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PRODUCT SPECIFICATION

GradConn Part No.:	BB02-UT
Product Description.:	3.96mm Female Header, Single Row, SMT

1.0 SCOPE

This specification covers the pitch 3.96 power sockets products standards, requirements, and qualification provisions for business computer and electricity connector or other field.

2.0 APPLICABLE DOCUMENTS

At the time of this specifications release, the latest revisions of the following documents were used. These documents shall form a part of this specification as described within this document.

Industry Specifications / Standards
UL-94 Flammability
ASTM B-103 Phosphor Bronze or Brass Plate, Rod, Sheet, Strip and Rolled Bar

EIA Specifications
EIA-364-D Electrical Connector/Socket Test Procedures Including Environmental Classifications

3.0 REQUIREMENTS

3.1 DIMENSIONAL

Connectors shall meet the physical dimensions specified on the applicable product drawing.

3.2 MATERIAL

Each component shall be constructed of the materials specified within this document. Substitute materials must meet the performance requirements of this specification.

3.2.1 Contacts: Phosphor Bronze (C5191R-EH), or Brass equivalent copper alloys
3.2.2 Housings: LCP, Black, flammability UL-94V-0 or other high level plastic.

3.3 FINISH

3.3.1 Contact Finish: See plating drawing.

3.4 DESIGN

3.4.1 Mating: The connector shall be capable of mating and unmating manually with the test board.

3.5 MECHANICAL REQUIREMENTS

3.5.1 Workmanship:
The product shall be uniform in quality and free from defects, (burrs, scratches, cracks, voids, etc) that will adversely affect the product performance.

3.5.2 Insertion Force:
When measured in accordance with EIA-364-05B, 7.0N/PIN Maximum (Receptacle/ Plug)

3.53 Withdrawal Force:
When measured in accordance with EIA-364-05B, the following details shall apply: 2.0N/PIN minimum initial (Receptacle / Plug)

3.5.4 Contact retention: Pull connectors at maximum rate of 25.4 mm/minute.
9.8/N Min/per contact

3.5.5 Durability:
When measured in accordance with EIA-364-22B, the following details shall apply: 100 mating cycles at a rate of 25.4 mm/minute.

3.6 ELECTRICAL REQUIREMENTS

3.6.1 Current Rating: 7.9A
When measured in accordance with EIA-364-20B, 7.9 maximum, based on a 30 degree rise over ambient

3.6.2 Voltage Rating:
When measured in accordance with EIA-364-20B, 500V AC/1 min /0.1mA.

3.6.3 Low Level Circuit Resistance:
When measured in accordance with EIA-364-23B, Initial: ≤20 mΩ, after environmental test: ≤30mΩ. the following details shall apply:
(a). Current: 100 mA maximum,
(b). Maximum Open Circuit Voltage: 20 mV DC.

3.6.4 Dielectric Withstanding Voltage:
There shall be of no evidence of flashover when the mated plug and receptacle are tested in accordance with EIA-364-20B, The following details shall apply:
(a). Voltage: 1500V AC at 50 Hz,
(b). Duration: 60 sec,
(c). Measurement Points: Measure across a minimum of 10 adjacent and 10 opposing contacts.

3.6.5 Insulation Resistance:
Shall be a minimum of 5000 megaohms before conditioning and a minimum of 500MΩ after conditioning. When measured in accordance with EIA-364-21C, the following details shall apply:

(a). Voltage: 1000 V DC/ 1 min.
(b). Measurement Points: Measure between 10 adjacent and 10 opposing contacts per plug and receptacle.

3.7 ENVIRONMENTAL REQUIREMENTS

3.7.1 Operating Temperature Range: -55°C~105°C.

3.7.2 Cyclic humidity heat:
According the test level of EIA-364-17B, the condition of test as below:
(a). Test Qualification Temperature: 5 Circle, 2Hour/Circle.
(b). Temperature range -55°C/30minute ~ +105°C/30 minute.

3.7.3 Humidity:
After exposure of the plug and receptacle to a high humidity environment, the insulation resistance shall not be less than 500 megaohms. The dielectric with standing voltage shall be greater than 500V AC for 1 minute. The low level contact resistance shall not exceed the specified. The test shall be in accordance with EIA-364-31B.
(a) Test Condition: (40°C, 90% RH, 96 hours).

3.7.4 Salt Spray:
After exposure, the contact resistance shall not exceed that specified (see paragraph 3.6.3). The insulation resistance shall not be less than 500 megaohms (see paragraph 3.6.5). The dielectric withstanding voltage shall be greater than 600V AC for 1 minute (see paragraph 3.6.4). The test shall be in accordance with EIA-364-26B, The following details shall apply:
(a). Test Condition: 35±2°C, 16 hrs, ,5% NaCL;
(b). Special Handling: The mated sockets shall be mildly rinsed in water to remove salt residue and allowed to dry for 24 hours at room temperature before measurements are to be taken.

3.7.5 Solderability:
With manual Solderability, the tin oven's temperature 260±5°C, time 5±1 seconds, the contact solder tails must have solder coverage of 95% up. The plastics have no damaged.

3.7.6 Solderability Test:
With manual Solderability, the tin oven's temperature 260±3°C, time 3±1 seconds, the plastic have no damaged. With wave Solderability, after exposure, the contact solder tails shall have a minimum of 95% solder coverage. The covered area must not show any evidence of voids or pinholes. the contact resistance shall not exceed that specified in Table 1 (see paragraph 3.6.3).
The test shall be in accordance with EIA-364-71B, The following details shall apply:
(a) Test condition: Product to be Tested and solder on P.C.Board.
(b) Per-heat temperature: 0~100°C maximum 120 sec.

(c) Melt tin temperature: minimum 100°C/20sec.
(d) Peak temperature:260°C/10 sec; but to PBT, the Peak temperature:245°C/5sec.

4.0 QUALITY ASSURANCE PROVISIONS

4.1 INSPECTION CONDITIONS

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

(a) Temperature: 25±5°C
(b) Relative Humidity: 30% to 70%
(c) Barometric: Local Ambient

4.2 QUALIFICATION INSPECTION

Qualification inspections shall be performed on sample units produced with production equipment.

4.2.1 Sample Selection: Connectors shall be prepared according to applicable instruction sheets. Samples shall be selected at random from current production. A total of 24 samples are required for the specified test sequence.

4.2.2 Test Sequence: The sample connectors shall be subjected to the inspections specified in the order shown.

Test Item	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
Sample Size	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Examination of Product	1	1	1,5	1,4	1,9	1,8	1,5	1,6	1,3
Contact Resistance			2,4	2,3	2,6	2,7	2,4		
Insulation Resistance					4,8	3,6			
Dielectric Withstanding Voltage					3,7				
Humidity Test					5				
Cyclic humidity heat						4			
Low Temperature						5			
Salt Spray							3		
Mating and Unmating Force		2							
Retention Force	2								
Durability			3						
Solderability								2	
Solderability Test									2