

Radial Lead Varistor (MOV)

Description

The 25D series radial leaded varistors provides an ideal circuit protection solution for lower DC voltage applications by offering higher surge ratings than ever before available in such small discs. The maximum peak surge current rating can reach up to 20KA (8/20 μ s pulse) to protect against high peak surges, including indirect lightning strike interference, system switching transients and abnormal fast transients from the power source.

Features

- ◆ Wide operating voltages ranging from 50Vrms to 1100Vrms(AC)
- ◆ Fast response time of less than 25ns, instantly clamping the transient over voltage.
- ◆ High surge current handling capability.
- ◆ High energy absorption capability.
- ◆ Low clamping voltages, providing better surge protection
- ◆ Low capacitance values, providing digital switching circuitry protection.
- ◆ High insulation resistance, preventing electric arching to the adjacent devices or circuits.

Applicable

- ◆ Transistor, Diode, IC, Thyristor or Triac semiconductor protection.
- ◆ Surge protection in consumer electronics.
- ◆ Surge protection in industrial electronics.
- ◆ Surge protection in electronic home appliances, gas and petroleum appliances.
- ◆ Relay and electromagnetic valve surge absorption.

Part Numbering

25 - D - XXX - K - X - X - X - X
(1) (2) (3) (4) (5) (6) (7) (8)

(1) Size(mm) : 05mm to 32mm

(2) Type : D: Disk, S: Square

(3) Varistor Voltage : 470($47 \times 10^0=47V$) , 471($47 \times 10^1=470V$)

(4) Tolerance : K \pm 10%, L \pm 15%, M \pm 20%

(5) Surge Current Standard: J:High Surge

(6) Taping Mode : TR : Reel

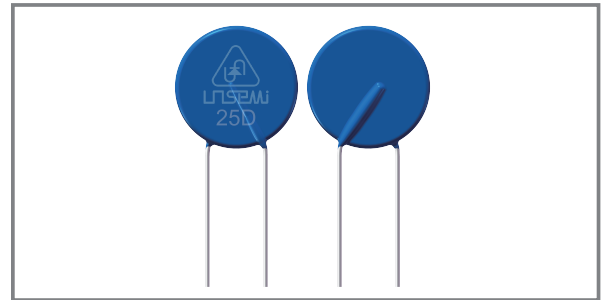
(7) Lead Form : C:Crimped, Short leg : NO : X.X

(8) Coating : H:Epoxy Coating 125°C

Note: (5)、(6)、(7)、(8) options is non-standard



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Material

- ◆ Coating: Epoxy Resin
- ◆ Lead Wire: The Copper Wire
- ◆ Electrode: Silver Solder
- ◆ Disk: Zinc Oxide

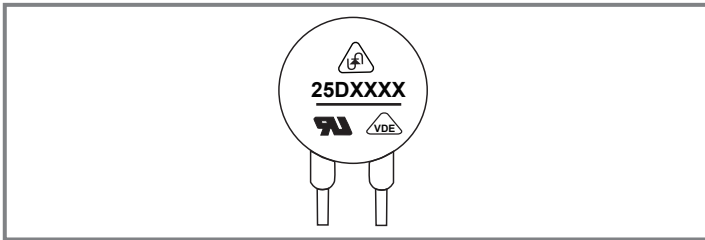
General Characteristics Definition

- ◆ Operating Temperature: -40°C~ +85°C
- ◆ Storage Temperature: -40°C~ +125°C
- ◆ Working Surface Temperature: +115°C
- ◆ Insulation Resistance: > 100M Ω
- ◆ Coating (Epoxy Resin): Flame-Retardant to UL 94V-0
- ◆ Approval Standard and File Number: UL: E489912

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number		Maximum Allowable Voltage		Varistor Voltage	Withstanding Surge Current 8/20 μ S		Max Clamping Voltage		Maximum Energy (10/1000 μ s)		Rated Power
Standard	High Surge	V _{Ac} (V)	V _{Dc} (V)	V _{1mA} (V)	I(A) Standard	I(A) High Surge	V _c (V)	I _P (A)	(J) Standard	(J) High Surge	(W)
					1 time	1 time					
25D820K	25D820KJ	50	65	82(73.8-90.2)	15000	20000	135	150	80	96	1.2
25D101K	25D101KJ	60	85	100(90-110)	15000	20000	165	150	100	120	1.2
25D121K	25D121KJ	75	100	120(108-132)	15000	20000	200	150	120	144	1.2
25D151K	25D151KJ	95	125	150(135-165)	15000	20000	250	150	160	192	1.2
25D181K	25D181KJ	115	150	180(162-198)	15000	20000	300	150	175	210	1.2
25D201K	25D201KJ	130	170	200(185-225)	15000	20000	340	150	190	228	1.2
25D221K	25D221KJ	140	180	220(198-242)	15000	20000	360	150	200	240	1.2
25D241K	25D241KJ	150	200	240(216-264)	15000	20000	395	150	220	264	1.2
25D271K	25D271KJ	175	225	270(243-297)	15000	20000	455	150	255	306	1.2
25D301K	25D301KJ	190	250	300(270-330)	15000	20000	505	150	275	330	1.2
25D331K	25D331KJ	210	275	330(297-363)	15000	20000	550	150	300	360	1.2
25D361K	25D361KJ	230	300	360(324-396)	15000	20000	595	150	330	396	1.2
25D391K	25D391KJ	250	320	390(351-429)	15000	20000	650	150	360	432	1.2
25D431K	25D431KJ	275	350	430(387-473)	15000	20000	710	150	380	456	1.2
25D471K	25D471KJ	300	385	470(423-517)	15000	20000	775	150	400	480	1.2
25D511K	25D511KJ	320	415	510(459-561)	15000	20000	845	150	420	504	1.2
25D561K	25D561KJ	350	460	560(504-616)	15000	20000	920	150	440	528	1.2
25D621K	25D621KJ	385	505	620(558-682)	15000	20000	1025	150	450	540	1.2
25D681K	25D681KJ	420	560	680(612-748)	15000	20000	1120	150	460	552	1.2
25D751K	25D751KJ	460	615	750(675-825)	15000	20000	1240	150	510	612	1.2
25D781K	25D781KJ	485	640	780(702-858)	15000	20000	1290	150	530	636	1.2
25D821K	25D821KJ	510	670	820(738-902)	15000	20000	1355	150	570	684	1.2
25D911K	25D911KJ	550	745	910(819-1001)	15000	20000	1500	150	620	744	1.2
25D102K	25D102KJ	625	825	1000(900-1100)	15000	20000	1650	150	685	822	1.2
25D112K	25D112KJ	680	895	1100(990-1210)	15000	20000	1815	150	720	864	1.2
25D122K	25D122KJ	750	990	1200(1080-1320)	15000	20000	1980	150	795	954	1.2
25D142K	25D142KJ	880	1140	1400(1260-1540)	15000	20000	2310	150	850	1020	1.2
25D162K	25D162KJ	1000	1280	1600(1400-1760)	15000	20000	2640	150	970	1164	1.2
25D182K	25D182KJ	1100	1465	1800(1620-1980)	15000	20000	2970	150	1092	1310	1.2

Part Marking



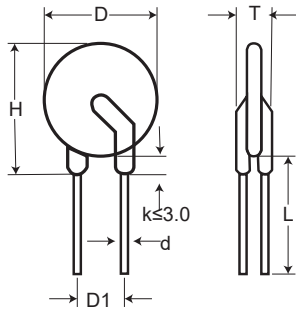
Marking	
Trademark	UN logo
Part No.	25DXXXX
Standard for Safety	UL / VDE

Packaging Information

Unit:Pcs

Dimension	Part No.	Bag	Small Carton	Carton
25D	820K to 182K	100	600	1200
25D (Short leg)	820K to 182K	100	800	1600

Package Dimensions Unit: mm



Symbol	Dimension
H(max.)	34.0
L(min.)	20.0
D(max.)	28.0
D1(±0.8)	10.0
T(max.)	TABLE2
d(±0.05)	1.0

Model	T(max.)	Model	T(max.)
180L	4.8	361K	6.0
220K	4.9	391K	6.2
270K	5.0	431K	6.6
330K	5.2	471K	6.7
390K	5.5	511K	7.0
470K	5.1	561K	7.4
560K	5.4	621K	7.7
680K	5.7	681K	7.8
820K	4.5	751K	8.0
101K	4.7	781K	8.2
121K	4.8	821K	8.4
151K	4.9	911K	9.0
181K	5.2	102K	9.5
201K	5.3	112K	10.1
221K	5.8	122K	10.8
241K	5.3	142K	12.6
271K	5.4	162K	13.2
301K	5.5	182K	14.5
331K	5.7		

Reliability Test (Mechanical Ratings)

Test Parameter	Test Condition / Description		Performance Requirements	
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	Diameter	Loading	No visible damage
		0.6mm	1.0 Kg	
		0.8mm	1.0 Kg	
		1.0mm	2.0 Kg	
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.	Diameter	Loading	No visible damage
		0.6mm	0.5 Kg	
		0.8mm	0.5 Kg	
		1.0mm	1.0 Kg	
Vibration	The Specimen shall be vibrated by its lead wires with a total amplitude of 1.5mm and a varying frequency of 10~55~10HZ(each minutes) for a period of 2 hours respectively in each X,Y and Z directions.		No visible damage $\Delta VB/VB\% \leq \pm 5\%$	
Soldering-solder ability	After dipping the terminal to depth of approximately 3mm from the specimen in a soldering bath of 260°C for 10±1(D5: 5±1) seconds. Thereafter the terminal shall be visually examined.		Terminations shall be uniformly tinned	
Soldering-Resistance to Solder Heat	After preheating the specimen, the specimen shall be completely immersed into a soldering bath having a temperature of 260±5°C for 10±1 (D5: 5±1) seconds or iron of 400±5°C for 3±0.5 seconds. There after the change of Vb and mechanical damage shall be examined.		No visible damage $\Delta VB/VB\% \leq \pm 5\%$	

Reliability Test (ENVIRONMENTAL RATINGS)

Test Parameter	Test Condition / Description				Performance Requirements
Dry Heat Loading	The specimen shall be applied continuously the maximum allowable voltage at the specified conditions for specified period and then stored at room temperature and normal humidity over 2 hours. Thereafter, the change of Vb and mechanical damage shall be examined. Ambient temp: 125±2°C ; Period: 1000±24hours				$\Delta VB/VB\% \leq \pm 10\%$
High Temperature Storage	In a drying oven without load. Ambient temp: 125±2°C ; period: 1000±24hours				$\Delta VB/VB\% \leq \pm 5\%$
Damp Heat Loading	The Specimen shall be vibrated by its lead wires with a total amplitude of 1.5mm and a varying frequency of 10~55~10HZ(each minutes) for a period of 2 hours respectively in each X,Y and Z directions.				$\Delta VB/VB\% \leq \pm 10\%$
Temperature Cycle	Condition the specimen to each temperature form step 1 to step 4 in this order for the period shown in the table of specifications. The change of Vb and mechanical damage shall be examined after 2 hours.	Step	Temp°C	Period	No visible damage $\Delta VB/VB\% \leq \pm 10\%$
		1	-40+3°C	30 min.	
		2	Room Temp	15 min.	
		3	85+2°C	30 min.	
		4	Room Temp	15 min.	
Surge Lifetime Rating	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. Vb and mechanical damage shall be examined.				No visible damage $\Delta VB/VB\% \leq \pm 10\%$
Voltage Proof	Voltage: 2500VAC Leakage Current $\leq 0.5mA$ Time: 60 Seconds				No Breakdown

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