



SPECIFICATION

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SPEC. NO.: PS-52741-314XX-XXX REVISION: 1

PRODUCT NAME: 0.5mm pitch MXM conn SMT D/R R/A STD Type

PRODUCT NO: 52741 Series; 52742 Series;

PREPARED: Xu,Zhonglin DATE: 2021/08/07	CHECKED: Lu,JingQuan DATE: 2021/08/07	APPROVED: Hsieh,fu yu DATE: 2021/08/07
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RELEASE DATE: 2021/08/07

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ECN No: ECN-x

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Aces P/N: **52741 series, 52742 series**

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
1	ECN-x	NEW SPEC	xuzhonglin	2021/08/06

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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 : 52741 series, 52742 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 plated.**
- 4.2.4 SCREW NUT: **Copper Alloy, Matt Tin plated 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°C to +85°C**

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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 $H \leq 5.2\text{mm}, 30\text{m}\Omega\text{Max. (initial)per contact}$ $H > 5.2\text{mm}, 55\text{m}\Omega\text{Max. (initial)per contact}$ $\Delta R 20\text{m}\Omega\text{Max.}$	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°C Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25°C (EIA-364-70, METHOD1, CONDITION1)
Impedance	Impedance Requirements: $85 \pm 12.75\Omega$ differential at Trise 35ps	EIA-364-108
Differential Insertion Loss	Insertion Loss Requirements: $\geq -0.5\text{ dB}$ up to 4 GHz; $\geq -0.25^*f + 0.5\text{ dB}$ for $4\text{ GHz} < f \leq 10\text{ GHz}$ (for example, -1.5 dB at 8 GHz) Refer 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: $\leq -15\text{ dB}$ up to 3.0 GHz; $\leq 5^*f - 30\text{ dB}$ for $3.0 < f \leq 4.4\text{ GHz}$ (for example : -10 dB at 4 GHz); $\leq -8.0\text{ dB}$ from 4.4 GHz to 10 GHz Refer 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: $\leq -32\text{ dB}$ up to 8 GHz; $\leq -20\text{ dB}$ from 8 GHz to 10 GHz Refer 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)

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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)
Terminal / Housing Retention Force	0.10kgf 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)

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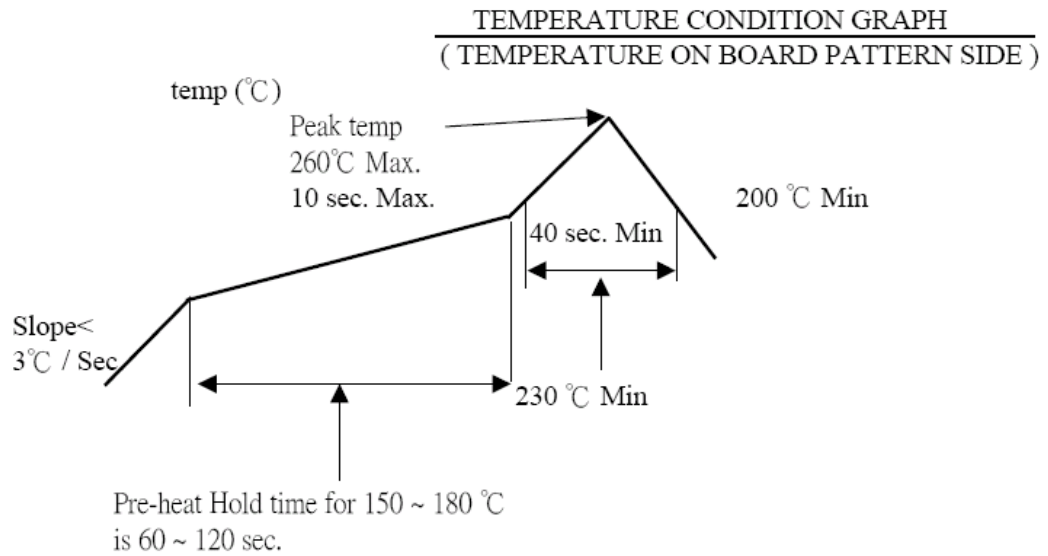
MECHANICAL		
Item	Requirement	Standard
Shock (Mechanical)	Appearance : No damage Discontinuity : 1 μ s Max. Contact Resistance : 20 m Ω Max.	Subject mated connectors to 490m/s ² 50 G's (peak value) Half-Sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along 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°C~180°C, 60~90sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°C 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 °C, 30 minutes +85 +3/-0 °C, 30 minutes (EIA-364-32, test condition A)
Humidity	See Product Qualification and Test Sequence Group 3	Mated Connector 40°C, 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°C 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°C 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 \pm 5°C, for 4-5 sec. (EIA-364-52)

Note. Flowing Mixed Gas shall be conducted by customer request.

6 INFRARED REFLOW CONDITION

6.1. Lead-free Process



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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

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8 HIGH FREQUENCY GRAPIC

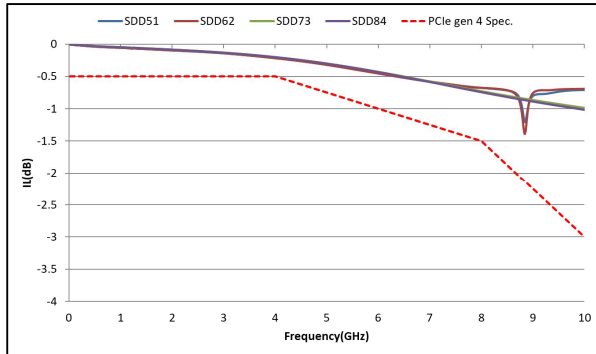


Figure I

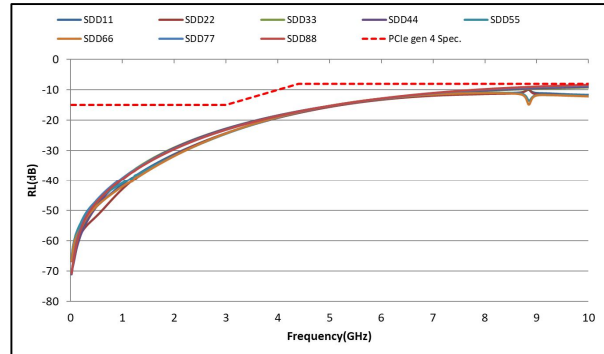


Figure II

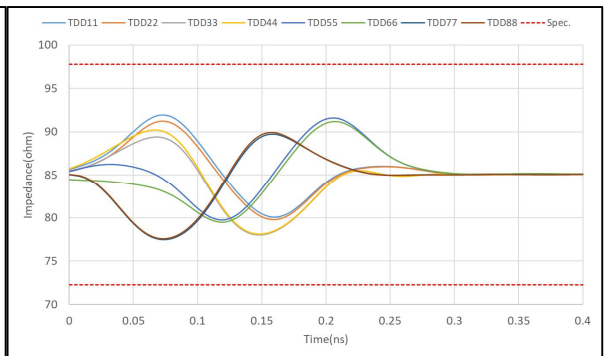
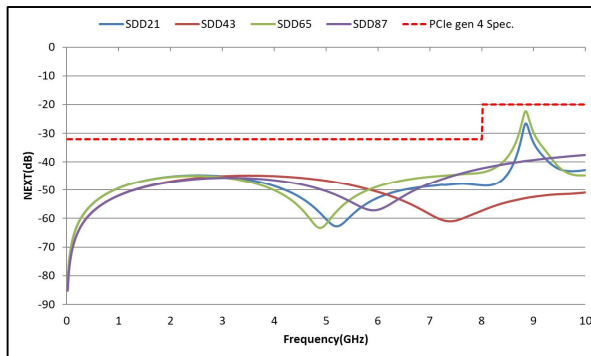
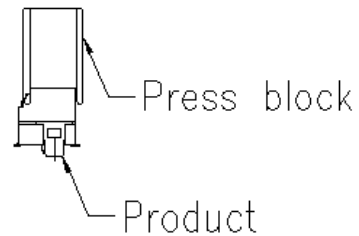
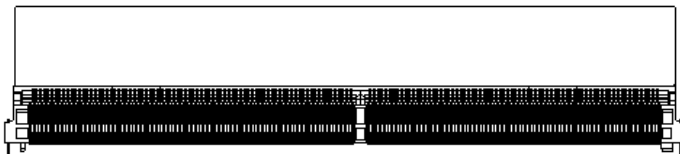


Figure III

9 SMT REQUIREMENTS HAVE



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