



TYPE

PRODUCT SPECIFICATION

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PRODUCT NAME OR PRODUCT REFERENCE

GEN Z VERTICAL CONNECTOR

Prepared by:

Shark Lin

Check by:

Hongji Chen

Approved by:

Rongzhe Guo

Date:

08/23/2021

Date:

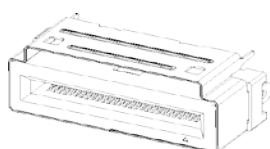
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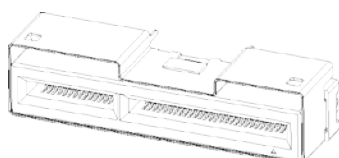
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1 SCOPE

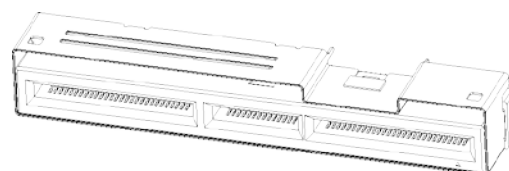
This specification defines the performance, tests, quality and reliability requirements of the **GEN Z Vertical Connector series** product.



PGZB56-5300-008-1H



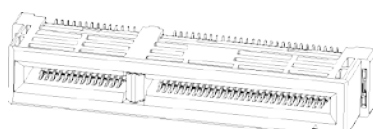
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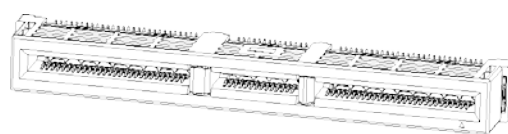
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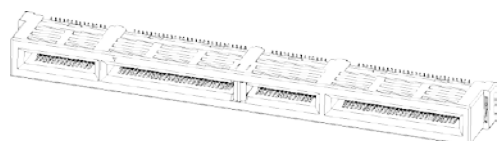
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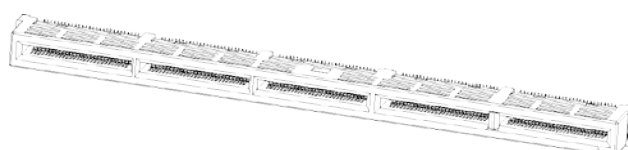
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PGZBB8-5300-005-1H

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 Industry standards

2.1.1 Flammability: UL94V-0 or similar applicable specification

2.1.2 EIA 364: Electrical Connector/Socket Test Procedures Including Environmental Classifications.

3 MECHANIC DIMENSIONS

3.1 Dimensions:

Refer to engineering drawing

4 REQUIREMENTS

4.1 Qualification

Connectors furnished under this specification shall be capable of meeting the qualification test requirements specified herein. Unless otherwise specified, all measurements shall be performed within the following lab conditions:

- a. Temperature: 25°C±10°C.
- b. Relative Humidity: 20% to 80%
- c. Atmospheric Pressure: 650mm to 800mm of Hg (86 ~106Kpa)

4.2 Materials

- a. Contacts: Copper and Copper alloy.
- b. Insulator: High temperature Engineering plastics, UL94 V-0.
- c. Other material: Stainless steel

4.3 Finish

Plated finished for qualification components shall be meet the connector's application.

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 that may impair performance.

5 RATING

- 5.1 Operating Voltage Rating =12 (VAC or VDC)
- 5.2 Operating Temperature Range : -55~85(°C)
- 5.3 Storage Temperature Range : -20~85(°C)

6 ELECTRICAL CHARACTERISTIC

6.1 Current Rating

The temperature rise above ambient shall not exceed 30°C at any point in the system when all contacts are powered at 1.1amperes

- a. Reference EIA-364-70

6.2 Low Level Contact Resistance (LLCR)

The low level contact resistance shall not exceed 30 milliohms initially. The low level contact resistance shall also not exceed 15 milliohms increase in resistance (from the initial measurement) after any treatment and/or environmental exposure.

Measurements shall be in accordance with EIA-364-23.

The following details shall apply:

- a. Test Voltage - 20 milli-volts DC max open circuit.
- b. Test Current - Not to exceed 100 milli-amperes.

6.3 Insulation Resistance

Between adjacent contacts shall not be less than 1000M ohms initially and 1000M ohms after environmental exposure.

Measurements shall be in accordance with EIA-364-21.

The following details shall apply:

- a. Test Voltage - 100 volts DC.
- b. Electrification Time - 1 minutes, unless otherwise specified.
- c. Points of Measurement - Between adjacent contacts

6. 4 Dielectric Withstanding voltage

There shall be no evidence of arc-over, insulation breakdown, or excessive leakage current >0.5 amperes when mated connectors are tested in accordance with EIA-364-20.

The following details shall apply:

- a. Test Voltage - 300 volts (AC RMS, 60Hz).
- b. Test Duration - 60 seconds.
- c. Test Condition - 1
- d. Points of Measurement - Between adjacent contacts

7 MECHANICAL CHARACTERISTICS

7.1 Durability

Mating and un-mating with applicable PCB, Durability tested in accordance with EIA-364-09.

The following details shall apply:

- a. Number of Cycles: 200 cycles.
- b. Cycling Rates: 500±50 cycles/hour

7.2 Durability(Preconditioning)

Mating and un-mating with applicable PCB, Durability tested in accordance with EIA-364-09. The following details shall apply:

- Number of Cycles: 5 cycles.
- Cycling Rates: 500±50 cycles/hour.
- No physical damage.

7.3 Mating/un-mating Force

The force to mate a receptacle connector and compatible header shall not exceed 1.1 Newtons per pair. The unmating force shall not be less than 0.1 Newtons per pair. The following details shall apply:

- Cross Head Speed – 25.4 mm or inch per minute.
- Utilize free floating fixtures.
- Reference EIA-364-13.

7.4 Contact Retention Force

The contact and the insulator are axially pull out at the speed rate of 25.4±3mm/minute

- Reference: EIA 364-29.
- Contact Retention force for power pin: 3 N/pin Min.
- Contact Retention force signal pin: 3 N/pin Min.

7.5 Normal force :0.49N@0.38mm

7.6 Physical Shock EIA 364-27

- Condition – A
 (50 G, 11 millisecond, trapezoidal pulse type)
- Shocks - 3 shocks in both directions along each of three orthogonal axes(18 shocks total)
- Mounting - Rigidly mount assemblies; specify cable length and mounting location if appropriate.
- No discontinuities greater than 0.1 microseconds .

7.7 Vibration (Random) EIA-364-28

- Test Condition - 5 Hz @ 0.01 g²/Hz to 20 Hz @ 0.02 g²/Hz (slope up),20 Hz to

500 Hz @ 0.02 g²/Hz (flat)

b. Vibration Amplitude - 3.13 rms G minimum

c. Duration - 10 minutes along each of three orthogonal axes (30 minutes total)

d. Mounting - Rigidly mount assemblies; specify cable length and mounting location if appropriate.

e. No discontinuities greater than 0.1 microseconds .

7.8 Reseating

a. Test condition: Manually mating and un-mating the connector with applicable PCB.

b. Requirement: Perform 3 such cycles.

8 ENVIRONMENTAL CHARACTERISTICS

After exposure to the following environmental conditions in accordance with the specified test procedure and/or details, the product shall show no physical damage and shall meet the electrical and mechanical requirements per paragraphs 5.0 and 6.0 as specified in the Table 1 test sequences. Unless specified otherwise, assemblies shall be mated during exposure.

8.1 Thermal Shock EIA-364-32.

a. Number of Cycles – 5

b. Temperature Range - Between -55 and 85 °C

c. Time at Each Temperature - 30minutes

d. Transfer Time - 7 minutes, maximum

8.2 Humidity EIA-364-31 method III (cyclic temperature)

a. Relative Humidity - 90~98% (for cyclic humidity, specify for temperature ramps, if applicable, and temperature dwells)

b. Temperature - 25°C

c. Duration - 24 cycles.

d. Omit step 7a (cold shock) & 7b (vibration) where applicable

8.3 Thermal Cycling

Mated with applicable card. No physical damages shall be observed after tested in accordance with EIA-364-110,

- a. Test condition : Cycle the connector between 15 °C ±3°C and 85 °C±3°C, Humidity is not controlled
- b. Test Duration : Ramps should be a minimum of 5 °C per minute, and dwell times should insure that the contacts reach the temperature extremes (a minimum of 5 minutes)
- c. Number of cycles: Perform 10 such cycles.

8.4 Thermal Disturbance

Mated with applicable card. No physical damages shall be observed after tested in accordance with EIA-364-1000,

- a. Test condition : Cycle the connector between 15 °C ±3°C and 85 °C±3°C, Humidity is not controlled
- b. Test Duration : Ramps should be a minimum of 2 °C per minute, and dwell times should insure that the contacts reach the temperature extremes (a minimum of 5 minutes)
- c. Number of cycles: Perform 10 such cycles.

8.5 Dust EIA-364-91

- a. Dust Composition # 1 flow rate:300 meters/minute.
- b. Duration 1 hours

8.6 Temperature Life.

No physical damage shall be observed after tested in accordance with EIA-364-17.

The following details shall apply:

- a. Test Duration: 240 hours.
- b. Temperature: 105 °C±2°C.

8.7 Temperature Life (Preconditioning).

No physical damage shall be observed after tested in accordance with EIA-364-17.

The following details shall apply:

- a. Test Duration: 120hours.
- b. Temperature:105 °C±2°C.

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8.8 Salt Spray EIA-364-26

- a. Test Condition - 5% NaCl
- b. Duration - 48 (hours if not specified by selected condition above)
- c. Acceptance criteria – (visual examination requirements and/or LLCR criteria)

8.9 Mixed Flowing Gas corrosion (MFG) EIA-364-65

- a. Class - IIA Option 4
- b. Duration – 14 days
- c. One-half of the specimens(receptacle only) unmated for 7days followed by 7 days mated. The remaining one-half of the specimens mated for 14 days.

9 QUALITY ASSURANCE PROVISIONS

9.1 Equipment Calibration

All test equipment and inspection facilities used in the performance of any test shall be maintained in a calibration system in accordance with MIL-C-45662 and ISO 9000.

9.2 Inspection Condition

Unless otherwise specified herein, all inspections shall be performed under the following ambient conditions:

- a) Temperature: 25°C±10 °C.
- b) Relative Humidity : 20% to 80%
- c) Atmospheric Pressure : 650mm to 800mm of Hg (86 ~106Kpa)

9.3 Sample Quantity and Description

The sample size to be tested in each group shown in Qualification Testing Sequences should follow Table 1; All samples must be free of defects that would impair normal connector operation. All samples must meet dimensional requirements of connector.

9.4 Acceptance

9.4.1 Electrical and mechanical requirements placed on test samples as indicated in Paragraphs 6 and Paragraphs 7 shall be established from test data using appropriate statistical techniques or shall otherwise be customer specified, and all samples tested in accordance with this product specification shall meet the stated requirements.

9.4.2 Failures attributed to equipment, test set



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up, or operator error shall not disqualify the product. If product failure occurs, corrective actions shall not disqualify the product. If product failure occurs, corrective action shall be taken and samples resubmitted for qualification.

9.5 Qualification Testing

Qualification testing shall be performed on sample units produced with equipment and procedures, normally used in production. The test sequence shall be as shown in Qualification Testing Sequences Visual Examination: EIA 364-18

9.6 Re-qualification Testing

If any of the following conditions occur, the responsible product engineer shall initiate re-qualification testing consisting of all applicable parts of the qualification test matrix Table 1.

- a. A significant design change is made to the existing product which impacts the product form, fit or function. Examples of significant changes shall include, but not be limited to, changes in the plating material composition or thickness, contact force, contact surface geometry, insulator design, contact base material, or contact lubrication requirements.
- b. A significant change is made to the manufacturing process, which impacts the product form, fit or function.
- c. A significant event occurs during production or end use requiring corrective action to be taken relative to the product design or manufacturing process.

10 QUALIFICATION TESTING SEQUENCE

Table 1

NO	Description	ITEM	A	B	C	D	E	F	G	H	I	J
1.	Examination of connector(s)	4.4	1,8	1,10	1,10	1,10	1,10	1,9	1	1	1,12	1.4
2.	Current Rating	6.1							2			
3.	LLCR	6.2	2,5,7	2,5,7,9	2,4,7,9	2,5,7,9	2,5,7,9	4,6			2,5,7,9,11	
4.	Insulation Resistance	6.3						3,7				
5.	Dielectric Withstanding Voltage	6.4						2,8				
6.	Durability	7.1						5				
7.	Durability (Preconditioning)	7.2	3	3	3	3	3				3	
8.	Mating/un-mating Force	7.3								3,6		
9.	Contact Retention Fore	7.4										2
10	Normal force	7.5										3
11	Physical Shock	7.6			8							
12	Vibration	7.7			6							
13	Reseating	7.8	6	8		8	8			2,5	10	
14	Thermal Shock	8.1		4								
15	Humidity-Temperature Cycling	8.2		6								
16	Thermal Cycling	8.3				6						
17	Thermal Disturbance	8.4					6				8	
18	Dust Contamination	8.5					4					
19	High Temperature Life	8.6	4							4		
20	High Temperature Life (Preconditioning)	8.7			5	4					4	
21	Salt Spray	8.8										4
22	Mix Flowing Gas(MFG)	8.9									6	
Sample Quantity			5	5	5	5	5	5	5	5	5	5



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Rev	Page	Description	EC#	Date
A	All	Release specification		
A1	P1-P2	ADD P/N AND PROUDUCT PICTURE		