

# MLVS Series

## MLVS-0402 Series

This specification is applicable to Chip Metal Oxide Varistor in multilayer technology.

### Features

1. Keeping low and stable leakage current.
2. Excellent assembly solderability.
3. Low clamping Voltage.
4. Quick response time (<1nSec.)
5. High transient current capability
6. Test Standard meets IEC 61000-4-2, 61000-4-4, and 61000-4-5.

### Applications

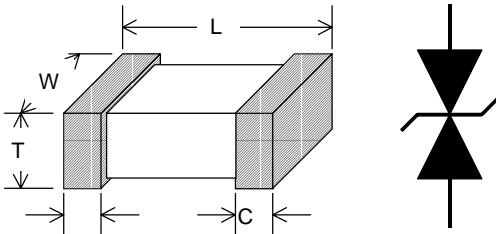
Applications for Mother Board, Notebook , Cellular Phone, PDA , handheld device, DSC, DV, Scanner, and Set-Top Box etc

### Part Number

SeriesType	Elements	Size	Tolerance	Vrms
MLV	S	0402	M	04
MLV	S	0402	M	07
MLV	S	0402	L	08
MLV	S	0402	K	11
MLV	S	0402	K	14

- Series Type / MLV — Multilayer Varistor
- Elements / S — Single
- Size / 0402 — 1.00x0.50x0.50mm
- Tolerance / M/L/K — ±20%/±15%/±10%
- Vrms — Working Voltage Vrms

### Dimensions



Size / EIA	0402
L	1.00±0.15
W	0.50±0.08
T	0.50±0.08
C	0.30±0.15

Unit : mm



### Specifications

#### 1. Rating(25 ± 5 )

	Working voltage		Resistanc e	Peak current	Transient energy
Symbol	V <sub>RMS</sub>	V <sub>DC</sub>	I <sub>r</sub>	i <sub>max</sub>	W <sub>max</sub>
Units	Volts	Volts (Max.)	X10 <sup>6</sup> ohm (Min.)	Amps (Max.)	Joules (Max.)
Test Condition		< 10 μA	5 VDC	8/20μs	10/1000μs
MLVS0402M04	4	5.5	> 10	20	0.05
MLVS0402M07	7	9	> 10	20	0.05
MLVS0402L08	8	11	> 10	20	0.05
MLVS0402K11	11	14	> 10	20	0.05
MLVS0402K14	14	18	> 10	20	0.05

- \*Measured resistance at 3.3V DC
- V<sub>RMS</sub> – Maximum AC operating voltage the varistor can maintain and not exceed 10 μA leakage current
- V<sub>DC</sub> – Maximum DC operating voltage the varistor can maintain and not exceed 10 μA leakage current
- I<sub>r</sub> – Resistance at 5 V DC
- i<sub>max</sub> – Maximum peak current which may be applied with 8/20us waveform without device failure
- W<sub>max</sub> – Maximum energy which may be dissipated with the 10/1000us waveform without device failure

#### 2.Characteristics(25 ± 5 )

	Varistor voltage		Clamping Voltage	Capacitance
Symbol	V <sub>V</sub>	ΔV <sub>V</sub>	V <sub>C</sub>	C <sub>p</sub>
Units	Volts	%	Volts (Max.)	pF (typ.)
Test Condition	1mA DC		1A 8/20μs	1KHz
MLVS0402M04	8	±20	19	300
MLVS0402M07	12.5	±20	32	155
MLVS0402L08	15	±15	33	135
MLVS0402K11	18	±10	38	100
MLVS0402K14	22	±10	45	95

- V<sub>V</sub> – Voltage across the device measured at 1mA DC current
- V<sub>C</sub> – Maximum peak current across the varistor with 8/20us waveform and 1A pulse current
- C<sub>p</sub> – Device capacitance measured with zero volt bias 1Vrms

### Electrical Characteristics

#### 1.General technical Characteristics

Operating temperature	-55 ... +125 (85 )
Storage temperature	-55 ... +125 (85 )
esponse time	<1 ns
Solderability	235 , 2s
Solder leach resistance	260 , 10s

#### 2. Environmental Characteristics

Characteristics	Specifications	Test condition
Bias humidity	ΔV <sub>V</sub> /V <sub>V</sub> ±10%	90%RH, 40 , Working voltage, 1000 hours
Thermal shock	ΔV <sub>V</sub> /V <sub>V</sub> ±10%	-40 to 85 , 30 min. cycle, 5 cycles
Vibration	ΔV <sub>V</sub> /V <sub>V</sub> ±10%	10 to 50 to 10 Hz, 1 min. cycle, 2 hours each in X-Y-Z
Full load voltage	ΔV <sub>V</sub> /V <sub>V</sub> ±10%	Working voltage, 25 , 1000 hours
Solder leach resistance	ΔV <sub>V</sub> /V <sub>V</sub> ±10%	260 , 10s