



PRODUCT SPECIFICATION

SERIAL ATA PLUG FOR 1.8" HDD PLUG

1.0 SCOPE

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

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name

Part Number

SERIAL ATA PLUG, RIGHT ANGLE
SURFACE MOUNT, 1.8" HDD

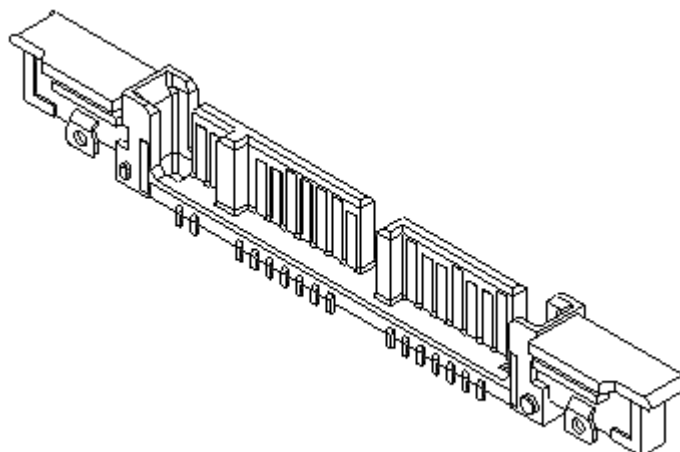
78103-0001

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See Sales Drawing SD-78103-101 for information on dimensions, materials, platings and markings.

2.3 SAFETY AGENCY APPROVALS

UL FILE : TBD
CSA : TBD



TENTATIVE RELEASE :

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

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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

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

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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] Resistance increase 15 mΩ MAXIMUM [after stress]
2	Insulation Resistance	After 500 VDC for 1 minute , measure the insulation resistance between adjacent terminals of the mated and unmated connector assemblies. (EIA 364-21)	1000 Megohms MINIMUM
3	Dielectric Withstanding Voltage	Subject a voltage of 500 VAC for 1 minute between adjacent terminals of mated and unmated connector at sea level. (EIA 364-20 Method B)	No breakdown

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4	<p>Connector Insertion and Removal Forces</p> <p>(SATA Backplane and Cables)</p>	<p>Mate and Unmate connector assemblies at a rate of 12.5 mm per minute. (EIA 364-13)</p>	<p>MAXIMUM insertion force</p> <p>(1) Backplane Receptacle: 20N</p> <p>(2) Cable Receptacle: (Power or Signal) 45N</p> <p>And</p> <p>MINIMUM removal force</p> <p>(1) Backplane Receptacle: 2.5N (after 500 cycles)</p> <p>(2) Cable Power Receptacle: (Non-Latching) 8N (after 50 cycles) 10N (1 through 5 cycles)</p> <p>(3) Cable Signal Receptacle: (Non-Latching) 10N (after 50 cycles)</p>
5	<p>Durability</p>	<p>50 cycles for internal cabled application, 500 cycles for backplane/blindmate application. All at a maximum rate of 200 cycles per hour. (EIA 364-09)</p>	<p>No Physical damage</p> <p>Meet requirements of additional tests as specified in the test sequence in Section 7.0</p>
6	<p>Resistance to Soldering Heat</p>	<p>Refer to Section 10.0 for soldering profile.</p>	<p>No damage in appearance of connector</p>
7	<p>Terminal Retention Force</p>	<p>Apply axial pull out force on terminal in the housing at a rate of 25.4 mm per minute.</p>	<p>4.45 N MINIMUM retention force</p>

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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 Test Set-Up in Section 8.0
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 Test Set-Up in Section 8.0
10	Solderability	Solder Time: 3 ± 0.5 seconds Solder Temperature: 260 ± 5°C (MIL-STD-202, Method 208)	Dipped portion should have 95% continuous new solder coating coverage

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
11	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
12	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

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13	Humidity	Subject the connector to temperature and humidity of 40°C with 90% to 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
14	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-78103-101 for packaging details.

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7.0 TEST SEQUENCES

Test Group ∨	A	B	C	D	E	F	G	H
Test or Examination ⇐								
Examination of the connector(s)	1, 5	1, 9	1, 8	1, 8	1, 7	1	1, 5	
Low Level Contact Resistance (LLCR)	2, 4	3, 7	2, 4, 6		4, 6			
Insulation Resistance				2, 6				
Dielectric Withstanding Voltage				3, 7				
Current Rating			7					
Insertion Force		2					2	
Removal Force		8					4	
Durability	3	4(a)			2(a)		3	
Physical Shock		6						
Vibration		5						
Humidity				5				
Temperature Life			3					
Reseating (manually unplug/plug three times)			5		5			
Thermal Shock				4				
Terminal Retention Force						2, 4		
Resistance to Soldering Heat						3		
Solderability								1
Mixed Flowing Gas					3			

Note:-

(a) Preconditioning, 20 cycles for the 50-durability cycle requirement, 50 cycles for the 500-durability cycles requirement. The insertion and removal cycle is at the maximum rate of 200 cycles per hour.

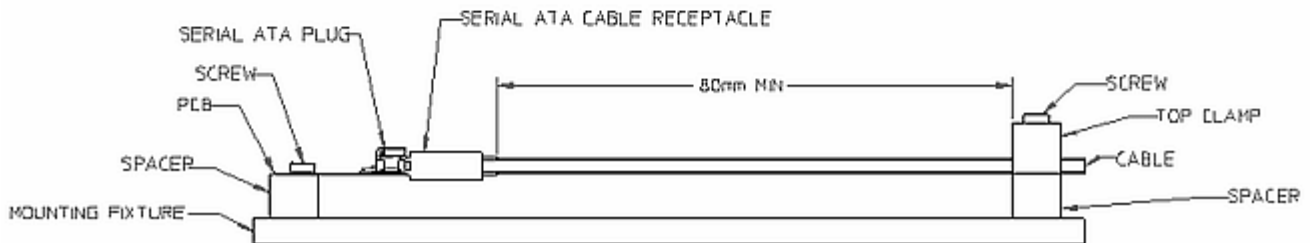
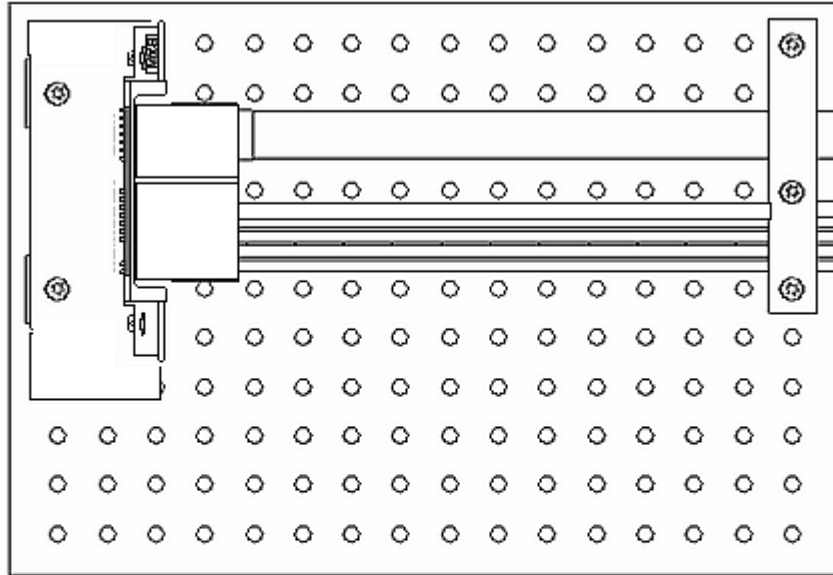
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8.0 VIBRATION/SHOCK TEST SET-UP (REFERENCE ONLY)

Serial ATA Plug with Cable Receptacle



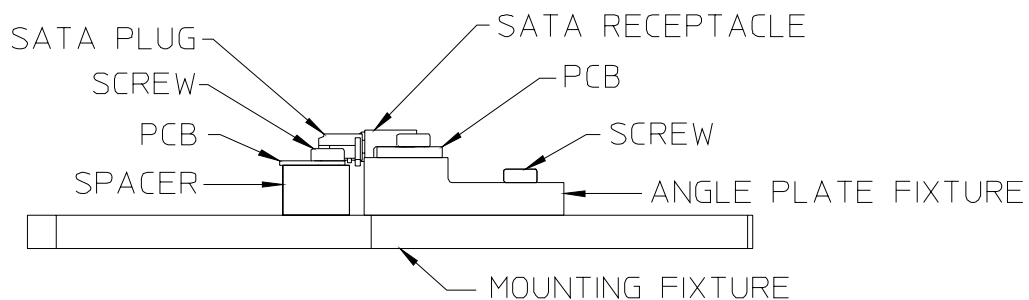
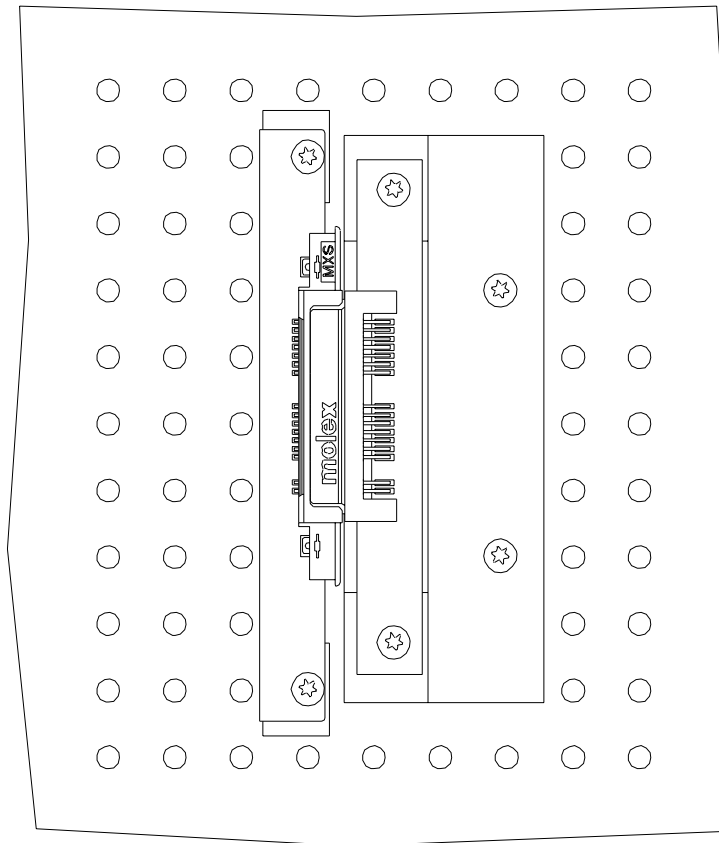
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9.0 VIBRATION/SHOCK TEST SET-UP (REFERENCE ONLY)

Serial ATA Plug with Blind-mate Receptacle

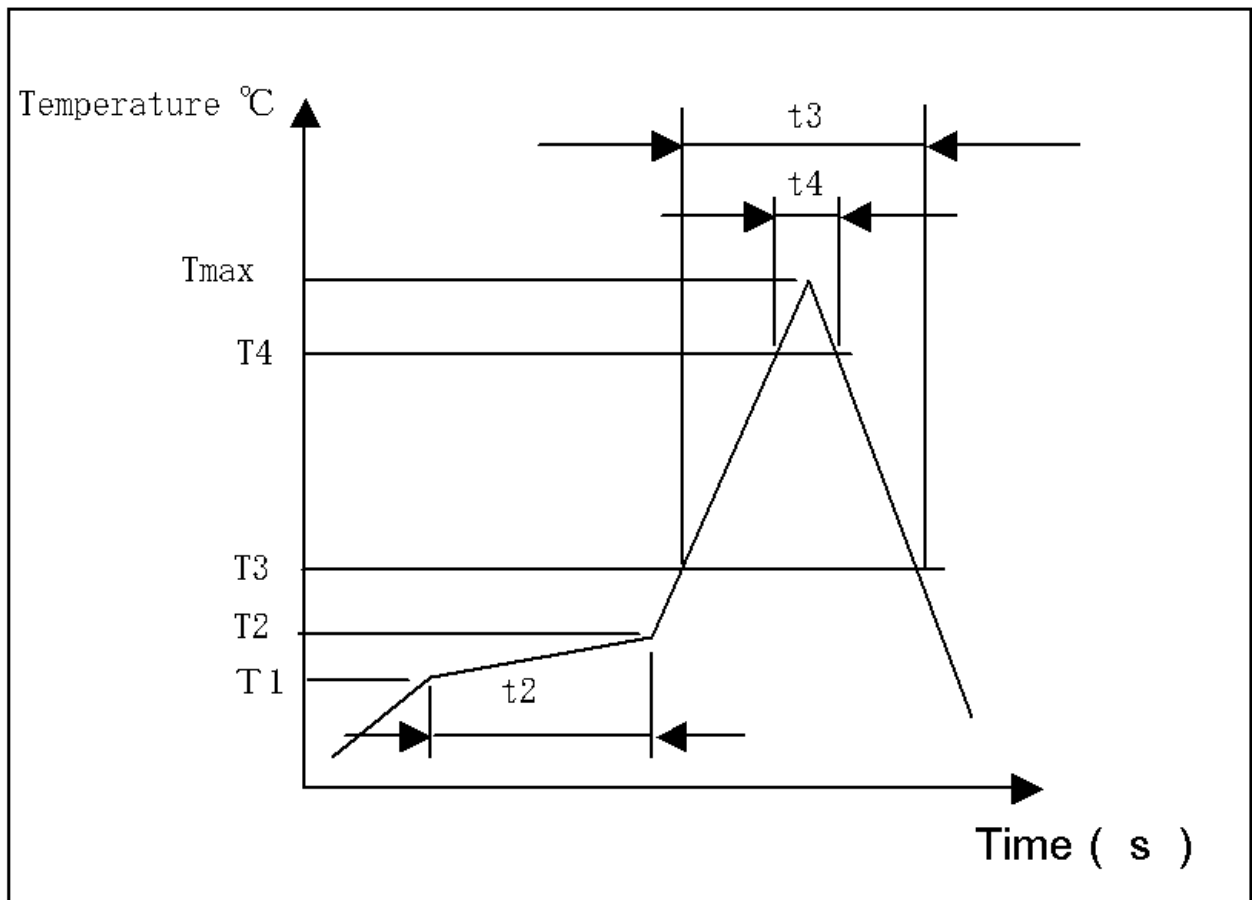


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10.0 SOLDERING PROFILE



Description	Requirement
Tmax	260°C
T4, t4	255°C, 10 second max.
T3, t3	220°C, 80 second max.
T1 & T2, t2	170 ± 10°C, 160 second max.
Number of reflow passes	2

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