

## SMD 0402 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 0402 (1005M) multilayer chip varistor with NiSn terminations.

### PACKAGING

Available in 8 mm paper tape, component pitch 4 mm on 180 mm reels containing 10 000 pieces.

### QUICK REFERENCE DATA

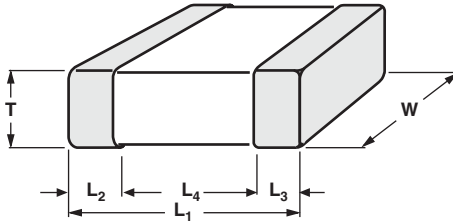
PARAMETER	VALUE	UNIT
Maximum continuous voltage DC	5.6 to 18.0	V
AC	4.0 to 14.0	V
Maximum clamping voltage at 1 A	15.5 to 40	V
Capacitance range (at 1 MHz)	90 to 360	pF
Maximum energy (10/1000 $\mu$ s)	0.05	J
Maximum peak current	20	A
Operating temperature range	-55 to 125	$^{\circ}$ C
Weight	$\pm$ 0.0015	g

### ELECTRICAL DATA AND ORDERING INFORMATION

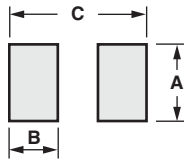
WORKING VOLTAGE		BREAKDOWN VOLTAGE	MAXIMUM CLAMPING VOLTAGE	TYPICAL CAPACITANCE	PART NUMBER
$V_{RMS}$	$V_{DC}$	$V_b$	$V_c$	C	SAP
V	V	V	V	pF	MLV0402E3
	< 10 $\mu$ A	1 mA	1 A, 8/20 $\mu$ s	1 MHz	
4.0	5.6	7.1 to 9.3	15.5	360	0403T
7.0	9.0	11.0 to 14.0	20.0	230	0703T
11.0	14.0	16.0 to 20.0	30.0	120	1103T
14.0	18.0	23.0 to 28.0	40.0	90	1403T

#### Notes

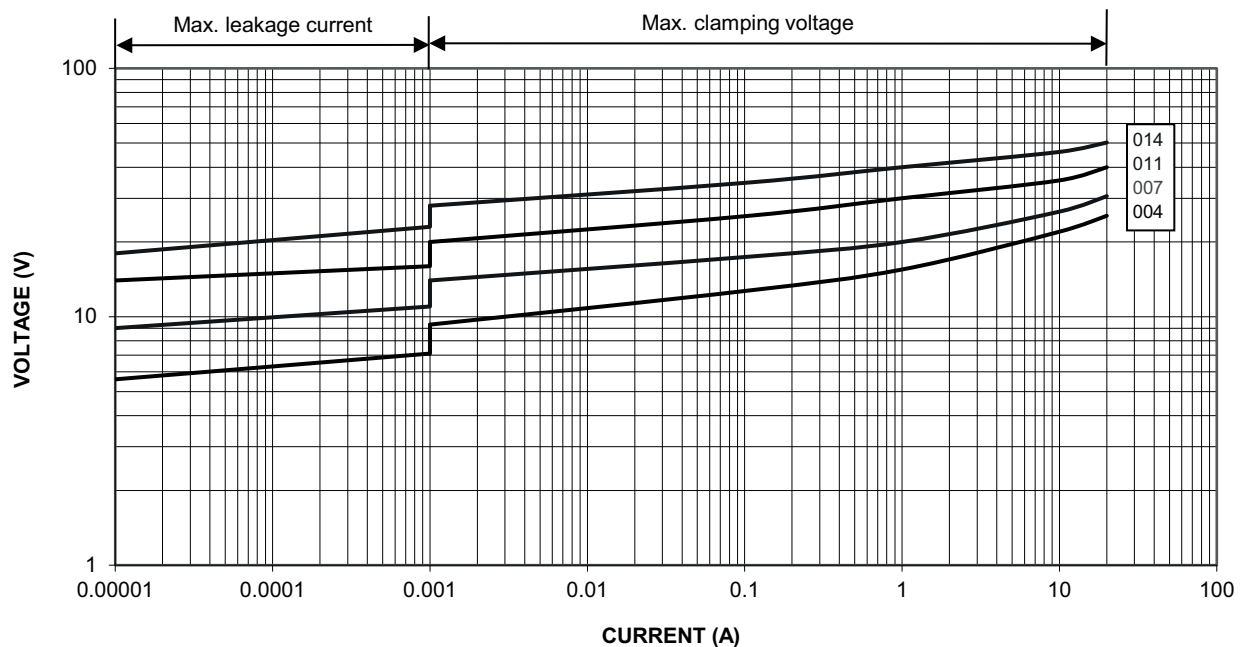
- Sinusoidal voltage assumed as normal operating condition.  
If a non-sinusoidal voltage is present, the crest voltage x 0.707 should be used for type selection.
- Breakdown voltage at a current of 1 mA, measured according to 4.5 of IEC 61051-1.
- Parts are not recommended for automotive applications.

**DIMENSIONS** in millimeters


$L_1$	$W$	$T$	$L_2$ and $L_3$
$1.0 \pm 0.1$	$0.5 \pm 0.1$	0.6 max.	$0.25 \pm 0.15$

**RECOMMENDED FOOTPRINT** in millimeters


$A$	$B$	$C$
0.7	0.7	2.0

**V/I CHARACTERISTICS**




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