

## Product Specification

**108-60026**

### AMP Mini CT DC Drawer Connector, 1.5 mm Pitch

#### Lead Free Version

- 1. Scope:
- 1.1 Contents:

This specification covers the requirements for product performance, test methods and quality assurance provisions of AMP Mini CT DC Drawer Connector, Lead Free Version.

Applicable product description and part numbers are as shown in Fig.1.

Product Part No.	Description
x-292233-x x-292234-x	Plug Assembly, 1.5mm Pitch Mini CT DC Drawer Connector (Lead Free).
x-292235-x x-292236-x	Receptacle Assembly, 1.5mm Pitch Mini CT DC Drawer Connector (Lead Free).

Fig. 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 this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements this specification and referenced documents, this specification shall take precedence.

2.1 AMP Specifications:


- A. 109-5000            Test Specification, General Requirements for Test Methods
- C. 501-51023        Qualification Test Report

2.2 Commercial Standards and Specifications:

- A. MIL-STD-202: Test Methods for Electronic and Electrical Component Parts.
- B. IEC: International Electrotechnical Commission

THIS INFORMATION IS CONFIDENTIAL AND IS DISCLOSED TO YOU ON THE CONDITION THAT NO FURTHER DISCLOSURE IS MADE BY YOU TO OTHER THAN AMP PERSONNEL WITHOUT WRITTEN AUTHORIZATION FROM AMP SHANGHAI LTD

DIST

A	RELEASED	TQ	09NOV 11	DR	J. JIANG		Tyco Electronics AMP Shanghai Ltd		
				CHK	S. YAO				
				APP	T. SASAKI	NO	108-60026		REV
				PAGE	TITLE				
				1 of 8	AMP Mini CT DC Connector, 1.5mm Pitch Lead Free Version				
O	RELEASED FB00-0040-03	J.J	04APR 03						
LTR	REVISION RECORD	DR	DATE						

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:

3.2.1 Receptacle Assembly

A. Contact

Material: Phosphor Bronze

Finish (Mini CT post area): Tin plating over Nickel underplating

Finish (Drawer mating area): i) Gold plating over Nickel underplating  
ii) Gold over Palladium-Nickel over Nickel underplating

B. Housing

Material: Glass-filled PBT UL94V-0

3.2.2 Plug Assembly

A. Contact

Material: Brass

Finish (Mini CT post area): Tin plating over Nickel underplating

Finish (Drawer mating area): i) Gold plating over Nickel underplating  
ii) Gold over Palladium-Nickel over Nickel underplating

B. Housing

Material: Glass-filled PBT UL94V-0

3.3 Ratings:

- A. Voltage Rating (Signal): 50 V(AC/DC)
- B. Current Rating (Signal): 1A Max
- C. Temperature Rating: -30°C to +105°C

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



Tyco Electronics  
AMP Shanghai Ltd

PAGE  
2

NO

108-60026

REV  
A

LOC  
FB


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.

3.5 Test Requirements and Procedures Summary:


Para.	Test Items	Requirements	Procedures
3.5.1	Examination of product	Product shall be confirming to the requirements of applicable product drawing	Visual inspection No physical damage
Electrical Requirements			
3.5.2	Termination Resistance (Low Level)	Signal Line: 30 mΩ Max. (Initial) 40 mΩ max. (Final)	Subject mated connectors to 20 mV Max open circuit at 10 mA. Refer Fig. 4
3.5.3	Dielectric withstanding voltage	No creeping discharge or flashover shall occur. Current leakage: 5mA Max.	500 VAC for 1 minute. Test between adjacent circuits of mated connectors. MIL STD 202 TEST METHOD 301 IEC 512-2 TEST 4A
3.5.4	Insulation Resistance	500 MΩ Min. (Initial) 100 MΩ Min. (Final)	Impressed voltage 500VDC for 1 minute. Test between adjacent circuits of mated connectors. MIL STD 202 TEST METHOD 302 Condition A
3.5.5	Temperature Rising	30°C Max. under loaded rating current	Contacts series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value Refer Fig. 4

Fig.2. To be continued

	Tyco Electronics AMP Shanghai Ltd	PAGE 3	NO 108-60026	REV A	LOC FB
---	--------------------------------------	-----------	-----------------	----------	-----------


Para.	Test items	Requirements	Procedures
<b>Mechanical Requirements</b>			
3.5.6	Contact Retention Force	Receptacle Contact: 14.7N (1.5kgf) Min. Tab Contact: 7.84N (0.8kgf) Min.	Measure contact retention force. Operation Speed: 100 mm/min.
3.5.7	Connector Mating/Unmating Force	Mating Force: Initial & Final [0.98N (0.1kgf) x Pos.] Max. Unmating Force: Initial & Final [0.098N (0.01kgf) x Pos.] Min.	Operation Speed: 50mm/min. Measure the force required to mate and unmate connectors.
3.5.8	Durability (Repeated Mate/Unmating)	40 mΩ Max. (Final)	Operation Speed: 100mm/min. 40 mΩ Max. (Final) No. of Cycles: 3000 cycles.
3.5.9	Vibration (Low Frequency)	No electrical discontinuity greater than 1 μ sec. Shall occur. 40 mΩ Max. (Final)	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52mm amplitude 2 hours each of 3 mutually perpendicular planes. MIL-STD-202 TEST METHOD 201 CONDITION A Mounting: Fig. 5
3.5.10	Physical Shock	No electrical discontinuity greater than 1 μ sec. Shall occur.  40 mΩ Max. (Final)	Accelerated Velocity: 490 mm/s <sup>2</sup> (50G) Waveform: halfsine shock pulse Duration: 11 m sec Number of shocks: 3 shocks in each direction applied along the X, Y and Z axes, totally 18 shocks. MIL-STD-202 TEST METHOD 213 CONDITION A IEC 68-2-27, Test Ea Mounting: Fig. 5
3.5.11	Hammering Shocks	No electrical discontinuity greater than 1 μ sec. Shall occur. 40 mΩ Max. (Final)	Subject mated connectors to 10,000 cycles of hammering shocks in set up as shown in Fig. 6, with test current of 1 mA at DC 10 V applied to circuits as shown in Fig. 7 During the test, the circuit shall be monitored for fluctuation of electrical resistance.

Fig. 2 (To be continued)

	Tyco Electronics AMP Shanghai Ltd	PAGE 4	NO 108-60026	REV A	LOC FB
---	--------------------------------------	-----------	-----------------	----------	-----------

Para.	Test Items	Requirements	Procedures
Environmental Requirements			
3.5.12	Thermal Shock	40 mΩ Max. (Final)	Subject mated connectors to -55°C/30min., +85°C/30min. This being 1 cycle repeat for a total of 25 cycles. MIL-STD-202 TEST METHOD 107
3.5.13	Humidity-Temperature Cycling	Insulation resistance  100 MΩ Min. (Final) Termination resistance  40 mΩ Max. (Final)	Subject mated connector to 25-65°C, 90-95 %R.H., 10 cycles. Re-condition in room temperature for 3hrs before subsequent measurement. MIL-STD-202 TEST METHOD 106 IEC 68-2-38, Test Db.
3.5.14	Salt Spray	40 mΩ Max. (Final)	Subject mated connectors to 5±1% salt concentration for 48 hours. After test, rinse the samples with water and recondition the room temperature for 1 hour before subsequent measurements MIL-STD-202 TEST METHOD 101, CONDITION B. IEC 68-2-11, Test Ka.
3.5.15	Temperature Life (Heat Aging)	40 mΩ Max. (Final)	Subject mated connector to 85±2°C, 500 hours. MIL-STD-202 TEST METHOD 108.

Fig. 2 (End)

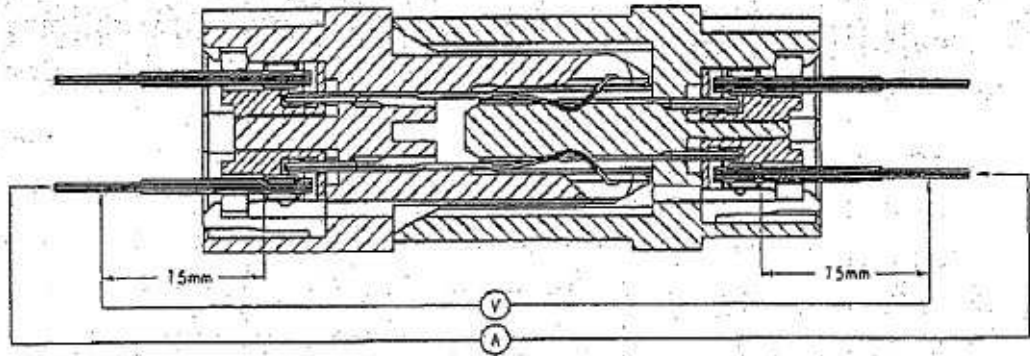
	Tyco Electronics AMP Shanghai Ltd	PAGE 5	NO 108-60026	REV A	LOC FB
---	--------------------------------------	-----------	-----------------	----------	-----------

4. Product Qualification Test Sequence

Test of Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence(a)										
Examination of Product	1,5,8	1, 3	1, 3	1, 3	1, 5	1, 5	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
Dielectric withstanding voltage	2, 7										
Insulation Resistance	3, 6										
Temperature Rising		2									
Contact Retention Force			2								
Connector Mating/Unmating Force				2							
Durability Cycling					3						
Vibration (Low Frequency)						3					
Physical Shock							3				
Hammering Shocks								3			
Thermal Shock									3		
Humidity-Temperature Cycling	4										
Salt Spray										3	
Temperature Life (Heat Aging)											3

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

Fig.3



POST EXTRACTION FORCE  
MEASURING DIRECTION

Fig. 4: Signal Line Termination Resistance Measurement Method

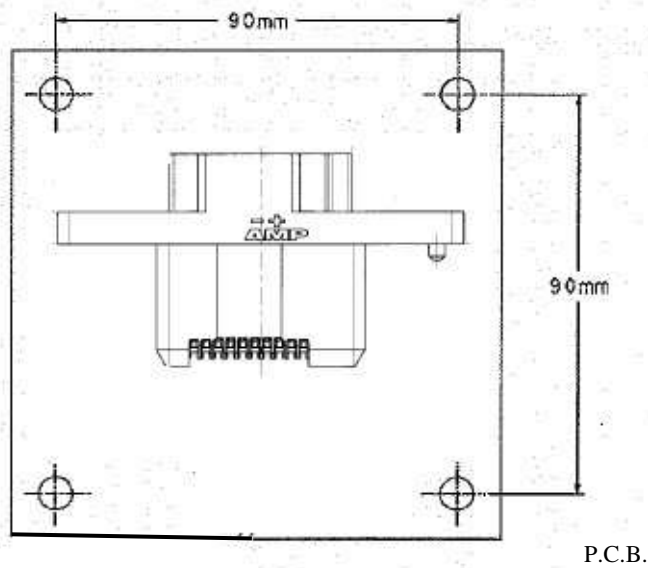
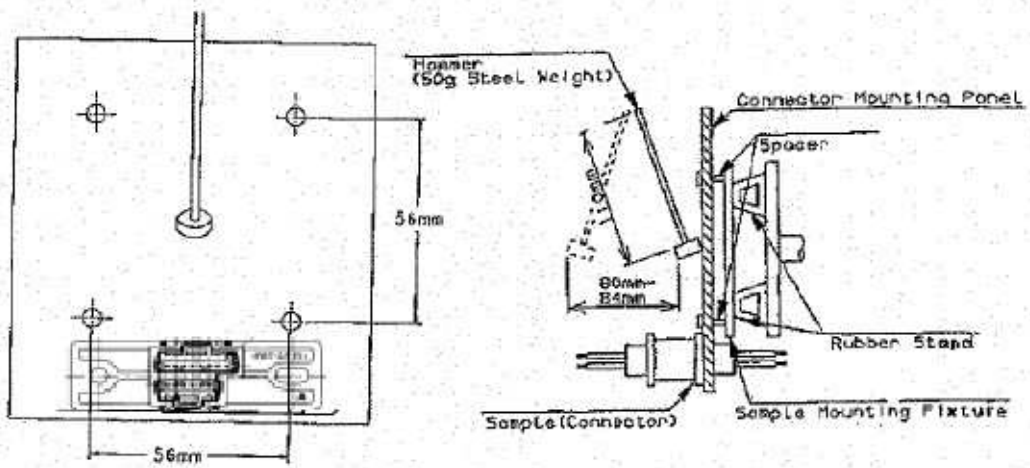


Fig. 7

Fig. 5: Vibration/Physical Shock Mounting Method

	<p>Tyco Electronics AMP Shanghai Ltd</p>	<p>PAGE 7</p>	<p>NO 108-60026</p>	<p>REV A</p>	<p>LOC FB</p>
--	--	-------------------	-------------------------	------------------	-------------------



Hammer Weight Striking Frequency: 1 Strike/Second

Fig. 6: Hammering Shock Test

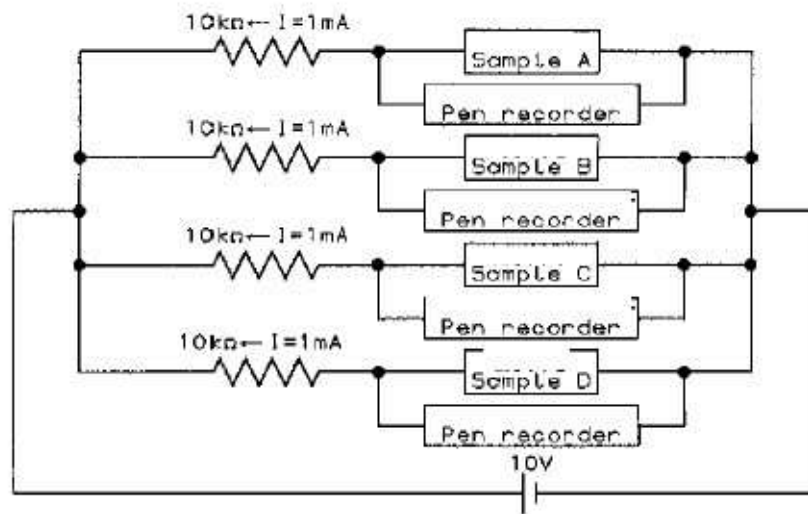


Fig. 7: Electrical Resistance Fluctuation Monitoring Circuit

	<p>Tyco Electronics AMP Shanghai Ltd</p>	<p>PAGE 8</p>	<p>NO 108-60026</p>	<p>REV A</p>	<p>LOC FB</p>
--	--	-------------------	-------------------------	------------------	-------------------