TIEDA 成都铁达电子股份有限公司
Chengdu Tieda Electronics Corp.

SPECIFICATION FOR APPROVAL

CUSTOMER:		
PART NO. :		
20KAC420S-CaF_3ZH		
MODEL NO.:		
20KAC420S	**ISSUE DATE:**	2026-04-22
CUSTOMER P/N:	**REV.DATE:**	2026-04-22

DRAWN BY Yihuan Zhang	CHECKED BY Youfu Lu	APPROVED BY ZhiCheng Zhang

CUSTOMER RESPONSE

☐Approval

☐Approval with the following change

☐Reject with the following reasons

CUSTOMER SIGNATURE: **DATE:**

[V] CHENGDU Factory : **Chengdu Tieda Electronics Corp.**
No. 733, GANGDA Road, north area of Chengdu modern industrial port, Pidu District, Chengdu
PC:611743
TEL:028-67244029 FAX:028-67244029-802

REVISED RECORD SHEET

REV.No	REV.DATE	EDITION	RAWN BY	CHECKED BY	APPROVED BY
1	2026-04-22	First Edition	Yihuan Zhang	Youfu Lu	Zhicheng Zhang

INDEX

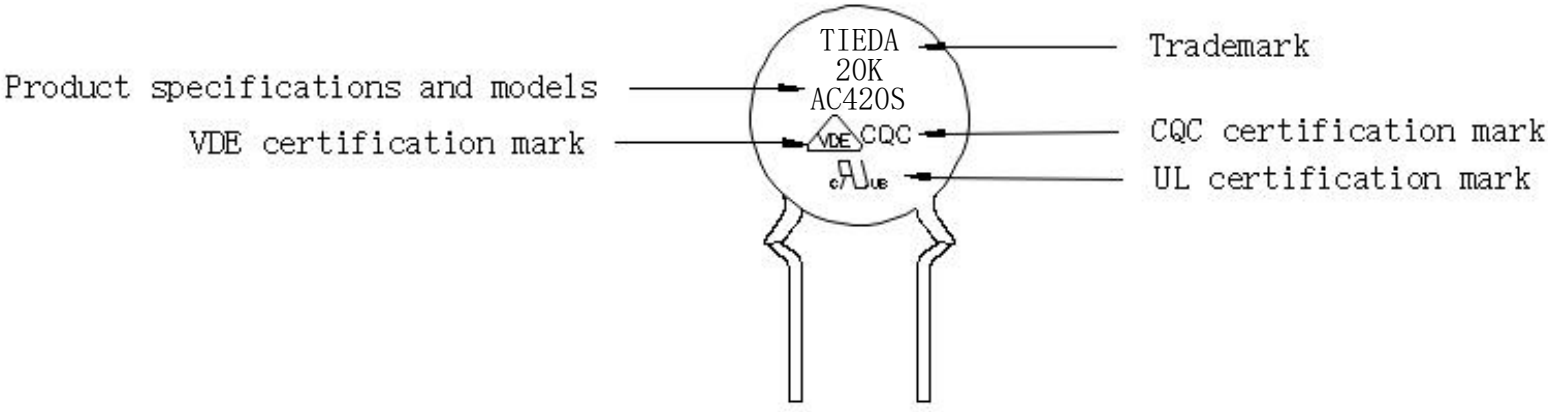
Page

Part Number Code:

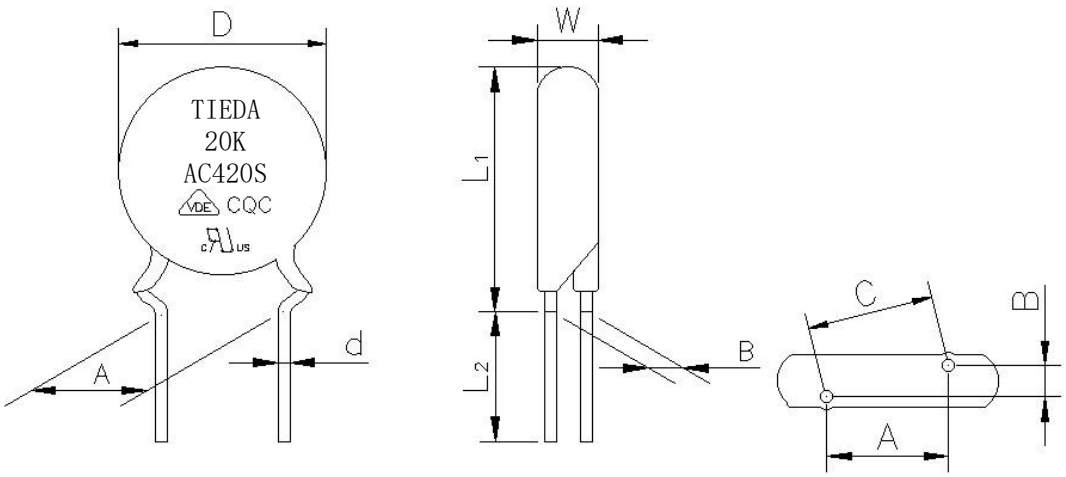
20	K	AC	420	S	-	C	a	F_3	Z	H
(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)

No.	Item	Code	Specification
(1)	Specification	20	Nominal chip size Φ20mm
(2)	Tolerance of Varistor Voltage	K	± 10 %
(3)	Rated voltage	AC	AC voltage
(4)	Model	420	350Vrms (corresponding to a varistor nominal voltage of 680V)
(5)	Miniaturization	S	Mniaturization
(6)	Product type	C	Spare parts
(7)	Lead Style	a	Kink Lead
(8)	Lead Spacing	F_3	10.0 mm
(9)	Lead length	Z	3.5±0.5 mm
(10)	Encapsulation material	H	Yellow halogen-free epoxy resin

logo:



Structure and Dimensions：



Dmax	L1max	Wmax	C	d	L2	A	B
18.0	23.0	7.6	10.0±1.0	1.0±0.1	3.5±0.5	$9.7^{+1.0}_{-0.7}$	2.4±1.0

(单位：mm)

Electrical Characteristics：

Model No.	Varistor Voltage	Max. Operating Voltage		Max. Clamping Voltage (8/20μS)		Max. Surge Current (8/20μS)	Energy Absorbtion (A)	
	(V_{1mA}) (V)	V_{AC} (rms) (V)	V_{DC} (V)	Vp (V)	Ip (A)	I (A)	2ms	10/1000us
20KAC420S	680±10%	420	560	1120	100	10000	150	290

Model No.	Rated Power	Impulse Response Time	Max. Leakage Current (V_{DC}560V)	Reference Capacitance	Operating Temperature	Voltage ratio
	P (W)	TR （ns）	IL (μA)	C(pF) （Maximum）	(℃)	$V_{1mA}/V_{0.1mA}$
20KAC420S	1.0	≤25	≤20	650	-40 ~ +105	≤1.08

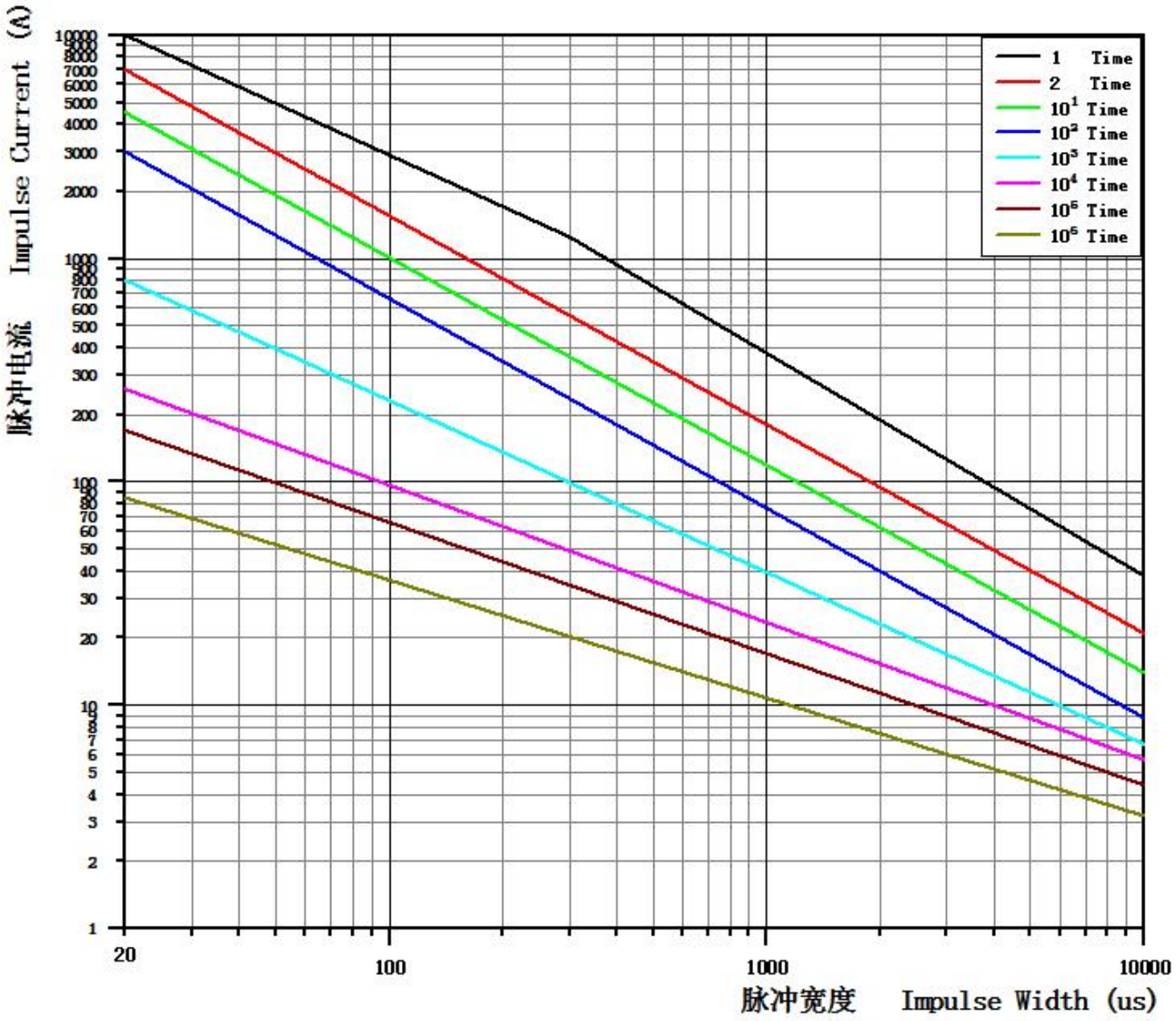
Reliability：

S/N	Project	Specification	Test conditions
1	Ultimate current surge withstand capability	2次 △V1mA/V1mA≤±10% No visible damage	Impulse current waveform：8/20μs standard wave Inrush current：10000A Impact interval time：5min
2	Current surge stability	130 次 △Vp/Vp≤10% △V1mA/V1mA≤±10% No visible damage	Impulse current waveform：8/20μs standard wave Inrush current：3KA Impact interval time：60S
		1次 △V1mA/V1mA≤±10% No visible damage	Impulse current waveform:2ms Rectangular wave Inrush current：150A
		1次 △V1mA/V1mA≤±10% No visible damage	Impulse current waveform:10/1000us wave Inrush current：290A
3	terminal strength	△Vp/Vp≤5% △V1mA/V1mA≤±5% No visible damage	Refer to IEC 60068-2-21 for the lead out strength of varistors
4	vibration	△Vp/Vp≤5% △V1mA/V1mA≤±5% No visible damage	Perform vibration test on varistors according to IEC 60068-2-6, and recover at room temperature for 2 hours after the test
5	impact	△Vp/Vp≤5% △V1mA/V1mA≤±5% No visible damage	Conduct impulse test on varistors according to IEC 60068-2-27, and recover at room temperature for 2 hours after the test
6	solderability	Not less than 90% of the theoretical wetting force	Refer to the test method of IEC 60068-2-5:200
7	solder heat resistance	△V1mA/V1mA≤±5% No visible damage	Refer to the test method of IEC 60068-2-30:2005
8	flame retardancy	(1)No flame or burning sensation (2)The afterburning time of the test sample or the bedding layer is ≤30s, and the bedding layer is not completely burned	According to the method in IEC 60695-2-11:2014, the heating wire temperature is 850 ± 15 ℃ and the duration is 30 ± 1S Lay a 50mm x 50mm x 6mm degreased cotton bottom layer at the bottom 100mm, meeting one of the two conditions on the left side, to be qualified
9	Low-temperature test	△Vp/Vp≤10% △V1mA/V1mA≤±10% No visible damage	Refer to the test method of IEC 60068-2-1 Temperature -50 ± 5 ℃, time 1000 hours

<table>
<tr><td>10</td><td>thermal shock</td><td>△Vp/Vp≤10%
△V1mA/V1mA≤±10%
No visible damage</td><td>
<table>
<tr><th>Sequence</th><th>Temp（℃）</th><th>Time</th></tr>
<tr><td>1</td><td>-40±3℃</td><td>30min</td></tr>
<tr><td>2</td><td>Room Temperature</td><td>3min</td></tr>
<tr><td>3</td><td>+125±3℃</td><td>30min</td></tr>
<tr><td>4</td><td>Room Temperature</td><td>3min</td></tr>
</table>
Cycle 8 times
</td></tr>
<tr><td>11</td><td>high temperature load</td><td>△Vp/Vp≤5%
△V1mA/V1mA≤±5%
No visible damage</td><td>Temperature 125 ± 2 ℃, applied voltage: maximum continuous AC working voltage, time 1000 hours</td></tr>
<tr><td>12</td><td>continuous voltage stability</td><td>△Vp/Vp≤10%
△V1mA/V1mA≤±10%
The current value measured at 720 hours is less than twice the current value measured at 2 hours
The appearance shows no visible damage</td><td>At a temperature of 85 ± 2 ℃, apply the maximum continuous AC operating voltage for 720 hours. At 2 hours and 720 hours of testing, remove the varistor from the test chamber and restore it to the test environment for 2 hours. Measure the current value flowing through the varistor.</td></tr>
<tr><td>13</td><td>high temperature and high humidity resistance</td><td>△Vp/Vp≤10%
△V1mA/V1mA≤±10%
No visible damage</td><td>Temperature 85 ± 2 ℃, humidity 85% RH, apply maximum continuous AC working voltage for 1000 hours</td></tr>
<tr><td>14</td><td>insulation withstand voltage</td><td>The voltage rises uniformly from 0 to 2500V and remains constant for 1 minute
No breakdown, arcing, flashover or other phenomena</td><td>The varistor is embedded in a metal ball with a diameter of 1.6 ± 0.2mm. The metal ball serves as one electrode, and the two leads of the varistor serve as the other electrode. A 50Hz, 2500V sine AC voltage is applied between the metal ball electrode and the lead of the varistor</td></tr>
<tr><td>15</td><td>impact life</td><td>260A 10^4 次
△Vp/Vp≤10%
△V1mA/V1mA≤±10%
No visible damage</td><td>Impulse current waveform:8/20μS
Impulse pulse interval time:5S
Change the polarity of the impulse current every 50
± 5 times</td></tr>
</table>

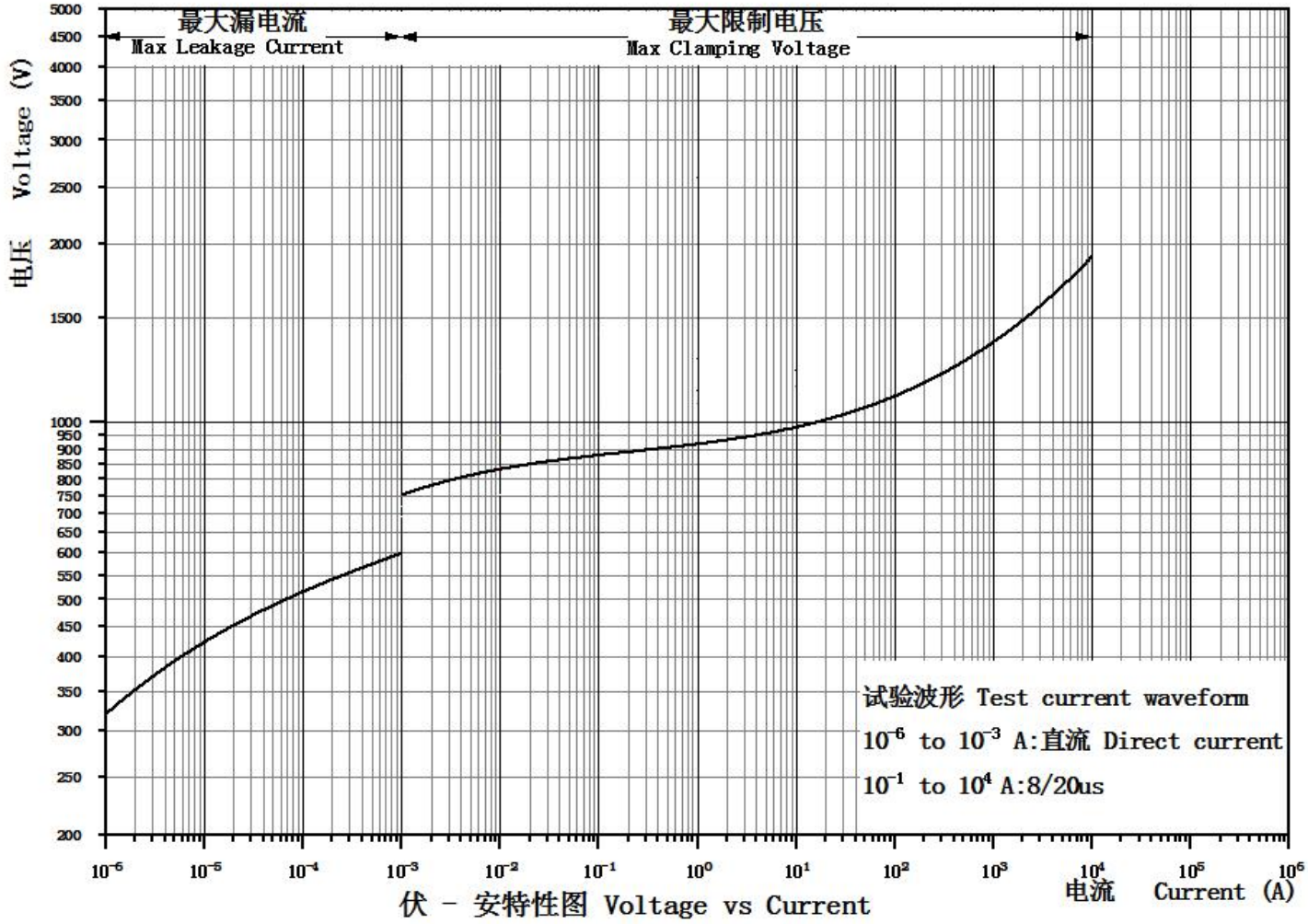
Max. Surge Current Derating Curves:

20KAC420S

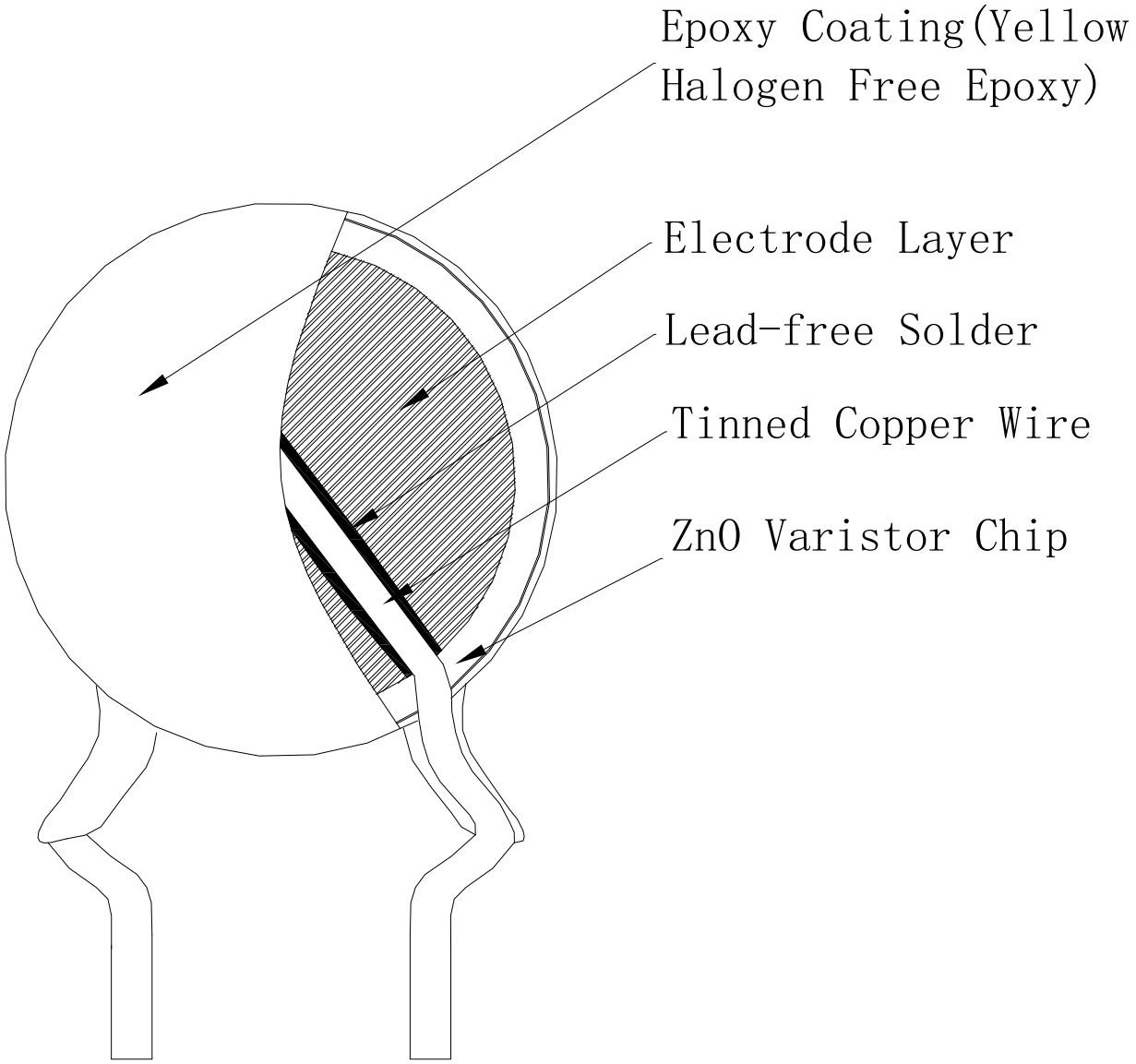


Max. Leakage Current and Max. Clamping Voltage Curve:

20KAC420S

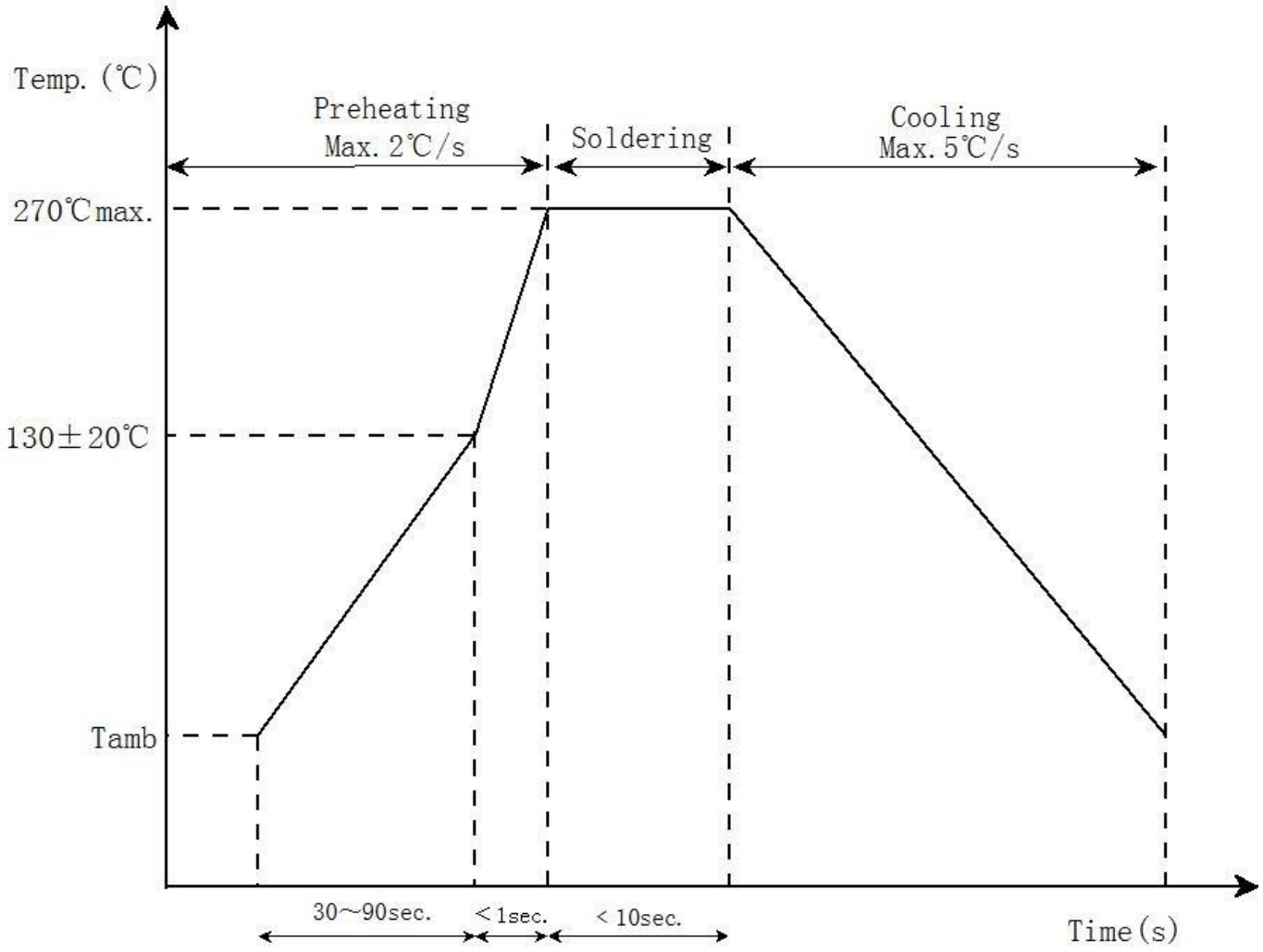


Drawing of internal structure:



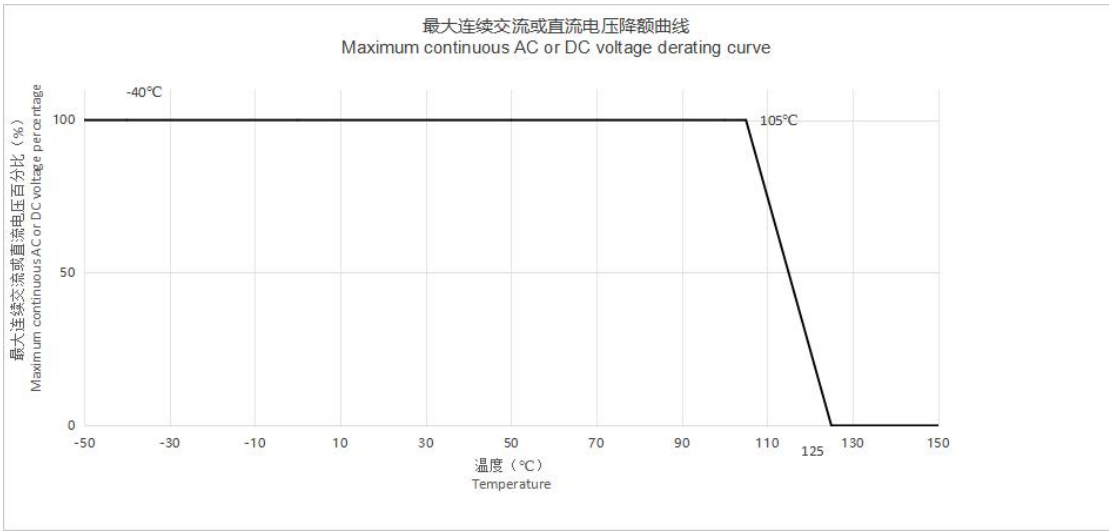
Soldering Recommendation:

■ Wave Flow Soldering Profile



***Power Derating Curve*:**

When the working temperature exceeds 105 ℃, the power, maximum continuous operating voltage, maximum surge current, and maximum energy derating are shown in the following figure, with a derating coefficient of -5.0%.



RoHS Compliant Declaration:

we hereby declare that the parts delivered to your company comply with RoHS instructions.

Storage condition of products:

Storage conditions:

1. **Storage environment temperature :-45℃～ +125℃**
2. **Working environment temperature :-45℃ ～+105℃**
3. **Relative humidity :≤75% RH**
4. **Keep away from corrosive gases**
5. **Storage period :2 years**

Safety Approval **:** (Model No.：20KAC420S)

c UL us *UL&CUL(NO：E334320)

*VDE (NO：40008571)

CQC *CQC (NO： CQC12001067222)

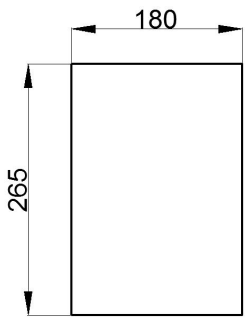
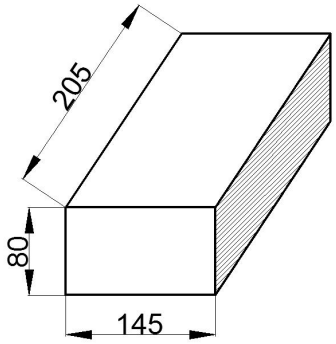
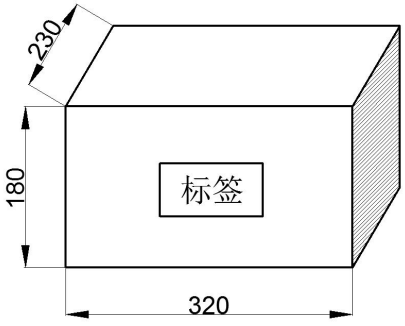
Certificates **:**

(1) ISO 9001:2015 Certificate
(2) ISO 14001:2015 Certificate

Test report **:**

(1) RoHS SGS test report
(2) Type Test report

Packaging **:**

First packing		Packing Material: Plastic bag Packing quantity:350 pcs / bags Requirements: Plastic bag hot sealing, surface paste certificate Unit：mm
Second packing		Packing Material: Carton Packing quantity: 700 pcs / box Requirement: Tape seal for carton, paste inner box certificate Unit：mm
Third Packing (Overpack)		Packing Material: Corrugated Box Packing quantity: 2800 pcs / box Requirements: Carton sealed with tape, affixed with outer box certificate, label with user name, product model, product quantity, factory date Unit：mm

Label：

Inner box label

Outer box label