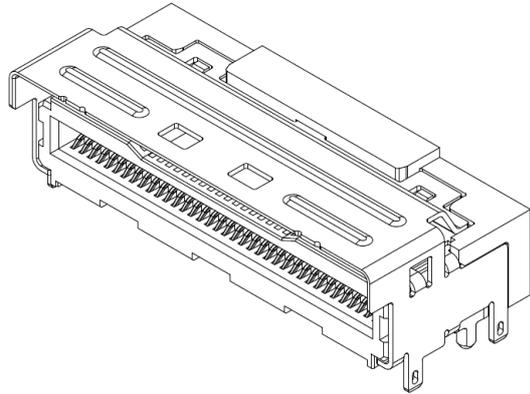
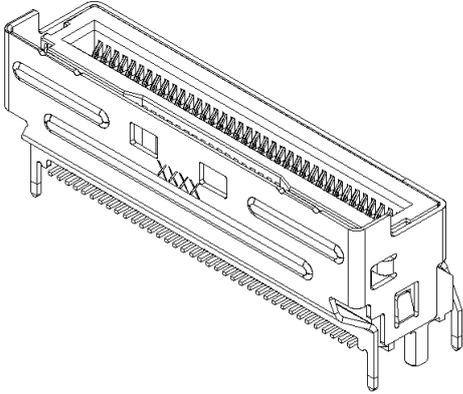


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MCIO Receptacle Connector Series



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1.0 SCOPE

This Product Specification covers performance, test and quality requirements for the JPC MCIO Connector.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

MCIO Receptacle connector series.
JPC P/N: P947XXXXXXXXX-0

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKING

See Customer Drawing for information on dimensions, material, platings and marking.

3.0 APPLICABLE DOCUMENTS

- 3.1 EIA-364 Standard Test methods for electrical connectors
- 3.2 UL-STD-94 Tests for flammability of plastic materials for parts in devices and appliances.
- 3.3 PCI Express Card PCI EXPRESS, Revision 4.0, Version 0.9

4.0 RATINGS

ITEM	SPEC
Voltage	30 Volts DC Max
Current	1.1 A per 6 pairs contact
Operating Temperature	0°C to 65°C
Storage Temperature	- 20°C to 80°C

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5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Low Level Contact Resistance (LLCR)	Subject mated contacts assembled in housing to 20 mV maximum Open circuit at 100 mA maximum. (EIA 364-23)	30 mΩ maximum[Initial] 20 mΩ maximum[Delta change from Initial]
2	Insulation Resistance	Apply a voltage of 100 VDC for 1 minute between adjacent terminals. Measure the insulation resistance for mated and unmated connectors (EIA 364-21)	1000 MΩ minimum
3	Current rating	Measure the temperature rise at the rated current. Ambient temperature: 25°C up to a maximum of 6 adjacent pins per side, 12 pins total (EIA-364-70)	30°C maximum change from initial
4	Dielectric Withstanding Voltage	Apply a voltage of 300 VDC for 1 minute between adjacent terminals of mated and unmated connectors. (EIA 364-20 Method B)	No breakdown No disruptive discharge No leakage current in excess of 0.5mA

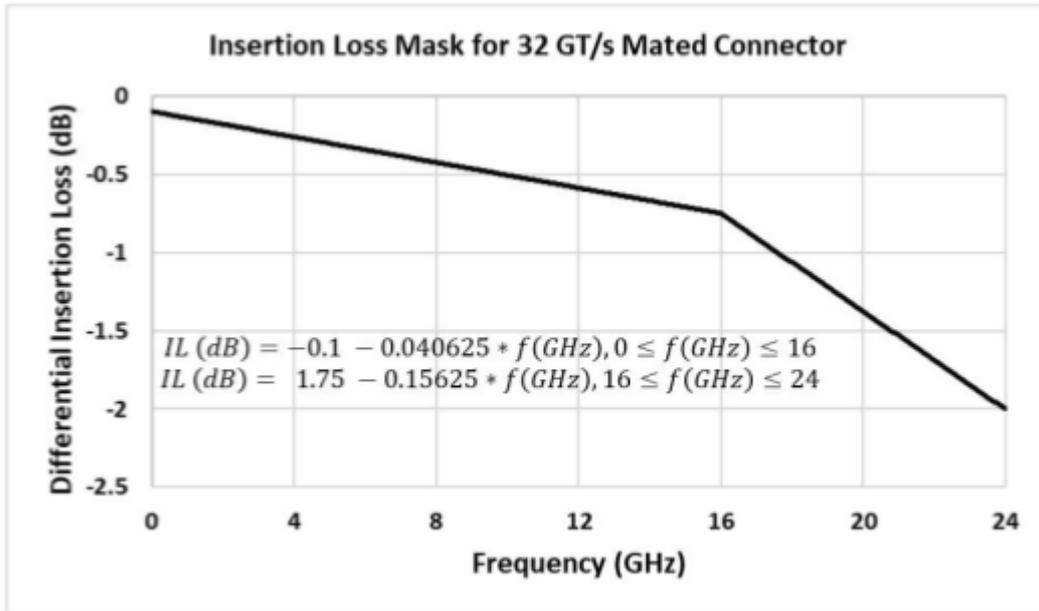
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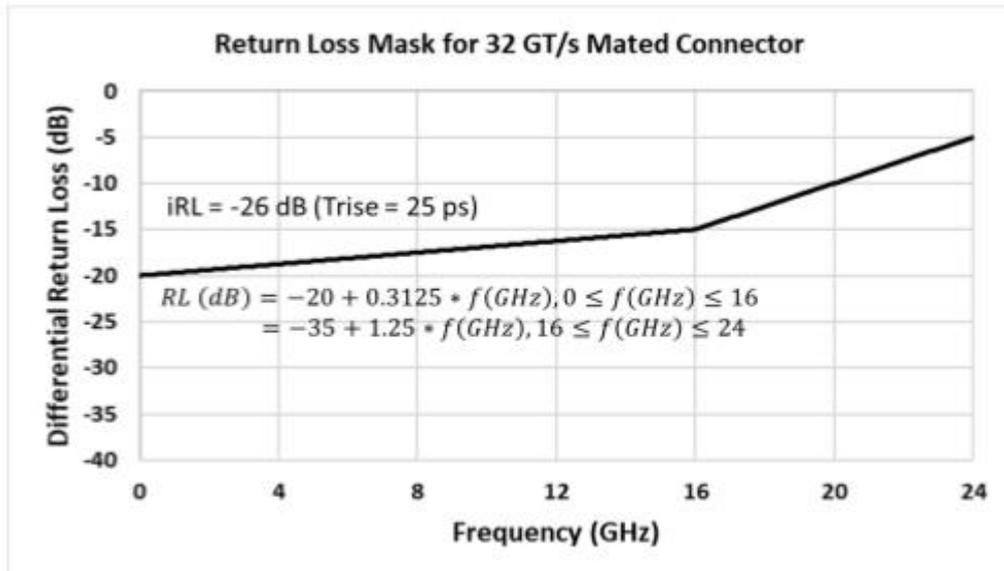
5.2 HIGH SPEED ELECTRICAL REQUIREMENTS

Line Rate	Insertion Loss	Return Loss	Crosstalk
PCIe5	-0.75 dB at 16GHz	-15 dB at 16GHz	-40 dB at 16GHz

Insertion Loss



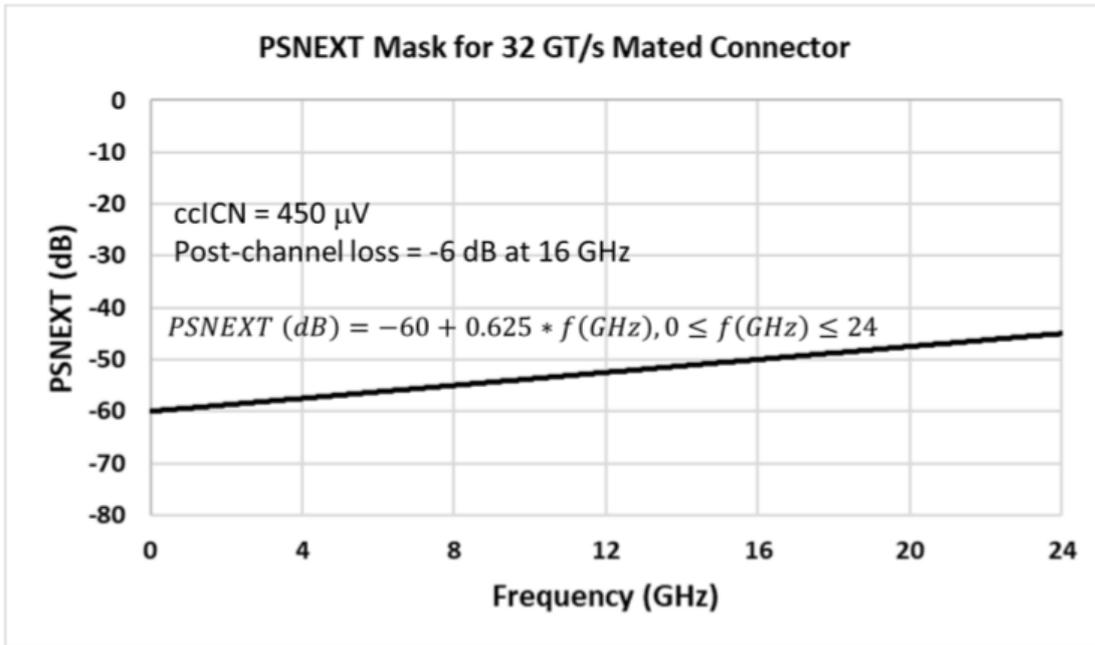
Return Loss



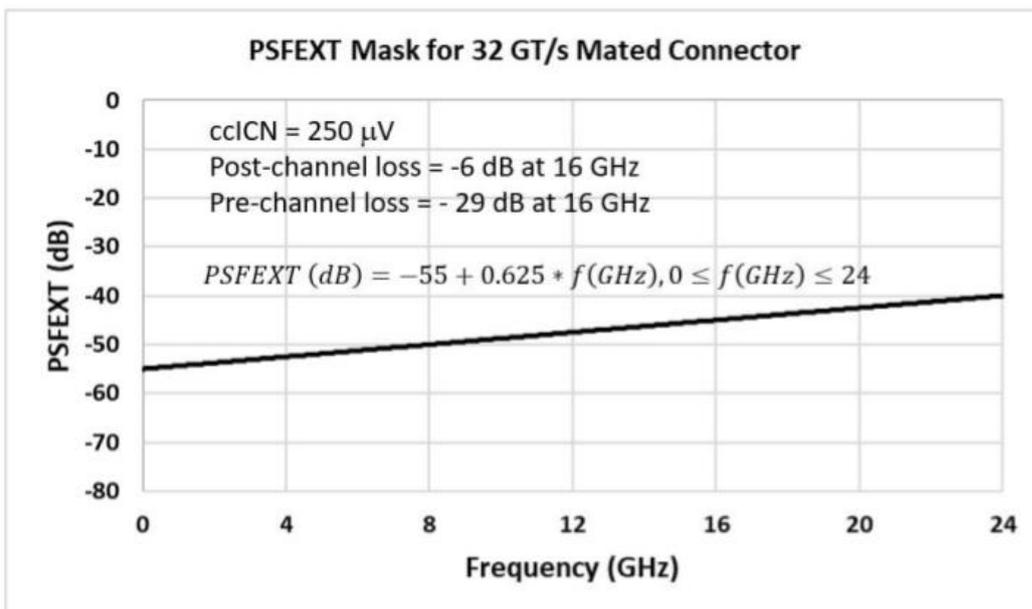
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Near-End Crosstalk



Far-End Crosstalk



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5.3 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Matting/un-mating Force	Mate and Unmated connector assemblies at a rate of 25.4 mm per minute. (EIA 364-13)	1.1N-Backplane maximum insertion force & 0.1N-Backplane receptacle minimum removal force at Initial & after Durability
2	Durability (preconditioning)	20 unmated/mate cycles (EIA-364-09)	No evidence of physical damage
3	Durability	Cycle rate: 500±50 per hour Number of cycles: 200 cycles (EIA 364-09)	No Physical damage
4	Active Latch Retention Strength	Rate: 25.4 mm/minute Pull in direction parallel to insertion, hold for minimum of 60 seconds (EIA-364-13)	50 N minimum
5	Wrenching strength (W/ mated Cable-Passive Latch)	Bend cable 90° at minimum bend radius. Pull in 4 axis directions for round cable. Pull in 2 axis directions for flat cable. No damage to plug/ cable assembly	25 N minimum
6	Wrenching strength (W/ mated Cable-Active Latch)	Bend cable 90° at minimum bend radius. Pull in 4 axis directions for round cable. Pull in 2 axis directions for flat cable. No damage to plug/ cable assembly.	40 N minimum
7	Contact Normal Force	Rate: 25.4 mm/minute (EIA-364-04)	0.49 N (50 grams) minimum at nominal
8	Vibration	Subject mated specimens to 3.10 G's rms between 20-500 Hz for 15 minutes in each of 3 mutually perpendicular planes (EIA 364-28 Condition VII Test letter D)	No discontinuities of 1µs or longer duration 20mΩ maximum (Delta change from Initial)

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9	Physical Shock	Subject mated specimens to 50 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. (EIA 364-27 Condition H)	No Physical damage No discontinuities of 1µs or longer duration 20mΩ maximum (Delta change from Initial)
10	Reseating	Manually unmated/mate the connector 3 cycles.	No evidence of physical damage.

5.4 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Humidity	Subject the connector to temperature and humidity of 40°C with 90% to 95% RH for 96 hours. (EIA 364-31 Method II Test Condition A)	No Physical damage 20mΩ maximum (Delta change from Initial) Meet requirements of additional tests as specified in the test sequence in Section 7.0
2	Solderability	Solder Time: 5 ± 0.5 seconds Solder Temperature :245 ± 5°C (MIL-STD-202, Method 208)	Dipped portion should have 95% continuous new solder coating coverage
3	Resistance to Soldering Heat	Refer to Section 8.0 for solder profile	No damage in appearance of connector
4	Temperature Life	Subject mated connector to temperature life at +105°C for 120 hours. (EIA 364-17 Test I Method A)	No Physical damage 20mΩbmaximum (Delta change from Initial) Meet requirements of additional tests as specified in the test sequence in Section 7.0

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5	Thermal Shock	Subject connector to 5 cycles between -55°C and +85°C. (EIA 364-32 Test Condition I)	No Physical damage Delta Change 20mΩ maximum (Delta change from Initial) Meet requirements of additional tests as specified in the test sequence in Section 7.0
6	Salt Spray	Test condition: mated connector. a.) 5±1% salt. b.) temperature :35±2°C. c.) Duration: 48 hours. (EIA-364-26B)	No evidence of physical damage LLCR Initial: baseline After test: ΔR=20 milliohms maximum
7	Mixed Flowing Gas	1 half of samples are exposed un-mated for 7 days, then mated for the remaining 7 days. The other half of the samples mated for full 14 days test period (EIA 364-65, Class 2A)	No Physical damage Meet requirements of additional tests as specified in the test sequence in Section 7.0

6.0 PACKING

Refer to Customer Drawing for packing information

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7.0 TEST SEQUENCES

Test or Examination	Test Group										
	A	B	C	E	F	G	H	I	J	K	L
Examination of Connector(s)	1,8	1,10	1,10	1,9	1,3	1,7	1,5	1,3	1,3	1,3	1,3
Current Rating					2						
LLCR	2,5,7	2,5,7 ,9	2,5,7 ,9	4,6			2,4				
Insulation Resistance				3,8							
Dielectric Withstanding Voltage				2,7							
Durability				5							
Durability (Preconditioning)	3	3	3								
Matting/un-mating Force						3,6					
Reseating	6	8				2,5					
Thermal Shock		4									
Humidity-Temperature Cycling		6									
Thermal disturbance											
Temperature Life	4					4					
Temperature Life (Preconditioning)			4								
Mechanical Shock			8								
Vibration			6								
Salt Spray							3				
Solder ability								2			
Resistance to Soldering Heat									2		
Active Latch Retention Strength										2	
Contact Normal Force											2

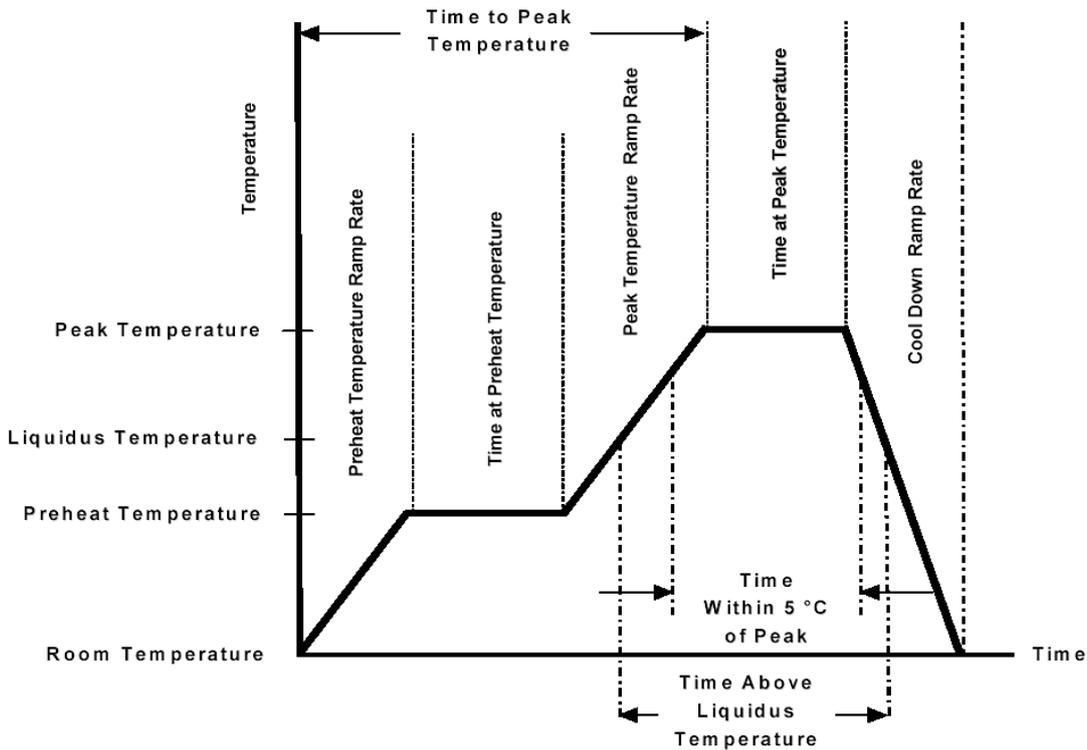
Note:

- (a) Preconditioning, 50 Cycle for the 500-durability cycle requirement. The insertion and removal cycle is at a maximum rate of 25mm per minute.
- (b) Preconditioning, 105° C for 72 hours.

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8.0 SOLDERING PROFILE



DESCRIPTION	REQUIREMENT
Average Ramp Rate	3°C/sec Max
Preheat Temperature	150°C Min to 200°C Max
Preheat Time	60 to 180 sec
Ramp to Peak	3°C/sec Max
Time over Liquidus (217°C)	60 to 150 sec
Peak Temperature	260+0/-5°C
Time within 5°C of Peak	20 to 40 sec
Ramp-Cool Down	6°C/sec Max
Time 25°C to Peak	8 min Max

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9.0 REVISION RECORD

Rev.	Comments	Originator	Approval	Date
A1	Approved Release	Brady	Jason	04/15/2024
A2	Add R/A Photo	Brady	Jason	7/15/2024