Product Specification

108-60048

0.5 mm Pitch Fine Stack Conn. H=1.5mm

1. Scope:

1.1 Contents

This specification covers the requirements for product performance. Test methods quality assurance provisions of 0.5mm pitch Fine Stack Connector.

Applicable product description 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 here in. 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. 501-60023 : Qualification Test Report

2.2 Commercial Standards and Specifications

A. MIL-STD-202 Test Method for Electronic and Electrical Componet Parts

B. Electronic Industries Association of Japan RCX-0102/101, 102
Test Method of Soldering of Surface Mounting Devices.

DIST

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DR Zhu Julyee
CHK Steven. YAO
APP Ikuo. ENOMOTO

tyco Electronics
Tyco Electronics
AMP K.K. Kawasaki Ltd

NO 108-60048 | REV O | LOC J

TITLE
0.5mm Pitch Fine Stack Connector Lead Free Version

3. Requirements:

3.1 Design and Construction:

Product shall be of the design. Construction and physical dimensions specified on the applicable Product drawing.

3.2 Materials

A. Contact

Phosphor Bronze, Over Nickel Plated (Thickness: 1µm minimum)

Gold Plated (Thickness: 0.2µm minimum)

B. Housing

6T Nylon (GF 30%), UL 94v-0, Black

C. Solder Peg

Phosphor Bronze. Tin Plated (Thickness: 2µm minimum)

3.3 Ratings:

A. Voltage Rating:

Up to 9000m above sea level: 250VAC

More than 9000m above sea level: 100VAC

B. Current Rating: 0.3 A

C. Temperature Rating: -30°C to 105°C

The upper limit of the temperature includes the temperature rising resulted by the energized electrical current.

3.4 Performance Requirements and Test Descriptions:

The product shall be designed to meet the electrical, mechanical and environmental performance Requirements specified in Fig. 1. All tests shall be performed in the room temperature, unless Otherwise specified.

3.5 Test Requirements and Procedures Summary

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	Meets requirements of product drawing	Visual inspection No physical damage
		Electrical Requirements	
3.5.2	Termination Resistance (Low Level)	30 mΩ Max. (Initial) 60 mΩ Max. (Final)	Subject mated contacts assembled in housing to 20 mV Max open circuit at 10 m A. AMP Spec. 109-5311-1 Refer to Fig. 2
3.5.3	Insulation Resistance	500 MΩ Min. (Initial) 100 MΩ Min. (Final)	Impress voltage 100 V DC for 1 minute Test between adjacent circuits of mated connectors. AMP Spec. 109-5302
3.5.4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage: 0.5 m A Max.	500 VAC for 1 minute. Test between adjacent circuits of mated connectors. AMP Spec. 109-5310
3.5.5	Temperature Rising	30˚C max. under loaded current rating.	Measure temperature rising by energized current. (measurement of tine) AMP Spec. 109-5310

Para.	Test Items	Requirements	Procedures
Mechanical Requirements			
3.5.6	Vibration (Low Frequency)	No electrical discontinuity greater than 1 µsec. shall occur. 60 mΩ Max. (Final)	Subject mated connectors to 10-55-10Hz traversed in 1 minute at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular planes. 1 m A applied AMP Spec. 109-5201
3.5.7	Physical Shock	No electrical discontinuity greater than 1 µsec. shall occur 60 mΩ Max. (Final)	Accelerated Velocity: 490m/s² (50G) Waveform: Halfsine shock pluses Duration: 11 m sec. Velocity Change: 3.44 m/s² Number of Drops: 3 drop each to normal and reversed directions of X, Y and Z axes. Totally 18 drops. AMP Spec. 109-5208.Condition A
3.5.8	Connector Mating Force	20 Pos: 23.5N (2.4 kgf) Max. 30 Pos: 35.2N (3.6 kgf) Max. 40 Pos: 47.0N (4.8 kgf) Max. 70 Pos: 82.3N (8.4 kgf) Max. 80 Pos: 94.0N (9.6 kgf) Max.	Operation Speed: 25mm/min. Measure the force required to mate connectors. AMP Spec. 109-5206, condition A Refer Fig. 3

Para.	Test Items	Requirements	Procedures
3.5.9	Connector Unmating Force	20 Pos: 4.0N (0.4 kgf) Min. 30 Pos: 5.9N (0.6 kgf) Min. 40 Pos: 7.9N (0.8 kgf) Min. 70 Pos: 13.8N(1.4 kgf) Min. 80 Pos:15.7N (1.6 kgf) Min.	Operation Speed: 25mm/min. Measure the force required to unmate connectors. AMP Spec. 109-5206. condition A. Refer Fig. 3
3.5.10	Contact Retention Force	0.98N (0.1 kgf) Min.	Apply an axial load to contact Operation Speed: 25mm/min
3.5.11	Durability (Repeated Mate/Unmating)	Termination Resistance 60 mΩ Max. (Final)	Operation Speed: 25mm/min No. of Cycles: 30 cycles AMP Spec. 109-5213
3.5.12	Solderability	Appearance of the specimen shall be inspected after the test with the assistance of a magnifier capable of giving a magnification of 10x for any damage such as pinholes. Void or rough surface.	Provisional standards of EIA of JAPAN. RCX-0102/101 (Test method of soldering of surface mounting devises) Para 2.4.2 Reflow soldering method.

Para.	Test Items	Requirements	Procedures
3.5.13	Resistance to Soldering Heat	Appearance of the specimen shall be inspected after the test with the assistance of a magnifier capable of giving a magnification of 10x for any damage such as cracks. Chips or melting.	Pre Heat: 150°C to 180°C, 90±30 sec. Heat: Over than 230°C, 30±10 sec. Peak: 250+5/-0 °C.
Environmental Requirements			
3.5.14	Thermal Shock	Termination Resistance 60 mΩ Max. (Final)	Mated connector -55˚C/30 min. 85˚C/30 min. Making this a cycle. Repeat 5 cycles. AMP Spec. 109-5103. Condition A
3.5.15	Humidity, Steady State	Insulation resistance 100 MΩ min. (Final) Termination Resistance 60 mΩ Max. (Final)	Mated connector, 95% R.H. 40˚C 96 hours AMP Spec. 109-5105, Condition B
3.5.16	Salt Spray	Termination Resistance 60 mΩ Max. (Final)	Subject mated connectors to 5% salt concentration, 48 hours AMP Spec. 109-5101, Condition A
3.5.17	Temperature Life (Heat Aging)	Termination Resistance 60 mΩ Max. (Final)	Mated Connector 85˚C. Duration: 96 hours. AMP Spec. 109-5104-2, Condition A
3.5.18	Resistance to Cold	Termination Resistance 60 mΩ Max. (Final)	Mated connector -40˚C±3°C, 96 hours AMP Spec. 109-5108-2, Condition B
3.5.19	Ammonia Gas Resistivity	Termination Resistance 60 mΩ Max. (Final) Tested sample shall show no evidence of abnormalities in appearance.	Subject mated connectors to the ammonia gas atmosphere, which is generated from 400g of 28% ammonia solution is desicator in the closed chamber for 40 minutes. Temperature in the desicator: room temperature.

3.5.20	Sulfurous Acid Gas Resistivity	Termination Resistance 60 mΩ Max. (Final) Tested sample shall show no evidence of abnormalities in appearance.	Subject mated connectors to the sulfurous acid gas resistivity at 10±3ppm SO_2 concertation at 25°C and 90% R. H. min. for 96 hours. AMP Spec. 109-5107, Condition 0

Fig. 2 (End)

3-6 Product Qualification Test Sequence

Test Examination	Test Group															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Test Sequence (a)															
Examination of Product	1,4	1,3	1,5	1,5	1	1	1,5	1,3	1,3	1,5	1,6	1,5	1,5	1,5	1,5	1,5
Termination Resistance (Low Level)			2,4	2,4			2,4			2,4	2,4	2,4	2,4	2,4	2,4	2,4
Insulation Resistance	3															
Dielectric withstanding Voltage	2															
Temperature Rising		2														
Vibration (Low Frequency)			3													
Physical Shock				3												
Connector Mate/Unmating Force					2											
Contact Retention Force						2										
Durability (Repeated Mate/Unmating)							3									
Solderability								2								
Resistance to Soldering Heat									2							
Thermal Shock										3						
Humidity (Steady State)											3					
Salt Spray												3				
Temperature Life (Heat Aging)													3			
Resistance to Gold														3		
Ammonia Gas Resistivity															3	
Sulfurous Gas Resistivity																3

Numbers indicate sequence in which the tests are performed.

Fig. 3

4. Quality Assurance Provisions

4.1 Qualification Testing

Connector and contact shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production.

Product Part No.	Packing Part No.	Description
□-6123465-□	□-6123466-□	REC. ASSEMBLY 1.5mm VERSION
□-6123467-□	□-6123468-□	TAB ASSEMBLY 1.5mm VERSION
□-5353158-□	□-5353159-□	Receptacle Assembly with Vacuum pick-up Tape
□-5353163-□	□-5353164-□	Tab Assembly with Vacuum pick-up Tape
□-5353511-□	□-5353512-□	Receptacle Assembly with key & Vacuum pick-up Tape
□-5353514-□	□-5353515-□	Receptacle Assembly with key & Vacuum pick-up Tape
□-5353686-□	□-5353687-□	Receptacle Assembly with key
□-5353688-□	□-5353689-□	Tab Assembly with key

Fig. 1

5-*******-0 shows 50 positions item.

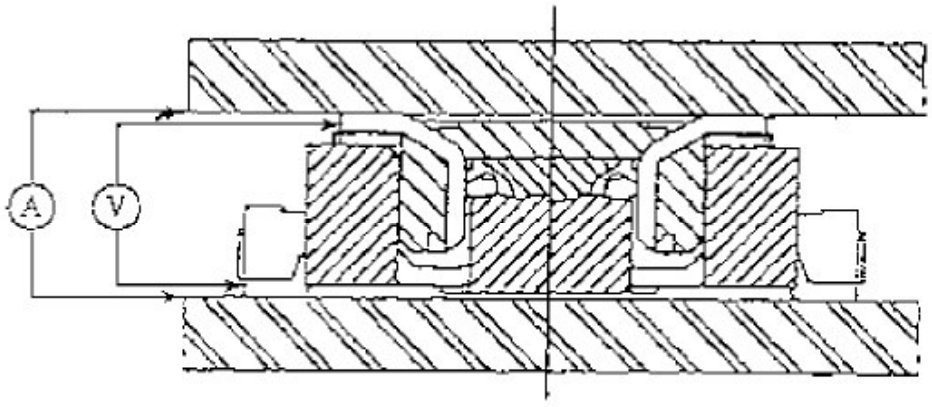
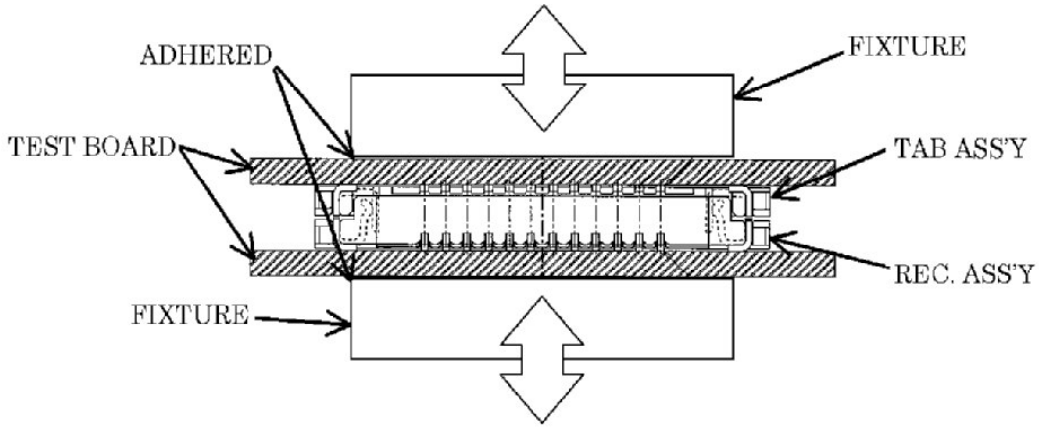


Fig.2 Method of Termination Resistance Measurring



When the mating/un-mating force is measured, the fixture adhered to test board must be fixed at the equipment.

Fig. 3 The Method of Measurement for Mating/unmating Force

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