



## JJV25D Disc Varistors

Rev.2.0

### FEATURES

- Wide operating voltages ranging from 130V<sub>RMS</sub> to 1000 V<sub>RMS</sub>.
- 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.



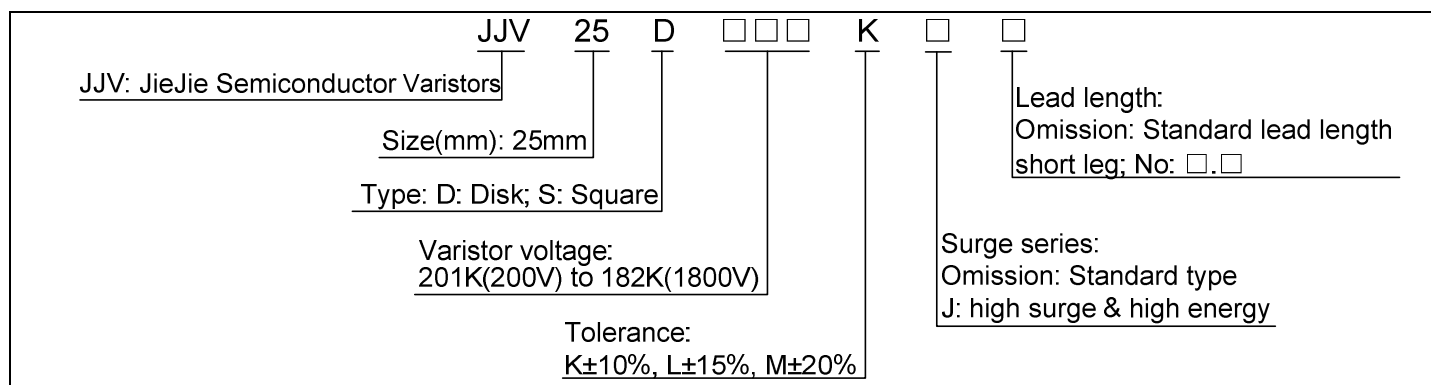
### APPLICATIONS

- 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

### APPLICABLE STANDARDS

- UL1449
- VDE (IEC61051-1, -2, -2-2, IEC60950-1Annex Q)
- CQC (GB/T10193, GB/T10194, GB4943.1, GB8898)

### TYPE CODE DESIGNATION





## GENERAL TECHNICAL DATA

Parameter	Value	Unit
Operating temperature	-40 to +85	°C
Storage temperature	-40 to +125	°C
Working surface temperature	+115	°C
Insulation resistance	≥100	MΩ
Coating (epoxy resin) 125°C	Flame-retardant to UL 94 V-0	

## RATINGS AND CHARACTERISTICS

Part No.		Maximum allowable voltage		Energy 10/1000μs	Withstanding surge current 8/20μs		Rated power	Varistor voltage	Max clamping voltage	Capacitance
Standard	High surge	AC V <sub>RMS</sub>	DC	High surge	Standard (A)	High surge (A)	W	at 1mA	at 150A	1KHz
		V	V		J	1 TIME		1 TIME	V	V
JJV25D201K	JJV25D201KJ	130	170	190	15000	20000	1.2	200(185-225)	330	3200
JJV25D221K	JJV25D221KJ	140	180	200	15000	20000	1.2	220(198-242)	360	2900
JJV25D241K	JJV25D241KJ	150	200	220	15000	20000	1.2	240(216-264)	395	2650
JJV25D271K	JJV25D271KJ	175	225	255	15000	20000	1.2	270(243-297)	455	2400
JJV25D301K	JJV25D301KJ	190	250	275	15000	20000	1.2	300(270-330)	505	2100
JJV25D331K	JJV25D331KJ	210	275	295	15000	20000	1.2	330(297-363)	550	1900
JJV25D361K	JJV25D361KJ	230	300	300	15000	20000	1.2	360(324-396)	595	1750
JJV25D391K	JJV25D391KJ	250	320	330	15000	20000	1.2	390(351-429)	650	1600
JJV25D431K	JJV25D431KJ	275	350	360	15000	20000	1.2	430(387-473)	710	1500
JJV25D471K	JJV25D471KJ	300	385	380	15000	20000	1.2	470(423-517)	775	1400
JJV25D511K	JJV25D511KJ	320	415	400	15000	20000	1.2	510(459-561)	845	1250
JJV25D561K	JJV25D561KJ	350	460	440	15000	20000	1.2	560(504-616)	920	1150
JJV25D621K	JJV25D621KJ	385	505	450	15000	20000	1.2	620(558-682)	1025	1050
JJV25D681K	JJV25D681KJ	420	560	460	15000	20000	1.2	680(612-748)	1120	950
JJV25D751K	JJV25D751KJ	460	615	510	15000	20000	1.2	750(675-825)	1240	850
JJV25D781K	JJV25D781KJ	485	640	530	15000	20000	1.2	780(702-858)	1290	830
JJV25D821K	JJV25D821KJ	510	670	570	15000	20000	1.2	820 (738-902)	1355	800
JJV25D911K	JJV25D911KJ	550	745	620	15000	20000	1.2	910 (819-1001)	1500	700
JJV25D102K	JJV25D102KJ	625	825	685	15000	20000	1.2	1000(900-1100)	1650	650
JJV25D112K	JJV25D112KJ	680	895	720	15000	20000	1.2	1100(990-1210)	1815	600
JJV25D152K	JJV25D152KJ	900	1200	950	15000	20000	1.2	1500(1350-1650)	2475	475
JJV25D182K	JJV25D182KJ	1000	1465	1090	15000	20000	1.2	1800(1620-1980)	2970	400

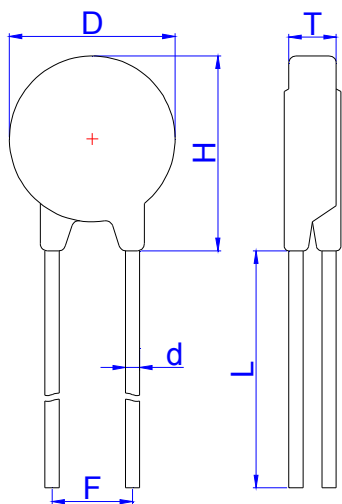
**RELIABILITY TESTS - Mechanical ratings**

Parameter	Condition		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	1.0Kg	
		0.8mm	1.0Kg	
		1.0mm	2.0Kg	
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	0.5Kg	
		0.8mm	0.5Kg	
		1.0mm	1.0Kg	
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 $\Delta V_B/V_B\% \leq \pm 5\%$	
Soldering-Solderability	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. Thereafter the change of $V_B$ and mechanical damage shall be examined.		No visible damage $\Delta V_B/V_B\% \leq \pm 5\%$	

**RELIABILITY TESTS - Environmental ratings**



Parameter	Condition			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 $V_B$ and mechanical damage shall be examined. Ambient temp.: $125\pm 2^\circ\text{C}$ ; Period: $1000\pm 24$ hours.			$\Delta V_B/V_B\% \leq \pm 10\%$	
High Temperature Storage	In a drying oven without load. Ambient temp.: $125\pm 2^\circ\text{C}$ ; period: $1000\pm 24$ hours			$\Delta V_B/V_B\% \leq \pm 5\%$	
Damp 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 $V_B$ and mechanical damage shall be examined. Ambient condition: $40\pm 2^\circ\text{C}$ , 90 to 95%R.H.; period: $1000\pm 24$ hours			$\Delta V_B/V_B\% \leq \pm 10\%$	
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 $V_B$ and mechanical damage shall be examined after 2 hours.	Step	Temp( $^\circ\text{C}$ )	No visible damage $\Delta V_B/V_B\% \leq \pm 10\%$	
		1	$-40\pm 3^\circ\text{C}$		30 min.
		2	Room Temp.		15 min.
		3	$85\pm 2^\circ\text{C}$		30 min.
4	Room Temp.	15 min.			
Surge Lifetime Rating	The change of $V_B$ shall be measured after the impulse listed below is applied 10,000 times continuously with the interval of ten seconds at room temperature.			No visible damage $\Delta V_B/V_B\% \leq \pm 10\%$	
Voltage Proof	Voltage: 2500 $V_{AC}$ ; Leakage current $\leq 0.5\text{mA}$ ; Time: 60 Seconds			No breakdown	

**DIMENSIONAL DRAWINGS**



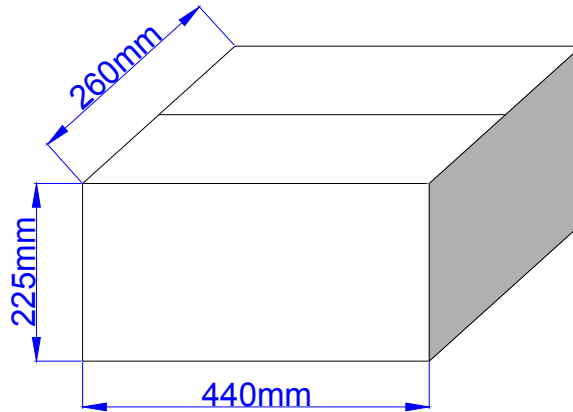
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D			27.0			1.063
L	20.0			0.787		
d	0.95	1.00	1.05	0.037	0.039	0.041
F	9.2	10.0	10.8	0.362	0.394	0.425
H			31.0			1.22
T	JJV25D182K		12.5			0.492
	JJV25D152K		11.0			0.433
	JJV25D112K		8.5			0.335
	JJV25D102K		7.8			0.307
	JJV25D911K		7.6			0.299
	JJV25D821K		7.2			0.283
	JJV25D781K		6.8			0.268
	JJV25D751K		6.5			0.256
	JJV25D681K		6.4			0.252
	JJV25D621K		6.4			0.252
	JJV25D561K		6.2			0.244
	JJV25D511K		5.8			0.228
	JJV25D471K		5.6			0.220
	JJV25D431K		5.3			0.209
	JJV25D391K		5.1			0.201
	JJV25D361K		5.0			0.197
	JJV25D331K		4.8			0.190
	JJV25D301K		4.7			0.185
	JJV25D271K		4.5			0.177
	JJV25D241K		4.3			0.169
JJV25D221K		4.2			0.165	
JJV25D201K		4.1			0.161	

**MARKING**

	Trademark	
	Part No.	25D201K~182K
	Standard for safety	UL/ VDE/ CQC
	Date Code	Y: Year M: Month
	J	High surge
	E*/ S*/ Y*	4KV/2KA / 6KV/3KA / 10KV/5KA

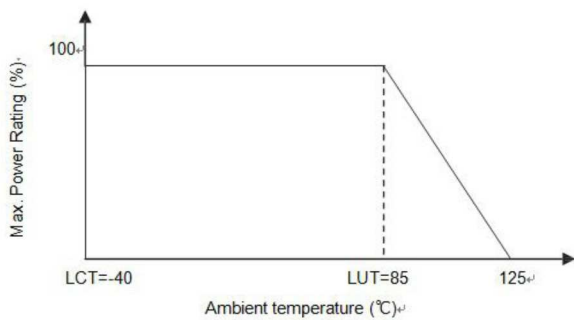
- Quantity of bulk packing method (pcs)

Part No.	Bag	Small Carton	Carton
JJV25D201K~JJV25D182K	100	500	1000

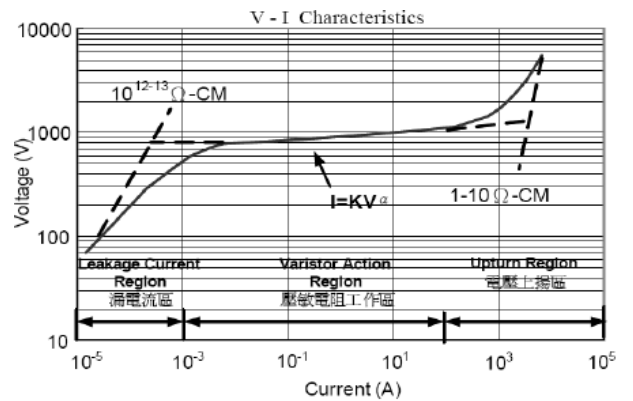


VARISTOR CHARACTERISTICS CURVE

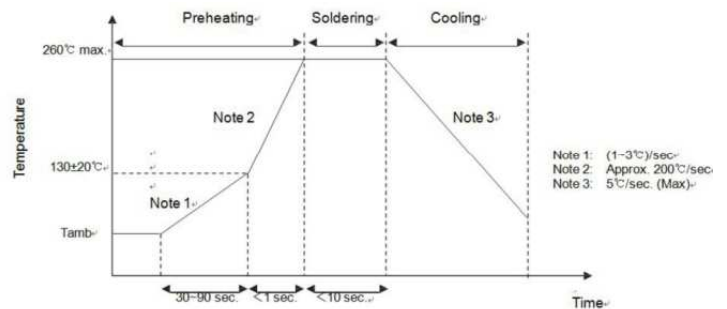
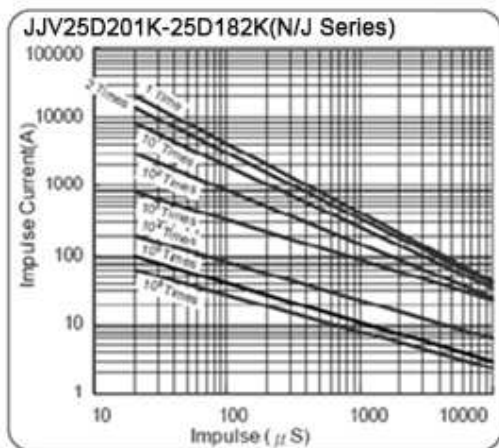
Power derating curve



Varistor V-I characteristics curve

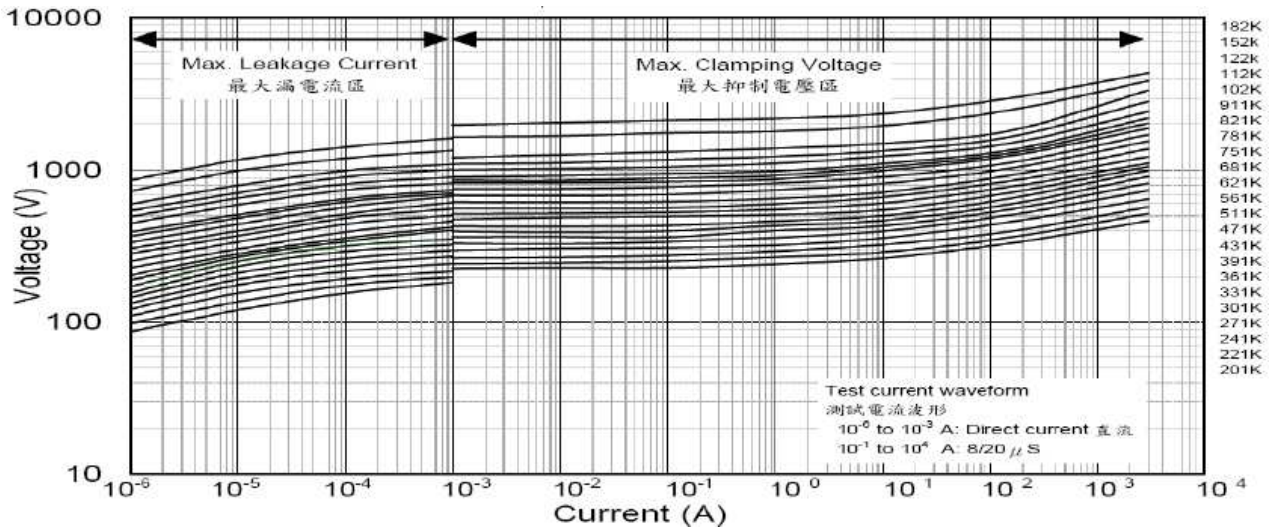


Surge life time ratings N (standard) / K (low capacitance) series



V-I curves

JJV25D201K-25D182K (N/J series)




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