PRODUCT SPECIFICATION

32 AND 48 CKT CMC CONNECTORS, 64319 & 64320 SERIES

PRODUCT SPECIFICATION

CMC 32 AND 48 WAY
MAT SEAL VERSION

PS-64319-001
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TITLE:

1 of 8

SHEET No.
1.0 SCOPE

This Product Specification covers the hybrid & sealed 32 and 48 way CMC Connectors Series.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

- 64319: CMC Connector 32 circuits.
- 64320: CMC Connector 48 circuits.
- 64322: CP 0.6 Female Terminal.
- 64323: CP 1.5 Female Terminal.
- 64325: Blind Plug.

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

All dimensions, housing materials, terminal materials and plating can be found on sales drawings.

2.3 SAFETY AGENCY APPROVALS

All molded components are flammability rated UL94 HB.

2.4 MAIN TECHNICAL CHARACTERISTICS

- Operating Voltage: 14 Volts DC.
- Dielectric Withstanding Voltage: 1000 Volts AC for 1 minute.
- Insulation Resistance: 100 MΩ minimum.
- Vibration: 10g (tin).
- Sealing: IP6K7, IP6K8, IP6K9K.
- Operating temperature: -40°C to + 125°C.
- Available wire sizes:
  - CP 0.6mm²: 0.35mm² to 0.75mm² and 18 TXL AWG and 20 TXL AWG
  - CP 1.5mm²: 0.50mm² to 2.00mm² and 14 TXL AWG and 16 TXL AWG
- Available plating options: tin and gold
2.5 VALIDATION DONE ACCORDING THE FOLLOWING STANDARDS

ISO 8092-2 standard, and some items from:
PSA B217050
AK LV 214 Standard
JD 53.3

Please contact Molex for more information.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Document Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application specification</td>
<td>AS-64319-001</td>
</tr>
<tr>
<td>Sales drawing CMC 32 way</td>
<td>SD-64319-001</td>
</tr>
<tr>
<td>Sales drawing CMC 48 way</td>
<td>SD-64320-001</td>
</tr>
<tr>
<td>Sales drawing CP 0.6 female terminal</td>
<td>SD-64322-001</td>
</tr>
<tr>
<td>Sales drawing CP 1.5 female terminal</td>
<td>SD-64323-001</td>
</tr>
<tr>
<td>Interface drawing CMC 32 and 48 way</td>
<td>SD-98644-006</td>
</tr>
<tr>
<td>Application Specification CP0.6 female terminal</td>
<td>AS-64322-001</td>
</tr>
<tr>
<td>Application Specification CP1.5 female terminal</td>
<td>AS-64323-001</td>
</tr>
</tbody>
</table>
4.0 RATINGS

4.1 VOLTAGE

Operating Voltage: 14 Volts DC
Dielectric Withstanding Voltage: 1000 Volts AC during 1 minute

4.2 CURRENT AND APPLICABLE WIRES

Applicable wires:

<table>
<thead>
<tr>
<th>Terminal size</th>
<th>ISO</th>
<th>Outside Insulation Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.63</td>
<td>0.75 mm²</td>
<td>1.90 mm Max.</td>
</tr>
<tr>
<td>1.5</td>
<td>2.0 mm²</td>
<td>2.80 mm Max.</td>
</tr>
</tbody>
</table>

Max applicable continuous current (in housing, with 40°C temperature rising):

| CP0.6 on 0.75mm² | 2.5A |
| CP1.5 on 2mm²    | 12A  |

Check mating header temperature class and environmental conditions for potential limitations.

Terminals derating curves (on air, for information only):

The derating curves are presented as a guideline. The end user must evaluate the performance of the connector pair in actual application to determine the suitability and actual performance.

For any further information, please contact Molex.
4.3 TEMPERATURE

Maximum system in use temperature range: - 40°C to +125°C.
Split operating temperature between female and header
Check mating header temperature class for potential limitations.

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>TEST CONDITION</th>
<th>ISO STANDARD (BY EQUIVALENCE)</th>
<th>REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contact Resistance (Low Level)</td>
<td>Mate connectors : apply a maximum voltage of 20 mV and a current of 100 mA</td>
<td>ISO 8092-2 § 4.8.1</td>
<td>Terminal 0.63: 8 mΩ max. Terminal 1.5: 4 mΩ max.</td>
</tr>
<tr>
<td>2</td>
<td>Insulation Resistance</td>
<td>Unmated connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.</td>
<td>ISO 8092-2 § 4.12</td>
<td>100 MΩ min.</td>
</tr>
<tr>
<td>3</td>
<td>Dielectric Withstanding Voltage</td>
<td>Unmated connectors: apply a voltage of 1000 volts 50 Hz VAC for 1 minute between adjacent terminals and between terminals to ground.</td>
<td>ISO 8092-2 § 4.13</td>
<td>No Breakdown</td>
</tr>
</tbody>
</table>

5.2 MECHANICAL REQUIREMENTS

<table>
<thead>
<tr>
<th>ITEM</th>
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</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Terminal Insertion Forces</td>
<td>Insert terminal into the housing at a rate of 25 mm per minute</td>
<td>ISO 8092-2 § 4.6</td>
<td>Terminal 0.63: 12 N max. Terminal 1.5: 25 N max.</td>
</tr>
<tr>
<td>5</td>
<td>Terminal Retention Force (in housing with TPA)</td>
<td>Axial pullout force on the terminal in the housing at a rate of 25 mm per minute</td>
<td>ISO 8092-2 § 4.7</td>
<td>Terminal 0.63: 60 N min. Terminal 1.5: 100 N min.</td>
</tr>
<tr>
<td>6</td>
<td>Connector Mate and Unmate Forces</td>
<td>Mate and unmate connector (male to female) at a rate of 25 mm per minute</td>
<td>ISO 8092-2 § 4.3</td>
<td>32w Connector: 70 N max. 48w Connector: 70 N max.</td>
</tr>
<tr>
<td>ITEM</td>
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<td>REQUIREMENT</td>
</tr>
<tr>
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</tr>
<tr>
<td>7</td>
<td>Durability</td>
<td>Mate connectors up to 20 cycles</td>
<td>ISO 8092-2 § 4.3</td>
<td>No mechanical damage and no sealing leakage.</td>
</tr>
</tbody>
</table>
| 8    | Vibration (Sine) Tin plated Terminals | - Mate connectors and vibrate from 10 to 2000Hz:  
Vibration profile:  
- 10 Hz - 0.3g  
- 25 Hz – 3g  
- 200 Hz – 3g  
- 200 Hz – 1 g  
- 2000 Hz – 1g  
Duration 48 hours in each of three mutually perpendicular axes (X, Y, Z) coupled with a temperature cycling from -40°C to 95°C.  
- Mate connectors and vibrate from 10 to 2000Hz:  
Vibration profile:  
- 10 Hz - 0.3g  
- 60 Hz – 10g  
- 2000 Hz – 10g  
Duration: 8 hours in each of three mutually perpendicular axes (X, Y, Z) coupled with a temperature cycling from -40°C to 125°C. | N/A | No mechanical damage and no micro-break  
Contact resistance:  
\( \Delta R_c (R_{final} - R_{initial}) \leq 5 \text{m} \Omega \) |
| 10   | Wire Pullout Force (axial)        | Apply an axial pullout force on the wire bundle                                 | N/A                           | No damage under \( F \leq 100N \)                                                                  |
| 11   | Mechanical Shocks                | Assembled female connector shall be dropped onto concrete from a height of 1m | N/A                           | No damage on connectors                                                                               |
## 5.3 ENVIRONMENTAL REQUIREMENTS

<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| 12   | Thermal Shocks | Mated connectors exposed to 100 cycles of:  
|      |              | Temperature C° | Duration (minutes) | N/A | No mechanical damage  
|      |              | - 40° ±2        | 60                |     | Contact resistance in accordance with §1 |
|      |              | +100° ±2        | 60                |     |                                          |
| 13   | Endurance to temperature and humidity | Mated connectors exposed to 5 cycles of 24 hours as defined below:  
|      |              | - 4 Hrs @23°C with 75% of relative humidity.  
|      |              | - 0.5 Hr of heat up to +55°C.  
|      |              | - 10 Hrs @55°C with 99% of relative humidity.  
|      |              | - 1.5 hrs of cool down to -40°C.  
|      |              | - 2 hrs @ -40°C.  
|      |              | - 2.5 Hrs of heat up to +125°C.  
|      |              | - 2 Hrs @ +125°C.  
|      |              | - 1.5 Hrs of cool down to 23°C.  |
|      |              | ISO 8092-2 § 4.10 |     | No mechanical damage  
|      |              |                  |     | Contact resistance in accordance with §1 |
| 14   | Fluid resistance | Submerse mated connectors in each of the following automotive fluids:  
|      |              | - engine oil  
|      |              | - manual gear box oil  
|      |              | - automatic gear box oil  
|      |              | - engine coolant  
|      |              | - battery liquid  
|      |              | - brake fluid  
|      |              | - power steering fluid  
|      |              | - diesel fuel  
|      |              | - window washing liquid (methanol)  |
|      |              | N/A |     | Insulation resistance in accordance with §2  
|      |              |                  |     | Dielectric strength in accordance with §3 |
| 15   | Water tightness | Submerge mated connector under water 100mm minimum for 30 seconds minimum duration under 500mbar air pressure.  |
|      |              | ISO 20653 |     | IP6K7, IP6K8 |
| 16   | High Pressure Spray Resistance | Mated connectors are placed on a rotating table and submitted to high pressure water jet (100bars at 80°C)  |
|      |              | ISO 20653 |     | IP6K9K |
6.0 PACKAGING
Parts shall be packaged to protect against damage during handling, transit and storage.

For further information please visit Molex website: www.molex.com/product/cmc.html