

NUMBER: 108-5447

SECURITY CLASSIFICATION:

Customer Release

# Product Specification

108-5447

## Z-Pack J-II Type S Connector

1. Scope :

1.1 Contents :

This specification covers the requirements for product performance, test methods and quality assurance provisions of Z-Pack J- II Type S Connector which is 2-Piece type board to board connector system consist of receptacle assembly and header assembly.

Applicable product descriptions and part numbers are as shown in Appendix 1 :

2. Applicable Documents :


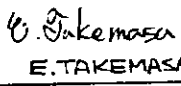


The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 AMP Specifications :

- A. 109-5000 Test Specification, General Requirements for Test Methods
- B. 501 - 5168 Qualification Test Report

2.2 Commercial Standards and Specifications :

- A. MIL-STD-202 Test Methods for Electric and Electrical Component Parts

				DR. 29/Nov. '95	SHEET 1 OF 8	 AMP (Japan), Ltd. Kawasaki, Japan		
				CHK. 29 Nov '95  E. TAKEMASA				
				APP. 4 DEC '95  I. HASEGAWA	LOC J	LOC A	NO. 108-5447	REV. A
PRINT	A	Revised FJ00-3558-95	E.T	I.H	NAME Z-Pack J-II Type S Connector			
LTR	REVISION RECORD		DR	CHK	DATE	 S. MANABE		

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3. Requirements :

3.1 Design and Construction :

Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

3.2 Materials :

A. Contact :

Copper Alloy (Receptacle Assembly & Header Assembly)

B. Housing :

Liquid Crystal Polymer (Receptacle Assembly)

Thermo Plastic Polyester (Header Assembly)

C. Retention Leg

Copper Alloy (Receptacle Assembly)

3.3 Ratings :

A. Voltage Rating : 48 VAC (rms), 48 VDC

B. Current Rating : 1 A

C. Temperature Rating : -20 °C to +105 °C, (Include temperature rising by current)

D. Temperature Rating for keep -55 °C to 105 °C

3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 2. All tests shall be performed in the room temperature, unless otherwise specified.

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## 3.5 Test Requirements and Procedures Summary :

Para.	Test Items	Requirements			Procedures
3.5.1	Confirmation of Product	Product shall be conforming to the requirements of applicable product drawing and Application Specification.			Visually, dimensionally and functionally inspected per applicable quality inspection plan.
<b>Electrical Requirements</b>					
3.5.2	Termination Resistance (Low Level)	Contact	Initial	Final	Subject mated contacts assembled in housing to 20 mV Max open circuit at 10 mA Fig. 3. AMP Spec. 109-5311-1
		Signal Contact	25 mΩ Max.	40 mΩ Max.	
		Ground Contact	25 mΩ Max.	40 mΩ Max.	
3.5.3	Insulation Resistance	500 MΩ Min. (Initial)			Impressed voltage 500 V DC. Test between adjacent circuits of unmated connectors. AMP Spec. 109-5302
3.5.4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage : 0.5 mA Max.			1 kVAC for 1 minute. Test between adjacent circuits of unmated connectors. AMP Spec. 109-5301
3.5.5	Capacitance	Between	Spec.		Test between the adjacent circuits of mated connector. AMP Spec. 109-5307 condition 1 kHz
		Signal~Ground	2 pF Max.		
		Signal~Signal	2 pF Max.		

Fig. 2 (To be continued)

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Para.	Test Items	Requirements	Procedures
<b>Mechanical Requirements</b>			
3.5.6	Connector Mating Force	268 Pos. : 147 N (15 kgf) Max.	Operation Speed : 100 mm / min. Measure the force required to mate connectors. AMP Spec. 109-5206
3.5.7	Connector Unmating Force	268 Pos. : 49 N (5 kgf) Min.	Operation Speed : 100 mm / min. Measure the force required to unmate connectors. AMP Spec. 109-5206
3.5.8	Durability (Repeated Mate / Unmating)	Satisfy 3.5.2 Termination Resistance (Low Level)	Operation Speed : 100 mm/minute No. of Cycles : 50 cycles. AMP Spec. 109-5213
3.5.9	Vibration (Low Frequency)	No electrical discontinuity greater than 1 $\mu$ sec. shall occur. No Physical damage	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular planes. 100 mA applied. AMP Spec. 109-5201
3.5.10	Action Pin Insertion Force	117.7 N (12 kgf) Max. Per Contact.	Measure by inserting action pins on test PCB specified in Fig. 4, one by one.
3.5.11	Action Pin Retention Force	14.7 N (1.5 kgf) Min.Per Contact.	Measure by withdrawing action pins inserted on test PCB specified in Fig. 4, one by one. Direction of withdrawing load is reverse to inserting.

Fig. 2 (To be continued)

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Para.	Test Items	Requirements	Procedures
<b>Environmental Requirements</b>			
3.5.12	Solderability	Wet Solder Coverage : 95 % Min.	Solder Temperature : $230 \pm 5$ °C Immersion Duration : 5 seconds Flux : Alpha 100 Soldering contact line area of receptacle connector AMP Spec. 109-5203
3.5.13	Resistance to Soldering Heat	No physical damage shall occur.	Test receptacle connector on PCB. Solder Temperature : $260 \pm 5$ °C Immersion Duration : $10 \pm 2$ sec. AMP Spec. 109-5204
3.5.14	Thermal Shock	Satisfy 3.5.2 Termination Resistance (Low Level)	Mated connector - 55 °C / 30 min., 85 °C / 30 min. Making this a cycle, repeat 5 cycles. AMP Spec. 109-5103
3.5.15	Humidity-Temperature Cycling	Satisfy 3.5.2 Termination Resistance (Low Level)	Mated connector, 25~65 °C, 90~95 % R. H. 10 cycles Cold shock - 10 °C performed AMP Spec. 109-5106
3.5.16	Industrial Gas (SO <sub>2</sub> )	Satisfy 3.5.2 Termination Resistance (Low Level)	Mated connector SO <sub>2</sub> Gas : $10 \pm 3$ ppm, 95 % R. H. 15~35 °C, 96 hours AMP Spec. 109-5107
3.5.17	Temperature Life (Heat Aging)	Satisfy 3.5.2 Termination Resistance (Low Level)	Mated connector 85 °C, 250 Hr AMP Spec. 109-5104-

Fig. 2 (End)

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## 2. Product Qualification Test Sequence

Test or Examination	Test Group									
	1	2	3	4	5	6	7	8	9	10
	Test Sequence (a)									
Confirmation of Product	1	1	1	1	1	1	1	1	1	1
Termination Resistance (Low Level)	2, 6						2, 4	2, 4	2, 4	2, 4
Dielectric withstanding Voltage		4								
Insulation Resistance		3								
Capacitance		2								
Vibration (Low Frequency)			2							
Connector Mating Force	3									
Connector Unmating Force	4									
Durability (Repeated Mate/Unmating)	5									
Action Pin Insertion Force				2						
Action Pin Retention Force				3						
Solderability					2					
Resistance to Soldering Heat						2				
Thermal Shock							3			
Humidity-Temperature Cycling								3		
Industrial Gas (SO <sub>2</sub> )									3	
Temperature Life (Heat Aging)										3

(a) Numbers indicate sequence in which tests are performed.

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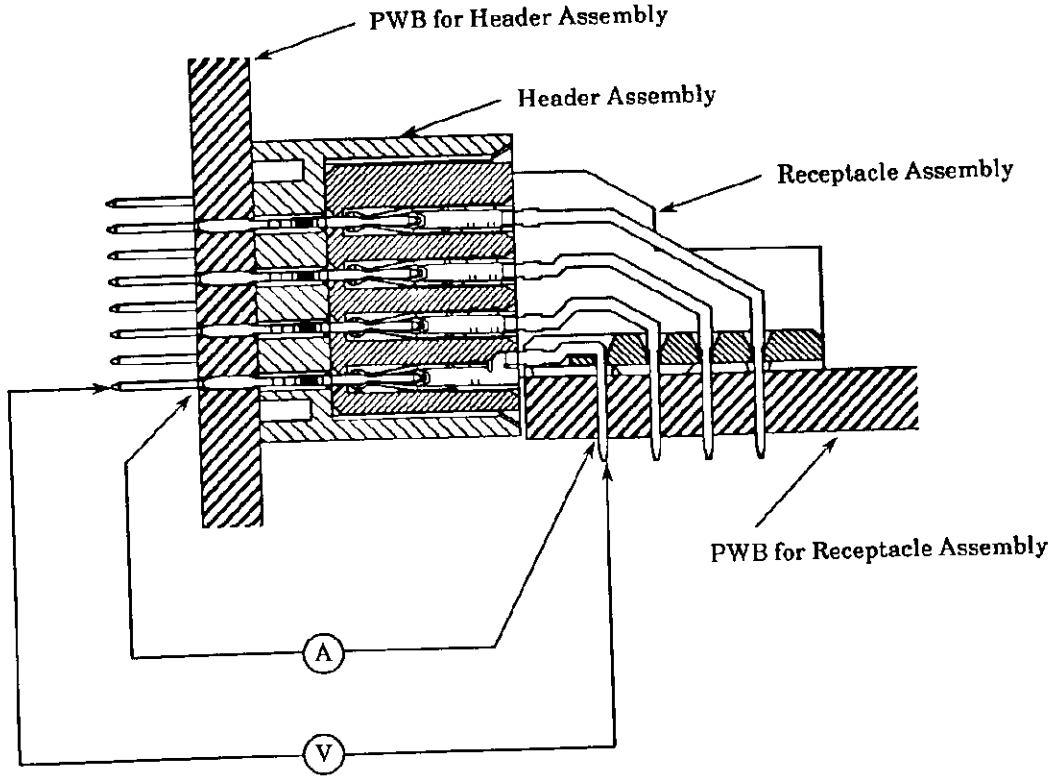


Fig. 3 Termination Resistance Measurement

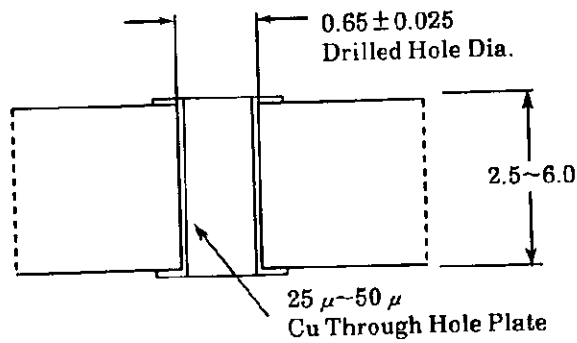


Fig. 4 Test PWB Hole Dimension

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The applicable product descriptions and part numbers are as shown in Appendix 1.

Product Part No.	Description
0-917336-1	268 P (196 Signal) Receptacle Assembly
0-179374-1	268 P (196 Signal) Header Assembly

Appendix 1

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			REV. A