

Component Specification

Varistor

We agree, that the part specified by the following part number meets this specification.

		D/ M/ Y	NAME	SIGNATURE
Manufacturer: Chengdu Tieda Electronics Corporation	Originated	07/03/22	TongJing	
	Checked	07/03/22	WuYan Ping	
Trademark: TIEDA	Part No: 20KAC510S			
File No: 2022-03-13	Expiry Date:2022-03-07~2024-03-31			

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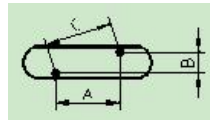
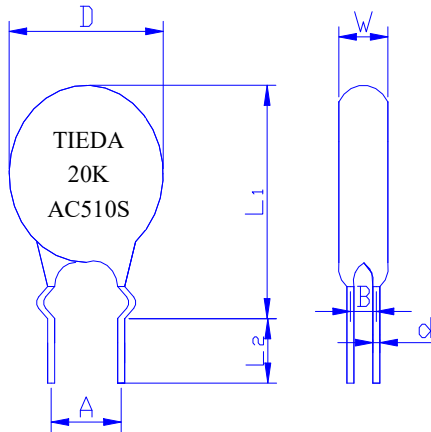
1. Construction

1.1 Surface

The product surface should not be damaged or grinded. The marking should be legible.

1.2 Physical dimensions

(all dimensions in mm)



Dmax	19.0
L _{1max}	23.0
Wmax	8.4
A	9.0±1.0
L ₂	3.5±0.5
d	1.0±0.1
B	4.2±1.0
C	10.0±1.0

1.3 Marking

manufacturer's trademark, Type code, Maximum RMS Voltage.

1.4 Safety Certificate

This part No. has been approved by CQC, the File No. is CQC12001067222.and by UL&CUL, The File No. is E334320.and by VDE, the file No is 40008571, and Rohs compliant.

2 . Electrical Characteristics

No.	Parameter	Specification	Test Condition
2.1	Maximum allowable voltage	AC:510 Vrms DC: 670 V	
2.2	Average power dissipation	≥1.0 W	
2.3	Varistor voltage	820V±10%	Test current: 1mADC
2.4	Clamping voltage	≤1355V	Test waveform:8/20μs Test current: 100 A
2.5	Maximum surge current	10000 A ≥ 1 time	Test waveform:8/20μs Interval between two surges: 5 min
		8500 A ≥ 2times	
		3000 A ≥ 100times	

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(Continuing)

No.	Parameter	Specification	Test Condition
2.6	Energy absorbtion	$\geq 252\text{J}$	Test waveform: 2ms
2.7	Temperature coefficient of varistor voltage	$+0.05\%/^{\circ}\text{C} \sim -0.05\%/^{\circ}\text{C}$	Temperature range: $+25^{\circ}\text{C} \sim +85^{\circ}\text{C}$
2.8	Capacitance	410pf (reference value)	Test frequency: 1kHz
2.9	Dissipation factor tangent value	≤ 0.1	Test frequency: 1kHz
2.10	Withstanding voltage (Body insulation)	No breakdown	Test voltage: 2500Vrms Test time: 1min
2.11	Leakage current	$\leq 20\mu\text{A}$	Test voltage: 670V _{DC}
2.12	Voltage ratio	≤ 1.08	$V_{1\text{mA}}/V_{0.1\text{mA}}$

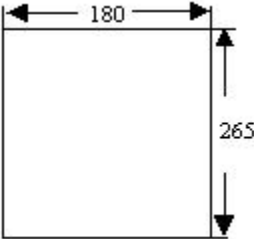
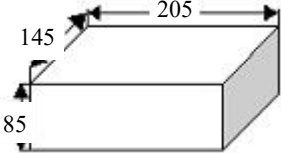
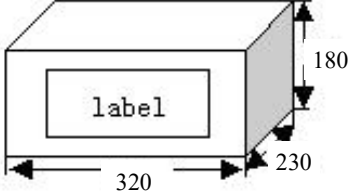
3. Mechanical characteristics

No.	Parameter	Specification	Test Condition			
3.1	Robustness of terminations(Tensile)	No remarkable mechanical damage	Parameter	Terminal diameter	Force	Operating conditions
			Tensile	φ 1.0	20N	10 seconds
3.2	Robustness of terminations(Bending)	No remarkable mechanical damage	Bending	φ 1.0	10N	3 times
3.3	Vibration	No remarkable mechanical damage	Repeadly applying a single harmonic vibration (amplitude: 0.75mm) with 1 minute vibration frequency cycles (10Hz to 55Hz to 10Hz) to each of three perpendicular directors for 2 hours			
3.4	Solderability	Approximately 95% of the terminals should be covered with new solder uniformly	Dipping the terminals to a depth of approximately 3 mm from the body in a soldering bath of $260\pm 5^{\circ}\text{C}$ for $2\pm 0.5\text{sec}$.			
3.5	Resistance to soldering heat	$\Delta V_{1\text{mA}}/V_{1\text{mA}} \leq \pm 5\%$ No remarkable mechanical damage	Dipping the terminals to a depth of approximately 2 mm from the body in a soldering bath of $260\pm 5^{\circ}\text{C}$ for $10\pm 1\text{sec}$.			

4.Environmental characteristics

No.	Parameter	Specification	Test Condition															
4.1	High temperature storage	$\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$	Temperature: +125±2°C Time: 1000 hours															
4.2	Humidity storage	$\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$	Temperature: +40±2°C Humidity: 90 to 95%RH Time: 1000 hours															
4.3	Low temperature storage	$\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$	Temperature: -40±2°C Time: 1000 hours															
4.4	Temperature cycle	$\Delta V_{1mA}/V_{1mA} \leq \pm 5\%$ No remarkable mechanical damage	<table border="1"> <thead> <tr> <th>step</th> <th>temperature</th> <th>time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±3°C</td> <td>30min</td> </tr> <tr> <td>2</td> <td>Room temp.</td> <td>3min</td> </tr> <tr> <td>3</td> <td>+85±3°C</td> <td>30min</td> </tr> <tr> <td>4</td> <td>Room temp.</td> <td>3min</td> </tr> </tbody> </table> Repeating above cycle 5 times	step	temperature	time	1	-40±3°C	30min	2	Room temp.	3min	3	+85±3°C	30min	4	Room temp.	3min
step	temperature	time																
1	-40±3°C	30min																
2	Room temp.	3min																
3	+85±3°C	30min																
4	Room temp.	3min																
4.5	High temperature load	$\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$	Temperature: +85±2°C Time: 1000 hours Voltage: 510 Vrms															
4.6	Damp heat load	$\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$	According to IEC68-2-3 test Ca Voltage: DC 670 V×10% Time: 96 hours															
4.7	Impulse life I (250A×10 ⁴ times)	$\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$	Impulse waveform: 8/20μs Interval between pulses: 10sec..															
4.8	Impulse life II (120A×10 ⁵ times)	$\Delta V_{1mA}/V_{1mA} \leq \pm 10\%$	Impulse waveform: 8/20μs Interval between pulses: 10sec..															
Operating temperature range		-40 to +85°C																
Storage temperature range		-40 to +125°C																

5.Package

No.	Parameter	Specification
5.1	First packing	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> Packing material: plastic bag Packing quantity:300 pcs./bag </div> </div> <p style="text-align: right;">(in mm)</p>
5.2	Second packing	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> Packing material: paper box Packing quantity:600 pcs./box </div> </div> <p style="text-align: right;">(in mm)</p>
5.3	External packing	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> Packing material: tegular paper box Packing quantity:2400 pcs./box Label: Customer's name, Quantity, Part No.and Date must be noted on the label. </div> </div> <p style="text-align: right;">(in mm)</p>