.29	3.72%	0.60
-26	130.18	134.96	139.90	3.66%	0.60
-25	122.98	127.42	132.01	3.60%	0.59
-24	116.20	120.33	124.59	3.54%	0.58
-23	109.81	113.65	117.61	3.48%	0.58
-22	103.80	107.36	111.04	3.43%	0.57
-21	98.13	101.45	104.86	3.37%	0.57
-20	92.80	95.88	99.05	3.31%	0.56
-19	87.77	90.64	93.58	3.25%	0.55
-18	83.04	85.70	88.44	3.19%	0.55
-17	78.58	81.05	83.60	3.14%	0.54
-16	74.38	76.68	79.04	3.08%	0.53
-15	70.42	72.56	74.75	3.02%	0.53
-14	66.69	68.67	70.71	2.96%	0.52
-13	63.17	65.01	66.91	2.91%	0.52
-12	59.85	61.57	63.32	2.85%	0.51
-11	56.73	58.32	59.95	2.80%	0.50
-10	53.78	55.26	56.77	2.74%	0.50
-9	50.99	52.37	53.78	2.69%	0.49
-8	48.37	49.65	50.95	2.63%	0.48
-7	45.89	47.08	48.29	2.58%	0.48
-6	43.55	44.66	45.78	2.52%	0.47
-5	41.34	42.37	43.42	2.47%	0.46
-4	39.26	40.21	41.18	2.42%	0.45
-3	37.29	38.18	39.08	2.36%	0.45
-2	35.43	36.25	37.09	2.31%	0.44
-1	33.67	34.44	35.21	2.26%	0.43
0	32.01	32.72	33.44	2.20%	0.43
1	30.44	31.10	31.77	2.15%	0.42
2	28.95	29.57	30.19	2.10%	0.41

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3	27.55	28.12	28.69	2.05%	0.40
4	26.22	26.75	27.28	2.00%	0.40
5	24.96	25.45	25.95	1.95%	0.39
6	23.77	24.22	24.68	1.90%	0.38
7	22.64	23.06	23.49	1.85%	0.37
8	21.58	21.97	22.36	1.80%	0.37
9	20.56	20.93	21.29	1.75%	0.36
10	19.605	19.940	20.279	1.70%	0.35
11	18.696	19.006	19.320	1.65%	0.34
12	17.834	18.122	18.412	1.60%	0.34
13	17.017	17.283	17.552	1.55%	0.33
14	16.242	16.488	16.736	1.51%	0.32
15	15.506	15.734	15.963	1.46%	0.31
16	14.808	15.018	15.230	1.41%	0.30
17	14.145	14.339	14.535	1.36%	0.29
18	13.515	13.695	13.875	1.32%	0.29
19	12.917	13.082	13.249	1.27%	0.28
20	12.349	12.501	12.654	1.23%	0.27
21	11.808	11.949	12.090	1.18%	0.26
22	11.295	11.424	11.554	1.13%	0.25
23	10.807	10.925	11.044	1.09%	0.24
24	10.342	10.451	10.560	1.04%	0.24
25	9.900	10.000	10.100	1.00%	0.23
26	9.471	9.571	9.671	1.04%	0.24
27	9.063	9.163	9.262	1.09%	0.25
28	8.675	8.774	8.873	1.13%	0.26
29	8.305	8.404	8.503	1.18%	0.27
30	7.954	8.051	8.150	1.22%	0.29
31	7.619	7.716	7.813	1.26%	0.30
32	7.300	7.396	7.492	1.31%	0.31
33	6.996	7.091	7.187	1.35%	0.32
34	6.707	6.801	6.895	1.39%	0.33
35	6.431	6.523	6.617	1.43%	0.35
36	6.168	6.259	6.351	1.47%	0.36
37	5.917	6.007	6.098	1.52%	0.37
38	5.677	5.766	5.856	1.56%	0.38
39	5.449	5.537	5.625	1.60%	0.40
40	5.231	5.317	5.405	1.64%	0.41
41	5.023	5.108	5.194	1.68%	0.42
42	4.824	4.908	4.992	1.72%	0.43
43	4.635	4.717	4.800	1.76%	0.45
44	4.453	4.534	4.616	1.80%	0.46
45	4.280	4.359	4.440	1.84%	0.47
46	4.115	4.192	4.271	1.88%	0.49

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47	3.956	4.033	4.110	1.92%	0.50
48	3.805	3.880	3.956	1.96%	0.51
49	3.660	3.734	3.809	2.00%	0.53
50	3.522	3.594	3.667	2.04%	0.54
51	3.389	3.460	3.532	2.08%	0.55
52	3.263	3.332	3.402	2.12%	0.57
53	3.141	3.209	3.278	2.15%	0.58
54	3.025	3.092	3.159	2.19%	0.59
55	2.914	2.979	3.045	2.23%	0.61
56	2.807	2.871	2.936	2.27%	0.62
57	2.705	2.767	2.831	2.31%	0.64
58	2.607	2.668	2.731	2.34%	0.65
59	2.513	2.573	2.634	2.38%	0.66
60	2.423	2.482	2.542	2.42%	0.68
61	2.337	2.394	2.453	2.45%	0.69
62	2.254	2.310	2.368	2.49%	0.71
63	2.175	2.230	2.286	2.53%	0.72
64	2.098	2.152	2.207	2.56%	0.74
65	2.025	2.078	2.132	2.60%	0.75
66	1.955	2.007	2.060	2.64%	0.77
67	1.888	1.938	1.990	2.67%	0.78
68	1.823	1.872	1.923	2.71%	0.79
69	1.761	1.809	1.859	2.74%	0.81
70	1.701	1.748	1.797	2.78%	0.82
71	1.644	1.690	1.737	2.81%	0.84
72	1.588	1.634	1.680	2.85%	0.85
73	1.535	1.580	1.625	2.88%	0.87
74	1.484	1.528	1.572	2.92%	0.89
75	1.4354	1.478	1.521	2.95%	0.90
76	1.3882	1.4298	1.472	2.98%	0.92
77	1.3429	1.3835	1.4253	3.02%	0.93
78	1.2992	1.3390	1.3799	3.05%	0.95
79	1.2573	1.2962	1.3362	3.08%	0.96
80	1.2168	1.2549	1.2940	3.12%	0.98
81	1.1779	1.2152	1.2535	3.15%	0.99
82	1.1405	1.1769	1.2144	3.18%	1.01
83	1.1044	1.1400	1.1767	3.22%	1.03
84	1.0697	1.1045	1.1404	3.25%	1.04
85	1.0362	1.0703	1.1054	3.28%	1.06
86	1.0039	1.0373	1.0717	3.31%	1.07
87	0.9729	1.0055	1.0392	3.35%	1.09
88	0.9429	0.9749	1.0078	3.38%	1.11
89	0.9140	0.9453	0.9776	3.41%	1.12
90	0.8862	0.9168	0.9484	3.44%	1.14

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91	0.8594	0.8893	0.9202	3.47%	1.16
92	0.8335	0.8628	0.8930	3.51%	1.17
93	0.8085	0.8372	0.8668	3.54%	1.19
94	0.7844	0.8125	0.8414	3.57%	1.21
95	0.7611	0.7886	0.8170	3.60%	1.22
96	0.7387	0.7656	0.7934	3.63%	1.24
97	0.7170	0.7434	0.7706	3.66%	1.26
98	0.6961	0.7219	0.7485	3.69%	1.28
99	0.6759	0.7011	0.7272	3.72%	1.29
100	0.6564	0.6811	0.7067	3.75%	1.31
101	0.6376	0.6618	0.6868	3.78%	1.33
102	0.6194	0.6431	0.6676	3.81%	1.35
103	0.6018	0.6250	0.6490	3.84%	1.36
104	0.5848	0.6075	0.6310	3.87%	1.38
105	0.5684	0.5906	0.6137	3.90%	1.40
106	0.5525	0.5743	0.5969	3.93%	1.42
107	0.5372	0.5585	0.5806	3.96%	1.43
108	0.5224	0.5432	0.5649	3.99%	1.45
109	0.5080	0.5285	0.5497	4.01%	1.47
110	0.4941	0.5142	0.5350	4.04%	1.49
111	0.4807	0.5003	0.5207	4.07%	1.51
112	0.4677	0.4869	0.5069	4.10%	1.52
113	0.4552	0.4740	0.4935	4.13%	1.54
114	0.4430	0.4614	0.4806	4.16%	1.56
115	0.4312	0.4493	0.4681	4.18%	1.58
116	0.4198	0.4375	0.4560	4.21%	1.60
117	0.4088	0.4261	0.4442	4.24%	1.62
118	0.3981	0.4151	0.4328	4.27%	1.64
119	0.3877	0.4044	0.4218	4.29%	1.65
120	0.3777	0.3941	0.4111	4.32%	1.67
121	0.3680	0.3840	0.4007	4.35%	1.69
122	0.3586	0.3743	0.3907	4.37%	1.71
123	0.3494	0.3649	0.3809	4.40%	1.73
124	0.3406	0.3557	0.3715	4.43%	1.75
125	0.3320	0.3468	0.3623	4.45%	1.77
126	0.3237	0.3383	0.3534	4.48%	1.79
127	0.3157	0.3299	0.3448	4.51%	1.81
128	0.3078	0.3218	0.3364	4.53%	1.83
129	0.3003	0.3140	0.3283	4.56%	1.85
130	0.2929	0.3064	0.3204	4.58%	1.87
131	0.2858	0.2990	0.3127	4.61%	1.89
132	0.2788	0.2918	0.3053	4.63%	1.91
133	0.2721	0.2848	0.2981	4.66%	1.93
134	0.2656	0.2781	0.2911	4.68%	1.95

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135	0.2593	0.2715	0.2843	4.71%	1.97
136	0.2531	0.2651	0.2777	4.73%	1.99
137	0.2471	0.2589	0.2712	4.76%	2.01
138	0.2413	0.2529	0.2650	4.78%	2.03
141	0.2249	0.2359	0.2473	4.9%	2.09
142	0.2197	0.2305	0.2417	4.9%	2.11
143	0.2147	0.2253	0.2363	4.9%	2.13
144	0.2098	0.2202	0.2311	4.9%	2.15
145	0.2051	0.2153	0.2259	5.0%	2.17
146	0.2005	0.2105	0.2209	5.0%	2.19
147	0.1960	0.2058	0.2161	5.0%	2.21
148	0.1916	0.2013	0.2114	5.0%	2.23
149	0.1874	0.1969	0.2068	5.0%	2.26
150	0.1833	0.1926	0.2023	5.1%	2.28
151	0.1792	0.1884	0.1980	5.1%	2.30
152	0.1753	0.1843	0.1937	5.1%	2.32
153	0.1715	0.1804	0.1896	5.1%	2.34
154	0.1678	0.1765	0.1856	5.2%	2.36
155	0.1642	0.1727	0.1817	5.2%	2.38
156	0.1607	0.1691	0.1779	5.2%	2.41
157	0.1573	0.1655	0.1742	5.2%	2.43
158	0.1540	0.1621	0.1706	5.3%	2.45
159	0.1507	0.1587	0.1670	5.3%	2.47
160	0.1476	0.1554	0.1636	5.3%	2.49
161	0.1445	0.1522	0.1603	5.3%	2.52
162	0.1415	0.1490	0.1570	5.3%	2.54
163	0.1386	0.1460	0.1538	5.4%	2.56
164	0.1357	0.1430	0.1507	5.4%	2.58
165	0.1329	0.1401	0.1477	5.4%	2.61
166	0.1302	0.1373	0.1448	5.4%	2.63
167	0.1276	0.1346	0.1419	5.4%	2.65
168	0.1250	0.1319	0.1391	5.5%	2.67
169	0.1225	0.1292	0.1363	5.5%	2.70
170	0.1201	0.1267	0.1337	5.5%	2.72
171	0.1177	0.1242	0.1311	5.5%	2.74
172	0.1153	0.1218	0.1285	5.6%	2.76
173	0.1131	0.1194	0.1260	5.6%	2.79
174	0.1109	0.1171	0.1236	5.6%	2.81
175	0.1087	0.1148	0.1213	5.6%	2.83
176	0.1066	0.1126	0.1189	5.6%	2.86
177	0.1045	0.1104	0.1167	5.7%	2.88
178	0.1025	0.1083	0.1145	5.7%	2.90
179	0.1005	0.1063	0.1123	5.7%	2.93
180	0.0986	0.1043	0.1102	5.7%	2.95

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181	0.0968	0.1023	0.1082	5.7%	2.97
182	0.0949	0.1004	0.1062	5.8%	3.00
183	0.0931	0.0985	0.1042	5.8%	3.02
184	0.0914	0.0967	0.1023	5.8%	3.05
185	0.0897	0.0949	0.1004	5.8%	3.07
186	0.0880	0.0932	0.0986	5.8%	3.09
187	0.0864	0.0915	0.0968	5.9%	3.12
188	0.0848	0.0898	0.0951	5.9%	3.14
189	0.0832	0.0882	0.0933	5.9%	3.17
190	0.0817	0.0866	0.0917	5.9%	3.19
191	0.0802	0.0850	0.0900	5.9%	3.22
192	0.0788	0.0835	0.0884	6.0%	3.24
193	0.0774	0.0820	0.0869	6.0%	3.26
194	0.0760	0.0805	0.0853	6.0%	3.29
195	0.0746	0.0791	0.0838	6.0%	3.31
196	0.0733	0.0777	0.0824	6.0%	3.34
197	0.0720	0.0763	0.0809	6.0%	3.36
198	0.0707	0.0750	0.0795	6.1%	3.39
201	0.0670	0.0712	0.0755	6.1%	3.46
202	0.0659	0.0699	0.0742	6.1%	3.49
203	0.0647	0.0687	0.0730	6.2%	3.51
204	0.0636	0.0676	0.0717	6.2%	3.54
205	0.0625	0.0664	0.0705	6.2%	3.57
206	0.0615	0.0653	0.0693	6.2%	3.59
207	0.0604	0.0642	0.0682	6.2%	3.62
208	0.0594	0.0631	0.0670	6.2%	3.64
209	0.0584	0.0620	0.0659	6.3%	3.67
210	0.0574	0.0610	0.0648	6.3%	3.69
211	0.0564	0.0600	0.0638	6.3%	3.72
212	0.0555	0.0590	0.0627	6.3%	3.75
213	0.0546	0.0580	0.0617	6.3%	3.77
214	0.0536	0.0571	0.0607	6.4%	3.80
215	0.0528	0.0561	0.0597	6.4%	3.82
216	0.0519	0.0552	0.0587	6.4%	3.85
217	0.0510	0.0543	0.0578	6.4%	3.88
218	0.0502	0.0534	0.0569	6.4%	3.90
219	0.0494	0.0526	0.0560	6.4%	3.93
220	0.0486	0.0517	0.0551	6.5%	3.96
221	0.0478	0.0509	0.0542	6.5%	3.98
222	0.0470	0.0501	0.0533	6.5%	4.01
223	0.0463	0.0493	0.0525	6.5%	4.04
224	0.0455	0.0485	0.0517	6.5%	4.07
225	0.0448	0.0477	0.0509	6.5%	4.09
226	0.0441	0.0470	0.0501	6.6%	4.12

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227	0.0434	0.0463	0.0493	6.6%	4.15
228	0.0427	0.0455	0.0485	6.6%	4.17
229	0.0420	0.0448	0.0478	6.6%	4.20
230	0.0414	0.0441	0.0471	6.6%	4.23
231	0.0407	0.0435	0.0463	6.6%	4.26
232	0.0401	0.0428	0.0456	6.7%	4.28
233	0.0395	0.0421	0.0449	6.7%	4.31
234	0.0389	0.0415	0.0443	6.7%	4.34
235	0.0383	0.0409	0.0436	6.7%	4.37
236	0.0377	0.0402	0.0429	6.7%	4.39
237	0.0371	0.0396	0.0423	6.7%	4.42
238	0.0366	0.0390	0.0417	6.8%	4.45
239	0.0360	0.0385	0.0411	6.8%	4.48
240	0.0355	0.0379	0.0405	6.8%	4.51
241	0.0349	0.0373	0.0399	6.8%	4.54
242	0.0344	0.0368	0.0393	6.8%	4.56
243	0.0339	0.0362	0.0387	6.8%	4.59
244	0.0334	0.0357	0.0381	6.9%	4.62
245	0.0329	0.0352	0.0376	6.9%	4.65
246	0.0324	0.0347	0.0370	6.9%	4.68
247	0.0319	0.0342	0.0365	6.9%	4.71
248	0.0315	0.0337	0.0360	6.9%	4.74
249	0.0310	0.0332	0.0355	6.9%	4.76
250	0.0306	0.0327	0.0350	6.9%	4.79
251	0.0301	0.0322	0.0345	7.0%	4.82
252	0.0297	0.0318	0.0340	7.0%	4.85
253	0.0293	0.0313	0.0335	7.0%	4.88
254	0.0289	0.0309	0.0331	7.0%	4.91
255	0.0285	0.0305	0.0326	7.0%	4.94
256	0.0281	0.0300	0.0321	7.0%	4.97
257	0.0277	0.0296	0.0317	7.1%	5.00
258	0.0273	0.0292	0.0313	7.1%	5.03
259	0.0269	0.0288	0.0308	7.1%	5.06
261	0.0262	0.0280	0.0300	7.1%	5.12
262	0.0258	0.0276	0.0296	7.1%	5.15
263	0.0254	0.0273	0.0292	7.1%	5.18
264	0.0251	0.0269	0.0288	7.2%	5.21
265	0.0248	0.0265	0.0284	7.2%	5.24
266	0.0244	0.0262	0.0281	7.2%	5.27
267	0.0241	0.0258	0.0277	7.2%	5.30
268	0.0238	0.0255	0.0273	7.2%	5.33
269	0.0235	0.0252	0.0270	7.2%	5.36
270	0.0231	0.0248	0.0266	7.2%	5.39
271	0.0228	0.0245	0.0263	7.3%	5.42

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# TEWA TEMPERATURE SENSORS

HIGH PRECISION NTC THERMISTORS AND TEMPERATURE SENSORS

272	0.0225	0.0242	0.0259	7.3%	5.45
273	0.0222	0.0239	0.0256	7.3%	5.48
274	0.0220	0.0236	0.0253	7.3%	5.51
275	0.0217	0.0233	0.0250	7.3%	5.54
276	0.0214	0.0230	0.0246	7.3%	5.57
277	0.0211	0.0227	0.0243	7.3%	5.61
278	0.0209	0.0224	0.0240	7.4%	5.64
279	0.0206	0.0221	0.0237	7.4%	5.67
280	0.0203	0.0218	0.0234	7.4%	5.70
281	0.0201	0.0216	0.0232	7.4%	5.73
282	0.0198	0.0213	0.0229	7.4%	5.76
283	0.0196	0.0210	0.0226	7.4%	5.79
284	0.0193	0.0208	0.0223	7.4%	5.83
285	0.0191	0.0205	0.0221	7.4%	5.86
286	0.0189	0.0203	0.0218	7.5%	5.89
287	0.0187	0.0200	0.0215	7.5%	5.92
288	0.0184	0.0198	0.0213	7.5%	5.95
289	0.0182	0.0196	0.0210	7.5%	5.99
290	0.0180	0.0193	0.0208	7.5%	6.02
291	0.0178	0.0191	0.0206	7.5%	6.05
292	0.0176	0.0189	0.0203	7.5%	6.08
293	0.0174	0.0187	0.0201	7.5%	6.11
294	0.0172	0.0185	0.0199	7.6%	6.15
295	0.0170	0.0183	0.0197	7.6%	6.18
296	0.0168	0.0181	0.0194	7.6%	6.21
297	0.0166	0.0179	0.0192	7.6%	6.25
298	0.0164	0.0177	0.0190	7.6%	6.28
299	0.0162	0.0175	0.0188	7.6%	6.31
300	0.0161	0.0173	0.0186	7.6%	6.34

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