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Radial Lead Varistor (MOV)

Description

The 20DJ2-J3 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 13KA (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 10Vrms 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

20 - 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: J2/J3 :High Surge

(6) Taping Mode : TR : Reel

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

(8) Coating : H:Epoxy Coating 125 $^{\circ}$ C

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



Material

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

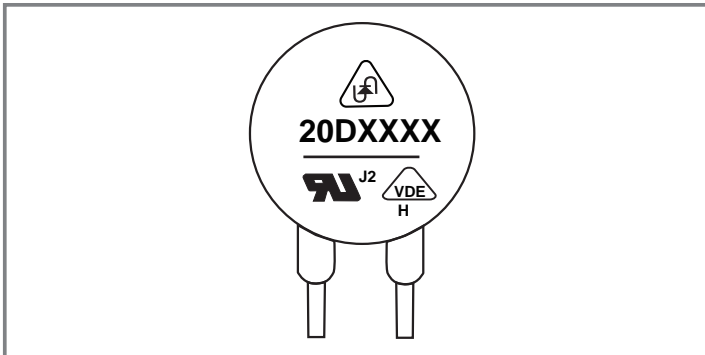
General Characteristics Definition

- ◆ Operating Temperature: -40 $^{\circ}$ C~ +85 $^{\circ}$ C & -40 $^{\circ}$ C~ +85 $^{\circ}$ C
- ◆ Storage Temperature: -40 $^{\circ}$ C~ +125 $^{\circ}$ C
- ◆ Working Surface Temperature: +115 $^{\circ}$ C
- ◆ Insulation Resistance: > 100M Ω
- ◆ Coating (Epoxy Resin): Flame-Retardant to UL 94V-0
- ◆ Approval Standard : CSA & CUL、VDE、CQC

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

Part Number		Maximum Allowable Voltage		Varistor Voltage	Withstanding Surge Current 8/20µS		Max Clamping Voltage		Maximum Energy (10/1000µs)		Rated Power
Standard	High Surge	VAC (V)	VDC (V)	V1mA (V)	I(A)J2 High Surge	I(A)J3 High Surge	Vc (V)	IP (A)	(J) Standard	(J) High Surge	(W)
20D180LJ2	20D180LJ3	11	14	18(15-21)	4000	5000	36	20	14	14	0.2
20D220KJ2	20D220KJ3	14	18	22(20-24)	4000	5000	43	20	17	18	0.2
20D270KJ2	20D270KJ3	17	22	27(24-30)	4000	5000	53	20	20	21	0.2
20D330KJ2	20D330KJ3	20	26	33(30-36)	4000	5000	65	20	25	26	0.2
20D390KJ2	20D390KJ3	25	31	39(35-43)	4000	5000	77	20	29	31	0.2
20D470KJ2	20D470KJ3	30	38	47(42-52)	4000	5000	93	20	36	37	0.2
20D560KJ2	20D560KJ3	35	45	56(50-62)	4000	5000	110	20	48	51	0.2
20D680KJ2	20D680KJ3	10	56	68(61-75)	4000	5000	135	100	51	54	0.2
20D820KJ2	20D820KJ3	50	65	80(74-90)	12000	13000	135	100	59	62	1.0
20D101KJ2	20D101KJ3	50	85	101(90-110)	12000	13000	165	100	74	77	1.0
20D121KJ2	20D121KJ3	75	100	120(108-132)	12000	13000	200	100	89	94	1.0
20D151KJ2	20D151KJ3	95	125	150(135-165)	12000	13000	250	100	111	117	1.0
20D181KJ2	20D181KJ3	115	150	180(162-198)	12000	13000	300	100	137	143	1.0
20D201KJ2	20D201KJ3	130	170	200(185-225)	12000	13000	340	100	147	154	1.0
20D221KJ2	20D221KJ3	140	180	220(198-242)	12000	13000	360	100	163	171	1.0
20D241KJ2	20D241KJ3	150	200	240(216-264)	12000	13000	395	100	176	185	1.0
20D271KJ2	20D271KJ3	175	225	270(243-297)	12000	13000	455	100	200	209	1.0
20D301KJ2	20D301KJ3	190	250	300(270-330)	12000	13000	505	100	221	231	1.0
20D331KJ2	20D331KJ3	210	275	330(297-363)	12000	13000	550	100	239	251	1.0
20D361KJ2	20D361KJ3	230	300	360(324-396)	12000	13000	595	100	268	281	1.0
20D391KJ2	20D391KJ3	250	320	390(351-429)	12000	13000	650	100	289	303	1.0
20D431KJ2	20D431KJ3	275	350	430(387-473)	12000	13000	710	100	320	336	1.0
20D471KJ2	20D471KJ3	300	385	470(423-517)	12000	13000	775	100	368	385	1.0
20D511KJ2	20D511KJ3	320	415	510(459-561)	12000	13000	845	100	378	396	1.0
20D561KJ2	20D561KJ3	350	460	560(504-616)	12000	13000	920	100	399	428	1.0
20D621KJ2	20D621KJ3	385	505	620(558-682)	12000	13000	1025	100	410	429	1.0
20D681KJ2	20D681KJ3	420	560	680(612-748)	12000	13000	1120	100	420	440	1.0
20D751KJ2	20D751KJ3	460	615	750(675-825)	12000	13000	1240	100	441	462	1.0
20D781KJ2	20D781KJ3	485	640	780(702-858)	12000	13000	1290	100	462	484	1.0
20D821KJ2	20D821KJ3	510	670	820(738-902)	12000	13000	1355	100	483	506	1.0
20D911KJ2	20D911KJ3	550	745	910(819-1001)	12000	13000	1500	100	536	561	1.0
20D102KJ2	20D102K3	625	825	1000(900-1100)	12000	13000	1650	100	593	622	1.0
20D112KJ2	20D112KJ3	680	895	1100(990-1210)	12000	13000	1815	100	651	682	1.0
20D122KJ2	20D122KJ3	750	990	1200(1080-1320)	12000	13000	1980	10	693	726	1.0
20D142KJ2	20D142KJ3	880	1140	1400(1260-1540)	12000	13000	2310	100	823	862	1.0
20D162KJ2	20D162KJ3	1000	1280	1600(1400-1760)	12000	13000	2640	100	941	986	1.0
20D182KJ2	20D182KJ3	1100	1465	1800(1620-1980)	12000	13000	2970	100	1040	1089	1.0

Part Marking



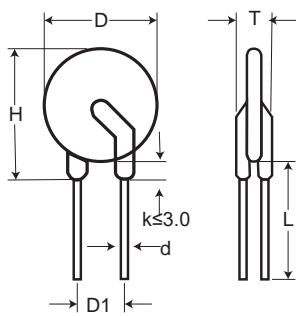
Marking	
Trademark	UN logo
Part No.	20DXXXXJ2/J3
Standard for Safety	UL / VDE / CQC
H	H:Epoxy Coating 125°C
J2/J3 ———	J2/J3 and ——— together: High Surge

Packaging Information

Unit:Pcs

Dimension	Part No.	Bag	Small Carton	Carton
20D	180L to 112K	250	1500	3000
20D (Short leg)	180L to 112K	250	2000	4000
20D	122K to 182K	200	1000	2000
20D (Short leg)	122K to 182K	200	1500	3000

Package Dimensions Unit: mm



Symbol	Dimension
H(max.)	26.5
L(min.)	20.0
D(max.)	23.0
D1(±0.8)	10.0±1/7.5±0.8
T(max.)	TABLE2
d(±0.05)	0.8

Model	T(max.)	Model	T(max.)
180K	4.5	331K	5.0
220K	4.6	361K	5.2
270K	4.7	391K	5.2
330K	4.9	431K	5.4
390K	4.8	471K	5.9
470K	4.9	511K	6.1
560K	5.0	561K	6.4
680K	5.2	621K	6.8
820K	4.1	681K	7.1
101K	4.3	751K	7.2
121K	4.4	781K	7.3
151K	4.2	821K	7.5
181K	4.3	911K	7.6
201K	4.4	102K	8.0
221K	4.5	112K	8.5
241K	4.6	122K	9.0
271K	4.7	142K	10.5
301K	4.8	162K/182K	11.0/12.0

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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