

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

SPECIFICATION FOR APPROVAL



CUSTOMER: _____	
PART NO. : _____	
20KAC510S-CaF ₃ ZH	
MODEL NO.: _____	
20KAC510S	ISSUE DATE: 2026-04-21
CUSTOMER P/N: _____	REV.DATE: 2026-04-21
_____	_____
_____	_____

DRAWN BY Yihuan Zhang	CHECKED BY Youfu Lu	APPROVED BY ZhiCheng Zhang
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CUSTOMER RESPONSE	
<input type="checkbox"/> Approval	
<input type="checkbox"/> Approval with the following change	
<input type="checkbox"/> Reject with the following reasons	
CUSTOMER SIGNATURE:	DATE:

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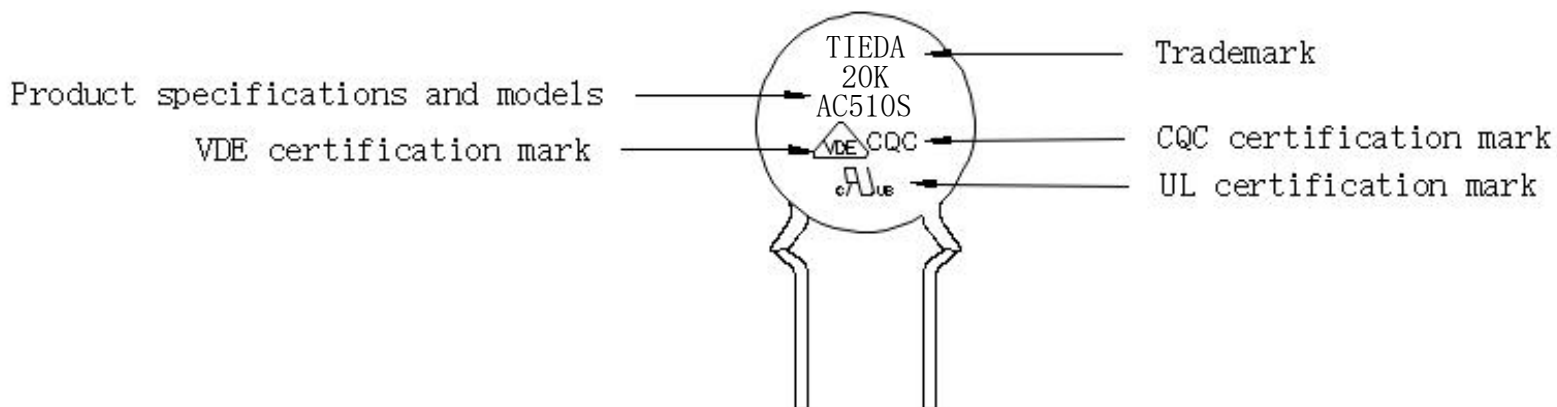
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Part Number Code :

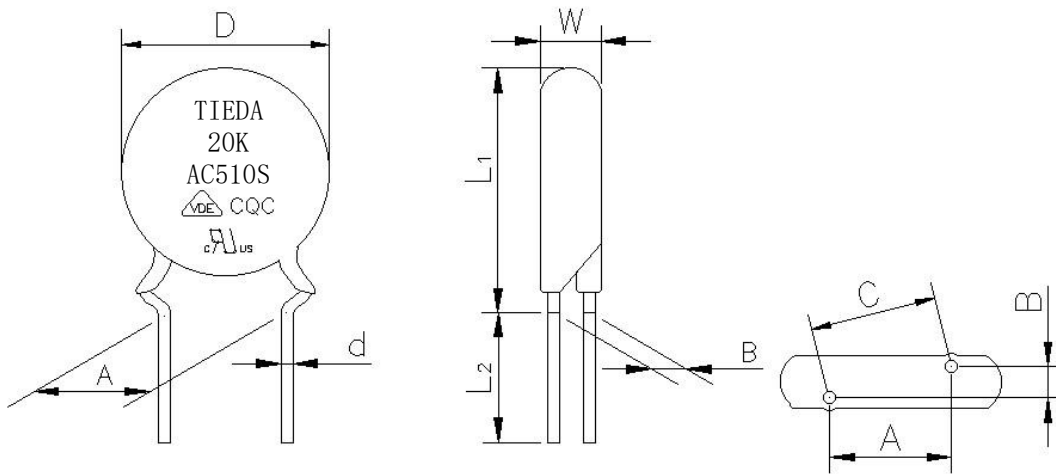
20 K AC 510 S - C a F₃ Z H
 (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

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	510	350Vrms (corresponding to a varistor nominal voltage of 820V)
(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	8.4	10.0±1.0	1.0±0.1	3.5±0.5	9.7 ^{+1.0} ₋	2.6±1.0

Electrical Characteristics :

(单位: mm)

Model No.	Varistor Voltage	Max. Operating Voltage		Max. Clamping Voltage (8/20μS)		Max. Surge Current (8/20μS)	Energy Absorption (A)	
	(V _{1mA}) (V)	V _{AC} (rms) (V)	V _{DC} (V)	V _p (V)	I _p (A)	I (A)	2ms	10/1000us
20KAC510S	820±10%	510	670	1355	100	10000	150	290

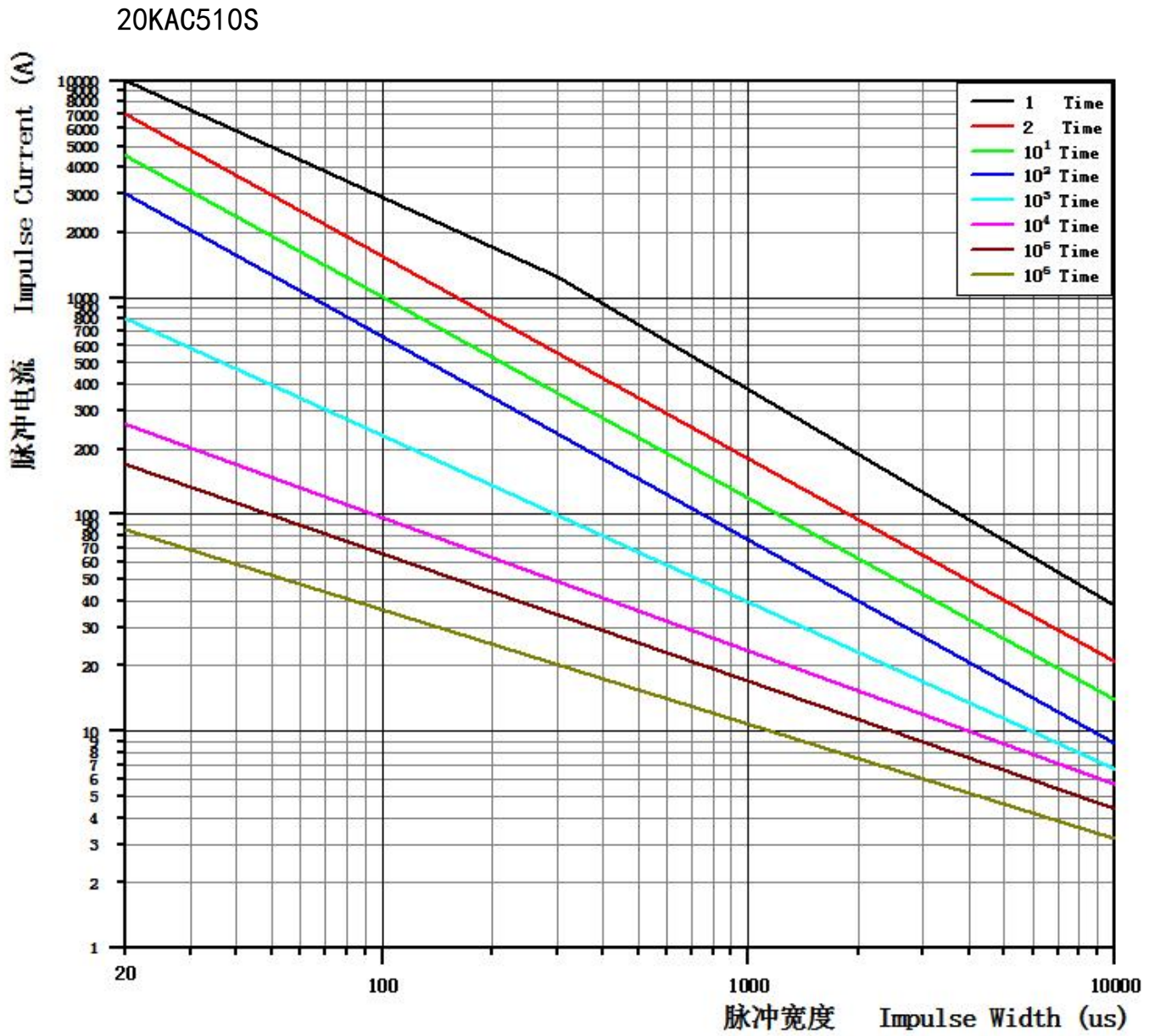
Model No.	Rated Power	Impulse Response Time	Max. Leakage Current (V _{DC} 670V)	Reference Capacitance	Operating Temperature	Voltage ratio
	P (W)	TR (ns)	IL (μA)	C(pF) (Maximum)	(°C)	V _{1mA} /V _{0.1mA}
20KAC510S	1.0	≤25	≤20	530	-40 ~ +105	≤1.08

Reliability :

S/N	Project	Specification	Test conditions
1	Ultimate current surge withstand capability	2次 $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Impulse current waveform: 8/20 μ s standard wave Inrush current: 10000A Impact interval time: 5min
2	Current surge stability	130 次 $\Delta V_p/V_p \leq 10\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Impulse current waveform: 8/20 μ s standard wave Inrush current: 3KA Impact interval time: 60S
		1次 $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Impulse current waveform: 2ms Rectangular wave Inrush current: 150A
		1次 $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Impulse current waveform: 10/1000 μ s wave Inrush current: 290A
3	terminal strength	$\Delta V_p/V_p \leq 5\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$ No visible damage	Refer to IEC 60068-2-21 for the lead out strength of varistors
4	vibration	$\Delta V_p/V_p \leq 5\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$ 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	$\Delta V_p/V_p \leq 5\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$ 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	$\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$ 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 ≤ 30 s, 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 °C and the duration is 30 ± 1 S 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	$\Delta V_p/V_p \leq 10\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Refer to the test method of IEC 60068-2-1 Temperature -50 ± 5 °C, time 1000 hours

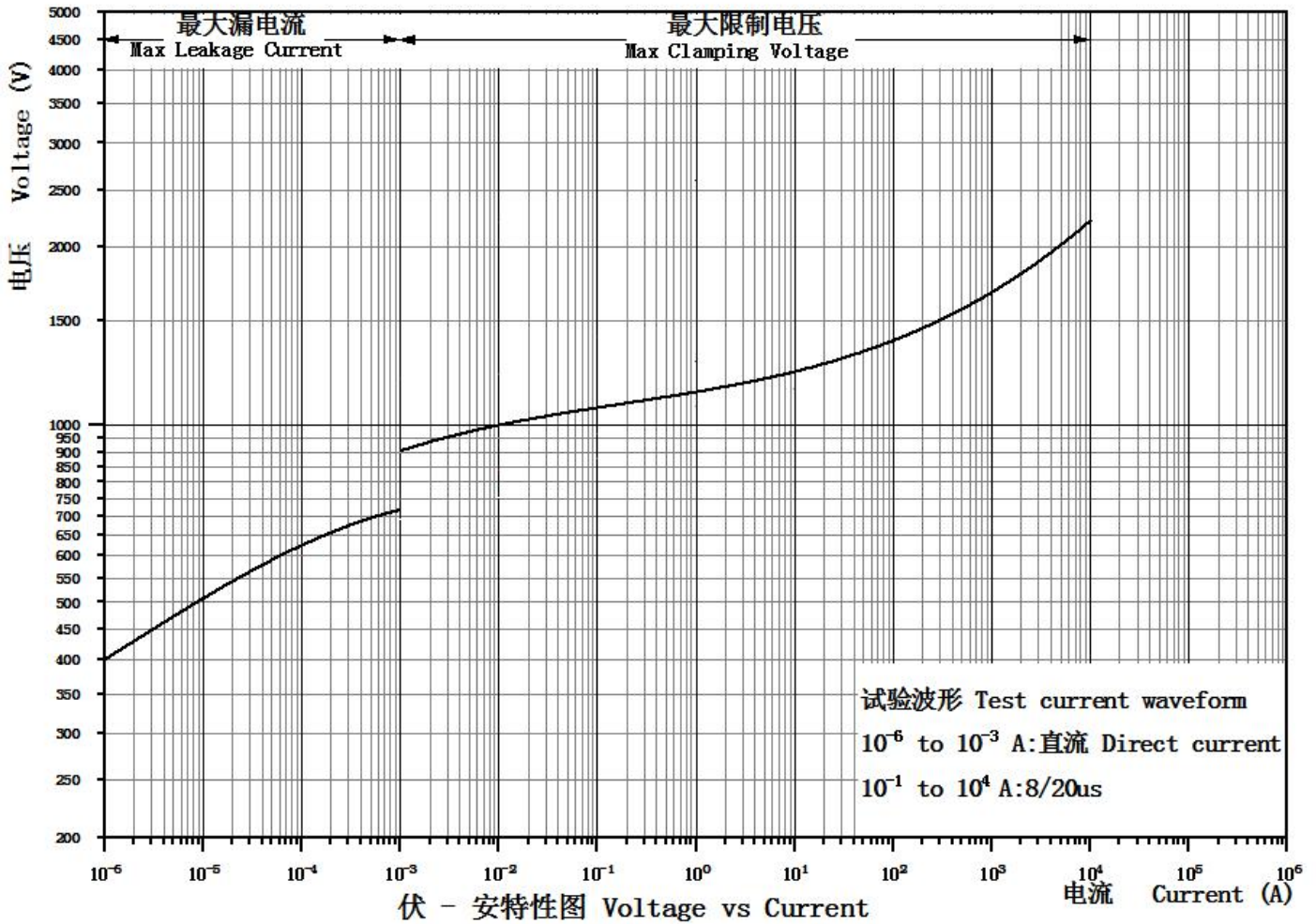
10	thermal shock	$\Delta V_p/V_p \leq 10\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Sequence	Temp (°C)	Time	Cycle 8 times
			1	-40±3°C	30min	
			2	Room Temperature	3min	
			3	+125±3°C	30min	
			4	Room Temperature	3min	
11	high temperature load	$\Delta V_p/V_p \leq 5\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$ No visible damage	Temperature 125 ± 2 °C, applied voltage: maximum continuous AC working voltage, time 1000 hours			
12	continuous voltage stability	$\Delta V_p/V_p \leq 10\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ The current value measured at 720 hours is less than twice the current value measured at 2 hours The appearance shows no visible damage	At a temperature of 85 ± 2 °C, 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.			
13	high temperature and high humidity resistance	$\Delta V_p/V_p \leq 10\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Temperature 85 ± 2 °C, humidity 85% RH, apply maximum continuous AC working voltage for 1000 hours			
14	insulation withstand voltage	The voltage rises uniformly from 0 to 2500V and remains constant for 1 minute No breakdown, arcing, flashover or other phenomena	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			
15	impact life	260A 10 ⁴ 次 $\Delta V_p/V_p \leq 10\%$ $\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$ No visible damage	Impulse current waveform: 8/20μS Impulse pulse interval time: 5S Change the polarity of the impulse current every 50 ± 5 times			

Max. Surge Current Derating Curves:

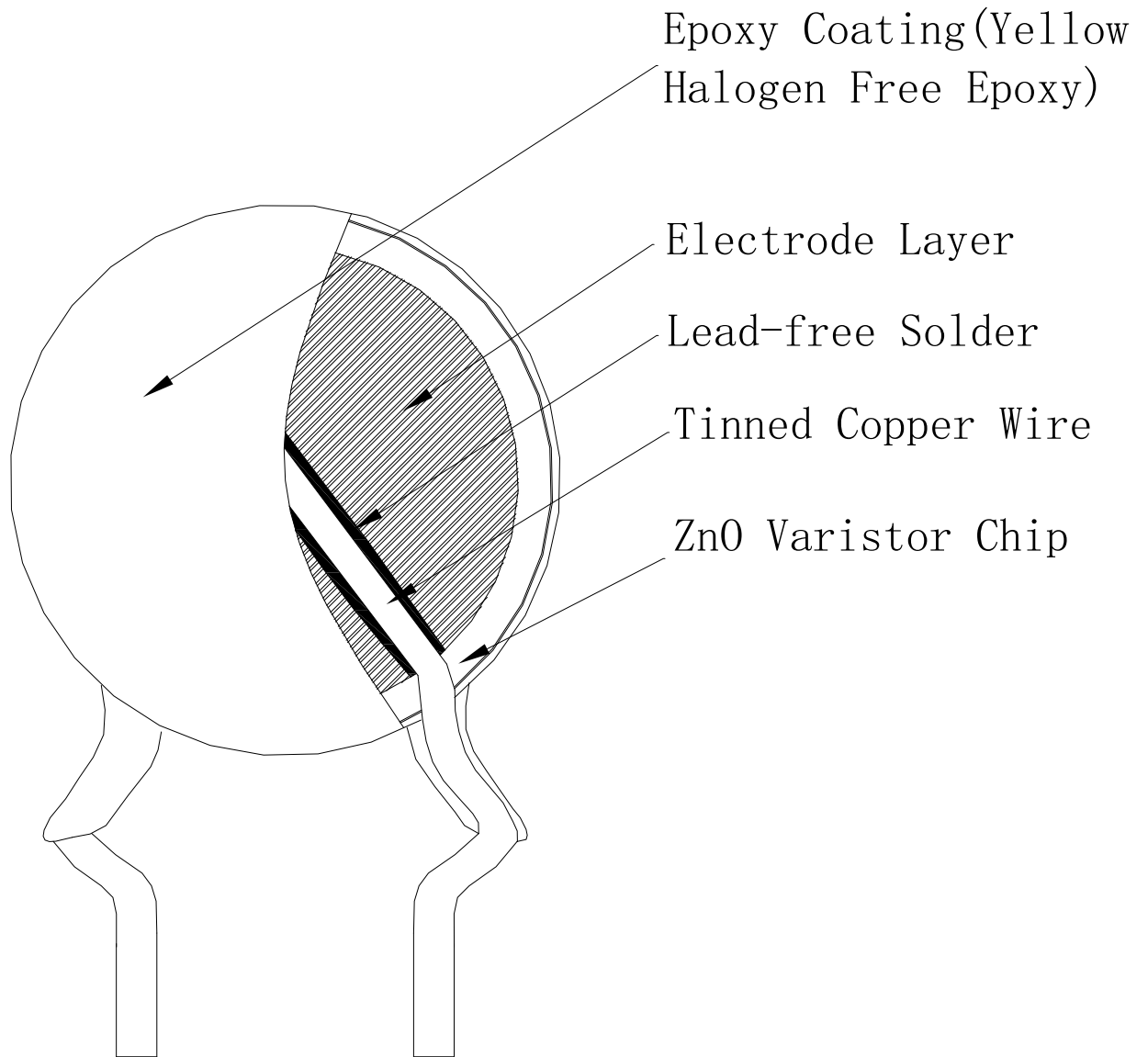


Max. Leakage Current and Max. Clamping Voltage Curve:

20KAC510S

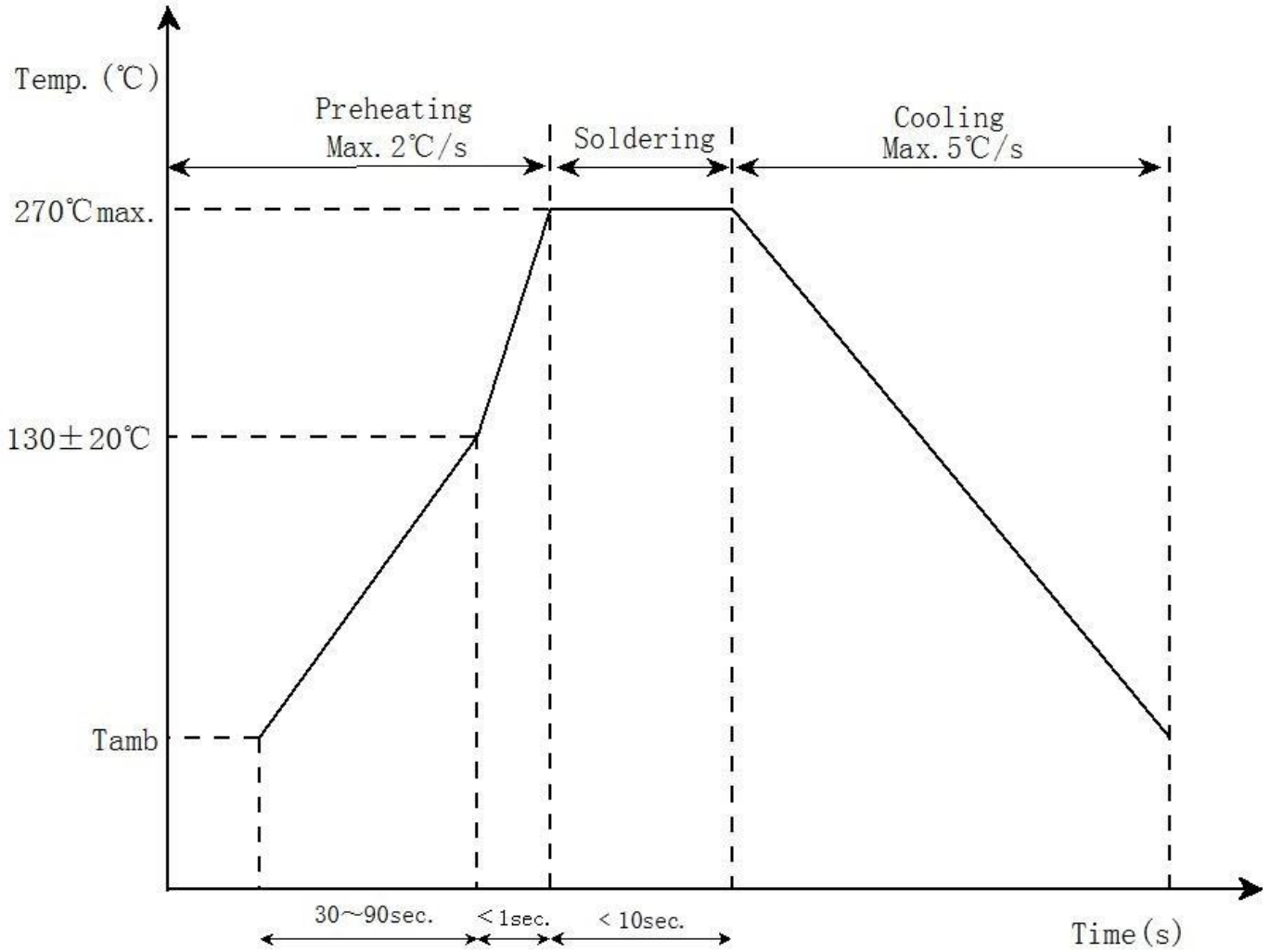


Drawing of internal structure:



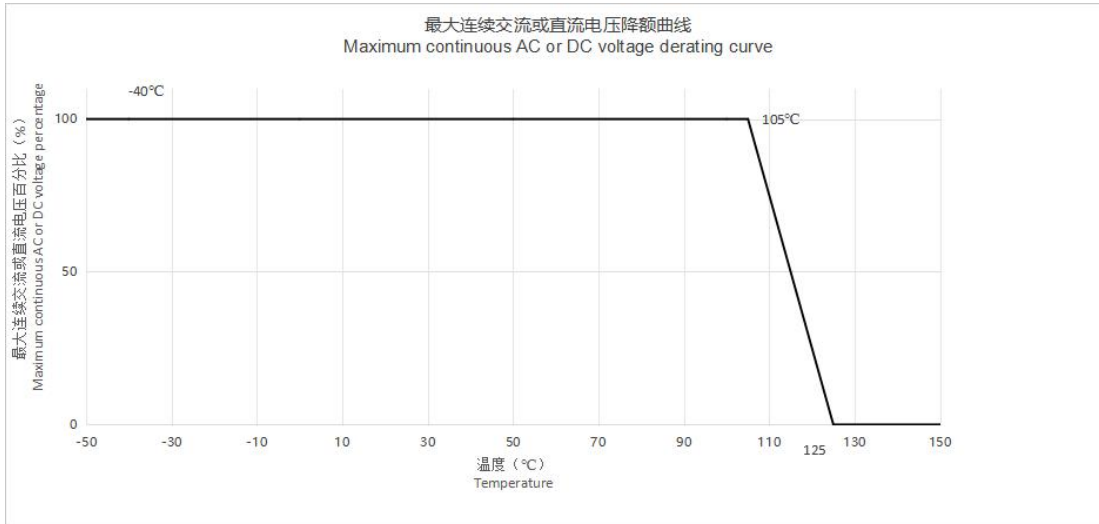
Soldering Recommendation:

■ Wave Flow Soldering Profile



Power Derating Curve :

When the working temperature exceeds 105 °C, 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°C ~ +125°C
2. Working environment temperature : -45°C ~ +105°C
3. Relative humidity : ≤75% RH
4. Keep away from corrosive gases
5. Storage period : 2 years

Safety Approval : (Model No.: 20KAC510S) *UL&CUL(NO : E334320) *VDE (NO : 40008571)

CQC *CQC (NO: CQC12001067222)

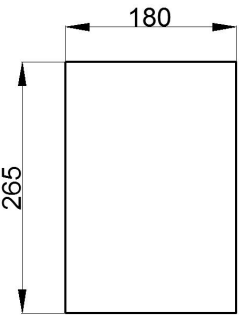
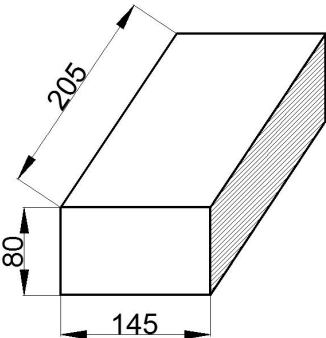
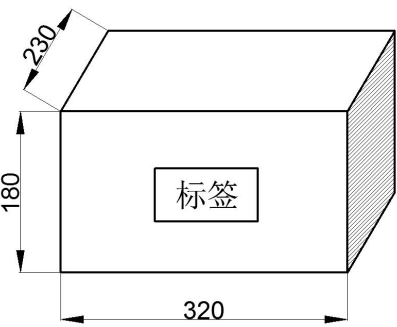
Certificates :

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

Test report :

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

Packaging :





<p>First packing</p>		<p>Packing Material: Plastic bag Packing quantity: 300 pcs / bags Requirements: Plastic bag hot sealing, surface paste certificate</p> <p style="text-align: right;">Unit: mm</p>
<p>Second packing</p>		<p>Packing Material: Carton Packing quantity: 600 pcs / box Requirement: Tape seal for carton, paste inner box certificate</p> <p style="text-align: right;">Unit: mm</p>
<p>Third Packing (Overpack)</p>		<p>Packing Material: Corrugated Box Packing quantity: 2400 pcs / box Requirements: Carton sealed with tape, affixed with outer box certificate, label with user name, product model, product quantity, factory date</p> <p style="text-align: right;">Unit: mm</p>

Label:

TIEDA Chengdu Tieda Electronic Co.,Ltd
 MOV certificate of quality 
 REG A500 CQC
 C 9 U S
Name: 20KAC350S
Item No.: a型 3.5±0.5

 **Batch No:**
Q T Y: 300
Inspector: 06
Mfg. date:
 GB/T10193-95-1997

Inner box label

TIEDA Chengdu Tieda Electronic Co.,Ltd
 MOV certificate of quality 
 REG A500 CQC
 C 9 U S
Name: 20KAC350S
Item No.: a型 3.5±0.5

 **Batch No:**
Q T Y: 600
Inspector: 06
Mfg. date:
 GB/T10193-95-1997

Outer box label

TIEDA Chengdu Tieda Electronic Co.,Ltd
 MOV certificate of quality 
 REG A500 CQC
 C 9 U S
Name: 20KAC350S
Item No.:
 a型 3.5±0.5

 **Batch No:**
Q T Y: 2400
Inspector: 06
Mfg. date:
 GB/T10193-95-1997