NUMBER: 108-5343

SECURITY CLASSIFICATION: Customer Release

Product Specification

108-5343

AMP Universal Power Connector M/T Type

1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of AMP Universal Power Connector M/T 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. 114-5163 Application Specification

C. 501-5145 Test Report :

LTR	REVISION RECORD	DR	CHK	DATE
B	FJ00-2279-95			

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CHK

APP.

SHEET 1 OF 10

AMP (Japan), Ltd.
Kawasaki, Japan

LOC	LOC	NO	REV
J	A	108-5343	B

NAME
AMP Universal Power Connector M/T Type

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05/03/95

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.	Rec. Assembly :	Rec. Contact	: Post-Tin, Brass
		Housing	: 6/6 Nylon (UL 94 V-0)
B.	Header Assembly :	Post Contact	: Pre-Tin Brass
	Housing	STD Header	: 6/6 Nylon (UL 94 V-0)
		Pass Thru Header	: 6/6 Nylon (UL 94 V-0)
C.	Other :	Crimping Tab Contact	: Pre-Tin, Brass
		Cap Housing	: 6/6 Nylon (UL 94 V-0)
		Double Lock Plate	: 6/6 Nylon (UL 94 V-0)
		Cover	: 6/6 Nylon (UL 94 V-0)

3.3 Ratings :

A.	Voltage Rating (Max./Min.)	: 150 V AC, 2 VDC
B.	Current Rating (Max./Min.)	: 5 A, 1 mA
C.	Temperature Rating	: −30 °C to 105 °C

3.4 Applicanle Wire (Use AMP approved wires for termination.)

A. Applicable Wire Size	0.75 mm^2 (M/T) 0.3 mm^2 (Crimp)	(M/T) Recommended UL Grade : UL1007 AWG #18
B. Applicable Insulation Dia ...	2.0~2.2 mm (M/T) 1.6 (Crimp)	(M/T) Recommended UL Grade : UL1007 AWG #18

3.5 Applicable P.C.B.

A. P.C.B. Thickness ..... 1.7 mm

B. P.C.B. Hole Dia ..... ϕ0.9~1.0 mm (Punched Hole)

..... ϕ1.05~1.15 mm (Drilled Hole)

3.6 Applicable Panele Thickness .... 0.4~2.0 mm

(To be used for Pass Thru Header, Cap Housing) 0.4~0.7 mm : Steel
0.7~2.0 mm : Non-ferrous material

3.7 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.

3.8 Test Requirements and Procedures Summary :

Para.	Test Items	Requirements	Procedures
3.8.1	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.
	Electrical Requirements		
3.8.2	Termination Resistance (Low Level)	20 m Ω Max. (Initial) 40 mΩ Max. (Final)	Subject mated contacts assembled in housing to 20 mV Max open circuit at 10 mA Fig. 3. AMP Spec. 109-5311-1
3.8.3	Insulation Resistance	1000 MΩ Min. (Initial) 500 MΩ Min. (Final)	Impressed voltage 500 V DC. Test between adjacent circuits of mated connectors. AMP Spec. 109-5302-4
3.8.4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage : 5 mA Max.	1.5 kVAC for 1 minute. Test between adjacent circuits of mated connectors. AMP Spec. 109-5301
3.8.5	Temperature Rising	30 °C Max. under loaded specified current.	Measure temperature rising by energized current. Fig. 3 AMP Spec. 109-5310-1 method

Fig.2 (CONT.)

Para.	Test Items	Requirements	Procedures
		Mechanical Requirements	
3.8.6	Connector Mating Force	6 Pos. : 49 N (5.0 kgf) Max. Initial 6 Pos. : 63.7 N (6.5 kgf) Max. 25th	Operation Speed : 25 mm / min. Measure the force required to mate connectors. AMP Spec. 109-5206 Condition A
3.8.7	Connector Unmating Force	6 Pos. : 7.8 N (0.8 kgf) Min. Initial 6 Pos. : 4.9 N (0.5 kgf) Min. 25th	Operation Speed : 25 mm / min. Measure the force required to mate connectors. AMP Spec. 109-5206 Condition A
3.8.8	Contact Retention Force	4.9 N (0.5 kgf) Min. Rec. Contact 39.2 N (4.0 kgf) Min. Crimping Tab Contact	Apply an axial pull-off load to crimped wire. Operation Speed : 25 mm / min.
3.8.9	Tensile Strength of Wire Termination	Wire Size (AWG) / Axial Direction Min. / Lateral Direction Min. AWG #18 / 39.2 N (4.0 kgf) / 39.2 N (4.0 kgf)	Apply a pull-off load to terminated wire of contact secured in the tester, at a rate of 100 mm (4.0") a minute. The load is applied in the axial and lateral directions as specified. With Set Cover Fig. 4
3.8.10	Crimp Tensile Strength	Wire Size: mm² / (AWG); Crimp Tensil (Min.): N (kgf) 0.3 / #22 / 49 (5)	Apply an axial pull-off load to crimped wire of contact secured on the tester, Operation Speed : 100 mm / min. AMP Spec. 109-5205 Condition B
3.8.11	Post Retention Force	9.8 N (1 kgf) Min.	Measure post retention force. Operation Speed. : 25 mm/min. Fig. 5
3.8.12	Connector Locking Strength	58.8 N (6 kgf) Min.	Measure connector locking strength. Operation Speed : 100 mm / min.

Fig.2 (CONT.)

Para.	Test Items	Requirements	Procedures
3.8.13	Housing Panel Retention Force	58.8 N (6 kgf) Min.	Measure panel retention force using panel of nominal cut-out dimensions as specified in the drawing. Operation Speed : 100 mm / min. Fig. 6
	Environmental Requirements		
3.8.14	Vibration (Low Frequency)	No electrical discontinuity greater than 1 μsec. shall occur. Fig. 7 Termination Resistance (Low Level) : 40 mΩ Max.	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
3.8.15	Physical Shock	No electrical discontinuity greater than 1 μ sec. shall occur. Termination Resistance (Low Level) : 40 mΩ Max.	Accelerated Velocity : 490 m/s^2 (50 G) Waveform : Harfsine wave Duration : 11 m sec. Velocity Change : 3.4 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 Condition A
3.8.16	Temperature Life (Heat Aging)	40 mΩ Max. (Final)	85±2 °C、Duration : 96 hours AMP Spec. 109-5104-2 Condition A
3.8.17	Resistance to Cold	40 mΩ Max. (Final)	Mated connector −25 °C±3 °C, 48 hours AMP Spec. 109-5108-2 Condition B
3.8.18	Humidity, Steady State	Insulation resistance (Final) 500 MΩ Min. Termination resistance 40 mΩ Max. (Final) Dielectric withstanding Voltage No creeping discharge nor flashover shall occur	Mated connector, 90~95 % R. H. 40 °C 96 hours AMP Spec. 109-5105-1 Condition A

Fig.2 (CONT)

Para.	Test Items	Requirements	Procedures
3.8.19	Thermal Shock	40 mΩ Max. (Final)	Mated connector −55 °C/30 min., 105 °C/30 min. Making this a cycle, repeat 25 cycles. AMP Spec. 109-5103
3.8.20	Salt Spray	40 mΩ Max. (Final)	Subject mated connectors to 5±1 % salt concentration for 48 hours : AMP Spec. 109-5101 Condition A
3.8.21	Humidity-Temperature Cycling	Termination resistance 40 mΩ Max. (Final)	Mated connector, 25~65 °C, 90~95 % R. H. 10 cycles Cold shock −10 °C performed AMP Spec. 109-5106
3.8.22	Solderability	Wet Solder Coverage : 95% Min.	Solder Temerature : 230±5 °C Immersion Duration : 5±0.5 sec. Flux : Alpha 100 AMP Spec. 109-5203
3.8.23	Resistance to Soldering Heat	No physical damege shall occur.	Test connector on PCB. Solder Temerature : 260±5 °C Immersion Duration : 5±0.5 sec. AMP Spec. 109-5204 Condition A

Fig.2 (End)

3.9 Product Qualification Test Sequence

Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence (a)										
Confirmation of Product											1
Termination Resistance (Low Level)											2, 4, 6, 8, 10, 12, 16, 18, 20
Dielectric withstanding Voltage										4	14
Insulation Resistance										3	13
Temperature Rising									1		
Vibration (Low Frequency)											3
Physical Shock											5
Connector Mating Force										1	
Connector Retention Force										2	
Connector Locking Strength			1								
Contact Unmating Force				1							
Crimp Tensile Strength	1										
Housing Panel Retention Force						1					
Post Retention Force					1						
Solderability				-	·		1				
Tensile Strength of Wire Termination		1									
Humidity-Temperature Cycling											19
Resistance to Soldering Heat								1			
Thermal Shock											15
Humidity (Steady State)											11
Salt Spray											17
Temperature Life (Heat Aging)											7
Resistance to Cold											9

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

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

Product Part No.	Desctiption
6-178966-1	AMP Universal Power Conn. M/T Type Rec. Ass'y
6-178967-1	AMP Universal Power Conn. M/T Type Post Header Ass'y (STD · Type)
6-178968-1	AMP Universal Power Conn. M/T Type Post Header Ass'y (Pass Thru Type)
6-178829-1	AMP Universal Power Conn. M/T Type Cover (Feed Through Type)
6-178830-1	AMP Universal Power Conn. M/T Type Cover (Wire End)
6-179361-1	AMP Universal Power Conn. M/T Type Cap Housing (Crimping Tab Contact)
6-179362-1	AMP Universal Power Conn. M/T Type Double Lock Plate
175150-□	TAB Contact (AWG #22, 0.3 mm^2 UL1007)

Appendix 1

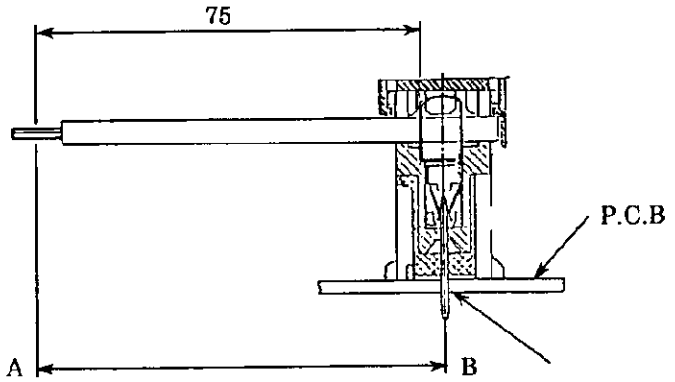

Fig. 3 Termination Resistance (Low Level)

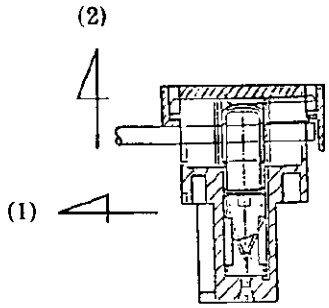

Fig. 4 Tensile Strength of Wire Termination

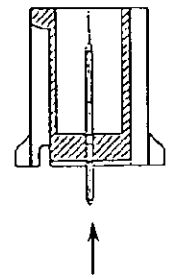

Fig. 5 Post Retention Force

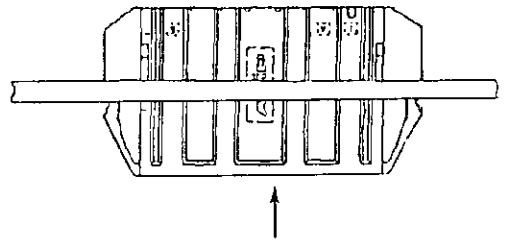

Fig. 6 Panel Retention Force

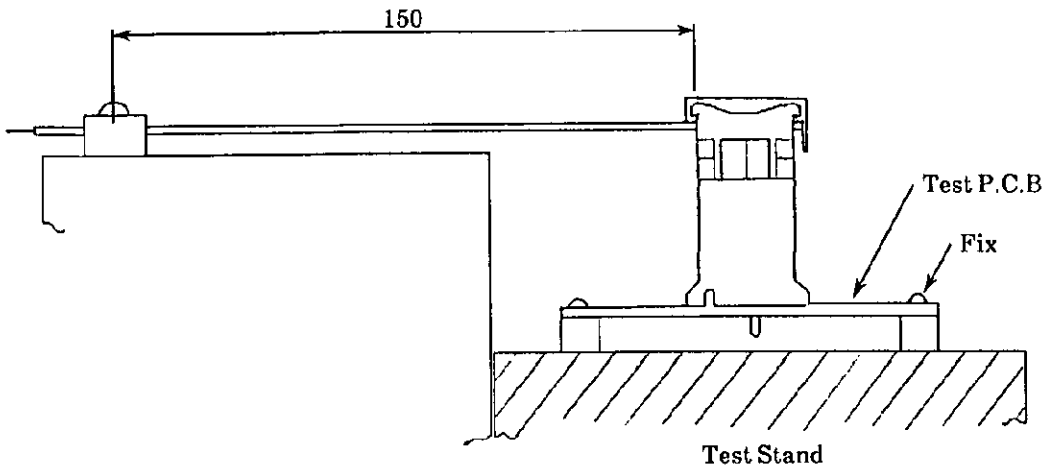

Fig. 7-1 Vibration, Shock (STD Type)

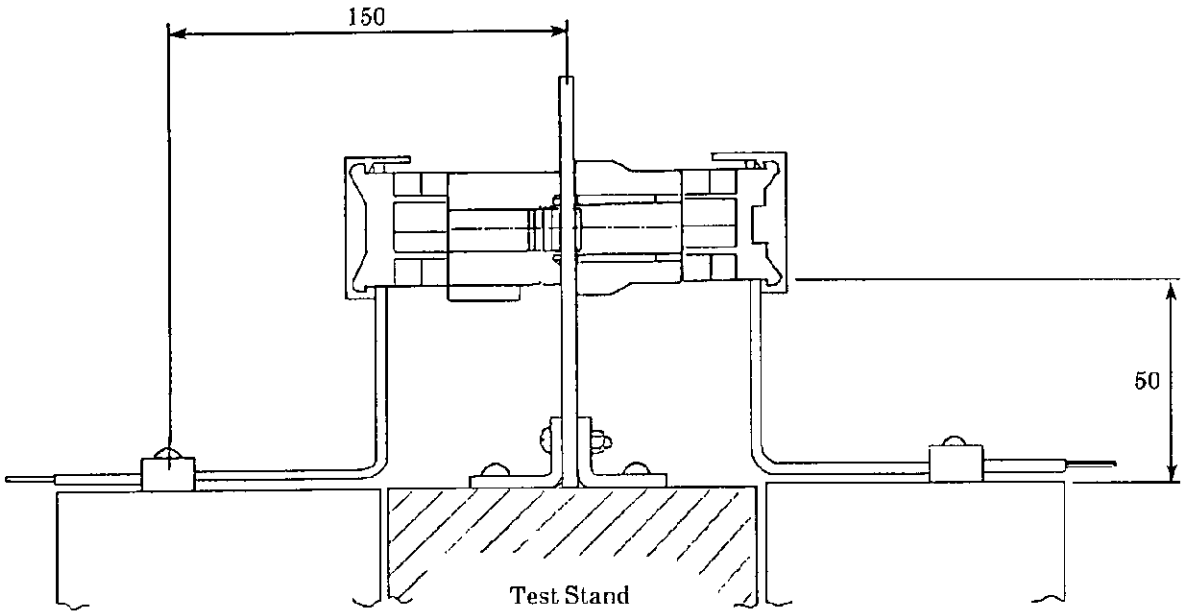

Fig. 7-2 Vibration, Shock (Pass Thru Type)

SHEET 10 OF 10	AMP	AMP (Japan), Ltd. Kawasaki, Japan			
	LOC J	LOC A	NO 108-5343		REV B
NAME AMP Universal Power Connector M/T Type					