

SMD Multilayer Chip Varistor

AMCV-0402

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 _{rms} , 1MHz
	DC	AC RMS						
Units	Volts	Volts	Volts	Volts	Volts	Joules	Amps	pF
Symbol	V _{WDC}	V _{WAC}	V _B	V _C ^{*1}	V _C ^{*2}	E _T	I _P	C
ACMV-0402-5R5-C180	5.5	4.0	10.0-14.0	18	23	0.005	3	18
ACMV-0402-5R5-C300	5.5	4.0	10.0-14.0	18	23	0.005	5	30
ACMV-0402-5R5-C500	5.5	4.0	10.0-14.0	18	23	0.01	10	50
ACMV-0402-5R5-C800	5.5	4.0	10.0-14.0	18	23	0.02	10	80
ACMV-0402-5R5-C101	5.5	4.0	10.0-14.0	18	23	0.05	20	100
ACMV-0402-090-C180	9.0	6.4	11.0-16.0	20	26	0.005	3	18
ACMV-0402-090-C300	9.0	6.4	11.0-16.0	20	26	0.005	5	30
ACMV-0402-090-C500	9.0	6.4	11.0-16.0	20	26	0.01	10	50
ACMV-0402-090-C800	9.0	6.4	11.0-16.0	20	26	0.02	15	80
ACMV-0402-090-C101	9.0	6.4	11.0-16.0	20	26	0.05	20	100
ACMV-0402-140-C180	14.0	10.0	16.0-22.0	30	39	0.005	3	18
ACMV-0402-140-C300	14.0	10.0	16.0-22.0	30	39	0.01	5	30
ACMV-0402-140-C500	14.0	10.0	16.0-22.0	30	39	0.02	10	50
ACMV-0402-140-C800	14.0	10.0	16.0-22.0	30	39	0.03	15	80
ACMV-0402-140-C101	14.0	10.0	16.0-22.0	30	39	0.05	20	100
ACMV-0402-180-C150	18.0	12.7	22.0-28.0	40	48	0.005	2	15
ACMV-0402-180-C180	18.0	12.7	22.0-28.0	40	48	0.01	5	18
ACMV-0402-180-C300	18.0	12.7	22.0-28.0	40	48	0.02	10	30
ACMV-0402-180-C500	18.0	12.7	22.0-28.0	40	48	0.02	10	50
ACMV-0402-180-C800	18.0	12.7	22.0-28.0	40	48	0.03	15	80
ACMV-0402-180-C101	18.0	12.7	22.0-28.0	40	48	0.05	20	100
ACMV-0402-260-C180	26.0	18.4	31.0-38.0	58	70	0.02	5	18
ACMV-0402-260-C300	26.0	18.4	31.0-38.0	58	70	0.03	10	30
ACMV-0402-260-C500	26.0	18.4	31.0-38.0	58	70	0.03	10	50

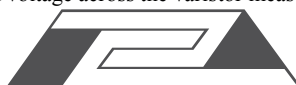
*1: V_C, Maximum peak voltage across the varistor measured at a specified pulse current and waveform.

Energy Rating
0.00-0.05 Joule
0.10 Joule
0.20-0.50 Joule

Pulse & Waveform
1A, 8/20μs
2A, 8/20μs
5A, 8/20μs

*2: V_C, Maximum peak voltage across the varistor measured at 30ns after initiation of pulse on IEC61000-4-2 30A/8KV.

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1.0 x 0.5 x 0.5 mm

Test Conditions

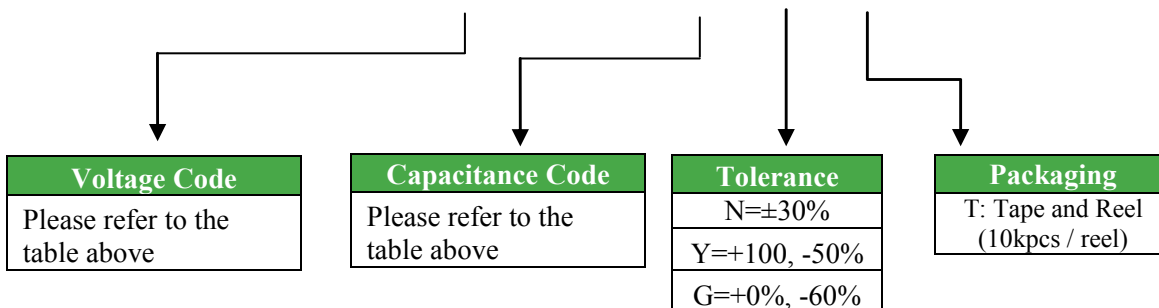
Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

- a. Ambient Temperature: $20 \pm 15^{\circ}\text{C}$
- b. Relative Humidity: $65 \pm 20\%$
- c. Air Pressure: 86 kPa to 106 kPa

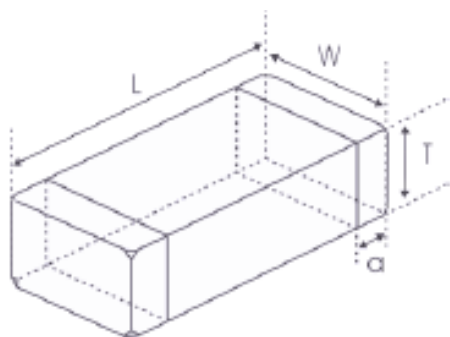
Items	Test Methods and Remarks
Varistor Voltage at 1mA DC (V_B)	Measuring current: 1mA DC Duration: 0.2 to 2 sec
Capacitance (C)	Measure source: $0.5 V_{RMS}$ Test frequency: 1MHz.
Leakage Current (I_L)	Measuring voltage: Maximum DC working voltage
Clamping Voltage (V_C)	Measuring source: 8/20us waveform, ESD waveform

OPTIONS AND PART IDENTIFICATION:

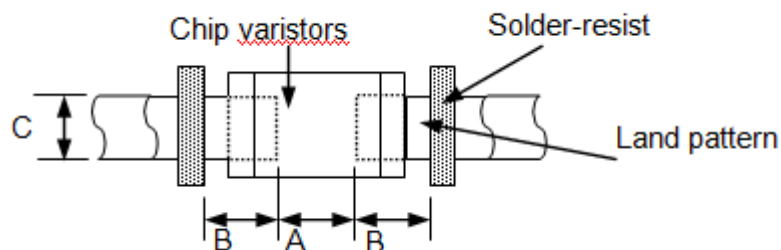
AMCV-0402- - C -



OUTLINE DIMENSION:



Recommended Land Pattern



L	W	T	a
1.0 $\pm$ 0.15	0.5 $\pm$ 0.15	0.5 $\pm$ 0.15	0.25 $\pm$ 0.1

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

Dimension: mm

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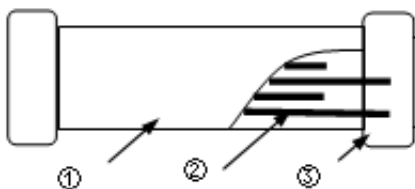
RoHS
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1.0 x 0.5 x 0.5 mm

Materials

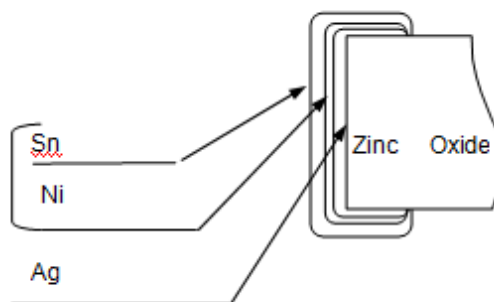
Side View



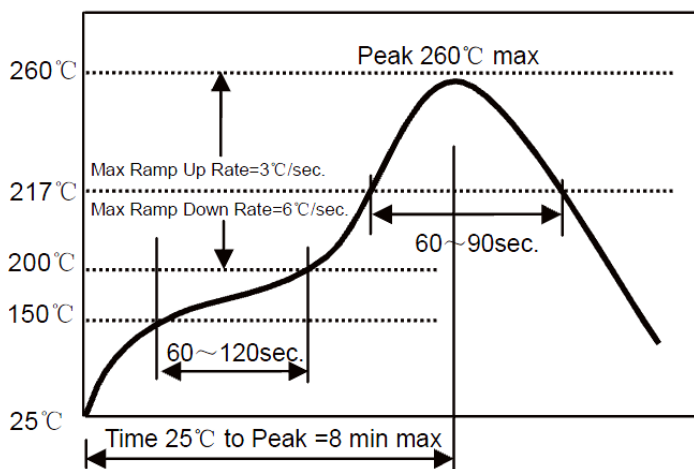
Top View



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



REFLOW PROFILE:

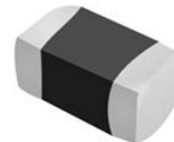


Preheat Condition	150 to 200 °C; 60 to 120 sec.
Allowed time above 217 °C	60 to 90 sec.
Max temperature	260 °C
Max time at max temperature	10 sec.
Solder paste	Sn/3.0Ag/0.5Cu
Allowed Reflow time	2x max.

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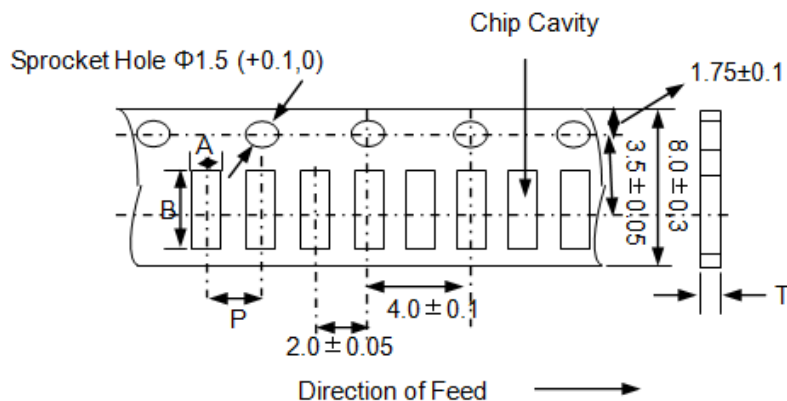


1.0 x 0.5 x 0.5 mm

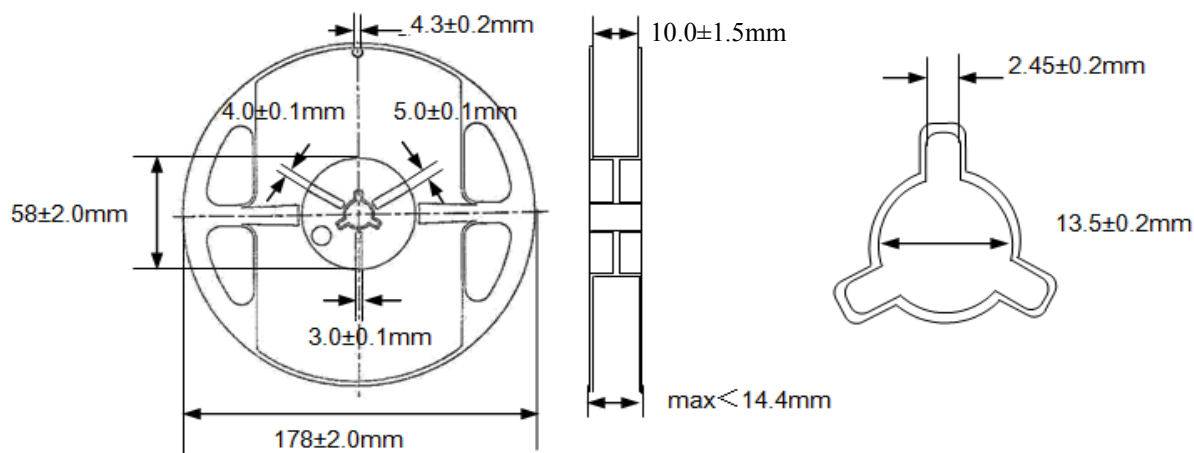
TAPE & REEL:

Packing

T: 10,000pcs / reel



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 of H_2S).
- 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 **a**. The parts that are stored more than 6 months shall be checked solderability before use.

Dimension: mm

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Адрес: 198099, Санкт-Петербург,
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