



# PRODUCT SPECIFICATION

## MICRO SATA RECEPTACLE

### 1.0 SCOPE

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

### 2.0 PRODUCT DESCRIPTION

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

**Product Name**

**Series Number**

MICRO SATA RECEPTACLE, VERTICAL SMT

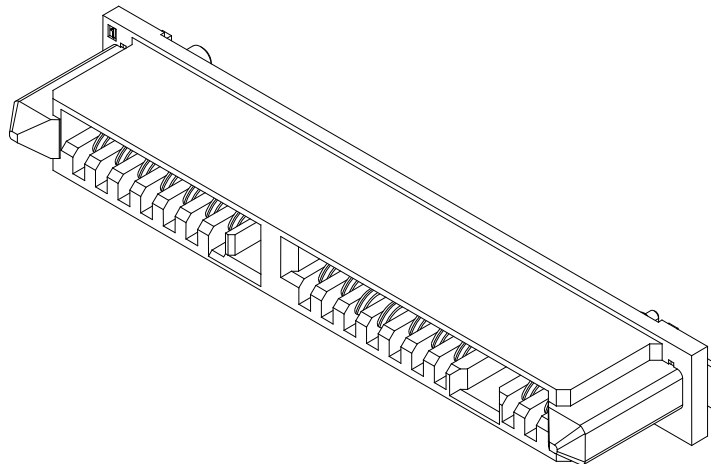
78492

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

See appropriate Sales Drawing for information on dimensions, materials, platings and markings.

#### 2.3 SAFETY AGENCY APPROVALS

UL FILE : E29179  
CSA : 1699020 (LR19980)



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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.

SATA 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 + 85°C

Non Operating: - 40°C to + 85°C

### 4.4 HUMIDITY

20% - 80%

### 4.5 ATMOSPHERIC PRESSURE

650mm – 800mm 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	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

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<b>3</b>	<b>Contact Current Rating (Power Segment)</b>	<p>Mount connector to a test PCB with ½ oz copper layer.</p> <p>Wire two adjacent pins in parallel for supply (or the minimum number required by the connector type)</p> <p>Wire two adjacent pins in parallel for return (or the minimum number required by the connector type)</p> <p>Apply a DC current of <b>two</b> times the current rating per contact to the supply pins, returning through the return pins. Record temperature rise when thermal equilibrium is reached.</p>	<p><b>1.5 A per pin MINIMUM</b></p> <p>Temperature rise shall not exceed <b>30°C</b> at any point in the connector when contacts are powered</p> <p>Still Air at Ambient temperature <b>25°C</b></p>
<b>4</b>	<b>Dielectric Withstanding Voltage</b>	<p>Apply a voltage of <b>500 VAC</b> for <b>1</b> minute between adjacent terminals of mated and unmated connectors. (EIA 364-20 Method B)</p>	<p>No breakdown</p>

## 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
<b>5</b>	<b>Connector Mate and Unmate Forces</b>	<p>Mate and Unmate connector assemblies at a rate of <b>12.5</b> mm per minute. (EIA 364-13)</p>	<p>Mate Force: <b>20 N MAXIMUM</b></p> <p>Unmate Force: <b>2.5 N MINIMUM</b> [Initial and after Durability]</p>
<b>6</b>	<b>Durability</b>	<p><b>500</b> cycles for backplane / blindmate application. All at a maximum rate of <b>200</b> cycles per hour. (EIA 364-09)</p>	<p>No Physical damage</p>
<b>7</b>	<b>Component Retention Force</b>	<p>Apply axial pull out force on terminal / solder tab in the housing at a rate of <b>25.4</b> mm per minute.</p>	<p>Terminal <b>3.00 N MINIMUM</b></p> <p>Solder Tab <b>3.50 N MINIMUM</b></p>

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<b>8</b>	<b>Physical Shock</b>	Subject mated connector to <b>30 g's</b> half-sine shock pulses of <b>11 msec</b> 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)  Test Set-Up in Section 8.0	No Physical damage  No discontinuities of <b>1 μs</b> or longer duration
<b>9</b>	<b>Random Vibration</b>	Subject mated connector to <b>5.35 g's</b> RMS. <b>30</b> minutes in each of the three mutually perpendicular planes. (EIA 364-28 Condition V Test letter A)  Test Set-Up in Section 8.0	No discontinuities of <b>1 μs</b> or longer duration

### 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
<b>10</b>	<b>Humidity</b>	Subject the connector to temperature and humidity of <b>40°C</b> at <b>95% RH</b> for <b>96</b> hours. (EIA 364-31 Method II Test Condition A)	No Physical damage
<b>11</b>	<b>Resistance to Soldering Heat</b>	Refer to Section 9.0 for soldering profile	No damage in appearance of connector
<b>12</b>	<b>Solderability</b>	Unmated Connector. Steam age for <b>8</b> hours +/- <b>15</b> minutes. Solder Time: <b>3 ± 0.5</b> seconds Solder Temperature: <b>260 ± 5°C</b> Flux type: ROL0 (JESD 22-B-102 Condition C)	<b>95% MINIMUM</b> Solder coverage
<b>13</b>	<b>Temperature Life</b>	Subject mated connector to temperature life at <b>+85°C</b> for <b>500</b> hours. (EIA 364-17 Method A Test Condition 3)	No Physical damage
<b>14</b>	<b>Thermal Shock</b>	Subject connector to <b>10</b> cycles between <b>-55°C</b> and <b>+85°C</b> . (EIA 364-32 Test Condition I)	No Physical damage

### 6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

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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, 5	1, 9	1, 8	1, 8	1	1, 5	
Low Level Contact Resistance (LLCR)	2, 4	3, 7	2, 4, 6				
Insulation Resistance				2, 6			
Dielectric Withstanding Voltage				3, 7			
Current Rating			7				
Mate Force		2				2	
Unmate Force		8				4	
Durability	3	4 <sup>(a)</sup>				3 <sup>(b)</sup>	
Physical Shock		6					
Vibration		5					
Humidity				5			
Temperature Life			3				
Reseating (manually unplug/plug three times)			5				
Thermal Shock				4			
Resistance to Soldering Heat					3		
Component Retention Force					2, 4		
Solderability							1

Note :

- (a) Preconditioning, 20 cycles for the 50-durability cycle requirement, 50 cycles for the 500-durability cycles requirement. The mate and unmate cycle is at the maximum rate of 200 cycles per hour.
- (b) Backplane Receptacle – 500cycles, Cable Power or Signal Receptacles – 50cycles, Mate/Unmate force of Cable Power Receptacles to be measured for 1<sup>st</sup> to 5<sup>th</sup> cycles as well. The mate and unmate cycle is at the maximum rate of 200 cycles per hour.

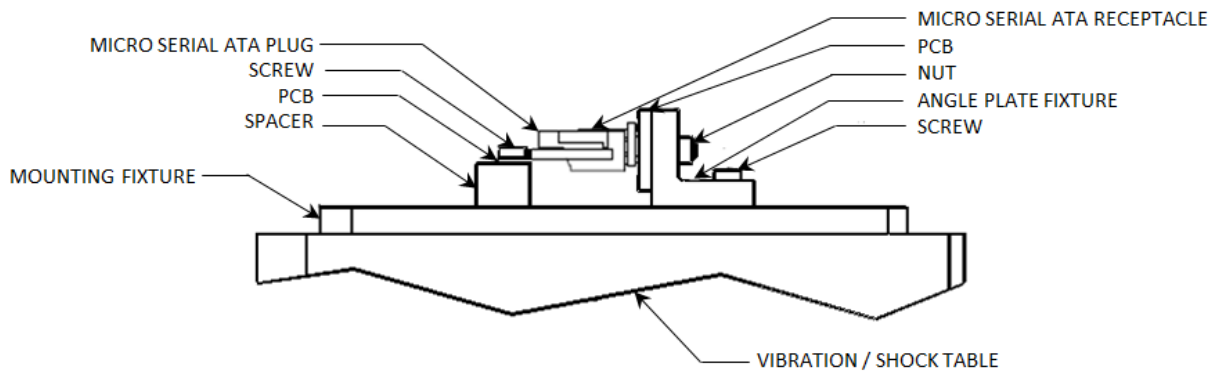
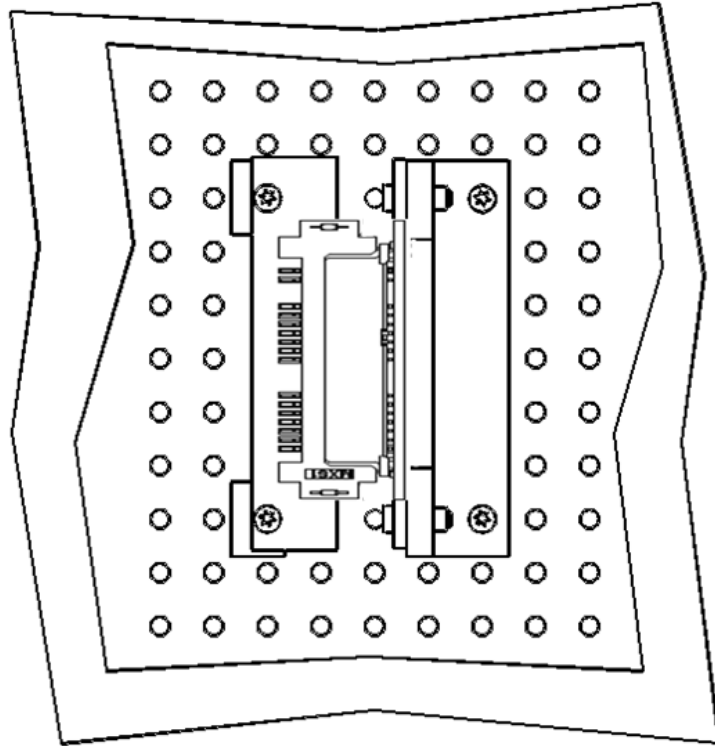
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## 8.0 VIBRATION/SHOCK TEST SET-UP (FOR REFERENCE ONLY)

Micro SATA plug with backplane receptacle



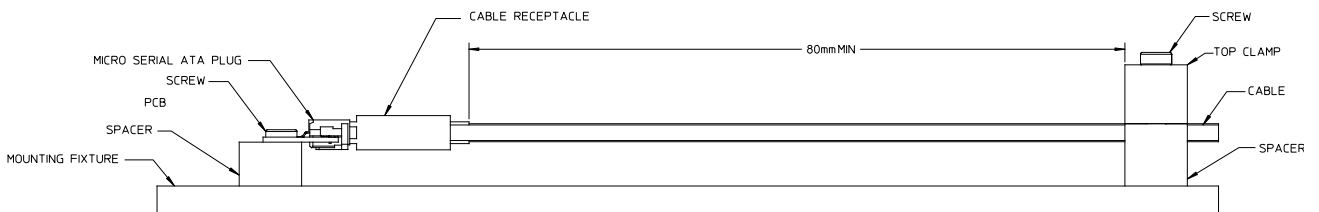
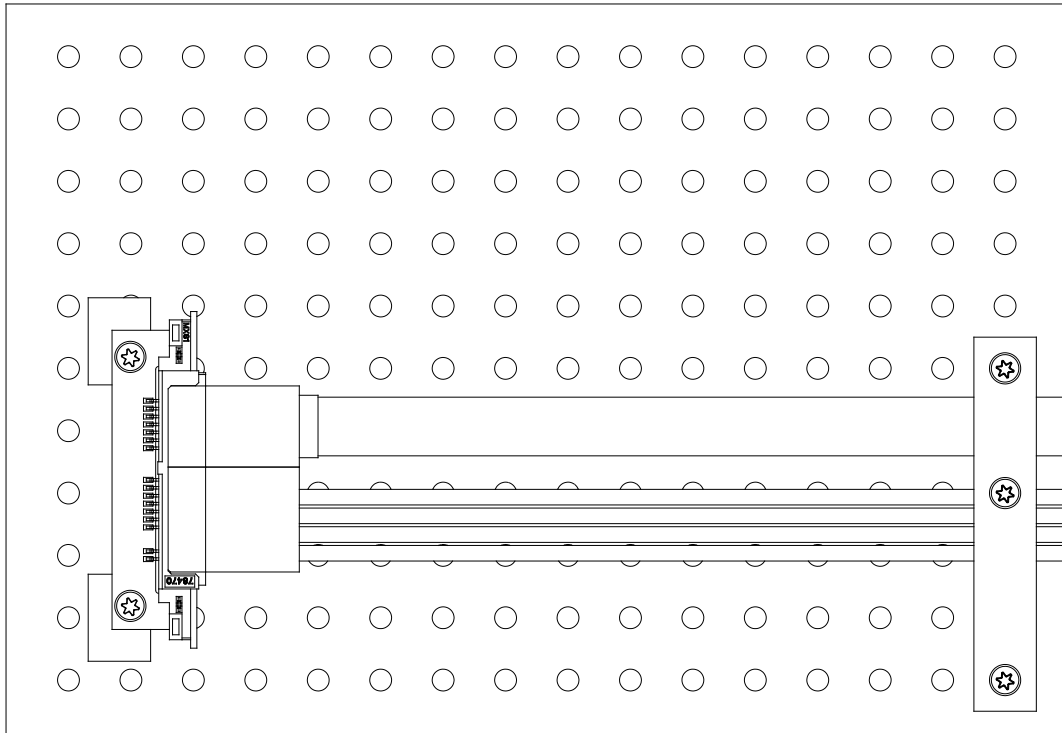
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## 8.0 VIBRATION/SHOCK TEST SET-UP (FOR REFERENCE ONLY)

Micro SATA plug with cable receptacle

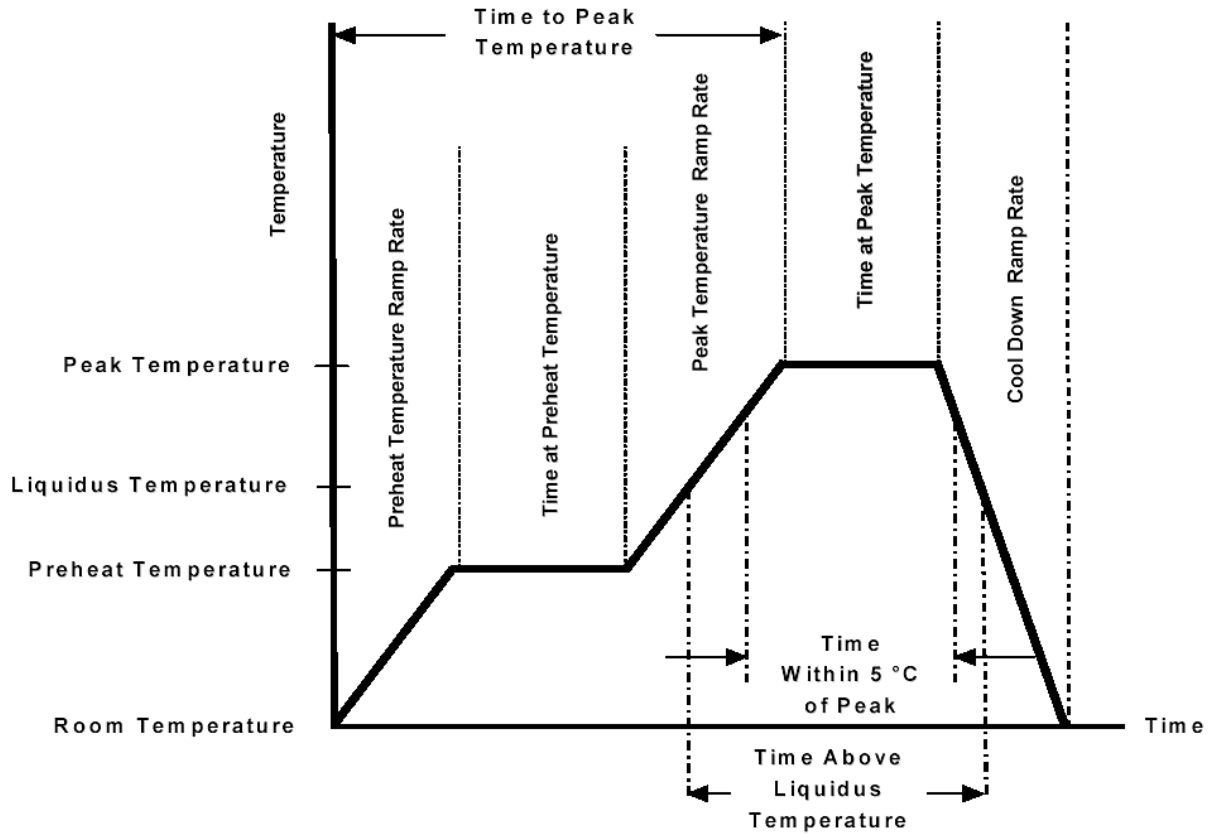


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## 9.0 SOLDERING PROFILE



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

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