

Approval

Approved By:	Checked By:	Prepared By :

Approved By:	Examined By:	Tested By :

Company's Stamp	
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Approval No. : HT-070531

Product : NTC THERMISTOR SENSORS

Mayloon Part No. : MHT 103 J -3435

Customer's Part No. :

Specifications : R₂₅ 10,000 Ω ± 5 %

: B₂₅₋₈₅ 3435 °K ± 2 %

Date :

1) SCOPE

This specifications define ratings, dimension, insulation, climatic sequence and mechanical characteristics for **(Lead-free)** MHT type thermistor.

2) PART NO. : MHT103J-3435

3) RATING

3-1) Rated zero-power resistance R_{25} : 10 k Ω ± 5 % (at 25°C)

3-2) B value. $B_{25/85} : 3,435K \pm 2 \%$

***The B value is calculated using the zero-power resistance values measured at 25°C and 85°C.**

3-3) Dissipation factor.	:Approx.	2	mW/°C (in air)
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3-4) Thermal time constant. : Approx. ≤ 12 Sec (in air)

3-5) Maximum power rating. : 10 mW (at 25°C)

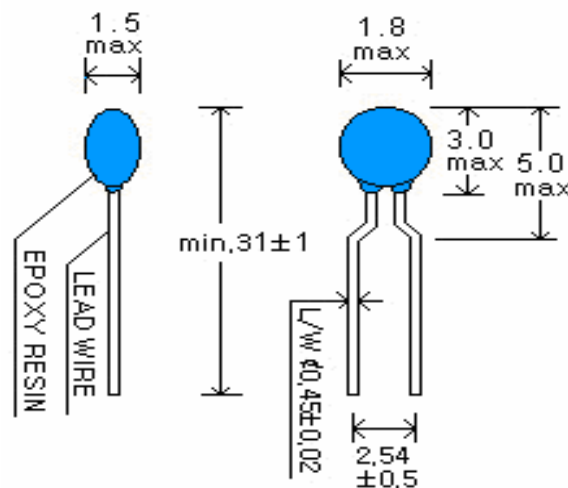
3-6) Category temperature range : -30 ~ 125 °C

(=Operating temperature range)

3-7) Lead content : RoHs Compliant

3-8) Cadmium content : RoHs Compliant.

4) DIMENSIONS UNIT: mm



5) Insulation

5-1) Insulation resistance

Insulation resistance of the test samples shall be over 100MΩ when it is measured at DC 500V between coated area and lead wires.

6) Climatic test

6-1) Dry Heat

After the test samples were exposed in air at 110 °C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within ±1% of the initial value.

6-2) Damp heat

After the test samples were exposed in the humidity of 95% at 40°C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within ±1% of the initial value.

6-3) Cold

After the test samples were exposed in air at -30°C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within ±1% of the initial value.

6-4) Humidity load

After DC 1mA current was applied to the test samples in the temperature of 40°C and the humidity of 95% for 1,000 hours, the change ratio of the rated zero-power resistance shall be within ±1% of the initial value.

6-5) Change of temperature

One cycle of the change of temperature shall be carried out in the order of the following conditions.

.Room ambient temperature.(Initial value)

.At -30°C, for 30 minutes.

.Room ambient temperature, for 3 minutes.

.At + 90°C, for 30 minutes.

.Room ambient temperature, for 3 minutes.

After 100 cycles of change of temperature, the change ratio of the rated zero-power resistance shall be within ±1% of the initial value.

6-6) High temperature load

After DC 1mA current was applied to the test samples in the temperature of 110°C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within ±1% of the initial value.

7) Mechanical characteristics

7-1) Robustness of terminations

Ua: Tensile

After 2N loading weight for 3 seconds was applied to the wire terminations, there shall be no visible damage.

7-2) Free fall

After one time natural fall to a maple board from 1m high, there shall be no visible damage.

7-3) Resistance to soldering heat

After lead wire of the test samples were dipped on time within 8.5 mm from end of lead wire in solder bath at $260^{\circ}\text{C} \pm 10\%$ for 10 ± 0.5 seconds, the change ratio of the rated zero-power resistance shall be within $\pm 1\%$ of the initial value.

8) R-T characteristics

PART NO. : MHT103J-3435

R25= 10K Ω $\pm$ 3%

B25/85=3435K $\pm$ 2%

Temperature ($^{\circ}\text{C}$)	Resistance (Ω)			Temp. Coef. (%/ $^{\circ}\text{C}$)	Resist. Tolerance (%)		Temp. Tolerance ($^{\circ}\text{C}$)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
-40	163925	188442	216084	-5.41	-13.01	14.67	-2.71	2.41
-39	155569	178547	204406	-5.38	-12.87	14.48	-2.69	2.39
-38	147684	169224	193422	-5.35	-12.73	14.30	-2.67	2.38
-37	140240	160438	183086	-5.32	-12.59	14.12	-2.66	2.37
-36	133211	152154	173357	-5.29	-12.45	13.94	-2.64	2.36
-35	126572	144343	164197	-5.26	-12.31	13.76	-2.62	2.34
-34	120299	136974	155570	-5.22	-12.17	13.58	-2.60	2.33
-33	114371	130020	147442	-5.19	-12.04	13.40	-2.58	2.32
-32	108766	123457	139782	-5.16	-11.90	13.22	-2.56	2.30
-31	103466	117260	132560	-5.14	-11.76	13.05	-2.54	2.29
-30	98453	111407	125751	-5.11	-11.63	12.87	-2.52	2.28
-29	93710	105878	119327	-5.08	-11.49	12.70	-2.50	2.26
-28	89220	100652	113266	-5.05	-11.36	12.53	-2.48	2.25
-27	84970	95713	107544	-5.02	-11.22	12.36	-2.46	2.24
-26	80945	91042	102143	-4.99	-11.09	12.19	-2.44	2.22

-25	77132	86624	97041	-4.96	-10.96	12.03	-2.42	2.21
-24	73519	82444	92222	-4.93	-10.83	11.86	-2.40	2.20
-23	70094	78488	87667	-4.90	-10.69	11.69	-2.39	2.18
-22	66848	74743	83362	-4.87	-10.56	11.53	-2.37	2.17
-21	63769	71197	79291	-4.85	-10.43	11.37	-2.35	2.15
-20	60848	67838	75440	-4.82	-10.30	11.21	-2.33	2.14
-19	58077	64655	71797	-4.79	-10.17	11.05	-2.31	2.12
-18	55447	61638	68350	-4.76	-10.04	10.89	-2.29	2.11
-17	52950	58779	65086	-4.74	-9.92	10.73	-2.27	2.09
-16	50579	56067	61995	-4.71	-9.79	10.57	-2.25	2.08
-15	48327	53495	59068	-4.68	-9.66	10.42	-2.22	2.06
-14	46187	51054	56294	-4.66	-9.53	10.26	-2.20	2.05
-13	44153	48738	53666	-4.63	-9.41	10.11	-2.18	2.03
-12	42219	46539	51174	-4.60	-9.28	9.96	-2.16	2.02
-11	40381	44452	48810	-4.58	-9.16	9.81	-2.14	2.00
-10	38632	42468	46569	-4.55	-9.03	9.66	-2.12	1.98
-9	36968	40584	44442	-4.53	-8.91	9.51	-2.10	1.97
-8	35385	38794	42424	-4.50	-8.79	9.36	-2.08	1.95
-7	33878	37092	40508	-4.47	-8.66	9.21	-2.06	1.94
-6	32444	35473	38689	-4.45	-8.54	9.07	-2.04	1.92
-5	31077	33934	36961	-4.42	-8.42	8.92	-2.02	1.90
-4	29775	32470	35319	-4.40	-8.30	8.78	-2.00	1.89
-3	28535	31076	33759	-4.37	-8.18	8.63	-1.97	1.87
-2	27353	29750	32276	-4.35	-8.06	8.49	-1.95	1.85
-1	26226	28488	30866	-4.32	-7.94	8.35	-1.93	1.84
0	25152	27285	29525	-4.30	-7.82	8.21	-1.91	1.82
1	24127	26140	28250	-4.28	-7.70	8.07	-1.89	1.80
2	23150	25049	27036	-4.25	-7.58	7.93	-1.87	1.78
3	22217	24009	25880	-4.23	-7.46	7.80	-1.84	1.77
4	21326	23017	24780	-4.20	-7.35	7.66	-1.82	1.75
5	20476	22072	23733	-4.18	-7.23	7.52	-1.80	1.73
6	19665	21171	22735	-4.16	-7.11	7.39	-1.78	1.71
7	18889	20311	21784	-4.14	-7.00	7.26	-1.75	1.69
8	18149	19490	20879	-4.11	-6.88	7.12	-1.73	1.67
9	17441	18707	20015	-4.09	-6.77	6.99	-1.71	1.66
10	16765	17960	19192	-4.07	-6.65	6.86	-1.69	1.64
11	16118	17246	18407	-4.04	-6.54	6.73	-1.66	1.62
12	15499	16564	17658	-4.02	-6.43	6.60	-1.64	1.60
13	14908	15913	16943	-4.00	-6.31	6.47	-1.62	1.58

14	14342	15291	16261	-3.98	-6.20	6.35	-1.60	1.56
15	13801	14696	15610	-3.96	-6.09	6.22	-1.57	1.54
16	13283	14127	14988	-3.93	-5.98	6.09	-1.55	1.52
17	12787	13584	14395	-3.91	-5.87	5.97	-1.53	1.50
18	12312	13064	13828	-3.89	-5.76	5.85	-1.50	1.48
19	11857	12567	13286	-3.87	-5.65	5.72	-1.48	1.46
20	11421	12091	12768	-3.85	-5.54	5.60	-1.45	1.44
21	11004	11636	12273	-3.83	-5.43	5.48	-1.43	1.42
22	10604	11200	11800	-3.81	-5.32	5.36	-1.41	1.40
23	10220	10782	11347	-3.79	-5.21	5.24	-1.38	1.38
24	9853	10383	10914	-3.77	-5.11	5.12	-1.36	1.36
25	9500	10000	10500	-3.75	-5.00	5.00	-1.33	1.33
26	9141	9633	10126	-3.73	-5.11	5.12	-1.37	1.37
27	8798	9282	9768	-3.71	-5.21	5.24	-1.41	1.41
28	8469	8945	9424	-3.69	-5.32	5.35	-1.45	1.44
29	8155	8622	9094	-3.67	-5.42	5.47	-1.49	1.48
30	7853	8313	8777	-3.65	-5.53	5.58	-1.53	1.52
31	7565	8016	8473	-3.63	-5.63	5.70	-1.57	1.55
32	7288	7731	8180	-3.61	-5.73	5.81	-1.61	1.59
33	7023	7458	7900	-3.59	-5.83	5.93	-1.65	1.63
34	6769	7196	7630	-3.57	-5.93	6.04	-1.69	1.66
35	6525	6944	7371	-3.55	-6.03	6.16	-1.73	1.70
36	6291	6702	7122	-3.53	-6.13	6.27	-1.77	1.74
37	6067	6470	6883	-3.51	-6.23	6.38	-1.82	1.77
38	5852	6247	6653	-3.49	-6.33	6.49	-1.86	1.81
39	5646	6033	6432	-3.48	-6.43	6.60	-1.90	1.85
40	5447	5828	6219	-3.46	-6.53	6.71	-1.94	1.89
41	5257	5630	6015	-3.44	-6.62	6.83	-1.98	1.93
42	5075	5440	5818	-3.42	-6.72	6.94	-2.03	1.96
43	4900	5258	5628	-3.40	-6.81	7.04	-2.07	2.00
44	4731	5082	5446	-3.39	-6.91	7.15	-2.11	2.04
45	4569	4913	5270	-3.37	-7.00	7.26	-2.16	2.08
46	4414	4751	5101	-3.35	-7.10	7.37	-2.20	2.12
47	4265	4595	4939	-3.33	-7.19	7.48	-2.24	2.16
48	4121	4445	4782	-3.32	-7.28	7.59	-2.29	2.20
49	3983	4300	4631	-3.30	-7.38	7.69	-2.33	2.24
50	3850	4161	4485	-3.28	-7.47	7.80	-2.38	2.27
51	3722	4027	4345	-3.27	-7.56	7.90	-2.42	2.31
52	3600	3898	4210	-3.25	-7.65	8.01	-2.47	2.35

53	3481	3773	4080	-3.23	-7.74	8.12	-2.51	2.39
54	3368	3654	3954	-3.22	-7.83	8.22	-2.56	2.43
55	3258	3538	3833	-3.20	-7.92	8.32	-2.60	2.47
56	3153	3427	3716	-3.18	-8.00	8.43	-2.65	2.51
57	3051	3320	3603	-3.17	-8.09	8.53	-2.69	2.55
58	2954	3217	3495	-3.15	-8.18	8.63	-2.74	2.60
59	2860	3117	3390	-3.14	-8.26	8.74	-2.79	2.64
60	2769	3021	3288	-3.12	-8.35	8.84	-2.83	2.68
61	2682	2929	3191	-3.10	-8.44	8.94	-2.88	2.72
62	2598	2840	3096	-3.09	-8.52	9.04	-2.93	2.76
63	2516	2753	3005	-3.07	-8.61	9.14	-2.98	2.80
64	2438	2670	2917	-3.06	-8.69	9.24	-3.02	2.84
65	2363	2590	2832	-3.04	-8.77	9.34	-3.07	2.88
66	2290	2513	2750	-3.03	-8.86	9.44	-3.12	2.93
67	2220	2438	2671	-3.01	-8.94	9.54	-3.17	2.97
68	2152	2366	2594	-3.00	-9.02	9.64	-3.22	3.01
69	2087	2296	2520	-2.98	-9.10	9.74	-3.27	3.05
70	2024	2229	2448	-2.97	-9.18	9.84	-3.32	3.10
71	1963	2164	2379	-2.95	-9.26	9.93	-3.37	3.14
72	1905	2101	2312	-2.94	-9.34	10.03	-3.41	3.18
73	1848	2040	2247	-2.92	-9.42	10.13	-3.46	3.22
74	1793	1982	2184	-2.91	-9.50	10.22	-3.52	3.27
75	1741	1925	2124	-2.89	-9.58	10.32	-3.57	3.31
76	1690	1870	2065	-2.88	-9.66	10.42	-3.62	3.35
77	1640	1817	2008	-2.87	-9.74	10.51	-3.67	3.40
78	1593	1766	1953	-2.85	-9.82	10.61	-3.72	3.44
79	1547	1717	1900	-2.84	-9.89	10.70	-3.77	3.49
80	1502	1669	1849	-2.82	-9.97	10.79	-3.82	3.53
81	1459	1622	1799	-2.81	-10.04	10.89	-3.87	3.57
82	1418	1577	1751	-2.80	-10.12	10.98	-3.93	3.62
83	1378	1534	1704	-2.78	-10.20	11.07	-3.98	3.66
84	1339	1492	1659	-2.77	-10.27	11.17	-4.03	3.71
85	1301	1451	1615	-2.76	-10.34	11.26	-4.08	3.75
86	1265	1412	1572	-2.74	-10.42	11.35	-4.14	3.80
87	1230	1374	1531	-2.73	-10.49	11.44	-4.19	3.84
88	1196	1337	1491	-2.72	-10.57	11.53	-4.24	3.89
89	1163	1301	1452	-2.70	-10.64	11.62	-4.30	3.93
90	1131	1267	1415	-2.69	-10.71	11.71	-4.35	3.98
91	1100	1233	1379	-2.68	-10.78	11.80	-4.41	4.02

92	1070	1200	1343	-2.67	-10.85	11.89	-4.46	4.07
93	1041	1169	1309	-2.65	-10.92	11.98	-4.52	4.12
94	1013	1138	1276	-2.64	-11.00	12.07	-4.57	4.16
95	986	1109	1244	-2.63	-11.07	12.16	-4.63	4.21
96	960	1080	1212	-2.62	-11.14	12.25	-4.68	4.26
97	934	1052	1182	-2.60	-11.21	12.34	-4.74	4.30
98	910	1025	1153	-2.59	-11.27	12.43	-4.79	4.35
99	886	999	1124	-2.58	-11.34	12.51	-4.85	4.40
100	863	974	1096	-2.57	-11.41	12.60	-4.91	4.44
101	840	949	1070	-2.56	-11.48	12.69	-4.96	4.49
102	818	925	1043	-2.54	-11.55	12.77	-5.02	4.54
103	797	902	1018	-2.53	-11.61	12.86	-5.08	4.59
104	777	880	993	-2.52	-11.68	12.94	-5.14	4.64
105	757	858	969	-2.51	-11.75	13.03	-5.19	4.68
106	738	836	946	-2.50	-11.81	13.11	-5.25	4.73
107	719	816	924	-2.49	-11.88	13.20	-5.31	4.78
108	701	796	902	-2.47	-11.95	13.28	-5.37	4.83
109	683	777	880	-2.46	-12.01	13.37	-5.43	4.88
110	666	758	860	-2.45	-12.08	13.45	-5.49	4.93
111	650	739	839	-2.44	-12.14	13.53	-5.55	4.97
112	634	722	820	-2.43	-12.20	13.62	-5.61	5.02
113	618	704	801	-2.42	-12.27	13.70	-5.67	5.07
114	603	688	782	-2.41	-12.33	13.78	-5.73	5.12
115	588	671	764	-2.40	-12.39	13.86	-5.79	5.17
116	574	655	747	-2.39	-12.46	13.94	-5.85	5.22
117	560	640	730	-2.37	-12.52	14.03	-5.91	5.27
118	546	625	713	-2.36	-12.58	14.11	-5.97	5.32
119	533	610	697	-2.35	-12.64	14.19	-6.03	5.37
120	520	596	681	-2.34	-12.71	14.27	-6.09	5.42
121	508	582	666	-2.33	-12.77	14.35	-6.15	5.47
122	496	569	651	-2.32	-12.83	14.43	-6.21	5.52
123	484	556	637	-2.31	-12.89	14.51	-6.28	5.58
124	473	543	623	-2.30	-12.95	14.59	-6.34	5.63
125	462	531	609	-2.29	-13.01	14.67	-6.40	5.68