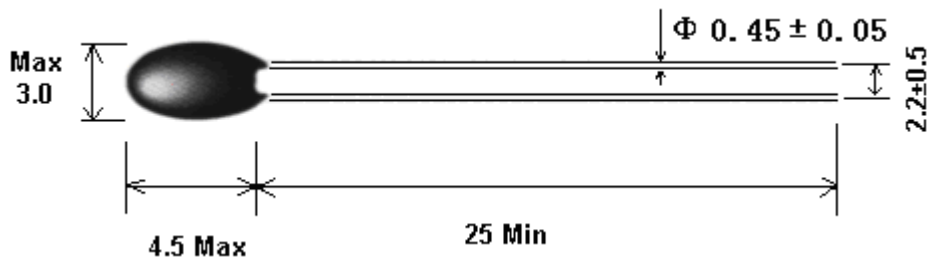


APPROVAL SHEET**CUSTOMER** Transfer Multisort Elektronik Sp. z o.o.**PART NAME** Pearl-Shape Temp Measurement NTC Thermistor**PART NUMBER** PVEO/J R/4M4/3'**DATE** _____**CONFIRM****CLIENT**Quality
Dep.: _____
Production
Dep.: _____
Engineering
Dep.: _____**MANUFACTOR**Design: _____
Check: _____
Approval: _____

Specifications for NTC Thermistor

Part No.	
Operating criteria	

1、Dimensions(mm)



2、Materials

Coating		Lead wire
Material	Color	Material
Modified Resin	Black	CP wire

3、Ordering information

Pearl-Shape Temp Measurement NTC Thermistor	CP wire	Resistance	Tolerance	B-value (25/50)
		$22 \times 10^2 = 2.2 \text{ K}\Omega$	$\pm 1\%$	3470K

4、Electrical characteristics

	Item	Symbol	Test conditions	Unit	Specification
4.1	Zero Power Resistance at 25°C	R_{25}	$T_a = 25 \pm 0.05^\circ\text{C}$ Test Power $\leq 0.1 \text{ mW}$ Test in fluid liquid	$\text{K}\Omega$	$2.2 \pm 1\%$
4.2	B-value	$B_{25/50}$	$B = [(T_a \times T_b) / (T_b - T_a)] \times \ln(R_a / R_b)$ $T_b = 50^\circ\text{C} \pm 0.1^\circ\text{C}$	K	$3470 \pm 1\%$
4.3	Thermal dissipation Coefficient	δ	In still air	$\text{mW}/^\circ\text{C}$	≥ 2
4.4	Thermal time	τ	In still air	sec	≤ 7

	constant				
4.5	Insulation resistance	/	100V/DC 1min	MΩ	≥100
4.6	Operating temperature	/	/	°C	-55 ~ +125
4.7	R&T-table	/	/	/	See attached table
4.8	Resistance tolerance	/	/	/	See attached curve

5、Reliability

	Item	Test conditions and methods	Technical requirements
5.1	Solderability	The lead wire shall be dipped into solder bath of 235±5°C for 2~3sec with 6mm space from the body.	Solder dipped on lead wire should be uniform and smooth; the coverage area should be more than 95%.
5.2	Withstand Soldering heat	The lead wire shall be dipped into solder bath of 265±5°C for 5±1sec with 6mm space from the body.	No obvious damage, R25 ΔR/R≤±2%
5.3	Terminal strength	Pull strength: 5N, time: 10sec	No obvious damage, R25 ΔR/R≤±2%
5.4	Temperature cycle	-55°C 30min→25°C 5min→125°C 30min →25°C 5min, 5cycles ,recover 4hrs	No obvious damage, R25 ΔR/R≤±2%
5.5	High temperature	Temperature: 125°C, time: 16hrs	No obvious damage, R25 ΔR/R≤±2%
5.6	Low temperature	Temperature: -55°C, Time: 2hrs	No obvious damage, R25 ΔR/R≤±2%
5.7	Low atmospheric pressure	Atmospheric pressure: 40±0.1Kpa, time :4hrs	No obvious damage, R25 ΔR/R≤±2%
5.8	Steady humidity and heat	Temp: 40°C, humidity: 93%, Time : 500±12hrs	No obvious damage, R25 ΔR/R≤±2%, Withstanding voltage ≥700V/AC 1min Insulating resistance ≥100MΩ
5.9	Damp heat	Temp: 25~40°C, humidity: 90%, Time: 24hrs	No obvious damage, R25 ΔR/R≤±2%, Withstanding voltage ≥700V/AC 1min Insulating resistance ≥100MΩ
5.10	Zero power endurance at upper category temperature	Temp : 125°C±2°C, Time :1000±24hrs	No obvious damage, R25 ΔR/R≤±2%
5.11	Vibrate	Frequency : 10~500HZ, swing : 0.75m or 98m/S ² , time :2hurs	No obvious damage, R25 ΔR/R≤±2%
5.12	Bump	Acceleration: 250m/S ² , pulse duration : 6mS, Bump times: 4000times	No obvious damage, R25 ΔR/R≤±2%

SRPASSIVES

-44	59.717	62.371	65.138	4.435	-4.256	0.703	-0.674
-43	55.017	57.416	59.913	4.348	-4.177	0.699	-0.672
-42	50.815	52.987	55.247	4.265	-4.100	0.696	-0.669
-41	47.044	49.018	51.069	4.183	-4.025	0.692	-0.666
-40	43.651	45.448	47.314	4.105	-3.952	0.689	-0.663
-39	40.589	42.229	43.930	4.028	-3.882	0.685	-0.660
-38	37.817	39.317	40.872	3.954	-3.813	0.681	-0.657
-37	35.302	36.676	38.100	3.882	-3.746	0.677	-0.653
-36	33.013	34.275	35.581	3.811	-3.681	0.673	-0.650
-35	30.925	32.086	33.287	3.743	-3.617	0.669	-0.646
-34	29.016	30.086	31.192	3.676	-3.555	0.665	-0.643
-33	27.266	28.253	29.274	3.611	-3.495	0.660	-0.639
-32	25.658	26.571	27.514	3.547	-3.435	0.656	-0.635
-31	24.178	25.023	25.895	3.485	-3.378	0.652	-0.631
-30	22.812	23.596	24.404	3.425	-3.321	0.647	-0.627
-29	21.550	22.278	23.027	3.365	-3.265	0.642	-0.623
-28	20.381	21.057	21.754	3.307	-3.211	0.638	-0.619
-27	19.296	19.925	20.573	3.250	-3.157	0.633	-0.615
-26	18.288	18.874	19.477	3.194	-3.105	0.628	-0.610
-25	17.349	17.895	18.457	3.139	-3.053	0.623	-0.606
-24	16.473	16.983	17.507	3.085	-3.002	0.618	-0.601
-23	15.655	16.131	16.621	3.032	-2.952	0.612	-0.596
-22	14.890	15.335	15.792	2.980	-2.903	0.607	-0.592
-21	14.173	14.589	15.017	2.928	-2.855	0.602	-0.587
-20	13.500	13.890	14.290	2.878	-2.807	0.596	-0.582
-19	12.868	13.233	13.607	2.828	-2.760	0.591	-0.577
-18	12.273	12.616	12.966	2.779	-2.714	0.585	-0.571
-17	11.713	12.034	12.363	2.731	-2.668	0.579	-0.566
-16	11.185	11.486	11.795	2.683	-2.622	0.574	-0.561
-15	10.687	10.970	11.259	2.635	-2.577	0.568	-0.555
-14	10.216	10.481	10.753	2.589	-2.533	0.562	-0.550
-13	9.770	10.020	10.274	2.542	-2.489	0.556	-0.544
-12	9.348	9.583	9.822	2.497	-2.446	0.549	-0.538
-11	8.948	9.169	9.394	2.452	-2.403	0.543	-0.532
-10	8.569	8.776	8.988	2.407	-2.360	0.537	-0.526
-9	8.209	8.404	8.602	2.362	-2.318	0.531	-0.520
-8	7.867	8.050	8.237	2.318	-2.276	0.524	-0.514
-7	7.542	7.714	7.890	2.275	-2.234	0.518	-0.508
-6	7.232	7.394	7.559	2.231	-2.192	0.511	-0.502
-5	6.938	7.090	7.245	2.188	-2.151	0.504	-0.496
-4	6.657	6.800	6.946	2.146	-2.111	0.497	-0.489
-3	6.389	6.524	6.662	2.104	-2.070	0.491	-0.483
-2	6.134	6.261	6.390	2.061	-2.030	0.484	-0.476
-1	5.890	6.010	6.131	2.020	-1.989	0.477	-0.469

0	5.658	5.770	5.884	1.978	-1.950	0.469	-0.463
1	5.435	5.541	5.649	1.937	-1.910	0.462	-0.456
2	5.223	5.322	5.423	1.896	-1.870	0.455	-0.449
3	5.020	5.113	5.208	1.855	-1.831	0.448	-0.442
4	4.825	4.913	5.003	1.814	-1.792	0.440	-0.435
5	4.639	4.722	4.806	1.774	-1.753	0.433	-0.428
6	4.461	4.539	4.618	1.734	-1.714	0.425	-0.421
7	4.291	4.364	4.438	1.694	-1.675	0.418	-0.413
8	4.128	4.196	4.266	1.654	-1.637	0.410	-0.406
9	3.971	4.036	4.101	1.614	-1.598	0.402	-0.398
10	3.815	3.876	3.937	1.573	-1.559	0.395	-0.392
11	3.677	3.734	3.792	1.535	-1.522	0.387	-0.383
12	3.540	3.593	3.647	1.496	-1.484	0.379	-0.376
13	3.407	3.457	3.508	1.457	-1.446	0.371	-0.368
14	3.280	3.327	3.374	1.418	-1.408	0.363	-0.360
15	3.159	3.203	3.247	1.380	-1.371	0.355	-0.352
16	3.042	3.083	3.124	1.341	-1.333	0.346	-0.344
17	2.929	2.968	3.007	1.303	-1.296	0.338	-0.336
18	2.822	2.858	2.894	1.264	-1.258	0.330	-0.328
19	2.718	2.752	2.786	1.226	-1.221	0.321	-0.320
20	2.619	2.650	2.682	1.188	-1.184	0.313	-0.312
21	2.523	2.553	2.582	1.150	-1.147	0.304	-0.304
22	2.432	2.459	2.486	1.112	-1.110	0.296	-0.295
23	2.344	2.369	2.394	1.074	-1.073	0.287	-0.287
24	2.259	2.283	2.306	1.037	-1.036	0.278	-0.278
25	2.178	2.200	2.222	1.000	-1.000	0.270	-0.270
26	2.098	2.120	2.142	1.037	-1.036	0.281	-0.281
27	2.021	2.043	2.065	1.074	-1.073	0.293	-0.292
28	1.947	1.969	1.991	1.111	-1.109	0.304	-0.304
29	1.877	1.898	1.920	1.148	-1.145	0.316	-0.315
30	1.809	1.830	1.852	1.185	-1.181	0.328	-0.327
31	1.743	1.765	1.786	1.222	-1.217	0.339	-0.338
32	1.681	1.702	1.723	1.259	-1.253	0.351	-0.350
33	1.620	1.641	1.663	1.295	-1.289	0.363	-0.361
34	1.562	1.583	1.604	1.332	-1.324	0.375	-0.373
35	1.507	1.527	1.548	1.368	-1.360	0.388	-0.385
36	1.453	1.473	1.494	1.405	-1.395	0.400	-0.397
37	1.401	1.422	1.442	1.441	-1.430	0.412	-0.409
38	1.352	1.372	1.392	1.477	-1.466	0.424	-0.421
39	1.304	1.324	1.344	1.513	-1.501	0.437	-0.433
40	1.258	1.278	1.298	1.549	-1.535	0.449	-0.445
41	1.214	1.234	1.253	1.585	-1.570	0.462	-0.458
42	1.172	1.191	1.210	1.621	-1.605	0.475	-0.470
43	1.131	1.150	1.169	1.656	-1.639	0.487	-0.482

44	1.092	1.111	1.129	1.692	-1.673	0.500	-0.495
45	1.054	1.073	1.091	1.727	-1.708	0.513	-0.507
46	1.018	1.036	1.054	1.762	-1.742	0.526	-0.520
47	0.983	1.001	1.019	1.798	-1.776	0.539	-0.533
48	0.949	0.967	0.985	1.833	-1.809	0.552	-0.545
49	0.917	0.934	0.952	1.868	-1.843	0.566	-0.558
50	0.878	0.895	0.912	1.912	-1.885	0.576	-0.568
51	0.856	0.873	0.890	1.937	-1.910	0.592	-0.584
52	0.827	0.844	0.860	1.971	-1.943	0.606	-0.597
53	0.800	0.816	0.832	2.006	-1.976	0.619	-0.610
54	0.773	0.789	0.805	2.040	-2.009	0.633	-0.623
55	0.747	0.763	0.779	2.074	-2.042	0.647	-0.637
56	0.723	0.738	0.753	2.108	-2.075	0.660	-0.650
57	0.699	0.714	0.729	2.142	-2.107	0.674	-0.663
58	0.676	0.691	0.706	2.176	-2.139	0.688	-0.677
59	0.654	0.668	0.683	2.209	-2.171	0.702	-0.690
60	0.632	0.647	0.661	2.243	-2.203	0.717	-0.704
61	0.612	0.626	0.640	2.276	-2.235	0.731	-0.718
62	0.592	0.606	0.620	2.309	-2.267	0.745	-0.731
63	0.573	0.587	0.601	2.342	-2.298	0.759	-0.745
64	0.555	0.568	0.582	2.375	-2.330	0.774	-0.759
65	0.537	0.550	0.564	2.408	-2.361	0.788	-0.773
66	0.520	0.533	0.546	2.440	-2.392	0.803	-0.787
67	0.504	0.516	0.529	2.473	-2.423	0.818	-0.801
68	0.488	0.500	0.513	2.505	-2.454	0.833	-0.816
69	0.473	0.485	0.497	2.537	-2.484	0.848	-0.830
70	0.458	0.470	0.482	2.569	-2.514	0.863	-0.844
71	0.444	0.456	0.468	2.601	-2.545	0.878	-0.859
72	0.431	0.442	0.454	2.632	-2.575	0.893	-0.873
73	0.417	0.429	0.440	2.664	-2.604	0.908	-0.888
74	0.405	0.416	0.427	2.695	-2.634	0.923	-0.902
75	0.393	0.403	0.414	2.726	-2.663	0.939	-0.917
76	0.381	0.391	0.402	2.757	-2.693	0.954	-0.932
77	0.370	0.380	0.390	2.788	-2.722	0.970	-0.947
78	0.359	0.369	0.379	2.818	-2.751	0.985	-0.962
79	0.348	0.358	0.368	2.849	-2.779	1.001	-0.977
80	0.338	0.348	0.358	2.879	-2.808	1.017	-0.992
81	0.328	0.338	0.347	2.909	-2.836	1.033	-1.007
82	0.319	0.328	0.338	2.939	-2.865	1.049	-1.022
83	0.309	0.319	0.328	2.968	-2.893	1.065	-1.038
84	0.301	0.310	0.319	2.998	-2.920	1.081	-1.053
85	0.292	0.301	0.310	3.027	-2.948	1.097	-1.069
86	0.284	0.293	0.301	3.056	-2.975	1.114	-1.084
87	0.276	0.284	0.293	3.085	-3.003	1.130	-1.100

88	0.268	0.277	0.285	3.114	-3.030	1.147	-1.116
89	0.261	0.269	0.277	3.143	-3.057	1.163	-1.131
90	0.254	0.262	0.270	3.171	-3.083	1.180	-1.147
91	0.247	0.255	0.263	3.199	-3.110	1.197	-1.163
92	0.240	0.248	0.256	3.227	-3.136	1.214	-1.179
93	0.234	0.241	0.249	3.255	-3.162	1.230	-1.195
94	0.227	0.235	0.243	3.283	-3.188	1.247	-1.211
95	0.221	0.229	0.236	3.310	-3.214	1.265	-1.228
96	0.215	0.223	0.230	3.337	-3.239	1.282	-1.244
97	0.210	0.217	0.224	3.364	-3.264	1.299	-1.261
98	0.204	0.211	0.219	3.391	-3.289	1.316	-1.277
99	0.199	0.206	0.213	3.418	-3.314	1.334	-1.294
100	0.194	0.201	0.208	3.444	-3.339	1.351	-1.310
101	0.189	0.196	0.203	3.470	-3.363	1.369	-1.327
102	0.184	0.191	0.198	3.496	-3.388	1.387	-1.344
103	0.180	0.186	0.193	3.522	-3.412	1.405	-1.361
104	0.175	0.182	0.188	3.548	-3.436	1.423	-1.378
105	0.171	0.177	0.184	3.573	-3.459	1.441	-1.395
106	0.167	0.173	0.179	3.598	-3.483	1.459	-1.412
107	0.163	0.169	0.175	3.623	-3.506	1.477	-1.429
108	0.159	0.165	0.171	3.648	-3.529	1.495	-1.446
109	0.155	0.161	0.167	3.673	-3.552	1.513	-1.464
110	0.152	0.157	0.163	3.697	-3.575	1.532	-1.481
111	0.148	0.154	0.159	3.721	-3.597	1.550	-1.499
112	0.145	0.150	0.156	3.745	-3.619	1.569	-1.516
113	0.141	0.147	0.152	3.769	-3.641	1.588	-1.534
114	0.138	0.143	0.149	3.792	-3.663	1.606	-1.552
115	0.135	0.140	0.145	3.816	-3.685	1.625	-1.570
116	0.132	0.137	0.142	3.839	-3.706	1.644	-1.588
117	0.129	0.134	0.139	3.862	-3.728	1.663	-1.606
118	0.126	0.131	0.136	3.884	-3.749	1.683	-1.624
119	0.123	0.128	0.133	3.907	-3.770	1.702	-1.642
120	0.121	0.126	0.131	3.929	-3.790	1.721	-1.660
121	0.118	0.123	0.128	3.951	-3.811	1.741	-1.679
122	0.116	0.120	0.125	3.973	-3.831	1.760	-1.697
123	0.113	0.118	0.123	3.995	-3.851	1.780	-1.716
124	0.111	0.115	0.120	4.016	-3.871	1.799	-1.734
125	0.109	0.113	0.118	4.037	-3.890	1.819	-1.753

