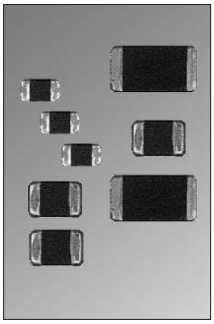
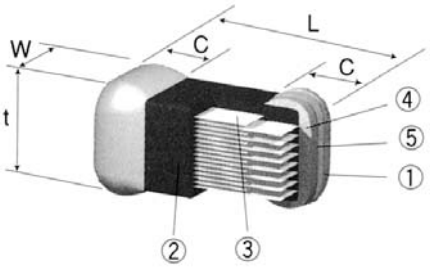
CIRCUIT PROTECTORS

MULTILAYER METAL OXIDE VARISTOR
NV73





STRUCTURE

1 Sn plating
2 Varistor element
3 Inner electrode
4 Inner side electrode
5 Ni plating

PRODUCT CODE	COATING COLOR	MARKING
NV73	Black	None

Products with Pb-free terminations meet RoHS requirements

TYPE DESIGNATION (HOW TO ORDER) SIZES 0201, 0402

New Part No. (Pb-free)	NV73	A	L	1E	T	TP	12
	PRODUCT CODE	ENERGY CODE A	CAPACITANCE TYPE 'Blank': Standard type 'L': Low capacitance type	SIZE 1H: 0201 1E: 0402	TERMINATION SURFACE MATERIAL T: Sn	TAPING* 1H = TB: 10.000 pcs/reel 1E = TP: 10.000 pcs/reel *Please see "PACKAGING"	VARISTOR VOLTAGE Unit: V real number

TYPE DESIGNATION (HOW TO ORDER) SIZES 0603 ... 1206

Sn/Pb Part No.	NV	20	MC	A	A		P	T	
New Part No. (Pb-free)	NV73				A	1J	T	TE	20
	PRODUCT CODE	VARISTOR VOLTAGE Unit: V real number	MULTILAYER CHIP	SIZE A: 0603 1: 0805 2: 1206	ENERGY CODE A, B, C	SIZE 1J: 0603 2A: 0805 2B: 1206	TERMINATION SURFACE MATERIAL T: Sn (P: SnPb) ('Blank': AgPd)	TAPING* TE: 2.500 pcs/reel TEB: 10.000 pcs/reel *Please see "PACKAGING"	VARISTOR VOLTAGE Unit: V real number

FEATURES

- Multilayer chip varistor in standard size 0201, 0402, 0603, 0805 and 1206
- Excellent transient voltage suppression
- Bi-directional clamping characteristics
- Wide operating voltage range
- Able to withstand high surge current
- Suitable for on board protection of transistors and IC's from transient surges including ESD
- Ideal as surge protection in cellular phones, data transmision lines, battery charges or automotive electrical systems
- Operating temperature range: -40°C ... +85°C
- Storage temperature range: -40°C ... +125°C
- Suitable for reflow soldering

DIMENSIONS (mm)

SIZE	TYPE	L	W	t	c
0201	NV73 ☐ 1H	0.6 ± 0.03	0.3 ± 0.03	0.3 ± 0.09	0.1 min.
0402	NV73 ☐ 1E	1.0 ± 0.1	0.5 ± 0.1	0.6 max.	0.25 ± 0.15
0603	NV73 ☐ 1J	1.6 ± 0.15	0.8 ± 0.15	0.8 ± 0.15	0.4 $^{+0.15}_{-0.2}$
0805	NV73 ☐ 2A	2 ± 0.2	1.25 ± 0.2	1.3 max.	0.5 ± 0.25
1206	NV73 ☐ 2B	3.2 ± 0.2	1.6 ± 0.2	1.65 max.	0.5 $^{+0.35}_{-0.25}$

Energy code is to be entered in ☐.

RATING SIZE 0201, 0402

TYPE	VARISTOR VOLTAGE V_{1mA}	VARISTOR VOLTAGE TOLERANCE	MAX. ALLOWABLE VOLTAGE D.C.	CLAMPING VOLTAGE Ic=1A 8x20 µs	MAX. ENERGY 10/1000 µs	MAX. PEAK CURRENT 2 TIMES 8/20 µs	CAPACITANCE (TYP.) 1kHz
NV73 A 1H T TB 12*	12 V	10 V...15.6 V	5.5 V	35 V	0.01 J	1 A	30 pF
NV73 A L 1H T TB 12*	12 V	10 V... 14 V	5.5 V	30 V	–	–	15 pF
NV73 A 1E T TP 8	8 V	6.4 V... 9.6 V	5.5 V	20 V	0.05 J	20 A	480 pF
NV73 A 1E T TP 18	18 V	16.2 V... 19.8 V	14 V	35 V	0.05 J	20 A	160 pF
NV73 A L 1E T TP 12	12 V	10 V... 14 V	5.5 V	30 V	0.03 J	5 A	50 pF
NV73 A L 1E T TP 21	21 V	18 V... 24 V	14 V	50 V	0.03 J	5 A	50 pF
NV73 A L 1E T TP 28	28 V	24 V... 32 V	18 V	65 V	0.005 J	2 A	15 pF
NV73 A L 1E T TP 120	120 V	90 V... 150 V	18 V	350V (I_C=0.5A)	0.005 J	0.5 A	3pF (1Mhz)

TB: 2 mm pitch, press paper 10.000 pcs/7" reel
TP: 2 mm pitch, punched paper 10.000 pcs/ 7" reel
*Under development

CIRCUIT PROTECTORS

MULTILAYER METAL OXIDE VARISTOR

NV73

RATING* SIZES 0603 ... 1206

TYPE	BREAKDOWN VOLTAGE V_C [I_C=1mA]	MAX. ALLOWABLE VOLTAGE AC rms	MAX. ALLOWABLE VOLTAGE DC	CLAMPING VOLTAGE V_P	CLAMPING VOLTAGE I_P	MAX. PEAK CURRENT I_P**	MAX. ENERGY E**	CAPACITANCE (ref.) C(1k...1MHz)
NV73A1J 8.2	6.8 V ... 9.8 V	4.2 V	6 V	21 V				370 pF
NV73A1J 12	10 V ... 14.4 V	6.1 V	8.6 V	29 V				290 pF
NV73A1J 15	12.5 V ... 18 V	7.6 V	10.8 V	35 V				270 pF
NV73A1J 18	16 V ... 20 V	9.1 V	12.8 V	37 V				230 pF
NV73A1J 20	18 V ... 22 V	10.6 V	15 V	40 V	2 A	30 A	0.1 J	180 pF
NV73A1J 22	19 V ... 24 V	12 V	16.5 V	42 V				160 pF
NV73A1J 24	21.8 V ... 26.5 V	14 V	18 V	46 V				140 pF
NV73A1J 27	25 V ... 32 V	17 V	22 V	49 V				100 pF
NV73A2A 8.2	6.8 V ... 9.8 V	4.2 V	6 V	18 V		10 A	0.01 J	
NV73A2A 12	10 V ... 14.4 V	6.1 V	8.6 V	24 V			0.03 J	
NV73A2A 15	12.5 V ... 18 V	7.6 V	10.8 V	29 V			0.04 J	
NV73A2A 18	16 V ... 20 V	9.1 V	12.8 V	29 V				
NV73A2A 20	18 V ... 22 V	10.6 V	15 V	33 V		20 A	0.05 J	400 pF
NV73A2A 22	19 V ... 24 V	12 V	16.5 V	39 V	1 A			...
NV73A2A 24	21.8 V ... 26.5 V	14 V	18 V	42 V			0.06 J	80 pF
NV73A2A 27	25 V ... 32 V	17 V	22 V	50 V			0.07 J	
NV73A2A 33	30 V ... 39 V	20 V	26 V	60 V			0.12 J	
NV73A2A 39	37 V ... 47 V	25 V	31 V	72 V		25 A	0.14 J	
NV73A2A 47	45 V ... 54 V	30 V	38 V	86 V			0.16 J	
NV73B2A 8.2	6.8 V ... 9.8 V	4.2 V	6.0 V	18 V		20 A	0.03 J	
NV73B2A 12	10 V ... 14.4 V	6.1 V	8.6 V	24 V			0.05 J	
NV73B2A 15	12.5 V ... 18 V	7.6 V	10.8 V	30 V			0.07 J	
NV73B2A 18	16 V ... 20 V	9.1 V	12.8 V	32 V	2 A		0.08 J	1000 pF
NV73B2A 20	18 V ... 22 V	10.6 V	15 V	36 V		35 A	0.09 J	...
NV73B2A 22	19 V ... 24 V	12 V	16.5 V	40 V			0.11 J	200 pF
NV73B2A 24	21.8 V ... 26.5 V	14 V	18 V	42 V			0.12 J	
NV73B2A 27	25 V ... 32 V	17 V	22 V	58 V			0.24 J	
NV73B2A 33	30 V ... 39 V	20 V	26 V	66 V		50 A	0.25 J	

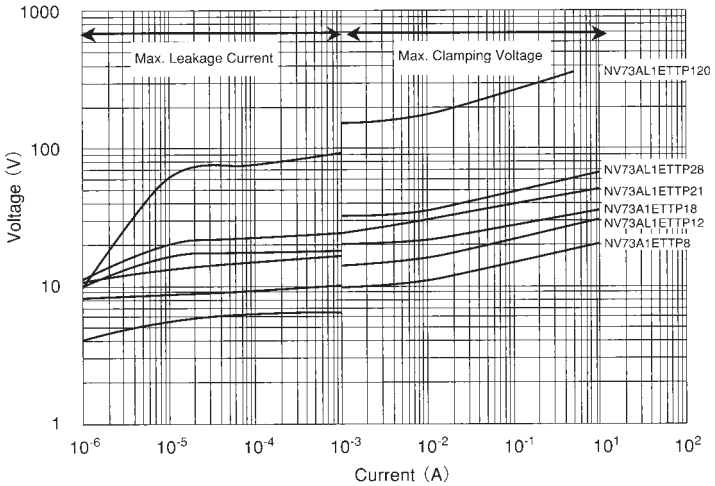
TYPE	BREAKDOWN VOLTAGE V_C [I_C=1mA]	MAX. ALLOWABLE VOLTAGE AC rms	MAX. ALLOWABLE VOLTAGE DC	CLAMPING VOLTAGE V_P	CLAMPING VOLTAGE I_P	MAX. PEAK CURRENT I_P**	MAX. ENERGY E**	CAPACITANCE (ref.) C(1k...1MHz)
NV73C2A 8.2	6.8 V ... 9.8 V	4.2 V	6 V	18 V		25 A	0.04 J	
NV73C2A 12	10 V ... 14.4 V	6.1 V	8.6 V	24 V			0.09 J	
NV73C2A 15	12.5 V ... 18 V	7.6 V	10.8 V	29 V	2 A		0.11 J	1000 pF
NV73C2A 18	16 V ... 20 V	9.1 V	12.8 V	32 V		50 A	0.13 J	...
NV73C2A 20	18 V ... 22 V	10.6	15 V	35 V			0.14 J	300 pF
NV73C2A 22	19 V ... 24 V	12 V	16.5 V	40 V			0.17 J	
NV73C2A 24	21.8 V ... 26.5 V	14 V	18 V	42 V			0.18 J	
NV73A2B 27	25 V ... 32 V	17 V	22 V	55 V			0.13 J	
NV73A2B 33	30 V ... 39 V	20 V	26 V	60 V			0.15 J	500 pF
NV73A2B 39	37 V ... 47 V	25 V	31 V	72 A	2 A	40 A	0.18 J	...
NV73A2B 47	45 V ... 54 V	30 V	38 V	85 V			0.22 J	100 pF
NV73A2B 56	52 V ... 62 V	35 V	45 V	100 V			0.26 J	
NV73B2B 8.2	6.8 V ... 9.8 V	4.2 V	6 V	18 V		30 A	0.03 J	
NV73B2B 12	10 V ... 14.4 V	6.1 V	8.6 V	24 V			0.07 J	
NV73B2B 15	12.5 V ... 18 V	7.6 V	10.8 V	29 V			0.09 J	1000 pF
NV73B2B 18	16 V ... 20 V	9.1 V	12.8 V	32 V	2 A		0.1 J	...
NV73B2B 20	18 V ... 22 V	10.6 V	15 V	35 V		50 A	0.11 J	300 pF
NV73B2B 22	19 V ... 24 V	12 V	16.5 V	40 V			0.12 J	
NV73B2B 24	21.8 V ... 26.5 V	14 V	18 V	42 V			0.14 J	
NV73B2B 27	25 V ... 32 V	17 V	22 V	52 V			0.16 J	
NV73C2B 8.2	6.8 V ... 9.8 V	4.2 V	6 V	18 V		40 A	0.06 J	
NV73C2B 12	10 V ... 14.4 V	6.1 V	8.6 V	24 V			0.1 J	
NV73C2B 15	12.5 V ... 18 V	7.6 V	10.8 V	29 V			0.13 J	2000 pF
NV73C2B 18	16 V ... 20 V	9.1 V	12.8 V	29 V	2 A		0.15 J	...
NV73C2B 20	18 V ... 22 V	10.6 V	15 V	31 V		70 A	0.17 J	500 pF
NV73C2B 22	19 V ... 24 V	12 V	16.5 V	35 V			0.19 J	
NV73C2B 24	21.8 V ... 26.5 V	14 V	18 V	38 V			0.2 J	
NV73C2B 27	25 V ... 32 V	17 V	22 V	48 V			0.24 J	

* Ambient temperature: +25 °C

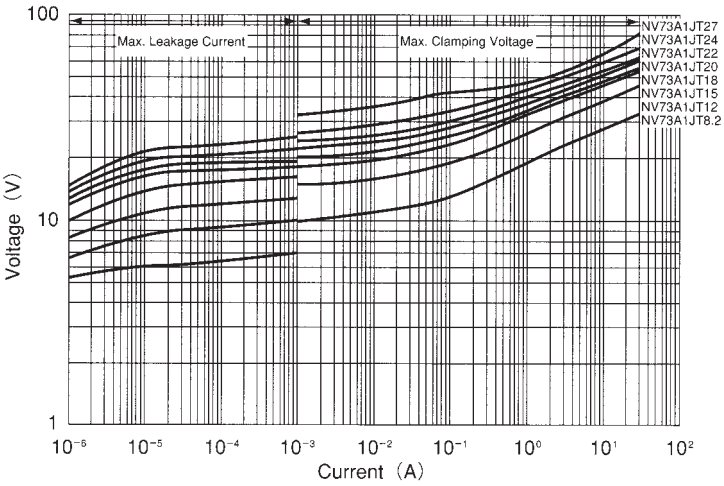
** E: Maximum energy - the maximum energy within the varistor voltage change of ±10% when a single impulse of 2msec. is applied.
Ip: Maximum peak current - the maximum peak current within the varistor voltage change of ±10% when a single standard impulse of 8/20µsec. is applied two times with an interval of 5 min.

VOLTAGE-CURRENT CURVES (Ta = 25°C)

NV73A1E (0402)



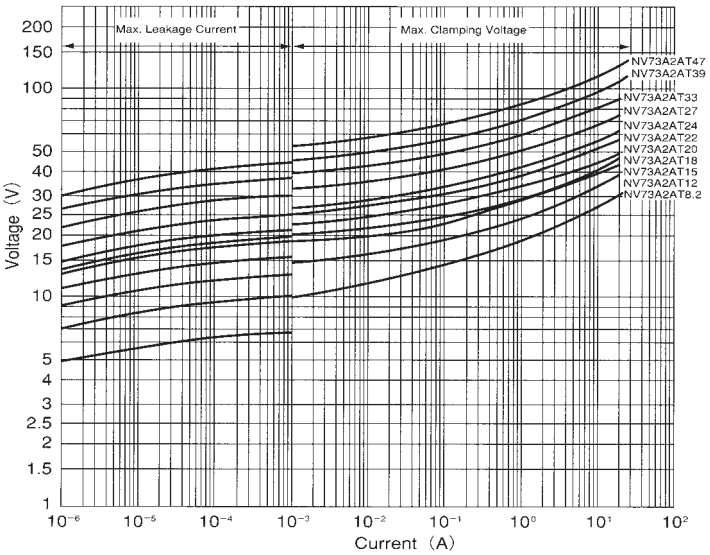
NV73A1J (0603)



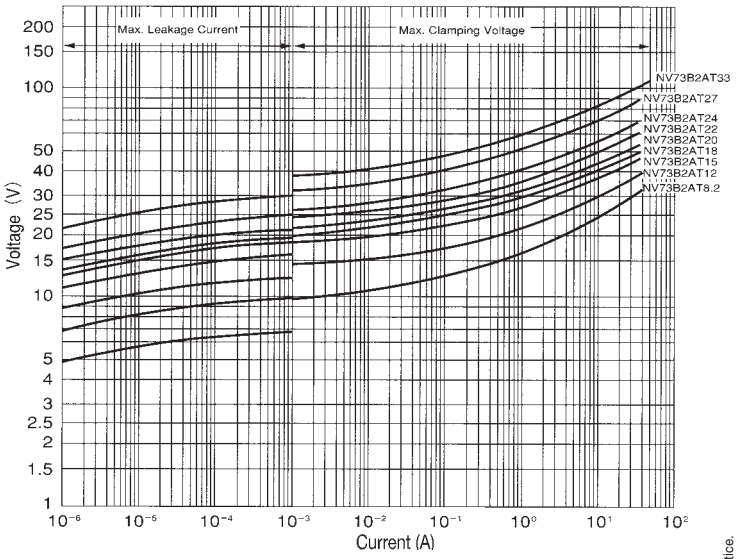
CIRCUIT PROTECTORS, MULTILAYER METAL OXIDE VARISTOR, NV73

VOLTAGE-CURRENT CURVES (Ta = 25°C)

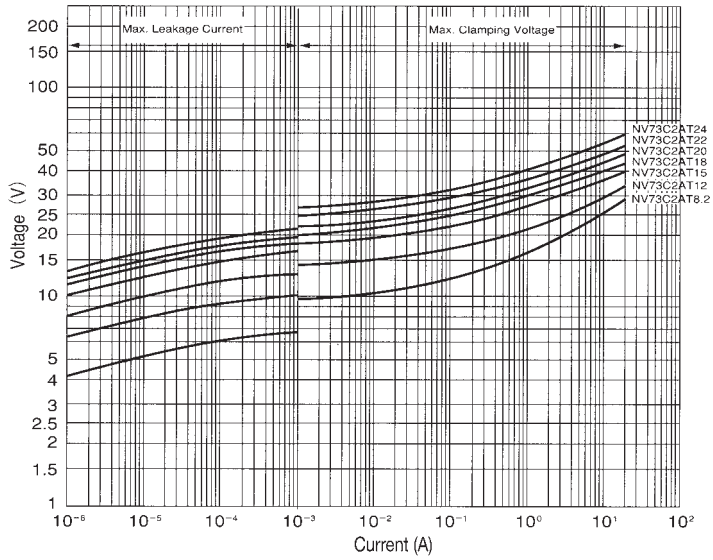
NV73A2A (0805)



NV73B2A (0805)



NV73C2A (0805)



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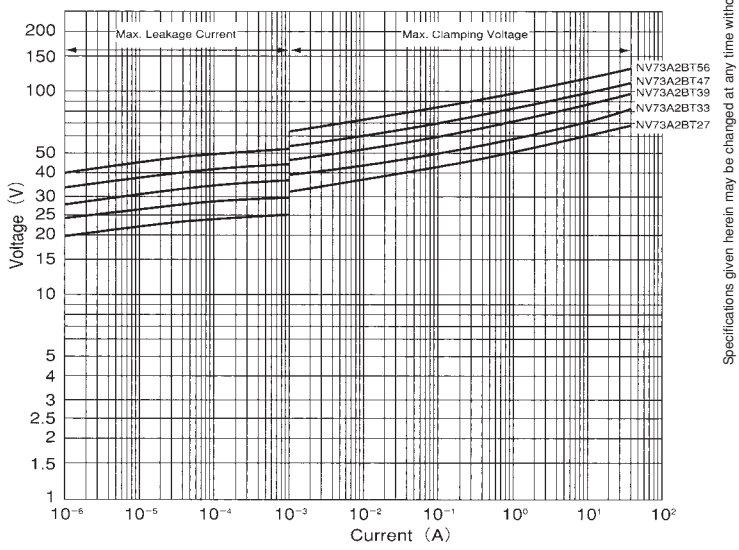
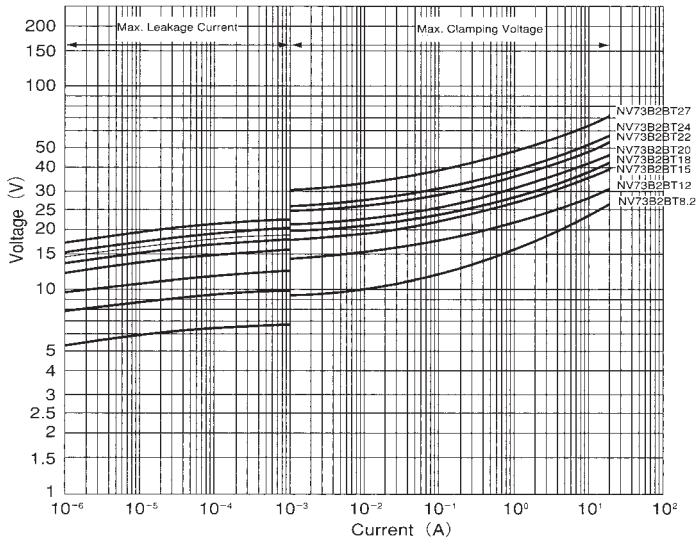


NV73B2B (1206)



NV73C2B (1206)