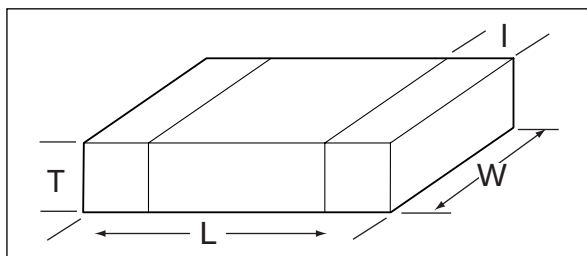


Transient Voltage Suppressors

TransGuard® Surface Mount



HOW TO ORDER

V C 1206 05 D 150 R

① ② ③ ④ ⑤ ⑥ ⑦

① **Product Designator:** V = Varistor (TransGuard®)

② **Case Designator:** C = Chip

③ **Case Size Designator**

④ **Working Voltage:**

Where: 03 = 3.3VDC; 14 = 14.0VDC; 30 = 30.0VDC;
05 = 5.6VDC; 18 = 18.0VDC; 48 = 48.0VDC;
09 = 9.0VDC; 26 = 26.0VDC; 60 = 60.0VDC

⑤ **Energy:**

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

⑥ **Clamping Voltage:**

Where: 100 = 10.0V; 200 = 20.0V; 560 = 56.0V;
101 = 100.0V; 300 = 30.0V; 580 = 58.0V;
121 = 120.0V; 390 = 39.0V; 620 = 62.0V;
150 = 15.5V; 400 = 40.0V; 650 = 65.0V;

⑦ **Standard Packaging (Pcs/Reel):**

Style	D	R	T
VC0402	-	4,000	10,000
VC0603	1,000	4,000	10,000
VC0805	1,000	4,000	10,000
VC1206	1,000	4,000	10,000
VC1210	1,000	2,000	10,000

Voltage and Dimensions: millimeters (inches)

Case Size	0402	0603	0805	1206	1210
Voltages	5.6, 9.0, 14.0 or 18VDC	3.3, 5.6, 9.0, 14, 18, 26 or 30VDC	3.3, 5.6, 9, 12, 14, 18, 26 or 30VDC	3.3, 5.6, 14, 18, 26, 30 or 48VDC	18, 26, 30, 48 or 60VDC
Actual Size	□	□	□□	□□	□□□
Length (L)	1.00±0.10 (.040±.004)	1.6±0.15 (.063±.006)	2.01±0.2 (0.79±.008)	3.20±0.2 (.126±.008)	3.20±0.6 (.126±.008)
Width (W)	.50±0.10 (.020±.004)	0.8±0.15 (.032±.006)	1.25±0.2 (.049±.008)	1.60±0.2 (.063±.008)	2.49±0.2 (.098±.008)
Thickness (T)	.60 max. (.024)	0.9 max. (.035)	1.02 max. (.040)	1.70 max. (.067)	1.70 max. (.067)
Land Length (l)	-	-	0.71 max. (.028)	0.71 max. (.028)	0.71 max. (.028)
Termination Band Width	.25±0.15 (.010±.006)	.035±0.15 (.014±.006)	-	-	-
Termination Separation	.30 (0.12) min.	0.7 (.028) min.	-	-	-
Termination Finish*	Pt/Pd/Ag	Pt/Pd/Ag	Pt/Pd/Ag	Pt/Pd/Ag	Pt/Pd/Ag

*For Ni terminations contact factory.

0402 Surface Mount

AVX Part Number	Working Voltage	Breakdown Voltage	Clamping Voltage	Peak Current	Transient Energy	Capacitance	Inductance
Symbol	V _{WM}	V _B	V _C	I _{peak}	E _{trans}	C	L
Units	Volts (max.)	Volts	Volts (max.)	Amp. (max.)	Joules (max.)	pF (typ.)	nH (typ.)
Test Condition	<50μA	1mA DC	8/20μS†	8/20μs	10/1000μS	0.5Vrms @: 1MHz	di/dt = 100mA/nS
VC040205X150	5.6	7.6 ~ 9.3	15.5	20	0.05	360	<1
VC040209X200	9.0	11.0 ~ 14.0	20.0	20	0.05	230	<1
VC040214X300	14.0	16.5 ~ 20.3	30.0	20	0.05	120	<1
VC040218X400	18.0	22.9 ~ 28.0	40.0	20	0.05	90	<1

0603 Surface Mount

AVX Part Number	Working Voltage	Breakdown Voltage	Clamping Voltage	Peak Current	Transient Energy	Capacitance	Inductance
Symbol	V _{WM}	V _B	V _C	I _{peak}	E _{trans}	C	L
Units	Volts (max.)	Volts	Volts (max.)	Amp. (max.)	Joules (max.)	pF (typ.)	nH (typ.)
Test Condition	<50μA	1mA DC	8/20μS†	8/20μs	10/1000μS	0.5Vrms @: 1kHz 1MHz	di/dt = 100mA/nS
VC060303A100	3.3	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

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Transient Voltage Suppressors



TransGuard® Surface Mount (continued from pg. 100)

0805 Surface Mount

AVX Part Number	Working Voltage	Breakdown Voltage	Clamping Voltage	Peak Current	Transient Energy	Capacitance		Inductance
Symbol	V _{WM}	V _B	V _C	I _{peak}	E _{trans}	C		L
Units	Volts (max.)	Volts	Volts (max.)	Amp. (max.)	Joules (max.)	pF (typ.)		nH (typ.)
Test Condition	<50μA	1mA DC	8/20μS†	8/20μs	10/1000μS	0.5Vrms @:		di/dt = 100mA/nS
						1kHz	1MHz	
VC080503A100	3.3	4.1 ~ 6.0	10	40	0.1	1300	930	<1.5
VC080503C100	3.3	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	22.9 ~ 28.0	40	30	0.1	350	275	<1.5
VC080518C400	18	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

1206 Surface Mount

AVX Part Number	Working Voltage	Breakdown Voltage	Clamping Voltage	Peak Current	Transient Energy	Capacitance		Inductance
Symbol	V _{WM}	V _B	V _C	I _{peak}	E _{trans}	C		L
Units	Volts (max.)	Volts	Volts (max.)	Amp. (max.)	Joules (max.)	pF (typ.)		nH (typ.)
Test Condition	<50μA	1mA DC	8/20μS†	8/20μs	10/1000μS	0.5Vrms @:		di/dt = 100mA/nS
						1kHz	1MHz	
VC120603A100	3.3	4.1 ~ 6.0	10	40	0.1	2000	1500	<1.7
VC120603D100	3.3	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	22.9 ~ 28.0	40	30	0.1	350	270	<1.7
VC120618D400	18	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

1210 Surface Mount

AVX Part Number	Working Voltage	Breakdown Voltage	Clamping Voltage	Peak Current	Transient Energy	Capacitance		Inductance
Symbol	V _{WM}	V _B	V _C	I _{peak}	E _{trans}	C		L
Units	Volts (max.)	Volts	Volts (max.)	Amp. (max.)	Joules (max.)	pF (typ.)		nH (typ.)
Test Condition	<50μA	1mA DC	8/20μS†	8/20μs	10/1000μS	0.5Vrms @:		di/dt = 100mA/nS
						1kHz	1MHz	
VC121018J390	18	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

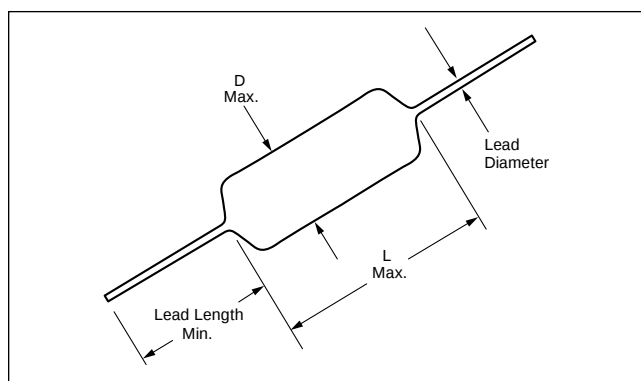
See note page 103

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Transient Voltage Suppressors

TransGuard® Axial Lead



	VA1000	VA2000
Body Length	(L) = 4.32mm. (.170" Max.)	4.83mm (.190" Max.)
Body Diameter	(D) = 2.54mm (.100" Max.)	3.56mm Max. (.140")
Lead Diameter	0.51 ± .05mm (.020 ± .002)	0.51 ± .05mm (.020 ± .002)
Lead Length	25.4mm (1" Min.)	25.4mm (1" Min.)

HOW TO ORDER

V A 1000 03 D 100 R

① ② ③ ④ ⑤ ⑥ ⑦

① **Product Designator:** V = Varistor (TransGuard®)

② **Case Designator:** A = Axial

③ **Case Size Designator**

④ **Working Voltage:**

Where: 03 = 3.3VDC; 26 = 26.0VDC;
05 = 5.6VDC; 30 = 30.0VDC;
14 = 14.0VDC; 48 = 48.0VDC;
18 = 18.0VDC; 60 = 60.0VDC

⑤ **Energy:**

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

⑥ **Clamping Voltage:**

Where: 100 = 10.0V; 300 = 30.0V;
101 = 100.0V; 400 = 40.0V;
121 = 120.0V; 580 = 58.0V;
150 = 15.5V; 650 = 65.0V2

⑦ **Standard Packaging (Pcs/Reel):**

Style	D	R	T
VA1000	1,000	3,000	7,500
VA2000	1,000	2,500	5,000

Axial Leaded Devices

AVX Part Number	Working Voltage	Breakdown Voltage	Clamping Voltage	Peak Current	Transient Energy	Capacitance	Inductance
Symbol	V_{WM}	V_B	V_C	I_{peak}	E_{trans}	C	L
Units	Volts (max.)	Volts	Volts (max.)	Amp. (max.)	Joules (max.)	pF (typ.)	nH (typ.)
Test Condition	<50μA	1mA DC	8/20μs†	8/20μs	10/1000μs	0.5Vrms @: 1kHz 1MHz	di/dt = 100mA/nS
VA100003A100	3.3	4.1 ~ 6.0	10	40	0.1	1500 1100	3.5
VA100003D100	3.3	3.7 ~ 5.6	10	150	0.4	4700 3800	3.5
VA100005A150	5.6	7.6 ~ 9.3	15.5	40	0.1	1000 750	3.5
VA100005D150	5.6	7.1 ~ 8.7	15.5	150	0.4	2800 2150	3.5
VA100014A300	14	16.5 ~ 20.3	30	40	0.1	400 300	3.5
VA100014D300	14	15.9 ~ 19.4	30	150	0.4	1200 900	3.5
VA100018A400	18	22.9 ~ 28.0	40	40	0.1	350 270	3.5
VA100018D400	18	22.5 ~ 27.5	40	150	0.4	900 700	3.5
VA100026D580	26	30.5 ~ 37.3	58	120	0.4	700 550	3.5
VA100030D650	30	36.0 ~ 45.0	65	120	0.4	600 500	3.5
VA100048D101	48	56.0 ~ 68.0	100	100	0.4	200 165	3.5
VA200060K121	60	67.0 ~ 83.0	120	300	2.0	400 340	3.5

V_{WM} —Maximum steady-state DC operating voltage the varistor can maintain and not exceed 50μA leakage current

V_B —Voltage across the device measured at 1mA DC current

V_C —Maximum peak voltage across the varistor measured at a specified pulse current and waveform

†Transient Energy Rating Pulse Current & Waveform

.1 Joule	2A8/20μs
.2-.3 Joules	5A 8/20μs
≥.4Joules	10A 8/20μs

I_{peak} —Maximum peak current which may be applied with the specified waveform without device failure

E_{Trans} —Maximum energy which may be dissipated with the specific waveform without device failure

C—Device capacitance measured with zero volt bias at .5Vrms and 1kHz

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

Dimensions: Millimeters (Inches)

Additional information on this product is available from AVX's catalog or AVX's FAX Service.
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