Product Specification

108-60086

Vertical type HDMI Receptacle Connector

1. Scope:

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of vertical type HDMI Connector.

Applicable product descriptions and part numbers are as shown in Appendix 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 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.

B.501-115008: Test Report

2.2 Commercial Standards and Specifications:

High Definition Multimedia Inter face specification 1.4

DIST

LTR	REVISION RECORD	DR	DATE
A1	Revise test sequence	A.H	30Nov 2009
A	Initial Release	A.H	07JULY 2009

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TITLE Vertical type HDMI Receptacle Connector

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

A. Contact

・Material：Copper Alloy

・Finish： Nickel-under plated all over.

Gold plated at contact area.

Gold flash or Matte Tin plated at soldering area.

B. Shell

・Material: Copper Alloy

・Finish: Nickel-under plated all over.

Matte Tin plated at soldering area.

C. Housing

・Material：Thermoplastic Molding Compound

・Color：Black

3.3 Ratings

A. Voltage Rating：40V DC

B. Current Rating：0.5A

C. Temperature Rating：－25℃ to +70℃ High limit temperature includes raised temperature by operation.

3.4 Performance Requirements and Test Descriptions

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Table 1. All tests shall be performed in the room temperature, unless otherwise specified.

3.5 Test Requirements and Procedures Summary

VISUAL			
Para.	Test Description	Performance Requirements or Severity	Procedures
3.5.1.	Examination of product	Meets requirements of product drawing. No physical damage	Visual inspection No physical damage
ELECTRICAL			
Para.	Test Description	Performance Requirements or Severity	Procedures
3.5.2.	Contact and Shell Resistance (Low Level)	Initial Value Contact: 50mΩ Max. Shell: 50mΩ Max.	Mated connector, Contact: EIA-364-23 Open circuit 20mV Max,1 0mA Shell: EIA-364-83 Open circuit 5V Max, 100mA
3.5.3.	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage：0.5mA Max.	EIA-364-20, Method 301 Unmated connectors: 500V AC Mated connectors: 300V AC Apply a voltage above between adjacent contacts and contact and shell for 1 minute.
3.5.4.	Insulation Resistance	100MΩ Min.(Unmated) 10MΩ Min.(Mated)	EIA-364-21, Method 302 Unmated connectors: 500V DC Mated connectors: 150V DC Apply a voltage above between adjacent contacts and contact and shell for 1 minute.
3.5.5.	Temperature Rising	30℃ 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. Cable length: 75mm.
3.5.6	Electrical Discharge	No evidence of Discharge to contacts at 8KV	IEC-801-2 Test unmated each connector from 1kV to 8kV in 1kV steps using 8mm ball prove. Refer to Fig 2.
MECHANICAL			
3.5.7	Insertion Force	44.1N(4.5kgf) Max.	EIA-364-13 Operation Speed: 25mm/minute Measure the force required to mate the connector

3.5.8	Withdrawal Force	9.8N(1.0kgf) Min. 39.2N(4.0kgf) Max.	EIA-364-13 Operation Speed: 25mm/minute Measure the force required to withdraw the connectors.
3.5.9	Durability (Repeated Mating / Un-mating)	Contact and shell resistance: (after test: change from initial value) Contact: ΔR 30mΩ Max. Shell: ΔR 50mΩ Max.	Durability: 10,000 cycle, Automatic cycling: 100±50 cycle per hour
3.5.10	Vibration	Appearance: Conform to item of 3.5.1 Contact and shell resistance: (after test: change from initial value) Contact: ΔR 30mΩ Max. Shell: ΔR 50mΩ Max. Discontinuity: 1u sec Max.	EIA-364-28 ConditionⅢ Method 5A Amplitude: 1.52mm P-P or $147m/s^2${15G} Sweep time: 50-2000-50Hz in 20 minutes. Duration: 12 times in each(total of 36 times)X.Y.Z axes. Electrical load: DC100mA current shall be flowed during the test.
3.5.11.	Physical Shock	Appearance: Conform to item of 3.5.1 Contact and shell resistance: (after test: change from initial value) Contact: ΔR 30mΩ Max. Shell: ΔR 50mΩ Max. Discontinuity: 1u sec Max.	EIA-364-27 Condition A Duration: 11ms Waveform: half sine, 490m/s2{50G}, 3 strokes in each X.Y.Z axes.
3.5.12.	Solderability	Wet Solder Coverage： 95 % Min.	Solder Temperature : 230 ± 5 ℃ Immersion Duration : 3± 0.5 sec. Flux：Alpha 100
ENVIRONMENTAL			
3.5.13.	Thermal Shock	Appearance: Conform to item of 3.5.1 Contact and shell resistance: (after test: change from initial value) Contact: ΔR 30mΩ Max. Shell: ΔR 50mΩ Max.	EIA-364-32C Condition Ⅰ Mated connectors together and perform the test as follows. 10 cycle of:A)－55℃ for 30min B)+85℃ for 30 min.

3.5.14 .	Humidity	A: Appearance: Conform to item of 3.5.1 Contact and shell resistance: (after test: change from initial value) Contact: ΔR 30mΩ Max. Shell: ΔR 50mΩ Max. B: Appearance: Conform to item of 3.5.1 Dielectric Withstanding Voltage: Conform to item of 3.5.3 Insulation Resistance: Conform to item of 3.5.4	EIA-364-31B A: Mate connectors together and perform the test as follows. B: Unmated connectors together and perform the test as follows. Temperature: +25℃ to +85℃ Relative Humidity: 80 to 95% Duration: 4 cycle (96 hours) Upon completion of the test, specimens shall be conditioned at ambient room conditions for 24 hours, after which the specified measurements shall be performed.
3.5.15 .	Thermal Aging	Appearance: Conform to item of 3.5.1 Contact and shell resistance: (after test: change from initial value) Contact: ΔR 30mΩ Max. Shell: ΔR 50mΩ Max.	EIA-364-17B Condition 4 Method A Mate connectors and expose to +105±2℃, 250 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.
3.5.16 .	Resistance to Soldering Heat	Tested housing shall show no evidence of deformation or fusion of housing and no physical damage.	Case of Manual Soldering Temperature: 380±5℃ for 3 ±1 second. To be no deformation by the top of iron at soldering tines.
3.5.17 .	Resistance to Reflow Soldering Heat	Tested housing shall show no evidence of deformation or fusion of housing and no physical damage.	Test connector on PCB. Pre-heat 150~180℃:60~120s Heat 230℃Min: 30~40s Heat Peak 260℃ Reflow times: 2 times Refer to Fig3.
3.5.18	Salt Spray	No Corrosion that damages function of connector allowed.	EIA-364-26 Condition B Mated connector 35℃, Concentration 5% 24 hours(8hx3cycle, 16h Break)

Table.1
(End)

3.6 Product Qualification Test Sequence

Test Examination	Test Group												
	1	2	3	4	5	6	7	8	9	10	11	12	13
	Test Sequence (a)												
Examination of Product	1,9	1,11	1,7	1,8	1,5	1,5	1,3	1,3	1,5	1,3	1,3	1,3	1,5
Contact and Shell Resistance (Low Level)	2,4, 6,8	2,4, 6,8, 10	2,4, 6		2,4	2,4			2,4				2,4
Dielectric withstanding Voltage				2,4									
Insulation Resistance				5,7									
Temperature Rising					3								
Electrical Discharge						3							
Insertion Force							2						
Withdrawal Force								2					
Durability(100 cycle)		3											
Durability (10000 cycle)									3				
Vibration			3(b)										
Physical Shock			5(b)										
Solderability										2			
Thermal Shock	3	5		3									
Humidity	7(c)	9(c)		6(d)									
Thermal aging	5	7											
Resistance to Soldering Heat											2		
Resistance to Reflow Soldering Heat												2	
Salt Spray													3

Table 2

(a) Numbers indicate sequence in which the tests are performed.
(b) Measure discontinuity during the test.
(c) Unmated each connectors and test. (Test condition B)
(d) Mated connectors together and test. (Test condition A)
(e) This test shall be accordance with HDMI compliance test specification
(f) 5 PCS each test group at least.

The applicable product descriptions and part numbers are as shown in Appendix 1.

Product Part No.	Description
□-1932244-□	VERTICAL TYPE HDMI RECEPTACLE CONNECTOR
□-1932249-□	VERTICAL TYPE HDMI RECEPTACLE CONNECTOR

Appendix 1

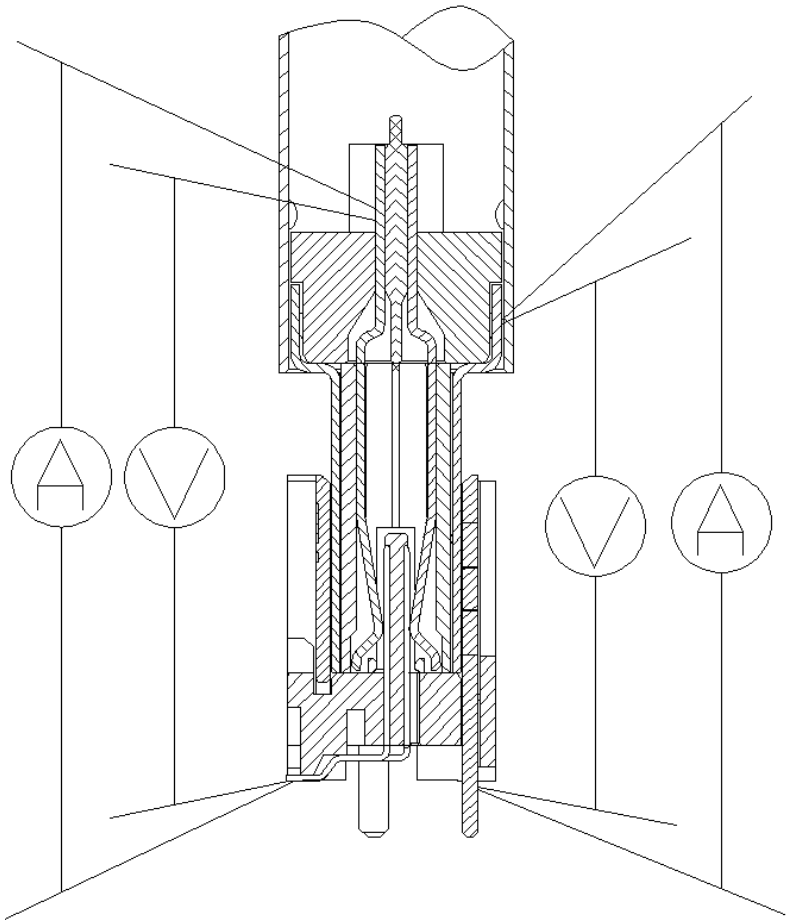

Fig.1 Contact and Shell Resistance Measuring point

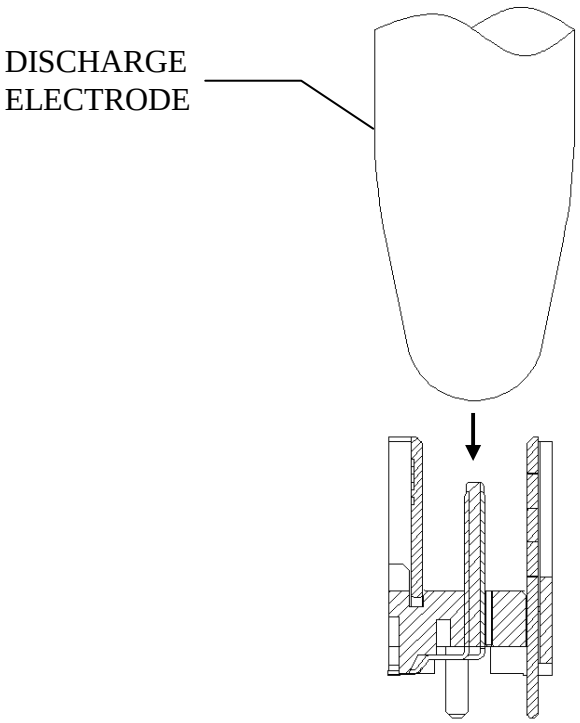

Fig.2 Test method of Electrostatic Discharge

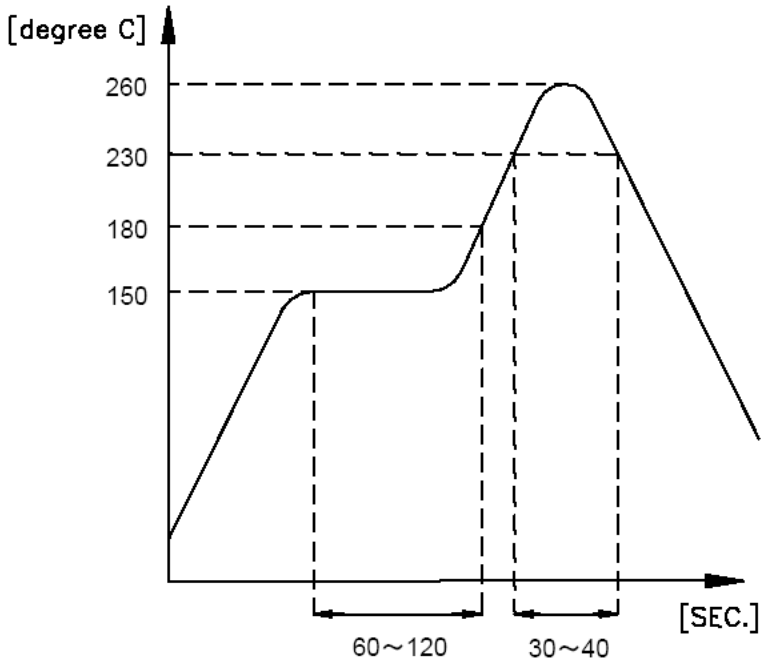

Fig.3 Temperature Profile of Reflow Soldering