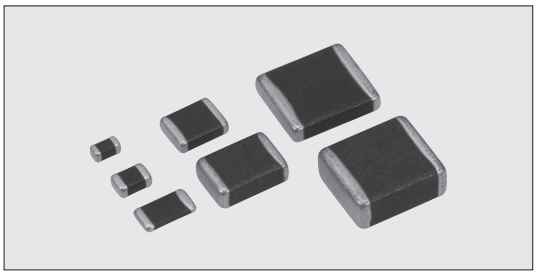
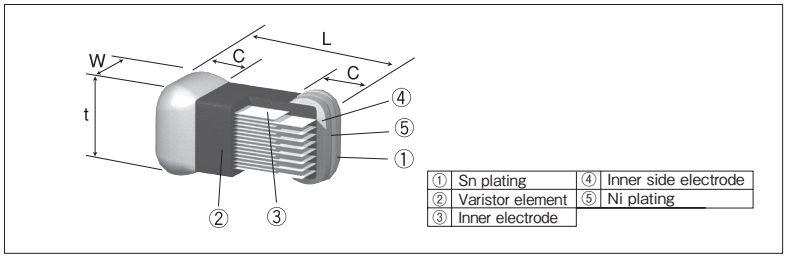
EU RoHS

NV73 Multilayer Type Metal Oxide Varistors



Body color : Black

■Construction



■Features

- Varistors own two-way symmetries and can absorb positive and negative surges.
- Multilayer construction allows its small size to absorb a large surge.
- Small space and high density mounting available due to the small package.
- Suitable for both flow and reflow solderings.
- Products with lead free termination meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in electrode, varistor element and glass.

■Applications

- Protection of ESD from input and output terminals of mobile devices.
- Absorption of surge voltages occurred from inductive load of motors, relays, etc.
- Protection of semiconductor elements against over voltages.
- Absorption of surge voltages generated from piezoelectric elements.

■Dimensions

Type (Inch Size Code)	Dimensions (mm)				Weight (g) (1000pcs)
	L	W	t	c	
NV73 1J (0603)	1.6±0.15	0.8±0.15	0.8±0.15	$0.4^{+0.15}_{-0.2}$	6~7
NV73 2A (0805)	2±0.2	1.25±0.2	1.3max.	0.5±0.25	8~16
NV73 2B (1206)	3.2±0.2	1.6±0.2	1.65max.	$0.5^{+0.35}_{-0.25}$	16~32
NV73 2E (1210)	3.2±0.2	2.5±0.2	1.5max.	0.5±0.2	33~56
NV73 2J (1812)	4.5±0.2	3.2±0.2	2.0max.	$0.5^{+0.3}_{-0.1}$	50~134
NV73 2L (2220)	5.7±0.2	5.0±0.2	2.5max.	$0.5^{+0.3}_{-0.1}$	100~230
NV73 C2L (2220)	5.9±0.2	5.1±0.2	2.7max.	$0.7^{+0.4}_{-0.3}$	190~440

■Type Designation

Example

Lead Free Type

NV73	A	1J	T	TE	24
Product Code	Energy Code	Size	Terminal Surface Material	Taping	Varistor Voltage
	A B C	1J : 1.6×0.8mm 2A : 2.0×1.2mm 2B : 3.2×1.6mm 2E : 3.2×2.5mm 2J : 4.5×3.2mm 2L : 5.7×5.0mm	T : Sn	TE : Taping BK : Bulk	

The terminal surface material lead free is standard.
Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.
For further information on taping, please refer to APPENDIX C on the back pages.

■Performance (1J・2A・2B)

Test Items	Performance Requirements ΔV± %	Test Methods
Varistor Voltage	Within specified tolerance	Voltage between terminals when 1mA is flowed.
Resistance to soldering heat	10	270℃±5℃ 3s±0.5s
Solderability	95% Coverage min.	230℃±5℃ 4s±1s
Rapid change of temperature	10	−40℃ (30min) /+125℃ (30min) 30cycles
Maximum peak current	10	A single standard impulse of 8/20 μs, positive/negative applied once each
Maximum energy	10	A single standard impulse of 2ms, once
High temperature life with d.c. bias	10	85℃±5℃、 Load: Maximum Allowable Circuit Voltage (d.c.) 1000h
High temperature life with a.c. bias	10	85℃±5℃、 Load: Maximum Allowable Circuit Voltage ($Va.c._{r.m.s.}$) 1000h
High temperature & high humidity life with d.c. bias	10	40℃±5℃ 95%RH Load: Maximum Allowable Circuit Voltage (d.c.) 500h
High temperature storage life	10	125℃±5℃ 1000h
Low temperature storage life	10	−40℃±5℃ 1000h

■Performance (2E・2J・2L)

Test Items	Performance Requirements ΔV± %	Test Methods
Varistor Voltage	Within specified tolerance	Voltage between terminals when 1mA is flowed.
Resistance to soldering heat	10	260℃±5℃ 4s±1s
Solderability	95% Coverage min.	235℃±5℃ 4s±1s
Rapid change of temperature	10	−40℃ (30min) /+125℃ (30min) 5cycles
Maximum peak current	10	A single standard impulse of 8/20 μs, 100pluse, 30s interval
Maximum energy	10	A single standard impulse of 10/1000 μs, 100pluse, 90s interval
High temperature life with d.c. bias	10	125℃±5℃、 Load: Maximum Allowable Circuit Voltage (d.c.) 1000h
低温直流電圧印加 Low temperature life with d.c. bias	10	−50℃±5℃、 Load: Maximum Allowable Circuit Voltage (d.c.) 1000h
高温高湿電圧印加 High temperature & high humidity life with d.c. bias	10	40℃±5℃ 95%RH Load: Maximum Allowable Circuit Voltage (d.c.) 500h
High temperature storage life	10	150℃±5℃ 1000h
Low temperature storage life	10	−50℃±5℃ 1000h

■Ratings (1J・2A・2B)

Operating Temp. Range：−40℃～+85℃　Storage Temp. Range：−40℃～+125℃　Q'ty/Reel：TE 2,500pcs

Type	Varistor Vol. Vc Ic=1mA (V)	Max. Allowable Vol.		Clamping Vol. (V)		Max. Energy E(J)	Max. Peak Current Ip(A) (2 times)
		a.c.r.m.s.(V)	d.c.(V)	V_{1A}	V_{2A}		
NV73A1JTTE8.2	6.8～9.8	4.2	6.0	—	21	0.1	30
NV73A1JTTE12	10～14.4	6.1	8.6	—	29		
NV73A1JTTE15	12.5～18	7.6	10.8	—	35		
NV73A1JTTE18	16～20	9.1	12.8	—	37		
NV73A1JTTE20	18～22	10.6	15.0	—	40		
NV73A1JTTE22	19～24	12.0	16.5	—	42		
NV73A1JTTE24	21.8～26.5	14.0	18.0	—	46		
NV73A1JTTE27	25～32	17.0	22.0	—	49		
NV73A2ATTE8.2	6.8～9.8	4.2	6.0	18	—	0.01	10
NV73A2ATTE12	10～14.4	6.1	8.6	24	—	0.03	20
NV73A2ATTE15	12.5～18	7.6	10.8	29	—	0.04	
NV73A2ATTE18	16～20	9.1	12.8	29	—		
NV73A2ATTE20	18～22	10.6	15.0	33	—	0.05	
NV73A2ATTE22	19～24	12.0	16.5	39	—		
NV73A2ATTE24	21.8～26.5	14.0	18.0	42	—	0.06	
NV73A2ATTE27	25～32	17.0	22.0	50	—	0.07	
NV73A2ATTE33	30～39	20.0	26.0	60	—	0.12	
NV73A2ATTE39	37～47	25.0	31.0	72	—	0.14	25
NV73A2ATTE47	45～54	30.0	38.0	86	—	0.16	
NV73B2ATTE8.2	6.8～9.8	4.2	6.0	—	18	0.03	20
NV73B2ATTE12	10～14.4	6.1	8.6	—	24	0.05	35
NV73B2ATTE15	12.5～18	7.6	10.8	—	30	0.07	
NV73B2ATTE18	16～20	9.1	12.8	—	32	0.08	
NV73B2ATTE20	18～22	10.6	15.0	—	36	0.09	
NV73B2ATTE22	19～24	12.0	16.5	—	40	0.11	
NV73B2ATTE24	21.8～26.5	14.0	18.0	—	42	0.12	
NV73B2ATTE27	25～32	17.0	22.0	—	58	0.24	
NV73B2ATTE33	30～39	20.0	26.0	—	66	0.25	50
NV73C2ATTE8.2	6.8～9.8	4.2	6.0	—	18	0.04	25
NV73C2ATTE12	10～14.4	6.1	8.6	—	24	0.09	50
NV73C2ATTE15	12.5～18	7.6	10.8	—	29	0.11	
NV73C2ATTE18	16～20	9.1	12.8	—	32	0.13	
NV73C2ATTE20	18～22	10.6	15.0	—	35	0.14	
NV73C2ATTE22	19～24	12.0	16.5	—	40	0.17	
NV73C2ATTE24	21.8～26.5	14.0	18.0	—	42	0.18	
NV73A2BTTE27	25～32	17.0	22.0	—	55	0.13	40
NV73A2BTTE33	30～39	20.0	26.0	—	60	0.15	
NV73A2BTTE39	37～47	25.0	31.0	—	72	0.18	
NV73A2BTTE47	45～54	30.0	38.0	—	85	0.22	
NV73A2BTTE56	52～62	35.0	45.0	—	100	0.26	
NV73B2BTTE8.2	6.8～9.8	4.2	6.0	—	18	0.03	30
NV73B2BTTE12	10～14.4	6.1	8.6	—	24	0.07	50
NV73B2BTTE15	12.5～18	7.6	10.8	—	29	0.09	
NV73B2BTTE18	16～20	9.1	12.8	—	32	0.10	
NV73B2BTTE20	18～22	10.6	15.0	—	35	0.11	
NV73B2BTTE22	19～24	12.0	16.5	—	40	0.12	
NV73B2BTTE24	21.8～26.5	14.0	18.0	—	42	0.14	
NV73B2BTTE27	25～32	17.0	22.0	—	52	0.16	
NV73C2BTTE8.2	6.8～9.8	4.2	6.0	—	18	0.06	40
NV73C2BTTE12	10～14.4	6.1	8.6	—	24	0.10	70
NV73C2BTTE15	12.5～18	7.6	10.8	—	29	0.13	
NV73C2BTTE18	16～20	9.1	12.8	—	29	0.15	
NV73C2BTTE20	18～22	10.6	15.0	—	31	0.17	
NV73C2BTTE22	19～24	12.0	16.5	—	35	0.19	
NV73C2BTTE24	21.8～26.5	14.0	18.0	—	38	0.20	
NV73C2BTTE27	25～32	17.0	22.0	—	48	0.24	

Detailed data other than the above-mentioned are also available, for which please ask our sales office.

NV73 Multilayer Type Metal Oxide Varistors

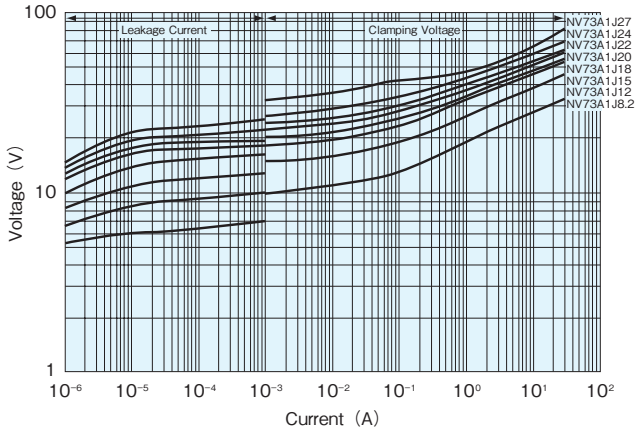
■Ratings (2E・2J・2L)

Operating Temp. Range：−50℃～+125℃　Storage Temp. Range：−50℃～+150℃　Q'ty/Reel　2E：TE (2,000pcs)、2J・2L：TE(1,000pcs)

Type	Varistor Vol. Vc Ic=1mA (V)	Max. Allowable Vol. a.c.r.m.s.(V)	Max. Allowable Vol. d.c.(V)	Clamping Vol. (V) $V_{2.5A}$	Clamping Vol. (V) V_{5A}	Clamping Vol. (V) V_{10A}	Max. Energy E(J) (100 times)	Max. Peak Current Ip(A) (100 times)
NV73A2ETTE15	12.8～17.3	8	11	30	—	—	1.0	400
NV73A2ETTE18	15.3～20.7	11	14	34	—	—	1.2	
NV73A2ETTE22	19.8～24.2	12	16.5	39	—	—	1.4	
NV73A2ETTE24	21.6～26.4	14	18	39	—	—		
NV73A2ETTE27	24.3～29.7	17	22	44	—	—	1.7	
NV73A2ETTE33	29.7～36.3	20	26	54	—	—	1.9	
NV73A2ETTE39	35.1～42.9	25	30	65	—	—	1.7	
NV73A2ETTE47	42.3～51.7	30	38	77	—	—	2.0	
NV73A2ETTE56	50.4～61.6	35	45	90	—	—		
NV73A2ETTE82	73.8～90.2	50	65	135	—	—	1.2	250
NV73A2ETTE100	90.0～110.0	60	85	165	—	—	1.4	200
NV73A2ETTE110	99.0～121.0	70	90	180	—	—		
NV73A2JTTE12	10.2～13.8	6	9	—	27	—	0.9	500
NV73A2JTTE15	12.8～17.3	8	11	—	32	—	1.2	
NV73A2JTTE18	16.2～19.8	11	14	—	35	—	1.4	
NV73A2JTTE22	19.8～24.2	12	16.5	—	41	—	1.6	
NV73A2JTTE24	21.6～26.4	14	18	—	44	—	1.7	
NV73A2JTTE27	24.3～29.7	17	22	—	49	—	2.0	
NV73A2JTTE33	29.7～36.3	20	26	—	54	—	2.5	
NV73A2JTTE39	35.1～42.9	25	30	—	65	—	2.9	
NV73A2JTTE47	42.3～51.7	30	38	—	77	—	3.5	
NV73A2JTTE56	50.4～61.6	35	45	—	90	—	4.2	
NV73A2JTTE68	61.2～74.8	40	56	—	110	—	4.8	
NV73A2JTTE82	73.8～90.2	50	65	—	135	—	4.5	400
NV73A2JTTE100	90.0～110.0	60	85	—	165	—	5.8	
NV73A2JTTE110	99.0～121.0	70	90	—	180	—		
NV73A2JTTE150	135.0～165.0	95	127	—	248	—		300
NV73B2JTTE15	12.8～17.3	8	11	—	32	—	1.8	800
NV73B2JTTE18	15.3～20.7	11	14	—	35	—	1.9	
NV73B2JTTE22	19.8～24.2	12	16.5	—	41	—	2.3	
NV73B2JTTE24	21.6～26.4	14	18	—	44	—		
NV73B2JTTE27	24.3～29.7	17	22	—	49	—	2.7	
NV73B2JTTE33	29.7～36.3	20	26	—	54	—	3.0	
NV73B2JTTE39	35.1～42.9	25	30	—	65	—	3.7	
NV73B2JTTE47	42.3～51.7	30	38	—	77	—	4.2	
NV73B2JTTE56	50.4～61.6	35	45	—	90	—		
NV73A2LTTE12	10.2～13.8	6	9	—	—	28	1.9	1,000
NV73A2LTTE15	12.8～17.3	8	11	—	—	33	2.3	
NV73A2LTTE18	16.2～19.8	11	14	—	—	36	2.7	
NV73A2LTTE22	19.8～24.2	12	16.5	—	—	41	2.9	
NV73A2LTTE24	21.6～26.4	14	18	—	—	45	3.1	
NV73A2LTTE27	24.3～29.7	17	22	—	—	48	3.8	
NV73A2LTTE33	29.7～36.3	20	26	—	—	57	4.3	
NV73A2LTTE39	35.1～42.9	25	30	—	—	65	5.5	
NV73A2LTTE47	42.3～51.7	30	38	—	—	77	6.3	
NV73A2LTTE56	50.4～61.6	35	45	—	—	90	7.7	
NV73A2LTTE68	61.2～74.8	40	56	—	—	110	8.8	
NV73A2LTTE100	90.0～110.0	60	85	—	—	165	6.8	
NV73A2LTTE110	99.0～121.0	70	90	—	—	180		
NV73B2LTTE15	12.8～17.3	8	11	—	—	33	4.2	1,200
NV73B2LTTE18	15.3～20.7	11	14	—	—	36	5.4	
NV73B2LTTE22	19.8～24.2	12	16.5	—	—	41	5.8	
NV73B2LTTE24	21.6～26.4	14	18	—	—	45		
NV73B2LTTE27	24.3～29.7	17	22	—	—	48	7.2	
NV73B2LTTE33	29.7～36.3	20	26	—	—	57	7.8	
NV73B2LTTE39	35.1～42.9	25	30	—	—	65	9.6	
NV73B2LTTE47	42.3～51.7	30	38	—	—	77	12.0	
NV73B2LTTE56	50.4～61.6	35	45	—	—	90	7.7	
NV73B2LTTE82	73.8～90.2	50	65	—	—	135	5.6	1,000
NV73C2LTTE39	35.1～42.9	25	30	—	—	65	5.6(1 time)	2,500(1 time)
NV73C2LTTE82	73.8～90.2	50	65	—	—	135	14 (1 time)	4,500(1 time)

■Voltage-Current Curves (Reference) (Ta=25℃)

NV73A1J



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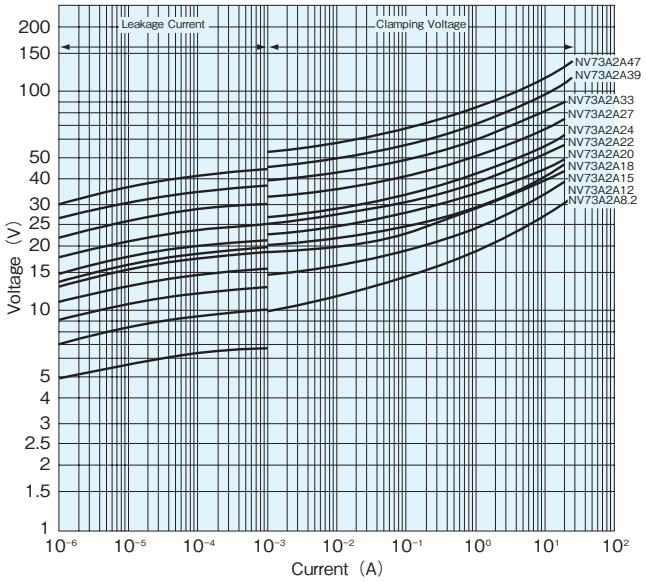

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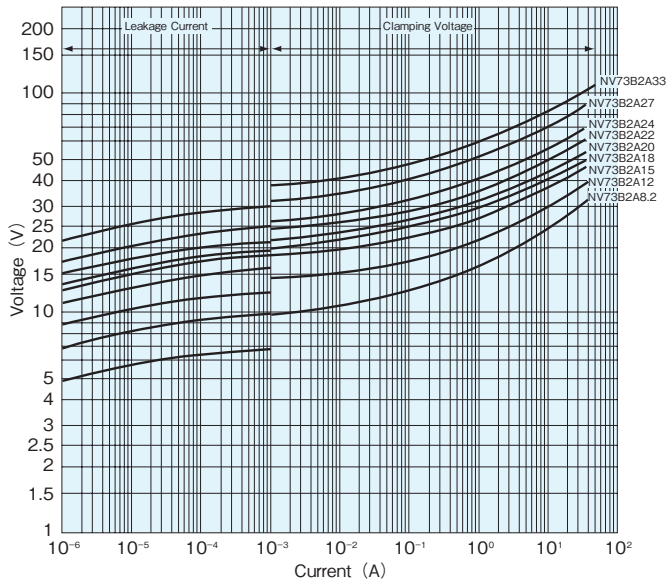

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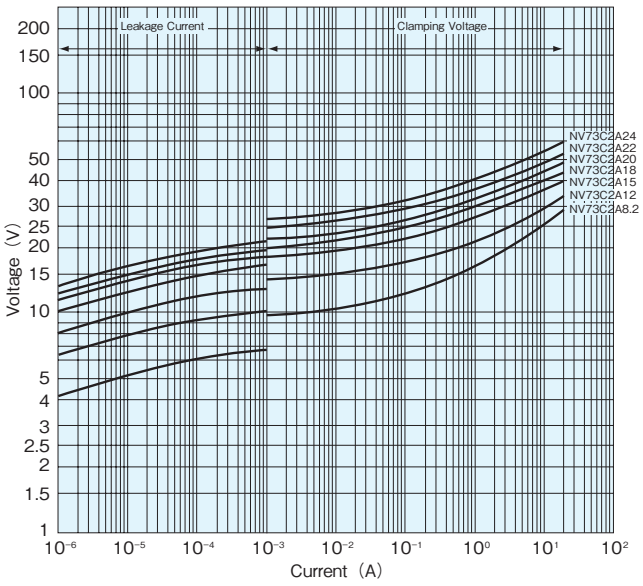
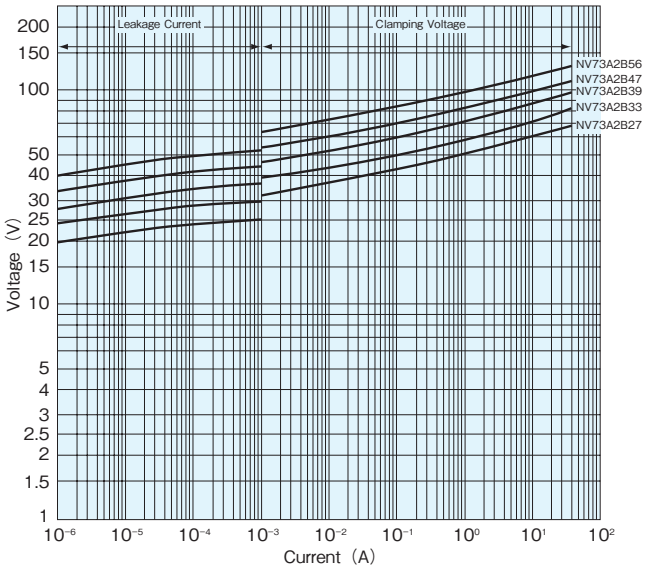


NV73 Multilayer Type Metal Oxide Varistors

■Voltage-Current Curves (Reference) (Ta=25℃)

NV73A2B



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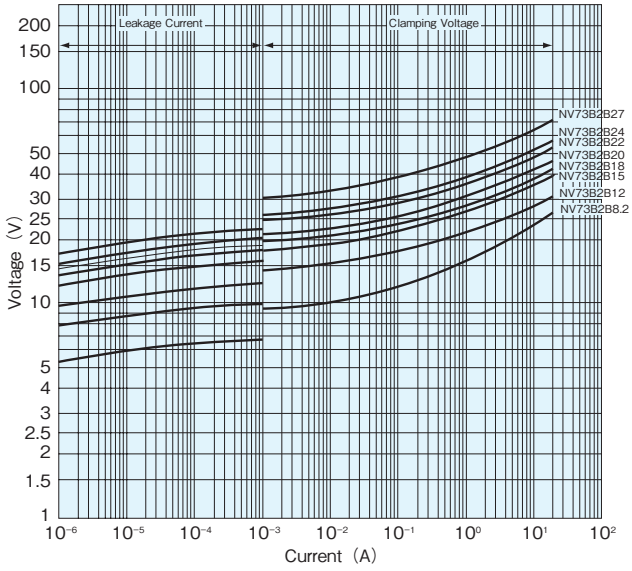
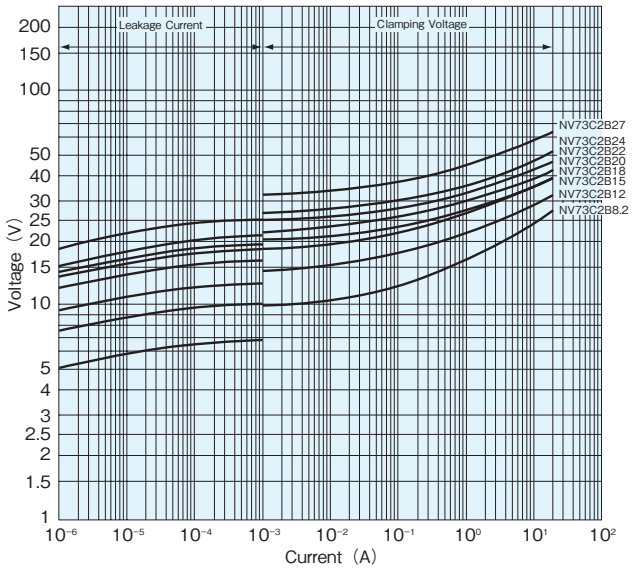
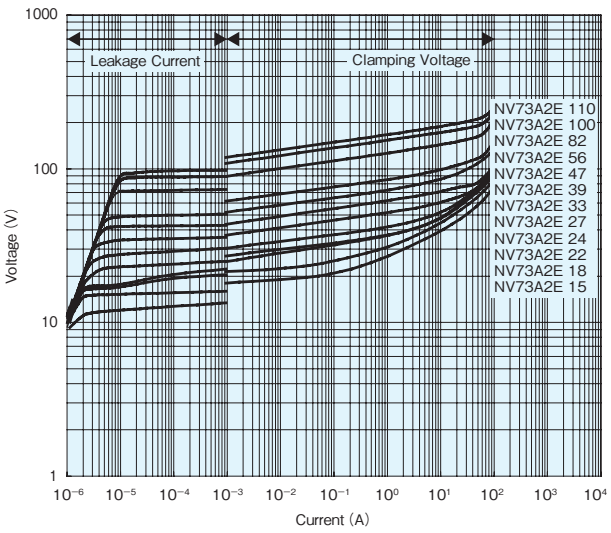


NV73C2B

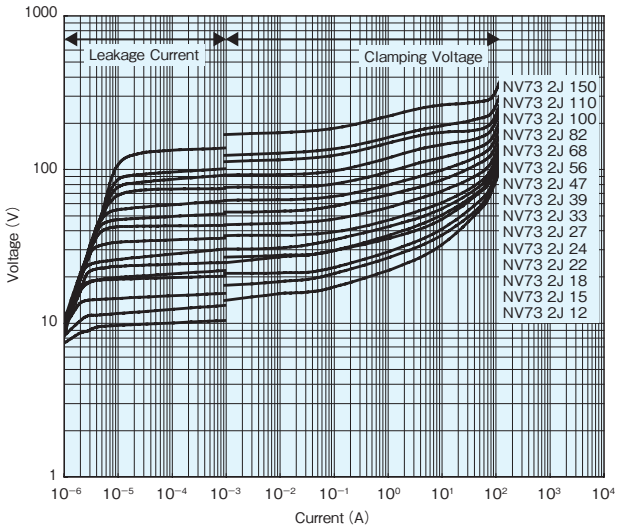


■Voltage-Current Curves (Reference) (Ta=25℃)

NV73 2E



NV73 2J



NV73 2L