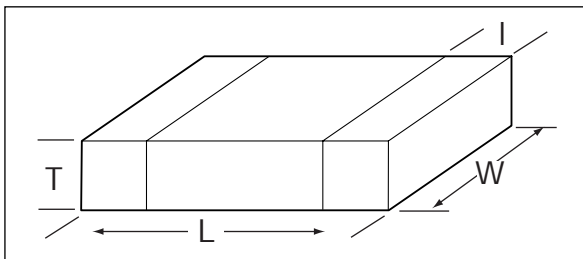


Transient Voltage Suppressors

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 |
|-------------------------------|----------------------------|---------------------------------------|---|--------------------------------------|----------------------------|
| Voltagess | 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 (I) | - | - | 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 | 8/20µSt | 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 | 8/20µSt | 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 |

Additional information on this product is available from AVX's catalog or AVX's FAX Service. Call 1-800-879-1613 and request document #100.
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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 | <50 μ A | 1mA DC | 8/20 μ S† | 8/20 μ s | 10/1000 μ S | 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 | <50 μ A | 1mA DC | 8/20 μ S† | 8/20 μ s | 10/1000 μ S | 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 | <50 μ A | 1mA DC | 8/20 μ S† | 8/20 μ s | 10/1000 μ S | 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 |

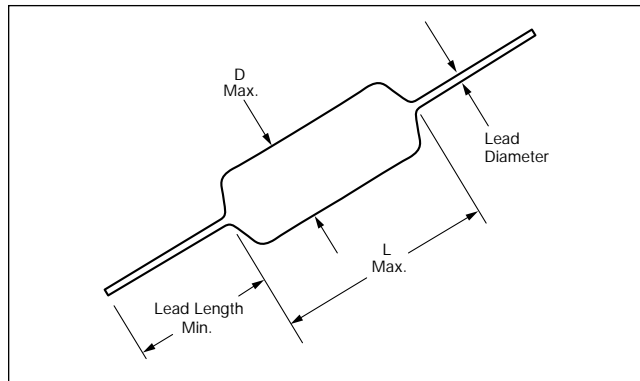
See note page 103

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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.V; 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 | 2A 8/20µs |
| 2~.3 Joules | 5A 8/20µs |
| ≥.4 Joules | 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.
Call 1-800-879-1613 and request document #107. Visit our website <http://www.avxcorp.com>

