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)

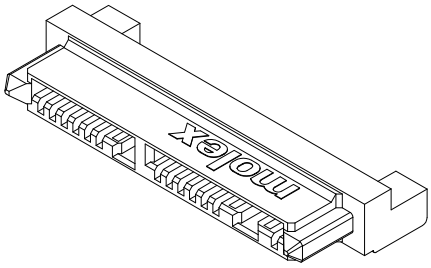
Product Name	Part Number
SATA RECEPTACLE, 1.8 INCH HDD/SSD RIGHT ANGLE SMT 3.80MM HEIGHT	78320-0001, 78320-1001
SATA RECEPTACLE, 1.8 INCH HDD/SSD RIGHT ANGLE SMT 3.80MM HEIGHT	78320-0002, 78320-1002

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing SD-78320-001 and SD-78320-002 for information on dimensions, materials, platings and markings.

2.3 SAFETY AGENCY APPROVALS

UL FILE : E29179
CSA : 1699307 (LR19980)



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

TENTATIVE RELEASE:
THIS SPECIFICATION IS BASED ON DESIGN OBJECTIVES AND IS STRICTLY TENTATIVE. PRELIMINARY TEST DATA MAY EXIST, BUT THIS SPECIFICATION IS SUBJECT TO CHANGE BASED ON THE RESULTS OF ADDITIONAL TESTING AND EVALUATION

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
Non-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 two adjacent pins in parallel for supply (or the minimum number required by the connector type) • Wire two adjacent pins in parallel for return (or the minimum number required by the connector type) • Apply a DC current of **two** times the current rating per contact to the supply pins, returning through the return pins. • Record temperature rise when thermal equilibrium is reached.	**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	**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

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 [Intial & 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 μs 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 μs or longer duration

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

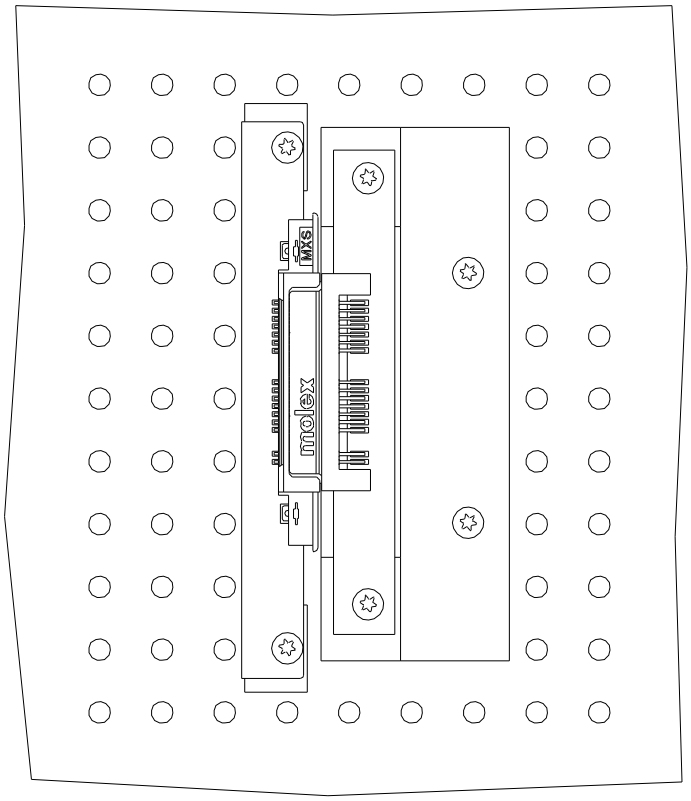
Refer to Sales Drawing SD-78320-001 and SD-78320-002 for packing details.

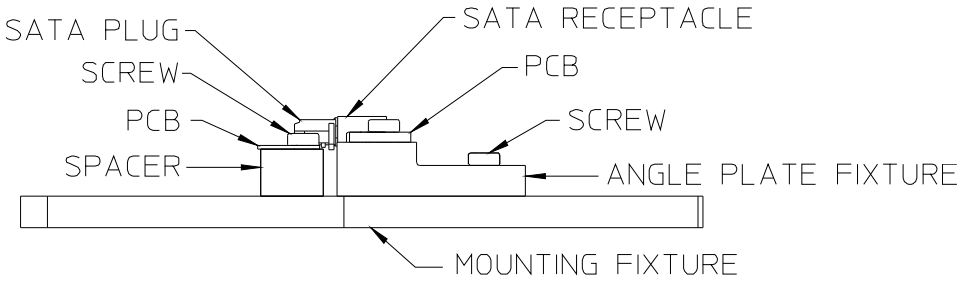
7.0 TEST SEQUENCES

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

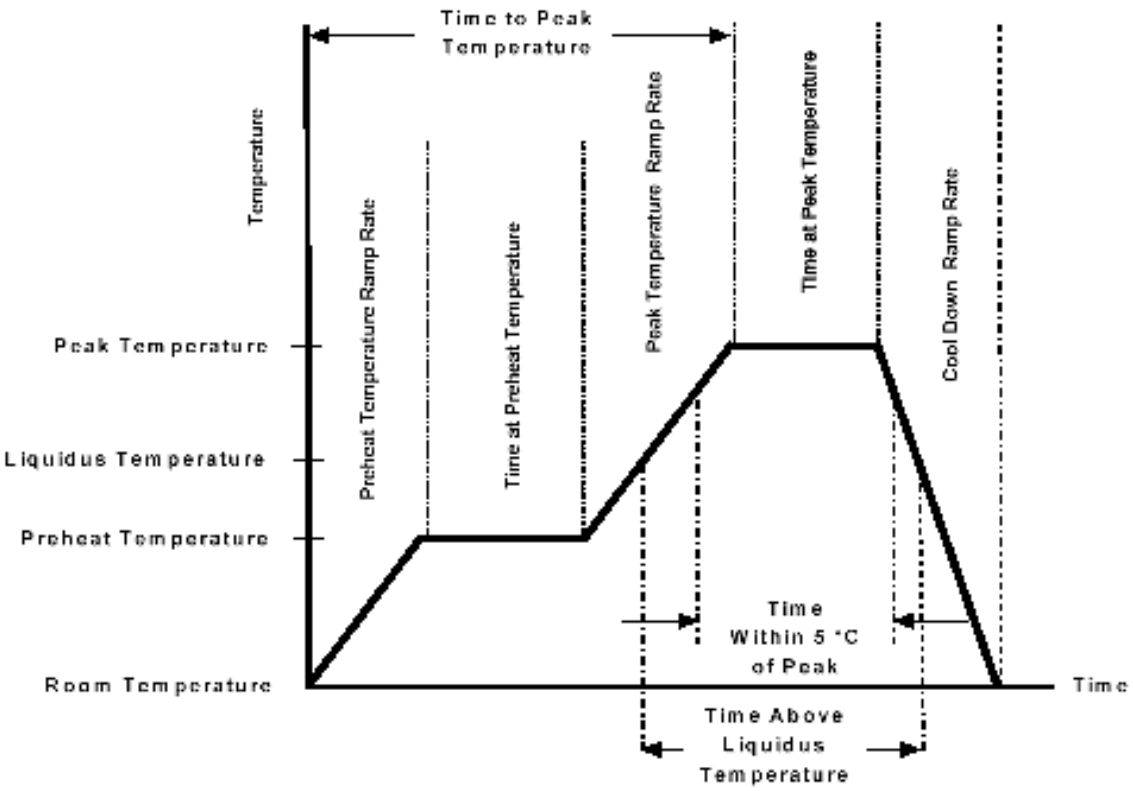
Note –
(a) Preconditioning, 50 cycles for the 500-durability cycles requirement. The insertion and removal cycle is at a maximum rate of 200 cycles per hour.

8.0 VIBRATION/SHOCK TEST SET-UP





9.0 SOLDERING PROFILE



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