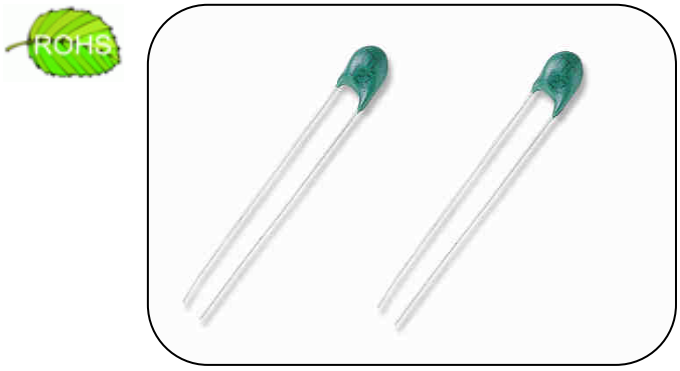
NTC Thermistor：TTC05 Series

Φ5 mm Disc Type for Temperature Sensing/Compensation

■ Features



1. RoHS compliant
2. Body size Φ5mm
3. Radial lead resin coated
4. -30 ~ +125℃ operating temperature range
5. Wide resistance range
6. Cost effective
7. Agency recognition :UL /CSA/TUV/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

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

Product Type

TTC	Thinking NTC thermistor TTC type

Body Size

05	φ5mm

Zero Power Resistance at 25℃ (R_{25})

R_{25}＜100Ω 005:5Ω 015:15Ω 050:50Ω
R_{25}≧100Ω 101:100Ω 682:6800Ω 474:470000Ω

Tolerance of R_{25}

J	±5%
K	±10%
L	±15%

Appearance

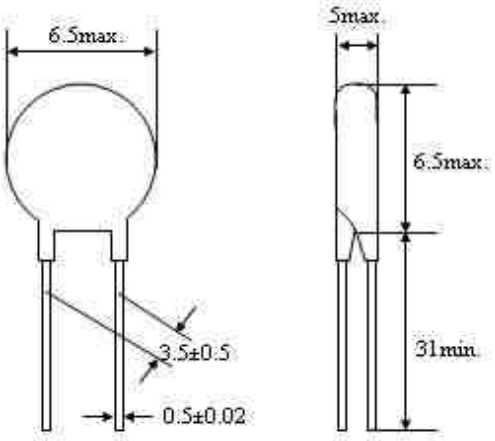
S	Straight lead
I	Kink lead

Optional Suffix

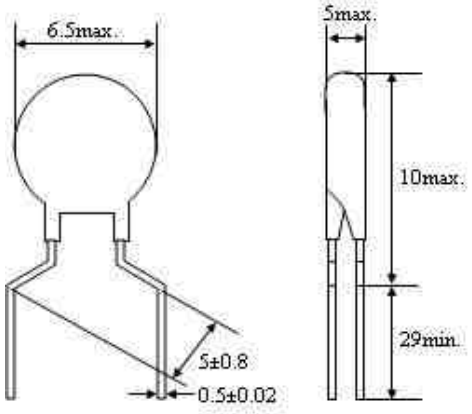
Y	RoHS compliant

■ Structure and Dimensions

S type (Straight lead)



I type (Inner kink lead)



(Unit: mm)

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■ Electrical Characteristics

Part No.	Zero Power Resistance at 25℃	Tolerance of R_{25}	$B_{25/50}$ Value	Max. Power Rating at 25℃	Dissipation Factor	Thermal Time Constant	Operating Temperature Range	Safety Approvals			
								UL	CSA	TUV	CQC
	R_{25}(Ω)	(±%)	(K)	P_{max}(mW)	δ(mW/℃)	τ(Sec.)	T_L~T_U(℃)				
TTC05005□	5	5、10、15	2400	450	Approx. 4.5	Approx. 20	-30~+125		√	√	√
TTC05010□	10		2800						√	√	√
TTC05015□	15		2800					√	√	√	√
TTC05020□	20		2800					√	√	√	√
TTC05025□	25		2900					√	√	√	√
TTC05045□	45		3100					√	√	√	√
TTC05050□	50		3100					√	√	√	√
TTC05060□	60		3100					√	√	√	√
TTC05085□	85		3200					√	√	√	√
TTC05090□	90		3200					√		√	√
TTC05101□	100		3200					√	√	√	√
TTC05121□	120		3300					√	√	√	√
TTC05151□	150		3300					√	√	√	√
TTC05201□	200		3500					√	√	√	√
TTC05221□	220		3500					√	√	√	√
TTC05251□	250		3500					√	√	√	√
TTC05301□	300		3800					√	√	√	√
TTC05471□	470		3500					√	√	√	√
TTC05501□	500		3700					√	√	√	√
TTC05681□	680		3800					√	√	√	√
TTC05701□	700		3800					√	√	√	√
TTC05102□	1000		3800					√	√	√	√
TTC05152□	1500		3950					√	√	√	√
TTC05202□	2000		4000					√	√	√	√
TTC05222□	2200		4000					√	√	√	√
TTC05252□	2500		4000					√	√	√	√
TTC05302□	3000		4000					√	√	√	√
TTC05332□	3300		4000					√	√	√	√
TTC05402□	4000		4000					√	√	√	√
TTC05472□	4700		4050					√	√	√	√
TTC05502□	5000		3950					√	√	√	√
TTC05602□	6000		4050					√	√	√	√
TTC05682□	6800		4050					√	√	√	√
TTC05802□	8000		4050					√	√	√	√
TTC05103□	10000		4050					√	√	√	√
TTC05123□	12000		4050					√	√	√	√
TTC05153□	15000		4150					√	√	√	√
TTC05203□	20000		4250					√	√	√	√
TTC05303□	30000		4250					√	√	√	√
TTC05473□	47000		4300					√	√	√	√
TTC05503□	50000		4300					√	√	√	√
TTC05104□	100000		4400					√	√	√	√
TTC05154□	150000		4500					√	√	√	√
TTC05204□	200000		4600					√	√	√	√
TTC05224□	220000		4600							√	√
TTC05474□	470000		4750					√		√	√

Note : □ = Tolerance of R_{25}

Note2： UL file no. E138827

CSA file no. 97495

TUV file no. R 50050155

CQC file no. CQC05001011991；CQC05001011994

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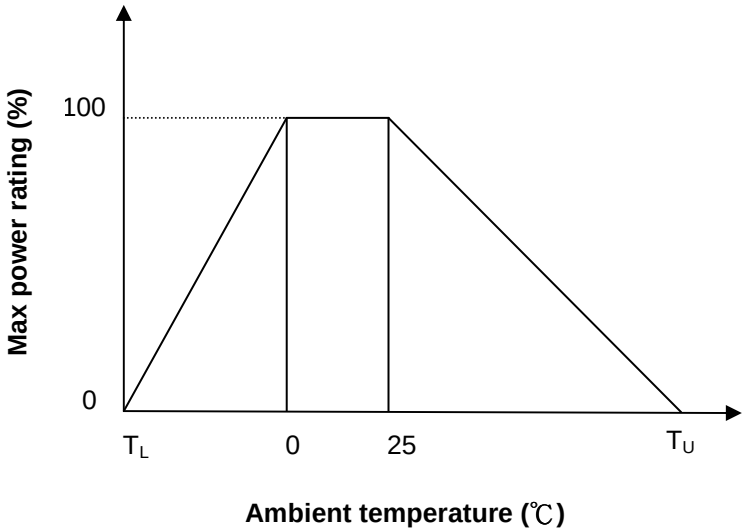
■ Power Derating Curve



T_U：Maximum operating temperature (℃)

T_L：Minimum operating temperature (℃)

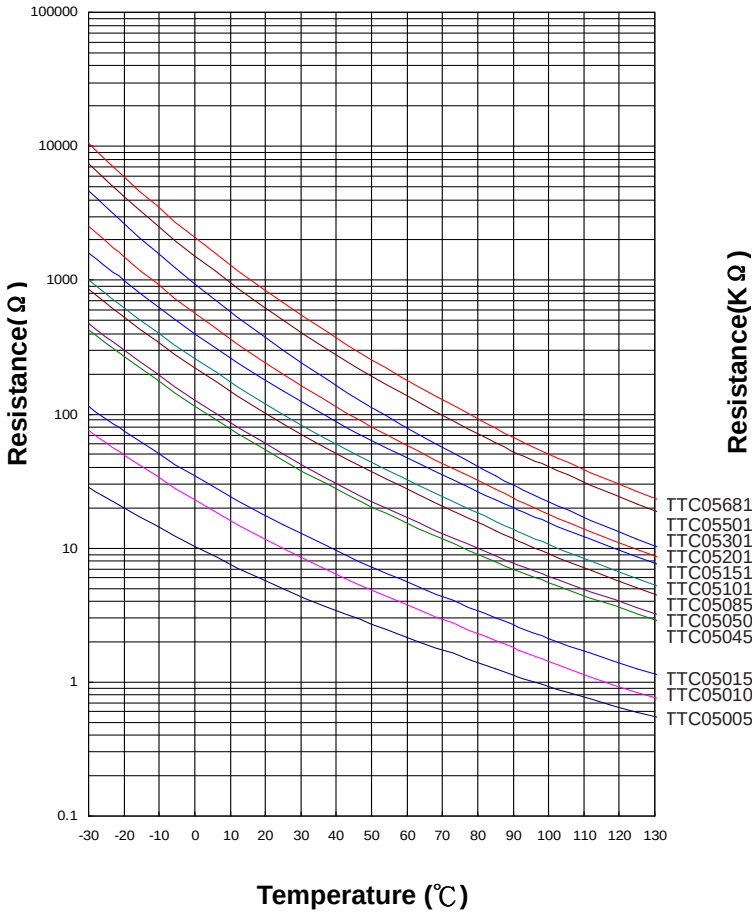
For example：Ambient temperature(Ta)=55℃

Maximum operating temperature(T_U)＝125℃

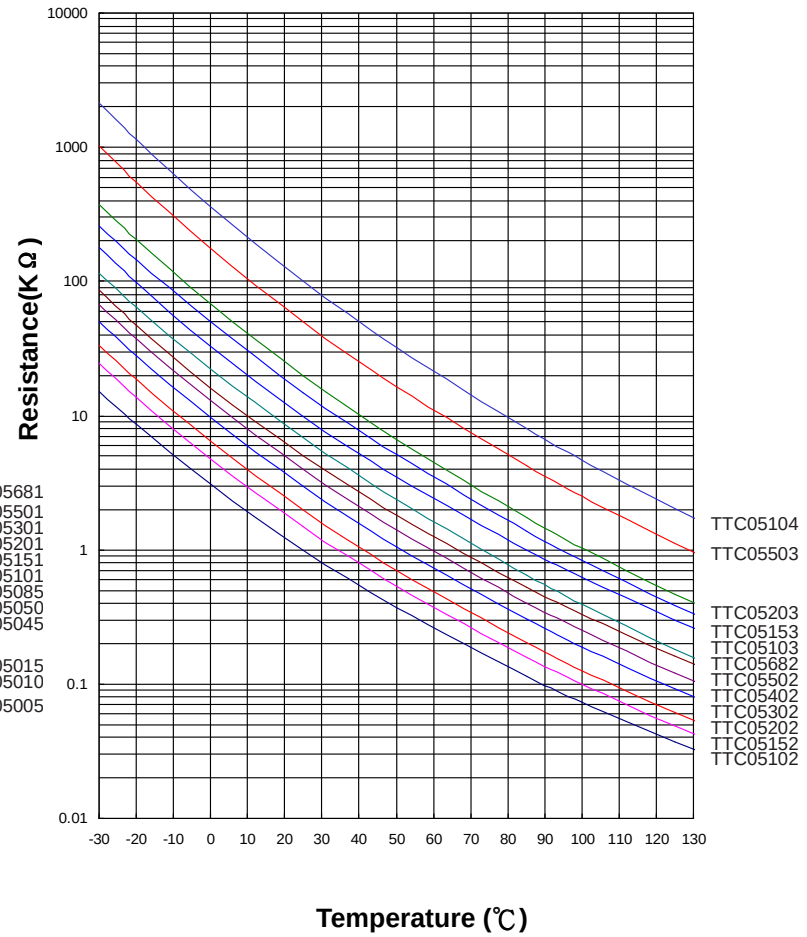
$P_{Ta}=(T_U-Ta)/(T_U-25)\times Pmax = 70\%\ Pmax$

■ R-T Characteristic Curves (representative)

TTC05005~TTC05681

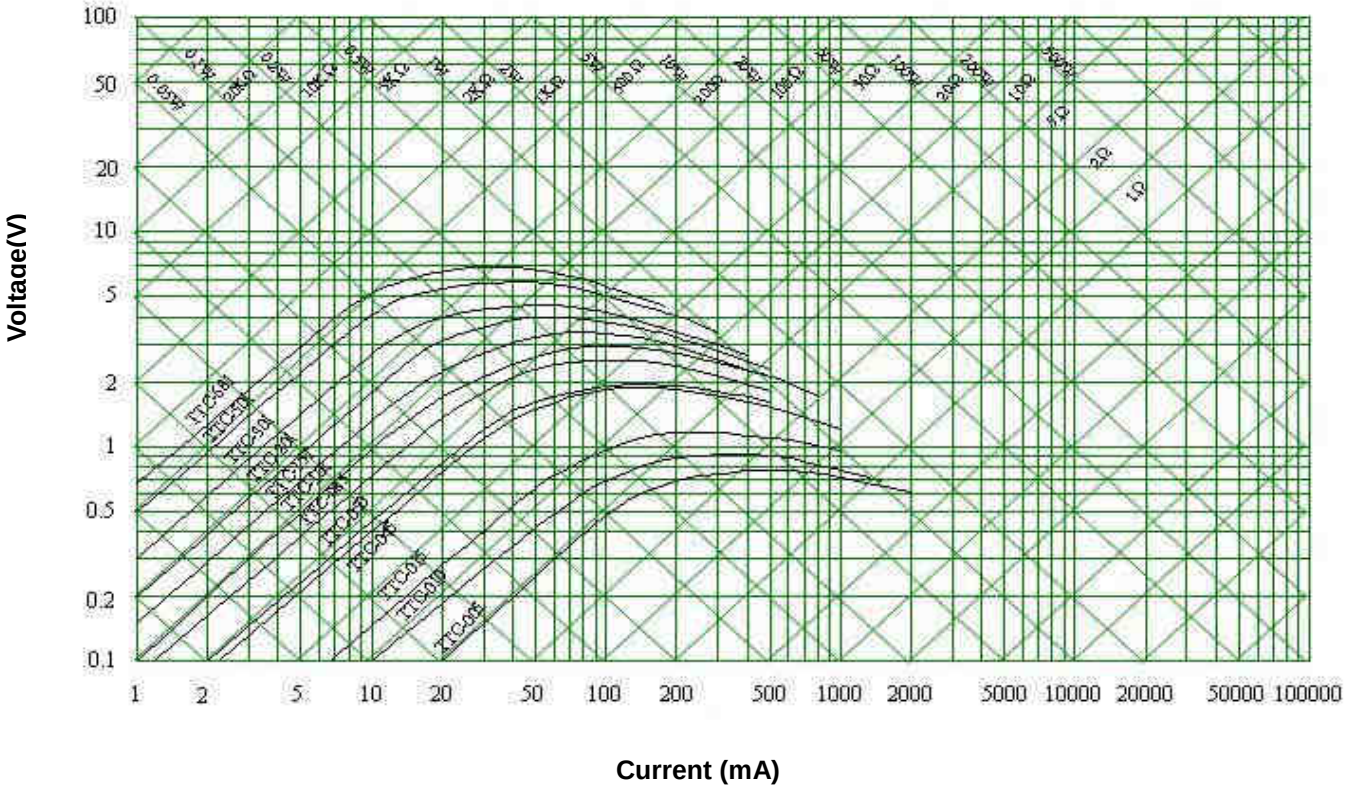


TTC05102~TTC05104

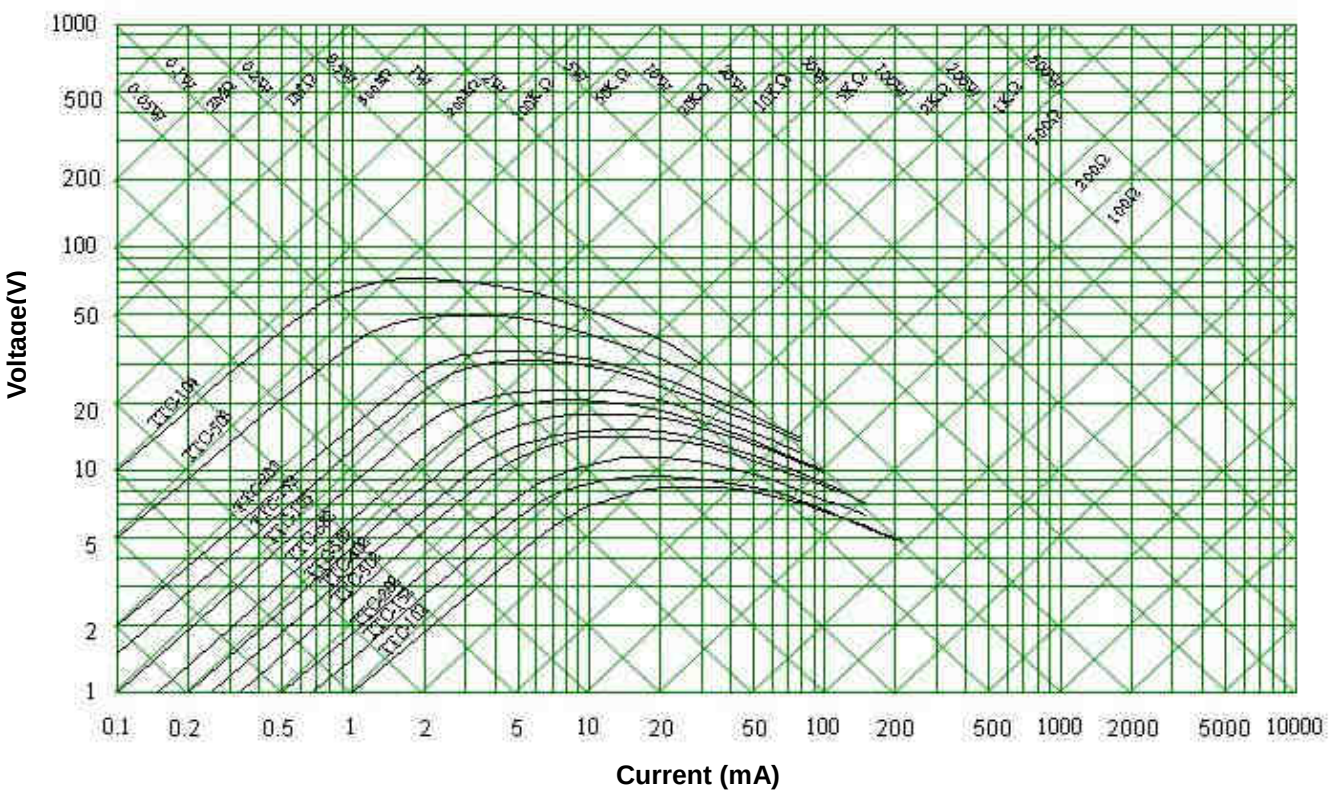


■ V-I Characteristic Curves (representative)

TTC05005~TTC05681

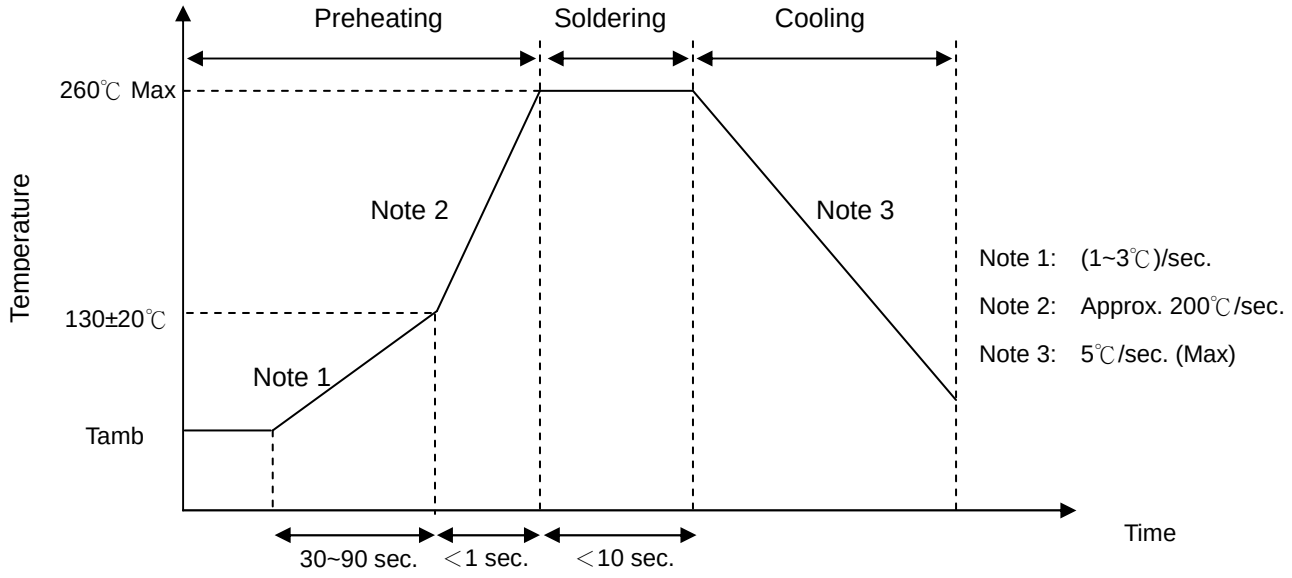


TTC05102~TTC05104



■ Soldering Recommendation

● Wave Soldering Profile



● Recommended Reworking Conditions with Soldering Iron

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

■ Reliability

<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Tensile Strength of Terminals</td><td>IEC60068-2-21</td><td>Gradually applying the force specified and keeping the unit fixed for 10±1 sec.
<table><tr><th>Terminal diameter (mm)</th><th>Force (Kg)</th></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></td><td>No visible damage</td></tr>
<tr><td>Bending Strength of Terminals</td><td>IEC60068-2-21</td><td>Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°, then return to the original po sition. Repeat the procedure in the opposite direction..
<table><tr><th>Terminal diameter (mm)</th><th>Force (Kg)</th></tr><tr><td>0.3<d≦0.5</td><td>0.25</td></tr><tr><td>0.5<d≦0.8</td><td>0.50</td></tr></table></td><td>No visible damage</td></tr>
<tr><td>Solderability</td><td>IEC60068-2-20</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>IEC60068-2-20</td><td>260 ± 5℃， 10 ± 1 sec</td><td>No visible damage
｜△R_{25}/R_{25}｜≦ 3 %</td></tr>
<tr><td>High Temperature Storage</td><td>IEC600068-2-2</td><td>125 ± 5 ℃, 1000± 24 hrs</td><td>No visible damage
｜△R_{25}/R_{25}｜≦ 5 %</td></tr>
<tr><td>Damp Heat , Steady State</td><td>IEC60068-2-3</td><td>40 ± 2℃， 90~95% RH , 1000 ± 24 hrs</td><td>No visible damage
｜△R_{25}/R_{25}｜≦ 3 %</td></tr>
<tr><td>Rapid Change of Temperature</td><td>IEC60068-2-14</td><td>The 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>-30 ± 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_{25}/R_{25}｜≦ 3 %</td></tr>
<tr><td>Life Test</td><td>IEC 60539-1</td><td>25 ± 5℃, Pmax. X 1000± 24 hrs</td><td>No visible damage
｜△R_{25}/R_{25}｜≦ 5 %</td></tr>
<tr><td>Insulation Test</td><td>MIL-STD-202F -Method 302</td><td>1000 V_{DC} 1 min</td><td>No visible damage
≧500 MΩ</td></tr>
</table>

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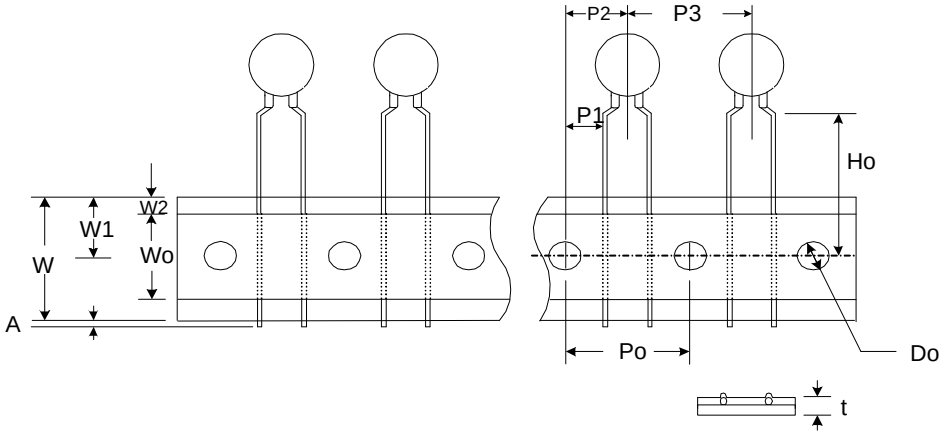
Φ5 mm Disc Type for Temperature Sensing/Compensation

■ Packaging

● Taping Specification

For I Type Only (Inner kink lead)

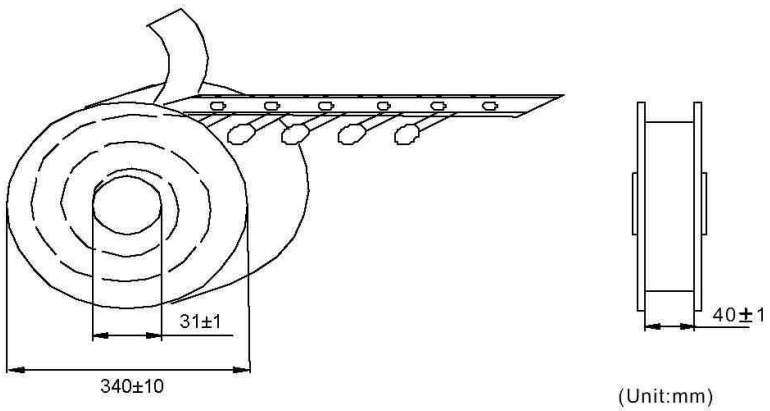


(Unit: mm)

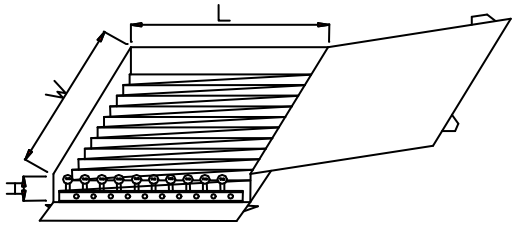
Taping Code	Body Size	P_0	P_1	P_2	P_3	H_0	W_0	W_1	W_2	W	A	D_0	t
		±0.5	±0.7	±1.3	±0.5	±0.5	±1	±0.5	Max.	±0.5	Max.	±0.2	±0.2
A (P_0=12.7)	ϕ05	12.7	3.6	6.35	12.7	16	12	9	3	18	1	4	0.6
E (P_0=15.0)	ϕ05	15	4.75	7.5	15	16	12	9	3	18	1	4	0.6

■ Quantity

- **Bulk Packing: 200 pcs/bag**
- **Reel Packing: 2500 pcs/reel**



- **Ammo Packing: 2000 pcs/box**



W	L	H
348mm	275mm	60mm

■ Storage Conditions of Products

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