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

FEATURES

FEATURES	BENEFITS
Card edge connector with 67 contacts on a 0.50mm pitch	Fully compliant with PCI-SIG PCIe® M.2 specification
Compliant with PCIe® 3.0, USB 3.0 and SATA 3.0	Serves multiple high speed peripheral applications
75 positions with 8 connector key options	Design flexibility
Available in various connector height	Options to reduce overall height
Supports both single and double-sided modules	Enables higher data rates
Upgradable to Gen 4 (16Gb/s)	Supports higher speeds with backward compatibility to Gen 3
Provides both right-angle and vertical orientations	Allows for application flexibility
Vertical M.2 supports 5,000 mating cycles	Higher durability
Offers dual port M.2 and supports straight insertion with 2.00m height M.2	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/s^2) max., EIA-364-13, Method A
- Shock: * 250 G (notebook) and 285 G (tablet), *at 2 ms half sine, *on all six (6) axis
- Vibration: EIA-364-1000 Test group 3, EIA-364-28
- 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

PART NUMBERS

Description	Height (mm)	Data rate	Orientation	Part Numbers
M.2 Gen 3	1.8	8Gb/s	Right Angle	MDT180A0X001
M.2 Gen 3	1.8	8Gb/s	Right Angle	MDT180B0X001
M.2 Gen 3	1.8	8Gb/s	Right Angle	MDT180E0X001
M.2 Gen 3	1.8	8Gb/s	Right Angle	MDT180M0X001
M.2 Gen 3	3.2	8Gb/s	Right Angle	10128786 & MDT320A0X002
M.2 Gen 3	3.2	8Gb/s	Right Angle	10128787 & MDT320B0X002
M.2 Gen 3	3.2	8Gb/s	Right Angle	10128788 & MDT320E0X002
M.2 Gen 3	3.2	8Gb/s	Right Angle	10130618 & MDT320M0X002
M.2 Gen 3	4.2	8Gb/s	Right Angle	10128792 & MDT420A0X002
M.2 Gen 3	4.2	8Gb/s	Right Angle	10128793 & MDT420B0X002
M.2 Gen 3	4.2	8Gb/s	Right Angle	10128794 & MDT420E0X002
M.2 Gen 3	4.2	8Gb/s	Right Angle	10130616 & MDT420M0X002
M.2 Gen 3	5.5	8Gb/s	Right Angle	10128798
M.2 Gen 3	8.5	8Gb/s	Right Angle	10128796
M.2 Gen 3	8.5	8Gb/s	Right Angle	10128797
M.2 Gen 3	8.5	8Gb/s	Right Angle	10131758
M.2 Stand off	Various	–	–	MDTXXXSTD001
M.2 Screw	–	–	–	MDTSCW001
M.2 Gen 3	–	8Gb/s	Vertical	MDT350M0X001VT
M.2 Gen 3	–	8Gb/s	Vertical	MDT350M0X001VT
M.2 Gen 3	2	8Gb/s	Right Angle	G633B0670X2XEU
M.2 Gen 3	4	8Gb/s	Right Angle	G633B0670X4XEU
M.2 Gen 4	2.75	16Gb/s	Right Angle	MDT275M0X004
M.2 Gen 4	3.2	16Gb/s	Right Angle	MDT320M0X004
M.2 Gen 4	4.2	16Gb/s	Right Angle	MDT420M0X003
M.2 Gen 4	5.8	16Gb/s	Right Angle	MDT580M0X003
M.2 Gen 4	6.7	16Gb/s	Right Angle	MDT670M0X402
Dual Port M.2 Gen 4	6.7	16Gb/s	Right Angle	MDT670M0X210
Customized Shield M.2 Gen 4	2	16Gb/s	Right Angle	MDT670M0XXXX

*X denotes various plating options: Au Flash/15u" Au/30u" Au

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