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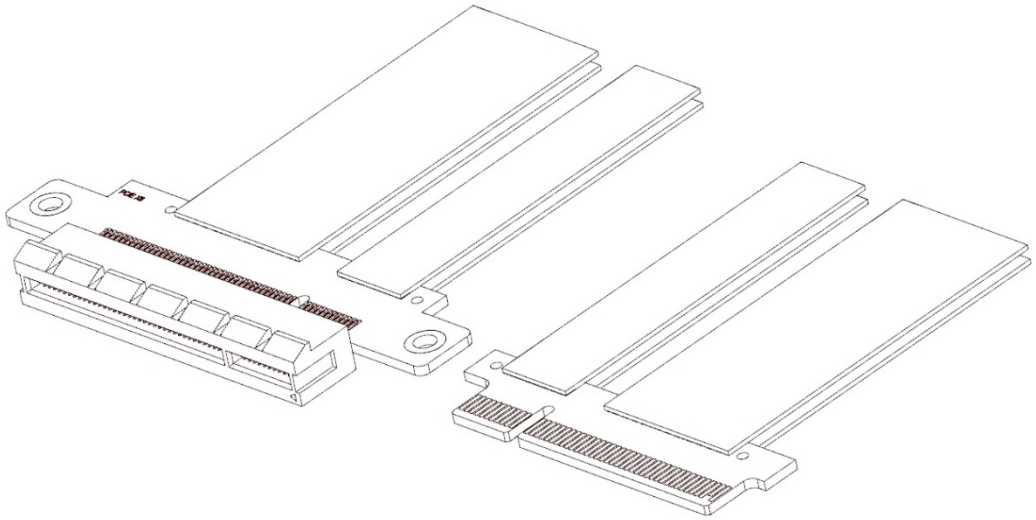
PRODUCT SPECIFICATION

3M Twin Axial PCI Express Extender Cable Assembly, Series 8KXX



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1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the 3M Twin Axial PCI Express Extender Cable Assembly, Series 8KXX.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the specification applies. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence.

2.1. Commercial standards, specifications and report

2.1.1. EIA-364
2.1.2. PCI Express CEM r2.0
2.1.3. PCI Express Base r3.0

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of design, construction and physical dimensions specified on applicable product drawing.

3.2. Materials

3.2.1. Socket Connector
Material: High Temperature Thermoplastic
Flammability: UL94V-0
Lead-free contact plating finish
Black color

3.2.2. Paddlecard
Material: FR4
Mating pad underplating: Min 50u” Ni
Mating pad finish: Min 30u” Au

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3.2.3. 3M™ High-Speed Twin Axial Ribbon Cable
See related specification PS-0106 for ribbon twin axial cable material information.

3.3. Ratings

3.3.1. Current rating: 1.1 A/contact
3.3.2. Operating temperature: -20 to +80 deg C

3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in this specification. All tests are performed at ambient environmental conditions per EIA-364 unless otherwise specified.

The mated boardmount connector used in these tests was the Samtec PCI Express socket connector, series PCIe.

3.5. Test Requirements and Procedures Summary

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ELECTRICAL		
Test Description	**Test Condition**	**Requirement**
Withstanding voltage	Subject mated connector with a voltage of 500VDC for 1.0 minute between adjacent terminals. Per EIA-364-20	No Breakdown
Insulation resistance	Subject mated connector with a voltage of 500VDC between adjacent terminals. Per EIA-364-21	1000 M Ohms min
Differential Trace Propagation delay	Per PCI Express CEM r2.0 section 4.6.9	< 750ps
Intra-pair skew (within pair)	Per PCI Express CEM r2.0 section 5.3.2, Table 5.2	< 5 ps

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SIGNAL INTEGRITY		
Test Description	**Test Condition**	**Requirement**
Impedance, mated cable assembly	Risetime of 70 ps (20/80%)	85 Ohms nominal
Differential insertion loss, SDD21	¼, ½ & 1 meter assemblies measured over frequency range 50 MHz to 7.5 GHz described in the *PCI Express Connector High Speed Electrical Test Procedure*.	> -1.0 dB up to 0.10 GHz > -3.0 dB up to 1.0 GHz > -7.0 dB up to 4.0 GHz >-14.0 dB up to 7.5 GHz
Differential return loss, SDD22	¼, ½ & 1 meter assemblies measured over frequency range 50 MHz to 4.0 GHz per PCI Express Base r3.0, Section 4.3.3.11 described in the *PCI Express Connector High Speed Electrical Test Procedure*.	< -10 dB up to 1.25 GHz < -8 dB up to 2.5 GHz < -4 dB up to 4.0 GHz
Near End Crosstalk	¼, ½ & 1 meter assemblies measured over frequency range 50 MHz to 7.5 GHz. Total NEXT calculated as described in the *PCI Express Connector High Speed Electrical Test Procedure* document.	< -32 dB up to 2.5 GHz < -26 dB up to 5 GHz < -20 dB up to 7.5 GHz
Far End Crosstalk	¼, ½, & 1 meter assemblies measured over frequency range 50 MHz to 7.5 GHz. Total NEXT calculated as described in the *PCI Express Connector High-Speed Electrical Test Procedure* document.	< -32 dB up to 2.5 GHz < -26 dB up to 5 GHz < -20 dB up to 7.5 GHz

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MECHANICAL		
Test Description	**Test Condition**	**Requirement**
Static (one-time) fold	Bend Radius: 1.0 mm Bend Types: 45°, 90°,180° (flat fold)	Meets signal integrity specifications (impedance, s- parameters) after a one-time 1 mm minimum bend radius fold
Visual and Dimensional Inspections	Visual, dimensional, and functional per applicable quality inspection plan according to EIA 364-18	Product shall meet requirements of applicable product drawing.
Contact current rating (Mated)	The sample size is a minimum of three mated connectors. The sample shall be soldered on a PC board with the appropriate footprint. Conduct a temperature rise vs. current test, according to EIA 364-70 method 2	1.1 A per pin minimum. The temperature rise above ambient shall not exceed 30 °C. The ambient condition is still air at 25C.
Insertion Force	Measure the force necessary to mate the connector assemblies at a maximum rate of 12.5 mm (0.492 inches) per minute, using a steel gauge 1.70 mm thick with a tolerance + 0.00, - .01 mm according to EIA-364-13	1.15 N Maximum per contact pair
Removal Force	Measure the force necessary to mate the connector assemblies at a maximum rate of 12.5 mm (0.492 inches) per minute, using a steel gauge 1.70 mm thick with a tolerance + 0.00, - .01 mm according to EIA-364-13	0.15 N Minimum per contact pair

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ENVIRONMENTAL		
Test Description	**Test Condition**	**Requirement**
Solderability	Steam age 1hr. Solder time to be 5+/-05 seconds at 245°C, using non-activated flux. Per EIA-364-638	90% of immersed area must show no voids and pin holes.
Resistance to Solder Heats	Place connector on applicable P.C.B footprint and float on solder bath at 260°C±5°C for 10±2 seconds.	Appearance: No damage

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