Two, Three and Four Pair Z-PACK* HM-Zd Plus Connectors

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the Z-PACK* HM-Zd Plus connector system. This connector system uses a modular concept and interconnects 2 Printed Circuit Boards (PCBs). Both receptacle and pin connectors are connected to the PCB with plated thru-hole compliant press-fit leads. A connector has a matrix configuration of either 4, 6 or 8 rows and a variable number of columns. Each column consists of either 2 or 4 shielded pairs of contacts.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Successful qualification testing on the subject product line was completed on 29Oct10. The Qualification Test Report number for this testing is 501-568-1. This documentation is on file at and available from Engineering Practices and Standards (EPS).

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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 Electronics Documents

- 114-13059: Application Specification (Z-PACK* HMZd Connector System)
- 501-568-1: Qualification Test Report (Two, Three and Four Pair Z-PACK* HM-Zd Plus Connectors)

2.2. Industry Document

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

2.3. Reference Documents

- 108-2055: Product Specification (Two, Three and Four Pair HM-Zd Connectors)
- 109-197: Test Specification (TE Test Specifications vs EIA and IEC Test Methods)
- 501-568: Qualification Test Report (Two, Three and Four Pair HM-Zd Connectors)

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

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. Ratings

- Voltage: 250 volts AC maximum (⅓ of minimum breakdown voltage)
- Current: 0.6 ampere per contact (fully loaded)
- Temperature: -65 to 105°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing and Application Specification 114-13059.	EIA-364-18. Visual and dimensional (C of C) inspection per product drawing.
Final examination of product.	Meets visual requirements.	EIA-364-18. Visual inspection.
ELECTRICAL		
Low Level Compliant Pin Resistance (LLCPR).	1 milliohm maximum initial. ΔR 1 milliohm maximum from initial.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage. Measurements shall be taken between PCB hole and pin tip.
Withstanding voltage.	One minute hold with no breakdown or flashover.	EIA-364-20, Condition I. 650 volts AC at sea level between mated pairs of signal contacts. 550 volts AC at sea level between mated ground and signal contacts. Test between adjacent signal contacts, and closest signal and ground contact.
Temperature rise vs current.	30°C maximum temperature rise at 0.6 ampere per contact, fully energized.	EIA-364-70, Method 1. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1°C.

Figure 1 (continued)

Test Description	Requirement	Procedure
MECHANICAL		
Compliant pin insertion force.	44.5 N [10 lbf] maximum average per pin.	EIA-364-5. Measure force necessary to seat pins into a PCB at a maximum rate of 12.7 mm [.5 in] per minute.
Compliant pin retention force.	4.4 N [1 lbf] minimum average per pin.	EIA-364-29. Measure force necessary to unseat pins from a PCB at a maximum rate of 12.7 mm [.5 in] per minute.
Receptacle cover retention force.	111.25 N [25 lbf] minimum per 25 mm [.984 in] long module.	Measure force necessary to remove the receptacle front cover from the chicklet at a maximum rate of 5.08 mm [.2 in] per minute. Connectors are to be inserted into the PCBs.
ENVIRONMENTAL		
Temperature life.	See Note.	EIA-364-17, Method A, Test Condition 4, Test Time Condition D. Subject mated specimens to 105°C for 1000 hours.

NOTE *Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	1	2	3	4	5	6
Initial examination of product	1	1	1	1	1	1
LLCPR			2,4			
Withstanding voltage	2					
Temperature rise vs current				2		
Compliant pin insertion force					2	
Compliant pin retention force		3	5		3	
Receptacle cover retention force						2
Temperature life		2	3			
Final examination of product	3	4	6	3	4	3

NOTE
(a) See paragraph 4.1.A.
(b) Numbers indicate sequence in which tests are performed.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test group 1 shall consist of 1 standard HM-Zd header and 1 HM-Zd Plus receptacle. Test group 2 shall consist of 1 board mounted HM-Zd Plus receptacle with 3 repair cycles. Test group 3 shall consist of 2 board mounted HM-Zd Plus receptacles with 3 repair cycles and 2 board mounted HM-Zd Plus receptacles with no repair cycles. Test group 4 shall consist of 1 standard HM-Zd header and 7 HM-Zd Plus receptacles. Test group 5 shall consist of 5 board mounted HM-Zd Plus receptacles. Test group 6 shall consist of 6 board mounted HM-Zd Plus receptacles.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

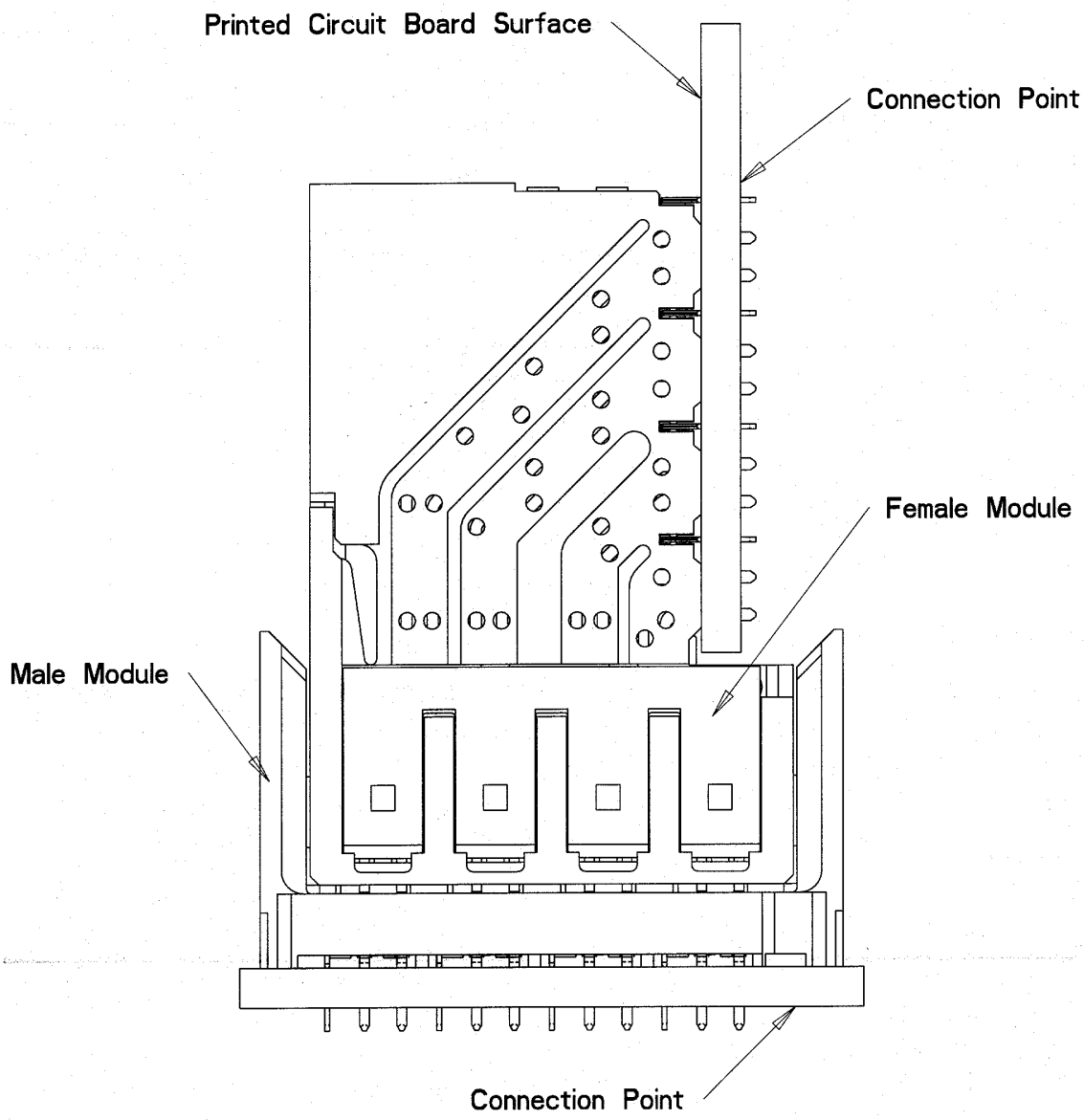

Figure 3
LLCPR Measurement Points