

NTC Thermistor : INT Series



High Precision NTC Thermistor for Temperature Sensing

■ Features

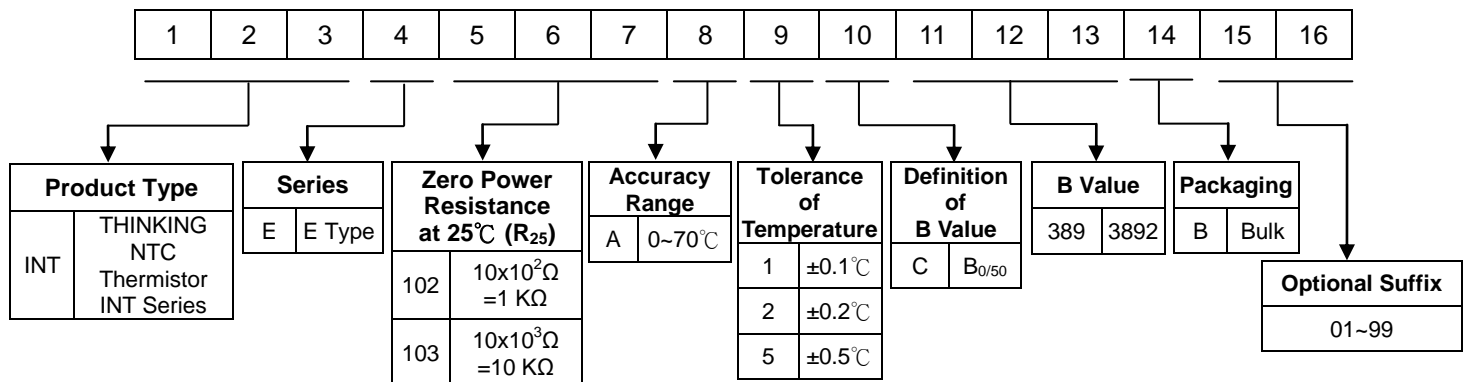
1. RoHS compliant
2. Body size: $\Phi 2.4\text{mm}$
3. High precision
4. Interchangeability
5. Operating temperature range: $-40^{\circ}\text{C} \sim +100^{\circ}\text{C}$



■ Recommended Applications

1. Thermometers
2. Medical devices
3. Precision instruments
4. Tight tolerance instrumentation

■ Part Number Code

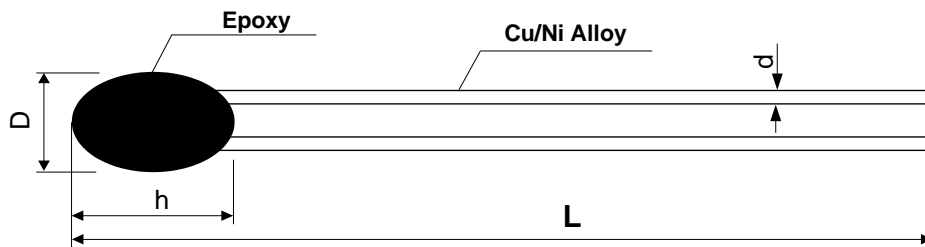


NTC Thermistor : INT Series

High Precision NTC Thermistor for Temperature Sensing



■ Structure and Dimensions



(Unit : mm)

$D_{max.}$	$h_{max.}$	$L_{min.}$	d
2.4	4.5	40	0.25 ± 0.05

■ Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Accuracy (0°C ~ 70°C)	$B_{0/50}$	Max. Power Dissipation at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	$R_{25}(K\Omega)$	(°C)	(K)	$P_{max}(mW)$	$\delta(mW/°C)$	$\tau(Sec.)$	$T_L \sim T_U(°C)$
INTE102A□C389B	1	±0.1 ±0.2 ±0.5	3892	30	≥ 1	≤ 15	-40 ~ +100
INTE222A□C389B	2.252						
INTE302A□C389B	3						
INTE502A□C389B	5						
INTE602A□C389B	6						
INTE103A□C389B	10						
INTE203A□C389B	20						
INTE303A□C389B	30						

Note 1: □ = Temperature Tolerance (1: ±0.1°C , 2: ±0.2°C , 5: ±0.5°C)

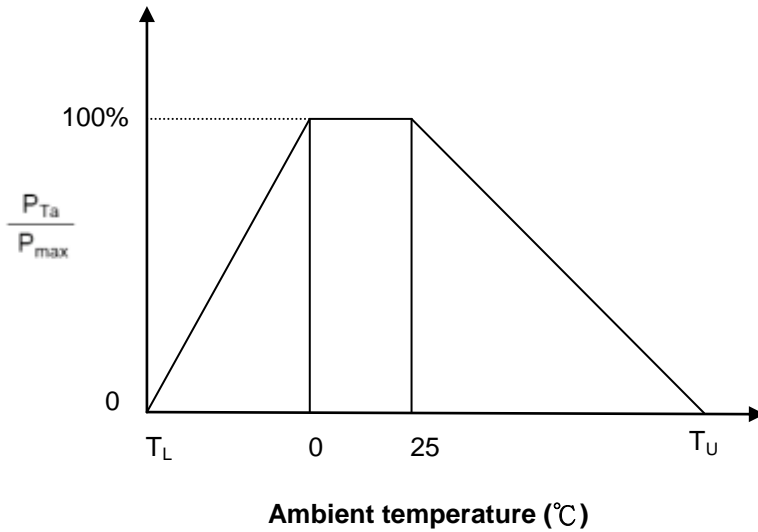
Note 2: Special specifications are available upon request.

NTC Thermistor : INT Series

High Precision NTC Thermistor for Temperature Sensing



■ Max. Power Dissipation Derating Curve



T_U : Maximum operating temperature (°C)

T_L : Minimum operating temperature (°C)

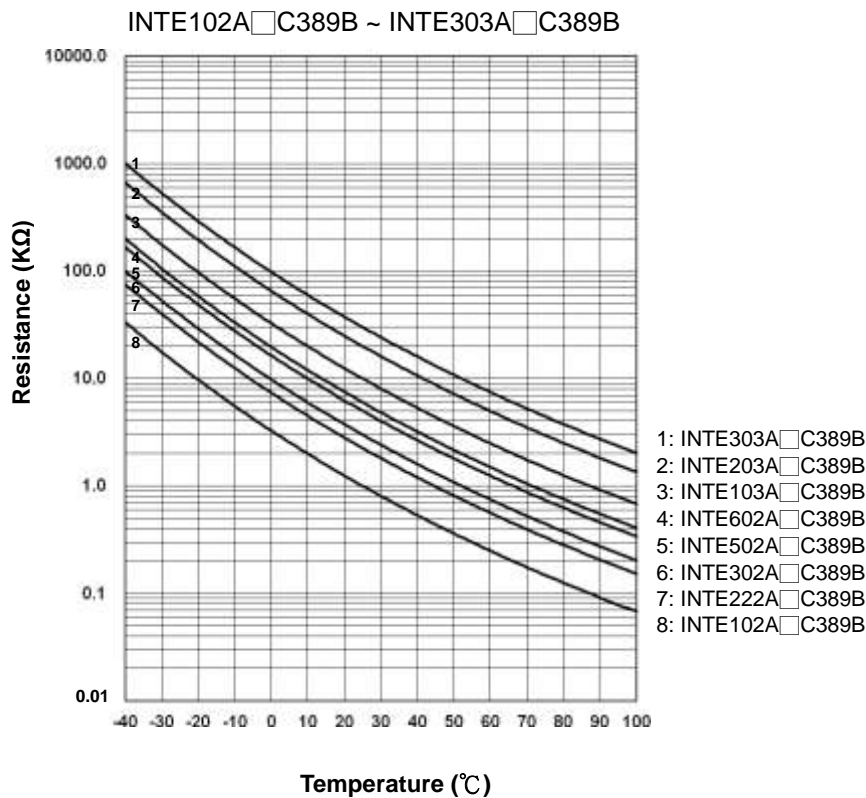
For example:

Ambient temperature (T_a) = 55°C

Maximum operating temperature (T_U) = 100°C

$$P_{Ta} = (T_U - T_a) / (T_U - 25) \times P_{max} = 60\% P_{max}$$

■ R-T Characteristic Curves



NTC Thermistor : INT Series

High Precision NTC Thermistor for Temperature Sensing



■ R-T Characteristic Table

B _{0/50} :3892								
(°C)	Rt/R ₂₅	(%/°C)	(°C)	Rt/R ₂₅	(%/°C)	(°C)	Rt/R ₂₅	(%/°C)
-40	33.441	-6.7148	11	1.8974	-4.7698	62	0.23160	-3.5637
-39	31.280	-6.6454	12	1.8093	-4.7409	63	0.22350	-3.5447
-38	29.279	-6.5772	13	1.7258	-4.7122	64	0.21570	-3.5258
-37	27.425	-6.5115	14	1.6466	-4.6837	65	0.20830	-3.5071
-36	25.704	-6.4488	15	1.5715	-4.6555	66	0.20110	-3.4886
-35	24.106	-6.3896	16	1.5002	-4.6276	67	0.19420	-3.4701
-34	22.620	-6.3339	17	1.4325	-4.5998	68	0.18760	-3.4518
-33	21.237	-6.2817	18	1.3683	-4.5723	69	0.18130	-3.4336
-32	19.949	-6.2327	19	1.3074	-4.5450	70	0.17520	-3.4156
-31	18.748	-6.1867	20	1.2494	-4.5180	71	0.16922	-3.3977
-30	17.627	-6.1435	21	1.1944	-4.4912	72	0.16358	-3.3799
-29	16.580	-6.1025	22	1.1421	-4.4646	73	0.15816	-3.3622
-28	15.602	-6.0635	23	1.0924	-4.4382	74	0.15294	-3.3447
-27	14.687	-6.0262	24	1.0451	-4.4120	75	0.14786	-3.3148
-26	13.830	-5.9902	25	1.0000	-4.3861	76	0.14305	-3.2995
-25	13.029	-5.9553	26	0.95730	-4.3603	77	0.13842	-3.2843
-24	12.277	-5.9212	27	0.91660	-4.3348	78	0.13396	-3.2691
-23	11.573	-5.8876	28	0.87780	-4.3095	79	0.12966	-3.2539
-22	10.914	-5.8545	29	0.84090	-4.2844	80	0.12552	-3.2387
-21	10.295	-5.8216	30	0.80570	-4.2595	81	0.12153	-3.2235
-20	9.7140	-5.7888	31	0.77220	-4.2348	82	0.11768	-3.2082
-19	9.1692	-5.7560	32	0.74020	-4.2103	83	0.11398	-3.1929
-18	8.6577	-5.7232	33	0.70980	-4.1860	84	0.11040	-3.1776
-17	8.1775	-5.6902	34	0.68080	-4.1619	85	0.10696	-3.1621
-16	7.7264	-5.6571	35	0.65310	-4.1381	86	0.10364	-3.1467
-15	7.3027	-5.6237	36	0.62670	-4.1144	87	0.10043	-3.1312
-14	6.9045	-5.5902	37	0.60150	-4.0909	88	0.09735	-3.1156
-13	6.5302	-5.5565	38	0.57740	-4.0676	89	0.09437	-3.1000
-12	6.1783	-5.5227	39	0.55450	-4.0446	90	0.09149	-3.0844
-11	5.8473	-5.4887	40	0.53260	-4.0217	91	0.08872	-3.0687
-10	5.5360	-5.4545	41	0.51160	-3.9990	92	0.08605	-3.0531
-9	5.2430	-5.4203	42	0.49160	-3.9765	93	0.08347	-3.0374
-8	4.9672	-5.3861	43	0.47250	-3.9542	94	0.08098	-3.0218
-7	4.7076	-5.3518	44	0.45420	-3.9320	95	0.07857	-3.0062
-6	4.4630	-5.3176	45	0.43680	-3.9101	96	0.07625	-2.9906
-5	4.2326	-5.2834	46	0.42010	-3.8884	97	0.07401	-2.9752
-4	4.0155	-5.2493	47	0.40410	-3.8668	98	0.07185	-2.9598
-3	3.8108	-5.2153	48	0.38880	-3.8454	99	0.06976	-2.9445
-2	3.6178	-5.1815	49	0.37420	-3.8242	100	0.06774	-2.9292
-1	3.4357	-5.1479	50	0.36020	-3.8032			
0	3.2650	-5.1063	51	0.34680	-3.7823			
1	3.1030	-5.0742	52	0.33390	-3.7616			
2	2.9500	-5.0425	53	0.32160	-3.7411			
3	2.8054	-5.0111	54	0.30990	-3.7208			
4	2.6688	-4.9799	55	0.29860	-3.7006			
5	2.5395	-4.9491	56	0.28780	-3.6806			
6	2.4173	-4.9185	57	0.27740	-3.6607			
7	2.3017	-4.8882	58	0.26740	-3.6410			
8	2.1922	-4.8582	59	0.25790	-3.6214			
9	2.0886	-4.8285	60	0.24880	-3.6020			
10	1.9904	-4.7990	61	0.24000	-3.5828			

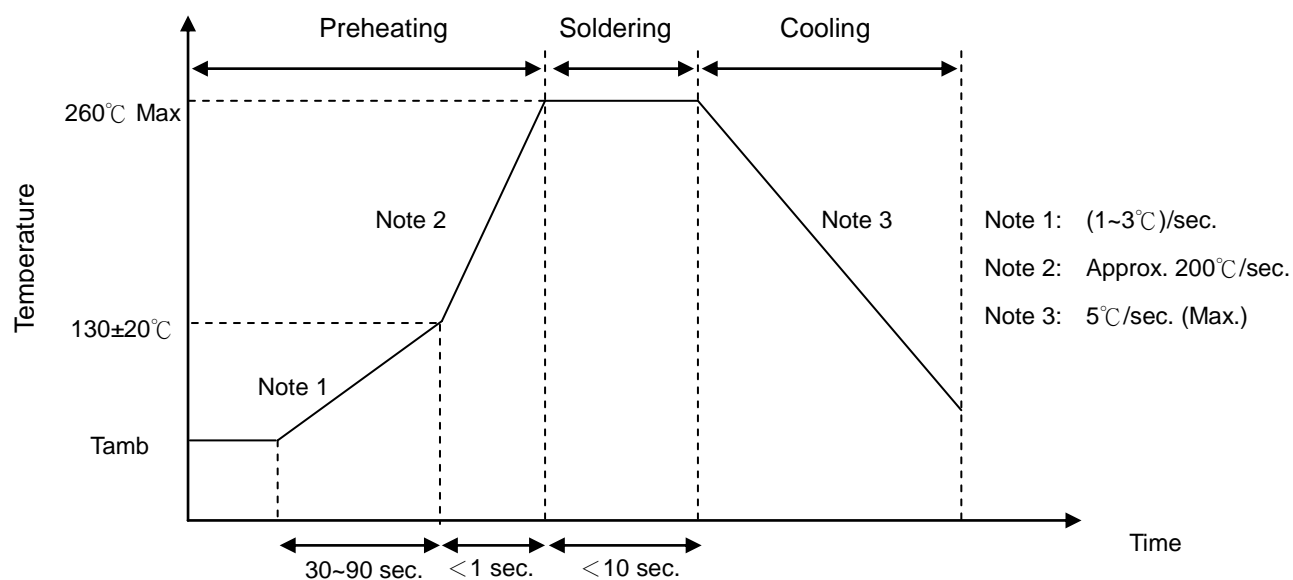
NTC Thermistor : INT Series

High Precision NTC Thermistor for Temperature Sensing



■ Soldering Recommendation

● Wave Soldering Profile



● Recommended Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	3 sec. (max.)
Distance from Thermistor	2mm (min.)

NTC Thermistor : INT Series

High Precision NTC Thermistor for Temperature Sensing



■ Reliability

Item	Standard	Test conditions / Methods	Specifications
Solderability	IEC 60068-2-20	245 ± 3°C, 3 ± 0.3 sec	At least 95% of terminal electrode is covered by new solder
Resistance to Soldering Heat	IEC 60068-2-20	260 ± 3°C, 10 ± 1 sec	No visible damage $\Delta R_{25}/R_{25}$ ≤ 1 %
Low Temperature Storage	IEC 60068-2-1	-40 ± 3°C, 1000 ± 24 hr	No visible damage $\Delta R_{25}/R_{25}$ ≤ 1 %
High Temperature Storage	IEC 60068-2-2	100 ± 5°C, 1000 ± 24 hr	No visible damage $\Delta R_{25}/R_{25}$ ≤ 1 %
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C, 90~95% RH, 1000 ± 24 hr	No visible damage $\Delta R_{25}/R_{25}$ ≤ 1 %
Max. Power Dissipation	IEC 60539-1 4.26.3	25 ± 5°C, Pmax., 1000 ± 24 hr	No visible damage $\Delta R_{25}/R_{25}$ ≤ 1 %

■ Quantity

- Bulk packing: 500pcs/bag

■ Warehouse Storage Conditions of Products

- Storage Conditions :
 1. Storage Temperature: -10°C ~ +40°C
 2. Relative Humidity: ≤ 75%RH
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage : 1 year