

# Miniature 0201 MLV

## AVX Multilayer Ceramic Transient Voltage Suppressors

### ESD Protection for any Circuit with Board Space Constraints



#### GENERAL DESCRIPTION

AVX 0201 Multi-Layer Varistors are designed for circuits where board space is a premium. 0201 MLV offer bi-directional ESD protection in the smallest package available today. The added advantage is EMI/RFI attenuation. 0201 MLV can replace 2 diodes and the EMC capacitor for a one chip solution.

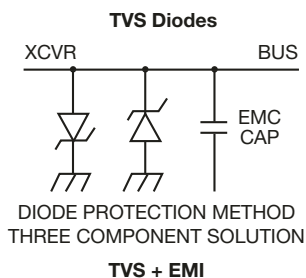
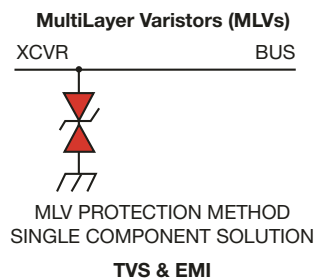
The miniature size and one chip solution team to offer designers the best in ESD protection and EMI filtering in one ultra compact device.

#### APPLICATIONS

- Cell phone
- PDA
- Camera modules
- Embedded components
- Hearing aid
- Any circuit with space constraints

#### FEATURES

- Capacitance 15pF to 150pF
- Low  $V_B$  Version
- Bi-Directional protection
- Fastest response time to ESD strikes
- Multi-strike capability
- Ultra compact 0201 case size



#### HOW TO ORDER

|                            |                                  |                                           |                                        |                                          |                                        |                                                               |
|----------------------------|----------------------------------|-------------------------------------------|----------------------------------------|------------------------------------------|----------------------------------------|---------------------------------------------------------------|
| <b>VC</b><br>Varistor Chip | <b>0201</b><br>Chip Size<br>0201 | <b>03</b><br>Working Voltage<br>03 = 3.5V | <b>V</b><br>Energy Rating<br>V = 0.02J | <b>151</b><br>Capacitance<br>151 = 150pF | <b>W</b><br>Packaging<br>W = 7" 10kpcs | <b>P</b><br>Termination<br>P = Ni Barrier/<br>100% Sn (matte) |
|----------------------------|----------------------------------|-------------------------------------------|----------------------------------------|------------------------------------------|----------------------------------------|---------------------------------------------------------------|



| AVX Part Number | $V_W$ (DC) | $V_W$ (AC) | $V_B$                | $V_C$ | $I_{VC}$ | $I_L$ | $E_T$ | $I_P$ | Cap              |
|-----------------|------------|------------|----------------------|-------|----------|-------|-------|-------|------------------|
| VC020103V101WP  | 3.5        | 2.0        | 4.76 min<br>8.84 max | 14max | 1        | 50    | 0.02  | 10    | 100pF $\pm 30\%$ |
| VC020103V121WP  | 3.5        | 2.0        | 4.76 min<br>8.84 max | 14max | 1        | 50    | 0.02  | 10    | 125pF $\pm 30\%$ |
| VC020103V151WP  | 3.5        | 2.0        | 4.76 min<br>8.84 max | 14max | 1        | 50    | 0.02  | 10    | 150pF $\pm 30\%$ |
| VC020105T150WP  | 5.6        | 4.0        | 10.0 min<br>15.6 max | 35max | 1        | 50    | 0.01  | 2     | 15pF $\pm 30\%$  |
| VC020105T330WP  | 5.6        | 4.0        | 10.0 min<br>15.6 max | 35max | 1        | 50    | 0.01  | 4     | 33pF $\pm 30\%$  |
| VC020105T500WP  | 5.6        | 4.0        | 10.0 min<br>15.6 max | 35max | 1        | 50    | 0.01  | 5     | 50pF $\pm 30\%$  |
| VC020105T101WP  | 5.6        | 4.0        | 10.0 min<br>15.6 max | 35max | 1        | 50    | 0.01  | 5     | 100pF $\pm 30\%$ |
| VC020105V101WP  | 5.6        | 4.0        | 6.4 min<br>9.6 max   | 17max | 1        | 50    | 0.02  | 4     | 100pF $\pm 30\%$ |
| VC020107V101WP  | 7.0        | 5.6        | 9.6 min<br>14.4 max  | 20max | 1        | 50    | 0.02  | 5     | 100pF $\pm 30\%$ |
| VC020116T150WP  | 16         | 11         | 21.7 min<br>29.3 max | 45max | 1        | 50    | 0.01  | 1     | 15pF $\pm 30\%$  |

$V_W$ (DC) DC Working Voltage [V]  
 $V_W$ (AC) AC Working Voltage [V]  
 $V_B$  Breakdown Voltage [V @ 1mA DC]  
 $V_C$  Clamping Voltage [V @  $I_{VC}$ ]  
 $I_{VC}$  Test Current for VC [A, 8x20 $\mu$ S]

$I_L$  Maximum leakage current at the working voltage [ $\mu$ A]  
 $E_T$  Transient Energy Rating [J, 10x1000 $\mu$ S]  
 $I_P$  Peak Current Rating [A, 8x20 $\mu$ S]  
Cap Capacitance [pF] @ 1KHz specified and 0.5VRMS

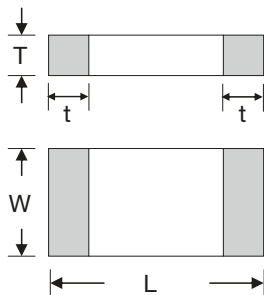


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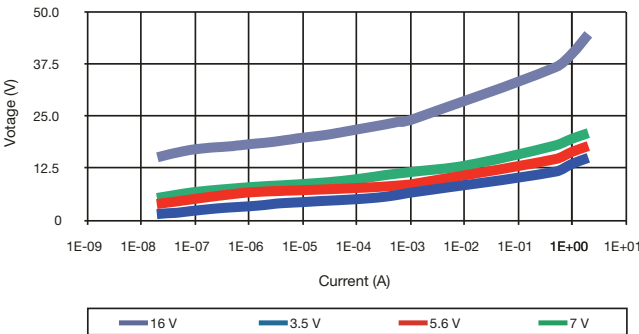
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## PHYSICAL DIMENSIONS: mm (inches)

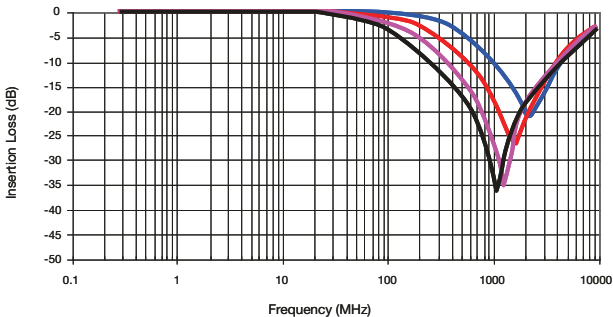


| Size (EIA) | Length (L)                | Width (W)                  | Max Thickness (T)         | Terminal (t)               |
|------------|---------------------------|----------------------------|---------------------------|----------------------------|
| 0201       | 0.60±0.03<br>(0.024±.001) | 0.30±0.03<br>(0.011±0.001) | 0.33 max.<br>(0.013 max.) | 0.15±0.05<br>(0.006±0.002) |

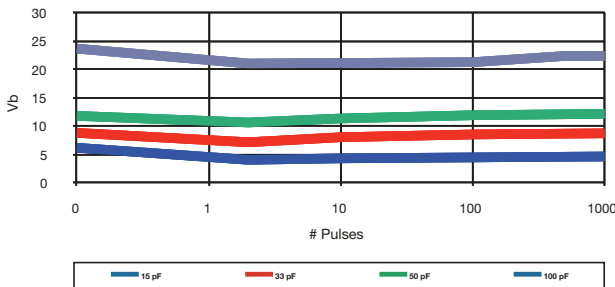
## VOLTAGE/CURRENT CHARACTERISTICS



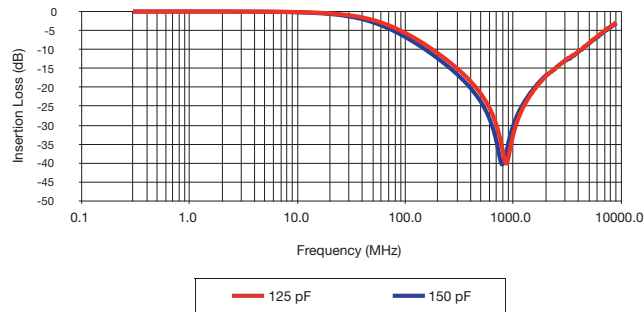
## TRANSMISSION CHARACTERISTICS 5.6Vdc



## TYPICAL 8 KV ESD PERFORMANCE (150pF / 300ohm IEC Network)



## 3.5Vdc



## 8kV CONTACT ESD vs PULSE 1 Mohm Input (150pF / 330ohm Network)

