



PRODUCT SPECIFICATION

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

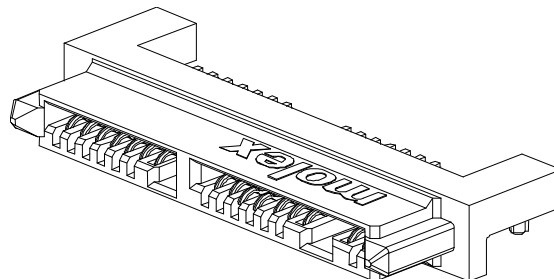
78109-0001
78109-1001

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 extent 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: A	ECR/ECN INFORMATION: EC No: S2009-0848 DATE: 2009/04/30	TITLE: SERIAL ATA RECEPTACLE 1.8 INCH HDD RIGHT-ANGLE SMT	SHEET No. 1 of 7
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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

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

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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 12.5 mm per minute. (EIA 364-13)	20 N MAXIMUM insertion force & 2.5 N MINIMUM removal force [Initial & After 500 cycles]
6	Durability	500 cycles for backplane/blindmate application. All at a maximum rate of 200 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 25.4 mm per minute.	4.45 N MINIMUM retention force
8	Physical Shock	Subject mated connector to 30 g's half-sine shock pulses of 11 msec duration. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks. (EIA 364-27 Condition H)	No Physical damage No discontinuities of 1 μ s or longer duration
9	Random Vibration	Subject mated connector to 5.35 g's RMS. 30 minutes in each of the three mutually perpendicular planes. (EIA 364-28 Condition V Test letter A)	No discontinuities of 1 μ s 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 40°C at 95% RH for 96 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 ± 0.5 seconds Solder Temperature : 260 ± 5°C	95% MIN Solder coverage
13	Temperature Life	Subject mated connector to temperature life at +85°C for 500 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 10 cycles between -55°C and +85°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 unmated for 7 days, then mated for the remaining 7 days. The other half of the samples mated for full 14 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

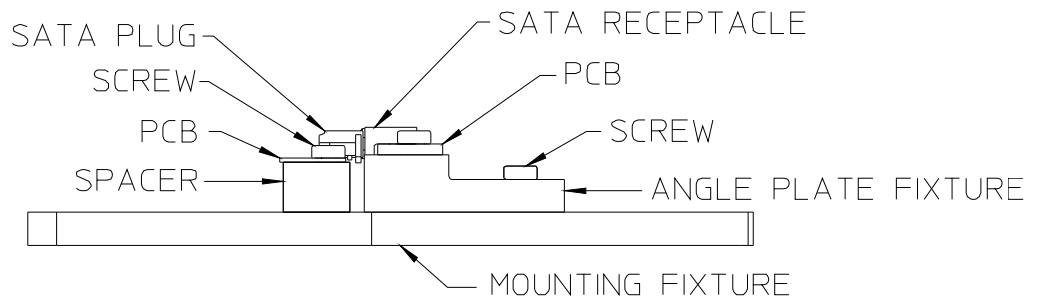
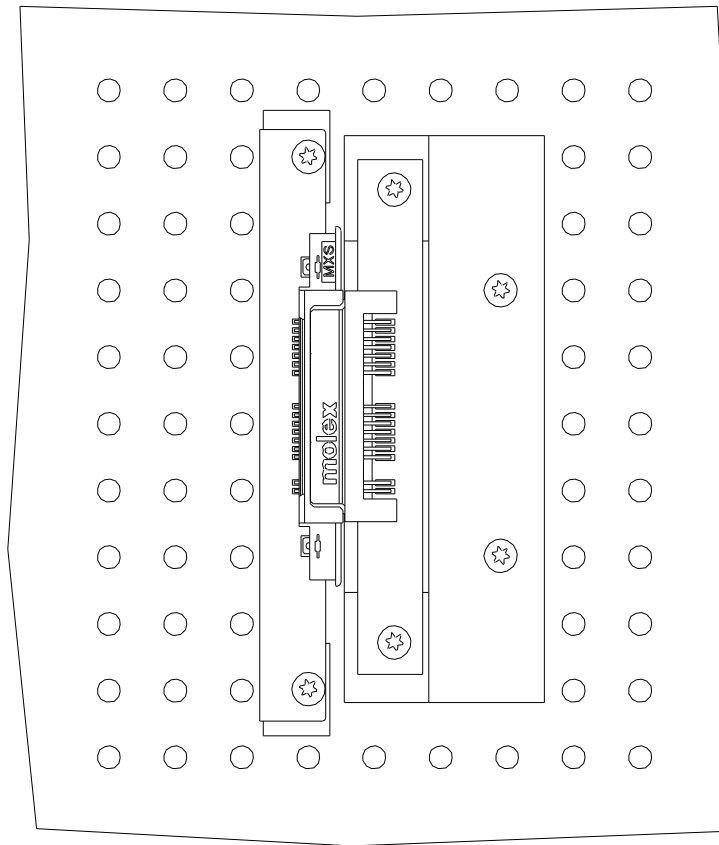
Test Group →	A	B	C	D	E	F	G
Test or Examination ↓							
Examination of the connector(s)	1, 9	1, 9	1, 8	1, 8	1, 7	1	
Low Level Contact Resistance (LLCR)	3, 7	3, 7	2, 4, 6		4, 6		
Insulation Resistance				2, 6			
Dielectric Withstanding Voltage				3, 7			
Current Rating			7				
Insertion Force	2, 6	2					
Removal Force	4, 8	8					
Durability	5	4 ^(a)			2 ^(a)		
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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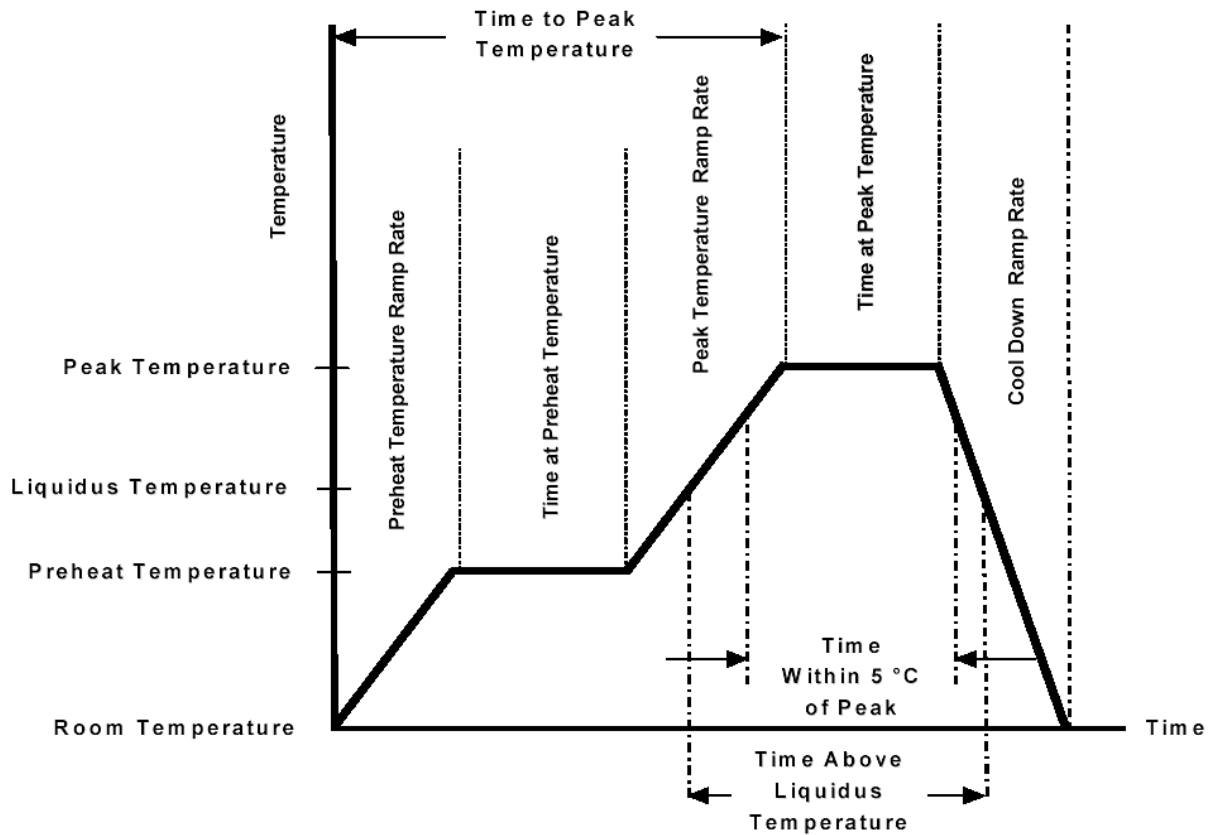


9.0 SOLDERING PROFILE

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Description	Requirement
Average Ramp Rate	3°C/sec Max
Preheat Temperature	150°C Min to 200°C Max
Preheat Time	60 to 180 sec
Ramp to Peak	3°C/sec Max
Time over Liquidus (217°C)	60 to 150 sec
Peak Temperature	260 +0/-5°C
Time within 5°C of Peak	20 to 40 sec
Ramp - Cool Down	6°C/sec Max
Time 25°C to Peak	8 min Max

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