SMD Multilayer Chip Varistor

AMCV-0402LC

STANDARD SPECIFICATIONS:

Operating Temperature: -55°C ~ +125°C
Storage Temperature: -10°C ~ +40°C and RH 70% (Max.)

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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Max. Working Voltage</th>
<th>Varistor Voltage</th>
<th>Max. Clamping Voltage</th>
<th>Rated Single Pulse Transient</th>
<th>Typical Capacitance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;20μA DC V&lt;sub&gt;D&lt;/sub&gt;</td>
<td>@1mA DC V&lt;sub&gt;IN&lt;/sub&gt;</td>
<td>8/20μs V&lt;sub&gt;C1&lt;/sub&gt;</td>
<td>Energy 10/1000μs J&lt;sub&gt;E&lt;/sub&gt;</td>
<td>@0.5 V&lt;sub&gt;rms&lt;/sub&gt;</td>
</tr>
<tr>
<td>Units Symbol</td>
<td>Volts</td>
<td>Volts</td>
<td>Volts</td>
<td>Joules</td>
<td>1MHz</td>
</tr>
<tr>
<td>ACMV-0402LC-140-C100</td>
<td>14.0</td>
<td>10.0</td>
<td>16.0-22.0</td>
<td>30</td>
<td>0.005</td>
</tr>
<tr>
<td>ACMV-0402LC-140-C120</td>
<td>14.0</td>
<td>10.0</td>
<td>16.0-22.0</td>
<td>30</td>
<td>0.005</td>
</tr>
<tr>
<td>ACMV-0402LC-180-C050</td>
<td>18.0</td>
<td>12.7</td>
<td>22.0-28.0</td>
<td>40</td>
<td>0.005</td>
</tr>
<tr>
<td>ACMV-0402LC-180-C100</td>
<td>18.0</td>
<td>12.7</td>
<td>22.0-28.0</td>
<td>40</td>
<td>0.005</td>
</tr>
<tr>
<td>ACMV-0402LC-260-C030</td>
<td>26.0</td>
<td>18.4</td>
<td>31.0-38.0</td>
<td>58</td>
<td>0.003</td>
</tr>
<tr>
<td>ACMV-0402LC-260-C100</td>
<td>26.0</td>
<td>18.4</td>
<td>31.0-38.0</td>
<td>58</td>
<td>0.005</td>
</tr>
</tbody>
</table>

*1: Vc, Maximum peak voltage across the varistor measured at a specified pulse current and waveform.
*2: Vc, Maximum peak voltage across the varistor measured at 30 ns 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

<table>
<thead>
<tr>
<th>Items</th>
<th>Test Methods and Remarks</th>
</tr>
</thead>
</table>
| Varistor Voltage at 1mA DC (V<sub>IN</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 |
SMD Multilayer Chip Varistor

AMCV-0402LC

1.0 x 0.5 x 0.5 mm
RoHS Compliant

OPTIONS AND PART IDENTIFICATION:

AMCV-0402LC-□□□□□□□

Voltage Code
Please refer to the table above

Capacitance Code
Please refer to the table above

Tolerance
N=±30%
Y=+100%, -50%
G=+0%, -60%

Packaging
T: Tape and Reel
(10kpcs / reel)

OUTLINE DIMENSION:

Recommended Land Pattern

Materials

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

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

**TAPE & REEL:**

T: 10,000pcs / reel

Storage Conditions

a. 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.

b. The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust of harmful gas (e.g. HCl, sulfurous gas of H₂S).

c. Packaging material may be deformed if package are stored where they are exposed to heat of direct sunlight.

d. 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.

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**Dimension:** mm