

NTC Thermistor: TTC03 Series



Φ3mm Disc Type for Temperature Sensing/Compensation

■ Features

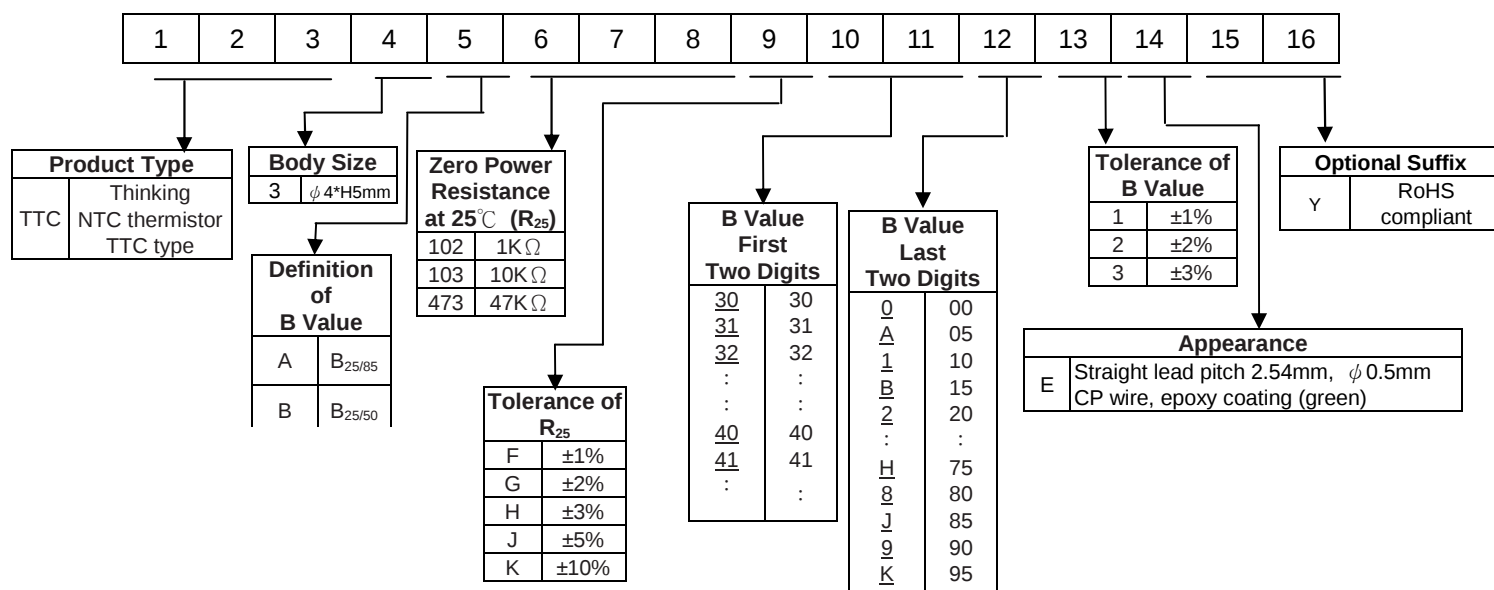
1. RoHS compliant
2. Body size Φ3mm
3. Radial lead resin coated
4. -40 ~ +125°C operating temperature range
5. Wide resistance range
6. Cost effective
7. Agency recognition: UL /CQC



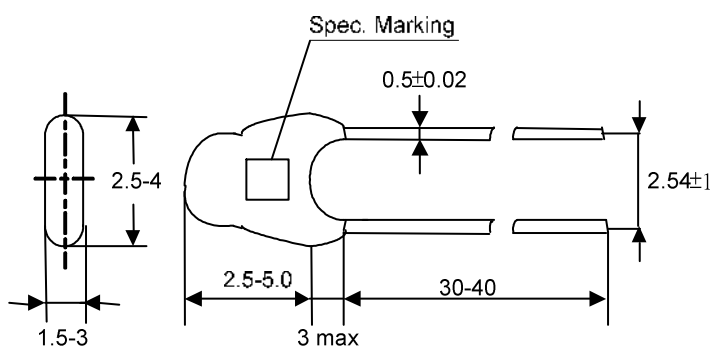
■ Recommended Applications

1. Home appliances (air conditioner, refrigerator, electric fan, electric cooker, washing machine, microwave oven, drinking machine, CTV, radio.)
2. Automotive electronics
3. Computers
4. Digital meter

■ Part Number Code



■ Structure and Dimensions



(Unit:mm)

NTC Thermistor: TTC03 Series



Φ3mm Disc Type for Temperature Sensing/Compensation

■ Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Tolerance of R ₂₅	B _{25/85} Value	Tolerance of B value	Max. Power Rating at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range	Safety Approvals	
	R ₂₅ (KΩ)	(±%)	(K)	(±%)	P _{max} (mW)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)	UL	CQC
TTC3A901□39D*	0.9	1、2、3、 5、10	3935	1、2、3	150	≥2.5	≤18	-40~+125	✓	✓
TTC3A102□39D*	1		3935						✓	✓
TTC3A152□39D*	1.5		3935						✓	✓
TTC3A202□39H*	2		3975						✓	✓
TTC3A222□39H*	2.2		3975						✓	✓
TTC3A272□39H*	2.7		3975						✓	✓
TTC3A302□39H*	3		3975						✓	✓
TTC3A332□39H*	3.3		3975						✓	✓
TTC3A472□39H*	4.7		3975						✓	✓
TTC3A502□39H*	5		3975						✓	✓
TTC3A682□39H*	6.8		3975						✓	✓
TTC3A103□34D*	10		3435						✓	✓
TTC3A103□374*	10		3740						✓	✓
TTC3A103□39H*	10		3975						✓	✓
TTC3A123□374*	12		3740						✓	✓
TTC3A153□374*	15		3740						✓	✓
TTC3A203□374*	20		3740						✓	✓
TTC3A223□374*	22		3740						✓	✓
TTC3A333□409*	33		4090						✓	✓
TTC3A473□409*	47		4090						✓	✓
TTC3A503□39H*	50		3975						✓	✓
TTC3A503□406*	50		4060						✓	✓
TTC3A683□419*	68		4190						✓	✓
TTC3A104□419*	100		4190						✓	✓
TTC3A154□437*	150		4370						✓	✓
TTC3A224□437*	220		4370						✓	✓
TTC3A334□457*	330		4570						✓	✓
TTC3A474□457*	470		4570						✓	✓

Note 1: □ = Tolerance of rR₂₅

Note 2: * = Tolerance of B value

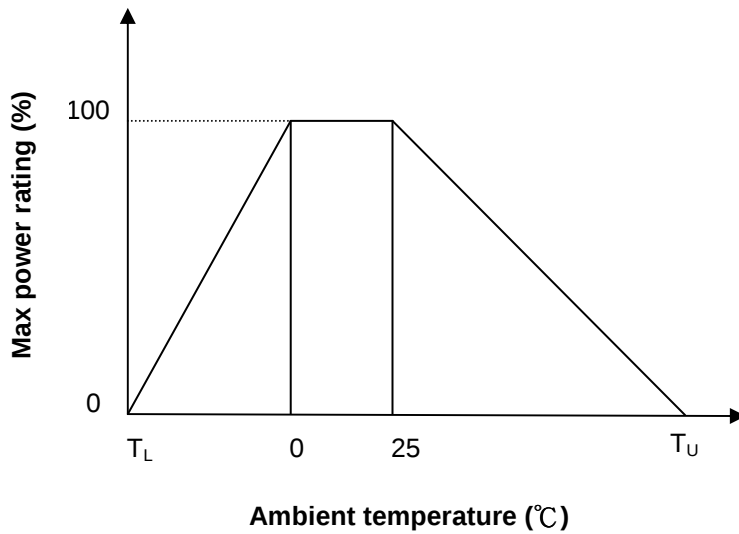
Note 3: UL file no.E138827 CQC file no. 04001011966

NTC Thermistor: TTC03 Series



Φ3mm Disc Type for Temperature Sensing/Compensation

■ Power Derating Curve



T_U : Maximum operating temperature (°C)

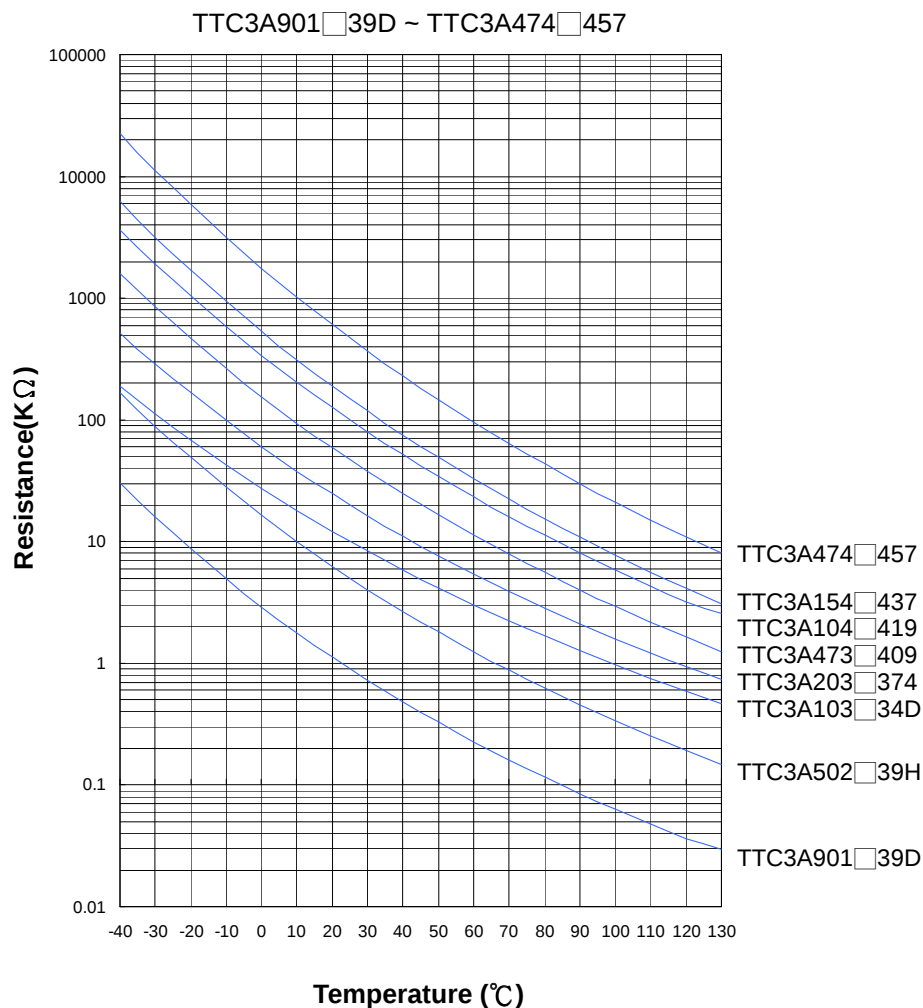
T_L : Minimum operating temperature (°C)

For example : Ambient temperature(T_a)=55°C

Maximum operating temperature(T_U)=125°C

$P_{Ta} = (T_U - T_a) / (T_U - 25) \times P_{max} = 70\% P_{max}$

■ R-T Characteristic Curves (representative)



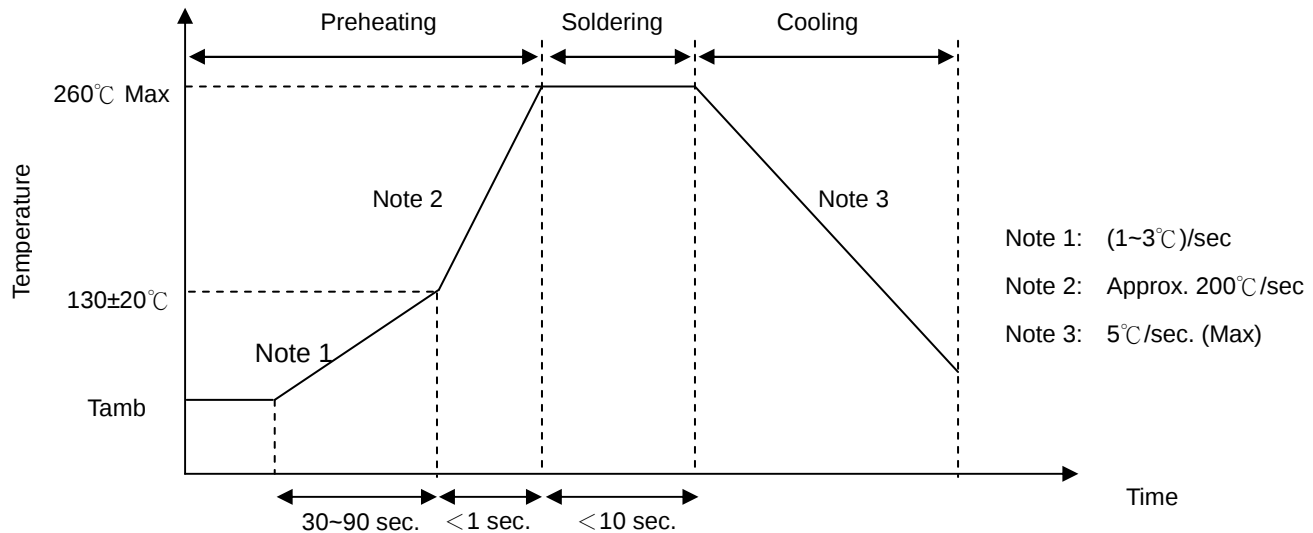
NTC Thermistor: TTC03 Series



Φ3mm Disc Type for Temperature Sensing/Compensation

■ 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	2 mm (min.)

NTC Thermistor: TTC03 Series



Φ3mm Disc Type for Temperature Sensing/Compensation

■ Reliability

Item	Standard	Test conditions / Methods	Specifications															
Tensile Strength of Terminations	IEC 60068-2-21	Gradually applying the force specified and keeping the unit fixed for 10±1 sec. <table><tr><td>Terminal diameter</td><td>Force</td></tr><tr><td>(mm)</td><td>(Kg)</td></tr><tr><td> 0.3<d≤0.5 </td><td> 0.5 </td></tr><tr><td> 0.5<d≤0.8 </td><td> 1.0 </td></tr></table>	Terminal diameter	Force	(mm)	(Kg)	0.3<d≤0.5	0.5	0.5<d≤0.8	1.0	No visible damage							
Terminal diameter	Force																	
(mm)	(Kg)																	
0.3<d≤0.5	0.5																	
0.5<d≤0.8	1.0																	
Bending Strength of Terminations	IEC 60068-2-21	Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°, then r return to the original position. Repeat the procedure in the opposite direction. <table><tr><td>Terminal diameter</td><td>Force</td></tr><tr><td>(mm)</td><td>(Kg)</td></tr><tr><td> 0.3<d≤0.5 </td><td> 0.25 </td></tr><tr><td> 0.5<d≤0.8 </td><td> 0.5 </td></tr></table>	Terminal diameter	Force	(mm)	(Kg)	0.3<d≤0.5	0.25	0.5<d≤0.8	0.5	No visible damage							
Terminal diameter	Force																	
(mm)	(Kg)																	
0.3<d≤0.5	0.25																	
0.5<d≤0.8	0.5																	
Solderability	IEC 60068-2-20	235 ± 5℃ , 2 ± 0.5 sec	At least 95% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	IEC 60068-2-20	260 ± 5℃ , 10 ± 1 sec	No visible damage △R ₂₅ /R ₂₅ ≤ 3 %															
High Temperature Storage	IEC 60068-2-3	125 ± 5℃ x 1000 ± 24 hrs	No visible damage △R ₂₅ /R ₂₅ ≤ 5 %															
Damp Heat, Steady State	IEC 60068-2-2	40 ± 2℃ , 90~95% RH , 1000 ± 24 hrs	No visible damage △R ₂₅ /R ₂₅ ≤ 3 %															
Rapid Change of Temperature	IEC 60068-2-14	The conditions shown below shall be repeated 5 cycles <table><tr><td>Step</td><td>Temperature (℃)</td><td>Period (minutes)</td></tr><tr><td>1</td><td>-40±5</td><td>30±3</td></tr><tr><td>2</td><td>Room temperature</td><td>5±3</td></tr><tr><td>3</td><td>125±5</td><td>30±3</td></tr><tr><td>4</td><td>Room temperature</td><td>5±3</td></tr></table>	Step	Temperature (℃)	Period (minutes)	1	-40±5	30±3	2	Room temperature	5±3	3	125±5	30±3	4	Room temperature	5±3	No visible damage △R ₂₅ /R ₂₅ ≤ 3 %
Step	Temperature (℃)	Period (minutes)																
1	-40±5	30±3																
2	Room temperature	5±3																
3	125±5	30±3																
4	Room temperature	5±3																
Life Test	IEC 60539-1	25 ± 5℃ , Pmax. x 1000 ± 24 hrs	No visible damage △R ₂₅ /R ₂₅ ≤ 5 %															

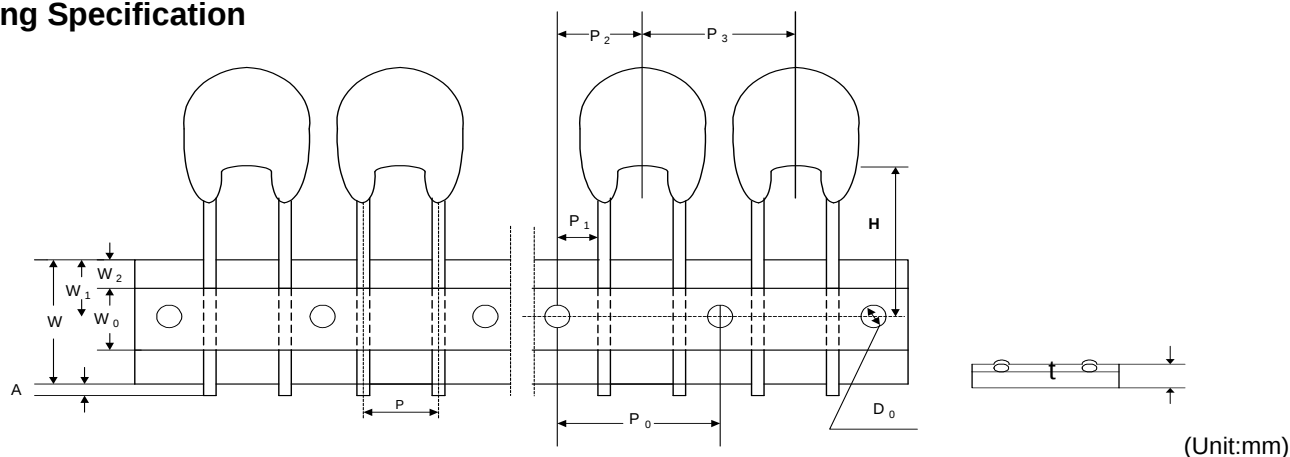
NTC Thermistor: TTC03 Series



Φ3mm Disc Type for Temperature Sensing/Compensation

■ Packaging

● Taping Specification



Taping Code	$P_0 \pm 1$	$P_3 \pm 1$	$P_1 \pm 1$	$P_2 \pm 1.3$	$H \pm 2/-0$	$W_0 \pm 1$	$W_1 \pm 1$	$W_{2(max)}$	$W \pm 1$	Amax	$D_0 \pm 0.2$	$P \pm 1.0$	$t \pm 0.2$
A ($P_0=12.7$)	12.7	12.7	4.83	6.35	18	12	9	3	18	1	4	2.54	0.6
E ($P_0=15.0$)	15.0	15.0	5.98	7.50	18	12	9	3	18	1	4	2.54	0.6

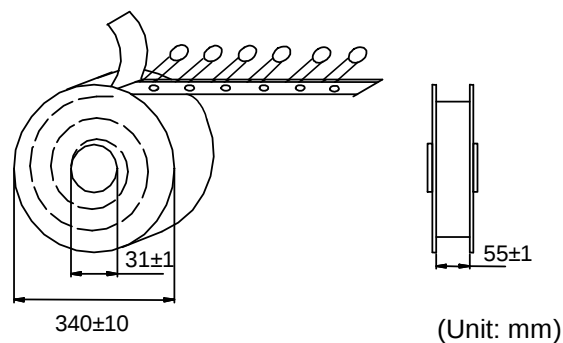
■ Quantity

● Bulk Packing

Body Size/mm	Quantity (pcs/bag)
Φ03	500

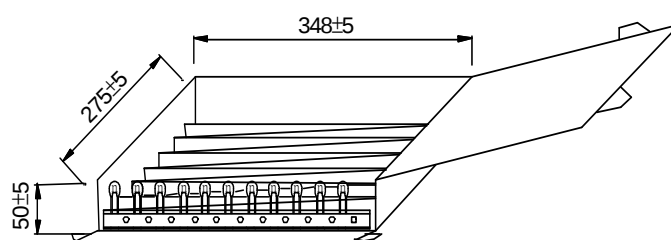
● Reel Packing

Body Size/mm	Quantity (pcs/reel)
Φ03	2500



● Ammo Packing

Body Size/mm	Quantity (pcs/box)
Φ03	2500



NTC Thermistor: TTC03 Series



Φ3mm Disc Type for Temperature Sensing/Compensation

■ Storage Conditions of Products

- Storage Conditions :
 1. Storage Temperature : $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
 2. Relative Humidity : $\leq 75\% \text{RH}$
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage : 1 year