

# SMD Multilayer Chip Varistor

AMCV-0201

RoHS  
Compliant



0.6 x 0.3 x 0.3mm

## 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
	DC	AC RMS		8/20μs	ESD	Energy 10/1000μs	Peak Current 8/20μs	
Test Condition	<20μA		@1mA DC	8/20μs	ESD	Energy 10/1000μs	Peak Current 8/20μs	@0.5V <sub>rms</sub> , 1MHz
Units	Volts	Volts						
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-0201-5R5-C150	5.5	4.0	10.0-14.0	18	23	0.005	1	15
AMCV-0201-5R5-C220	5.5	4.0	10.0-14.0	18	23	0.005	1	22
AMCV-0201-5R5-C330	5.5	4.0	10.0-14.0	18	23	0.01	3	33
AMCV-0201-5R5-C400	5.5	4.0	10.0-14.0	18	23	0.01	5	40
AMCV-0201-5R5-C500	5.5	4.0	10.0-14.0	18	23	0.01	5	50
AMCV-0201-090-C150	9.0	6.4	11.0-16.0	20	26	0.005	1	15
AMCV-0201-090-C220	9.0	6.4	11.0-16.0	20	26	0.005	1	22
AMCV-0201-090-C330	9.0	6.4	11.0-16.0	20	26	0.01	3	33
AMCV-0201-090-C400	9.0	6.4	11.0-16.0	20	26	0.01	5	40
AMCV-0201-090-C500	9.0	6.4	11.0-16.0	20	26	0.01	5	50
AMCV-0201-140-C150	14.0	10.0	16.0-22.0	30	39	0.005	1	15

\*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

\*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:

- Ambient Temperature: 20±15°C
- Relative Humidity: 65±20%
- Air Pressure: 86 kPa to 106 kPa



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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-0201- - C   -

### Voltage Code

Please refer to the table above

### Capacitance Code

Please refer to the table above

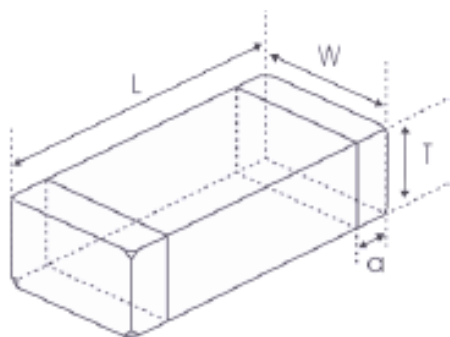
### Tolerance

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

### Packaging

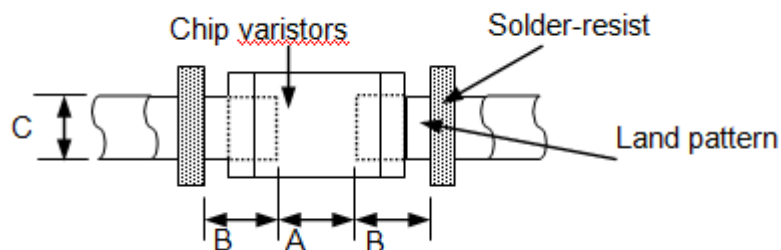
T: Tape and Reel  
(15kpcs / reel)

## OUTLINE DIMENSION:



L	W	T
0.6 $\pm$ 0.05	0.3 $\pm$ 0.05	0.3 $\pm$ 0.05

## Recommended Land Pattern



A	B	C
0.20~0.30	0.20~0.30	0.30~0.35

**Dimension: mm**

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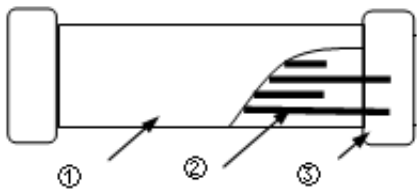
0.6 x 0.3 x 0.3mm

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## Materials

Side View



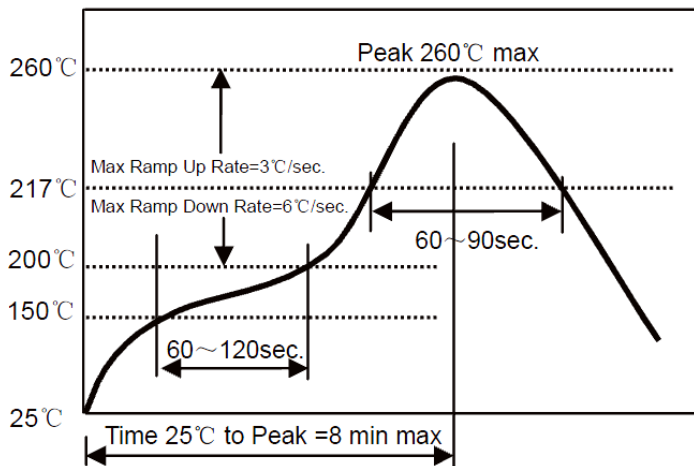
Top View



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



## REFLOW PROFILE:

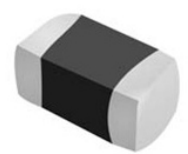


Preheat Condition	150 to 200 °C; 60 to 120 sec.
Allowed time above 217 °C	60 to 90 sec.
Max temperature	260 °C
Max time at max temperature	10 sec.
Solder paste	Sn/3.0Ag/0.5Cu
Allowed Reflow time	2x max.

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## TAPE & REEL:

T: 15,000pcs / reel



A	B	P	T (max)
0.40±0.1	0.70±0.1	2.0±0.05	0.55



### 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<sub>2</sub>S).
- Packaging material may be deformed if packages are stored where they are exposed to heat or 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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