



PRODUCT SPECIFICATION

SAS/ PCIe RIGHT ANGLE SMT RECEPTACLE

1.0 SCOPE

This Product Specification covers the performance requirements of the SAS/PCIe High Speed Serialized Receptacle connector.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

Product Name

Series Number

SAS/PCIE, RIGHT ANGLE RECEPTACLE, SMT

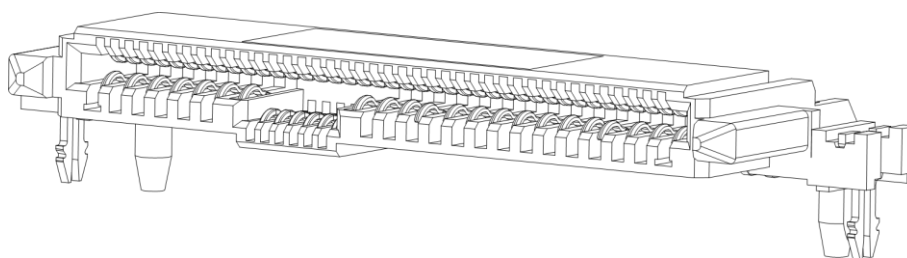
78798

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

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

2.3 SAFETY AGENCY APPROVALS

UL FILE : E29179 VOL 10
CSA : 1422869 (LR19980)



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.

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|---|---|---|------------------------------|
| REVISION: A | ECR/ECN INFORMATION: ECM: 109385 DATE: 2016/10/17 | TITLE: SAS/ PCIe RIGHT ANGLE SMT RECEPTACLE 2.85mm HEIGHT | SHEET No. 1 of 8 |
| DOCUMENT NUMBER: PS-78798-001 | CREATED / REVISED BY: SKANG | CHECKED BY: CWANG25 | APPROVED BY: SHONG |



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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.

4.0 RATINGS

4.1 VOLTAGE

30 Volts Max.

4.2 CURRENT

Power section (per pin):

- Continuous Current 1.5A DC
- Peak Current 2.5A for 1.5s
- Peak Current Pre-charge 6A for 1ms

Signal section (per pin):

- Continuous current 500mA

4.3 TEMPERATURE

Operating: 0°C to + 55°C

Non-Operating: -40°C to + 85°C

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) | 45 mΩ MAXIMUM [Initial] 15 mΩ MAXIMUM [Delta change from Initial] |

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|----------|--|--|---|
| 2 | Temperature Rise (via current cycling) (Power Segment) | <p>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. Measure and record temperature after 96 hours (45 minutes ON and 15 minutes OFF per hour).</p> | <p style="text-align: center;">1.5 A per pin MINIMUM</p> <p style="text-align: center;">Temperature rise shall not exceed 30°C at any point in the connector when contacts are powered</p> <p style="text-align: center;">Still Air at Ambient temperature 25±3 °C</p> |
| 3 | Insulation Resistance | <p>Subject a voltage of 500 VDC for 1 minute, measure the insulation resistance between adjacent terminals of the mated and unmated connector assemblies. (EIA 364-21)</p> | 1000 Megohms MINIMUM |
| 4 | Dielectric Withstanding Voltage | <p>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)</p> | No breakdown |

5.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|----------|---|---|---|
| 5 | Connector Mate and Unmate Forces | <p>Mate and Unmate connector assemblies at a rate of 25.4 mm per minute. (EIA 364-13)</p> | <p>Mate force - 50 N MAXIMUM Unmate force - 5 N MINIMUM [Initial & After durability]</p> |
| 6 | Durability | <p>25 cycles for cable application; 500 cycles for backplane application. All at a maximum rate of 200 cycles/hr. (EIA 364-09)</p> | <p style="text-align: center;">No Physical damage</p> <p style="text-align: center;">15 mΩ MAXIMUM [Delta change from Initial]</p> |
| 7 | Terminal Retention Force | <p>Apply axial pull out force on terminal in the housing at a rate of 25.4 mm per minute.</p> | <p>Port 1: 3.50 N MINIMUM Port 2: 2.20 N MINIMUM [Before and after Preconditioning]</p> |

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|----------|-------------------------|--|---|
| 8 | Physical Shock | <p>Subject mated connector to 50 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 A)</p> <p>Test set-up per Section 8.0</p> | <p>No Physical damage</p> <p>No discontinuities of 1 μs or longer duration</p> <p>15 mΩ MAXIMUM [Delta change from Initial]</p> |
| 9 | Random Vibration | <p>Subject mated connector to 3.10 g's RMS. 15 minutes in each of the three mutually perpendicular planes. (EIA 364-28 Test Condition VII Test letter D)</p> <p>Test set-up per Section 8.0</p> | <p>No discontinuities of 1 μs or longer duration</p> <p>15 mΩ MAXIMUM [Delta change from Initial]</p> |

5.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|-----------|-------------------------|--|---|
| 10 | Humidity | <p>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)</p> | <p>No Physical damage</p> <p><u>Insulation Resistance</u> 1000 Megohms MINIMUM [Initial & after test]</p> <p><u>Dielectric Withstanding Voltage</u> No breakdown</p> |
| 11 | Solderability | <p>Unmated Connector. Steam age for 8 hours +/- 15 minutes. Solder Time: 3 ± 0.5 seconds Solder Temperature: 260 ± 5°C Flux type: ROL0 (JESD 22-B-102 Condition C)</p> | <p>95% MINIMUM Solder coverage</p> |
| 12 | Temperature Life | <p>Subject mated connector to temperature life at +85°C for 500 hours. (EIA 364-17 Method A Test Condition 3)</p> | <p>No Physical damage</p> <p>15 mΩ MAXIMUM [Delta change from Initial]</p> |
| 13 | Thermal Shock | <p>Subject connector to 10 cycles between -55°C and +85°C. (EIA 364-32 Method A Test Condition I)</p> | <p>No Physical damage</p> |

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| 14 | Mixed Flowing Gas | Subject connector to the following condition: SO ₂ gas concentration: 0.1 ppm. NO ₂ gas concentration: 0.2 ppm. H ₂ S gas concentration: 0.01 ppm. CL ₂ gas concentration: 0.01 ppm. Temperature: 30 ± 1 °C Relative Humidity: 70 ± 2 % 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 IIA) | No Physical damage 15 mΩ MAXIMUM [Delta change from Initial] |
| 15 | Resistance to Soldering Heat | Refer to Section 9.0 for Soldering profile | No damage in appearance of connector |

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 to E are covered by SAS Specification.

| 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 | 1,8 | 1 | |
| Low Level Contact Resistance (LLCR) | 2,4 | 3,7 | 2,4,6 | | 2,5,7 | | |
| Insulation Resistance | | | | 2,6 | | | |
| Dielectric Withstanding Voltage | | | | 3,7 | | | |
| Current Rating (Temperature Rise) | | | 7 | | | | |
| Mate Force | | 2 | | | | | |
| Unmate Force | | 8 | | | | | |
| Durability | 3 | 4 ^(a) | | | 3 ^(a) | | |
| Physical Shock | | 6 | | | | | |
| Vibration | | 5 | | | | | |
| Humidity | | | | 5 | | | |
| Temperature Life | | | 3 | | | | |
| Reseating (manually unplug/plug three times) | | | 5 | | 6 | | |
| Thermal Shock | | | | 4 | | | |
| Mixed Flowing Gas | | | | | 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 mate and unmate cycle is at a maximum rate of 200 cycles per hour.

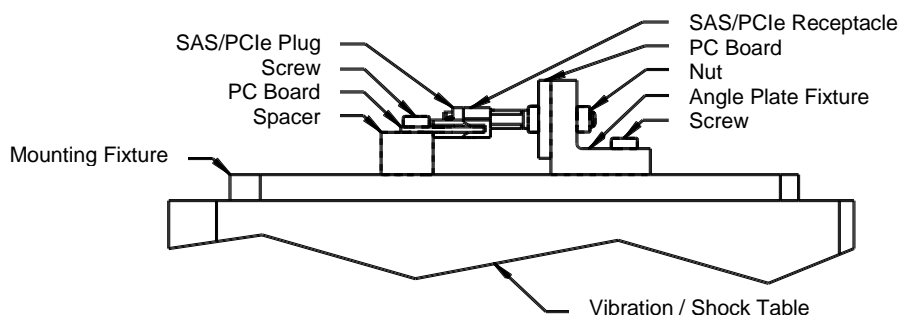
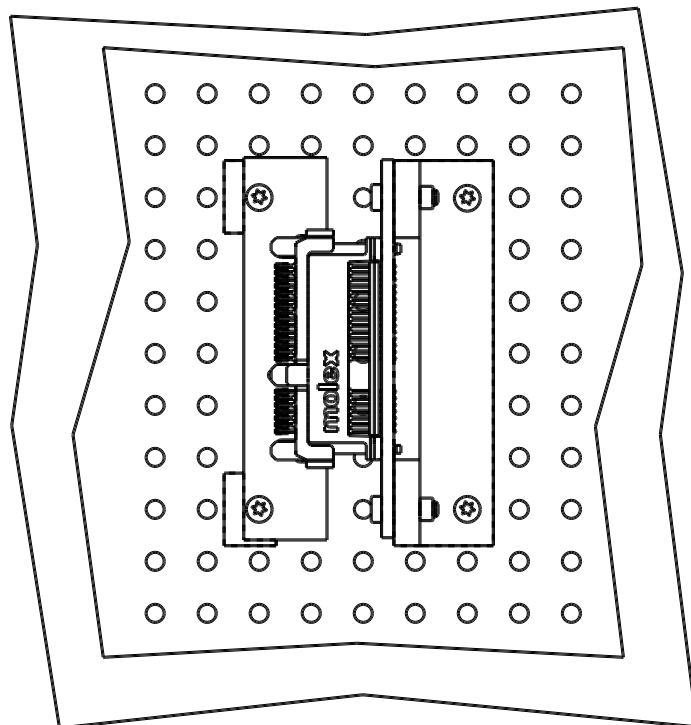
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8.0 VIBRATION/SHOCK TEST SET-UP

SAS/PCIe Receptacle mated with SAS/PCIe Plug (For Reference Only)

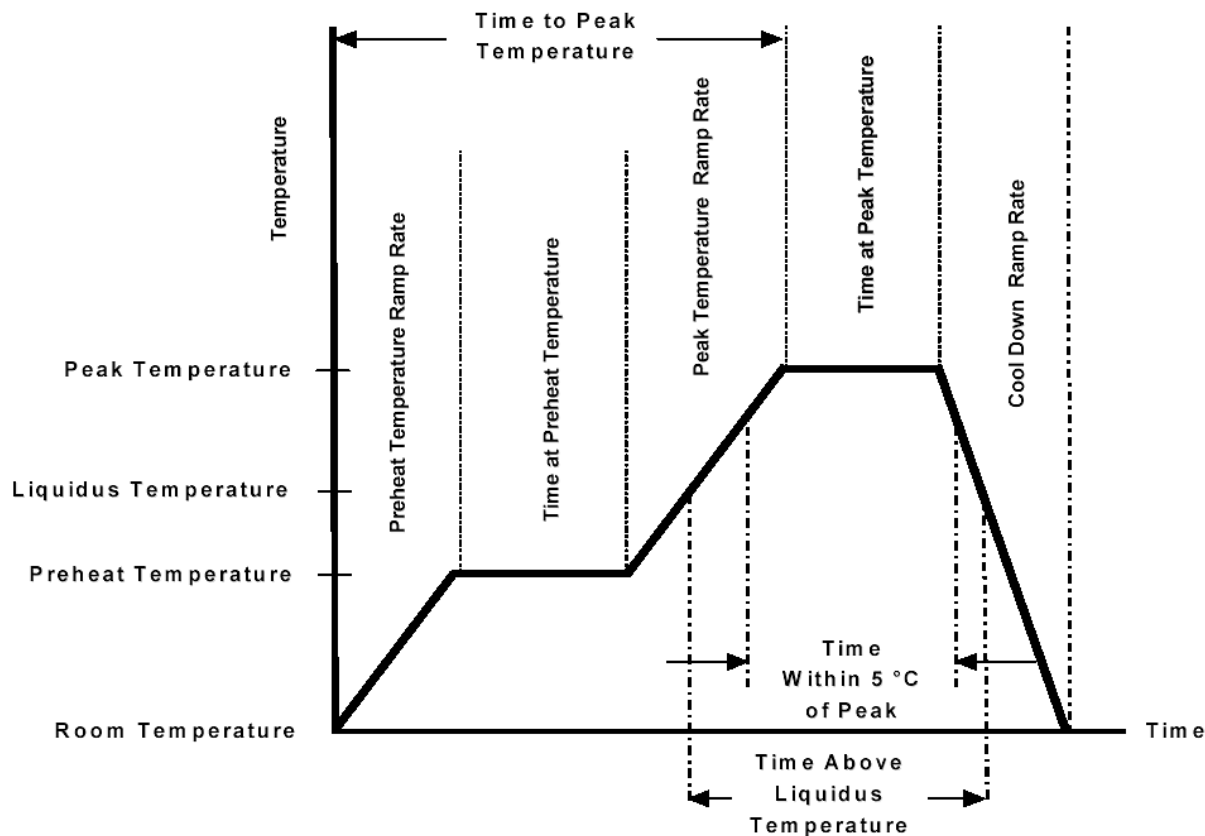


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9.0 SOLDERING PROFILE



| 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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