Aillen
EXPERT IN PASSIVE PARTS

ALTERNATION HISTORY RECORDS 变更记录

Date 日期	Version 版本	Mark 标记	Page 页码	Description 描述	Drafter 制定者	Approver 审批者
2023-04-21	B	/		First release 首次发行	Robin Xiong	/

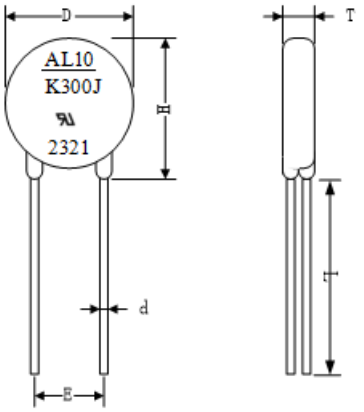
Classification	Specification	Page	1/4
Subject	Aillen Surge Absorber	Date	2022/11/20
Part Number	AL10K300RR-J	**Version**	A

1 Dimension

1.1 Appearance

No visible scarp. Clear marking.

1.2 Disk Dimension



D	12.5 max.
H	15.5 max.
T	5.4 max.
d	0.8 ± 0.1
E	7.5 ± 0.8
L	20.0min

unit : mm

1.3 Marking

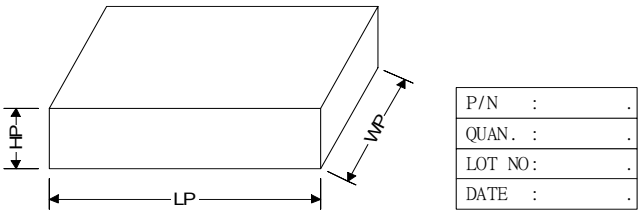
Trade Mark , Spec.,UL recognized

2 Packing

2.1 Quantity

1000 pcs

2.2 Packing Dimension

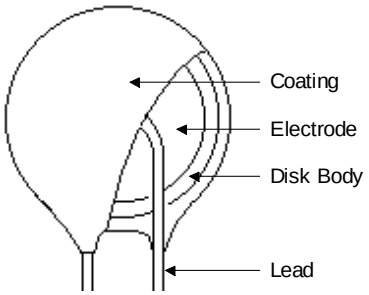


LP	250 max.
HP	60 max.
WP	170 max.

unit : mm

3 Material List

3.1 Drawing



3.2 Material Chart RoHs

Item	Composition
Coating	Epoxy Resin
Lead	Cp/Cu. Wire
Electrode	Silver
Disk	Zinc Oxide
Solder	Sn:100%

Classification	Specification	Page	2/4
Subject	Aillen Surge Absorber	Date	2022/11/20
Part Number	AL10K300RR-J	**Version**	A

4 Electrical Test Method

4.1	Varistor Voltage	The voltage between two terminals with the specified measuring current 1 mA DC applied is call Vb.
4.2	Maximum Allowable Voltage	The recommended maximum sine wave voltage (rms) or the maximum DC voltage can be applied continuously.
4.3	Maximum Clamping Voltage	The maximum voltage between two terminal with the specification standard impulse current (8/20 μsec).
4.4	Rated Wattage	The maximum power that can be applied within the specified ambient temperature.
4.5	Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 2msec. is applied.
4.6	Withstanding Surge Current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20 μsec) applied one time.
4.7	Varistor Voltage Temp. Coefficient	$\frac{Vb\ at\ 20^{o}C(68^{o}F) - Vb\ at\ 70^{o}C(158^{o}F)}{Vb\ at\ 20^{o}C(68^{o}F)} \times \frac{1}{50} \times 100\ (\%/^{o}C)$
4.8	Surge Life	The change of Vb shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature.

5 series	K11A to K40A	0.5A (2 msec)
	K50A to K300	20A(8/20μsec)
7 series	K11A to K40A	1.5A (2 msec)
	K50A to K300	50A(8/20μsec)
10 series	K11A to K40A	50A(8/20μsec)
	K50A to K510	100A(8/20μsec)
14 series	K11A to K40A	75A(8/20μsec)
	K50A to K510	150A(8/20μsec)
20 series	K11A to K40A	100A(8/20μsec)
	K50A to K510	200A(8/20μsec)

5 Mechanical Test Method

5.1 Terminal Pull Strength

After gradually applying the load specified below and keeping the unit fixed for ten seconds , the terminal shall be visually examined for any damage.

Terminal diameter	Load
0.6mm (.024")	0.5kg (1.1 lbs)
0.8mm (.031")	1.0kg (2.2 lbs)
1.0mm (.039")	2.0kg (4.4 lbs)

5.2 Terminal Bending Strength

The unit shall be secured with its terminal kept vertical and the weight specified below be applied in the axial direction. The terminal shall gradually be bent by 90°in one direction , then 90°in the opposite direction , and again back to the original position. The damage of the terminal shall be visually examined.

Terminal diameter	Load
0.6mm (.024")	0.5kg (1.1 lbs)
0.8mm (.031")	1.0kg (2.2 lbs)
1.0mm (.039")	2.0kg (4.4 lbs)

Classification	Specification	Page	3/4
Subject	Aillen Surge Absorber	Date	2022/11/20
Part Number	AL10K300RR-J	Version	A

5.3	Vibration	Subjected to simple harmonic motion of 0.75 mm (0.029") amplitude 1.5mm (0.058") maximum total excursion-between limits of 10 ~ 55 Hz. frequency scan shall then be applied for period of two hours in each of three mutually perpendicular direction , Thereafter , the unit shall be visually examined.
5.4	Solderability	After dipping the terminal to a depth of approximately 3 mm (0.118") from the body in a soldering bath of 260℃ (500℉) for two seconds , the terminal shall be visually examined.
5.5	Resistance to Soldering Heat	The terminal shall be dipped into a soldering bath having a temperature of 350℃ (660 ℉) to a point 3 mm (0.118") from the body of the unit and then be held there for three seconds. The change of Vb and mechanical damage shall be examined.
6	Environmental Test Method	
6.1	High Temperature Storage	The specimen shall be subjected to 125℃ (257℉) for 1000 hours in a thermostatic bath without load and then stored at room temperature and humidity for one to two hours. Thereafter , The change of Vb Shall be measured.
6.2	Humidity	The specimen shall be subjected to 40℃ (104℉) , 90 to 95 % R.H. for 1000 hours without load and then stored at room temperature and humidity for one to two hours. Thereafter , the change of Vb shall be measured.
6.3	Thermal Shock	The temperature cycle shown below shall be repeated five times and then stored at room temperature and humidity for one to two hours. The change of Vb as well as mechanical damage shall be examined.

Step	Temperature	Period
1	-40℃(-40℉)	30 min.
2	85℃(185℉)	30 min.

6.4	High Temperature Operation	After being continuously applied the Maximum Allowable Voltage at 85℃ (185℉) for 1000 hours , the specimen shall be stored at room temperature and humidity for one to two hours. Thereafter , the change of Vb shall be measured.
6.5	Humidity Operation	The specimen shall be subjected to 40℃ (104℉),90 to 95%RH and the Maximum Allowable Voltage for 1000 hours and then stored at room temperature and humidity for one to two hours.Thereafter,the change of Vb shall be measured.
6.6	Low Temperature Storage	The specimen shall be subjected to -40℃ (-40℉) without load for 1000 hours and then stored at room temperature for one to two hours.Thereafter,the change of Vb shall be measured.

Aillen®
EXPERT IN PASSIVE PARTS

Classification		Specification			Page	4/4
Subject		Aillen Surge Absorber			Date	2022/11/20
Part Number		AL10K300RR-J			Version	A
7	Electrical Test Requirements					
7.1	Varistor voltage	Vb : 423 V~ 517 V		Measuring current : 1 mA DC		
7.2	Maximum Allowable Voltage	AC : 300 V rms DC : 385 V				
7.3	Clamping Voltage	775 V max.		Measuring current : 25 A Impulse waveform : 8/20 µsec		
7.4	Rated Wattage	0.4 W				
7.5	Energy	85 J		Impulse waveform : 8/20µsec		
7.6	Withstanding Surge Current	1 Pulse	3500 A	Impulse waveform : 8/20 µsec 8/20 µsec , interval 5 min.		
		2 Pulse	2500 A			
7.7	Varistor Voltage Temp. Coefficient	0 to 0.05% / ℃		Temp. range : +25℃ ~ +85℃		
7.8	Surge Life	△Vb / Vb ≦ 10% at 100 A		Impulse waveform : 8/20 µsec 10000 times by interval 10 sec		
7.9	Capacitance	210 pF (reference)		Measure frequency : 1 KHz		
8	Mechanical Test Requirement					
8.1	Terminal Pull Strength	No outstanding damage		Load : 1.0 kg(2.2 lbs)		
8.2	Terminal Bending Strength	No outstanding damage		Load : 1.0 kg(2.2 lbs)		
8.3	Vibration	No outstanding damage		Frequency : 10 ~55 Hz Amplitude : 0.75 mm		
8.4	Solderability	Almost all the surface should be covered with solder uniformly		Solder Temp. : 260℃ ± 2℃ Immersed time : 3 sec		
8.5	Resistance to soldering heat	△Vb / Vb ≦ ±5% No outstanding damage		Solder Temp. : 350℃ ± 2℃ Immersed time : 3 sec		
9	Environmental Test Requirements					
9.1	High Temperature Storage	△Vb / Vb ≦ ±5%		Ambient temp. : 125℃ ± 2℃ Time : 1000 hours		
9.2	Humidity	△Vb / Vb ≦ ±5%		Ambient temp. : 40℃ ± 2℃ Humidity : 90 to 95 % R.H. Time : 1000 hours		
9.3	Thermal Shock	△Vb / Vb ≦ ±5%		Step	Temp.	Period
				1	-40 ℃	30 min.
				2	85 ℃	30 min.
				5 Cycles		
9.4	High Temperature Operation	△Vb / Vb ≦ ±10%		Ambient temp. : 85℃ ± 2℃ Time : 1000 hours		
9.5	Humidity Operation	△Vb / Vb ≦ ±10%		Ambient temp. : 40℃ ± 2℃ Humidity : 90 to 95 % R.H. Time : 1000 hours		
9.6	Low Temperature Storage	△Vb / Vb ≦ ±5%		Ambient temp. : -40℃ ± 2℃ Time : 1000 hours		