



JJV07D Disc Varistors

Rev.3.3

FEATURES

- Wide operating voltages ranging from 11 V_{RMS} to 510 V_{RMS}.
- 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)

TYPE CODE DESIGNATION

JJV	□□	D	□□□	K	□	□	□
JJV: JieJie Semiconductor							H:epoxy coating 125°C
Size(mm): 05mm to 32mm							S:short leg; No: □.□
Type: D: Disk; S: Square							
Varistor voltage: 180L(18V) to 821K(820V)							Lead form: P: straight; C: crimped; I: inner Y: Y kink E: 4KV/2KA; S: 6KV/3KA; Y: 10KV/5KA J: high surge & high energy Taping mode: TA: Ammo; TR: Reel
Tolerance: K±10%, L±15%, M±20%							



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 _{RMS}	DC	Standard	High surge	Standard (A)		High surge (A)		W	at 1mA	at 2.5A	1KHz
		V	V	J	J	1 TIME	2 TIME	1 TIME	2 TIME		V	V	pF
JJV07D180L	JJV07D180LJ	11	14	2.1	2.4	250	125	500	250	0.02	18(15-21)	38	1400
JJV07D220K	JJV07D220KJ	14	18	2.4	2.8	250	125	500	250	0.02	22(20-24)	43	1150
JJV07D270K	JJV07D270KJ	17	22	2.8	3.0	250	125	500	250	0.02	27(24-30)	53	930
JJV07D330K	JJV07D330KJ	20	26	3.5	4.0	250	125	500	250	0.02	33(30-36)	65	760
JJV07D390K	JJV07D390KJ	25	31	4.2	4.6	250	125	500	250	0.02	39(35-43)	77	640
JJV07D470K	JJV07D470KJ	30	38	5.0	5.2	250	125	500	250	0.02	47(42-52)	93	530
JJV07D560K	JJV07D560KJ	35	45	6.2	6.5	250	125	500	250	0.02	56(50-62)	110	450
JJV07D680K	JJV07D680KJ	40	56	7.2	7.5	250	125	500	250	0.02	68(61-75)	135	370

JJV07D Series



JieJie Semiconductor Co., Ltd.

Part No.		Maximum allowable voltage		Energy 10/1000 μ s		Withstanding surge current 8/20 μ s				Rated power	Varistor voltage	Max clamping voltage	Capacitance
Standard	High surge	AC V _{RMS}	DC	Standard	High surge	Standard (A)		High surge (A)		W	at 1mA	at 10A	1KHz
		V	V	J	J	1 TIME	2 TIME	1 TIME	2 TIME		V	V	pF
JJV07D820K	JJV07D820KJ	50	65	9.8	10.0	1200	600	1750	1250	0.25	82(74-90)	135	600
JJV07D101K	JJV07D101KJ	60	85	11.6	12.0	1200	600	1750	1250	0.25	100(90-110)	165	500
JJV07D121K	JJV07D121KJ	75	100	14.0	14.2	1200	600	1750	1250	0.25	120(108-132)	200	420
JJV07D151K	JJV07D151KJ	95	125	16.8	17.0	1200	600	1750	1250	0.25	150(135-165)	250	330
JJV07D181K	JJV07D181KJ	115	150	18.2	22.0	1200	600	1750	1250	0.25	180(162-198)	300	280
JJV07D201K	JJV07D201KJ	130	170	25.2	27.0	1200	600	1750	1250	0.25	200(185-225)	330	250
JJV07D221K	JJV07D221KJ	140	180	26.5	29.0	1200	600	1750	1250	0.25	220(198-242)	360	230
JJV07D241K	JJV07D241KJ	150	200	28.0	30.0	1200	600	1750	1250	0.25	240(216-264)	395	210
JJV07D271K	JJV07D271KJ	175	225	32.2	33.0	1200	600	1750	1250	0.25	270(243-297)	455	185
JJV07D301K	JJV07D301KJ	190	250	35.0	36.0	1200	600	1750	1250	0.25	300(270-330)	505	165
JJV07D331K	JJV07D331KJ	210	275	37.8	38.0	1200	600	1750	1250	0.25	330(297-363)	550	150
JJV07D361K	JJV07D361KJ	230	300	42.0	43.0	1200	600	1750	1250	0.25	360(324-396)	595	140
JJV07D391K	JJV07D391KJ	250	320	46.2	47.0	1200	600	1750	1250	0.25	390(351-429)	650	130
JJV07D431K	JJV07D431KJ	275	350	50.4	51.0	1200	600	1750	1250	0.25	430(387-473)	710	115
JJV07D471K	JJV07D471KJ	300	385	56.0	57.0	1200	600	1750	1250	0.25	470(423-517)	775	105
JJV07D511K	JJV07D511KJ	320	415	57.0	58.0	1200	600	1750	1250	0.25	510(459-561)	845	100
JJV07D561K	JJV07D561KJ	350	460	58.0	61.0	1200	600	1750	1250	0.25	560(504-616)	920	90
JJV07D621K	JJV07D621KJ	385	505	61.6	68.0	1200	600	1750	1250	0.25	620(558-682)	1025	80
JJV07D681K	JJV07D681KJ	420	560	62.5	75.0	1200	600	1750	1250	0.25	680(612-748)	1120	75
JJV07D751K	JJV07D751KJ	460	615	67.2	80.0	1200	600	1750	1250	0.25	750(675-825)	1240	65
JJV07D821K	JJV07D821KJ	510	670	72.0	87.0	1200	600	1750	1250	0.25	820(738-902)	1355	60



RELIABILITY TESTS - Mechanical ratings

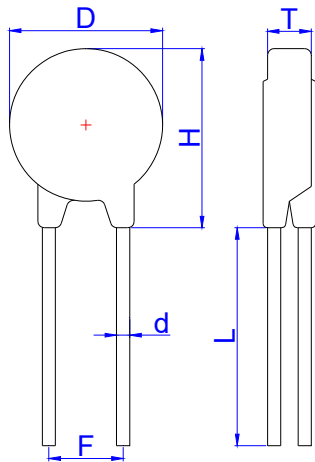
Parameter	Condition			Requirements
Terminal Pull Strength	After gradually applying the load specified below and keeping the unit fixed for ten seconds, the terminal shall be visually examined for any damage.	Diameter	Loading	No visible damage
		0.6mm	1.0Kg	
		0.8mm	1.0Kg	
		1.0mm	2.0Kg	
Terminal Bending 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℃ 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℃ for 10±1 (D5:5±1) seconds or iron of 400±5℃ for 3±0.5 seconds. Thereafter the change of V_B and mechanical damage shall be examined.			No visible damage $\Delta V_B/V_B\% \leq \pm 5\%$



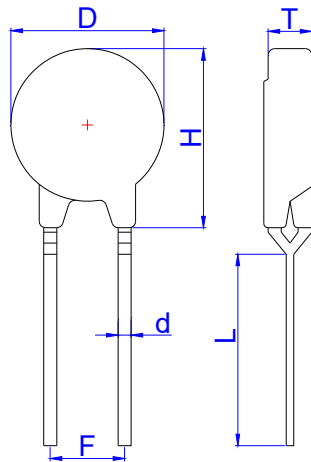
RELIABILITY TESTS - Environmental ratings

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 ± 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 ± 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 ± 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($^\circ\text{C}$)	Period
		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



P Type (Straight Lead)



Y Lead Type (Y Kink Lead)

Notes:

P type: Normal type
e.g. JJV07D751K

Y Lead Type: Special type
e.g. JJV07D751KY

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
D			9.0			0.354
L	15.0			0.591		
d	0.55	0.6	0.65	0.022	0.024	0.026
F	4.2	5.0	5.8	0.165	0.197	0.228
H	SB		12.0			0.472
	CB/IB/YB		15.0			0.591
T	JJV07D821K		6.9			0.272
	JJV07D751K		6.5			0.256
	JJV07D681K		6.4			0.252
	JJV07D621K		6.4			0.252
	JJV07D561K		6.2			0.244
	JJV07D511K		5.8			0.228
	JJV07D471K		5.6			0.220
	JJV07D431K		5.3			0.209
	JJV07D391K		5.1			0.201
	JJV07D361K		5.0			0.197
	JJV07D331K		4.8			0.190
	JJV07D301K		4.7			0.185
	JJV07D271K		4.5			0.177
	JJV07D241K		4.3			0.169
	JJV07D221K		4.1			0.161
	JJV07D201K		4.1			0.161
	JJV07D181K		4.1			0.161
	JJV07D151K		4.1			0.161
	JJV07D121K		4.1			0.161
	JJV07D101K		4.1			0.161
	JJV07D820K		4.1			0.161
	JJV07D680K		5.2			0.205
	JJV07D560K		5.1			0.201
	JJV07D470K		5.0			0.197
	JJV07D390K		4.9			0.193
	JJV07D330K		4.8			0.189
	JJV07D270K		4.9			0.193
	JJV07D220K		4.6			0.181
	JJV07D180L		4.5			0.177

MARKING

	Trademark	
	Part No.	07D180L~821K
	Standard for safety	UL/ VDE/ CUL
	Date Code	Y: Year M: Month
	J	High surge

JJV07D Series



JieJie Semiconductor Co., Ltd.

- Quantity of bulk packing method (pcs)

Dimension	Part No.	Bag	Box	Carton
JJV07D	180L to 821K	1000	2000	12000

- Dimension of bulk packing method (mm)

Part No.	Bag	Box	Carton
JJV07D180L~ JJV07D821K	195*230	240*180*60	370*260*210

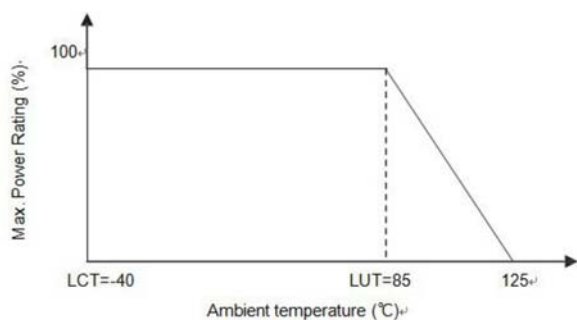
NOTE: Dimension is length*width*height.

APPROVAL STANDARD AND FILE NUMBER

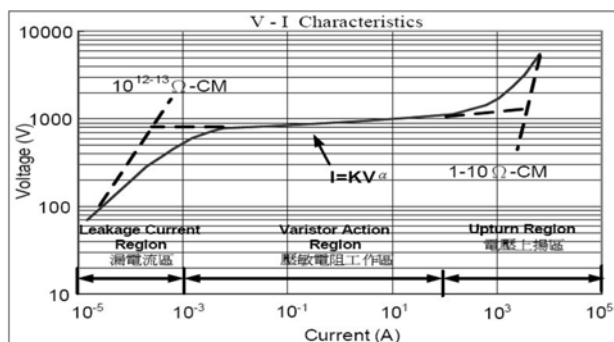
Certified Model No.			CUL
JJV07D180L	YES	YES	YES
JJV07D220K	YES	YES	YES
JJV07D270K	YES	YES	YES
JJV07D330K	YES	YES	YES
JJV07D390K	YES	YES	YES
JJV07D470K	YES	YES	YES
JJV07D560K	YES	YES	YES
JJV07D680K	YES	YES	YES
JJV07D820K	YES	YES	YES
JJV07D101K	YES	YES	YES
JJV07D121K	YES	YES	YES
JJV07D151K	YES	YES	YES
JJV07D181K	YES	YES	YES
JJV07D201K	YES	YES	YES
JJV07D221K	YES	YES	YES
JJV07D241K	YES	YES	YES
JJV07D271K	YES	YES	YES
JJV07D301K	YES	YES	YES
JJV07D331K	YES	YES	YES
JJV07D361K	YES	YES	YES
JJV07D391K	YES	YES	YES
JJV07D431K	YES	YES	YES
JJV07D471K	YES	YES	YES
JJV07D511K	YES	YES	YES
JJV07D561K	YES	YES	YES
JJV07D621K	YES		YES
JJV07D681K	YES		
JJV07D751K	YES		
JJV07D821K	YES		

VARISTOR CHARACTERISTICS CURVE

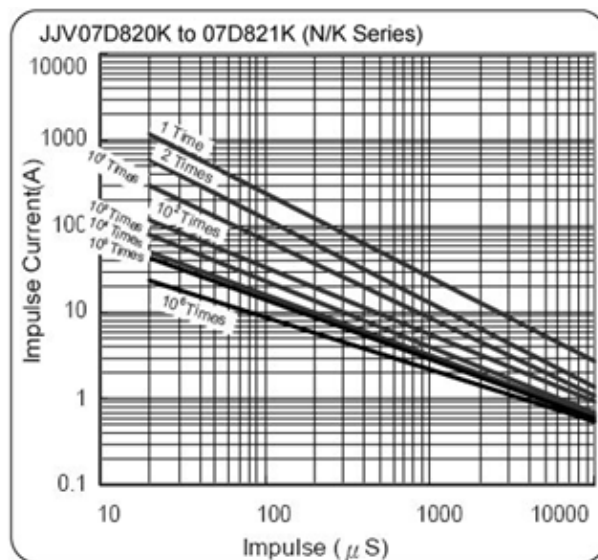
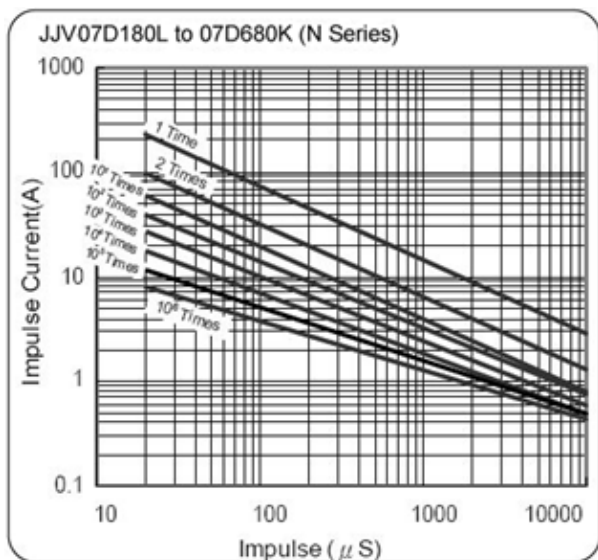
Power derating curve



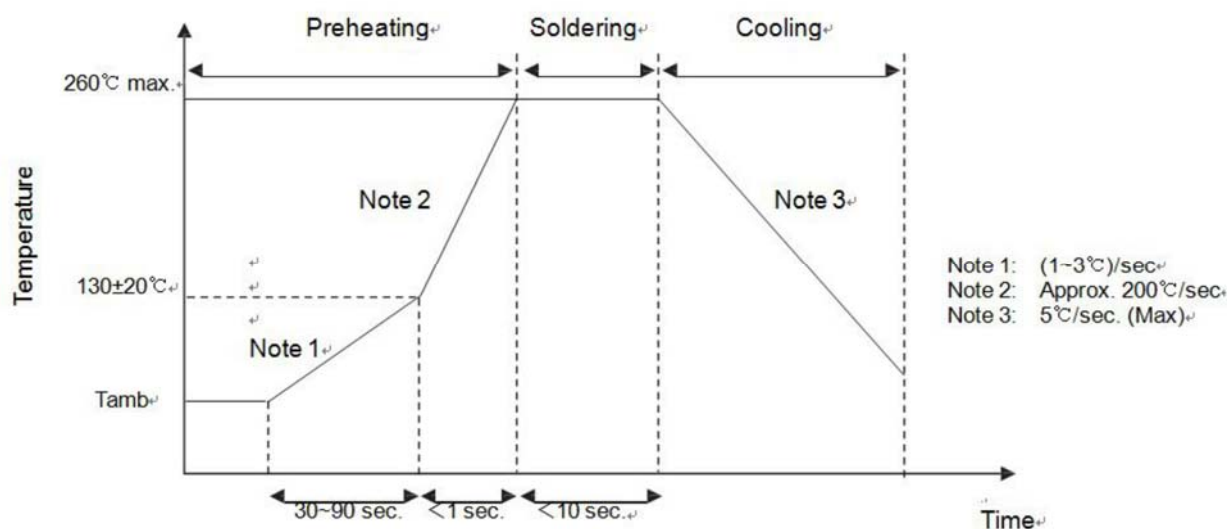
Varistor V-I characteristics curve



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

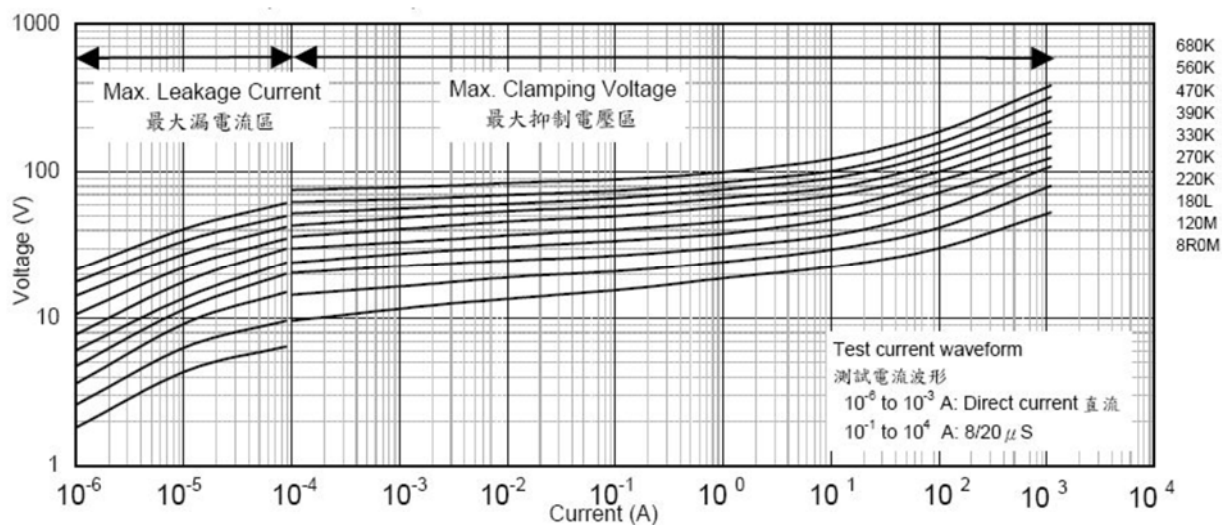


Soldering recommendation - wave soldering profile

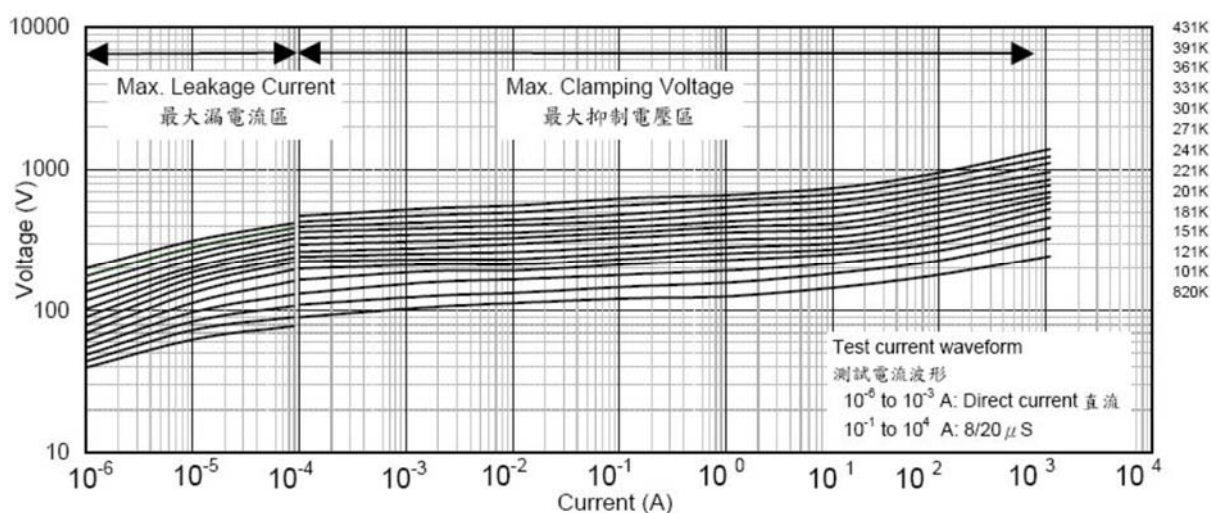


V-I curves

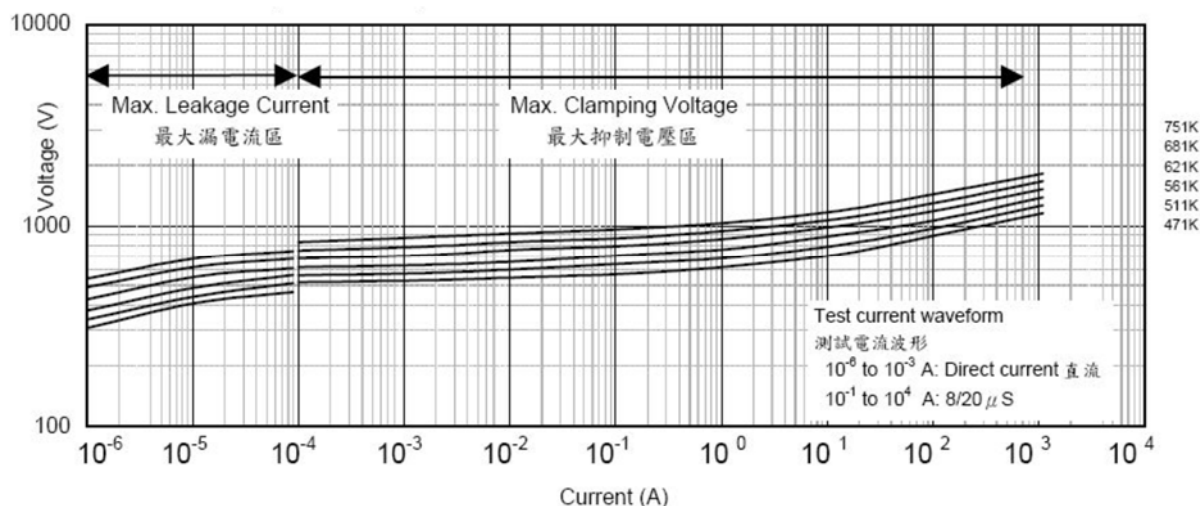
JJV07D080M-07D180L-07D680K (N/J series)



JJV07D820K-07D431K (N/J series)



JJV07D471K-07D821K (N/J series)





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