



SPECIFICATION

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SPEC. NO.: PS-52961-XXXXX-XXX REVISION: A

PRODUCT NAME: MULTIFUNCTION 16 GB/S (SAS/PCIe) CONNECTOR

PRODUCT NO: 52961 SERIES

PREPARED: CHIA ANN.LIN DATE: 2020/09/24	CHECKED: I HUNG.LEE DATE: 2020/09/24	APPROVED: CHUN SHENG.WANG DATE: 2020/09/24
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TITLE: **MULTIFUNCTION 12GB/S (SAS/PCIE) CONNECTOR**

RELEASE DATE: [2020.09.24](#)

REVISION: A

ECN No:007981

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
A	ECN-007981	NEW PRODUCT RELEASE	CA. LIN	2020/09/24

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2 SCOPE

This specification covers performance, tests and quality requirements for **MULTIFUNCTION 16GB/S (SAS/PCIE) Connector**

3 APPLICABLE DOCUMENTS

EIA-364: ELECTRONICS INDUSTRIES ASSOCIATION
TS-1000: ENVIRONMENTAL TEST METHODOLOGY
SFF-8639: SFF SPECIFICATION

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: **Refer to the drawing.**
 - (b) Under plate: **Refer to the drawing.**
 - (c) Solder area: **Refer to the drawing.**
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.3 CAP: Thermoplastic or Thermoplastic High Temp., UL94V-0
- 4.2.4 Fit Nail: High performance alloy (**Brass or Stainless steel**)
Finish:
 - (a) Under plate: **Refer to the drawing.**
 - (b) Solder area: **Refer to the drawing.**

4.3 Ratings

- 4.3.1 Working Voltage Less than **30 Volts AC (per pin)**
- 4.3.2 Voltage : **30 Volts AC (per pin)**
- 4.3.3 Current : **1.5 Amperes (per pin)**
- 4.3.4 Operating Temperature : **0°C to +55°C**
- 4.3.5 Non-Operating Temperature : **-40°C to +85°C**

4.4 Mates

- 4.4.1 This receptacle conn. is mates with SFF-8639 plug side.

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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	Initial: 30 mΩ Max. After test: 15 mΩ Max. change allowed	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	1000 MΩ 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.	500 V AC Min. at sea level for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature Rise	30°C Max. Change allowed	Wire contact pins P1,P2,P8 and P9 in parallel for power Wire contact pins P4,P5,P6,P10 and P12 in parallel for return Supply 6 Amp total DC current to the power pins in parallel,returning from the parallel ground pins Measure and record the temperature after 96 hours(45 minutes ON and 15minutes OFF per hours) in ambient condition of 25°C still air (EIA-364-70,Method2)

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MECHANICAL		
Item	Requirement	Standard
Durability	500 Cycles for Backplane Receptacle After test: 15 mΩ Max. change allowed	The sample should be mounted in the tester and fully mated and unmated the number of cycles. (EIA-364-09)
Durability(precondition)	Perform 50 mate/unmate cycles if the application requires 500 cycles.	No evidence of physical damage (EIA-364-09)
Mating Un-mating Force	Mating Force: 59N Max. Un-mating Force: 6N Min.	Measure the force required to mate/unmate connector. (EIA-364-13 Method A)
Contact & Fit Nail Retention	Retention Force: 2N Min.	Measure the retention force of contact and Fit Nail in the housing.
Vibration	No discontinuity longer than 1 microsecond allowed. 15 mΩ Max. change from initial contact resistance.	Subject mated specimens to 3.10G's rms between 20-500 Hz for 15 minutes in each of 3 mutually perpendicular planes. (EIA-364-28 Condition VII)
Mechanical Shock	No discontinuity longer than 1 microsecond allowed. 15 mΩ Max. change from initial contact resistance.	Subject mated specimens to 50G's half-sine shock pulses of 11milliseconds duration 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. (EIA-364-27)
Resistance to Reflow Soldering Heat	No discharge	Pre Heat : 150°C~180°C, 60~120sec. Heat : 230°C Min., 40sec Min. Peak Temp. : 260°CMax, 10sec Max.
Reseating	Appearance: No damage	Manually mated/unmated the connector or socket perform 3 cycles.

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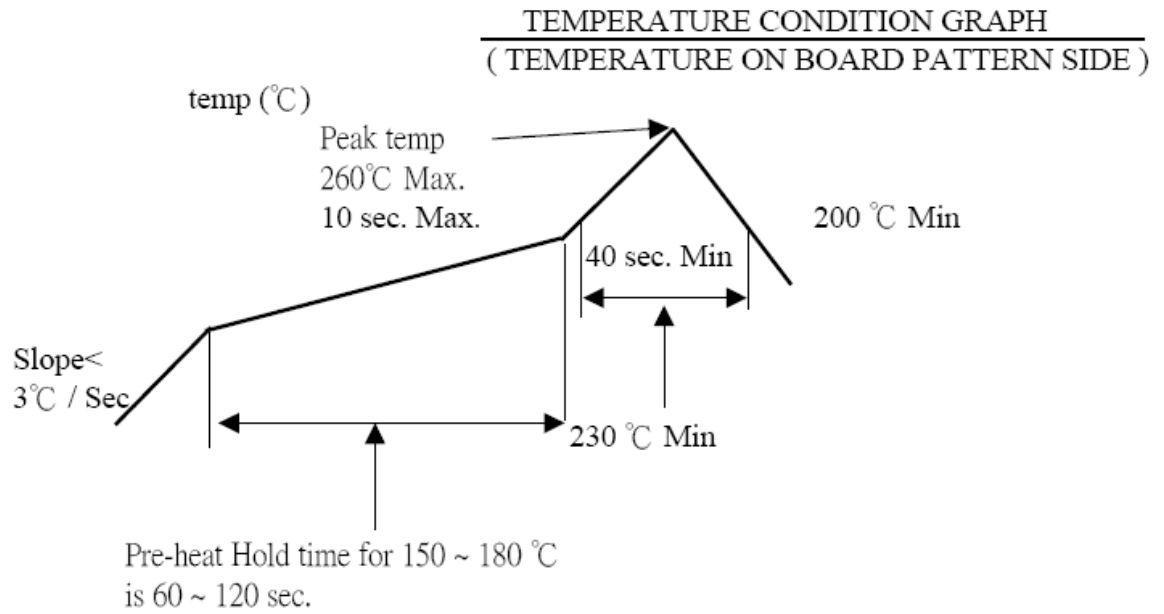
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ENVIRONMENTAL		
Item	Requirement	Standard
Thermal Shock	See Product Qualification and Test Sequence Group 5	Mate module and subject to follow condition for 10 cycles. 1 cycles: -55°C and +85 °C each 30min. (EIA-364-32, Test condition I)
Temperature Life	See Product Qualification and Test Sequence Group 3	Subject mated connectors to temperature life at 85°C for 500 hours. (EIA-364-17, Test condition III ,method A, Test time condition C)
Temperature Life (precondition)	No physical damage	Subject mated connectors to temperature life at 105°C for 72 hours. (EIA-364-17, method A)
Salt Spray	See Product Qualification and Test Sequence Group 1	Subject mated connectors to 5% salt-solution concentration, 35°C Gold plating 30 u" for 96 hours. (EIA-364-26)
Humidity	No Physical damage Initial: 30 mΩ Max. After test: 15 mΩ Max. change allowed	Subject mated connectors to temperature and humidity of 40°C with 90% to 95% RH for 96 hours. (EIA-364-31 Method II Test Condition A)
Solder Ability	Tin plating: Solder able area shall have minimum of 95% solder coverage. Gold plating: Solder able area shall have minimum of 75% solder coverage	Add then into solder bath, Temperature at 245 ±5°C , for 4-5 sec. (EIA-364-52)

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

6 INFRARED REFLOW CONDITION



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7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group							
	1	2	3	4	5	6	7	8
	Test Sequence							
Examination of Product	1、5 8	1、6 10	1、5 8、11	1、6	1、8 11、14	1、7	1、3	1、4
Low Level Contact Resistance	2、4 7	2、5 9	2、4 7、10		2、7 10、13	3、6		
Insulation Resistance					3、15			
Dielectric Withstanding Voltage					4、16			
Temperature Rise				5				
Durability	3					4		
Durability(precondition)		3	3	2	5			
Mating / Unmating Forces						2、5		
Contact & Fit Nail Retention								3
Vibration		7						
Mechanical Shock		8						
Resistance to Reflow Soldering Heat								2
Reseating			9	4	12			
Thermal Shock					6			
Temperature Life			6	3				
Temperature Life(precondition)		4						
Salt Spray	6							
Humidity					9			
Solder Ability							2	
Sample Size	4	4	4	4	4	4	4	4