

# NTC Thermistors

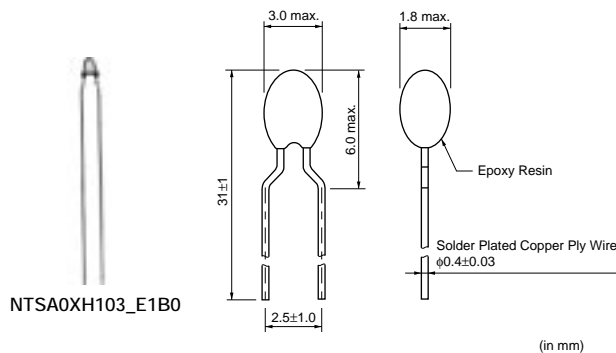
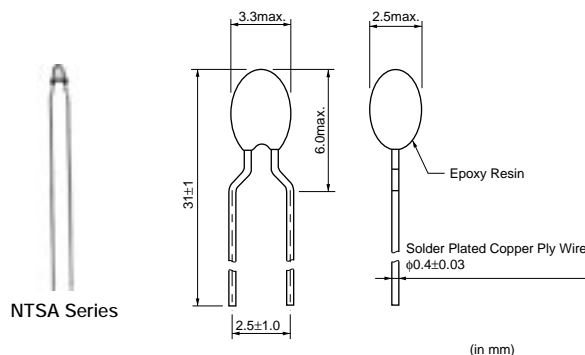


## for Temperature Sensor Resin Coated Radial Lead Type

This product is sensor type NTC Thermistor to be useful in the normal temperature range developed by the unique ceramic technology and the automatic assembly.

### ■ Features

1. High-accuracy of +-1%  
+-1% of resistance and B-Constant tolerance is realized due to uniform thickness by the precise sheet forming method.
2. Quick response  
This product provides faster response time due to its smaller size.
3. Taping type is available (Standard type)
4. Strong lead strength  
Original lead-wiring technique assures reliable connection. It can be formed and bent flexibly according to the mounting condition.
5. Lead Coating type  
The lead wires of Lead Coating type are coated with strong and flexible resin.



### ■ Applications

1. Rechargeable batteries
2. Battery charging circuits
3. Head of printers
4. DC fan motors
5. Home appliance equipments

Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Thermal Time Constant (25°C)(s)	Operating Temperature Range (°C)
NTSA0XM202□E1B0	2.0	3500 ±1%	1.05	21	2.1	less than7	-40 to 125
NTSA0XR502□E1B0	5.0	3700 ±1%	0.68	21	2.1	less than7	-40 to 125
NTSA0XH103□E1B0	10	3380 ±1%	0.38	15	1.5	less than7	-40 to 125
NTSA0XV103□E1B0	10	3900 ±1%	0.46	21	2.1	less than7	-40 to 125
NTSA0WB203□E1B0	20	4050 ±1%	0.31	21	2.1	less than7	-40 to 125
NTSA0WC303□E1B0	30	4100 ±1%	0.26	21	2.1	less than7	-40 to 125
NTSA0WD503□E1B0	50	4150 ±1%	0.20	21	2.1	less than7	-40 to 125
NTSA0WF104□E1B0	100	4250 ±1%	0.14	21	2.1	less than7	-40 to 125

A blank column is filled with resistance tolerance codes. (F: ±1%, E: ±3%)

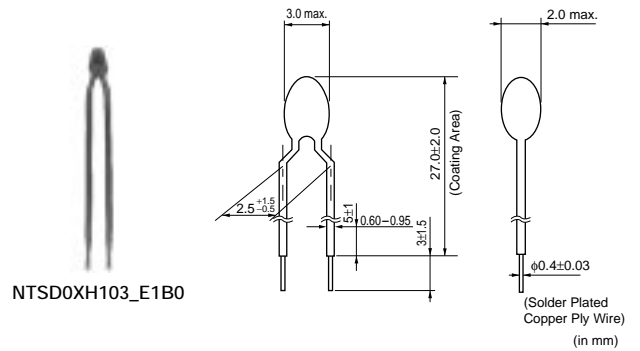
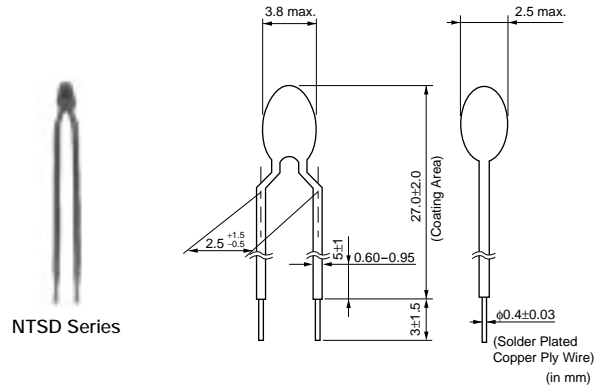
Taping type of part numbers with "N6A0" is available. (Lead spacing=5mm)

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the "Package" page.

## Lead-Coating Type

### ■ Features

1. Electric insulation on lead wire
2. Excellent bending resistance due to suitable hardness of surface coating
3. Easy handling due to most suitable hardness of surface of coating
4. Measurement accuracy of  $\pm 1$  (degree C) or less in the range from -40 to +70 (degree C)



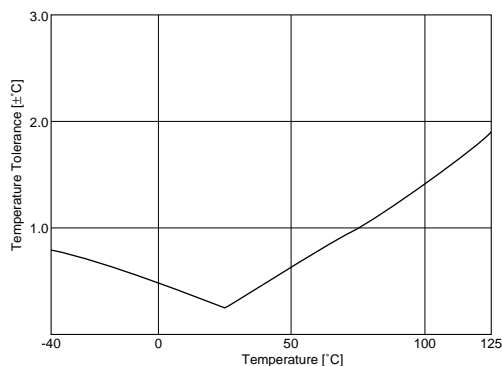
Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Thermal Time Constant (25°C)(s)	Operating Temperature Range (°C)
NTSD0XM202□E1B0	2.0	3500 ±1%	1.05	21	2.1	less than7	-40 to 125
NTSD0XR502□E1B0	5.0	3700 ±1%	0.68	21	2.1	less than7	-40 to 125
NTSD0XH103□E1B0	10	3380 ±1%	0.38	15	1.5	less than7	-40 to 125
NTSD0XV103□E1B0	10	3900 ±1%	0.46	21	2.1	less than7	-40 to 125
NTSD0WB203□E1B0	20	4050 ±1%	0.31	21	2.1	less than7	-40 to 125
NTSD0WC303□E1B0	30	4100 ±1%	0.26	21	2.1	less than7	-40 to 125
NTSD0WD503□E1B0	50	4150 ±1%	0.20	21	2.1	less than7	-40 to 125
NTSD0WF104□E1B0	100	4250 ±1%	0.14	21	2.1	less than7	-40 to 125

A blank column is filled with resistance codes. (J:  $\pm 1\%$ , K:  $\pm 3\%$ )

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the "Package" page.

### ■ Temperature Tolerance-Temperature Characteristics

Resistance Tolerance  $\pm 1\%$  at 25degree C



## for Temperature Sensor Temperature Characteristics (Reference Value)

Temp. (°C)	NTS□0XM202F type			NTS□0XR502F type			NTS□0XH103F type			NTS□0XV103F type		
	Resistance (kΩ)			Resistance (kΩ)			Resistance (kΩ)			Resistance (kΩ)		
	Low	Center	High	Low	Center	High	Low	Center	High	Low	Center	High
-40	42.859	44.657	46.526	118.390	123.484	128.781	188.021	195.652	203.573	332.325	347.808	363.977
-35	32.249	33.505	34.807	88.747	92.295	95.975	142.788	148.171	153.741	238.323	248.591	259.275
-30	24.504	25.388	26.302	67.127	69.614	72.185	109.522	113.347	117.294	173.098	179.973	187.102
-25	18.777	19.420	20.046	51.112	52.860	54.662	84.823	87.559	90.374	127.191	131.832	136.629
-20	14.516	14.961	15.417	39.246	40.480	41.748	66.270	68.237	70.255	94.524	97.679	100.930
-15	11.327	11.644	11.969	30.400	31.275	32.172	52.229	53.650	55.104	70.962	73.119	75.334
-10	8.906	9.133	9.365	23.718	24.339	24.975	41.477	42.506	43.557	53.820	55.301	56.817
-5	7.035	7.198	7.363	18.710	19.154	19.607	33.147	33.892	34.651	41.237	42.257	43.299
0	5.600	5.716	5.834	14.831	15.148	15.469	26.678	27.219	27.767	31.878	32.582	33.298
5	4.489	4.571	4.655	11.741	11.964	12.189	21.630	22.021	22.417	24.839	25.324	25.815
10	3.623	3.682	3.741	9.365	9.520	9.677	17.643	17.926	18.210	19.514	19.847	20.183
15	2.946	2.987	3.029	7.526	7.624	7.742	14.472	14.674	14.877	15.453	15.679	15.907
20	2.409	2.437	2.466	6.086	6.160	6.234	11.938	12.081	12.224	12.326	12.478	12.630
25	1.980	2.000	2.020	4.950	5.000	5.050	9.900	10.000	10.100	9.900	10.000	10.100
30	1.632	1.651	1.671	4.034	4.082	4.131	8.217	8.315	8.413	7.971	8.068	8.166
35	1.352	1.371	1.389	3.308	3.354	3.401	6.854	6.948	7.043	6.459	6.552	6.645
40	1.126	1.143	1.161	2.729	2.773	2.816	5.745	5.834	5.923	5.267	5.353	5.440
45	0.942	0.958	0.974	2.259	2.299	2.340	4.834	4.917	5.001	4.320	4.399	4.479
50	0.792	0.807	0.822	1.877	1.914	1.952	4.084	4.161	4.239	3.563	3.635	3.708
55	0.670	0.683	0.697	1.573	1.607	1.641	3.464	3.535	3.607	2.954	3.020	3.086
60	0.569	0.582	0.594	1.325	1.356	1.387	2.949	3.014	3.081	2.462	2.521	2.582
65	0.485	0.497	0.508	1.121	1.149	1.177	2.526	2.586	2.647	2.062	2.115	2.170
70	0.415	0.426	0.436	0.953	0.978	1.003	2.173	2.228	2.283	1.736	1.783	1.832
75	0.358	0.367	0.377	0.811	0.834	0.857	1.875	1.925	1.976	1.467	1.510	1.553
80	0.309	0.318	0.326	0.693	0.714	0.734	1.623	1.669	1.715	1.245	1.284	1.323
85	0.268	0.276	0.284	0.594	0.612	0.631	1.411	1.452	1.495	1.061	1.096	1.131
90	0.233	0.240	0.247	0.510	0.527	0.544	1.230	1.268	1.307	0.908	0.939	0.971
95	0.203	0.210	0.216	0.441	0.456	0.471	1.075	1.110	1.145	0.781	0.808	0.837
100	0.178	0.183	0.189	0.383	0.396	0.410	0.942	0.974	1.006	0.674	0.698	0.724
105	0.156	0.161	0.166	0.333	0.345	0.358	0.829	0.858	0.888	0.583	0.605	0.628
110	0.137	0.142	0.147	0.291	0.302	0.313	0.732	0.758	0.785	0.507	0.527	0.547
115	0.121	0.125	0.130	0.255	0.264	0.275	0.647	0.671	0.696	0.442	0.460	0.479
120	0.107	0.111	0.115	0.223	0.232	0.241	0.574	0.596	0.619	0.386	0.403	0.420
125	0.096	0.099	0.103	0.197	0.205	0.213	0.511	0.531	0.552	0.339	0.354	0.369

Temp. (°C)	NTS□0WB203F type			NTS□0WC303F type			NTS□0WD503F type			NTS□0WF104F type		
	Resistance (kΩ)			Resistance (kΩ)			Resistance (kΩ)			Resistance (kΩ)		
	Low	Center	High	Low	Center	High	Low	Center	High	Low	Center	High
-40	700.008	733.007	767.485	1097.262	1149.500	1204.104	1859.709	1948.575	2041.484	4059.035	4256.752	4463.654
-35	502.881	524.831	547.685	785.054	819.651	855.688	1328.527	1387.289	1448.506	2876.261	3005.888	3141.042
-30	365.460	380.184	395.462	568.281	591.391	615.380	960.265	999.456	1040.143	2062.776	2148.514	2237.591
-25	267.924	277.845	288.106	415.020	430.529	446.573	702.528	728.895	756.177	1497.800	1555.020	1614.264
-20	198.531	205.260	212.196	306.393	316.870	327.672	519.195	537.039	555.440	1098.895	1137.312	1176.955
-15	149.036	153.642	158.374	229.194	236.337	243.678	387.052	399.167	411.621	813.431	839.314	865.934
-10	112.855	116.016	119.254	172.958	177.842	182.864	291.216	299.469	307.927	607.840	625.338	643.275
-5	85.960	88.125	90.336	131.298	134.630	138.033	220.570	226.186	231.921	457.312	469.127	481.198
0	66.039	67.522	69.032	100.542	102.816	105.131	168.570	172.393	176.285	347.243	355.224	363.353
5	51.154	52.168	53.197	77.635	79.183	80.755	130.250	132.857	135.503	266.643	272.045	277.529
10	39.927	40.617	41.314	60.411	61.460	62.521	101.322	103.089	104.875	206.172	209.803	213.477
15	31.382	31.847	32.315	47.342	48.045	48.754	79.248	80.430	81.621	160.304	162.713	165.141
20	24.843	25.151	25.461	37.369	37.834	38.300	62.423	63.201	63.982	125.545	127.117	128.696
25	19.800	20.000	20.200	29.700	30.000	30.300	49.500	50.000	50.500	99.000	100.000	101.000
30	15.819	16.014	16.210	23.663	23.955	24.240	39.338	39.825	40.315	78.240	79.215	80.193
35	12.718	12.902	13.088	18.972	19.249	19.528	31.458	31.918	32.382	62.232	63.150	64.075
40	10.286	10.457	10.630	15.304	15.560	15.819	25.308	25.733	26.163	49.803	50.649	51.505
45	8.371	8.527	8.686	12.423	12.657	12.894	20.489	20.877	21.270	40.116	40.885	41.664
50	6.851	6.993	7.137	10.142	10.354	10.569	16.683	17.034	17.390	32.503	33.195	33.898
55	5.643	5.771	5.901	8.334	8.525	8.719	13.615	13.929	14.249	26.396	27.014	27.643
60	4.674	4.789	4.906	6.887	7.058	7.232	11.159	11.439	11.725	21.531	22.079	22.639
65	3.889	3.992	4.097	5.717	5.869	6.025	9.236	9.485	9.741	17.740	18.226	18.724
70	3.251	3.343	3.437	4.769	4.905	5.044	7.684	7.906	8.133	14.693	15.124	15.566
75	2.727	2.809	2.893	3.992	4.113	4.237	6.417	6.614	6.816	12.217	12.598	12.990
80	2.298	2.371	2.446	3.356	3.463	3.574	5.383	5.558	5.738	10.205	10.542	10.890
85	1.955	2.020	2.087	2.849	2.945	3.044	4.531	4.686	4.846	8.554	8.852	9.160
90	1.671	1.729	1.789	2.430	2.516	2.605	3.829	3.967	4.109	7.200	7.463	7.736
95	1.424	1.476	1.529	2.067	2.143	2.222	3.250	3.373	3.499	6.088	6.321	6.562
100	1.217	1.264	1.312	1.764	1.832	1.903	2.770	2.878	2.991	5.167	5.374	5.588
105	1.044	1.085	1.128	1.510	1.571	1.633	2.368	2.465	2.565	4.401	4.585	4.775
110	0.898	0.935	0.973	1.297	1.350	1.407	2.032	2.118	2.207	3.762	3.925	4.094
115	0.779	0.812	0.847	1.123	1.171	1.222	1.751	1.828	1.908	3.231	3.376	3.527
120	0.679	0.708	0.739	0.976	1.019	1.065	1.514	1.583	1.655	2.785	2.913	3.048
125	0.590	0.617	0.644	0.846	0.886	0.927	1.312	1.374	1.438	1.438	2.520	2.640