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
2024-10-12	A	/	/	First release	Robin Xiong	Emily Peng

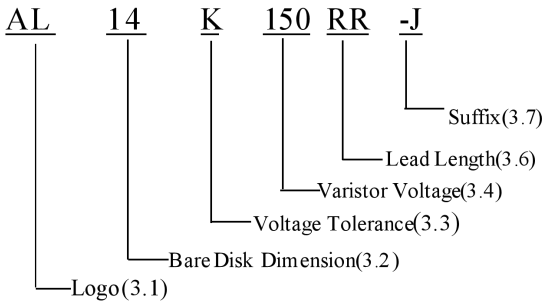
1.Description

Metal Oxide Varistor(MOV) is a nonlinear resistance component with zinc oxide(ZnO) as its main constituent, The resistance of an MOV is sensitive to changes in the lied voltage, Below the threshold voltage, the MOV exhibits high resistance, allowing only a negligibly small leakage current to flow, Once the threshold voltage is exceeded, the resistance of the MOV drops sharply, enabling the conduction of a large current, This characteristic makes the MOV suitable for detecting and suppressing surge voltage and overvoltage, thereby protect the circuit from damage caused by excessive voltage.

2. Features

-Low Voltage
-Low leakage current(high resistance)
-Small size, high energy absorption capacity
-Ability to withstand high voltage and high current
-Long lifespan and high stability
-Fast response speed
-RoHS & REACH Compliant
- The tube is recognized by UL1449 (List No. : E535562)

3.Part Number System



3.1 LOGO Name:

Code	AL
LOGO	Aillen

3.2 Dimensio:

Code	14
Bare Disk Dimension	φ14mm

3.3 Voltage Tolerance:

Code	M	K
Voltage Tolerance	±20%	±10%

3.4 Varistor Voltage

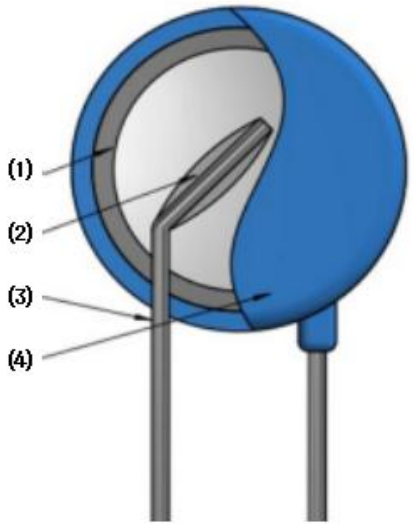
Code	150
Voltage	150VAC

3.5 Package

Code	RR
Package	Bulk

3.6 Suffix:
Inner Code
-J: High Surge type & High Energy

4.Product Structure:



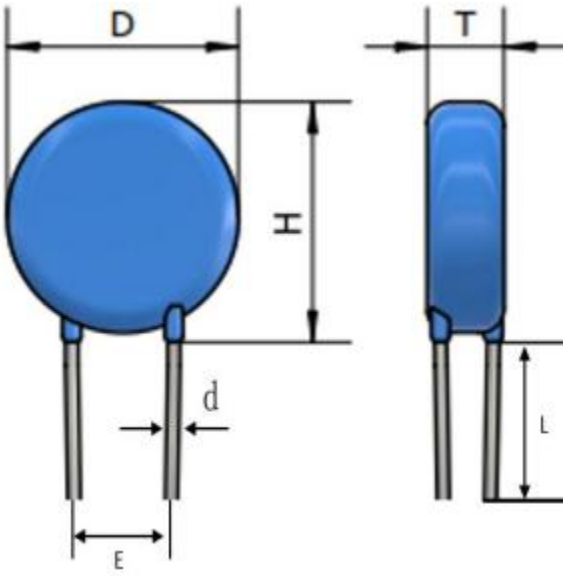
(1) Zinc oxide

(2) Tin(Sn)

(3) Lead

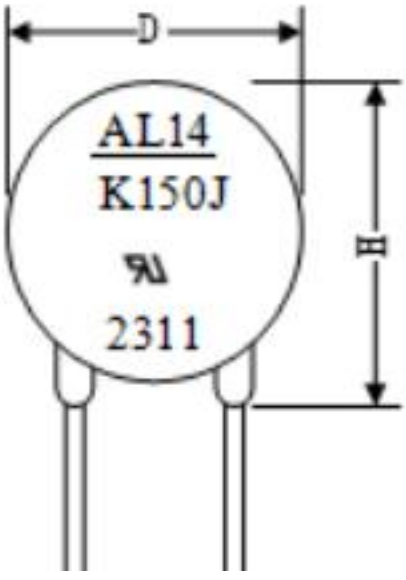
(4) Paint

5.Disk Dimensions：



Item	Size(mm)
D	16.5Max
H	20.0Max
T	4.4Max
d	0.8±0.1
E	7.5±0.5
L	20min

6.Marking



7. Specifications:

No.	Item	Performance	Test methods
7.1	Varistor voltage（Vn）	V1mA: 216V～264V	Varistors be connected to a variable voltage source adjusted to maintain a current of 1 mA DC applied between 10 ms and 500 ms and the voltage across the varistor measured
7.2	Maximum Continuous Operating Voltage（MCOV）	AC: 150V rms DC: 200V	Maximum continuous AC sine wave (RMS) or DC voltage which may be applied.
7.3	Max. Clamping Voltage(VC)	395V at 50A	The maximum voltage across the varistor when applying the specified peak impulse current (8/20us waveform).
7.4	Nominal Discharge Current(In)	3000A	The peak current waveform of the varistor is 8/20 μ s, and 15 surges are applied with an interval of 1 minute. The voltage change rate of the varistor after the surge is ≤± 10%
7.5	Maximum Discharge Current (Imax.)	6000A	By measuring the peak current of a varistor once, the waveform is 8/20 μ s, and the voltage change rate of the varistor is ≤± 10%.
7.6	Rated Power（Pmax.）	0.6W	The maximum power value that a varistor can withstand at maximum operating voltage
7.7	Energy（Em）	84J	The max energy absorbed with the varistor voltage change less than ±10% when one impulse current waveform 10/1000μs is applied
7.8	Typical Capacitance（Reference）(Cv)	830pf	The capacitance test frequency is 1KHz ± 10%, the measured voltage at room temperature is 1V, and the bias voltage is 0V.
7.9	Varistor Voltage Temperature Coefficient	-0.05~+0.05% ℃	$\frac{V1mA\ at\ 25℃ - V1mA\ at\ 105℃}{V1mA\ at\ 25℃} \times \frac{1}{60} \times 100\ (\%/℃)$
7.10	Leakage Current（IR）	≦ 35μA	The value of the direct current measured when 80% of the Varistor Voltage is applied to both ends of the varistor

8. Physical Test:

No.	Item	Accept STD	Test methods
8.1	Terminal Pull Strength	No Outside Damage △VB/VB%≤±10%	1sPull:1Kg for φ 0.5mm and φ0.8mm wire 2kg f or φ1.0mm and φ1.2mm wire Loading Times：10±1Sec
8.2	Terminal Bending Strength	Bending Times≥2Times △VB/VB%≤±10%	Loading: 0.5Kg, Bending: 90°
8.3	Torsion Test	No Outside Damage △VB/VB%≤±10%	Loading：1Kg，Rotate180°, Times：2Times
8.4	Solderability	Solderability≧95%	Temp.235±5℃ Continuance Time:3.5±0.5Sec
8.5	Flammability	Burning Time：≤5Sec；	Burning time：10Sec；
8.6	Vibration Test	No Outside Damage △VB/VB%≤±10%	Frequency：10~500HZ， Amplitude：0.75mm， Test direction：X/Y/Z， Duration：2Hrs/axes
8.7	Shock Test	No Outside Damage △VB/VB%≤±10%	Pulse Shape：Half-sine， Acceleration：490m/S2， Duration of Pulse：11mS， Shock direction：X/Y/Z（total 6faces）， Shock times:3Times /Direction；

9. Environment Test:

No.	Item	Accept STD	Test methods
9.1	Resistance to Soldering Heat	No Outside Damage △VB/VB%≤±10%	Temp260±5℃, Time Continuance10±1Sec
9.2	High Temp.Storage	No Outside Damage △VB/VB%≤±10% IR≥1GΩ	Temp.125±2℃, Time:1000±24hrs
9.3	Low Temp.Storage	No Outside Damage △VB/VB%≤±5%	Temp.-40±3℃, Time:1000±24hrs。
9.4	Damp Heat	No Outside Damage △VB/VB%≤±10% IR≥100MΩ	Temp.40±2℃,Humidity90~95R.H.%, Times:56dayS
9.5	Temp.cycling test	No Outside Damage △VB/VB%≤±5%	Low -55±3℃, High Temp125±2℃, Time30min,5Cycle。
9.6	High Temp.Load	No Outside Damage △VB/VB%≤±10% IR≥1GΩ	Temp.105±2℃,Voltage:AC MCOV, Time:1000±24hrs
9.7	Climatic Sequence	No Outside Damage △VB/VB%≤±10% IR≥100MΩ	1.Temp.:125±5℃,Time;16H; 2.Temp.:55±2℃,Humidity:80~100R.H%, Times:144Hrs; 3.Temp.:-40±3℃,Times：2Hrs; 4.Temp.:55±2℃,Humidity:80~100R.H% Times:21 days;

10.Technical Term

No.	Item	Specifications	Description
10.1	Operating Temp.	-40℃~+105℃	The ambient temperature that can maintain the normal operation of varistors:
10.2	Storage Temp.	-40℃~+125℃	Storage temperature range of varistors (no voltage applied)
10.3	Transient ResponseTime	< 50ns	Time lag between application of surge and varistor's "turn-on" conduction action
10.4	Insulation Resistance	≥1GΩ	Minimum resistance between shorted terminals and varistor surface
10.5	Hi-pot test	≥2500VAC	Minimum voltage applied for one minute between shorted terminals varistor surface

11.Attention

11.1 Varistor must operate within the specified ambient temp;

11.2 Do not clean the varistorwith strong polar solvent such as ketone, eaters, benzene, halogenated hydrocarbon, to avoid damaging the encapsulating layer;

11.3 Please do not apply severe vibration, shock or pressure to MOV, to avoid surface resin or element cracking;

11.4 Please fix lead wires when bending or cutting. The distance between the bending point and the sealing of MOV shall be greater than 2mm;

11.5 If varistor is visually damaged , please replace it.