

The AVX TransGuard Transient Voltage Suppressors (TVS) with unique high-energy multilayer construction represents state-of-the-art over/voltage circuit protection. Monolithic multilayer construction provides protection from voltage transients caused by ESD, lightning, NEMP, inductive switching, ETC. True surface mount product is provided in EIA industry standard packages. Through-hole components are supplied as conformally coated axial devices.

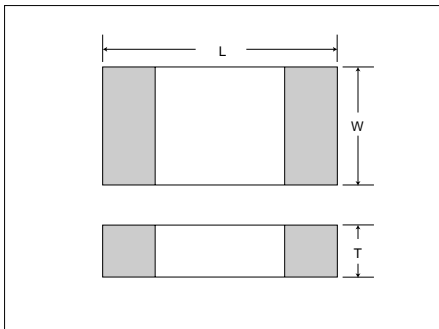
## Features

- Excellent Clamping Ratio
- High Transient Current Capability
- Quick Response(<1nSec.)
- Low Voltage(From 3.3V)
- Small Size(0603 to 1206 Size)

## Applications

- Computer ESD and I/O Protection
- Data Line Protection
- Automotive Electronics Protection
- ESD/EMP Protected Connectors

## Dimensions



(Unit : mm)

TYPE	L	W	T
0402	1.00±0.10	0.50±0.10	0.60max
0603	1.60±0.15	0.80±0.15	0.90max
0805	2.01±0.20	1.25±0.20	1.02max
1206	3.20±0.20	1.60±0.20	1.02max
1210	3.20±0.20	2.49±0.20	1.70max

## Recommended Land Pattern

(Unit : mm)

0402 (1005) Type	0603 (1608) Type	0805 (2012) Type	1206 (3216) Type	1210 (3225) Type

## How to Order

VC	1206	05	D	150	R	P
①	②	③	④	⑤	⑥	⑦

①Series(VC : SMT, VA : Leaded)

②Size

0402	1005	2000	4.32×φ2.54
0603	1608	04LC	1005 low capacitance
0805	2012	06LC	1608 low capacitance
1206	3216	08LC	2012 low capacitance
1210	3225	12LC	3216 low capacitance
1000	4.32×φ2.54		

③Working Voltage(VDC)

03	3.3	18	18.0
05	5.6	26	26.0
09	9.0	30	30.0
12	12.0	48	48.0
14	14.0	60	60.0

④Transient Energy(J)

A	0.1	E	0.6	J	1.5	X	0.05
B	0.2	F	0.7	K	2.0		
C	0.3	G	0.9	P	3.0		
D	0.4	H	1.2	V	0.02		

⑤Clamping Voltage(V)

100	10.0	390	39.0	620	62.0
150	15.5	400	40.0	650	65.0
200	20.0	500	50.0	101	100
250	25.0	560	56.0	121	120
300	30.0	580	58.0		

⑥Packing Quantity

	VC0402	VC0603 VC0805 VC1206	VC1210	VA1000	VA2000
D	—	1,000	1,000	1,000	1,000
R	—	4,000	2,000	3,000	2,500
T	—	10,000	10,000	7,500	5,000
W	10,000				

⑦Termination

P	Ni/Sn	X	Ag/Pd/Pt
Q	Ni/Sn100		

## VC Series Electrical Characteristics

	Working Voltage	Breakdown Voltage	Clamping Voltage	Peak Current	Transient Energy	Capacitance	Inductance
Symbol	V <sub>wm</sub>	V <sub>b</sub>	V <sub>c</sub>	I <sub>peak</sub>	E <sub>trans</sub>	C	L
Unit	V(max)	V	V(max)	A(max)	J(max)	pF(typ.)	nH(typ.)
Test Condition	<50μA	1mA DC	8/20μS *①	8/20μS	10/1000μS	0.5Vrms@: 1k/1M	di/dt= 100mA/ns
Part Number							
VC040205X150	5.6	6.8-10.2	15.5	20	0.05	250	<1.0
VC040209X200	9.0	11.0-14.0	20.0	20	0.05	230	<1.0
VC040214X300	14.0	16.65-20.35	30.0	20	0.05	100	<1.0
VC040218X400	18.0	22.9-28.0	40.0	20	0.05	90	<1.0
VC060303A100	3.3*②	4.1-6.0	10	30	0.1	1800/1230	<1.0
VC060305A150	5.6	7.6-9.3	15.5	30	0.1	1000/825	<1.0
VC060309A200	9.0	11.0-14.0	20	30	0.1	650/550	<1.0
VC060314A300	14.0	16.5-20.3	30	30	0.1	500/425	<1.0
VC060318A400	18.0	22.9-28.0	40	30	0.1	275/225	<1.0
VC060326A580	26.0	31.0-38.0	58	30	0.1	200/160	<1.0
VC060330A650	30.0	37.0-46.0	65	30	0.1	175/150	<1.0
VC080503A100	3.3*②	4.1-6.0	10	40	0.1	1300/930	<1.5
VC080503C100	3.3*②	3.7-5.6	10	120	0.3	5500/4000	1.5
VC080505A150	5.6	7.6-9.3	15.5	40	0.1	1250/860	<1.5
VC080505C150	5.6	7.1-8.7	15.5	120	0.3	3500/2400	1.5
VC080509A200	9	11.0-14.0	20	40	0.1	780/585	<1.5
VC080512A250	12	14.0-18.3	25	40	0.1	525/400	<1.5
VC080514A300	14	16.5-20.3	30	40	0.1	375/280	<1.5
VC080514C300	14	15.9-19.4	30	120	0.3	1100/820	1.5
VC080518A400	18*③	22.9-28.0	40	30	0.1	350/275	<1.5
VC080518C400	18*③	22.5-27.5	40	100	0.3	650/500	1.5
VC080526A580	26	31.0-37.9	58	30	0.1	140/110	<1.5
VC080526C580	26	30.5-37.3	58	100	0.3	250/190	1.5
VC080530A650	30	37.0-46.0	65	30	0.1	100/80	<1.5
VC120603A100	3.3*②	4.1-6.0	10	40	0.1	2000/1500	<1.7
VC120603D100	3.3*②	3.7-5.6	10	150	0.4	4700/3800	1.7
VC120605A150	5.6	7.6-9.3	15.5	40	0.1	1200/870	<1.7
VC120605D150	5.6	7.1-8.7	15.5	150	0.4	3000/2300	1.7
VC120614A300	14	16.5-20.3	30	40	0.1	600/500	<1.7
VC120614D300	14	15.9-19.4	30	150	0.4	1200/900	1.7
VC120618A400	18*③	22.9-28.0	40	30	0.1	350/270	<1.7
VC120618D400	18*③	22.5-27.5	40	150	0.4	800/635	1.7
VC120626D580	26	30.5-37.3	58	120	0.4	550/450	1.7
VC120630D650	30	36.0-45.0	65	120	0.4	500/400	1.7
VC120648D101	48	56.0-68.0	100	100	0.4	225/185	1.7
VC121018J390	18*③	21.5-26.5	39	500	1.5	3100/2400	2.0
VC121026H560	26	29.7-36.3	56	300	1.2	2150/1675	2.0
VC121030G620	30	35.0-43.0	62	220	0.9	1900/1530	2.0
VC121030H620	30	35.0-43.0	62	280	1.2	1975/1575	2.0
VC121048G101	48	54.5-66.5	100	220	0.9	500/430	2.0
VC121048H101	48	54.5-66.5	100	250	1.2	525/450	2.0
VC121060J121	60	67.0-83.0	120	250	1.5	450/375	2.0

## VCLC Series Electrical Characteristics

	Working Voltage	Clamping Voltage	Peak Current	Transient Energy	Leakage Current	Capacitance	Inductance
Symbol	V <sub>wm</sub>	V <sub>c</sub>	I <sub>peak</sub>	E <sub>trans</sub>	I <sub>L</sub>	pF	L
Test Condition	<10μA	8/20μS Pulse@2A	8/20μS Pulse	10/1000μS Pulse	@ V <sub>wm</sub>	@1MHz	di/dt =100mA/ns
Part Number							
VC04LC18V500	≤18V	<50V	15A	0.02J	N/A	<40pF	<1.0nH
VC06LC18X500	≤18V	≤50V	20A	0.05J	<25μA	<150pF	
VC08LC18A500	≤18V	≤50V	30A	0.1J	<10μA	<100pF	
VC12LC18A500	≤18V	≤50V	30A	0.1J	<10μA	<200pF	

## Definition of Characteristics

V<sub>wm</sub> : Maximum steady-state DC operating voltage the varistor can maintain and not exceed 50μA leakage current

V<sub>b</sub> : Voltage across the device measured at 1mA DC current

V<sub>c</sub> : Maximum peak voltage across the varistor measured at a specified pulse current and waveform

I<sub>peak</sub> : Maximum peak current which may be applied with the specified waveform without device failure

E<sub>trans</sub> : Maximum energy which may be dissipated with the specified waveform without device failure

C : Device capacitance measured with zero volt bias 0.5Vrms and 1kHz

L : Device inductance measured with a current edge rate of 100mA/nS

Note \*① : Current Pulse Conditions

Transient Energy Rating	Pulse Current and Waveform
0.05J	1A 8/20μS
0.1J	2A 8/20μS
0.2 to 0.3J	5A 8/20μS
≥0.4J	10A 8/20μS

Note \*② : Test Condition<100μA

Note \*③ : Withstands 24.5VDC for 5 minutes (Automotive applications)