

HSIO 0.6MM PITCH 34POS
HDMI, USB3.0 and DC Cable Assembly

1. SCOPE

1.1. Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of HSIO 0.6MM PITCH 34POS Cable and Receptacle Header Assembly.

1.2. Qualification Test Results

The Qualification Test Report number for this testing is 501-xxxxx.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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. TE connectivity specifications

- A. 109-5000 : Test specification, general requirements for test methods
- B. 501-xxxxx : Qualification test report

2.2. Commercial standards and specifications

- A. MIL-STD-202 Test method for electronic and electric parts.
- B. EIA-364: Electrical connector test procedures including environmental classifications.

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

Materials used in the construction of this product shall be as specified on the applicable product drawing.

HSIO Receptacle Header assembly

- A. Signal Contact : Copper Alloy
Finish : Au plating over Ni plating. (Contact area and soldering area)
- B. Ground Contact : Copper Alloy
Finish : Au plating over Ni plating. (Contact area and soldering area)
- C. Base housing : Thermoplastic UL94V-0
- D. Shell : Stainless Steel
Finish : Tin plating over Ni plating

HSIO Plug connector

- A. Substrate : FR-4
- B. Base housing : Thermoplastic UL94V-0
- C. Contact : Copper Alloy
Finish : Au plating over Ni plating. (Contact area and soldering area)
- D. Back Shell : Stainless Steel
Finish : Tin plating over Ni plating
- E. Front Shell : Stainless Steel
Finish : Ni plating
- F. Over mold : PVC
- G. Latch : Stainless Steel
- H. Cable : VW-1

3.3. Ratings

- A. Voltage Rating : 30 VAC
- B. Current Rating : 0.1A (Signal line)
: 1.1A (Power line)
- C. Temperature rating : Receptacle Header assembly -25degC ~ 85degC
Cable assembly -20degC ~ 80degC

3.4. Performance requirements and test descriptions

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 1.

All tests shall be performed in the room temperature, unless otherwise specified.

3.5. Test Requirements and Procedures Summary

Test Items	Requirements	Procedures
Initial examination of product	Meets requirements of product drawing.	Visual and dimensional inspection per product drawing. No physical damage EIA-364-18.
Final examination of product	Meets visual requirements.	Visual inspection. EIA-364-18.

Electrical Requirements

Termination resistance ※1 (Low level)	50mΩ MAX. (Initial) ΔR =25mΩ MAX (final)	Subject specimens to 10 mA maximum and 20 mV maximum open circuit voltages. Refer to Fig.2 for detail EIA-364-23C.
Dielectric withstanding voltage ※1	No creeping discharge or flashover shall occur. Current leakage: 0.5mA Max	Impressed 100 VAC for 1 minute. Test between adjacent contacts of mated connectors. EIA-364-20D.
Insulation resistance ※1	100MΩ MIN.	Impressed 500VDC for 1minute. Test between adjacent contacts of mated connectors. EIA-364-21D.
Temperature Rising ※1	Temperature Rising determines 30degC max. Specified current rating 1.1 A is loaded at power line.	Measure temperature rising by specified current rating 1.1 A at DC power line (2 contacts: DC and DC return). EIA-364-70.

※1 : For HSIO Receptacle Header and plug connector

Mechanical Requirements

Cable tensile strength	Cable cramp retention force: 30N MIN. Applying to HSIO, HDMI and USB.	Apply an axial pull-off load to crimped cable fixed on load tester Operation speed : 25.4mm/min EIA-364-13
Connector mating force ※1	20N MAX.	Measure the force required to mate connector Operation speed : 12.5mm/min EIA-364-13
Connector unmating force ※1	5N MIN.	Measure the force required to unmate connector Operation speed : 12.5mm/min EIA-364-13
Durability ※1 (Repeated mating / unmating)	Termination resistance (Low level) 50mΩ MAX. (Initial) ΔR =25mΩ MAX. (final)	Test cycle : 1,500 cycles Operation speed : 200cycles/hour EIA-364-23C
Vibration ※1	No electrical discontinuity greater than 1micro sec. shall occur.	3.10 GRMS for 15 minutes between 20-500Hz, in each of three mutually perpendicular planes. EIA 364-28 Test Condition VII, Letter D
Physical shock ※1	No electrical discontinuity greater than 1micro sec. shall occur.	Accelerated Velocity : 30G 1/2 sine shock Duration : 11ms Number of drops: 3drops each to normal and reversed directions of X,Y, and Z axes, totally 18drops EIA 364-27 Test condition H
Solderability ※1	Wet solder coverage : 95% MIN.	Solder temperature : 230 +/- 5degC Immersion duration : 3+/-0.5sec Flux : Alpha100
Strain Relief Bend test (Cable assembly Flexibility)	No electrical discontinuity on signal and power line greater than 10micro sec. shall occur. No breakage of conductor of signal and power line , and cable Applying to strain relief for HDMI and USB.	500 cycles in each of 2planes dimension Bend direction: Horizontal / sample Vertical / sample Bend angle: 120deg (60deg on one side) Operation speed : 2sec/cycle Load : 200gf Electrical load: DC Refer to Fig.3. for detail.

Environmental Requirements

Resistance to reflow soldering heat (For Receptacle Header)	No physical damage	SMT Reflow soldering on Test PCB Pre-heat 150degC: 60-120sec TAL (over 217degC) : 40-90sec Peak temp : 240+/-5degC (soldering position) Peak temp : 260 degC max (housing surface) Soldering iron method Bit temperature : 350 +/-10degC Application time : 3 +1/-0 sec
Thermal shock test ※1	Termination resistance (Low level) 50mΩ MAX. (Initial) ΔR =25mΩ MAX. (final)	-55 degC / 30min., +85degC / 30min. / cycle, After 10cycles exposure, shelf room temp 12hours and measure termination resistance EIA-364-32
Humidity, Steady state ※1	Termination resistance (Low level) 50mΩ MAX. (Initial) ΔR =25mΩ MAX. (final) Insulation resistance : 100MΩ MIN.	90-95% RH, 40degC, 96hours After exposure, shelf room temp 12hours and measure termination resistance EIA-364-31
Temperature life ※1 (Heat aging)	Termination resistance (Low level) 50mΩ MAX. (Initial) ΔR =25mΩ MAX. (final)	85degC, 96hours After exposure, shelf room temp 12hours and measure termination resistance EIA-364-17

Figure 1

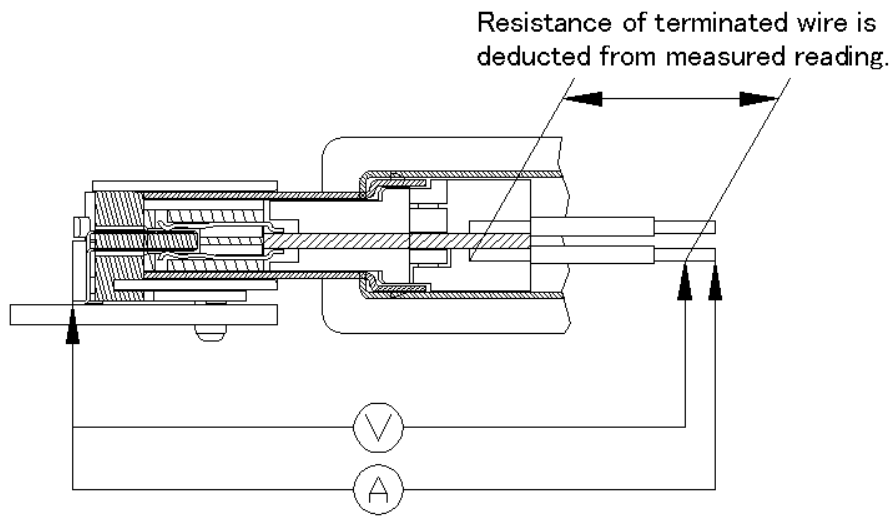


Fig.2. Low Level Circuit Resistance, measurement point

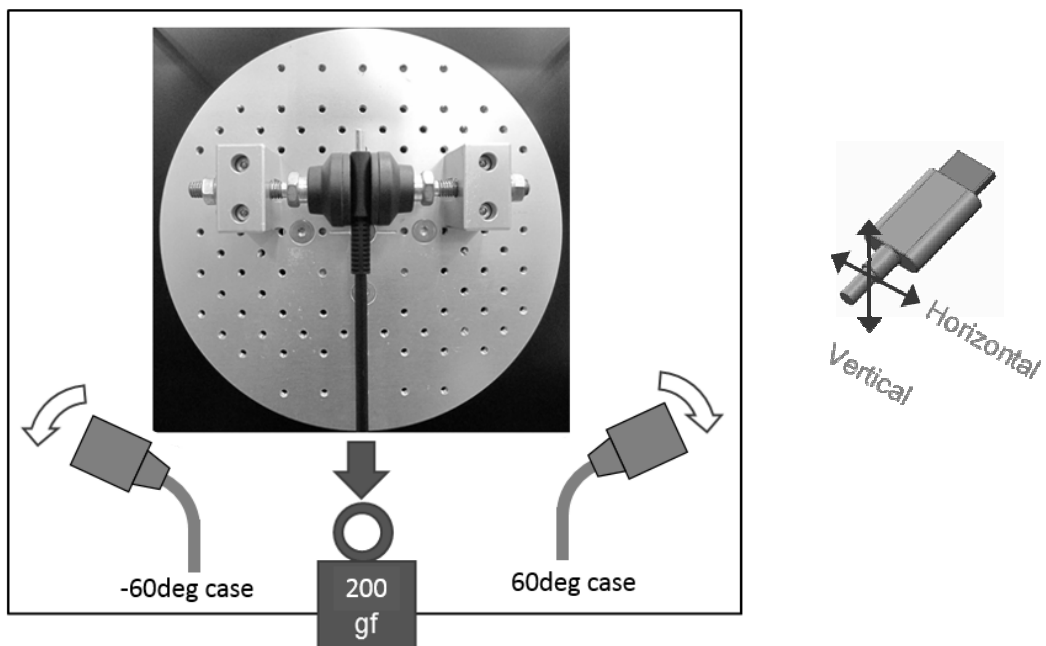


Fig.3. Bend test fixture and condition (2 perpendicular directions) (2 Bend directions)

3.6. Product Qualification Test Sequence

Test examination/ Test sequence	Test group										
	1	2	3	4	5	6 (b)	7	8	9	10	11
	Test sequence (a)										
Examination of product	1,5	1,7	1,5	1,3	1,5	1,3	1,7	1,3	1,3	1,6	1,3
Termination resistance (Low Level)	2,4		2,4		2,4		2,6			2,5	
Dielectric withstanding voltage		3,6									
Insulation resistance		2,5									
Temperature rising				2							
Connector mating force							3				
Connector unmating force							4				
Durability							5				
Vibration										3	
Physical shock										4	
Solderability								2			
Resistance to reflow soldering heat									2		
Thermal shock			3								
Humidity (steady state)	3	4									
Temperature life (Heat aging)					3						
Strain relief bend test						2					
Cable tensile strength											2

Table 1

NOTE

- (a) Numbers indicate sequence in which the tests are performed.
- (b) Discontinuities shall not occurred in these test groups

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in table 1.

4.2. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmitted.

4.3. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

Product parts number	Description
2312625-3	HSIO 0.6mm pitch 34pos Receptacle Header Assembly
2324673-1	HSIO 0.6mm pitch 34pos Cable Assembly

Rev.	Rev. Record	Prepared		Check		Approval	
		T.W	25th OCT '17	J.T	25th OCT '17	K.K	31th OCT '17
A	RELEASED	T.W	25th OCT '17	J.T	25th OCT '17	K.K	31th OCT '17