PRODUCT SPECIFICATION

TITLE

HDMI plug to HDMI plug Cable Assembly

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A	EC No: DATE: **05/25/2018**	**HDMI Plug to Plug Cable Assembly**	**1** of **7**

DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
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FILENAME: PS75431r0.DOC

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1.0 SCOPE

This specification covers the requirements for HDMI 1.4 CAT 2 plug to HDMI plug Cable Assy.

2.0 PRODUCT DESCRIPTION

See the sales drawing for product shape; dimension and materials, the other section of this specification for the necessary referenced document and specification. The part number serial covered in this specification are as follow table:

Molex Series	Detail
68767	HDMI plug to HDMI plug cable

3.0 PRODUCT SPECIFICATIONS

3.1 Rated voltage (Maximum): 40V AC (RMS)
3.2 Rated current (Maximum): 0.5A AC (RMS)/DC
3.3 Temperature
Operating temperature range: 0°C to +70°C
Storage temperature range: -20°C to + 70°C

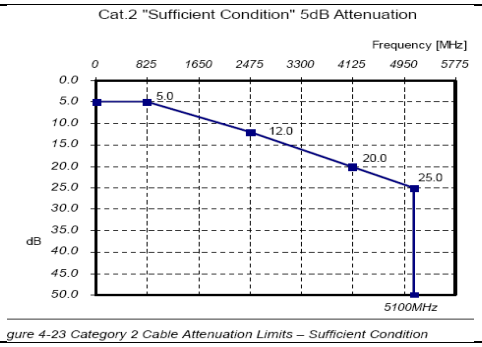
4.0 QUALIFICATION

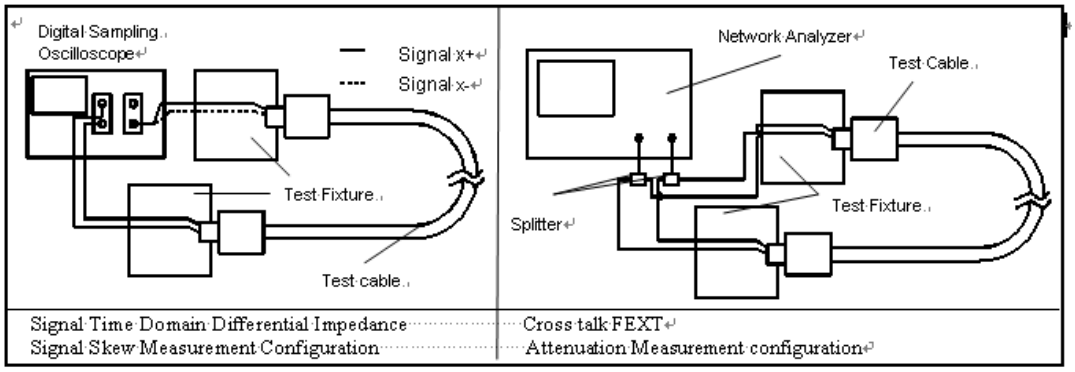
Laboratory conditions and sample selection are in accordance with EIA-364-1000.01

5.0 PERFORMANCE

5.1 ELECTRICAL CHARACTERISTICS

Test Description	Test Condition	Performance Requirement
Low Level Contact Resistance (LLCR)	**Mated connectors** ANSI/EIA 364-06B Contact: measure by dry circuit, 20 mV Max., 10 mA Max.	30 milliohm Max. [Initial contact resistance excluding conductor resistance:10mΩ Max (Target design value)]
	ANSI/EIA-364-06A-83 Shell: measure by dry circuit, 5V Max., 100 mA Max.	50 milliohm Max.
Dielectric Withstanding Voltage	**Unmated connector** Apply 500V AC (rms.) for 1 minute between adjacent terminal and ground. **Mated connectors** Apply 300V DC for 1 minute between adjacent terminal and ground. (ANSI/EIA 364-20)	No breakdown
Insulation Resistance	**Unmated connector** Apply 500V DC between adjacent terminal and ground. (ANSI/EIA 364-21, method 302)	100megohm Min.
	Mated connectors Apply 150V DC between adjacent terminal and ground. (ANSI/EIA 364-21, method 302)	10megohm Min.
Contact Current Rating	Initial ambient temperature: 55°C Maximum After temperature changed: 85°C Maximum (ANSI/EIA-364-70,TP-70)	0.5A Min.
Applied Voltage Rating	40V AC (rms.) continuous maximum, on any signal pin with respect to the shield.	No breakdown
Electrostatic Discharge	Test unmated each connector from 1 kV to 8 kV in 1 kV steps using 8 mm ball probe. (IEC-801-2)	No evidence of discharge to contacts at 8kV

TMDS Signals Time Domain Impedance	Rise time≦200psec.(10%~90%) Signal to ground pin ratio per HDMI Designation. Differential measurement specimen environment impedance=100 ohms differential Source side receptacle connector mounted on a controlled impedance PCB fixture. (ANSI/EIA-364-108 Draft Proposal)	Contact area	100±15 Ω
		Transition area	100±15 Ω
		Cable area	100±10 Ω
TMDS Signals Time Domain Cross-talk FEXT	Rise time≦200psec.(10%~90%) Signal to ground pin ratio per HDMI Designation. Differential measurement specimen environment impedance=100 ohms differential Source side receptacle connector mounted on a controlled impedance PCB fixture. Driven Pair and Victim Pair.	-20dB Max.	
TMDS Signals Skew	Rise time = |TIME (TMDSx+)-TIME (TMDSx-)| Differential Measurement Specimen Environment Impedance = 100 ohms differential. Source side receptacle connector mounted on a controlled impedance PCB fixture.	Intra-pair Skew: 112 picoseconds/cable Max. Inter-pair Skew: 1.78 nanoseconds/cable Max.	
Attenuation	Connect cable to connector on test fixture, measure by Network Analyzer. (See below figure)	 *gure 4-23 Category 2 Cable Attenuation Limits – Sufficient Condition*	



5.2 MECHANICAL CHARACTERISTICS

Test Description	Test Condition	Performance Requirement	
Cable Flexing	Rotate the specimen up to 100 cycles in each of 2 planes at the speed of 12 to 14 complete cycles (of 180 total traverse) per minute, see paragraph 6 Mandrel Diameter : X =3.7 × Cable Diameter. (ANSI/EIA-364-41, Condition Ⅰ)	Discontinuity	1 microsecond Max.
		Dielectric Strength and Insulation Resistance	Conform to item of Dielectric Withstanding Voltage and Insulation Resistance
Insertion Force/ Withdrawal Force	EIA 364-13 The insertion and withdrawal force test shall be done at a maximum rate of 25±3 mm per minute.	Withdrawal Force	9.8N {1.0 kgf} Min. 39.2N {4.0 kgf} Max.
		Insertion Force	44.1 {4.5 kgf} Max.
Pulling Force	EIA 364-38 Test Condition A The cable assembly shall be subjected to a 40N axial load for a minimum of 1 minute while clamping one end of the cable plug.	No visible physical damage and no electrical discontinuity over 1 microsecond to the cable assembly.	
Durability or Insertion/Extraction Cycles	Automatic cycling: 10,000 cycles at 100±50 cycles per hour. EIA 364-09	Contact Resistance	Change form initial requirement : Contact: 30 milliohm Max. Shell: 50 milliohm Max.

5.3 ENVIRONMENTAL CHARACTERISTIC

Test Description	Test Procedure	Performance Requirement	
Thermal Shock	Mate connectors and subject to the following conditions for 10 cycles. 1cycle -55±3°C for 30 minutes +85±3°C for 30 minutes (ANSI/EIA-364-32, Condition Ⅰ)	Appearance	No Damage
		Contact Resistance	Change form initial requirement : Contact: 30 milliohm Max. Shell: 50 milliohm Max.

Temperature Life	Mate connectors and expose to 105±2°C for 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. (ANSI/EIA-364-17, Condition 4, Method A)	Appearance	No Damage
		Contact Resistance	Change form initial requirement : Contact: 30 milliohm Max. Shell: 50 milliohm Max.
Humidity	A) Mate connectors together and perform the test as follows. Temperature : +25 to +85°C Relative Humidity : 80% to 95% Duration : 4 cycles (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. (ANSI/EIA-364-31B)	Appearance	No Damage
		Contact Resistance	Change form initial requirement : Contact: 30 milliohm Max. Shell: 50 milliohm Max.
	B) Unmate connectors and perform the test as follows. Temperature : +25 to +85°C Relative Humidity : 80 to 95% Duration : 4 cycles (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. (ANSI/EIA-364-31B)	Appearance	No Damage
		Dielectric Withstanding Voltage and Insulation Resistance	Conform to item of Dielectric Withstanding Voltage and Insulation Resistance
Salt Spray	Mate connector and expose to the following salt mist condition. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dip in running water, after which the specified measurements shall be performed. NaCl solution: Concentration: 5%±1%. Spray time: 24h±1h. Ambient Temperature: 35 ºC ±2ºC. EIA-364-26	Appearance	No Damage
		Contact Resistance	Change form initial requirement : Contact:30 milliohm Max. Shell:50 milliohm Max.