PRODUCT SPECIFICATION

108-5245-1

ECONOMY AMPMODU CONNECTOR

1. SCOPE

This specification covers requirements for product performance and test methods of combination of vertical- and horizontal-mount type economy AMPMODU connector and 0.64mm square post header mated with this connector.

Recceptacle Connector : P/N 174809, 174007, 174650, 175425, 175426

Post Header : P/N 175301, 175308

2. PRODUCT MATERIAL & FINISH

2.1 Receptacle Contact

Material : Phosphor Bronze

Finish : a) Nickel underplate all over
Contact area - gold plating 0.76 µm min

b) Nickel underplate all over
Contact area - gold plating 0.2 µm min

c) Nickel underplate all over
Contact area - gold plating 01 µm average

d) Nickel underplate all over
Contact area - gold plating 0.4 µm min

2.2 Post

Material : Brass

Finish : a) Nickel underplate all over
Contact area - gold plating 0.76 µm min

b) Nickel underplate all over
Contact area - gold plating 0.2 µm min

c) Nickel underplate all over
Contact area - gold plating 0.1 µm average

Singapore 作成

					DR	AMP AMP MANUFACTURING SINGAPORE PTE LTD.		
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					APP	LOC S A	NO 108-5245-1	REV A
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DR	REVISION RECORD	DR	CHK	DATE				

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d) Nickel underplate all over
Contact area - gold plating 0.4 µm average

2.3 Receptacle Housing, Post Housing

Material : Thermoplastic Resin
Flame Retardancy : UL94V-0

3. PERFORMANCE RATING

3.1 Voltage : 250V, AC

3.2 Current : 3A max, per contact

3.3 Operating Temperature Range : $-55^{\circ}C \sim +105^{\circ}C$ (inclusive of temperature rise)

4. PRODUCT PERFORMANCE

When tested in accordance with the applicable test condition and methods, product performance of this connector shall meet the specified requirements in Table 1.

Para No	Test Items	Specified Requirements	Test Methods
4.1	Appearance	Connector shall appear normal without presence of abnormalities such as cracks, blister, damages, discoloration that are detrimental to connector function.	Visual inspection.
4.2	Termination Resistance (low level)	Initial : 12 mΩ max After test : 12 mΩ max	Measure millibolt drop of each position of the circuit shown in Fig 1 by applying closed circuit test current of 50mA max at open circuit voltage of 50mV DC max.
4.3	Insulation	Initial : 5000MΩ min After test : 1000MΩ min	Insulation resistance shall be tested in accordance with Test Condition B, Test Method 302 of MIL-STD-202 by applying test potential between the adjacent contacts.

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Para No	Test Items	Specified Requirements	Test Methods
4.4	Dielectric Strength	After testing, no abnormalities such as insulation breakdown or flashover shall be present.	Dielectric strength shall be tested in accordance with Test Method 301 of MIL-STD-202 by applying test potential of 1000V DC between the adjacent contacts for 1 minute.
4.5	Contact Insertion/ Extraction Force	Insertion force of 0.66mm square gage pin: 170g max. Extraction force of 0.61mm square gage pin : 20g min.	Insertion force : Measure force necessary to insert contact by using gage (1) specified in Fig 2 after repeating insertion/ extraction 3 times at a rate of 12.7mm/min. Extraction force : Measure force necessary to extract contact by using gage (2) after repeating insertion/ extraction 3 times by uisng gage (1).
4.6	Connector Insertion/ Extraction Force	Insertion force: 170g max/contact Extraction force: 20g min/contact	After repeating insertion and extraction 3 times, measure the 4th insertion/ extraction force at a rate of 12.7mm/min and calculate load per contact.
4.7	Durability (Repeated Insertion/ Extraction)	No physical abnormal-ilities shall be present. Shall conform to para. 4.6.	Repeat insertion and extraction at a rate of 500 to 600 cycles per hours.

Contact Area Gold Plating Thickness	Insertion/ Extraction No. of Cycles
0.76 µm min	200
0.2 µm min	100
0.1 µm ave	50
0.4 µm min	100

Para No	Test Items	Specified Requirements	Test Methods
4.5	Vibration	No electrical discontinuity greater than 1 micro second shall take place.	Vibration testing shall be done in accordance with Test Condition A, Test Method 204 of MIL-STD-202, after applying 100mA test current to the mated connector. Frequency: 10 500Hz (both ways 15 mins) Total Amplitude: 1.52mm or 10g Direction & duration: 3 hrs for each direction X, Y and Z.
4.9	Physical Shock	No electrical discontinuity greater than 1 micro second shall take place.	The test shall be done in accordance with Condition A, Test Method 213 of MIL-STD-202, after applying 100mA test current to the mated connector. Max value : 50g Standard duration: 11ms Waveform: semi-sine waveform Direction: X, Y & Z, plus minus direction each; (total 18 times)
4.10	Thermal Shock	No physical abnormalities shall be present. Shall conform to Para 4.2	Mated connectors shall be test in accordance with Test Condition A, Test Method 107 of MIL-STD-202. Temperature : $-65^{o}C \rightarrow +105^{o}C$ (30 mins each) No. of cycles : 5
4.11	Temperature/ Humidity Cycling	No physical abnormalities shall be present. Shall conform to Para 4.2, 4.3 & 4.4.	Mated connectors shall be tested in accordance with Test Method 106 of MIL-STD-202, except Step 7b.
4.12	Salt Spray	Shall conform to Para 4.2.	Mated connectors shall be tested in accordance with Test Method 101 of MIL-STD-202. Concentration of salt water: 5% duration: 48 hrs

Para No	Test Item	Specified Requirements	Test Methods
4.13	Solderability	Tested area covered with wet solder shall be 95% min.	Soldered portion of post shall be immersed into flux (alpha 100, GX-5 or GX-7) for .5~10 secs and then into soldering tub (tin 60%, lead 40%) of 230±5°C for 3±0.5 secs.
4.14	Sulphurous Acid Gas (SO_2)	Shall conform to Para 4.2.	Samples shal be tested as mated condition, and expose to SO_2 on following conditions for 24 hours. SO_2 concentration: 10±3PPM Humidity : 90% min Temperature: Room temperature Measurement after test shall be done after reconditioning to the room temperature more than one hour.
4.15	Soldering Heat Resistivity (this test item is applicable to receptacle connector only)	No physical abnormalities such as cracks, deformaiton of housing shall be present.	In accordance with Test Condition C, Test Method 210 of MIL-STD-202, samples shall be tested as mounted condition on PC board and immerse tine soldering area into soldering tub of 260±5°C for 10±2 secs.

5. QUALITY CONDITIONS

5.1 Test Environments

The performance test shall be made on the environmental conditions listed below, unless otherwise specified.

Temperature	:	15~35°C
Humidity	:	45~75%
Atmospheric Pressure	:	650~800 mmHg

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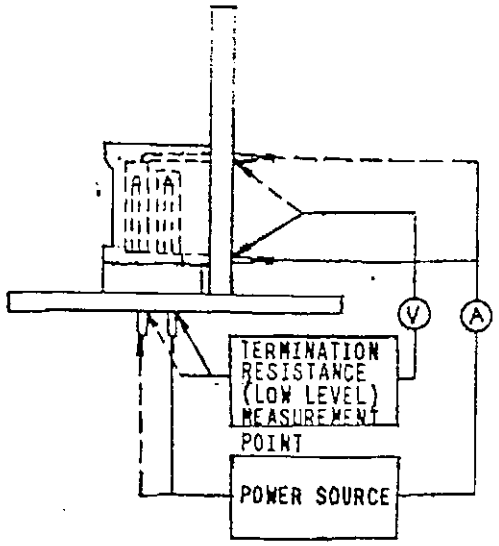
5.2 Test Specimens

i) The test specimens to be used for the test shall be conforming to the applicable product drawing(s).

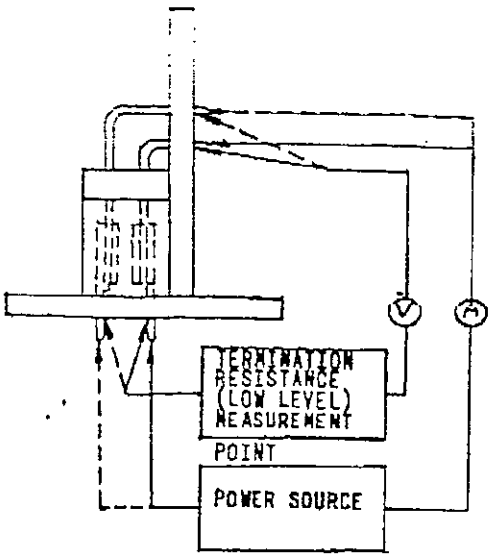
ii) Unless otherwise specified, no sample shall be reused.

6. TEST SEQUENCE

Para No	Test Item \ Test Group	I	II	III	IV	V	VI	VII	VIII
4.1	Appearance	1,9	1,5	1,7	1,5	1,5	1,5	1,5	1,5
4.2	Termination Resistance (Low Level)	2,6		2,6	2,4	2,4	2,4	2,4	2,4
4.3	Insulation Resistance	3,7							
4.4	Dielectric Strength	4,8							
4.5	Contact Insertion/ Extraction Force		2						
4.6	Connector Insertion/ Extraction Force			3,5					
4.7	Durability			4					
4.8	Vibration				3				
4.9	Physical Shock					3			
4.10	Thermal Shock						3		
4.11	Temperature Humidity Cycling	5							
4.12	Salt Spray							3	
4.13	Solderability		3						
4.14	Sulphurous Acid Gas								3
4.15	Soldering Heat Resistivity		4						



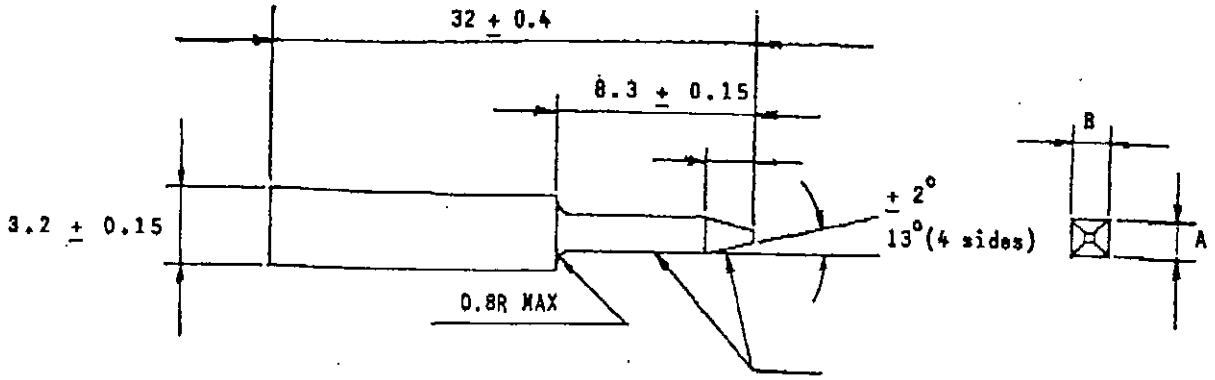
(Horizontal-mount Type Receptacle)



(Vertical-Mount Type Receptacle)

Note : Post plating shall be identical to receptacle plating when conducting tests.

Figure 1
Termination Resistance (Low Level) Measurement Point



	A	B
(1)	$0.66^{+0}_{-0.003}$	$0.66^{+0}_{-0.003}$
(2)	$0.61^{+0.003}_{-0}$	$0.61^{+0.003}_{-0}$

Notes : 1) Material : tool steel, heat treat, Rockwell C 50-55
2) When measuruing, gage surface shall be clean of lubricants.

Figure 2
Force Gage for Insertion Extraction

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