

# SMD Multilayer Chip Varistor

AMCV-0402LC



RoHS  
Compliant

1.0 x 0.5 x 0.5 mm

## ► FEATURES:

- SMD type, small size suitable for high density mounting
- Excellent clamping ratio and strong capability of voltage surge suppression
- Excellent solderability (Ni, Sn plating)

## ► APPLICATIONS:

- Transient voltage protection and voltage surge suppression for LED lighting
- Suitable for LCD-TV, STB, Switch, Router, PLC, Security System, smart meters, mobile phones
- Suppressing Induced / switching over-voltage caused by lightning and power
- Protecting DC-DC Module, I/O ports, IC driver

## ► STANDARD SPECIFICATIONS:

**Operating Temperature:** -55°C ~ +125°C

**Storage Temperature:** -10°C ~ +40°C and RH 70% (Max.)

Part Number	Max. Working Voltage		Varistor Voltage	Max. Clamping Voltage		Rated Single Pulse Transient		Typical Capacitance
Test Condition	<20µA		@1mA DC	8/20µs	ESD	Energy 10/1000µs	Peak Current 8/20µs	@0.5V <sub>rms</sub> , 1MHz
	DC	AC RMS						
Units	Volts	Volts	Volts	Volts	Volts	Joules	Amps	pF
Symbol	V <sub>WDC</sub>	V <sub>WAC</sub>	V <sub>B</sub>	V <sub>C</sub> <sup>*1</sup>	V <sub>C</sub> <sup>*2</sup>	E <sub>T</sub>	I <sub>P</sub>	C
AMCV-0402LC-140-C100	14.0	10.0	16.0-22.0	30	39	0.005	2	10
AMCV-0402LC-140-C120	14.0	10.0	16.0-22.0	30	39	0.005	2	12
AMCV-0402LC-180-C050	18.0	12.7	22.0-28.0	40	48	0.005	2	5
AMCV-0402LC-180-C100	18.0	12.7	22.0-28.0	40	48	0.005	2	10
AMCV-0402LC-260-C030	26.0	18.4	31.0-38.0	58	70	0.003	1	3
AMCV-0402LC-260-C100	26.0	18.4	31.0-38.0	58	70	0.005	2	10

\*1: V<sub>C</sub>, Maximum peak voltage across the varistor measured at a specified pulse current and waveform.

Energy Rating Pulse & Waveform

0.00-0.05 Joule 1A, 8/20µs

0.10 Joule 2A, 8/20µs

0.20-0.50 Joule 5A, 8/20µs

\*2: V<sub>C</sub>, Maximum peak voltage across the varistor measured at 30ns after initiation of pulse on IEC61000-4-2 30A/8KV.

## Test Conditions

Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

a. Ambient Temperature: 20±15°C

b. Relative Humidity: 65±20%

c. Air Pressure: 86 kPa to 106 kPa

Items	Test Methods and Remarks
Varistor Voltage at 1mA DC (V <sub>B</sub> )	Measuring current: 1mA DC Duration: 0.2 to 2 sec
Capacitance (C)	Measure source: 0.5 V <sub>rms</sub> Test frequency: 1MHz.
Leakage Current (I <sub>L</sub> )	Measuring voltage: Maximum DC working voltage
Clamping Voltage (V <sub>C</sub> )	Measuring source: 8/20us waveform, ESD waveform

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## ➤ OPTIONS AND PART IDENTIFICATION:

AMCV-0402LC--C-

### Voltage Code

Please refer to the table above

### Capacitance Code

Please refer to the table above

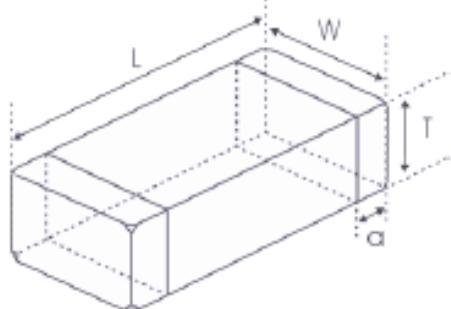
### Tolerance

$N = \pm 30\%$
$Y = +100\%, -50\%$
$G = +0\%, -60\%$

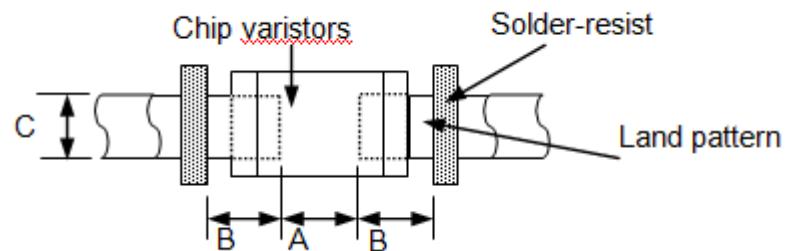
### Packaging

T: Tape and Reel  
(10kpcs / reel)

## ➤ OUTLINE DIMENSION:



### Recommended Land Pattern

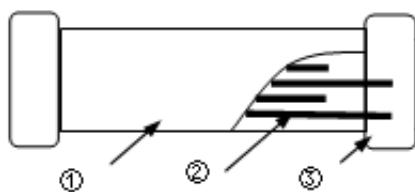


L	W	T	a
$1.0 \pm 0.15$ [0.039 ± 0.006]	$0.5 \pm 0.15$ [0.020 ± 0.006]	$0.5 \pm 0.15$ [0.020 ± 0.006]	$0.25 \pm 0.1$ [0.010 ± 0.004]

A	B	C
$0.45 \sim 0.55$	$0.40 \sim 0.50$	$0.45 \sim 0.55$

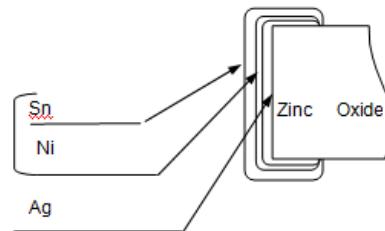
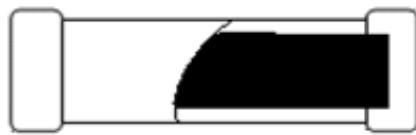
## Materials

Side View



	Part Name	Material
1	Base Material	ZnO
2	Internal Conductor	Ag-Pd
3	Terminal Electrode	Ag (Inner layer) Ni-Sn (Outer layer)

Top View



# SMD Multilayer Chip Varistor

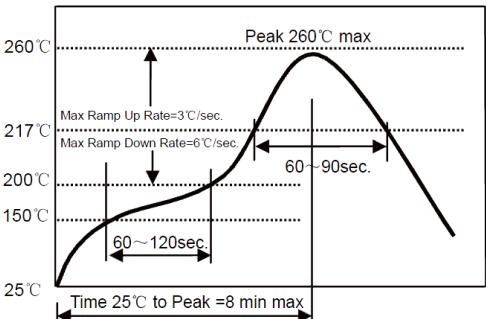
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## REFLOW PROFILE:

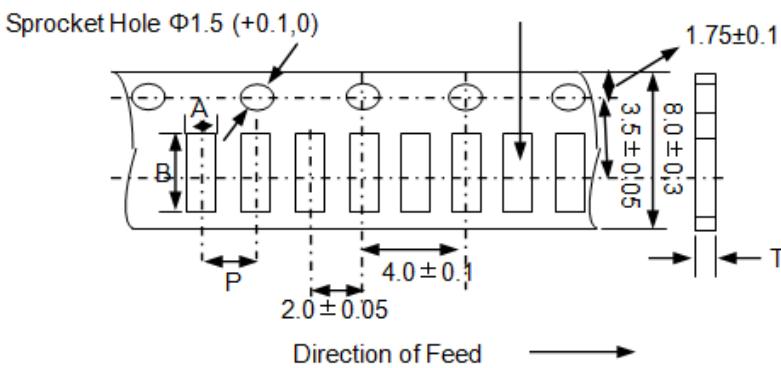


Preheat Condition	150 to 200 °C; 60 to 120 sec.
Allowed time above 217 °C	60 to 90 sec.
Max temperature	260 °C
Max time at max temperature	10 sec.
Solder paste	Sn/3.0Ag/0.5Cu
Allowed Reflow time	2x max.

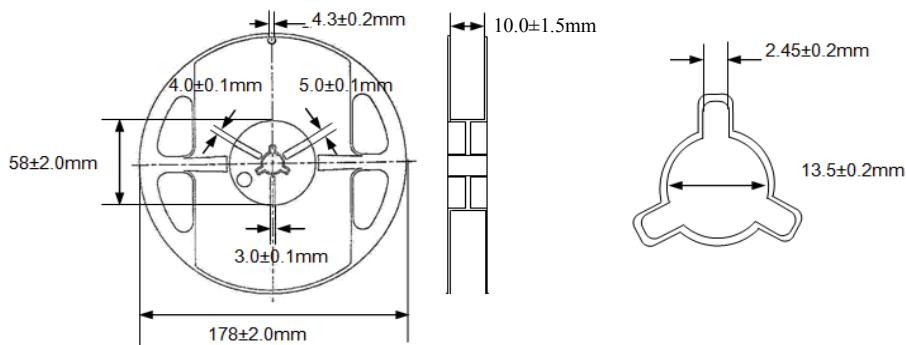
## TAPE & REEL:

T: 10,000pcs / reel

Chip Cavity



A	B	P	T (max)
0.65±0.1	1.15±0.1	2.0±0.05	0.8



### Storage Conditions

- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to high humidity. Package must be stored at 40°C or less and 70% RH or less.
- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust or harmful gas (e.g. HCl, sulfurous gas or H<sub>2</sub>S).
- Packaging material may be deformed if package are stored where they are exposed to heat of direct sunlight.
- Solderability shall be guaranteed for 6 months from the date of delivery on condition that they are stored at the environment specified in 1.3. The parts that are stored more than 6 months shall be checked solderability before use.

Dimension: mm

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