



THE DATASHEET OF
103CT-4

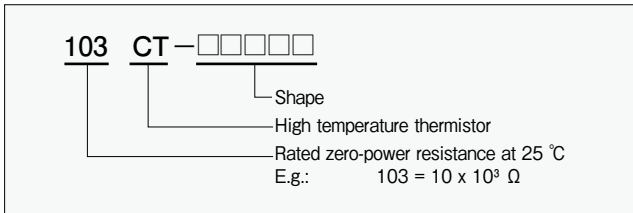


High temperature axial type thermistor

CT Thermistor

The axial glass encapsulated CT series thermistor features excellent reliability and high heat resistance.

Product number explanation



Applications

Home electronics, HVAC equipment, water heaters, kitchen appliances, solar systems, vending machines, refrigerated display cases, batteries, refrigerators

Specifications

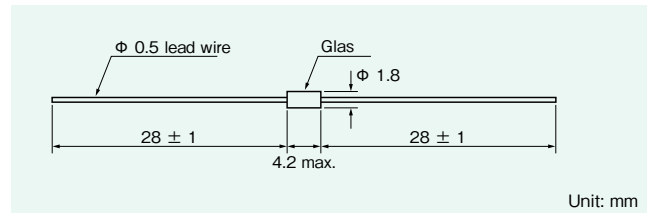
Product number	Rated zero-power resistance ¹			B value ²	Operating temperature range (°C)	Lead wire			
	Temperature	Resistance	Resistance tolerance						
252CT-4	25 °C	2.5 kΩ	± 5%	3670 K ± 2%	- 50 to 250	Nickel plating			
512CT-4		5.1 kΩ		3200 K ± 2%	- 50 to 200				
562CT-4		5.6 kΩ		3200 K ± 2%	- 50 to 200				
912CT-4		9.1 kΩ		3270 K ± 2%	- 50 to 200				
103CT-4		10 kΩ		3270 K ± 2%	- 50 to 200				
113CT-4		11 kΩ		3270 K ± 2%	- 50 to 200				
203CT-4		20 kΩ		3410 K ± 2%	- 50 to 250				
473CT-4		47 kΩ		3610 K ± 2%	- 50 to 250				
513CT-4		51 kΩ		3610 K ± 2%	- 50 to 250				
563CT-4		56 kΩ		3610 K ± 2%	- 50 to 250				
104CT-4		100 kΩ		3450 K ± 2%	- 50 to 250				
204CT-4		200 kΩ		3500 K ± 2%	- 50 to 250				
103CT-01006		25 °C		10 kΩ	± 5%		3900 K ± 2%	- 30 to 150	Tin plating
103CT-21048		25 °C		10 kΩ	± 3%		4100 K ± 2%	- 30 to 150	
503CT-91027	50 °C	19.727 kΩ	± 2.5%	3992 K ± 2%	- 40 to 150				
104CT-90113	25 °C	100 kΩ	± 5%	4070 K ± 2%	- 40 to 150				

* Dissipation factor: 2.1 mW / °C • Thermal time constant³: approx. 10 to 20 s

¹: Rated power at 25 °C; 10.5 mW

²: Rated zero-power resistance at each temperature ³: B value calculated from rated zero-power resistance at each temperature ⁴: Time required to reach 63.2% of temperature difference. Measured with sensor suspended in mid-air.

Dimensions



Reliability data

Item	Test conditions	Criteria
Resistance to soldering heat	10 s at 260 °C (wave soldering)	ΔR, ΔB ± 2% and visual inspection
	3.5 s at 340 °C (soldering iron)	
Solderability	2 s at 245 °C Flux material: Rosin 25%, ethyl alcohol 75%	More than 50% soldered (More than 95% soldered) ^{5, 6, 7}
Tensile strength (lead wire)	10 s at 5 N (horizontal pull)	ΔR, ΔB ± 2% and visual inspection
Termination bending	2.5 N, two times, 90°	
Free fall	Three times natural fall to a maple board from 1 m height.	
Voltage proof	500 V AC for one minute	Less than 1 mA
Insulation resistance	500 V DC	Over 100 MΩ (Over 50 MΩ) ⁵
Dry heat	1000 hours at 250 °C (200 °C) ⁴ (150 °C) ^{5, 7} (125 °C) ⁶	ΔR, ΔB ± 3%
Damp heat	1000 hours at 40 °C and 90% humidity	
Temperature cycle (thermal shock)	5 cycles as below ⁵ :	
	1. - 30 °C for 30 minutes	
	2. Room temperature for 3 minutes	
	3. 200 °C for 30 minutes	
	4. Room temperature for 3 minutes (min. temp. - 40 °C, max. temp. 150 °C) ^{5, 7} (min. temp. - 25 °C to 125 °C) ⁶	

⁴: 252CT, 512CT, 562CT

⁵: 103CT-21048, 103CT-01006

⁶: 503CT-91027

⁷: 104CT-90113

Resistance / temperature characteristics

Temperature (°C)	Product number															
	252CT	512CT	562CT	912CT	103CT	113CT	203CT	473CT	513CT	563CT	104CT	204CT	103CT-21048	103CT-01006	503CT-91027	104CT-90113
- 50	120.2	137.9	151.4	278.3	305.8	336.4	604.8	1506	1634	1794	3200	6803				
- 40	65.60	81.02	88.96	159.9	175.7	193.3	350.2	867.5	941.3	1034	1863	3913	458.9		1947	
- 30	36.48	48.93	53.73	94.63	104.0	114.4	207.9	512.6	556.2	610.8	1105	2306	223.1	183.3	1010	1862
- 20	20.91	30.56	33.55	58.02	63.76	70.13	127.8	313.4	340.1	373.4	675.1	1397	114.8	98.80	547.9	1011
- 10	12.32	19.65	21.58	36.67	40.29	44.32	81.00	197.2	214.0	235.0	424.3	870.3	62.13	55.69	309.7	571.0
0	7.516	12.96	14.23	23.82	26.18	28.79	52.63	127.1	138.0	151.5	272.2	553.6	35.15	32.67	181.6	334.0
10	4.738	8.779	9.639	15.92	17.49	19.24	35.15	84.16	91.32	100.3	179.4	362.5	20.70	19.86	110.2	201.7
20	3.074	6.080	6.676	10.91	11.99	13.18	24.02	56.86	61.70	67.75	120.9	242.5	12.64	12.48	68.90	125.5
25	2.500	5.100	5.600	9.100	10.00	11.00	20.00	47.00	51.00	56.00	100.0	200.0	10.00	10.00	55.06	100.0
30	2.045	4.296	4.717	7.627	8.381	9.219	16.74	39.01	42.33	46.48	83.11	165.7	7.972	8.071	44.30	80.21
40	1.393	3.095	3.398	5.442	5.980	6.578	11.88	27.07	29.37	32.25	58.24	115.4	5.177	5.362	29.22	52.55
50	0.9698	2.267	2.489	3.952	4.342	4.777	8.570	19.05	20.68	22.70	41.52	81.91	3.453	3.649	19.73	35.23
60	0.6895	1.687	1.852	2.918	3.206	3.527	6.239	13.58	14.74	16.18	30.14	59.14	2.359	2.540	13.61	24.12
70	0.4993	1.270	1.394	2.184	2.400	2.640	4.581	9.807	10.64	11.69	22.19	43.36	1.648	1.804	9.574	16.84
80	0.3680	0.9650	1.060	1.656	1.820	2.002	3.401	7.187	7.798	8.559	16.57	32.28	1.175	1.305	6.860	11.97
85	0.3178	0.8443	0.9271	1.448	1.592	1.751	2.943	6.180	6.706	7.363	14.39	27.97	0.9988	1.118	5.844	10.16
90	0.2757	0.7402	0.8128	1.269	1.394	1.534	2.553	5.328	5.781	6.348	12.53	24.33	0.8531	0.9609	4.999	8.654
100	0.2098	0.5736	0.6298	0.9787	1.076	1.183	1.937	3.997	4.337	4.762	9.586	18.57	0.6302	0.7187	3.700	6.354
120	0.1267	0.3559	0.3908	0.5952	0.6540	0.7194	1.156	2.337	2.535	2.784	5.828	11.24	0.3601	0.4196	2.115	3.574
140	0.08028	0.2298	0.2524	0.3750	0.4121	0.4533	0.7191	1.425	1.546	1.698	3.694	7.108	0.2172	0.2577	1.127	2.115
150	0.06494	0.1870	0.2053	0.3016	0.3314	0.3646	0.5752	1.129	1.226	1.346	2.982	5.732	0.1717	0.2054	1.002	1.654
160	0.05302	0.1534	0.1684	0.2445	0.2686	0.2955	0.4638	0.9031	0.9799	1.076	2.428	4.666				
180	0.03630	0.1055	0.1158	0.1643	0.1805	0.1986	0.3091	0.5919	0.6423	0.7052	1.647	3.168				
200	0.02562	0.07445	0.08175	0.1136	0.1249	0.1374	0.2122	0.4000	0.4341	0.4766	1.150	2.216				
220				0.08063	0.08860	0.09746	0.1497	0.2780	0.3016	0.3312	0.8235	1.591				
240				0.05857	0.06436	0.07080	0.1082	0.1979	0.2148	0.2358	0.6038	1.169				
250				0.05031	0.05529	0.06082	0.09271	0.1683	0.1827	0.2006	0.5208	1.010				

Unit: kΩ

Caution

- When soldering make sure to have a minimum distance from the glass encapsulated sensor head of 5 mm.
- When working the lead wire make sure to fix the wire at a minimum distance from the glass encapsulated sensor head of 5 mm.

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