SPEC. NO.: PS-91781-314XX-XX **REVISION:** D

PRODUCT NAME: 0.5 mm PITCH EDGE CARD MXM-3 314PINS CONN. R/A D/R

PRODUCT NO: 91781 SERIES, 91782 SERIES, 91783SERIES, 91789 SERIES, 91786 SERIES,

APPROVED:	CHECKED:	PREPARED:
LIUJINLAN	DAVID	SIMON
DATE: 2014/1/18	DATE: 2014/1/18	DATE: 2014/1/18

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-0810101	RELEASE	JASON	2008.11.06
A	ECN-0902280	ADD 91786 SERIES	JASON	2009.02.17
B	ECN-1003062	MODIFY RETURN LOSS REQUIREMENTS:	JASON	2010.03.12
C	ECN-1211238	ADD SMT REQUIREMENTS HAVE	CHENBO	2012.11.05
D	ECN-1401277	ADD Working Voltage	LIUJINLAN	2014/1/18

2 SCOPE

This specification covers performance, tests and quality requirements for MXM-3 314pins 0.5 mm pitch connector. These connectors are used to hold graphic card in computer.

Aces's P/N : 91781 series, 91782 series, 91783 series,91789 series, 91786 series,

3 APPLICABLE DOCUMENTS

EIA-364 ELECTRONICS INDUSTRIES ASSOCIATION

4 REQUIREMENTS

4.1 Design and Construction

4.1.1 Product shall be of design, construction and physical dimensions specified on applicable product drawing.
4.1.2 All materials conform to R.o.H.S. and the standard depends on TQ-WI-140101.

4.2 Materials and Finish

4.2.1 Contact: High performance copper alloy (Phosphor Bronze)
Finish: (a) Contact Area: Gold plated based on order information
(b) Under plate: Nickel-plated all over
(c) Solder area: Gold Flash plated
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
4.2.3 Nut or Ear: Copper Alloy, Gold Flash over all pleated.
4.2.4 SCREW NUT: Copper Alloy, Matt Tin pleated over all
4.2.5 Through hole: Copper Alloy, Tin plated overall

4.3 Ratings

4.3.1 Working Voltage Less than 36 Volts AC (per pin)
4.3.2 Voltage: 50 Volts AC (per pin)
4.3.3 Current: 0.5 Amperes (per pin)For (Signal area)&0.8 Amperes(per pin)For (Power area)
4.3.4 Operating Temperature : -55℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low Level Contact Resistance	Product High H≦5.2mm,30m ΩMax. (initial)per contact H＞5.2mm,55m ΩMax.(initial)per contact △R 20 m Ω Max.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	initial：250 M(Min.) after test：50 M(Min.)	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 1 mA max.	250 VAC Min. at sea level for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature Rise	30℃ Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25℃ (EIA-364-70,METHOD1,CONDITION1)
Impedance	Impedance Requirements: 85 ± 12.75Ω differential at Trise 35ps 42.5 ± 10 Ω single ended.	EIA-364-108
Differential Insertion Loss	Insertion Loss Requirements: >=-0.5dB up to 2.5GHz >=-[0.8*(f-2.5)+0.5]dB for 2.5GHz<f<=5GHz >=-2.5dB at f=5GHz >=-[3.0*(f-5)+2.5]dB for 5GHz<f<=7.5GHz >=-10dB at f=7.5GHz Reefer to High Frequency Graphic **Figure I**	A common test fixture for connector characterization shall be used. This is differential insertion loss requirement. (EIA-364-101)
Differential Return Loss	Return Loss Requirements: <=-15dB up to 2GHz <=-10dB for 2GHz<f<=3GHz <=-5dB for 3GHz<f<=5GHz <=-1dB for 5GHz<f<=7.5GHz Reefer to High Frequency Graphic **Figure II**	A common test fixture for connector characterization shall be used. This is differential insertion loss requirement. (EIA-364-108)
Differential Next Cross-talk	Crosstalk(NEXT) Requirements: <=-32dB up to 2.5GHz <=-26dB for 2.5GHz<f<=5.0GHz <=-20dB for 5.0GHz<f<=7.5GHz (for example, ≤ -26 dB at F = 3.75 GHz)where F is frequency in GHz Reefer to High Frequency Graphic**Figure III**	A common test fixture for connector characterization shall be used. This is differential cross-talk requirement. (EIA-364-90)

MECHANICAL

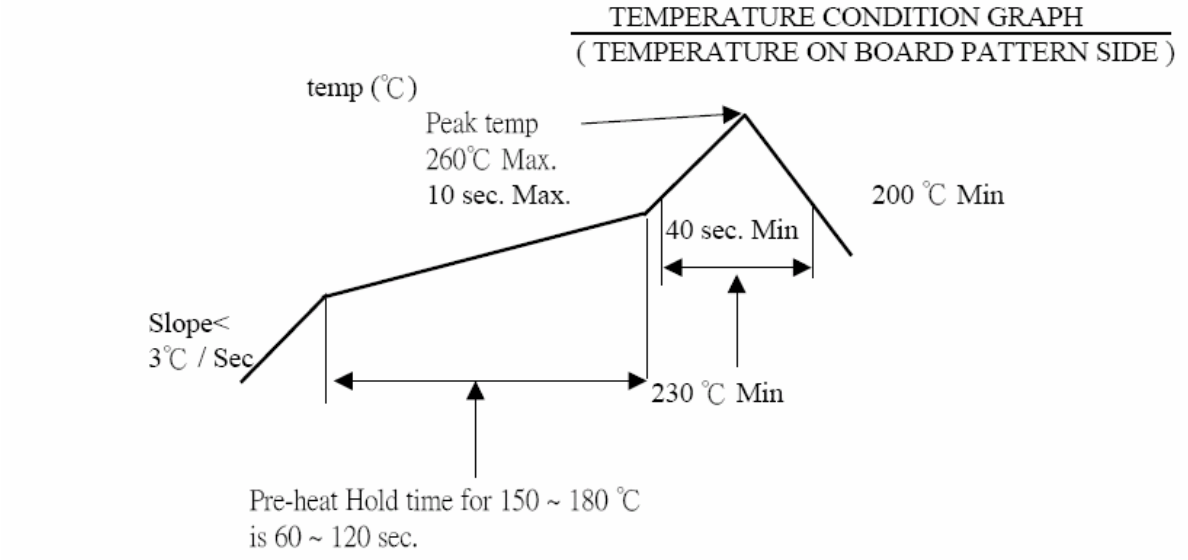
Item	Requirement	Standard
Durability	30 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min. (EIA-364-09)
Mating / Unmating Forces	Mating Force: 6.0Kg Max. Unmating Force: 0.4 Kg Min	Card mating/Unmating sequence: a.) Insert the card at the angle specified by the manufacturer b.) Rotate the card into position. c.) Reverse the installation sequence to unmated Operation Speed： 25.4 ± 3 mm/minute..Measure the force required to mate/Unmate connector.(EIA-364-13)
Contact Retention Force	60gf Min. (per contact)	Operation Speed： 25.4 ± 3 mm/minute. Measure the contact retention force with Tensile strength tester.
Terminal / Housing Retention Force	0.12kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the terminal assembled in the housing.
Fitting Nail /Housing Retention Force	0.15kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.
Screw nut /Housing Retention Force	2.0kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.
PCB Snap down Force	2.0 Kg Max.	1.Test sample must mount on PCB 2.Insert PCB Card with a angle at 30 degree 3.Apply the force on the end of PCB Card edge
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28 Condition I)

MECHANICAL		
Item	**Requirement**	**Standard**
Shock (Mechanical)	Appearance：No damage Discontinuity：1 μs Max. Contact Resistance：20 m Ω Max.	Subject mated connectors to 490m/s2 50 G's (peak value) Half-Sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. (EIA-364-27, test condition A)

ENVIRONMENTAL		
Item	**Requirement**	**Standard**
Resistance to **Reflow** Soldering Heat	See Product Qualification and Test Sequence Group 9 **(Lead Free)**	Pre Heat：150℃~180℃, 60~90sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max.
Thermal Shock	See Product Qualification and Test Sequence Group 3	Mate module and subject to follow condition for 5 cycles. 1 cycles: -55 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 3	Mated Connector 40℃, 90~95% RH, 96 hours. (EIA-364-31,Condition A, Method II)
Temperature life	See Product Qualification and Test Sequence Group 4	Subject mated connectors to temperature life at 85℃ for 96 hours. (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 5	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ for 48 hours. (EIA-364-26,Test condition B)
Solder ability	Solder able area shall have minimum of 95% solder coverage.	And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)

Note. Flowing Mixed Gas shell be conduct by customer request.

6 INFRARED REFLOW CONDITION



7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group												
	1	2	3	4	5	6	7	8	9	10	11	12	13
	Test Sequence												
Examination of Product			1、7	1、6	1、4			1、4	1	1、3	1	1	1
Low Level Contact Resistance	1、5	1、4	2、10	2、9	2、5				4				
Insulation Resistance			3、9	3、8									
Dielectric Withstanding Voltage			4、8	4、7									
Mating / Unmating Forces	2、4												
Durability	3												
Contact Retention Force							1						
Vibration(Random) / Vibration		2											
Shock (Mechanical)		3											
Thermal Shock			5										
Humidity			6										
Temperature life				5									
Salt Spray					3								
Solder ability						1							
Terminal / Housing Retention Force								2					
Fitting Nail &Screw nut /Housing Retention Force								3					
PCB Snap down Force									3				
Resistance to Soldering Heat									2				
Temperature Rise										2			
Insertion Loss											2		
Return Loss												2	
Next Cross-talk													2
Sample Size	4	4	4	4	4	2	2	4	2	2	4	4	4

8 HIGH FREQUENCY GRAPIC

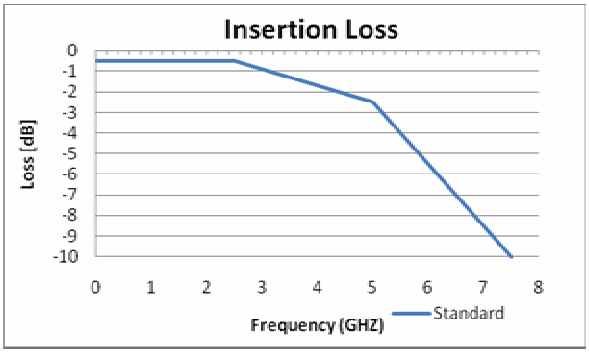


Figure I

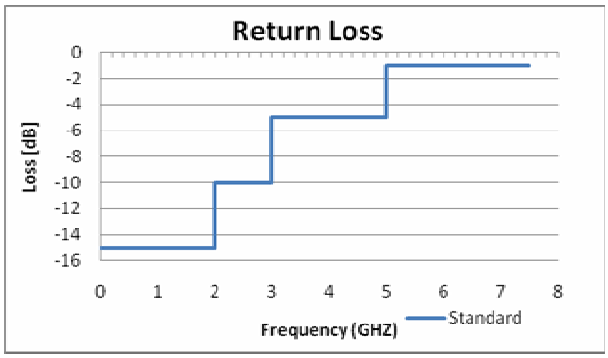


Figure II

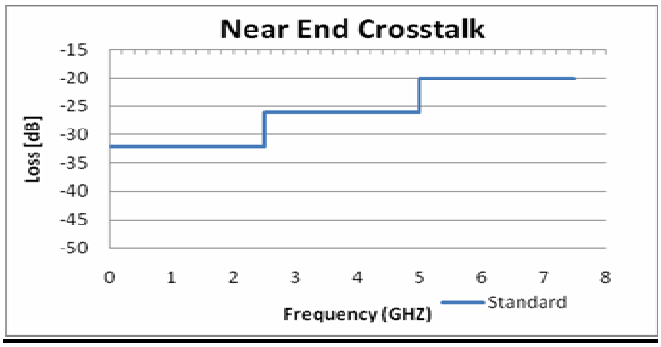
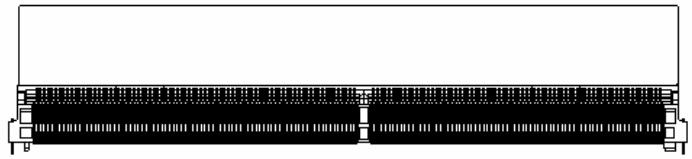


Figure III

9 SMT REQUIREMENTS HAVE



Need to join press block a SMT
Press block heavy 40g