

108-5286

NUMBER:

Customer
ReleaseSECURITY
CLASSIFICATION:

Product Specification

108-5286

AMP Memory Card Connector

1. Scope:

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of Post Header and Receptacle Assembly of AMP Memory Card Connector.

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

2.2 Military Standard and Specifications:

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

MIL-G-45204B Gold Plating, Electrodeposited

3. Requirements:

3.1 Design and Construction:

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

PRINT DIST. 6-22-'88					DR.	7-18-'88	SHEET 1 OF 9	tyco / Electronics / AMP Tyco Electronics AMP K.K.					
					T. FUTATSUGI								
		C1	Revised	K.S	K.K	05.04.25	CHK.	7-18-'88	LOC J	LOC A	NO. 108-5286	REV. C1	
		C	Revised	T.S	Y.Y	05.03.30	S. MANABE						
		B	Revised RFA-1821	T.F	S.M	4-12-'90	APP.	18 Jul '88					NAME
		A	Revised RFA-1567	T.F	S.M	7-18-'88							
	O	Revised RFA-1325	T.F	S.M	7-18-'88	H. TAGUCHI	AMP Memory Card Connector						
	LTR	REVISION RECORD	DR	CHK	DATE								

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3.2 Materials:

A. Contact:

- Rec. Contact

Material: Beryllium Copper

Finish: 0.0003 Gold Min In Contact Area Over 0.0013 Min

Nickel Underplate All Over, 0.001 Min Tin-Lead On Solder Leads. *1
0.002~0.004 Sn On Solder Leads.*2

- Post Contact

Material: Brass

Finish: 0.0003 Gold Min In Contact Area Over 0.0015 Min

Nickel Underplate All Over, 0.001 Min Tin-Lead On Solder Leads. *3
0.002~0.004 Sn On Solder Leads.*4

B. Housing

- Rec. Housing

Material: Glass-filled

Polyphenylene Sulfid Resin (PPS), Color-Black

Flammability: UL 94V-0

- Post Housing

Material: Glass-filled Polybutylene

Terephthalate Resin (PBT) or PPS

Color-Black

Flammability: UL94 V-0

*1: P/N 175564-1

*2: P/N 5175564-1

*3: P/N 175758-1,-2

*4: P/N 5175758-1,-2

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3.3 Ratings:

- A. Voltage Rating: 100 VAC
- B. Current Rating: 0.5 A max per position
- C. Temperature Rating: -20 °C to +70 °C (Operating)
-40 °C to +70 °C (Storage)
- D. Durability: 5000 cycles Max (Harsh Environment)
10000 cycles Max (Office Environment)

3.4 Performance and Test Descriptions:

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 1. All tests are performed at ambient temperature unless otherwise specified.

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.	Visually, dimensionally and functionally inspected per applicable inspection plan.
Electrical Requirements			
3.5.2	Termination Resistance (Low Level)	40 mΩ max. (Initial per circuit) $\Delta R = 20$ mΩ max. (Final, per circuit)	Measure on two circuits subjected to open circuit 20 mV max. at 10 mA max. Obtain resistance value by dividing the measured reading into two, Fig. 6. AMP Spec. 109-5305
3.5.3	Insulation Resistance	1000 MΩ min. (Initial) 100 MΩ min. (Final)	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the unmated connector. MIL-STD-202, Method 302, Condition B

Fig. 1 (To be continued)

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Para.	Test Items	Requirements	Procedures
3.5.4	Dielectric Strength	Connector must withstand test potential of 500 VAC for 1 minute. Current leakage must be 5 mA max. No breakdown nor flashover.	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the unmated connectors. MIL-STD-202, Method 301
Physical Requirements			
3.5.5	Vibration	No electrical discontinuity greater than 0.1 microsecond (s) shall occur. No mechanical defect.	Subject mates sample wired in series to test in accordance with condition B, Method 204 of MIL-STD-202, (10 G only at peak time). Apply 0.1 A of current during test.
3.5.6	Connector Mating Force	35 g max. (initial) per contact	Using autograph measure the force required to mate connector by operationg at 100 mm a minute. Record by using autograph. Calculate the value for a contact.
3.5.7	Connector Unmating Force	15 g min. (initial) per contact	Using autograph measure the force required to unmate connector by operating at 100 mm a minute. Calculate value for a contact.
3.5.8	Contact Retention Force	0.3 kg min.	Apply axial load to contact by operating at a rate of 100 mm a minute.
3.5.9	Post Retention Force	0.8 kg min. for Post Dia 0.44 mm 0.5 kg min. for Post Dia 0.37 mm	Apply axial load to post by operating at a rate of 100 mm a minute.

Fig. 1 (To be continued)

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	3.5.10	Contact Extraction Force	10 g min. Per contact. (Initial)	Measure the force required to extract pin gage specified in Fig. 5, from the contact by operating the head at a rate of 100 mm a minute.
	3.5.11	Durability (Repeated Mate / Unmating)	Meet termination Resistance (Low Level) Requirements.	Mate and unmate connectors for 10000 cycles at a rate of 400 to 600 cycles per hour, with them mounted on Tensile tester. See Fig. 3 & 4.
	3.5.12	Resistance to Soldering Heat	Meet requirements for post retention and contact retention forces. No crazing, crack, fusion nor other physical damage.	<u>Post Heater :</u> Immerse contact lead area of the post into the soldering tub controlled at $260 \pm 5^{\circ}\text{C}$ for 10 ± 1 seconds. The immersing depth shall be the location where the contact is terminated on PCB. <u>Receptacle Assembly :</u> Apply an soldering iron heated to $260 \pm 5^{\circ}\text{C}$ to the contact area within 2 mm apart from the tip end, for 10 ± 1 seconds.
Environmental Requirements				
3.5.13	Thermal Shock	Meet Low Level Termination Resistance Requirements. No Defect in Appearance.	Subject mated connectors to 5 cycles between -55°C and $+85^{\circ}\text{C}$. MIL-STD-202, Method 107, Condition A	

Fig. 1 (To be continued)

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Para.	Test Items	Requirements	Procedures
3.5.14	Humidity-Temperature Cycling	Meet Low Level Termination Resistance Requirements. No Defect in Appearance.	Subject mated connectors to 10 cycles of humidity-temperature change between +25 °C and +65 °C at 95 % R.H. MIL-STD-202, Method 106 (without low frequency vibration, and cold shock at -10 °C.)
3.5.15	Salt Spray	No Detrimental Corrosion Allowed in Contact Area. Meet Low Level Termination Resistance Requirements.	Subject unmated connectors to 5 % salt concentration for 48 hours ; Temperature : 35 °C MIL-STD-202, Method 101, Condition B.
3.5.16	Heat Aging	Meet Low Level Termination Resistance Requirements	Subject mated connectors to test at 85 °C of test temperature in accordance with Condition A. Method 108 of MIL-STD-202.

Fig.1 (End)

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3.6 Test Sequence

Test of Examination	Test Group						
	1	2	3	4	5	6	7
	Test Sequence (a)						
Examination of Product	1	1	1	1	1	1	1
Termination Resistance, Dry Circuit	2,6	3,5	4,6	2,4	2,4		
Insulation Resistance	3,7						
Dielectric Withstanding	4,8						
Vibration				3			
Connector Mating Force			2				
Connector Unmating Force			3				
Contact Retention Force							4
Post Retention Force							3
Contact Extraction Force		2					
Durability						2	
Resistance to Soldering Heat							2
Thermal Shock			5				
Humidity-Temperature Cycling	5						
Salt Spray					3		
Heat Aging		4					

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

Fig. 2

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1,000-cycle Insertion / Extraction

↓

Humidity-Temperature Cycling Test

(Para. No. 3.5.14 1 Cycle 24 hours)

↓

1,000-Cycles Insertion /
Extraction

2,000-cycle Insertion / Extraction

↓

Humidity-Temperature Cycling Test

(Para. No. 3.5.14 1 cycle 24 hours)

↓

3,000-Cycle Mating /
Unmating

5,000-cycle Insertion / Extraction

↓

Humidity-Temperature Cycling test

(Para. No. 3.5.14 1 cycle 24 hours).

Hydrogen Chloride Test

Requirements:Termination Resistance (Low-level)
specified in Para. No. 3.5.2Specimen:

Mated Connectors

Insertion / Extraction Test Conditioning:Repeat insertion and extraction at a rate of
400-600 cycles an hour per MIL-C-21097 C.Hydrogen Chloride Test:No detrimental, corrosive residue is allowed
on contact area. Test to be performed Test
Condition B, Method 101 D of MIL-STD-202
F (3 ppm, 40 °C, 80% approx. R.H., 96 hours)

Fig. 3 Durability Test (Harsh Environment, 5000 cycles)

Test Sequence:Termination Resistance (Low Level)
specified in Para. No. 3.5.2

↓

10,000-cycles Insertion / Extraction

↓

Termination Resistance (Low Level)
specified in Para. No. 3.5.2

Fig. 4 Durability Test (Office Environment, 10000 cycles)

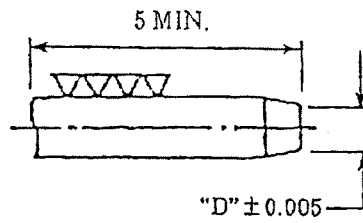
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Gage:

Material; Tool Steel
Hardness; HRC 50 to 55

Post Dia.	Gage Dia. "D"
0.44	0.42
0.37	0.35

Fig. 5 Gage Pin

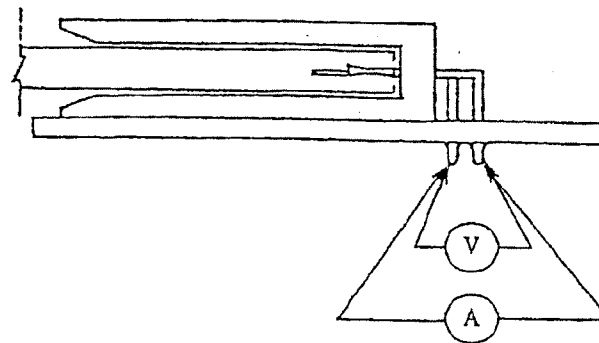
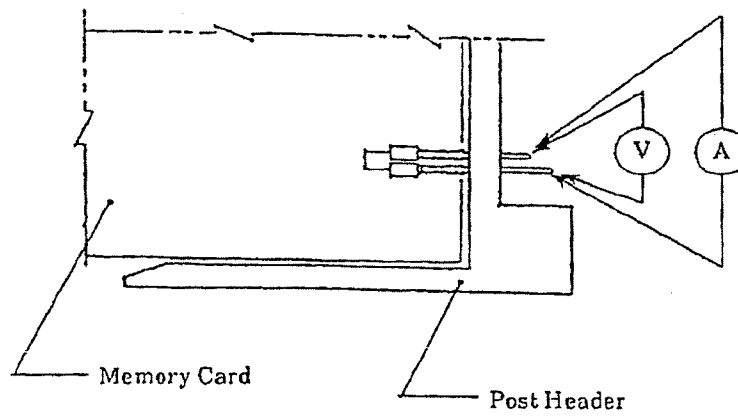


Fig. 6 Low-level Termination Resistance Measurement

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