Product Specification

108-5227

AMP IEC Connector (Types B, C, and R)

1. Scope:

This specification covers performance requirements, test methods and quality assurance provisions for Types B, C and R of AMP IEC Connectors.

2. Design and Construction:

Design, construction and physical dimension shall be in accordance with those specified in the applicable drawings and DIN 41612, Part 2.

3. Material and Finish:

3.1 Contact:

(1) Receptacle: Copper alloy
Nickel underplate thickness 1.3 µmm min.
Connector mating area Gold plating
a. 0.8 µmm min.
b. 0.2µm min.
Post area (Tip End)
a. Solder-plated
b. Gold plated, (0.2µm or 0.8µm)

(2) Pin : Copper alloy
Nickel underplate thickness 1.3 µmm min.
Connector mating area Gold plating
a. 0.8 µmm min.
b. 0.2µm min.
Post area (Tip End)
a. Solder-plated
b. Gold-plated (0.2µm or 0.8µm)

3.2 Housing: Glass-filled thermoplastic resin, UL94V-0

4. Performance Rating:

4.1 Voltage: 250 V, AC

4.2 Current: 1.5 A

4.3 Operating Temperature Range: -55°C ∿ +105°C (inclusive of temperature rise at connector)

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5. Performance:

The product shall satisfy general requirements specified in the following Table 1.

Para. No.	Test Items	Requirements	Test Method
5.1	Appearance	Visual inspection for presence of any defects such as deformation, blister, damage, crack, etc.	7.1
5.2	Low-level Termination Resistance	Initial : 20 mmΩ max. After test: 40 mmΩ max.	7.2
5.3	Insulation Resistance	1000 MΩ min.	7.3
5.4	Dielectric Strength	Breakdown of insulation or flashover shall not occur at AC 1000 V	7.4
5.5	Contact Extraction Force (Receptacle Contact)	Per position 20 g min. (Gauge pin)	7.5
5.6	Connector Insertion Force	No.Pos. Insertion Extraction 96-Pos. 9.0kg max. 2.0kg min. 64-Pos. 6.0kg max. 1.4kg min.	7.6
5.7	Repeated Insertion/ Extraction	o No physical abnormalities after test. o Shall conform to Paras. 5.2 and 5.6.	7.7
5.8	Action Pin Insertion Force	18 Kg max. per position	7.8
5.9	Action Pin Retention Force	3 Kg min. initial per position 2 Kg min. after test per position	7.9
5.10	Post Revolution Torque	0.14 Kg Cm·min. per position	7.10

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Para. No.	Test Items	Requirements	Test Method
5.11	Vibration	o No physical abnormalities after test. o Shall conform to Para. 5.2. o Electrical discontinuity greater than 1 microsecond shall take place.	7.11
5.12	Physical Shock	o No physical abnormalities after test. o Shall conform to Para. 5.2. o Electrical discontinuity greater than 1 microsecond shall take place.	7.12
5.13	Thermal Shock	o No physical abnormalities after test. o Shall conform to Para. 5.2.	7.13
5.14	Heat/Humidity Cycling	o No physical abnormalities after test. o Shall conform to Para. 5.2.	7.14
5.15	Sulphur Dioxide (SO_2)	o No physical abnormalities after test. o Shall conform to Para. 5.2	7.15
5.16	Soldering Heat Resistivity	o No physical abnormalities after test.	7.16
5.17	Solderability	o Tested area covered with wet solder 95% min. after test.	7.17

6. Quality Assurance Provision:

6.1 Material:

The test specimen shall be strictly in compliance with the product requirement. In case of using printed circuit board, those, conforming to the applicable specification, shall be used.

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6.2 Testing Environment:

The test shall be done under the following conditions:

Temperature: 15 ∿ 35°C
Humidity : 45 ∿ 75%
Atomospheric pressure (Hg): 650 ∿ 800 mmHg

7. Test Method:

7.1 Appearance:

Visual inspection

7.2 Low-level Termination Resistance:

As shown in Fig. 1, measurement shall be done at the circuit current of 10 mA maximum and the open circuit voltage of 20 mV maximum.

7.3 Insulation Resistance:

Insulation resistance shall be tested in accordance with Condition B, Test Method 302 of MIL-STD-202E by applying test potential of DC 500 V between the adjacent contacts (without installing printed circuit board).

7.4 Dielectric Strength:

Dielectric strength shall be tested in accordance with Test Method 301 of MIL-STD-202E by applying test potential of AC 1000 V for one minute between the adjacent contacts and also between the mating contacts (without installing printed circuit board).

7.5 Contact Single Extraction Force:

Fasten female side of the connector on tensile testing machine and operate the gauge, specified in Fig. 2, to apply an axial pull-off load by operating the head to travel at a rate of 100mm a minute.

7.6 Connector Insertion Force:

Fasten the connector on tensile testing machine and operate to apply an axial load by operating the head to travel at a rate of 100 mm a minute.

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7.7 Repeated Insertion/Extraction:

Fix the connector on tensile testing machine, and repeat insertion/extraction of the connector by operating the head to travel with the speed at a rate of 200mm a minute, for 400 cycles for 0.8μm min. thick gold-plated contact, and for 50 cycles for 0.2μm min. thick gold-plated contact.

7.8 Action Pin Insertion Force:

Insert the action pin into each position of the applicable printed circuit board.

7.9 Action Pin Retention Force:

With use of specified applicator, insert the action pin into an applicable printed circuit board. Measurement shall be done by pushing it from the opposite direction by a force gauge.

7.10 Post Revolution Torque:

Apply revolution torque of 0.14 Kg.Cm on each pin, which is inserted into printed circuit board by using specified applicator. Gradually apply the torque counterclockwise viewed from the plane perpendicular to the contact axial direction, and then clockwise. Measurement shall be done by applying the torque to both directions for 5 ∿ 15 seconds.

7.11 Vibration:

In accordance with Condition A, Test Method 204C of MIL-STD-202E, connectors shall be mated and series wired, and apply 0.1 A current.

Frequency	:	10 ∿ 500Hz
Total Amplitude	:	1.52 mm max. or 10 g max.
Duration	:	3 hours for each direction X, Y and Z

7.12 Physical Shock:

In accordance with Condition A, Test Method 213B of MIL-STD-202E, connectors shall be mated and series wired, and apply 100 mA current. The wire shall be fastened to a shock testing jig or secured by a cable clamp.

Standard Duration	:	11 ms
Maximum Value	:	50 g's
Waveform	:	Semi-sine waveform
Directions & Times	:	3 times each in X, Y & Z (total 18 times)

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7.13 Thermal Shock:

Mated connectors shall be tested in accordance with Condition A, Test Method 107D of MIL-STD-202E.

Temperature : −55°C ∿ +85°C (30 minutes each)
No. of Cycle: 5

7.14 Temperature/Humidity cycling:

Mated connectors shall be tested in accordance with Test Method 106D of MIL-STD-202E, except Step 7b.

Temperature/Humidity Cycling: 25°C ∿ 65°C
Humidity : 95%
No. of Cycle : 10

7.15 Sulphur Dioxide (SO_2)

Samples shall be tested as mated condition. SO_2 concentration, humidity and temperature shall be 10 ± 3 PPM, 90% min. and ambient respectively. The test duration shall be 48 hours.

7.16 Soldering Heat Resistivity:

Condition B, Test Method 210A of MIL-STD-202E shall apply.

Temperature: 260 ± 5°C
Duration : 10 ± 1 second

7.17 Solderability:

Soldered portion of post shall be immersed into rosin base flux for 5 ∿ 10 seconds and then into soldering tub of 230°C ± 5°C for 5 ± 0.5 seconds.

8. Test Sequence:

Test sequence shall conform to the Table 2.

Para. No.	Test Items	Test Group											
		1	2	3	4	5	6	7	8	9	10	11	12
5.1	Appearance	1,7	1,3	1,6	1	1	1	1,6	1,5	1,5	1,5	1,3	1,3
5.2	Low-level Termination Resistance			2,5				2,5	2,4	2,4	2,4		
5.3	Insulation Resistance	2,5											

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Para. No.	Test Items	Test Group											
		1	2	3	4	5	6	7	8	9	10	11	12
5.4	Dielectric Strength	3,6											
5.5	Contact Single Extraction Force		2										
5.6	Connector Insertion Force			3									
5.7	Repeated Insertion/ Extraction			4									
5.8	Action Pin Insertion Force				2								
5.9	Action Pin Retention Force					2							
5.10	Post Revolution Torque						2						
5.11	Vibration							3					
5.12	Physical Shock							4					
5.13	Thermal Shock								3				
5.14	Heat/Humidity Cycling	4								3			
5.15	SO_2										3		
5.16	Soldering Heat Resistivity											2	
5.17	Solderability												2

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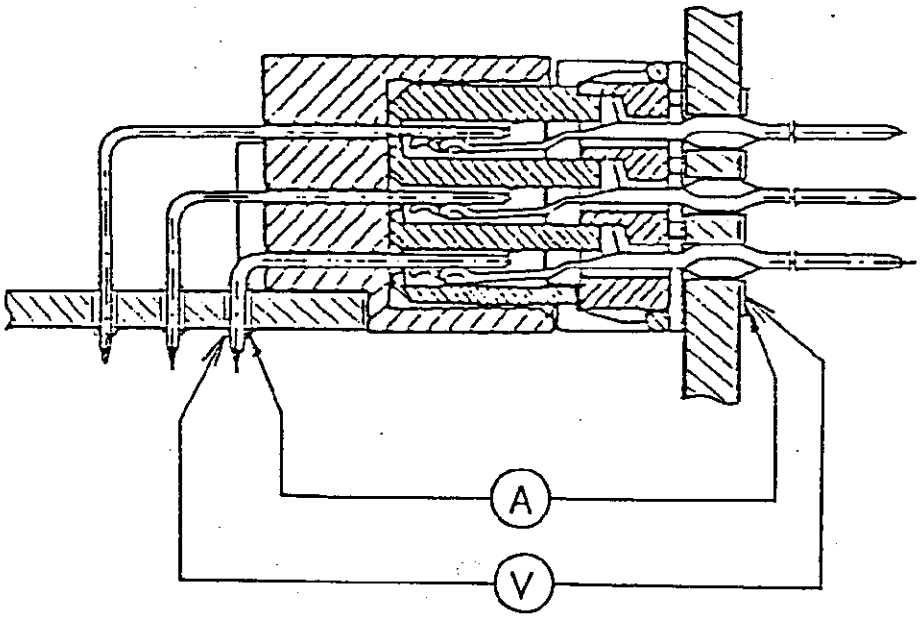

Fig. 1

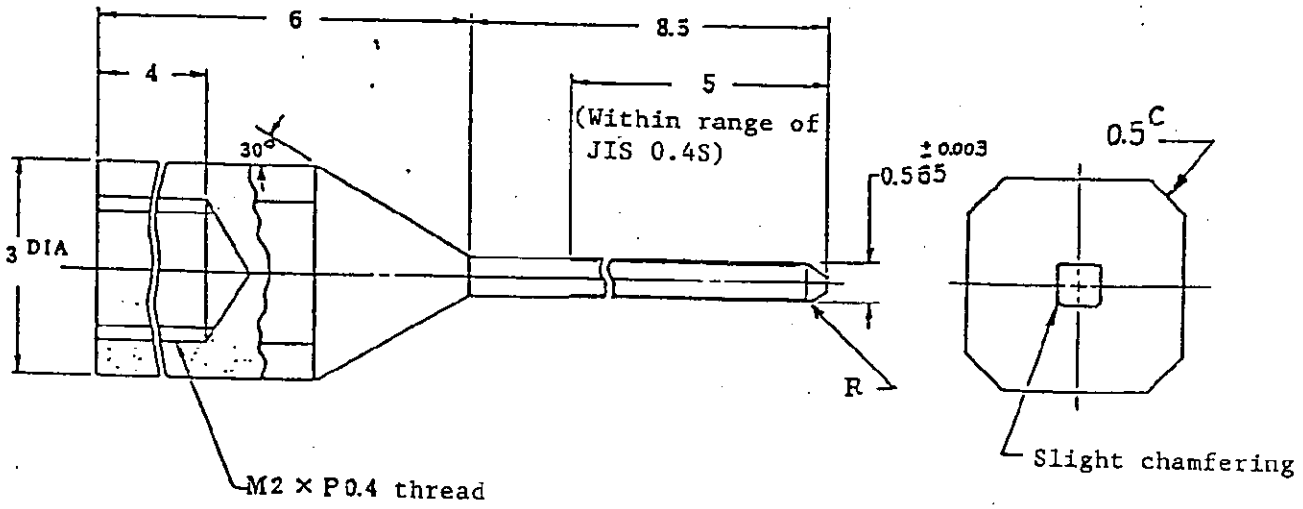

Fig. 2

* JIS 0.4S (JIS B 60) - $\sqrt{4}$ (MIL-STD-10A)

SHEET 8 OF 8	AMP	AMP (Japan), Ltd. TOKYO, JAPAN		
	LOC J A	NO 108-5227		REV. B_2
NAME Product Specification AMP IEC Connector (Type B. C. R.)				

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