JJV05D Disc Varistors

Rev.3.3

FEATURES

- Wide operating voltages ranging from $11V_{RMS}$ to $460V_{RMS}$.
- 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

Size(mm): 05mm to 32mm

Type: D: Disk; S: Square

Varistor voltage:
180L(18V) to 751K(750V)

H:epoxy coating 125

S:short leg; No: □.□

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

K±10%, L±15%, M±20%

GENERAL TECHNICAL DATA

Parameter	Value	Unit
Operating temperature	-40 to +85	

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 0.1mA	at 5A	1KHz
		V	V	J	J	1 TIME	2 TIME	1 TIME	2 TIME		V	V	pF
JJV05D820K	JJV05D820KJ	50	65	2.6	3.8	400	200	800	600	0.1	82(74-90)	135	300
JJV05D101K	JJV05D101KJ	60	85	2.8	4.0	400	200	800	600	0.1	100(90-110)	165	250
JJV05D121K	JJV05D121KJ	75	100	4.2	5.0	400	200	800	600	0.1	120(108-132)	200	210
JJV05D151K	JJV05D151KJ	95	125	4.2	7.0	400	200	800	600	0.1	150(135-165)	250	165
JJV05D181K	JJV05D181KJ	115	150	5.6	8.0	400	200	800	600	0.1	180(162-198)	300	140
JJV05D201K	JJV05D201KJ	130	170	7.7	8.7	400	200	800	600	0.1	200(185-225)	330	125
JJV05D221K	JJV05D221KJ	140	180	8.8	9.0	400	200	800	600	0.1	220(198-242)	360	110
JJV05D241K	JJV05D241KJ	150	200	9.8	11.0	400	200	800	600	0.1	240(216-264)	395	110
JJV05D271K	JJV05D271KJ	175	225	10.5	13.0	400	200	800	600	0.1	270(243-297)	455	95
JJV05D301K	JJV05D301KJ	190	250	11.8	14.0	400	200	800	600	0.1	300(270-330)	505	85
JJV05D331K	JJV05D331KJ	210	275	14.0	14.5	400	200	800	600	0.1	330(297-363)	550	75
JJV05D361K	JJV05D361KJ	230	300	14.0	16.0	400	200	800	600	0.1	360(324-396)	595	70
JJV05D391K	JJV05D391KJ	250	320	15.4	17.0	400	200	800	600	0.1	390(351-429)	650	65
JJV05D431K	JJV05D431KJ	275	350	16.8	20.0	400	200	800	600	0.1	430(387-473)	710	60
JJV05D471K	JJV05D471KJ	300	385	18.2	20.8	400	200	800	600	0.1	470(423-517)	775	55
JJV05D511K	JJV05D511KJ	320	415	19.6	21.0	400	200	800	600	0.1	510(459-561)	845	60
JJV05D561K	JJV05D561KJ	350	460	19.6	23.0	400	200	800	600	0.1	560(504-616)	920	45
JJV05D621K	JJV05D621KJ	385	505	21.0	25.0	400	200	800	600	0.1	620(558-682)	1025	40
JJV05D681K	JJV05D681KJ	420	560	21.0	29.0	400	200	800	600	0.1	680(612-748)	1120	35
JJV05D751K	JJV05D751KJ	460	615	22.4	32.0	400	200	800	600	0.1	750(675-825)	1240	30

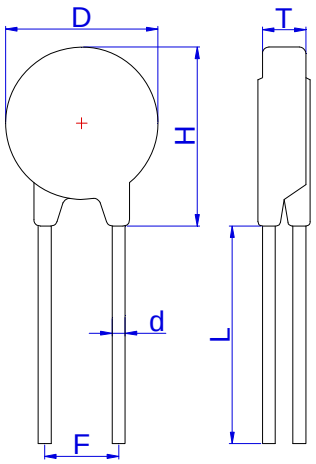
RELIABILITY TESTS - Mechanical ratings

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 $\Delta V_B/V_B\% \leq \pm 5\%$

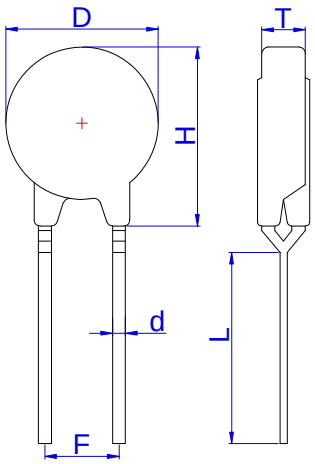
RELIABILITY TESTS - Environmental ratings

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.	

DIMENSIONAL DRAWINGS



P Type (Straight Lead)



Y Lead Type (Y Kink Lead)

Ref.		Dimensions					
		Millimeters			Inches		
		Min.	Typ.	Max.	Min.	Typ.	Max.
D				7.0			0.276
L		20			0.787		
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			9.0			0.354
	CB/IB/YB			12.0			0.472
T	JJV05D751K			6.5			0.256
	JJV05D681K			6.4			0.252
	JJV05D621K			6.4			0.252
	JJV05D561K			6.2			0.244
	JJV05D511K			5.8			0.228
	JJV05D471K			5.6			0.220
	JJV05D431K			5.3			0.209
	JJV05D391K			5.1			0.201
	JJV05D361K			5.0			0.197
	JJV05D331K			4.8			0.190
	JJV05D301K			4.7			0.185
	JJV05D271K			4.5			0.177
	JJV05D241K			4.3			0.169
	JJV05D221K			4.2			0.165
	JJV05D201K			4.1			0.161
	JJV05D181K			4.1			0.161
	JJV05D151K			4.8			0.190
	JJV05D121K			4.5			0.177
	JJV05D101K			4.3			0.169
	JJV05D820K			4.1			0.161
	JJV05D680K			4.5			0.177
	JJV05D560K			4.5			0.177
	JJV05D470K			4.1			0.161
	JJV05D390K			4.1			0.161
	JJV05D330K			3.9			0.154
	JJV05D270K			3.9			0.154
	JJV05D220K			3.8			0.150
	JJV05D180L			3.8			0.150

Notes:
P type: Normal type
e.g. JJV05D751K

Y Lead Type: Special type
e.g. JJV05D751KY

MARKING

Trademark	
Part No.	05D180L~751K
Standard for safety	UL/ VDE/ CUL
Date Code	Y: Year M: Month
J	High surge
** 05D511K~05D751K	No VDE
** 05D180L~05D751K	No Csa

JJV05D Series

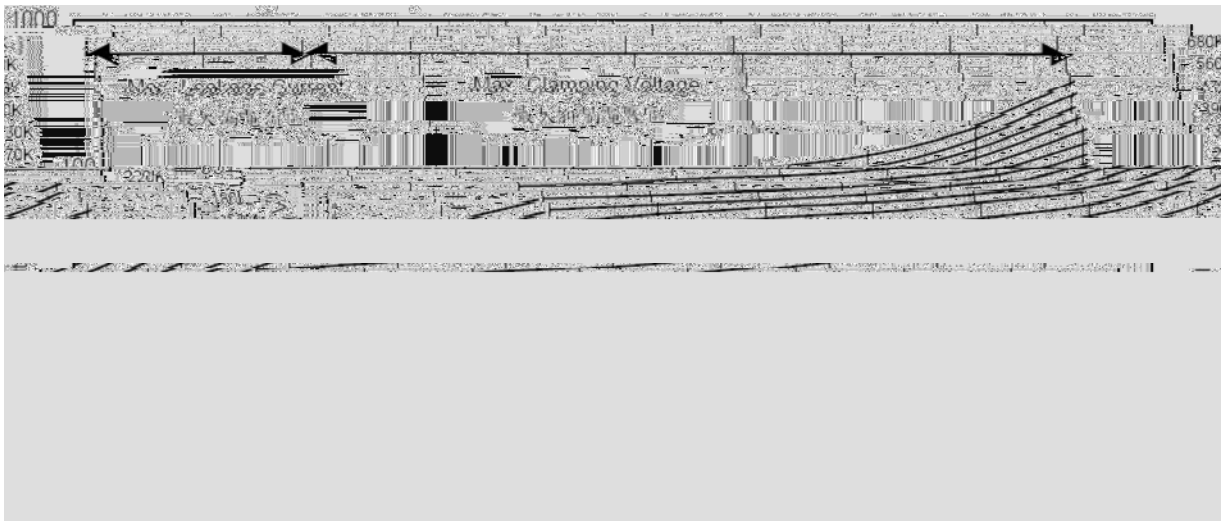
VARISTOR CHARACTERISTICS CURVE

Power derating curve

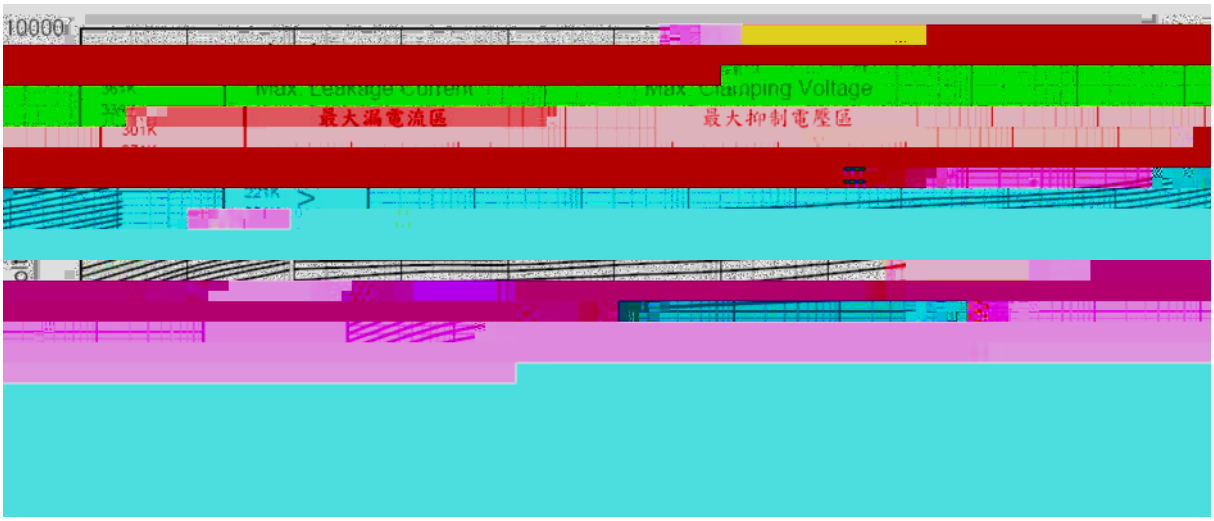
Varistor V-I characteristics curve

V-I curves

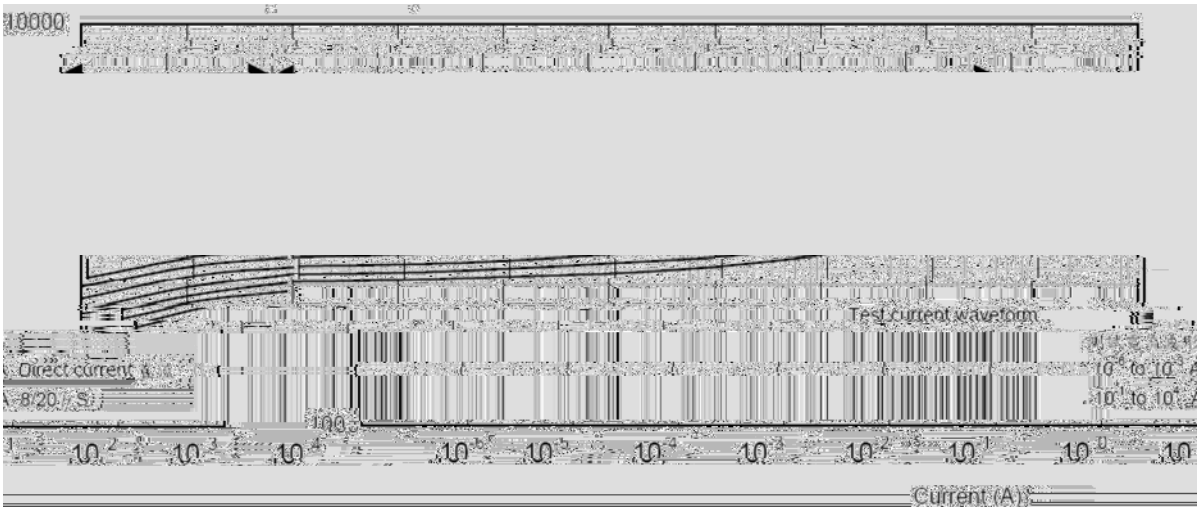
JJV05D080M-05D180L-05D680K (N/J series)



JJV05D820K-05D431K (N/J series)



JJV05D471K-05D751K (N/J series)



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