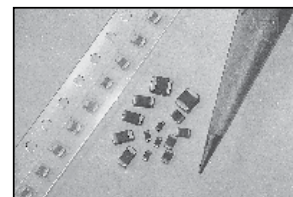


FEATURES

- ZINC OXIDE MULTILAYER CONSTRUCTION
- HIGH ENERGY SURGE VOLTAGE PROTECTION
- EIA SIZES 0603, 0805, 1206 AND 1210
- HIGH CURRENT RATING (UP TO 500A)
- FAST RESPONSE (LESS THAN 1nS)
- LOW CLAMPING VOLTAGES
- Pb-FREE COMPATIBLE WITH FLOW AND REFLOW SOLDERING

**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details

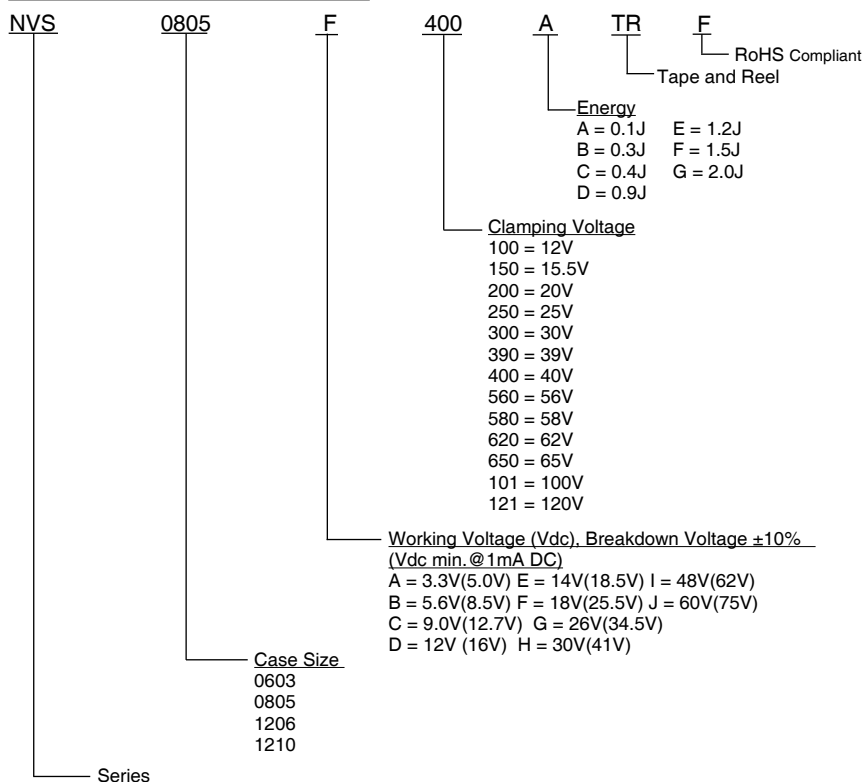


Multilayer zinc oxide chip varistors are ideal for the suppression of voltage transients due to ESD, inductive discharge and electromagnetic energy. The NVS series of chip varistors were designed to provide transient protection to new, low voltage semiconductors and to aid in equipment compliance to CIS/IEC 801 specifications.

CHARACTERISTICS

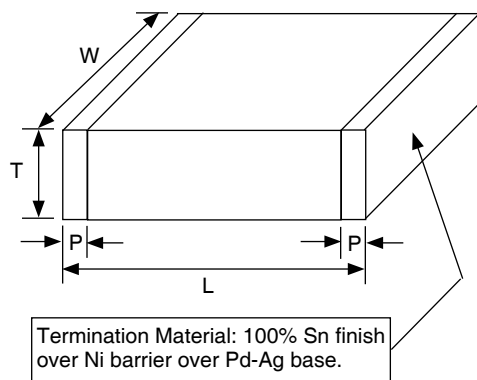
Specifications	Size			
	0603	0805	1206	1210
Working Voltage Range (@50 μ A Maximum Leakage Current)	3.3 ~ 30V	3.3 ~ 30V	3.3 ~ 48V	18 ~ 60V
Clamping Voltage Range (Based on 20 - 10 Amp 8/20 μ S Pulse)	10 ~ 65V	10 ~ 65V	10 ~ 100V	39 ~ 120V
Peak Current Rating (8/20 μ S Pulse Waveform)	30A	30 ~ 120A	30 ~ 150A	220 ~ 500A
Maximum Transient Energy Dissipated (10/1000 μ S Pulse Waveform)	0.1J	0.1 ~ 0.3J	0.1 ~ 0.4J	0.9 ~ 1.5J

PART NUMBERING SYSTEM



PART NUMBERING SPECIFICATIONS

Case Size	Part Number	Working* Voltage (Max.)	Clamping Voltage (Max.)	Peak Current (Max.)	Transient Energy (Max.)	Typical	
						C (nF)	L (nH)
0603	NVS0603A100ATRF	3.3V	12V	30A	0.1J	1.450	<1.0
	NVS0603B150ATRF	5.6V	18V	30A	0.1J	0.750	<1.0
	NVS0603C200ATRF	9.0V	22V	30A	0.1J	0.550	<1.0
	NVS0603E300ATRF	14V	32V	30A	0.1J	0.350	<1.0
	NVS0603F400ATRF	18V	42V	30A	0.1J	0.150	<1.0
	NVS0603G580ATRF	26V	60V	30A	0.1J	0.155	<1.0
	NVS0603H650ATRF	30V	67V	30A	0.1J	0.125	<1.0
0805	NVS0805A100ATRF	3.3V	12V	40A	0.1J	1.400	<1.5
	NVS0805A100BTRF	3.3V	12V	120A	0.3J	5.000	<1.5
	NVS0805B150ATRF	5.6V	18V	40A	0.1J	1.100	<1.5
	NVS0805B150BTRF	5.6V	18V	120A	0.3J	3.000	<1.5
	NVS0805C200ATRF	9.0V	22V	40A	0.1J	0.750	<1.5
	NVS0805D250ATRF	12V	27V	40A	0.1J	0.525	<1.5
	NVS0805E300ATRF	14V	32V	40A	0.1J	0.325	<1.5
	NVS0805E300BTRF	14V	32V	120A	0.3J	0.900	<1.5
	NVS0805F400ATRF	18V	42V	30A	0.1J	0.225	<1.5
	NVS0805F400BTRF	18V	42V	100A	0.3J	0.550	<1.5
	NVS0805G580ATRF	26V	60V	30A	0.1J	0.120	<1.5
	NVS0805G580BTRF	26V	60V	100A	0.3J	0.250	<1.5
	NVS0805H650ATRF	30V	67V	30A	0.1J	0.090	<1.5
1206	NVS1206A100ATRF	3.3V	12V	40A	0.1J	1.250	<1.7
	NVS1206A100CTRF	3.3V	12V	150A	0.4J	4.700	<1.7
	NVS1206B150ATRF	5.6V	18V	40A	0.1J	1.200	<1.7
	NVS1206B150CTRF	5.6V	18V	150A	0.4J	3.000	<1.7
	NVS1206E300ATRF	14V	32V	40A	0.1J	0.600	<1.7
	NVS1206E300CTRF	14V	32V	150A	0.4J	1.050	<1.7
	NVS1206F400ATRF	18V	42V	30A	0.1J	0.350	<1.7
	NVS1206F400CTRF	18V	42V	150A	0.4J	0.900	<1.7
	NVS1206G580CTRF	26V	60V	120A	0.4J	0.500	<1.7
	NVS1206H650CTRF	30V	67V	120A	0.4J	0.400	<1.7
1210	NVS1210F390FTRF	18V	42V	500A	1.5J	3.100	<2.0
	NVS1210G560ETRF	26V	60V	300A	1.2J	2.150	<2.0
	NVS1210H620DTRF	30V	67V	220A	0.9J	1.750	<2.0
	NVS1210H620ETRF	30V	67V	280A	1.2J	1.850	<2.0
	NVS1210I101DTRF	48V	100V	220A	0.9J	0.450	<2.0
	NVS1210I101ETRF	48V	100V	250A	1.2J	0.500	<2.0
	NVS1210J121FTRF	60V	120V	250A	1.5J	0.400	<2.0



COMPONENT DIMENSIONS (mm)

Case Size	Length (L)	Width (W)	Thickness (T)	Overlap (P)
0603	1.6 ± 0.15	0.8 ± 0.15	0.9 max.	0.5 max.
0805	2.0 ± 0.20	1.2 ± 0.20	1.0 max.	0.8 max.
1206	3.2 ± 0.20	1.6 ± 0.20	1.0 max.	0.8 max.
1210	3.2 ± 0.20	2.5 ± 0.20	1.0 max.	0.8 max.

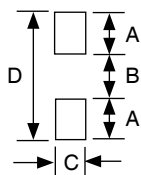
NOTES:

1. *Working voltage is a maximum recommended working voltage and is specified for operation at leakage current less than 50µA..
2. Peak current and clamping voltage is specified under 8/20µs test conditions.
3. Transient energy specified under 10/1000µs test condition.
4. Storage Temperature/Humidity: +5°C ~ +35°C, RH 40% ~ 75%

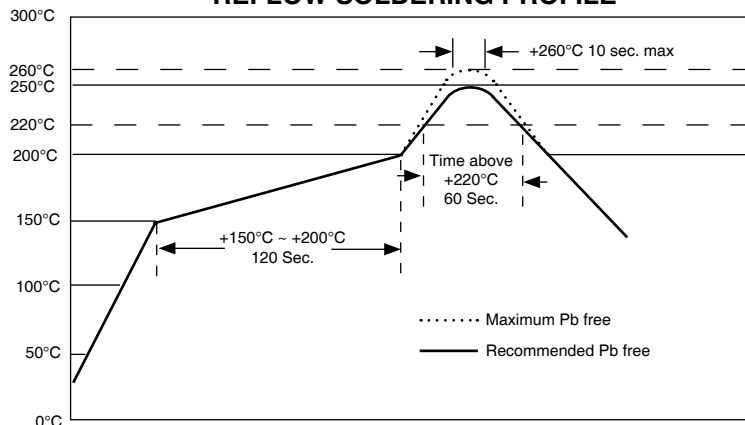


LAND PATTERN DIMENSIONS (mm)

Case Size	A	B	C	D
0603	0.89	0.76	0.76	2.54
0805	1.02	1.02	1.27	3.05
1206	1.02	2.03	1.65	4.06
1210	1.02	2.03	2.54	4.06



REFLOW SOLDERING PROFILE

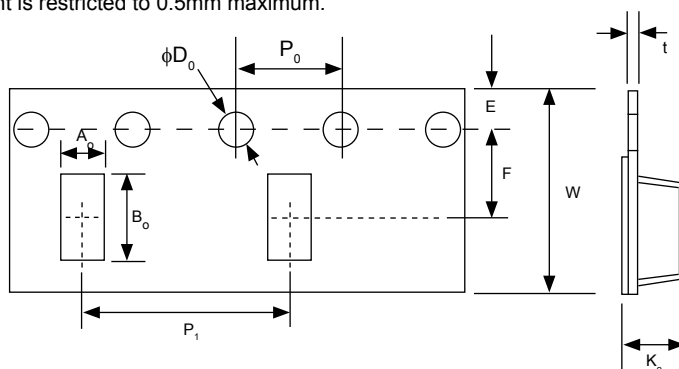


EMBOSED PLASTIC CARRIER DIMENSIONS (mm)

A ₀	B ₀	φD ₀	E	F	P ₀	P ₁	t	K ₀	W
Note 1	Note 1	1.50 ^{+1.0} / _{-0.0}	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.10	0.6 max.	Note 1	8.0 ±0.30

Notes:

- The cavity dimensions A₀, B₀ and K₀ shall be configured to provide the clearances:
 - the components will not protrude beyond the sealing plane of the cover tape.
 - the components can be removed from the cavity in a vertical direction without mechanical restriction after the cover tape has been removed.
 - rotation of the component in the pocket will be limited to 20° maximum.
 - lateral movement of the component is restricted to 0.5mm maximum.



REEL DIMENSIONS (mm)

D	D1	D2	W1	Qty
φ330 max.	φ50 min.	13.0 ^{+0.5} / _{-0.2}	8.4 ^{+1.5} / _{-0.0}	2,000

REEL QUANTITIES

Case Size	178mm (7")	254mm (10")
0603	1,000 or 4,000	10,000
0805	1,000 or 4,000	10,000
1206	1,000 or 4,000	10,000
1210	1,000 or 4,000	10,000

