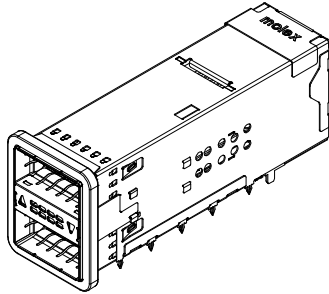


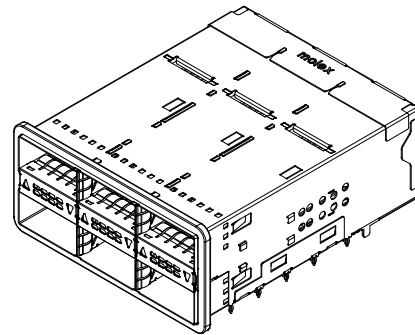


PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

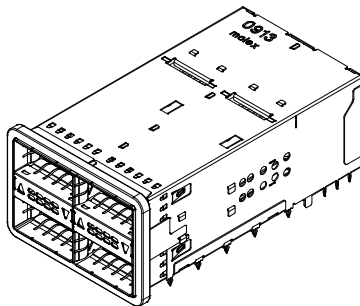
CONNECTOR SERIES:



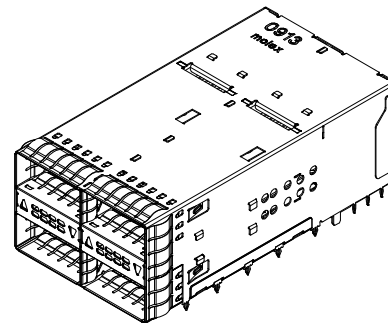
**171208 - 2X1 CONNECTOR
WITH ELASTOMERIC EMI GASKET**



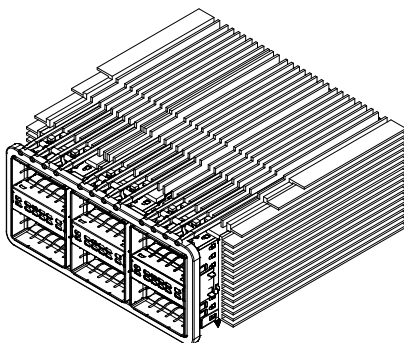
**171262 - 2X3 CONNECTOR
WITH ELASTOMERIC EMI GASKET**



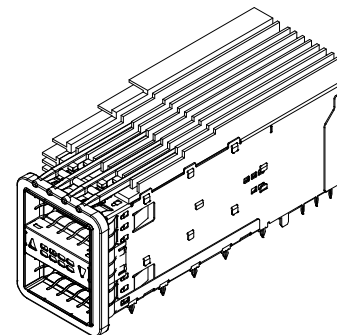
**171565 - 2X1, 2X2 & 2X3 CONNECTORS
WITH ELASTOMERIC EMI GASKET &
ENHANCED EMI CAGE CONSTRUCTION**



**171722 - 2X1, 2X2 & 2X3 CONNECTORS
WITH METAL EMI GASKET &
ENHANCED EMI CAGE CONSTRUCTION**



**171233 - 2X3 CONNECTOR
WITH THERMAL MANAGEMENT
COMPONENTS**



**170879 - 2X1 CONNECTOR
WITH THERMAL MANAGEMENT
COMPONENTS**

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 1 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

TABLE OF CONTENTS

1.0	SCOPE	3
2.0	PRODUCT DESCRIPTION	3
2.1	PRODUCT NAME AND SERIES NUMBER(S)	3
2.2	DIMENSION, MATERIALS, PLATING AND MARKINGS	3
2.3	SAFETY AGENCY APPROVALS	3
2.4	PIN ASSIGNMENTS	3
3.0	APPLICABLE DOCUMENTS AND SPECIFICATIONS	3
3.1	MOLEX DOCUMENTS	3
3.2	INDUSTRY DOCUMENTS	4
4.0	QUALIFICATION	4
5.0	RATINGS	4
5.1	VOLTAGE	4
5.2	CURRENT	4
5.3	TEMPERATURE	4
5.4	DURABILITY	4
6.0	PERFORMANCE (MECHANICAL & ENVIRONMENTAL)	5
6.1	TEST GROUP 1	5
6.2	TEST GROUP 2	6
6.3	TEST GROUP 3	7
6.4	TEST GROUP 4	8
6.5	TEST GROUP 5	9
6.6	MECHANICAL TEST GROUP 1	10
6.7	MECHANICAL TEST GROUP 2	10
6.8	MECHANICAL TEST GROUP 3	11
6.9	MECHANICAL TEST GROUP 4	11
7.0	PACKAGING	12
8.0	GAGES AND FIXTURES	12
9.0	PCB REQUIREMENTS	13

<u>REVISION:</u> 2	<u>ECR/ECN INFORMATION:</u> <u>EC No:</u> UCP2013-2209 <u>DATE:</u> 02/05/2013	<u>TITLE:</u> <b style="text-align: center;">PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	<u>SHEET No.</u> 2 of 13
<u>DOCUMENT NUMBER:</u> PS-171565-0001	<u>CREATED / REVISED BY:</u> ARIZVI 11/07/12	<u>CHECKED BY:</u> JKACHLIC 11/08/12	<u>APPROVED BY:</u>



PRODUCT SPECIFICATION

STACKED ZQSFP+ CONNECTORS

1.0 SCOPE

This Product Specification covers the Stacked zQSFP Connector Series

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name:	Stacked zQSFP Connector Family
Connector Series:	171208 – 2X1 w/Elastomeric EMI Gasket
	171262 – 2X3 w/Elastomeric EMI Gasket
	171565 – 2X1, 2X2 & 2X3 w/Elastomeric EMI Gasket & Enhanced EMI Cage Construction
	171722 - 2X1, 2X2 & 2X3 w/Metal EMI Gasket & Enhanced EMI Cage Construction
	171233 – 2X3 Thermal Management Components
	170879 – 2X1 Thermal Management Components

2.2 DIMENSION, MATERIALS, PLATING AND MARKINGS

See the appropriate sales drawing for information on dimensions, materials, plating, marking, and footprint patterns.

2.3 SAFETY AGENCY APPROVALS

UL file: E29179

2.4 PIN ASSIGNMENTS

Refer to appropriate sales drawing of the specific part number for the correct pin assignment.

2.5 MATING CONNECTORS

Plug & Cable Series: 74763

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 MOLEX DOCUMENTS

AS-171208-0001	Board Routing Recommendations
AS-171565-0001	Application Specification
PK-171565-001	Packaging Specification
PS-45499-002	Cosmetic Specification

<u>REVISION:</u> 2	<u>ECR/ECN INFORMATION:</u> <u>EC No:</u> UCP2013-2209 <u>DATE:</u> 02/05/2013	<u>TITLE:</u> PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	<u>SHEET No.</u> 3 of 13
<u>DOCUMENT NUMBER:</u> PS-171565-0001		<u>CREATED / REVISED BY:</u> ARIZVI 11/07/12	<u>CHECKED BY:</u> JKACHLIC 11/08/12
		<u>APPROVED BY:</u>	



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

3.2 INDUSTRY DOCUMENTS

EIA 364 - 1000 TS-1000 Environmental Test Methodology for Assessing the Performance of Electrical Connectors and Sockets Used in Controlled Environment Applications

4.0 QUALIFICATION

Laboratory condition and sample selection are in accordance with EIA 364

5.0 RATINGS

5.1 VOLTAGE

30 Volts AC (RMS)/DC Max.

5.2 CURRENT

0.5 Amps Max.

5.3 TEMPERATURE

Operating: -40°C to +85°C
Non-operating: -55°C to +105°C

5.4 DURABILITY

100 Cycles

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 4 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

6.0 PERFORMANCE (MECHANICAL & ENVIRONMENTAL)

6.1 TEST GROUP 1

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	baseline	
2	Durability (precondition)	EIA-364-09; perform plug & unplug cycles: 20		No evidence of physical damage	
3	Temperature Life	EIA-364-17, method A, Test Condition 3 at 105°±2°C: 240 hours	Mated	None	
4	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
5	Reseating	Manually unplug & plug the connector, 3 cycles		No evidence of physical damage	
6	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 5 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

6.2 TEST GROUP 2

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	baseline	
2	Durability (precondition)	EIA-364-09; perform plug & unplug cycles: 20		No evidence of physical damage	
3	Thermal Shock	EIA-364-32, test condition I (10 cycles): -55°C to +85°C 120 hours	Mated	None	
4	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
5	Cyclic Temperature & Humidity	EIA-364-31 Cycle connectors between 25° ± 3°C at 80% RH and 65° ± 3 °C at 50% RH (24 cycles) Ramp times should be 0.5 hour and dwell should be 1.0 hour.	Mated	None	
6	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
7	Reseating	Manually unplug & plug the connector, 3 cycles		No evidence of physical damage	
8	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 6 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

6.3 TEST GROUP 3

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	baseline	
2	Durability (precondition)	EIA-364-09; perform plug & unplug cycles: 20		No evidence of physical damage	
3	Temperature Life (precondition)	EIA-364-17, method A, Test Condition 3 at 105°±2°C 120 hours	Mated	None	
4	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
5	Mechanical Vibration	EIA-364-28 test condition VII test condition letter D 15 minutes in each of 3 mutually perpendicular directions.	Mated	Discontinuity < 1 μsec No evidence of physical damage	
7	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 7 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

6.4 TEST GROUP 4

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	baseline	
2	Durability (precondition)	EIA-364-09; perform plug & unplug cycles: 20		No evidence of physical damage	
3	Temperature Life (precondition)	EIA-364-17, method A, Test Condition 3 at 105°±2°C 72 hours	Mated	None	
4	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
5	Mixed Flowing Gas	EIA-364-65B class IIA, 20 days	See Note	None	
6	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
7	Thermal Disturbance	Cycle connectors 10 times between 15° ± 3°C at 80% RH and 85 °± 3 °C at 50% RH. Ramps should be a minimum of 2°C per minute and dwell times should insure that the contacts reach the temperature extremes for a minimum of 5 minutes.	Mated	None	
8	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
9	Reseating	Manually unplug & plug the connector, 3 cycles		No evidence of physical damage	
10	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	

Note:

1. Expose the specimens unmated for 1/2 (10 days) of the test duration. Mate the specimen to the same one used during preconditioning temperature life.
2. Characterize porosity & plating thickness before test sequence.

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 8 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

6.5 TEST GROUP 5

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Dielectric Withstanding Voltage	EIA-364-20; apply a voltage of 300 VDC for 1 minute between adjacent terminals and between adjacent terminals and ground.	Mated	No disruptive discharge No leakage current in excess of 5mA	
2	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	baseline	
3	Durability	EIA-364-09; perform plug & unplug cycles: 100		No evidence of physical damage	
4	Low Level Contact Resistance	EIA-364-23; apply a maximum voltage of 20 mV and a current of 100 mA.	Mated	<10 mΩ Δ max	
5	Dielectric Withstanding Voltage	EIA-364-20; apply a voltage of 300 VDC for 1 minute between adjacent terminals and between adjacent terminals and ground.	Mated	No disruptive discharge No leakage current in excess of 5mA	

Note:

1. Separate sets of test specimens will be used to access dielectric withstanding voltage and the change in low level contact resistance.
2. Dielectric withstanding voltage testing will use different contacts than those used for low level contact resistance testing.

<u>REVISION:</u> 2	<u>ECR/ECN INFORMATION:</u> <u>EC No:</u> UCP2013-2209 <u>DATE:</u> 02/05/2013	<u>TITLE:</u> PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	<u>SHEET No.</u> 9 of 13
<u>DOCUMENT NUMBER:</u> PS-171565-0001		<u>CREATED / REVISED BY:</u> ARIZVI 11/07/12	<u>CHECKED BY:</u> JKACHLIC 11/08/12
		<u>APPROVED BY:</u>	



PRODUCT SPECIFICATION

STACKED ZQSFP+ CONNECTORS

6.6 MECHANICAL TEST GROUP 1

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Temperature Rise (via current cycling)	Measure the temperature rise at the rated current after 96 hours. (45 minutes ON and 15 minutes OFF). Fixture as required.	Mated	Temperature Rise: +30°C maximum	

6.7 MECHANICAL TEST GROUP 2

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Connector Mate Forces (Module only)	Mate connector at a rate of 25 ± 6 mm per min.		2.5 N / contact pair MAX insertion force	
2	Connector Un-mate Forces (Module only)	Un-mate connector at a rate of 25 ± 6 mm per min.		0.5 N / contact pair MAX withdrawal force	
3	Plug Mate Forces	Mate connector at a rate of 25 ± 6 mm per min.		2.5 N / contact pair plus 50 N MAX	
	Plug Mate Forces w/ TMC	Mate connector at a rate of 25 ± 6 mm per min.		2.5 N / contact pair plus 60 N MAX	
4	De-Latch Plug (Axial Load)	Mate connector and place axial load at a rate of 25 ± 6 mm per min. on latch pull to de-latch plug		0.5 N / contact pair plus 20 N MAX	
	De-Latch Plug w/ TMC (Axial Load)	Mate connector and place axial load at a rate of 25 ± 6 mm per min. on latch pull to de-latch plug		0.5 N / contact pair plus 30 N MAX	

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 10 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

6.8 MECHANICAL TEST GROUP 3

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Latitudinal Load	Mate connector and load plug with latitudinal load until open circuit. See section 8.	Mated	75 N MIN	
2	Longitudinal Load	Mate connector and load plug with longitudinal load until open circuit. See section 8.	Mated	75 N MIN	
3	Cable Pullout Force (Axial Load)	Mate plug to connector and apply an axial pullout force on the wire at a rate of 25 ± 6 mm/min.	Mated	100 N MIN	
4	Cable Pullout Force (Right Angle Load)	Mate plug to connector and apply an right angle pullout force on the wire at a rate of 25 ± 6 mm/min.	Mated	75 N MIN	

6.9 MECHANICAL TEST GROUP 4

ITEM	TEST	TEST PROCEDURE	CONDITION	REQUIREMENT	ACTUAL
1	Cage Compliant Pin Insertion into PCB	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm/min.	Individual Pin	40 N (9.0 LBF) MAX.	33.8 N (7.6 LBF)
2	Cage Compliant Pin Extraction from PCB	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm/min.	Individual Pin	4 N (0.9 LBF) MIN.	5.4 N (1.2 LBF)
3	Connector Compliant Pin Insertion into PCB	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm/min.	Individual Pin	20 N (4.5 LBF) MAX.	19.7 N (4.4 LBF)

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
2	EC No: UCP2013-2209 DATE: 02/05/2013	PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	11 of 13
DOCUMENT NUMBER:		CREATED / REVISED BY:	CHECKED BY:
PS-171565-0001		ARIZVI 11/07/12	JKACHLIC 11/08/12
APPROVED BY:			



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

7.0 PACKAGING

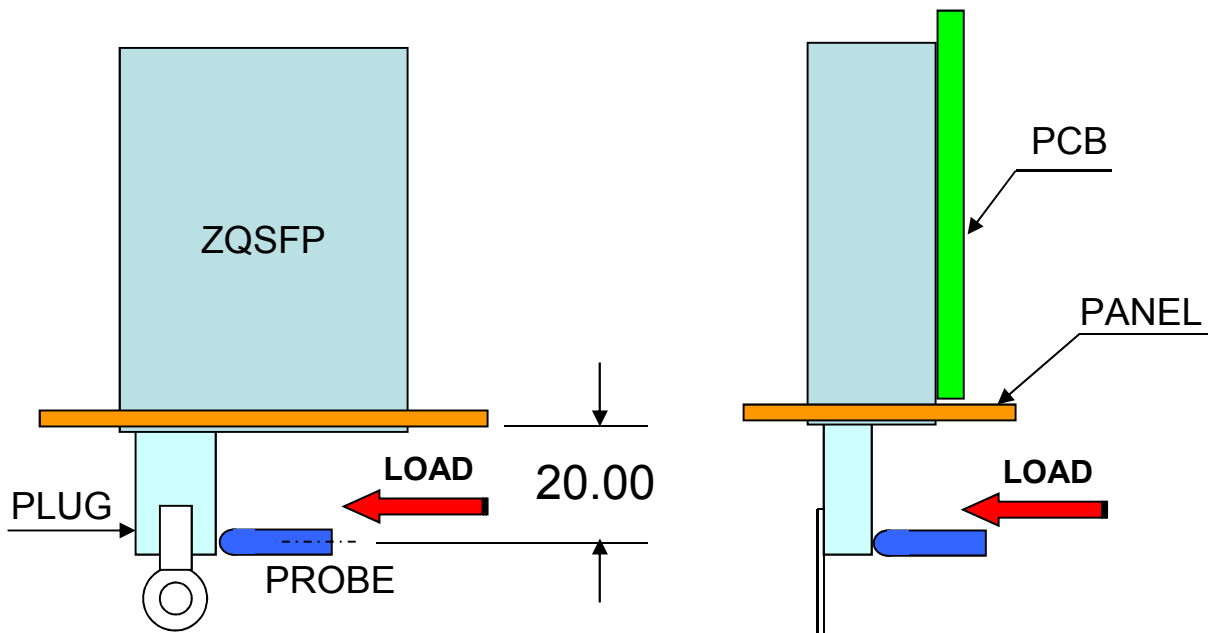
7.1 Product shall be packaged in Trays with Lids placed in Cartons, per the packaging specification as called out on the applicable assembly print.

7.2 Packaging shall meet the requirements of and be tested per the packaging specification as called out on the applicable assembly print.

8.0 GAGES AND FIXTURES

Test setup for latitudinal and longitudinal load testing. Probe is about 6mm in diameter with a full radius nose. The probe is to be placed 20mm from the front face of the panel and located approximately at the center of the plug. Apply load to plug at a rate of 25mm per minute.

An open circuit is defined as a 10Ω increase in resistance for duration of at least 1μ second. Reference EIA-364-46.



REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 12 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY:



PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS

9.0 PCB REQUIREMENTS

- 9.1 The compliant pin shall be capable of being inserted one time.
- 9.2 The PCB hole shall be capable of retaining the compliant pin for a maximum of three insertions. The removal of the compliant pin from the PCB shall not damage the PCB hole beyond the point to be able to retain a compliant pin (that has not been inserted into a PCB).

REVISION: 2	ECR/ECN INFORMATION: EC No: UCP2013-2209 DATE: 02/05/2013	TITLE: PRODUCT SPECIFICATION STACKED ZQSFP+ CONNECTORS	SHEET No. 13 of 13
DOCUMENT NUMBER: PS-171565-0001	CREATED / REVISED BY: ARIZVI 11/07/12	CHECKED BY: JKACHLIC 11/08/12	APPROVED BY: