

## SMD 1210 Multilayer Varistor



### FEATURES

- Surface mount multilayer surge suppressor
- Inherent bidirectional clamping
- Excellent energy/volume ratio
- Suitable for reflow soldering
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### APPLICATIONS

Over-voltage and transient voltage protection:

- Data lines and I/O port protection
- Protection against ESD transients
- On-board protection of IC's and transistors
- Modem protection
- LCD protection

### DESCRIPTION

Size 1210 (M3225) multilayer chip varistor with NiSn terminations.

### PACKAGING

Available in 8 mm embossed carrier tape, component pitch 4 mm on 180 mm reels containing 2000 pieces.

### QUICK REFERENCE DATA

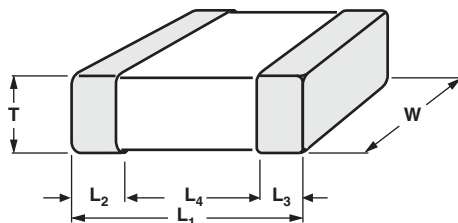
| PARAMETER                           | VALUE        | UNIT         |
|-------------------------------------|--------------|--------------|
| Maximum continuous voltage          |              |              |
| DC                                  | 5.6 to 45.0  | V            |
| AC                                  | 4.0 to 35.0  | V            |
| Maximum clamping voltage at 2.5 A   | 22.0 to 95.0 | V            |
| Capacitance range (at 1 kHz)        | 650 to 5000  | pF           |
| Maximum energy (10/1000 $\mu$ s)    | 0.4 to 2.2   | J            |
| Maximum peak current (8/20 $\mu$ s) | 250 to 400   | A            |
| Operating temperature range         | -55 to 85    | $^{\circ}$ C |
| Weight                              | $\pm$ 0.030  | g            |

### ELECTRICAL DATA AND ORDERING INFORMATION

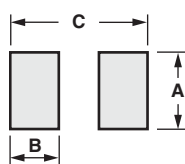
| WORKING VOLTAGE |              | BREAKDOWN VOLTAGE | CLAMPING VOLTAGE    | MAX. PEAK CURRENT | MAXIMUM ENERGY  | CAPACITANCE | PART NUMBER |
|-----------------|--------------|-------------------|---------------------|-------------------|-----------------|-------------|-------------|
| $V_{RMS}$       | $V_{DC}$     | $V_b$             | $V_c$               | $I_p$             | $E_t$           | C           | SAP         |
| V               | V            | V                 | V                   | A                 | J               | pF          | MLV1210E3   |
|                 | < 50 $\mu$ A | 1 mA              | 2.5 A, 8/20 $\mu$ s | 8/20 $\mu$ s      | 10/1000 $\mu$ s | 1 kHz       |             |
| 4.0             | 5.6          | 7.0 to 10.0       | 22.0                | 250               | 0.4             | 5000        | 0403T       |
| 14.0            | 18.0         | 21.6 to 26.0      | 48.0                | 400               | 1.5             | 2000        | 1403T       |
| 20.0            | 26.0         | 31.0 to 38.0      | 62.0                | 400               | 1.9             | 1500        | 2003T       |
| 25.0            | 30.0         | 37.0 to 46.0      | 77.0                | 400               | 1.9             | 1200        | 2503T       |
| 35.0            | 45.0         | 50.4 to 61.6      | 95.0                | 250               | 2.2             | 950         | 3503T       |

### Notes

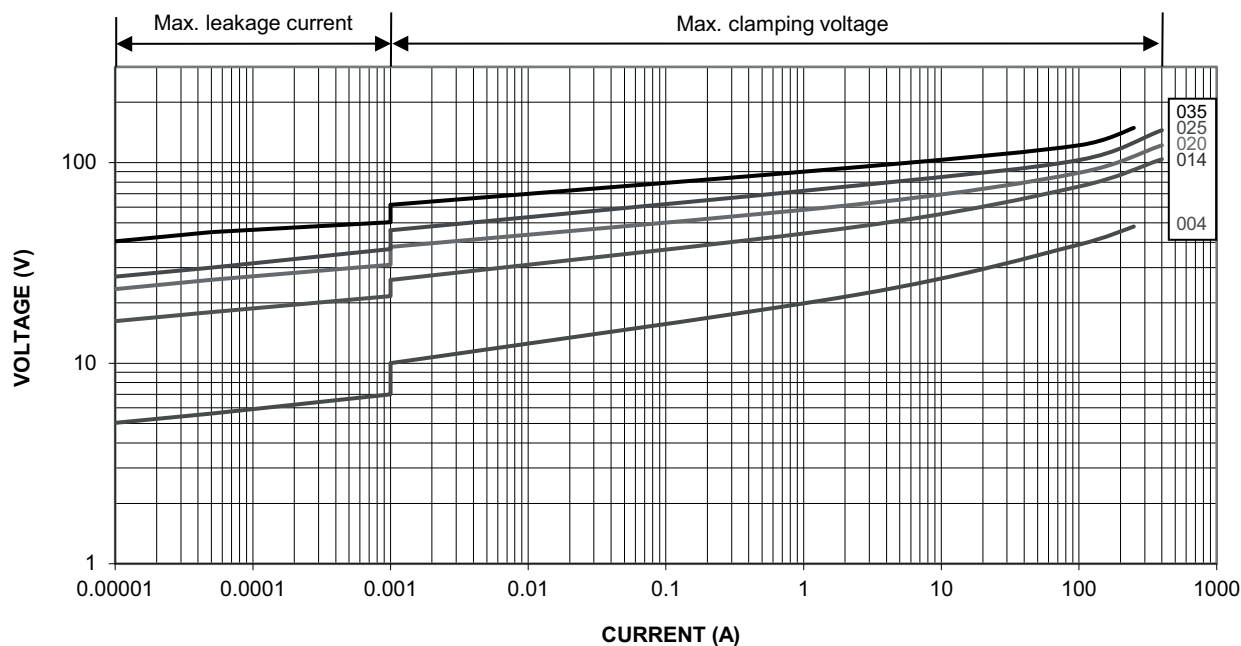
- Sinusoidal voltage assumed as normal operating condition.  
If a non-sinusoidal voltage is present, the crest voltage x 0.707 should be used for type selection.
- Breakdown voltage at a current of 1 mA, measured according to 4.5 of IEC 61051-1.
- Parts are not recommended for automotive applications.

**DIIMENSIONS** in millimeters


| $L_1$         | $W$            | $T$      | $L_2$ and $L_3$ |
|---------------|----------------|----------|-----------------|
| $3.2 \pm 0.2$ | $2.5 \pm 0.25$ | 1.8 max. | 0.71 max.       |

**RECOMMENDED FOOTPRINT** in millimeters


| $A$ | $B$ | $C$ |
|-----|-----|-----|
| 2.7 | 1.2 | 3.9 |

**V/I CHARACTERISTICS**




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