

3M™ Ultra Hard Metric (UHM) Backplane Socket Connector

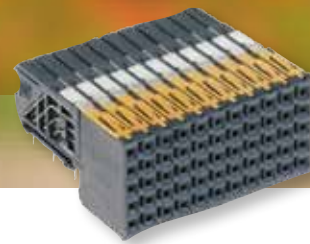
Industry's First Fully-Shielded Ultra High Performance Lowest Crosstalk 2 mm Hard Metric Connector

The 3M Ultra Hard Metric (UHM) Socket Connector is the industry's first fully-shielded 2 mm hard metric (HM) connector designed for more than 7 Gbps backplane performance with a high signal density when used with unshielded industry standard 2 mm HM backplane headers. The UHM socket is designed to be intermateable to 2 mm HM IEC 61076-4-101 headers and is fully compatible with 2 mm HM PCB footprints.

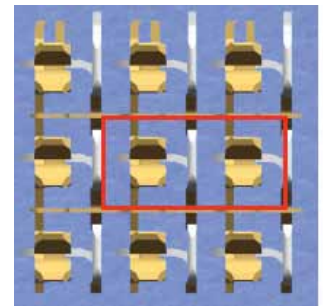
The UHM socket connector's unique design enables backplane designs using widely available standard 2 mm HM connectors to support greater than 7 Gbps performance, high signal integrity applications. Examples of backplane designs using 2 mm HM connectors are PICMG CompactPCI® 3U and 6U and VITA VME 64x. Using the UHM socket connector, standard CompactPCI and VME 64x systems can, for the first time, support high density of multi-gigabit high speed serial IO protocols such as SAS, SATA, Rapid IO, PCI Express and Gigabit Ethernet.

The UHM socket connector uses unique patented "virtual coaxial box" shielding technology to provide a tightly controlled impedance fully-shielded differential pair (100 ohm) or single-ended (50 ohm), low crosstalk transmission path through the connector. Full shielding forms a virtual coaxial box around signal contacts individually and/or in pairs. This dramatically reduces crosstalk as compared to a standard unshielded 2 mm HM socket.

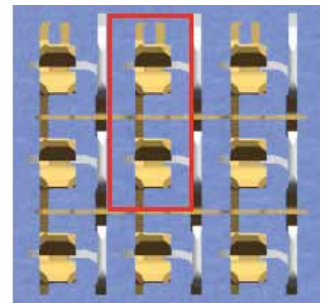
The UHM socket connector is available in 5-row (A, B, CL, CR, AB) and 8-row (D, E, DE, FL, FR) form factors allowing a very high signal density – 101 signals per linear inch for the 8-row and 63 signals per linear inch for the 5-row. The unique construction of the UHM socket connector supports 100 ohm differential pairs in rows or columns. Running differential pairs in rows eliminates row-to-row skew.



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Row Differential Shielding



Column Differential Shielding

Features & Benefits

- High-speed socket connector - more than 7 Gbps even when used with standard unshielded HM headers
- Full shielding of signals or signal pairs minimizes crosstalk and insertion loss
- 2 mm pitch offers intermateability and PCB footprint compatibility with standard HM designs – leverages existing investment
- High signal density - 101 signals per linear inch for the 8-row and 63 signals per linear inch for the 5-row – optimizes PCB space
- Unique dual beam contact design for high reliability

Target Markets & Applications

Embedded Systems

- Compact PCI 3U and 6U Computing Systems, VME Systems

Communications

- Access equipment, e.g., Channel Banks, Wireless

Industrial and Factory Automation

- Process Control
- Transportation Systems

Medical

- Test & Measurement – e.g., PXI systems

Military

- Embedded computing platforms

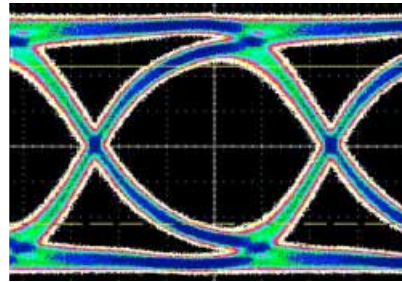
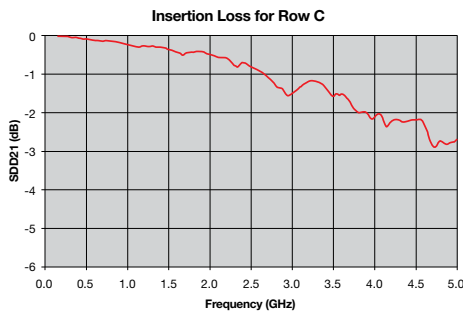


Product Specifications

Specifications	Product	Available upon request
	Signal Integrity	Available upon request
Materials	Contacts	Copper alloy
	Platings	Performance based plating at separable interface (Telecordia rated plating available) Tin or tin-lead over nickel on press-fit tails
	Housings	High temperature thermoplastic (LCP); UL 94-V0
Mechanical Performance	Mating Force	0.32N nominal per signal contact
	Unmating Force	0.20N nominal per signal contact
	Normal Force	0.57N nominal per signal contact
Environmental	Temperature Rating	-55°C to 125°C
Electrical Performance	Current Rating (Fully Loaded)	1 A at 70° C Signal
	Insulation Resistance	104 MΩ at 100 VDC
	Withstanding Voltage	750 VRMS
Approvals and Certifications		UL and CSA pending
Technical Data Sheets	TS-2284	2 mm, B Type: 55, 95, 110 and 125 Signal Contacts, 5+2 Rows, Right Angle
	TS-2301	2 mm, A Type: 110 Signal Contacts, 5+2 Rows, Right Angle

Insertion Loss

(3M™ Ultra Hard Metric Right Angle Socket Mated to an Unshielded Vertical 2 mm HM Header)



7 Gbps Eye Pattern -
18.6 ps peak jitter

UHM-SXXX X X-5AP1-TG30

Number of Contacts
055, 095, 110, 125, 088, 176, 200

Style of Module
A, B, AB, CL, CR, D, E, DE, FL, FR

High Speed Option:

0 = 50Ω Co-axial single-ended and 100Ω differential pair applications for connection to 5 +2-row headers
outer row ground tails in odd positions of row headers
outer row ground tails in odd positions of row F/Z

3 = 50Ω Co-axial single-ended and 100Ω differential pair applications for connection to 5 +2-row headers
outer row ground tails in all positions of row F/Z

Note: Initial release will be only for 5 Row connectors

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