**PCIe® M.2 Gen 3 and Gen 4 Card Edge Connectors**

**HIGH DENSITY HIGH PERFORMANCE CONNECTOR**

Amphenol ICC’s PCIe® M.2 Gen 3 and Gen 4 connectors provide 67 contacts on 0.50mm pitch. It occupies less board space, offers more connector height options and supports higher data rates compared to PCIe® Mini Card connector. It is designed for PCIe® 3.0, USB 3.0 and SATA 3.0 applications, making it suitable for tablets, laptops and low profile storage and server applications. PCIe® M.2 connectors also support higher data rate transmission with both single and double-sided modules.

- Various connector height and keying options
- Accepts angled insertion of add-in module cards
- Some PNs support both angled and straight insertion
- Provide both right angle and vertical orientation M.2 connectors
- Sketching Gen 5 M.2 design which meets 32Gb/s rate

**TARGET MARKETS**

- PCIe® M.2 Gen 3 and Gen 4 Card Edge Connectors
  - Various connector height and keying options
  - Accepts angled insertion of add-in module cards
  - Some PNs support both angled and straight insertion
  - Provide both right angle and vertical orientation M.2 connectors
  - Sketching Gen 5 M.2 design which meets 32Gb/s rate

**FEATURES**

- Card edge connector with 67 contacts on a 0.50mm pitch
- Compliant with PCIe® 3.0, USB 3.0 and SATA 3.0
- 75 positions with 8 connector key options
- Available in various connector height
- Supports both single and double-sided modules
- Upgradable to Gen 4 (16Gb/s)
- Provides both right-angle and vertical orientations
- Vertical M.2 supports 5,000 mating cycles
- Offers dual port M.2 and supports straight insertion with 2.00m height M.2

**BENEFITS**

- Fully compliant with PCI-SIG PCIe® M.2 specification
- Serves multiple high speed peripheral applications
- Design flexibility
- Options to reduce overall height
- Enables higher data rates
- Supports higher speeds with backward compatibility to Gen 3
- Allows for application flexibility
- Higher durability
- Saves mother board space in X axis and Z axis respectively
TECHNICAL INFORMATION

MATERIAL
- Contact: Copper alloy with gold plating sufficient to meet all mechanical and environmental requirements
- Contact Finish: Must be compatible with lead-free soldering process
- Housing: Complies with UL 94 V-0. Must be compatible with lead-free soldering process

ELECTRICAL PERFORMANCE
- Low Level Contact Resistance: EIA–364–23, 55mΩ max. (initial) per contact, *20mΩ max. change allowed
- Insulation Resistance: EIA–364–21, *>5 x 108Ω at 500V DC
- Dielectric Withstanding Voltage: EIA–364–20, *>300V AC (RMS) at sea level
- Current Rating: *0.5A/Power contact (continuous), * The temperature rise above ambient shall not exceed 30°C, * The ambient condition is still air at 25°C, * EIA–364–70 Method 2
- Voltage Rating: 50V AC per contact

MECHANICAL PERFORMANCE
- Durability:
  - Normal M.2: 25–60 mating cycles
  - M.2 with 30Au: Can meet 5000 mating cycles
  - MPN: MDT–350–X–XX–001VT

ENVIRONMENTAL
- Durability: EIA–364–9; *Option 1 – 25 Cycles, *Option 2 – 60 Cycles, Upon completion of cycles the sample must meet all visual and electrical performance requirements
- Insertion Force: 20N (2.04 KgF, 1 Newton = 1 Kg* m/s²) max., EIA–364–13, Method A
- Shock: * 250 G (notebook) and 285 G (tablet), *at 2 ms half sine, *on all six (6) axis
- Operating Temperature: –40°C to +80°C
- Environmental Test Methodology: EIA–364–1000 Test group 1, 2, 3, 4
- Useful Field Life: Three (3) years

SPECIFICATIONS
- Amphenol Product Specification:
  - GS–12–1142
  - GS–12–1195
  - GS–12–1248

PACKAGING
- Tape & Reel

TOOLING INFORMATION
- Tooled Up

TARGET MARKETS/APPLICATIONS
- Wireless
- Laptop
- Tablet
- Storage

TECHNICAL INFORMATION
# PCIe M.2 Gen 3 and Gen 4 Card Edge Connectors

## PART NUMBERS

<table>
<thead>
<tr>
<th>Description</th>
<th>Height (mm)</th>
<th>Data rate</th>
<th>Orientation</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.2 Gen 3</td>
<td>1.8</td>
<td>8Gb/s</td>
<td>Right Angle</td>
<td>MDT180AOX001</td>
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<tr>
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<td>8Gb/s</td>
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<td>10128786 &amp; MDT320AOX002</td>
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<td>10128792 &amp; MDT420AOX002</td>
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*X denotes various plating options: Au Flash/15u” Au/30u” Au