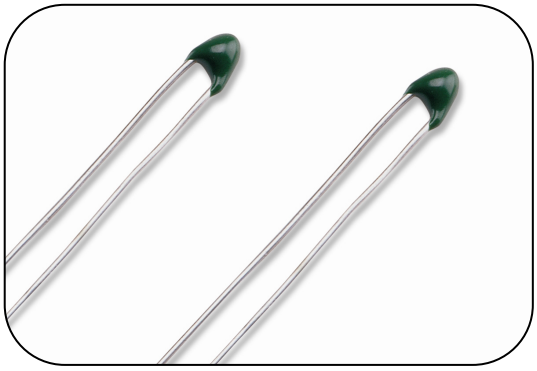
NTC Thermistor： TTC03 Series

Φ3mm Disc Type for Temperature Sensing/Compensation

■ Features

1. RoHS compliant
2. Body size Φ3mm
3. Radial lead resin coated
4. -40 ~ +125℃ 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 No. Code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Product Code

TTC	Thinking NTC Thermistor TTC Type

Body Size

3	φ4*H5mm

Define of Beta Value

A	$B_{25/85}$
B	$B_{25/50}$

Zero Power Resistance at 25℃ (R_{25})

102	1KΩ
103	10KΩ
473	47KΩ

Tolerance of R_{25}

F	±1%
G	±2%
H	±3%
J	±5%
K	±10%

Beta Value First Two Digits

30	30
31	31
32	32
:	:
:	:
40	40
41	41
:	:

Beta Value Last Two Digits

0	00
A	05
1	10
B	15
2	20
:	:
H	75
8	80
J	85
9	90
K	95

Tolerance of Beta Value

1	±1%
2	±2%
3	±3%

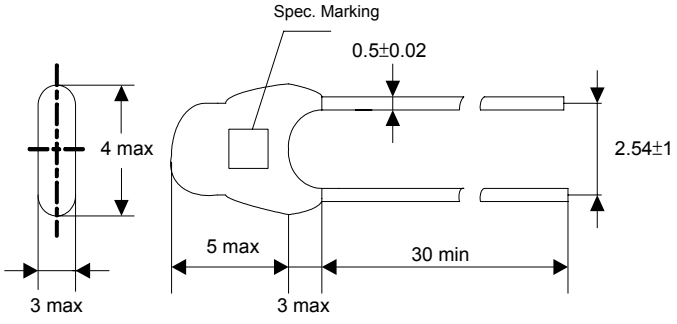
Internal Control Code

Y	ROHS Control

Appearance

E	Straight Lead Pitch 2.54mm, φ0.5mm CP Wire,Green Epoxy coating

■ Dimensions



(Unit:mm)

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■ Characteristics

Part no.	Zero power resistance at 25°C	Tolerance of resistance	B Value		Tolerance of B value	Max. power rating at 25°C	Thermal dissipation constant	Thermal time constant	Operating temperature range	Safety Approvals	
	R25 (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	25/85	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 resistance

Note 2: * = Tolerance of B value

Note 3: UL File No.E138827　CQC File No. 04001011966

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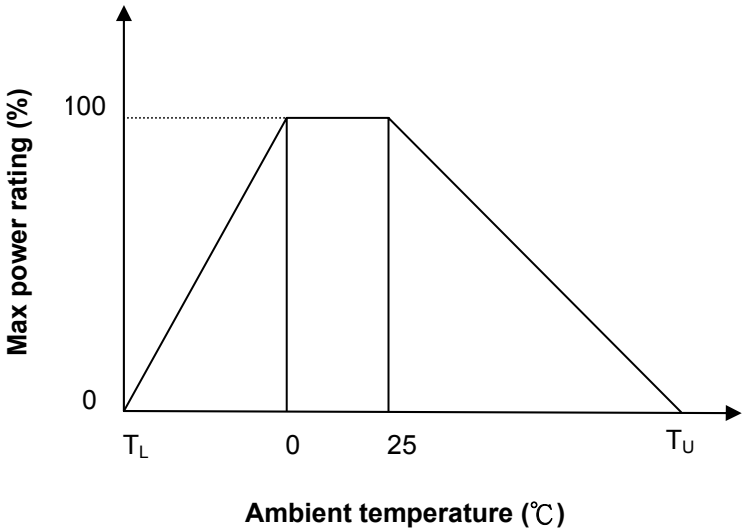
■ Maximum power rating (Pmax)



T_U：Maximum operating temperature

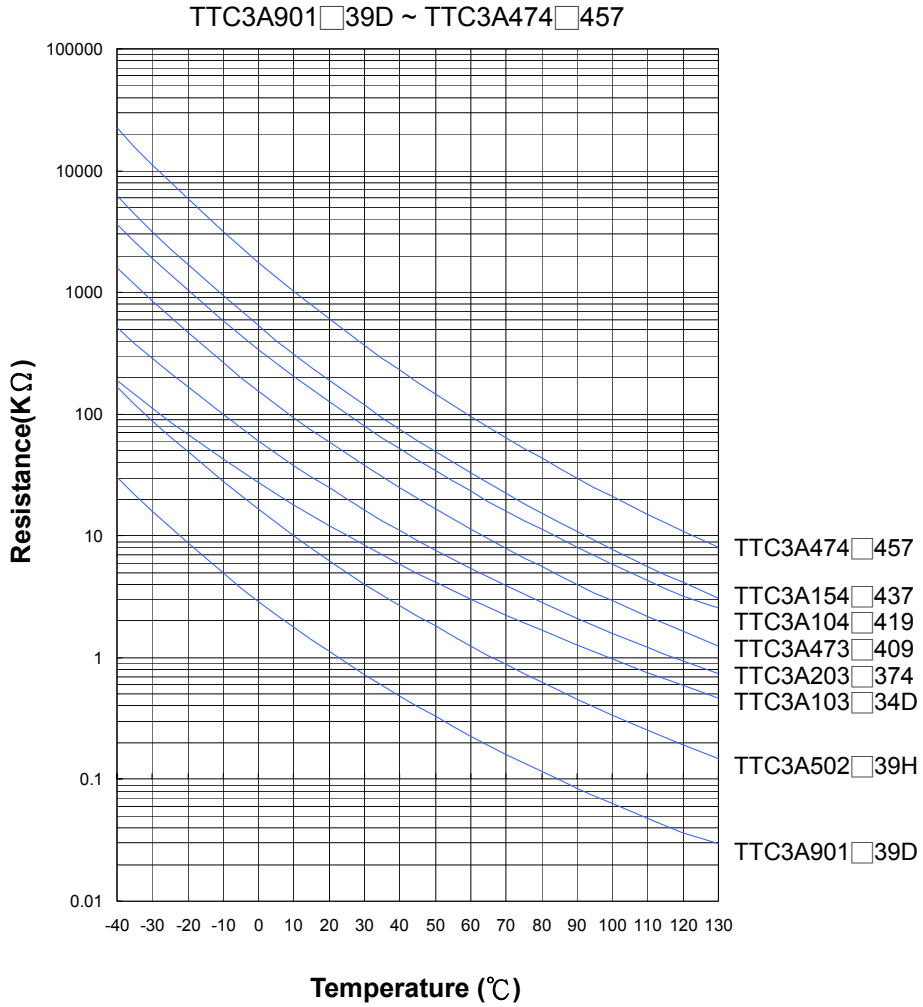
T_L：Minimum operating temperature

For example：Ambient temperature(Ta)=55℃

Maximum operating temperature(Tu)＝125℃

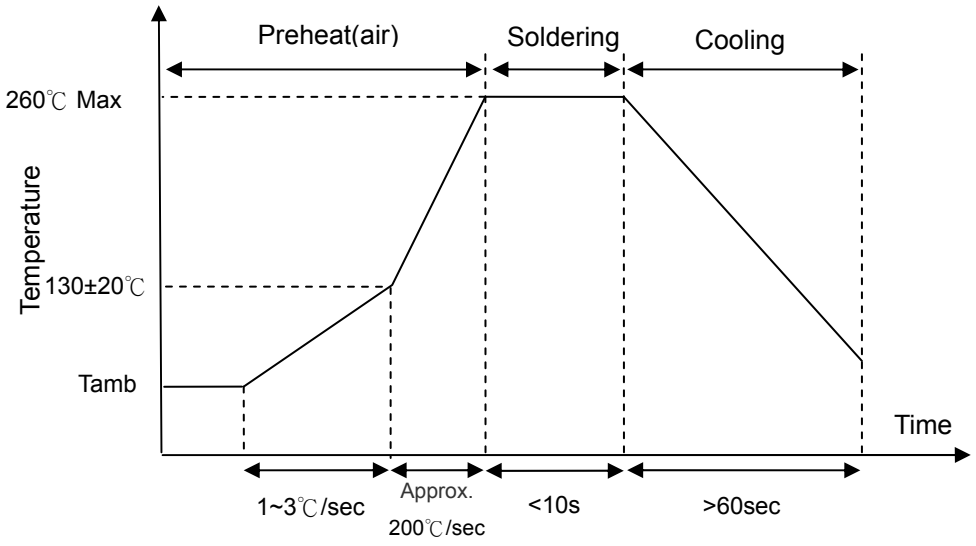
P_{Ta}=(Tu-Ta)/(Tu-25)xPmax＝70% Pmax

■ R-T characteristic curve (representative)



■ Soldering Recommendation

● Wave Flow Soldering Profile



● Reworking Conditions With Soldering Iron

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

■ Reliability test

<table>
<tr><th>Item</th><th>Standard</th><th>Test Conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Tensile Strength of Terminations</td><td>IEC 60068-2-21</td><td>Gradually applying the force specified below to each terminal and keeping the unit fixed for 10±1 sec

Terminal diameter (mm) | Force (Kg)
0.3<d≦0.5 | 0.5
0.5<d≦0.8 | 1.0</td><td>No visible damage</td></tr>
<tr><td>Bending Strength of Terminations</td><td>IEC 60068-2-21</td><td>Hanging the force specified below to each terminal and gradually bending each terminal by 90°in one direction, then 90° in the opposite direction, and again back to the origin.

Terminal diameter (mm) | Force (Kg)
0.3<d≦0.5 | 0.25
0.5<d≦0.8 | 0.5</td><td>No visible damage</td></tr>
<tr><td>Solderability</td><td>IEC 60068-2-20</td><td>235 ± 5℃， 2 ± 0.5 sec</td><td>At least 95% of terminal electrode is covered by new solder</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>IEC 60068-2-20</td><td>260 ± 5℃， 10 ± 1sec</td><td>No visible damage
｜△R/R｜≦ 3 %</td></tr>
<tr><td>High Temperature Storage</td><td>IEC 60068-2-3 UL1434</td><td>125 ± 5℃ x 1000 ± 24HRS</td><td>No visible damage
｜△R/R｜≦ 5 %</td></tr>
<tr><td>Damp Heat</td><td>IEC 60068-2-3 UL1434</td><td>40 ± 2℃， 90~95% RH , 1000 ± 24HRS</td><td>No visible damage
｜△R/R｜≦ 3 %</td></tr>
<tr><td>Thermal Shock</td><td>IEC 60068-2-14 UL1434</td><td>The thermal shock conditions shown below shall be repeated 5 cycles
<table><tr><th>Step</th><th>Temperature (℃)</th><th>Period (minutes)</th></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></td><td>No visible damage
｜△R/R｜≦ 3 %</td></tr>
<tr><td>Life Test</td><td>CNS5550</td><td>25 ± 5℃, Pmax. X 1000 ± 24HRS</td><td>No visible damage
｜△R/R｜≦ 5 %</td></tr>
</table>

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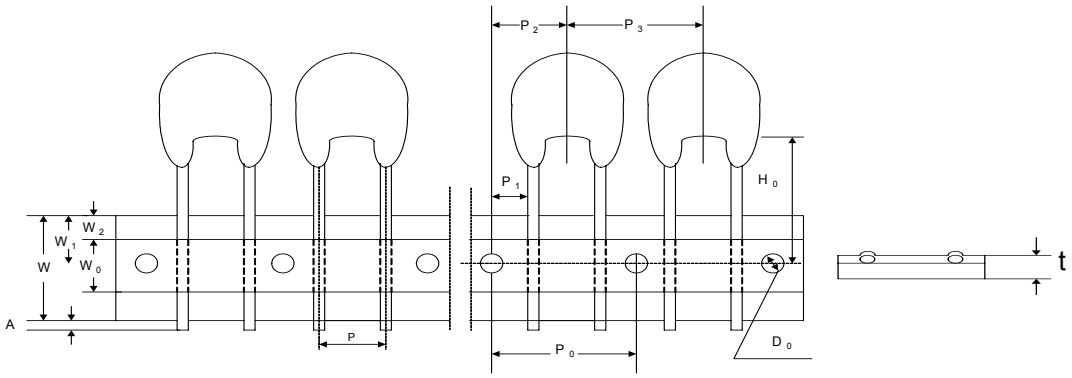
■ Packaging

● Taping Specification



(Unit:mm)

Taping Code	P_0±1	P_3±1	P_1±1	P_2±1.3	H_0±1	W_0±1	W_1±1	$W_{2(max)}$	W±1	Amax	D_0±0.2	P±1.0	t±0.2
A (P_0=12.7)	12.7	12.7	4.83	6.35	20	12	9	3	18	1	4	2.54	0.6
E (P_0=15.0)	15.0	15.0	5.98	7.50	20	12	9	3	18	1	4	2.54	0.6

■ Quantity

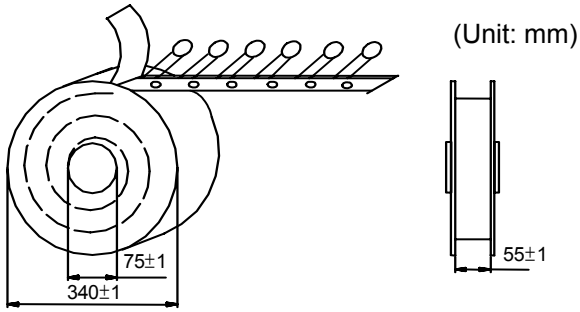
● Bulk Packing

Disc Size/mm	Quantity (PCS/Bag)
Φ03	500

● Reel Packing

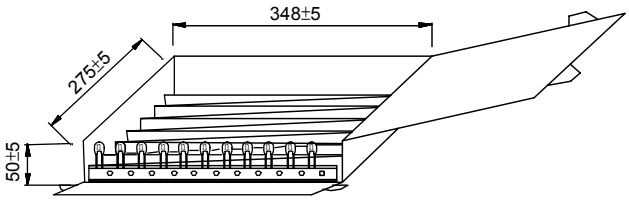
Disc Size/mm	Quantity (PCS/Reel)
Φ03 For Pitch 12.7 mm	2500

(Unit: mm)



● Ammo packing

Disc Size/mm	Quantity (PCS/Box)
Φ03 For Pitch 12.7 mm	2500



■ Storage condition of products

(I) Storage Conditions :

1.Storage Temperature : -10℃~+40℃

2.Relative humidity : ≦75%RH

3.Thermistors must be kept away from sunlight and stored in a non-corrosive atmosphere.

(II) Period of Storage : 1 year