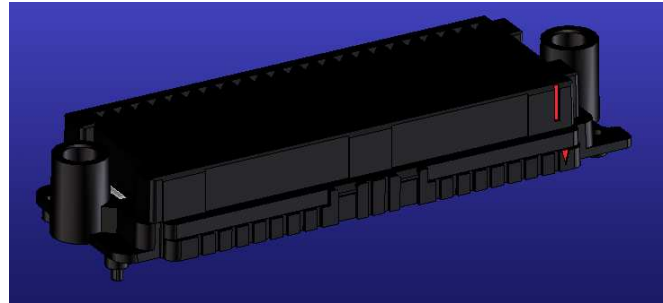
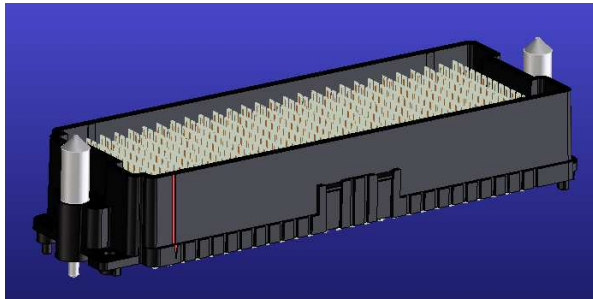




PRODUCT SPECIFICATION

PRODUCT SPECIFICATION FOR HIGH DENSITY MEZZANINE INTERCONNECT SYSTEM



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PRODUCT SPECIFICATION

1.0 SCOPE

This specification defines the performance requirements and test methods for the following products listed by series numbers:

- 45802 HD Mezz™ Receptacle Connector
- 46553 HD Mezz™ Receptacle Connector (Selectively filled)
- 45830 HD Mezz™ Plug Connector
- 46537 HD Mezz™ Plug Connector (Reduced Wipe and selectively filled)

The High Density Mezzanine is a 1.2mm x 2.0mm pitch surface mount interconnect system consisting of various stack heights and circuit sizes for parallel board to board applications.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAMES

HD Mezz™ (High Density Mezzanine)

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Refer to the appropriate sales drawings for information on dimensions, materials, platings and markings.

2.3 SAFETY AGENCY APPROVALS

UL File Number: TBD CSA File Number: TBD

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 MOLEX DOCUMENTS

SD-45830-001, SD-46537-001
SD-45802-001, SD-46553-001
AS-45802-001

3.2 INDUSTRY SPECIFICATIONS

IPC-9701
EIA TS-1000
TELCORDIA GR1217

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PRODUCT SPECIFICATION

4.0 RATINGS AND GENERAL INFORMATION

4.1 CURRENT

Signal Contact: 2 Amp

4.2 VOLTAGE

Signal Contact: 250VAC

4.3 TEMPERATURE RANGE:

4.3.1 Operating: -55°C to +105°C

4.3.2 Non-Operating: -40°C to +105°C

4.4 DURABILITY:

100 Cycles

4.5 CHARACTERISTIC IMPEDANCE:

100 Ohms - differential signal pairs

69 Ohms (Max) – single ended signals

4.6 DIGITAL BANDWIDTH:

Differential signal pairs

6.5 GHz – 28 mm stack height (connector only)

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PRODUCT SPECIFICATION

5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
CONTACT RESISTANCE (LOW LEVEL)	Mated, 100mA max, 20mV per EIA-364-TP-23	13.5 milliohm Nom. 10 milliohm maximum change
INSULATION RESISTANCE	Unmated, 500VDC per EIA-364-TP-21	5000 mega ohms minimum across wafers (2.0mm pitch) and 1000 mega ohms minimum within a wafer (1.2mm pitch).
DIELECTRIC WITHSTANDING VOLTAGE	Unmated, 500VDC, per EIA-364-TP-20	No breakdown or flashover
SIGNAL CONTINUITY	Mated per EIA-364-TP-87	No interrupts greater than 1 microsecond
CHARACTERISTIC IMPEDANCE	Test at 100ps RT (10-90%)	100+/-10% ohms - Diff 69 Max ohms – SE
CROSSTALK	Test at 100ps RT (10-90%), All lines switching, with one victim bit.	4.6% of signal swing (Near-End)
PROPAGATION DELAY	Measurement made on line while others floating on mated connector	133 ps (28mm stack height)
DIFFERENTIAL INSERTION LOSS (-3dB)	Mated Connectors Only (not including launches)	6.5 GHz (28mm stack height)

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PRODUCT SPECIFICATION

5.2 MECHANICAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
MATING FORCE	Mate receptacle and plug connector assemblies per EIA-364-TP-13	0.5N per signal pin (nominal values) 1.0 N per ckt Max.
UNMATING FORCE	Un Mate receptacle and plug connector assemblies per EIA-364-TP-13	0.25N per signal pin (nominal), 0.06 N/ckt. Min.
DURABILITY	100 Cycles, mated and unmated per EIA-364-TP-09	10 milliohm max change in LLCR
VIBRATION	Mated, 20-500Hz, 3.1 G Random, 15 min, 3 axis per EIA-364-TP-28 Condition VII , condition D	10 milliohm max change in LLCR
MECHANICAL SHOCK	Mated, 30g half-sine, 11ms, 3 axis per EIA-364-TP-27 Test Condition H	10 milliohm max change in LLCR
NORMAL FORCE	Apply perpendicular force to terminal at rate of 25+/-6mm per minute	Signal: 0.5N (51 g) Nom. 0.34N Min. at 0.2mm
SOLDERABILITY	IPC-9701	6,000 cycles

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5.3 ENVIRONMENTAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
THERMAL SHOCK	Mated, 5 cycles from -55°C to 85°C per EIA-364-TP-32 Test Condition 1	10 milliohm max change in LLCR
TEMPERATURE LIFE	Mated, +85°C for 1000 hours per EIA-364-TP-17	10 milliohm max change in LLCR
HUMIDITY	Mated, 600 hours from +25°C to +65°C per EIA-364-TP-31 Method 3	10 milliohm max change in LLCR
DUST	Unmated per EIA-364-TP-91 Benign Dust Composition	10 milliohm max change in LLCR
MIXED FLOWING GAS	10 days unmated, 10 days mated, per EIA-364-TP-65 Class IIA and ASTM B827	10 milliohm max change in LLCR
THERMAL DISTURBANCE	Cycle the connector between 15°C+/-3°C and 85°C+/-3°C as measured on the part. Ramps should be a minimum of 2 deg. C/min, and dwell times should insure that contacts reach temperature extremes (a minimum of 5 minutes). Perform 10 cycles on Mated connectors.	10 milliohm max change in LLCR

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PRODUCT SPECIFICATION

6.0 TEST SEQUENCE

6.1. Telcordia GR1217-CORE Test Plan

GROUP 1 (5 mated sets)	GROUP 2 (5 mated sets)	GROUP 3 (5 mated sets)	GROUP 4 (19 mated sets)*	GROUP 5**
Visual Exam	Visual Exam	Visual Exam	Visual Exam	Visual Exam
Mate/Unmate Forces	Mate/Unmate Forces	Mate/Unmate Forces	LLCR	Normal Force
			Durability (25 cycles)	
			LLCR	
LLCR	LLCR	LLCR	Temp. Life Pre Conditioning (300hrs. @ 105 C)	Plating Thickness
Durability (100 cycles)	Durability (100 cycles)	Temperature Life (1000 hrs @ 85 C)	Mate/Unmate Forces	Porosity
LLCR	LLCR	LLCR	LLCR	
Dust	Thermal Shock	Mate/Unmate Forces	MFG* (10 days Unmated)	
LLCR	LLCR	Visual Exam	LLCR After 5th & 10th days	
Vibration (3 axis)	Dust	Normal Force	MFG (10 days Mated)	
LLCR (in each axis)	LLCR		LLCR After 15th & 20th day	
Mechanical Shock (3 axis)	Humidity		Thermal Disturbance	
LLCR (in each axis)	LLCR		LLCR	
Durability (100 cycles)	Durability (100 cycles)		Durability (25 cycles)	GROUP 6
LLCR	Mate/Unmate Forces		LLCR	Insulation Resistance
Mate/Unmate Forces	LLCR		Visual Exam	Dielectric Withstanding Voltage
Visual Exam				

LLCR = Low Level Contact Resistance

* There are two groups of 19 for a total of 38 mated sets. During the Unmated MFG testing each group will have one of the genders exposed and the other not exposed.

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PRODUCT SPECIFICATION

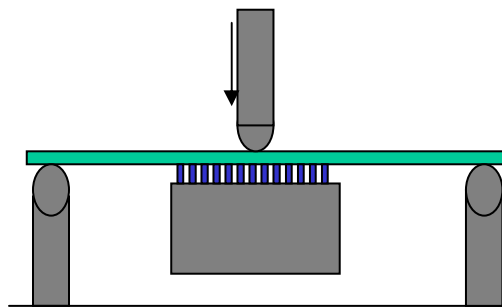
** Group 5 are wafers not mated sets.

6.2 IPC-9701 Temperature Cycling Test for Solder Joint Reliability

- 6.2.1 Cycle Condition TC1: 0 deg. C to +100 deg. C.
- 6.2.2 Test Duration: Whichever condition occurs first:
 - 6.2.2.1 63.2% cumulative failure or
 - 6.2.2.2 6,000 cycles
- 6.2.3 Temperature Profile
 - 6.2.3.1 Low Temperature Dwell: 10 minutes +0/-5 deg. C.
 - 6.2.3.2 High Temperature Dwell: 10 minutes +5/-0 deg. C.
 - 6.2.3.3 Temperature Ramp Rate: Less than or equal to 20 deg. C/ minute.
- 6.2.4 Sample Size: 32 mated sets and 10 reworked mated sets (42 total test samples plus one for cross-section).
- 6.2.5 Package Condition: Daisy-Chain
- 6.2.6 Monitoring: In-Situ Event Detection

6.3 Three Point Bend Test (Reference)

With connector soldered to 1/16" PCB and supported as shown, deflect the board 0.5mm for every 25.4mm of support span. Visually inspect solder joints for cracks after applying dye penetrant.



Connector Width

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