



SPECIFICATION

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SPEC. NO.: PS-52950-XXXXXXXX-XXX REVISION: C

PRODUCT NAME: SAS+POWER CONN. S/T TYPE.

PRODUCT NO: 52950 & 52951 & 52953 SERIES

PREPARED: AMOS DATE: 2020/12/17	CHECKED: ALEX DATE: 2020/12/17	APPROVED: SEAN DATE: 2020/12/17
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TITLE: SAS+POWER CARD EDGE CONN.

RELEASE DATE: 2020/12/17

REVISION: C

ECN No: ECN-001587

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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
1	ECN-1406193	NEW REPORT (APD1030078)	SIMON	2014/06/16
2	ECN-1409159	RELEASE RETENTION FORCE INTO THE HOUSING,CHANGE MATING UNMATING 20 CYCLES	SIMON	2014/09/15
O	ECN-1507246	RELEASE	LERRY	2015/07/31
A	ECN-1509197	MODIFY DURABILITY CYCLES	MARK	2015/09/17
B	ECN-1604368	MODIFY SOLDER ABILITY	MARK	2016/04/28
C	ECN-001587	ADD NEW SERIES (52953)	AMOS	2020/12/17

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2 SCOPE

This specification provides information and requirements regarding application of the SAS + Power connector used in high power supply & system.

3 APPLICABLE DOCUMENTS

3.1 EIA-364-TP70: ELECTRONICS INDUSTRIES ASSOCIATION

3.2 SAFETY AGENCY APPROVALS

CUL / UL File Number :

TUV File Number :

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.

4.2 Materials and Finish

4.2.1 Contact: High performance copper alloy

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 High Temp., Resin, UL94V-0

4.3 Ratings

4.3.1 Voltage: [250 Volts AC \(RMS\) / DC \(Power\) 50 Volts DC \(Signal\)](#)

4.3.2 Current Rating :

4.3.2.1 Power pin [40A](#) and signal pin [1.0A](#) full on compliant with UL CSA certification

4.3.3 Operating Temperature : [-40°C to +125°C \(including T-rise from applied current\)](#)

Non- Operating Temperature : [-40°C to +125°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	Max. Change Signal Contact: 40 m Ω Max. Δ R 20 m Ω Max Power Contact: 1.0m Ω Max. Δ R 1.0 m Ω Max.	Mate connectors, apply max. voltage of 20mV and a current of 100mA (EIA-364-23)
Insulation Resistance	Initial 5,000 MΩ Min; and 500 MΩ Min. after test.	Apply with a test voltage of 500 VDC between the closet adjacent contacts. (EIA-364-21))
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 0.5 mA max.	Apply with a test voltage of 1500V /RMS for power contact and 500V /RMS for signal contact. (EIA-364-20)
Temperature rise	30°C T-Rise Max.	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 30°C (EIA-364-70,METHOD1,CONDITION1)

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MECHANICAL		
Item	Requirement	Standard
Mating Force	0.15 kgf per signal pin Max. 1.0 kgf per Power Contact Max.	Operation Speed : 25.4 ± 3 mm/min. Measure the force required to mate connector. (EIA-364-13)
Unmating Force	0.015 kgf per signal pin Min. 0.15 kgf per Power Contact Min.	Operation Speed : 25.4 ± 3 mm/min. Measure the force required to unmating connector. (EIA-364-13)
Retention Force Into The Housing	0.30 kgf per signal Pin Min. 0.40 kgf per Power Pin Min. 0.70 kgf per Fitting Nail Min.	Pull Rate at 25.4 ±3mm/min
Durability	Max. Change Signal Contact: 40 m Ω Max. Δ R 20 m Ω Max Power Contact: 1.0 m Ω Max. Δ R 1.0 m Ω Max.	Mate connectors 200 cycles (EIA-364-09)
Normal Force	0.035 kgf per signal pin Min. 0.3 kgf per Power Contact Min.	Apply perpendicular force to terminal at rate of 25.4 ± 3mm/min.
Vibration	Max. Change Signal Contact: 40 m Ω Max. Δ R 20 m Ω Max. Power Contact: 1.0 m Ω Max. Δ R 1.0 m Ω 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)
Shock (Mechanical)	1 μs Max.	Subject mated connectors to 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)

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ENVIRONMENTAL		
Item	Requirement	Standard
Thermal Shock	Max. Change Signal Contact: 40 m Ω Max. Δ R 20 m Ω Max. Power Contact: 1.0 m Ω Max. Δ R 1.0 m Ω Max.	Mate connectors, expose to 5 cycles. From -55 +0/-3 °C, 30 minutes to +85 +3/-0 °C, 30 minutes (EIA-364-32, test condition III)
Humidity	Max. Change Signal Contact: 40 m Ω Max. Δ R 20 m Ω Max. Power Contact: 1.0 m Ω Max. Δ R 1.0 m Ω Max.	Mate module and subject to follow condition for 24 cycles. 1 cycles: -25 +0/-3 °C 80% RH, 30 minutes +65 +3/-0 °C, 80% RH 30 minutes (EIA-364-32, Test condition I)
Temperature life	Max. Change Signal Contact: 40 m Ω Max. Δ R 20 m Ω Max. Power Contact: 1.0 m Ω Max. Δ R 1.0 m Ω Max.	Mate connectors to temperature life at 105°C for 180 hours . (EIA-364-17, Test condition A)
Salt Spray	See Product Qualification and Test Sequence Group 7	Subject mated/unmated connectors to 5% salt-solution concentration, 35°C (I) Au 30u" for 96 hours. (EIA-364-26)
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	And then into solder bath, Temperature at 245 ±5°C , for 4-5 sec. (EIA-364-52)

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6 HIGH SPEED ELECTRICAL

HIGH SPEED ELECTRICAL		
Item	Requirement	standard
Differential Impedance	Rise time 70ps 20-80%	100 +/-10 ohm
Differential Insertion loss	7 GHz 12 GHz 20 GHz	>-1dB >-2dB >-4dB
Differential Return loss	4 GHz 6 GHz 20 GHz	<-20dB <-12dB <-5dB
Common mode return loss	12.5 GHz	<-3dB
NEXT/FEXT	6GHz 12.5GHz	<-35dB <-25dB

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7 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group												
	1	2	3	4	5	6	7	8	9				
	Test Sequence												
Examination of Product				1,7	1,6	1,4							
Low Level Contact Resistance		1,5	1,4	2,10	2,9	2,5							
Insulation Resistance				3,9	3,8								
Dielectric Withstanding Voltage				4,8	4,7								
Temperature rise	1												
Mating/ Unmating Forces		2,4											
Durability		3											
Normal Force								1					
Vibration			2										
Shock (Mechanical)			3										
Thermal Shock				5									
Humidity				6									
Temperature life					5								
Salt Spray						3							
Solder ability							1						
Retention force									1				
Sample Size	2	4	4	4	4	2	2	2	2				

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8 High Speed electrical TEST SEQUENCE

Test or Examination	Test Sequence	
Differential Impedance	1	Page 8
Differential Insertion loss	1	Page 8
Differential Return loss	1	Page 8
Common Mode Return loss	1	Page 8
NEXT/FEXT	1	Page 8
Sample Size	2	

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9 LEAD-FREE PROCESS:

