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## SPECIFICATION FOR APPROVAL

CUSTOMER \_\_\_\_\_

CERTIFIED  
MODEL/TYPE

TTC-104

PART NO.

TTC05104JSE507(RoHS+HF)

APPLICATION \_\_\_\_\_

CUSTOMER P/N \_\_\_\_\_

ISSUE DATE

Apr.28,2014

REV. NO. \_\_\_\_\_

REV. DATE \_\_\_\_\_

NET WEIGHT \_\_\_\_\_

FOR CUSTOMER APPROVAL	CHECKED BY
	<i>Haili Gong</i>
	APPROVED BY
	<i>Huaifang Zhang</i>





NTC Thermistor TTC05 Type

Part No.:TTC05104JSE507

**REVISED RECORD SHEET**

REV. NO	REV. DATE	REVISED CONTENT



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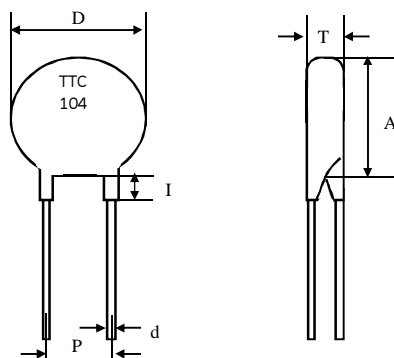
Part Number Code

Example :

**TTC**    **05**    **104**    **J**    **S**    **E507**  
**(1)**    **(2)**    **(3)**    **(4)**    **(5)**    **(6)**

No.	Item	Digit	Specification
(1)	Product Type	TTC	Thinking NTC thermistor TTC type
(2)	Body Size	05	φ 5 mm
(3)	Zero Power Resistance at 25°C (R <sub>25</sub> )	104	10 x 10 <sup>4</sup> = 100KΩ
(4)	Tolerance of R <sub>25</sub>	J	±5%
(5)	Appearance	S	Straight lead
(6)	Optional Suffix	E507	RoHS+HF compliance P:2.5±0.5mm Taping 12.7mm&Box

### Structure and Dimensions



( unit : mm )

Body Size	D	P	d	A max.	T	I max.
φ 5mm	4~6.5	2.5±0.5	0.5±0.02	6.5	2.5~5	3

### Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Tolerance of R <sub>25</sub>	B <sub>25/50</sub> Value	Max. Power Dissipation at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range
	R <sub>25</sub> (KΩ)	(± %)	(K)	P <sub>max</sub> (mW)	δ (mW/°C)	τ (sec.)	T <sub>L</sub> ~T <sub>U</sub> (°C)
TTC05104JSE507	100	5	4400	450	Approx. 4.5	Approx. 20	-30 ~+125

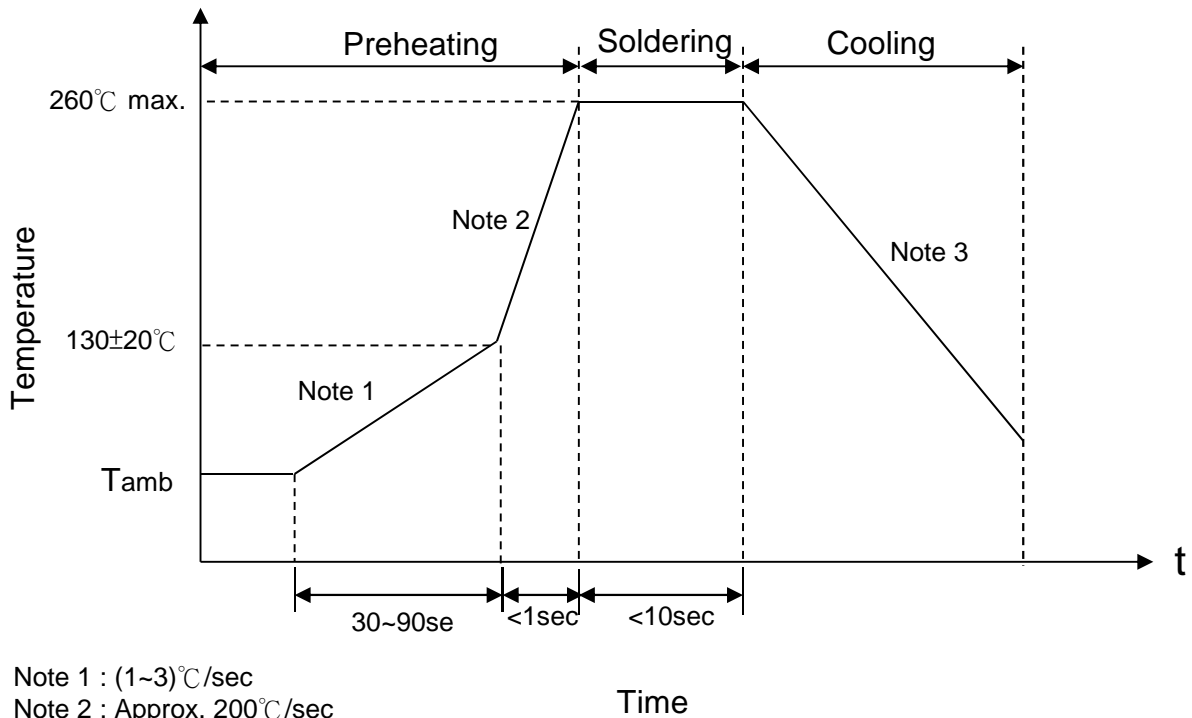
**Reliability**

Item	Standard	Test conditions / Methods	Specifications															
Tensile Strength of Terminals	IEC60068-2-21	Gradually applying the force specified and keeping the unit fixed for 10±1 sec.  <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Terminal diameter (mm)</td> <td style="text-align: center;">Force (Kg)</td> </tr> <tr> <td style="text-align: center;">0.3&lt;d≤0.5</td> <td style="text-align: center;">0.5</td> </tr> <tr> <td style="text-align: center;">0.5&lt;d≤0.8</td> <td style="text-align: center;">1.0</td> </tr> </table>	Terminal diameter (mm)	Force (Kg)	0.3<d≤0.5	0.5	0.5<d≤0.8	1.0	No visible damage									
Terminal diameter (mm)	Force (Kg)																	
0.3<d≤0.5	0.5																	
0.5<d≤0.8	1.0																	
Bending Strength of Terminals	IEC60068-2-21	Hold specimen and apply the force specified below to each lead. Bend the specimen to 90°, then return to the original position. Repeat the procedure in the opposite direction.  <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Terminal diameter (mm)</td> <td style="text-align: center;">Force (Kg)</td> </tr> <tr> <td style="text-align: center;">0.3&lt;d≤0.5</td> <td style="text-align: center;">0.25</td> </tr> <tr> <td style="text-align: center;">0.5&lt;d≤0.8</td> <td style="text-align: center;">0.50</td> </tr> </table>	Terminal diameter (mm)	Force (Kg)	0.3<d≤0.5	0.25	0.5<d≤0.8	0.50	No visible damage									
Terminal diameter (mm)	Force (Kg)																	
0.3<d≤0.5	0.25																	
0.5<d≤0.8	0.50																	
Solderability	IEC60068-2-20	245 ± 3 °C , 3 ± 0.3 sec	Inspection shall be carried out with the assistance of a magnifier capable of giving a magnification of 4 x to 10 x . At least 95% of terminal electrode is covered by new solder. The dipped surface shall be covered with a smooth and bright solder coating with no more than small amounts of scattered imperfections such as pin-holes or un-wetted or de-wetted areas. These imperfections shall not be concentrated in one area.															
Resistance to Soldering Heat	IEC60068-2-20	260 ± 3 °C , 10 ± 1 sec Distance from Thermistor : 6mm	No visible damage   ΔR <sub>25</sub> /R <sub>25</sub>   ≤ 3 %															
High Temperature Storage	IEC60068-2-2	125 ± 5 °C , 1000 ± 24 hrs	No visible damage   ΔR <sub>25</sub> /R <sub>25</sub>   ≤ 5 %															
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C , 90 ~ 95 % RH , 1000 ± 24 hrs	No visible damage   ΔR <sub>25</sub> /R <sub>25</sub>   ≤ 3 %															
Rapid Change of Temperature	IEC60068-2-14	The conditions shown below shall be repeated 5 cycles <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Period (minutes)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">-30 ± 5</td> <td style="text-align: center;">30 ± 3</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Room temperature</td> <td style="text-align: center;">5 ± 3</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">125 ± 5</td> <td style="text-align: center;">30 ± 3</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Room temperature</td> <td style="text-align: center;">5 ± 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Period (minutes)	1	-30 ± 5	30 ± 3	2	Room temperature	5 ± 3	3	125 ± 5	30 ± 3	4	Room temperature	5 ± 3	No visible damage   ΔR <sub>25</sub> /R <sub>25</sub>   ≤ 3 %
Step	Temperature (°C)	Period (minutes)																
1	-30 ± 5	30 ± 3																
2	Room temperature	5 ± 3																
3	125 ± 5	30 ± 3																
4	Room temperature	5 ± 3																
Max. Power Dissipation	IEC60539-1 4.26.3	25 ± 5 °C , Pmax. , 1000 ± 24 hrs	No visible damage   ΔR <sub>25</sub> /R <sub>25</sub>   ≤ 5 %															
Insulation test	MIL-STD-202F-Method 302	1000 V <sub>DC</sub> 1 min	No visible damage ≥ 500 MΩ															

Products have been tested at Thinking Electronic Industrial Co.,Ltd. Laboratory recognized by UL (Underwriters Laboratories Inc.) under CTDP (Client Test Data Program).

## Soldering Recommendation

### Wave Soldering Profile



Note 1 : (1~3)°C/sec

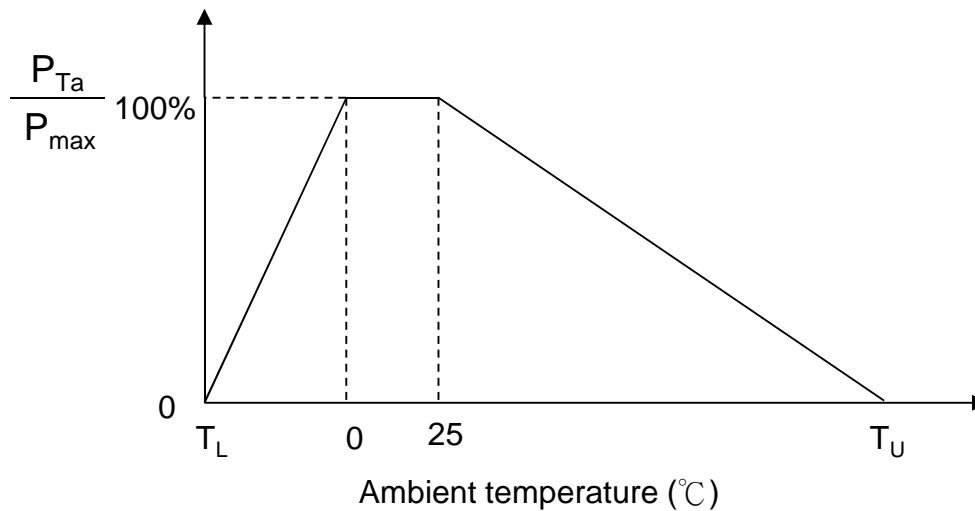
Note 2 : Approx. 200°C/sec

Note 3 : 5°C/sec max

### 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.)

### Max. Power Dissipation Derating Curve



Note:  $T_L$  = Minimum operating temperature (°C)

$T_U$  = Maximum operating temperature (°C)

For example :

Ambient temperature( $T_a$ )=55°C

Maximum operating temperature( $T_u$ )=125°C

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

### RoHS Compliant Declaration

We hereby declare that the components delivered to your company are compliant with RoHS directive 2015/863/EU.

### Warehouse Storage Conditions of Products

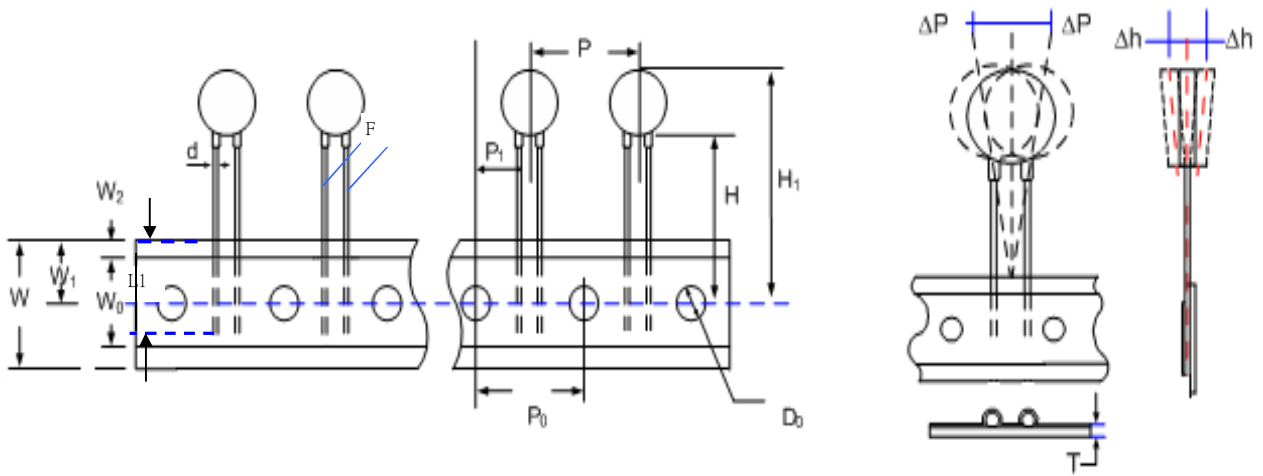
(I) Storage Conditions :

- 1.Storage Temperature : -10°C ~+40°C
- 2.Relative Humidity :  $\leq 75\%RH$
- 3.Keep away from corrosive atmosphere and sunlight.

(II) Period of Storage : 1 year



Taping and Dimensions

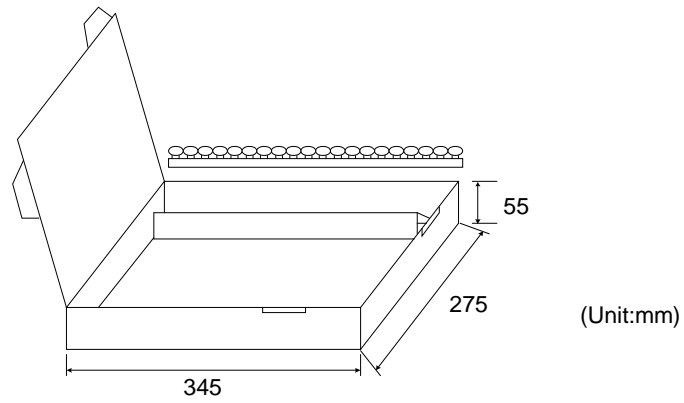


( unit : mm )

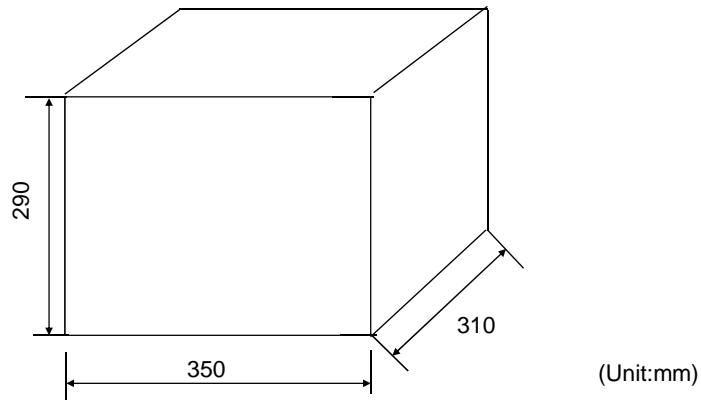
Item	P0	F	P	P1	H	H1	d	W0	W1	W2	W	ΔP	Δh	L1	D0	T
	±0.3	±0.5	±1	±0.7	+2/-0	Max.	±0.02	±1.5	+0.75 /-0.5	Max.	+1/-0.5	Max.	Max.	Min.	±0.2	±0.2
	12.7	2.5	12.7	5.1	18	28	0.5	12	9	3	18	1	2	9	4	0.6

Standard Packing

(1) Quantity (2000pcs / box)



(2) : Quantity (5 boxes /Carton)



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Safety Approvals (Certified Model/Type : TTC-104)



\* UL 1434 / cUL recognized (File # E138827)



\* CSA recognized (File # 97495)



\* TUV recognized (File # R 50050155)



\*CQC GB/T 6663.1-2007 recognized (File # CQC05001011994)

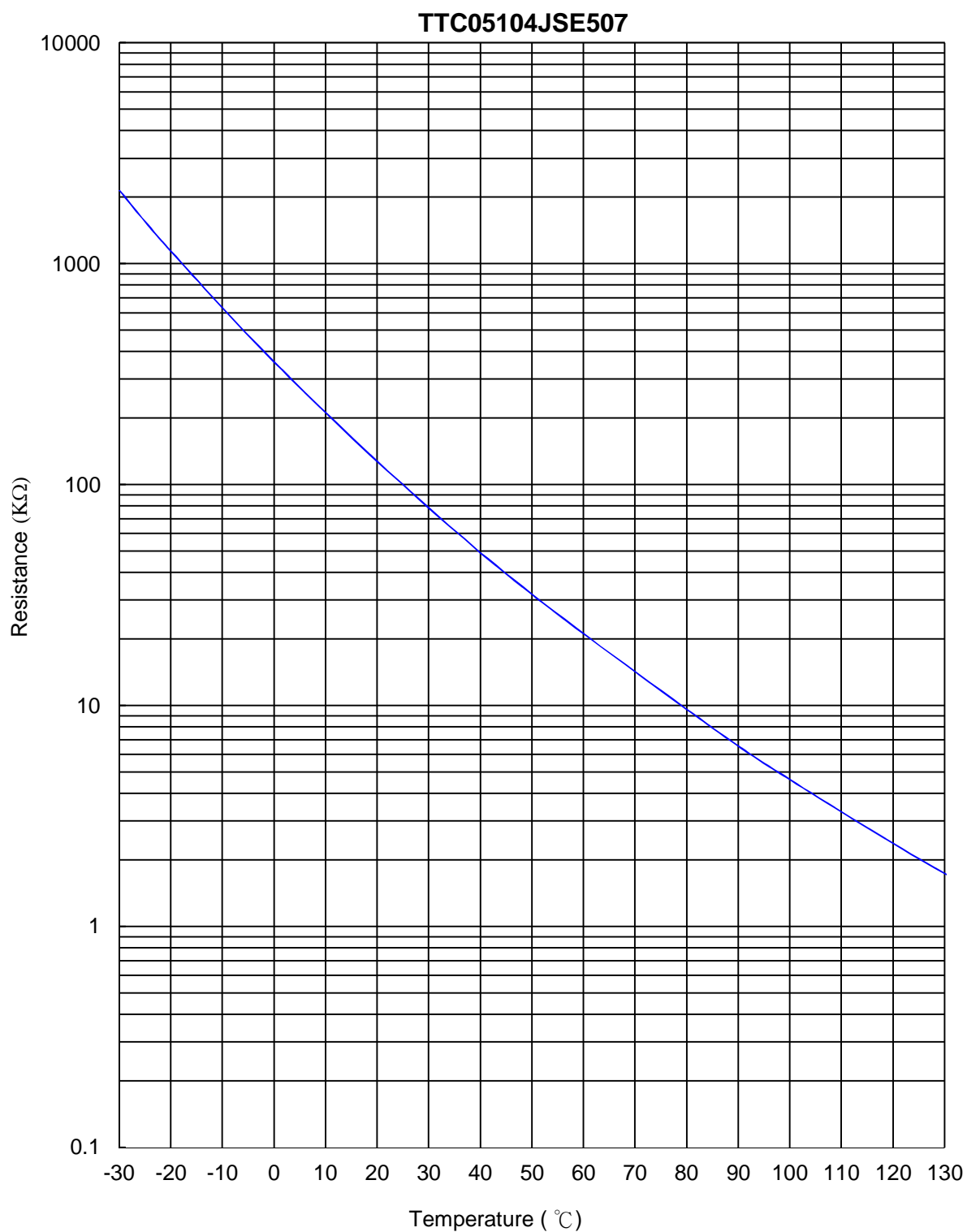
\* CQC GB6663-86 recognized (File # CQC05001011991)

Certificates

- (1) IATF 16949 certificate
- (2) ISO 9001 certificate

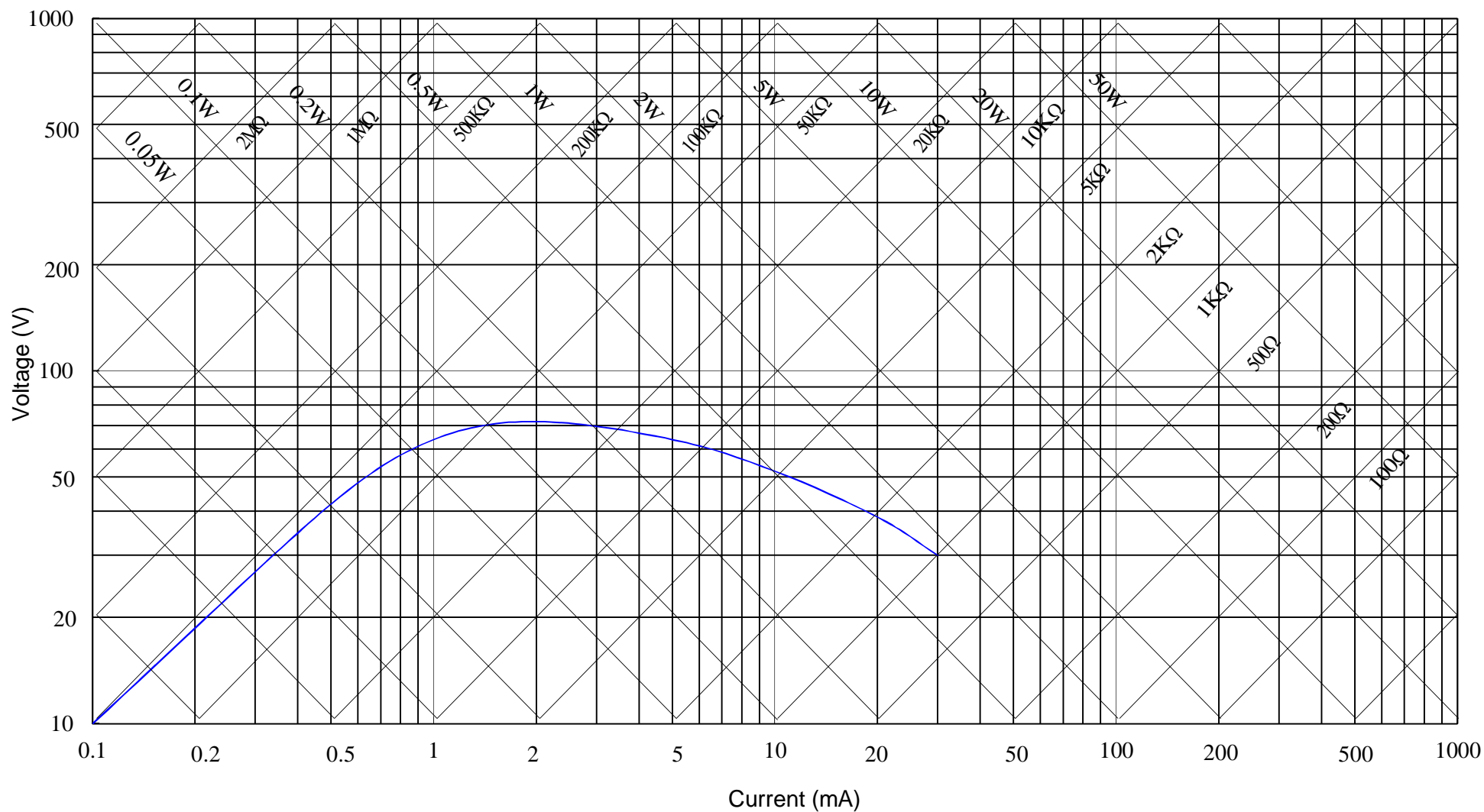
Test Report

- (1) RoHS test report
- (2) Halogen-free test report

R-T Characteristic Curve

V-I Characteristic Curve (Ambient  $T_a=25\text{ }^\circ\text{C}$ )

TTC05104JSE507



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