

Product Specification

108-5504

AMP 2.5 Metric Interconnect System (MIS) SMT Type

NUMBER: 108-5504

CUSTOMER RELEASE

SECURITY CLASSIFICATION:

1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of 2.5 MIS Connector SMT Type.

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. 114-58000 Application Specification
- C. 501-5178 Test Report

2.2 Commercial Standard and Specifications :

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

				DR. 19 Sep. '95	SHEET 1 OF 10	 AMP (Japan), Ltd. Kawasaki, Japan			REV. A
				CHK. 19 Sep. '95					LOC J
				I. Hasegawa					
				APP. 19 Sep. '95	NAME				
				S. Manabe	AMP 2.5 Metric Interconnect System (MIS) SMT Type				
PRINT	DIST.								
A	Revised FJ00-3952-96	<i>[Signature]</i>		6 Feb '96					
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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 :

Rec. Contact : Pre-Tin Ph-Br (0.8 μ m Min.)

Post Contact : Pre-Plated Brass (0.8 μ m Min Tin lead over 0.5 μ m Min. copper)

B. Housing

Rec. Housing : 66 Nylon (UL 94 V-0)

HDR Housing : Aromatic Nylon (UL 94 V-0)

3.3 Ratings :

A. Voltage Rating : 250 V AC

B. Current Rating

- AWG #22 ... 2.5 A
- AWG #24 ... 2.5 A
- AWG #26 ... 2.5 A
- AWG #28 ... 2.0 A
- AWG #30 ... 2.0 A

C. Temperature Rating : -25 °C to 105 °C (Including temperature rising)

3.3.1 Applicable wires

(Note : for compatibility of the wires for termination, the wires must be evaluated respectively.)

A. Wire Size : #30AWG~#22 AWG (0.06 mm²/0.30 mm²)

B. Insulation Diameter : 1.00 mm/1.9 mm

3.4 Performance 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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				Kawasaki, Japan
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3.5 Test Requirements and Procedures Summary :

Para.	Test Items	Requirements	Procedures			
3.5.1	Examination of Product	Meets requirements of product drawing and AMP Specification	Visual inspection No physical damage			
Electrical Requirements						
3.5.2	Termination Resistance (Low Level)	10 mΩ Max. (Initial)	Subject mated contacts assembled in housing to 20 mV Max. open circuit at 10 mA. Fig. 3. AMP Spec. 109-5311-1			
3.5.3	Insulation Resistance	1000 MΩ Min. (Initial) 500 MΩ Min. (Final)	Impressed voltage 500 V DC. Test between adjacent circuits of mated connectors. AMP Spec. 109-5301			
3.5.4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage : 5 mA Max.	1 kVAC for 1 minute. Test between adjacent circuits of mated connectors. AMP Spec. 109-5301			
3.5.5	Temperature Rising	30 °C Max. under loaded specified current or rating current.	Measure temperature rising by energized current. Fig. 3 AMP Spec. 109-5310-1			
Mechanical Requirements						
3.5.6	Crimp Tensile Strength	Wire Size		Crimp Tensil (min.) N (kgf)	Apply an axial pull-off load to crimped wire of contact secured on the tester, Operation Speed : 25 mm / min. AMP Spec. 109-5205 Condition A	
		mm ²	(AWG)			N (kgf)
		0.05	30			4.9 (0.5) min.
		0.08	28			9.8 (1.0) min.
		0.13	26			19.6 (2.0) min.
		0.2	24	29.4 (3.0) min.		
		0.3	22	49.0 (5.0) min.		
3.5.7	Post Retention Force	9.8 N (1 kgf) Min.	Measure post retention force. Operation Speed : 100 mm / min			

Fig.2 (to be continued)

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Para.	Test Items	Requirements	Procedures
3.5.8	Contact Retention Force	19.6 N (2.0 kgf) Min.	Apply an axial pull-off load to crimped wire. Operation Speed : 100 mm / min. AMP Spec. 109-5212
3.5.9	Connector Mating Force	Initial 3 Pos. : 34.3 N (3.5 kgf) Max. 4 Pos. : 38.22 N (3.9 kgf) Max. After 30 cycle 3 Pos. : 32.34 N (3.3 kgf) Max. 4 Pos. : 35.28 N (3.6 kgf) Max.	Operation Speed : 100 mm / min. Measure the force required to mate connectors. AMP Spec. 109-5206 Condition B
3.5.10	Connector Unmating Force	Initial 3 Pos. : 8.82 N (0.9 kgf) Min. 4 Pos. : 8.82 N (0.9 kgf) Min. After 30 cycle 3 Pos. : 6.86 N (0.7 kgf) Min. 4 Pos. : 6.86 N (0.7 kgf) Min.	Operation Speed : 100 mm / min. Measure the force required to unmate connectors. AMP Spec. 109-5206 Condition B
3.5.11	Durability (Repeated Mate / Unmating)	20 mΩ Max. (Final)	Operation Speed : 10 cycles/min. No. of Cycles : 30 cycles. AMP Spec. 109-5213
3.5.12	Vibration (Low Frequency)	No electrical discontinuity greater than 1 μsec. shall occur.	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
3.5.13	Physical Shock	No electrical discontinuity greater than 1 μ sec. shall occur.	Accelerated Velocity : 490 m/s ² (50 G) Waveform : Sine Wave Duration : 11 m sec. Velocity Change : 3.44 m/s Number of Drops : 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops AMP Spec. 109-5208

Fig.2 (to be continued)

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Para.	Test Items	Requirements	Procedures
3.5.14	Solderability	Appearance of the specimen shall be inspected after the test with the assistance of a magnifier capable of giving a magnification of 10×. The soldered surface shall be covered with a smooth solder coating with no more than small amounts of scattering imperfections such as pin-holes or unwetted or dewetted areas.	Conform to EIAJ, RCA-0102/101 Test Methods of solderability, 2.4.2 Reflow soldering method.
Environmental Requirements			
3.5.15	Resistance to Cold	20 mΩ Max. (Final)	Mated connector -25 °C ± 3 °C, 48 hours AMP Spec. 109-5108- Condition
3.5.16	Thermal Shock	20 mΩ Max. (Final)	Mated connector -55 °C/30 min. 80 °C/30 min, Making this a cycle, repeat 5 cycles. AMP Spec. 109-5103 Condition
3.5.17	Humidity, Steady State	Insulation resistance (Final) 500 MΩ Min. Termination resistance 20 mΩ Max. (Final)	Mated connector, 90~95 % R. H. 40 °C 96 hours AMP Spec. 109-5105
3.5.18	Humidity-Temperature Cycling	Insulation resistance (Final) 500 MΩ Min. Termination resistance 20 mΩ Max. (Final)	Mated connector, 25~65 °C, 90~95 % R. H. 10 cycles Cold shock -10 °C performed AMP Spec. 109-5106
3.5.19	Salt Spray	20 mΩ Max. (Final)	Subject mated connectors to 5 ± 1 % salt concentration for 48 hours : MIL-STD-202, Method 101 AMP Spec. 109-5101

Fig. 2 (to be continued)

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Para.	Test Items	Requirements	Procedures
3.5.20	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 10× for any damage such as cracks, chips or melting.	Conform to EIAJ, RCA-0102/102 Test Methods of Resistance to Soldering Heat 3,3,4. Thermostatic chamber method.
3.5.21	Industrial Gas (SO ₂)	20 mΩ Max. (Final)	Mated connector SO ₂ Gas : 3 ± 1 ppm, 95 % R. H. 40 ± 2 °C, 240 hours AMP Spec. 109-5107
3.5.22	Temperature Life (Heat Aging)	20 mΩ Max. (Final)	85 ± 2 °C. Duration : 4 days AMP Spec. 109-5104-2 Condition A

Fig. 2 (End)

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3.6 Product Qualification Test Sequence

Test Item	Test Group									
	1	2	3	4	5	6	7	8	9	10
	Test Sequence (a)									
Examination of Product	1, 4	1, 3	1	1	1	1	1, 5	1	1, 3	1, 3
Termination Resistance (Low Level)							2, 4			
Dielectric withstanding voltage	3									
Insulation Resistance	2									
Temperature Rising		2								
Vibration (Low Frequency)			2							
Physical Shock				2						
Connector Mating Force					2					
Connector Unmating Force						2				
Contact Retention Force										
Crimp Tensile Strength										
Durability (Repeated Mate/Unmating)							3			
Post Retention Force								2		
Solderability									2	
Resistance to Soldering Heat										2
Thermal Shock										
Humidity (Steady State)										
Salt Spray										
Industrial SO ₂ Gas										
Temperature Life (Heat Aging)										
Resistance to Cold										
Humidity-Temperature Cycling										

Numbers indicate sequence in which the tests are performed.

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3.6 Product Qualification Test Sequence

Test Item	Test Group								
	11	12	13	14	15	16	17	18	19
	Test Sequence (a)								
Examination of Product	1, 5	1, 7	1, 5	1, 5	1, 5	1, 5	1, 7	1	1
Termination Resistance (Low Level)	2, 4	2, 6	2, 4	2, 4	2, 4	2, 4	2, 6		
Dielectric withstanding voltage									
Insulation Resistance		3, 5					3, 5		
Temperature Rising									
Vibration (Low Frequency)									
Physical Shock									
Connector Mating Force									
Connector Unmating Force									
Contact Retention Force								2	
Crimp Tensile Strength									2
Durability (Repeated Mate/Unmating)									
Post Retention Force									
Solderability									
Resistance to Soldering Heat									
Thermal Shock	3								
Humidity (Steady State)		4							
Salt Spray			3						
Industrial SO ₂ Gas				3					
Temperature Life (Heat Aging)					3				
Resistance to Cold						3			
Humidity-Temperature Cycling							4		

Numbers indicate equence in which the tests are performed.

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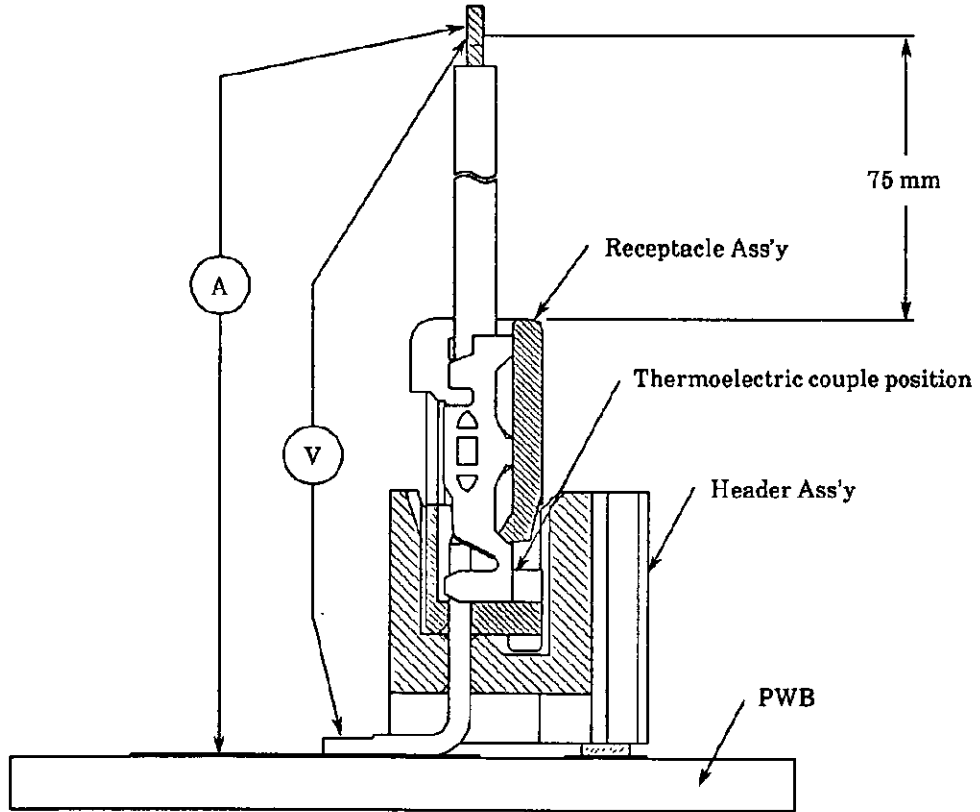


Fig. 3 Low-Level Resistance, Temperature Rising Test

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

Product Part No	Description
179949-3	Post HDR Ass'y SMT 3 P
179949-4	Post HDR Ass'y SMT 4 P
92009-3	Receptacle HSG 3 P
92009-4	Receptacle HSG 4 P
92007-1	Receptacle Contact

Appendix 1

SHEET	AMP AMP (Japan), Ltd. Kawasaki, Japan		
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