

## **1.8 INCH SERIAL ATA RECEPTACLE**

#### 1.0 SCOPE

This Product Specification covers the performance requirements of the Serial ATA / High Speed Serialized device receptacle connector.

#### 2.0 PRODUCT DESCRIPTION

### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

#### Product Name

Part Number

SATA RECEPTACLE, 1.8 INCH HDD RIGHT ANGLE SMT

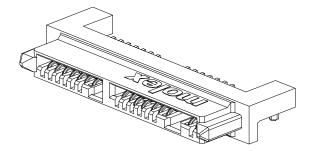
78109-0001 78109-1001

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing SD-78109-001 for information on dimensions, materials, platings and markings.

#### 2.3 SAFETY AGENCY APPROVALS

UL FILE	: E29179
CSA	: LR 19980



### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

The following documents form a part of this specification to the extend specified herewith. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In addition, in event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

Serial ATA Workgroup Specification

REVISION:	ECR/ECN INFORMATION:	TITLE: SERIAL	ATA RECEPTAC	LE	SHEET No.
Α	EC No: S2009-0848	1	1		
	<u>DATE:</u> 2009/04/30	RIG	<b>1</b> of <b>7</b>		
DOCUMENT NUMBER:		CREATED / REVISED BY:	CHECKED BY:	APPR	OVED BY:
PS-78109-001		GMENARLY 2009/04/30	CGOH 2009/05/18	BOKOK	2009/05/18



## 4.0 RATINGS

4.1 VOLTAGE 30 Volts Max

### 4.2 CURRENT

1.5 Amps DC or AC (RMS) Max @ 60 Hz

#### 4.3 TEMPERATURE

Operating: - 40°C to +105°C

#### 4.4 HUMIDITY

20% - 80%

### 4.5 PRESSURE

650 mm – 800 mm Hg

#### 5.0 PERFORMANCE

#### 5.1 ELECTRICAL REQUIREMENTS

TEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
Low Level Contact 1 Resistance (LLCR)		Subject mated contacts assembled in housing to <b>20</b> mV maximum open circuit	<b>30</b> mΩ MAXIMUM [Initial]
	at <b>100</b> mA maximum. (EIA 364-23)	<b>15</b> mΩ MAXIMUM [Delta change from Initial]	
		Mount connector to a test PCB with ½ oz copper layer. Wire power pins P1, P2, P8 and P9 in	<b>1.5</b> A per pin MINIMUM
Contact 2 Current Rating (Power Segment)	parallel for power. Wire ground pins P4, P5, P6, P10 and P12 in parallel for return. Supply 6A total DC current to the power pins in parallel, returning from the parallel	Temperature rise shall not exceed <b>30</b> °C at any point in the connector when contacts are powered	
		ground pins (P4, P5, P6, P10 and P12). Record temperature rise when thermal equilibrium is reach.	Still Air at Ambient temperature 25°C ± 3°C
3	Insulation Resistance	Apply a voltage of <b>500</b> VDC for <b>1</b> minute between adjacent terminals. Measure the insulation resistance for mated and unmated connectors (EIA 364-21)	<b>1000</b> ΜΩ ΜΙΝΙΜUΜ
4	Dielectric Withstanding Voltage	Apply a voltage of <b>500</b> VAC for <b>1</b> minute between adjacent terminals of mated and unmated connectors. (EIA 364-20 Method B)	No breakdown

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DOCUMENT NUMBER:		CREATED / REVISED BY:	CHECKED BY:	APPR	OVED BY:
PS-78109-001		GMENARLY 2009/04/30	CGOH 2009/05/18 BOKOK 2009/05/		2009/05/18
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#### 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Connector Insertion and Removal Forces	Mate and Unmate connector assemblies at a rate of <b>12.5</b> mm per minute. (EIA 364-13)	20 N MAXIMUM insertion force & 2.5 N MINIMUM removal force [Intial & After 500 cycles]
6	Durability	<b>500</b> cycles for backplane/blindmate application. All at a maximum rate of <b>200</b> cycles per hour. (EIA 364-09)	No Physical damage Meet requirements of additional tests as specified in the test sequence in Section 7.0
7	Terminal Retention Force	Apply axial pull out force on terminal in the housing at a rate of <b>25.4</b> mm per minute.	<b>4.45</b> N MINIMUM retention force
8	Physical Shock	Subject mated connector to <b>30</b> g's half-sine shock pulses of <b>11</b> msec duration. Three shocks in each direction applied along three mutually perpendicular planes for a total of <b>18</b> shocks. (EIA 364-27 Condition H)	No Physical damage No discontinuities of 1 μs or longer duration
9	Random Vibration	Subject mated connector to <b>5.35</b> g's RMS. <b>30</b> minutes in each of the three mutually perpendicular planes. (EIA 364-28 Condition V Test letter A)	No discontinuities of 1 μs or longer duration

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### **5.3 ENVIRONMENTAL REQUIREMENTS**

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
10	Humidity	Subject the connector to temperature and humidity of <b>40</b> °C at <b>95</b> % RH for <b>96</b> hours. (EIA 364-31 Method II Test Condition A)	No Physical damage Meet requirements of additional tests as specified in the test sequence in Section 7.0
11	Resistance to Soldering Heat	Refer to Section 9.0 for soldering profile	No damage in appearance of connector
12	Solderability	Solder Time : $3 \pm 0.5$ seconds Solder Temperature : $260 \pm 5^{\circ}$ C	<b>95</b> % MIN Solder coverage
13	Temperature Life	Subject mated connector to temperature life at <b>+85</b> °C for <b>500</b> hours. (EIA 364-17 Test Condition III Method A)	No Physical damage Meet requirements of additional tests as specified in the test sequence in Section 7.0
14	Thermal Shock	Subject connector to <b>10</b> cycles between - <b>55</b> °C and <b>+85</b> °C. (EIA 364-32 Test Condition I)	No Physical damage Meet requirements of additional tests as specified in the test sequence in Section 7.0
15	Mixed Flowing Gas	Half of the samples are exposed <b>unmated</b> for <b>7</b> days, then <b>mated</b> for the remaining <b>7</b> days. The other half of the samples <b>mated</b> for full <b>14</b> days test period. (EIA 364-65, Class 2A)	No Physical damage Meet requirements of additional tests as specified in the test sequence in Section 7.0

## 6.0 PACKAGING

Refer to Sales Drawing SD-78109-001 for packing details.

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## 7.0 TEST SEQUENCES

Test Group ->	Α	в	С	D	Е	F	G
Test or Examination ↓				0			0
Examination of the connector(s)	1, 9	1, 9	1, 8	1, 8	1, 7	1	
Low Level Contact Resistance (LLCR)	3, 7	3, 7	2, 4, 6		4, 6		
Insulation Resistance				2, 6			
Dielectric Withstanding Voltage				3, 7			
Current Rating			7				
Insertion Force	2, 6	2					
Removal Force	4, 8	8					
Durability	5	4 <sup>(a)</sup>			2 <sup>(a)</sup>		
Physical Shock		6					
Vibration		5					
Humidity				5			
Temperature Life			3				
Reseating (manually unplug/plug three times)			5		5		
Mixed Flowing Gas					3		
Thermal Shock				4			
Resistance to Soldering Heat						3	
Terminal Retention Force						2, 4	
Solderability							1

## 8.0 VIBRATION/SHOCK TEST SET-UP

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