PCI EXPRESS CARD EDGE Connector

1. SCOPE

1.1. CONTENTS

The specification covers performance, tests and quality requirements for PCI Express card edge, 3GIO Connector.

1.2. QUALIFICATION

When tests are performed on the subject product line, the procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENT

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

2.1. TYCO DOCUMENTS

A. 109-1: General Requirements for Test Specifications

B. 109-197：Tyco Specification vs EIA and IEC Test Methods

C. PCI Express Card Electromechanical Specification

D. 501-57432：Test Report

3. REQUIREMENTS

3.1. DESIGN AND CONSTRUCTION

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

3.2. MATERIALS

A. Contact: Copper alloy, Gold plated in contact area, Tin-lead or Tin plated in soldertail area, Nickel underplated all over

B. Housing: Thermoplastic, UL94V-0

3.3. RATINGS

A. Operating temperature: -55℃ to 85℃

B. Current Rating: 1A

C. Voltage Rating: 50 VAC

3.4. PERFOMANCE AND TEST DESCRIPTION

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1 unless otherwise specified. All tests are performed at ambient environmental conditions per TYCO Specification 109-1.

3.5. TEST REQUIREMENT AND PROCEDURES SUMMARY

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in the following figure 1.

TEST DESCRIPTION	REQUIREMENTS	PROCEDURE
Examination of product	Meet requirements of product drawing and AMP Specification	Visual inspection, No Physical damages.
ELECTRICAL		
Contact Resistance	30mΩ max, Initial. △R=20mΩ max, Final.	Subject mated contacts assembled in housing to 50mV Max at 100mA. EIA 364-23A.
Insulation Resistance	1,000 MΩ min.	Impressed voltage 500 VDC. Test between adjacent contacts of mated connector assemblies; EIA-364-21C
Dielectric Withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 0.5 mA MAX	500VAC for 1minute Test between adjacent circuits of unmated connector. EIA-364-20B
MECHANICAL		
Module Board Insertion Force	1.15N（0.12kgf）Max. per Contact pair	Measure the force necessary to mate the connector assemblies at a rate of 12.5mm/min. Max., using a steel gauge 1.7+0/-0.01mm. EIA-364-13B
Module Board Removal Force	0.15N（0.015kgf）Min. per Contact pair	Measure the force necessary to unmate the connector assemblies at a rate of 12.5mm/min., using a steel gauge 1.44+0.01/-0mm. EIA-364-13B
Durability	See note.	Mate and unmate connector assemblies for 50cycles at a maximum rate of 500 cycles/hour; EIA 364-9C.

Figure 1（Cont.）

TEST DESCRIPTION	REQUIREMENTS	PROCEDURE
Vibration	No electrical discontinuity greater than 1u sec shall occur. See note.	Amplitude: 1.52mm P-P, Sweep time: 10-55-10Hz in 1min. Duration: 2 hours in each of 3 mutually perpendicular planes passing DC 1mA current during the test. EIA-364-28D
Mechanical Shock	No electrical discontinuity greater than 1u sec shall occur. See note.	Accelerated Velocity:(490m/s^2) 50G Wave form: Half-sin, Duration: 11msec. Number of Drops: 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops, passing DC 1mA current during the test. EIA-364-27B
Resistance to Wave Soldering Heat	No physical damage shall occur.	Solder Temp.：265±5℃, 10±0.5sec. Tyco spec. 109-202, Condition B
Solderability	Solder area shall have a solder coverage of 95% minimum.	Solder Temperature：240±5℃ Duration：5±0.5 sec
ENVIRONMENTAL		
Temperature Life	See note.	Mated connector. 105℃ for 168hrs. EIA-364-17B
Thermal Shock	See note.	Mated connectors. -55±3℃/30min. 85±2℃/30min Making this cycle, repeat 5 cycles, EIA-364-32C
Humidity Temperature Cycling	See note.	Subject mated connector to 10 humidity-temperature cycles between 25℃and 65℃at 95%RH; EIA 364-31B.
Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed. See note.	Mated connector. Exposure to a salt spray from 5±1% solutions at 35±2℃ for 48±4h. After test, rinse the sample with water and recondition the room temperature for 1hr. EIA-364-26B.

Figure 1（End）

Note：Shall meet visual requirements, show no physical damage, and shall meet requirement of additional tests as specified in the test sequence in Figure 2

3.6. PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

Test or Examination	Test Group								
	A	B	C	D	E	F	G	H	I
	Test Sequence (a)								
Examination of Product	1,5	1,5	1,5	1,7	1,9	1,6	1,3	1,3	1,5
Contact Resistance	2,4	2,4	2,4		2,8	2,5			2,4
Insulation Resistance				2,5					
Dielectric Withstanding Voltage				3,6					
Module Board Insertion Force					3,7				
Module Board Removal Force					4,6				
Durability					5				
Vibration						3			
Mechanical Shock						4			
Resistance to Wave Soldering Heat							2		
Solderability								2	
Temperature Life		3							
Thermal Shock	3								
Humidity Temperature cycling				4					3
Salt Spray			3						

Figure 2