Product Specification
108-5245
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.

Receptacle Connector
(Normal Pressure Type): P/N 174809, 174007, 174650, 175425, 175426
(High Pressure Type) : P/N 174819, 176244
Post Header : P/N 174221, 174222, etc.

2. Product Material and 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 0.1 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
d) Nickel underplate all over,
Contact area - Gold plating 0.4 μm min.

2.3 Receptacle Housing, Post Housing

Material : Thermoplastic resin
Flame Retardancy: UL94V-0

3. Performance Rating:

3.1 Voltage: 250V, AC

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LTR	REVISION RECORD	DR	CHK	DATE
B	Reivsed RFA-1456		I.E	5-29-89
A	Revised RFA-1251		I.E	1-26-88
0	Released RFA-1167		I.E	9-7-87

DR 9-7-87
CHK I. Enomoto 9-7-87
APP H. Taguchi 9-16-87

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LOC J A | NO 108-5245 | REV B

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3.2 Current: 3A max. per contact

3.3 Operating Temperarature Range: -55°C ∿ +105°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 Resistance	Iitial : 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.
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 AC between the adjacent contacts for 1 minute.

Table 1 (cont.)

Para. No.	Test Items	Specified Requirements	Test Methods
4.5	Contact Insertion/ Extraction Force	Insertion force of 0.66mm square gage pin: 170 g max. Extraction force of 0.61mm square gage pin: 20 g min. (High Pressure Type) Insertion force of 0.66mm squre gage pin: 400 g max. Extraction force of 0.61mm square gage pin: 60 g 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/extractin 3 times by using gage (1).
4.6	Connector Insertion/ Extraction Force	Insertion force: 170 g max./contact Extraction force: 20 g min./contact (High Pressure Type) Insertion force: 380 g max./contact Extraction force: 200 - 95 g/contact	After repeating insertion and extraction 3 times, measure the 4th insertion/ extraction force at a rate of 12.7 mm/min. and calculate load per contact.
4.7	Durability (Repeated Insertion/ Extraction)	No physical abnormalilities shall be present. Shall conform to Para. 4.6.	Repeat insertion and extraction at a rate of 500 to 600 cycles per hour.

Contact Area Gold Plating Thickness	Insertion/ Extraction # of Cycles
0.76 µm min.	200
High Pressure Type 0.76 µm min.	100
0.2 µm min.	100
0.1 µm ave.	50
0.4 µm min.	100

Table 1 (cont.)

Para. No.	Test Items	Specified Requirements	Test Methods
4.8	Vibration	No electrical discontinuity greater than 1 microsecond 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 minutes) Total Amplitude: 1.52 mm or 10 g Direction and Duration: 3 hours for each direction X, & and Z
4.9	Physical Shock	No electrical discontinuity greater than 1 microsecond 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: 50 g 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 tested in accordance with Test Condition A, Test Method 107 of MIL-STD-202. Temperature: -65°C ∿ +105°C (30 minutes each) No. of Cycles: 5
4.11	Temperature/ Humidity Cycling	No physical abnormalities shall be present. Shall conform to Paras. 4.2, 4.3 & 4.4.	Mated connectors shall be tested in accordance with Test Method 106 of MIL-STD-202, except Step 7b.

Table 1 (cont.)

Para. No.	Test Items	Specified Requirements	Test Methods
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.
4.13	Solder-ability	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 seconds and then into soldering tub (tin 60%, lead 40%) of 230±5°C for 3±0.5 seconds.
4.14	Sulphurous Acid Gas (SO_2)	Shall conform to Para. 4.2.	Samples shall be tested as mated condition, and expose to SO_2 on following conditions for 24 hours. SO_2 concentration: 10±3 PPM Humidity: 90% min. Temperature: Room temperature Measurment after test shall be done after re-conditioning 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, deformation 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 seconds.

Table 1 (End)

5. Quality Conditions:

5.1 Test Environments:

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

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

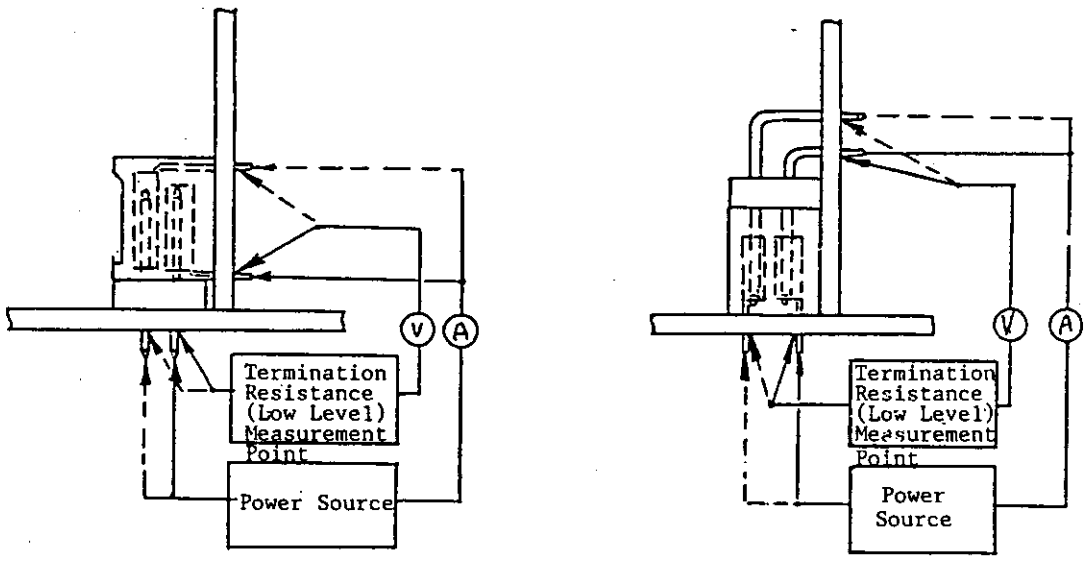
5.2 Test Specimens:

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

(2) Unless otherwise specified, no sample shall be reused.

6. Test Sequence:

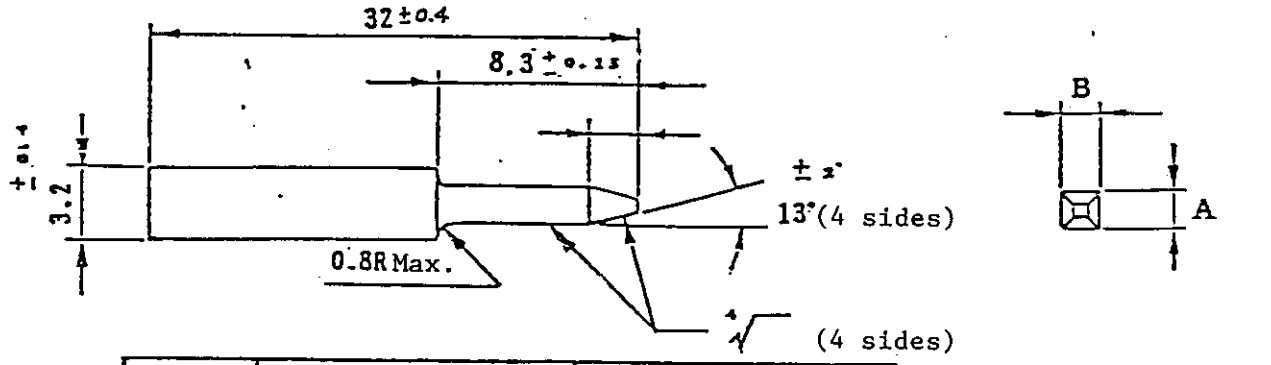
Para. No.	Test Group / Test Item	I	II	III	IV	V	VI	VII	VIII
4.1	Appearance	1,9	1,5	1,7	1,5	1,5	1,5	1,5	1,5
4.2	Termination Resistance (Low Level)	2,6		2,6	2,4	2,4	2,4	2,4	2,4
4.3	Insulation Resistance	3,7							
4.4	Dielectric Strength	4,8							
4.5	Contact Insertion/ Extraction Force		2						
4.6	Connector 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/Humididy 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 Recpetacle)

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

Fig. 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 measuring, gage surface shall be clean of lubricants.

Fig. 2
Force Gage for Insertion and Extraction