Common Mode Filters
For high-speed differential signal line, general signal line

ACM series

ACM2012 [0805 inch]*
ACM2520 [1008 inch]

* Dimensions Code JIS[EIA]
REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

<table>
<thead>
<tr>
<th>REMINDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ The storage period is less than 6 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less). If the storage period elapses, the soldering of the terminal electrodes may deteriorate.</td>
</tr>
<tr>
<td>☐ Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).</td>
</tr>
<tr>
<td>☐ Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.</td>
</tr>
<tr>
<td>☐ Soldering corrections after mounting should be within the range of the conditions determined in the specifications. If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.</td>
</tr>
<tr>
<td>☐ When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.</td>
</tr>
<tr>
<td>☐ Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.</td>
</tr>
<tr>
<td>☐ Carefully lay out the coil for the circuit board design of the non-magnetic shield type. A malfunction may occur due to magnetic interference.</td>
</tr>
<tr>
<td>☐ Use a wrist band to discharge static electricity in your body through the grounding wire.</td>
</tr>
<tr>
<td>☐ Do not expose the products to magnets or magnetic fields.</td>
</tr>
<tr>
<td>☐ Do not use for a purpose outside of the contents regulated in the delivery specifications.</td>
</tr>
<tr>
<td>☐ The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition. The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property. If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.</td>
</tr>
<tr>
<td>1. Aerospace/Aviation equipment</td>
</tr>
<tr>
<td>2. Transportation equipment (cars, electric trains, ships, etc.)</td>
</tr>
<tr>
<td>3. Medical equipment</td>
</tr>
<tr>
<td>4. Power-generation control equipment</td>
</tr>
<tr>
<td>5. Atomic energy-related equipment</td>
</tr>
<tr>
<td>6. Seabed equipment</td>
</tr>
<tr>
<td>7. Transportation control equipment</td>
</tr>
</tbody>
</table>

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.
Common Mode Filters
For high-speed differential signal line, general signal line

Overview of the ACM Series

FEATURES
- Downsized wound type chip common mode filter that maintains required common mode filter characteristics. Impedance for common mode noise can clear 1000Ω [100MHz], and has excellent EMC suppression.
- Differential mode impedance is suppressed, so there is virtually no affect on high speed signals.
- There is a two-line type and a three-line type, so they can be used for various circuits and noise.

APPLICATION
- Common mode noise countermeasure for high-speed differential signals where influence to the signal is a concern.
- USB line for PCs and peripheral devices.
- IEEE1394 lines and ETHERNET lines for PCs, STBs, etc.
- LCD panel LVDS and Panel Link lines.

PART NUMBER CONSTRUCTION

<table>
<thead>
<tr>
<th>ACM</th>
<th>2012</th>
<th>900</th>
<th>2P</th>
<th>T</th>
<th>002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series name</td>
<td>LxWxH Dimensions (mm)</td>
<td>Impedance (Ω) at 100MHz</td>
<td>Number of lines</td>
<td>Packaging style</td>
<td>Internal code</td>
</tr>
<tr>
<td>2012</td>
<td>2.0×1.2×1.3</td>
<td>900</td>
<td>2 lines</td>
<td>T</td>
<td>ø180mm reel</td>
</tr>
<tr>
<td>2520</td>
<td>2.5×2.0×1.2</td>
<td>201</td>
<td>3 lines</td>
<td>TL</td>
<td>ø330mm reel</td>
</tr>
</tbody>
</table>

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

<table>
<thead>
<tr>
<th>Type</th>
<th>Operating temperature</th>
<th>Storage temperature</th>
<th>Reel diameter</th>
<th>Package quantity</th>
<th>Individual weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM2012</td>
<td>–40 to +85</td>
<td>–40 to +85</td>
<td>ø180</td>
<td>2,000</td>
<td>10</td>
</tr>
<tr>
<td>ACM2520</td>
<td>–40 to +85</td>
<td>–40 to +85</td>
<td>ø180</td>
<td>2,000</td>
<td>25</td>
</tr>
</tbody>
</table>

*The Storage temperature range is for after the circuit board is mounted.


• All specifications are subject to change without notice.
Overview of the ACM Series

RECOMMENDED REFLOW PROFILE

<table>
<thead>
<tr>
<th>Preheating</th>
<th>Soldering</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp.</td>
<td>Time</td>
<td>Temp.</td>
</tr>
<tr>
<td>T1</td>
<td>t1</td>
<td>T3</td>
</tr>
<tr>
<td>150°C</td>
<td>60 to 120s</td>
<td>230°C</td>
</tr>
</tbody>
</table>

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ACM series

ACM2012 Type

**SHAPE & DIMENSIONS**

Dimensions in mm

**RECOMMENDED LAND PATTERN**

Dimensions in mm

**CIRCUIT DIAGRAM**

• No polarity

• All specifications are subject to change without notice.
ACM series  ACM2012 Type

**ELECTRICAL CHARACTERISTICS**

**CHARACTERISTICS SPECIFICATION TABLE**

<table>
<thead>
<tr>
<th>Impedance (Ω) [100MHz]</th>
<th>DC resistance (Ω) max.[per line]</th>
<th>Rated voltage (V) max.</th>
<th>Rated current (A) max.</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>min. typ.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 90</td>
<td>0.19</td>
<td>50</td>
<td>0.4</td>
<td>ACM2012-900-2P-T002</td>
</tr>
<tr>
<td>90 120</td>
<td>0.22</td>
<td>50</td>
<td>0.37</td>
<td>ACM2012-121-2P-T002</td>
</tr>
<tr>
<td>150 200</td>
<td>0.25</td>
<td>50</td>
<td>0.35</td>
<td>ACM2012-201-2P-T002</td>
</tr>
<tr>
<td>270 360</td>
<td>0.5</td>
<td>50</td>
<td>0.22</td>
<td>ACM2012-361-2P-T002</td>
</tr>
</tbody>
</table>

Measurement equipment

<table>
<thead>
<tr>
<th>Measurement item</th>
<th>Product No.</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common mode impedance</td>
<td>4991A</td>
<td>Agilent Technologies</td>
</tr>
<tr>
<td>DC resistance</td>
<td>4338A</td>
<td>Agilent Technologies</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>4339A</td>
<td>Agilent Technologies</td>
</tr>
</tbody>
</table>

* Equivalent measurement equipment may be used.

**IMPEDANCE VS. FREQUENCY CHARACTERISTICS**

![Impedance vs. Frequency Characteristics Graph]

Measurement equipment

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<thead>
<tr>
<th>Product No.</th>
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</thead>
<tbody>
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<td>4991A</td>
<td>Agilent Technologies</td>
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</tbody>
</table>

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ACM series

ACM2520-2P Type

**SHAPE & DIMENSIONS**

Dimensions in mm

**RECOMMENDED LAND PATTERN**

Dimensions in mm

**CIRCUIT DIAGRAM**

- No polarity

*All specifications are subject to change without notice.*
EMC Components

ACM series ACM2520-2P Type

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLE

<table>
<thead>
<tr>
<th>Impedance (Ω) [100MHz] min. typ.</th>
<th>DC resistance (Ω)max.[per line]</th>
<th>Rated voltage (V)max.</th>
<th>Rated current (A)max.</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>225 300 0.35 20 0.4</td>
<td>ACM2520-301-2P-T002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>330 450 0.4 20 0.35</td>
<td>ACM2520-451-2P-T002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450 600 0.45 20 0.3</td>
<td>ACM2520-601-2P-T002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>750 1000 0.9 20 0.2</td>
<td>ACM2520-102-2P-T002</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Measurement item
- Common mode impedance
- DC resistance
- Insulation resistance

Product No. Manufacturer
- 4991A Agilent Technologies
- 4338A Agilent Technologies
- 4339A Agilent Technologies

* Equivalent measurement equipment may be used.

IMPEDANCE VS. FREQUENCY CHARACTERISTICS

Product No. Manufacturer
- 4991A Agilent Technologies

* Equivalent measurement equipment may be used.

* All specifications are subject to change without notice.
EMC Components

ACM series

ACM2520-3P Type

■ SHAPE & DIMENSIONS

Dimensions in mm

■ RECOMMENDED LAND PATTERN

Dimensions in mm

■ CIRCUIT DIAGRAM

• No polarity

• All specifications are subject to change without notice.
ACM series  ACM2520-3P Type

# ELECTRICAL CHARACTERISTICS

## CHARACTERISTICS SPECIFICATION TABLE

<table>
<thead>
<tr>
<th>Impedance ($\Omega$) [100MHz]</th>
<th>DC resistance ($\Omega$)max.[per line]</th>
<th>Rated voltage (V)max.</th>
<th>Rated current (A)max.</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>min.</td>
<td>typ.</td>
<td></td>
<td></td>
<td>ACM2520-801-3P-T002</td>
</tr>
<tr>
<td>600</td>
<td>800</td>
<td>1.6</td>
<td>20</td>
<td>0.15</td>
</tr>
</tbody>
</table>

- Measurement equipment
  - Measurement item
  - Product No.
  - Manufacturer
  - Common mode impedance 4991A Agilent Technologies
  - DC resistance 4338A Agilent Technologies
  - Insulation resistance 4339A Agilent Technologies

- Equivalent measurement equipment may be used.

## IMPEDANCE VS. FREQUENCY CHARACTERISTICS

- Measurement equipment
  - Product No.
  - Manufacturer
  - 4991A Agilent Technologies

- Equivalent measurement equipment may be used.

* All specifications are subject to change without notice.
ACM series

Packaging style

**REEL DIMENSIONS**

Dimensions in mm

**TAPE DIMENSIONS**

Dimensions in mm

* All specifications are subject to change without notice.