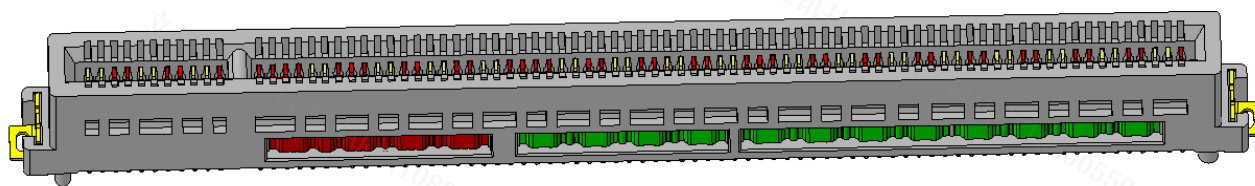


SLIM PCIE SLOT Vertical Type 164PIN


Prepared by:
Mark Wei
Check by:
Xiaogang L
Approved by:
Rongzhe Guo
Date:
12/23/21
Date:
12/23/21
Date:
12/23/21

1 SCOPE

1.1 Content

1.1.1 This specification covers performance, tests and quality requirements for
SLIM PCIE SLOT Vertical Connector X16 (164pin)

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the specification applies. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence.

2.1 Commercial standards

- 2.1.1 EIA-364-18, Initial examination of product.
- 2.1.2 EIA-364-18, Final examination of product
- 2.1.3 EIA-364-23, Low Level Contact Resistance (LLCR)
- 2.1.4 EIA-364-21, Insulation resistance
- 2.1.5 EIA-364-20, Withstanding voltage
- 2.1.6 EIA-364-28, Random vibration
- 2.1.7 EIA-364-27, Mechanical shock
- 2.1.8 EIA-364-09, Durability
- 2.1.9 EIA-364-13, Mating force & Unmating force
- 2.1.10 EIA-364-04, Normal Force
- 2.1.11 EIA-364-32, Thermal shock
- 2.1.12 EIA-364-31, Humidity/temperature cycling
- 2.1.13 EIA-364-17, Temperature life
- 2.1.14 EIA-364-65, Mixed flowing gas
- 2.1.15 EIA-364-10, Thermal cycling
- 2.1.16 EIA-364-91, Dust
- 2.1.17 EIA-364-70, Temperature Rise
- 2.1.18 EIA-364-26, Salt Spray
- 2.1.19 EIA-364-1000, Thermal disturbance
- 2.1.20 Temperature Life
- 2.1.21 Contact Retention

3 MECHANIC DIMENSIONS

3.1 Dimensions

See engineering drawing

Initial examination of product (EIA-364-18)

Visual and dimensional inspection per product drawing.

Requirement: meets requirements of engineering drawing.

3.2 Final examination of product (EIA-364-18)

Visual inspection.

Requirement: meets visual requirements.

4 REQUIREMENTS

4.1 Design and Construction

4.1.1 Product shall be of design, construction and physical dimensions specified on applicable product drawing.

4.2 Materials and Finish

4.2.1 Housing : thermoplastic, UL94V-0

4.2.2 Cap : mylar

4.2.3 GND Bar: copper alloy, nickel plating

4.2.4 Ear : copper alloy, tin plating over nickel on solder area

4.2.5 Terminal : copper alloy, gold plating over nickel on contact area and tin plating over nickel on solder area

4.3 Ratings

4.3.1 Operating temperature : -40°C TO +85°C

4.3.2 Storage temperature : -20°C TO 70°C

4.3.3 Voltage: 12V

4.3.4 Current: 1.1 ampere maximum per contact

4.4 Workmanship

Connectors shall be uniform in quality and shall be free from burrs, scratches, cracks, voids, chips, blisters, sharp edges, and other defects that will adversely affect product's life or serviceability

5 ELECTRICAL CHARACTERISTIC

5.1 Low Level Contact Resistance (EIA-364-23)

Test voltage: 20mV DC Max; Test current: 100 mA Max. All contacts should be measured.

Requirement:

Initial: 30milliohms maximum. ΔR 20 milliohms maximum .

5.2 Insulation resistance (EIA-364-21)

Test voltage: 100V DC. Duration: 1 minute.

Point of Measurement: Between adjacent contacts.

Requirement: 1000 M-ohms minimum.

5.3 Withstanding voltage(EIA-364-20)

Test voltage: 500 Volts, AC RMS, 60HZ. Duration: 1 minute.

Point of Measurement: Between adjacent contacts, signal to signal and signal to ground.

Requirement: No evidence of arc-over, insulation breakdown, or excessive leakage current > 0.5 mA.

6 MECHANICAL CHARACTERISTICS

6.1 Connector solder ability (IPC/ECA J-STD-002C, Test S1)

Conditioning: 8 hours $\pm$ 15 minutes steam.

Preheat: 150° to 180°C / 60-120 seconds

Reflow: 230° to 260°C / 30-60 seconds

Requirement: solderable area shall have a minimum of 95% solder coverage.

6.2 Random Vibration(EIA-364-28, Test Condition VII, Level D)

Subject mated specimens to 3.10G's rms between 20 to 500Hz. Fifteen minutes in each of 3 mutually perpendicular planes.

Requirement: No discontinuities of 1 microsecond or longer duration; meets electrical, mechanical and environmental criteria.

6.3 Mechanical shock(EIA-364-27,Test Condition A)

Subject mated specimens to 50G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.

Requirement: No discontinuities of 1 microsecond or longer duration.

6.4 Durability(EIA-364-9)

127 mm per minute by using maximum thickness gauge. Number Cycle: 100 Cycle

Requirement:

6.4.1 Shall meet visual requirements, show no physical damage.

6.4.2 LLCR: ΔR 20 milliohms maximum .

6.5 Mating force (EIA-364-13, Method A.)

The force to mate a receptacle connector and card shall not exceed 1.15N per contact pair using a steel gauge 1.70 mm thick with a tolerance + 0.00/-0.01 mm.

Requirement: 25.4mm Per Minute Max

6.6 Unmating force (EIA-364-13, Method A.)

The unmating force shall not be less than 0.15N per contact pair using a steel gauge 1.44 mm thick with a tolerance +0.01/ - 0.00 mm

Requirement: 25.4mm Per Minute Max

6.7 Contact Retention Force

Surface Mount: contacts shall withstand an axial retention load of 300 Grams minimum.

Rate of 1.27mm per minute without dislodging from the housing cavity

6.8 Contact Normal force(EIA-364-04)

The normal force is 0.343N(0.03kgf) min to test the affordability of the terminals

The following detail shall be applied:

a. The velocity of mating shall be 12.5mm/minute

7 ENVIRONMENTAL CHARACTERISTICS

7.1 Thermal shock(EIA-364-32, Method A, Test Condition I)

Subject mated specimens to 10 cycles between -55 and 85 °C with 30 minutes dwells at temperature extremes and 1 minute transition between temperatures.

Requirements: Shall meet visual requirement, show no physical damage, and meet requirement of additional tests as specified in the product qualification.

7.2 Humidity/temperature cycling(EIA-364-31, method IV, condition D)

25±3°C at 90% RH and 65±3°C at 98% RH

24 cycles (Ramp times should be 0.5 hour and dwell times should be 1.0 hour. Dwell times start when the temperature and humidity have stabilized within the specified levels)

Requirement: Shall meet visual requirement, show no physical damage, and meet requirement of additional tests as specified in the product qualification.

7.3 Temperature life (EIA-364-17, Method A)

Subject mated specimens to 105°C for 168 hours.

Requirement: Shall meet visual requirement, show no physical damage, and meet requirement of additional tests as specified in the product qualification.

7.4 Mixed flowing gas(EIA-364-65, Class II A)

Subject board mounted specimens to environmental Class II A for 10 days. One-half of the specimens (receptacle only) unmated for 240h followed by 80h mated. Remaining one-half of the specimens mated for 10 days.

Requirements: Shall meet visual requirement, show no physical damage, and meet requirement of additional tests as specified in the product qualification.

7.5 Temperature rise (EIA-364-70)

Wire the eight power pins(B1,B2,B3,A2,A3,B8,A9,and A10) and the eight nearest ground pins(A4,B4,B7,A12,B13,A15,B16,and B18) in a series circuit, the temperature rise above ambient shall not exceed 30 °C at any point in the system when contacts are powered at 1.1 ampere.

A thermocouple of 30 AWG or less shall be placed on the card edge-finger pad (pins B2 and A9) as close to the mating contact as possible.

Requirement: Only power pin carry 1.1 A Min.

7.6 Salt Spray (EIA-364-26,Test Condition B)

Subject unmated specimens to 5% NaCl, 48h.

Requirement: All pins' contact surfaces without obvious corrosion.

7.7 Thermal disturbance

Subject mated and board mounted specimens to 10 temperature cycles between 15±3°C and 85±3°C as measured on the part. Ramps shall be minimum of ±2°C per minute with dwell times long enough to ensure contacts reach the temperature extremes(a minimum of 5 minutes). Humidity not controlled.

Requirement: Shall meet visual requirement, show no physical damage, and meet requirement of additional tests as specified in the product qualification.

7.8 Dust (EIA-364-91)

Expose unmated connectors to dust contamination. Dust composition: #1. Flow rate: 300 meters/minute. Exposure time: 1 hour

Requirement: Shall meet visual requirement, show no physical damage, and meet requirement of additional tests as specified in the product qualification.

8 SECOND LEVEL ASSEMBLY REQUIREMENTS

8.1 Reseating

- Need no evidence of physical damage was visibled as a result of 3 reseating cycles.
- LLCR and LLCR change should be accord with spec after 3 reseating cycles.

9 QUALIFICATION TESTING SEQUENCES

Table 1

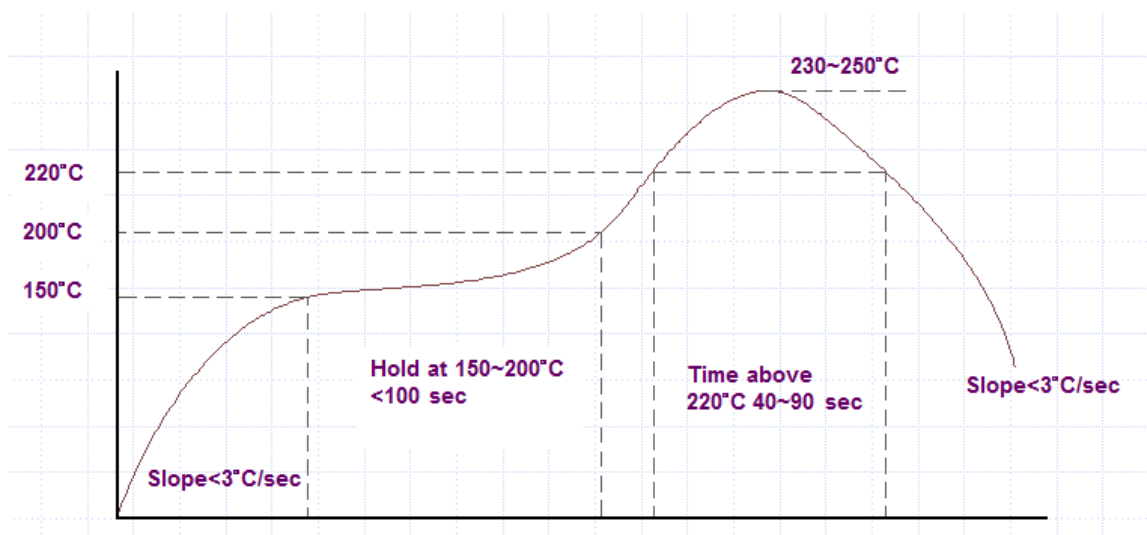
QUALIFICATION TEST												
N o.	Description	Section	Test Group & Sequence									
			1	2	3	4	5	6	7	8	9	10
1	Initial examination of product	3.2	1	1	1	1	1	1	1	1	1	1
2	Reseating	8	11		7	9						
3	LLCR	5.1	2, 5, 9 11,	2, 4, 6,	2, 4, 6, 8	2, 4, 6, 8, 10						
4	Insulation resistance	5.2					2					
5	Withstanding voltage	5.3					3					
6	Connector solder ability.	6.1							2			
7	Random vibration	6.2		3								
8	Mechanical shock	6.3		5								
9	Mating force	6.5	3, 7									
10	Unmating force	6.6	4, 8									
11	Contact Retention Force	6.7								2		
12	Contact Normal force	6.8										2
13	Durability	6.4	6									
14	Resistance to reflow soldering heat	6.1									2	
15	Thermal shock	7.1			3							
16	Humidity/temperature cycling	7.2			5							
17	Temperature life	7.3	10			3						
18	Mixed flowing gas	7.4				5						
19	Temperature rise	7.5						3				
20	Salt Spray	7.6					4					
21	Thermal disturbance	7.7				7						
22	Dust	7.8						2				
23	Final examination of product	3.3	12	7	9	11	5	4	3	3		3

Note:

- (a) 5pcs samples are required in group 1, 2, 3, 5, 6, 7, 9,10
- (b) 10pcs samples are required in group 4, 8.
- (c) Precondition specimens with 20 durability cycles with latches engaged.

Remark:

IR reflow profile (reference)





TYPE

PRODUCT SPECIFICATION

SPEC. NO

Revision.
X3Date
10/12/21Page
8 / 8**REVISION RECORD**

Rev	Page	Description	EC#	Date
X1	8			2021.10.12
X2	8	ADD CONTACT NORMAL FORCE TEST	NA	2021.12.23
X3	8	Updated contact Retention Force	NA	2022.01.10