	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 1 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	

1 OBJECTIVE

This specification defines the performance requirements for HDMI connector.

2.0 GENERAL


This document is composed of the following sections

<u>PARAGRAPHS</u>	<u>TITLE</u>
1.0	OBJECTIVE
2.0	GENERAL
3.0	MATERIAL
4.0	ELECTRICAL CHARACTERISTICS
5.0	MECHANICAL CHARACTERISTICS
6.0	ENVIRONMENTAL PERFORMANCE
7.0	RECOMMENDED TEMPERATURE PROFILE
8.0	TEST SEQUENCE

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Form E-3005
Rev A 02/12/01
V20603

GS-01-001

	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 2 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	

3.0 MATERIAL

The material for each component shall be as specified herein, or equivalent.

3.1 _Housing: High temperature grass filled resin UL94-V0, color black.

The housing will withdraw exposure to 250 °C peak temperature for 3-6 seconds in a IR reflow oven.

3.2 Contact : copper alloy

3.3 Shell : Copper alloy

3.4 Finish

Contact area: 30u" Au or 15u" GXT under plated 1,27 microns Ni

Solder area: 1.27 microns Sn under plated 1.27 microns Ni.

Shell: 2.54 microns Ni.

4.0 ELECTRICAL CHARACTERISTICS

4.1 Contact Resistance

<Test Condition>

Mated connectors,

Contact : measure by dry circuit, 20 mV maximum, 10mA.

Shell : measured by open circuit, 5 V maximum ,100mA.

(ANSI/EIA-364-06A-83)

<Requirement>

Contact : 30 mΩ maximum.

Shell : 50 mΩ maximum.

4.2 Dielectric Strength

<Test Condition>

Unmated connectors, apply 500 Volts AC (RMS.) between adjacent terminal or ground.

(ANSI/EIA 364-20, Method 301)

Mated connector, apply 300 Volts AC (RMS.) between adjacent terminal and ground.

<Requirement>

No Breakdown

4.3 Insulation Resistance

<Test Condition 1>

Unmated connectors, apply 500 Volts DC between adjacent terminal or ground.

(ANSI/EIA 364-21, Method 302)


<Requirement 1>

100 MΩ minimum (unmated)

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Form E-3005
Rev A 02/12/01
V20603

GS-01-001

	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 3 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	

<Test Condition 2>

Mated connectors, apply 150 Volts DC between adjacent terminal or ground.

<Requirement 2>

10 MΩ minimum (mated)

4.4 Contact Current Rating

<Test Condition>

55 °C, maximum ambient

85 °C, maximum temperature change
(ANSI/EIA-364-70, TP-70)

<Requirement>

0.5 A minimum

4.5 Applied Voltage Rating

<Test Condition>

40 Volts AC (RMS.) continuous maximum, on any signal pin with respect to the shield.

<Requirement>

No Breakdown

4.6 Electrostatic Discharge

<Test Condition>

Test unmated each connector from 1 kV to 8 kV in 1kV steps using 8mm ball probe.
(IEC-801-2)

<Requirement>

No evidence of Discharge to contact at 8 kV

4.7 TMDS Signals Time Domain Impedance

<Test Condition>

Rise time ≤ 200 p sec (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)

<Requirement>

Connector Area : 100 Ω±15%

Transition Area : 100 Ω±15%

Cable Area : 100 Ω±10%

	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 4 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	

4.8 TMDS Signals Time Domain Cross talk FEXT

<Test Condition>

Rise time ≤ 200 psec (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.
 (ANSI/EIA-364-90 Draft Proposal)

<Requirement>

5 % maximum

5.0 MECHANICAL CHARACTERISTICS

5.1 Vibration

<Test Condition>

Amplitude : 1.52mm P-P or 147m/s² {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.
 (ANSI/EIA-364-28 Condition III Method 5A)

<Requirement>

Appearance : No Damage
 Contact Resistance :
 Contact : Change from initial value: 30 m Ω maximum.
 Shell Part : Change from initial value: 50 m Ω maximum.
 Discontinuity : 1 μ sec maximum.

5.2 Shock

<Test Condition>

Pulse width: 11 m sec.,
 Waveform : half sine,
 490m/s² {50G}, 3 strokes in each X.Y.Z. axes
 (ANSI/EIA-364-27, Condition A)


<Requirement>

Appearance : No Damage
 Contact Resistance :
 Contact : Change from initial value: 30 m Ω maximum.
 Shell : Change from initial value: 50 m Ω maximum.
 Discontinuity : 1 μ sec maximum.

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Form E-3005
 Rev A 02/12/01
 V20603

GS-01-001

	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 5 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	

5.3 Durability

<Test Condition>

Measure contact and shell resistance after following:

Automatic cycling : 10,000 cycles at 100 ± 50 cycles per hour

<Requirement>

Contact Resistance :

Contact :

Change from initial value: 30 mΩ maximum.

Shell :

Change from initial value: 50 mΩ maximum.

5.4 Insertion / Withdrawal force

<Test Condition>

Insertion and withdrawal speed : 25mm/minute.

(ANSI/EIA-364-13)

<Requirement>

Withdrawal Force : 9.8N {1.0kgf} minimum

: 39.2N {4.0kgf} maximum

Insertion force : 44.1N {4.5kgf} maximum

5.5 Cable Flex

<Test Condition>

100 cycles in each of 2 planes dimension

X = 3.7 x Cable Diameter.

(ANSI/EIA-364-41, Condition I)

<Requirement>

Discontinuity : 1 μ sec maximum.

Dielectric Withstanding Voltage and Insulation Resistance :

Conform to item of dielectric withstanding voltage and insulation resistance

6.0 ENVIRONMENTAL PERFORMANCE

6.1 Thermal Shock

<Test Condition>

10 cycles of:

a) -55°C for 30 minutes


b) +85°C for 30 minutes

(ANSI/EIA-364-32, Condition I)

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Form E-3005
Rev A 02/12/01
V20603

GS-01-001

	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 6 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	

<Requirement>

Appearance : No Damage

Contact Resistance :

Contact : Change from initial value: 30 m Ω maximum.

Shell : Change from initial value: 50 m Ω maximum.

Discontinuity : 1 μ sec maximum.

6.2 Humidity

<Test Condition A>

Mated 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-364-31)

<Requirement>

Appearance : No Damage

Contact Resistance :

Contact :

Change from initial value: 30 m Ω maximum.

Shell :

Change from initial value: 50 m Ω maximum.

<Test Condition B>

Unmated each 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-364-31)

<Requirement>

Appearance : No damage

Dielectric Withstanding Voltage and Insulation Resistance :


Conform to item of dielectric withstanding voltage and insulation resistance

6.3 Thermal Aging

<Test Condition>

Mate connectors and expose to 105 \pm 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

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	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 7 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	

the specified measurements shall be performed.
(ANSI/EIA-364-17, Condition 4, Method A)

<Requirement>

Appearance : No Damage

Contact Resistance :

Contact :

Change from initial value: 30 m Ω maximum.

Shell :


Change from initial value: 50 m Ω maximum.

6.4 Industrial Mixed Flowing Gas (IMFG)

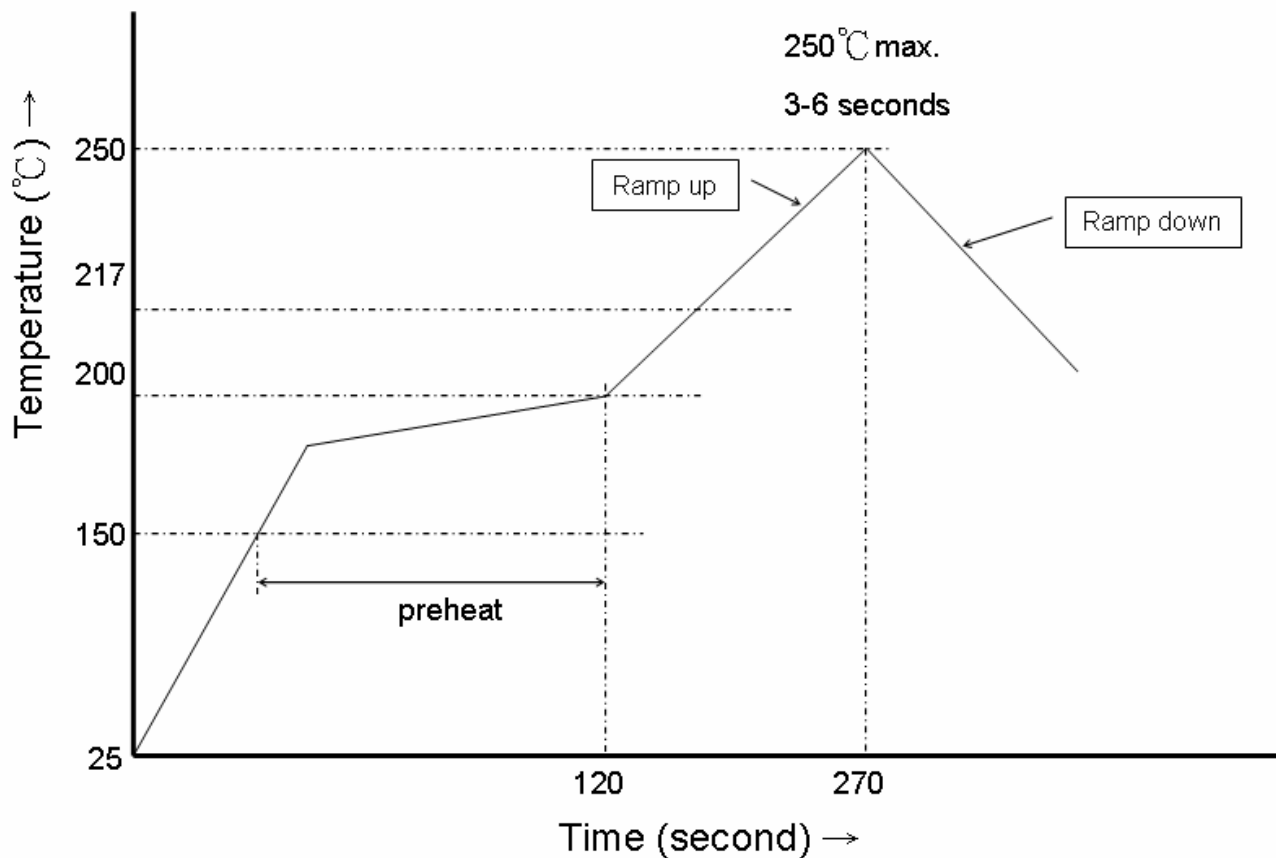
<Test Standard>: EIA 364-65, Class: III

<Duration>: 7 Days

<Condition>: Mated connectors

	TYPE PRODUCT SPECIFICATION	NUMBER GS-12-309	
TITLE HDMI CONNECTOR PLUG & RECEPTACLE		PAGE 8 of 10	REVISION B
		AUTHORIZED BY Leif Shen	DATE 28/10/'04
		CLASSIFICATION RELEASED	


7.0 RECOMMENDED TEMPERATURE PROFILE



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Form E-3005
Rev A 02/12/01
V20603

GS-01-001

	TYPE	PRODUCT SPECIFICATION		NUMBER	GS-12-309				
	TITLE HDMI CONNECTOR PLUG & RECEPTACLE				PAGE	9 of 10	REVISION	B	
					AUTHORIZED BY	Leif Shen		DATE	28/10/'04
					CLASSIFICATION				RELEASED


8.0 TEST SEQUENCE

Test items		Test group										Test method
		1	2	3	4	5	6	7	8	9		
		Test sample q'ty										
		5	5	5	5	5	5	5	5	5		
		Test sequence										
1	Contact resistance	1 3	1 3		1 3	1,3 5	2 4 7				4.1	
2	Insulation resistance			1 4							4.3	
3	Dielectric strength			2 5							4.2	
4	Thermal shock	2									6.1	
5	Humidity		2	3							6.2	
6	Thermal aging				2						6.3	
7	Vibration					2					5.1	
8	Shock					4					5.2	
9	Durability						3				5.3	
10	Insertion/Withdrawal force						1 5				5.4	
11	Current rating							1			4.4	
12	Electrostatic discharge								1		4.6	
13	Contact retention									1		
14	IMFG						6					

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Form E-3005
Rev A 02/12/01
V20603

GS-01-001

	TYPE		PRODUCT SPECIFICATION		NUMBER		GS-12-309							
	TITLE HDMI CONNECTOR PLUG & RECEPTACLE						PAGE		10 of 10		REVISION		B	
							AUTHORIZED BY		Leif Shen		DATE		28/10/'04	
							CLASSIFICATION						RELEASED	

REV.	PAGE	DESCRIPTION	EC#	DATE mm/dd/yyyy
A	All	New Release	T05-0041	04-28-2005
B	All	Add material spec. and SMT profile Add IMFG TEST ITEM	N06-0322	12-27-2006

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Form E-3005
Rev A 02/12/01
V20603

GS-01-001

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