

产品规格书

PRODUCT SPECIFICATION

BTB0.5-5 系列浮动板对板

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1 适用范围 Scope

本产品规格书适用于BTB0.5-5系列浮动板对板连接器的相关性能要求、测试方法及质量保证等规定。
The Specification applies to the performance requirements, test method and quality requirements of BTB0.5-5 series Floating Board to Board Connectors.

2 参考文件 Reference Document

本产品规格书参考以下规范文件作成，若有冲突，请以本规格及图纸为准。

The specification refers to the following standards, if there is any conflict, Please refer to this document.

EIA-364; MIL-STD-202; IEC-512-3;

3 产品描述 Product description

3.1 产品组成 Components

3.1.1 端子：铜合金；

Contact: Copper alloy;

3.1.2 塑料本体 Housing: See drawings;

3.2 额定范围 Range

3.2.1 温度范围 Temperature Range

贮藏温度 Storage temperature: $-10^{\circ}\text{C}\sim 60^{\circ}\text{C}$ 、85%RH Max.;

工作温度 Working temperature: $-55^{\circ}\text{C}\sim +105^{\circ}\text{C}$;

(潜在最高温度 Potential peak temperature)

3.2.2 额定电压、额定电流 Rated Voltage and Rated Current

信号端子额定电压 Signal PIN Rated Voltage: 50V AC;

电源端子额定电压 Power PIN Rated Voltage: 200V AC;

产品额定电流 Rated Current:

信号端子额定电流 0.5A Continuous Max./pin

电源端子额定电流 5.0A Continuous Max./pin

4 默认测试条件 Default test conditions

除去特别指定条件的项外，试验均按以下环境条件进行。

Except for items with specified conditions, the tests are all under the following environmental conditions.

环境温度 Ambient temperature: $15\sim 35^{\circ}\text{C}$;

空气相对湿度 Relative humidity: 25%~85%;

5. 性能要求与试验说明 Performance Requirement & Test Instruction

5-1 电气特性 Electrical Performances

序号 No.	实验项目 Test Items	规格值 Specifications	条件·方法 Test conditions
1	接触电阻 Contact Resistance (Low Level)	信号端子 70mΩ 以下 电源端子 20mΩ 以下 Signal PIN 70mΩ Max. Power PIN 20mΩ Max.	嵌合状态下, 100 mA(DC or 1000Hz), 四端子法。 It shall be measured by mated, 100mA (DC or 1000Hz), 4-Probe method.
2	耐电压 Dielectric Withstanding Voltage	没有闪络、火花放电及绝缘破坏 No flashover, spark over nor dielectric breakdown.	对相邻端子间施加电压, 信号端子 150V AC, 电源端子 600V AC, 持续时间 1 分钟。 Apply voltage between adjacent terminals, signal terminal 150V AC, power terminal 600V AC, duration 1 minute.
3	绝缘电阻 Insulation Resistance	信号端子 100MΩ 以上 电源端子 1000MΩ 以上 Signal PIN 100MΩ Min. Power PIN 1000MΩ Min.	对相邻端子间施加电压, 信号端子 100V DC, 电源端子 250V DC。 Apply voltage between adjacent terminals, signal terminal 100V DC, power terminal 250V DC.
4	温度上升 Temperature rise	温度变化量: 30K MAX. Temperature change: 30K MAX.	嵌合状态, 所有信号端子串联连接, 然后施加 0.5A 电流, 所有电源端子串联连接, 然后施加 5A 电流。两状态同时进行。 Under mated condition, all signal contacts shall be connected in series and apply 0.5A current, all power contacts shall be connected in series and apply 5A current. The two states are carried out at the same time.
5	外观 Appearance	没有对机能有影响的生锈、脏污、伤、变形等。 No rusty, stain, damage and deformation.	目视 Visual

5-2 机械特性 Mechanical Performances

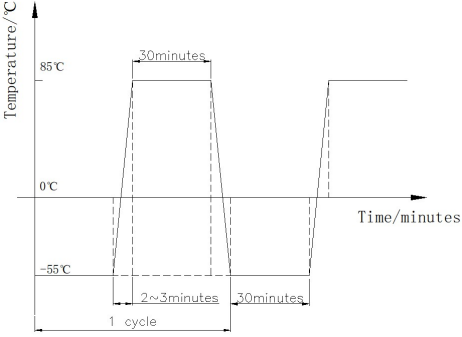
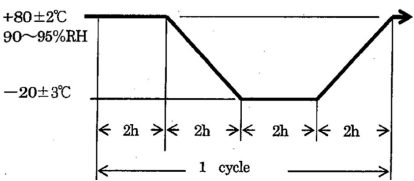
序号 No.	实验项目 Test Items	规格值 Specifications			条件·方法/Test conditions
1	端子保持力 Contact Retention Force	0.5N Min.			以 25mm/min 的速度，把端子从塑胶本体拔出。 It shall be pulled to the contact at the speed of 25mm/min and measured the force when the contact begins to remove from the housing.
2	插拔力 Mating/Unmating Force	Pin 数	Mating force	Unmating force	以 25mm/min 的速度，对公母座进行插拔，并记录插入力和拔去力。 The plug and rec shall be mated and unmated at the speed of 25mm/min, and measured the mating force and unmating force.
		n	0.45*n N MAX.	0.05*n N MIN.	
		40	18.0N MAX.	2.0N MIN.	
		60	27.0N MAX.	3.0N MIN.	
		80	36.0N MAX.	4.0N MIN.	
		100	45.0N MAX.	5.0N MIN.	
3	插拔耐久性 Durability	信号端子	80mΩMax / 100 times		以 25mm/min 的速度，对公母座进行 100 回重复插拔，测试试验后的接触电阻。 The plug and rec shall be mated and unmated for 100 times at the speed of 25mm/min, and measured the contact resistance after test.
		电源端子	30mΩMax / 100 times		
		Signal PIN	80mΩMax / 100 times		
		Power PIN	30mΩMax / 100 times		
4	振动试验 Vibration Test	瞬断:	1μs Max.;		公母座嵌合状态下，以振幅 0.75mm/振动频率 10~55~10Hz 每 5 分的条件，对 XYZ 三个方向各实施 10 个循环，通电电流 DC 100mA。确认振动中有无瞬断，测量实验后的接触电阻。 Frequency sweep range: 10~55~10Hz/5 minutes; Amplitude: 0.75mm; Direction: XYZ perpendicular axes; Duration: 10 cycles per axis; Applied current: DC 100mA;
		外观:	没有机械性的破损、部品松动、裂纹等。		
		Discontinuity:	1μs Max.;		
		After the test:	Signal PIN 80mΩMax Power PIN 30mΩMax		
		Appearance:	No damage, loose part or crack.		

5	<p>冲击 Shock</p>	<p>瞬断 discontinuity: 1μs MAX. 外观没有机械性的破损、部品松动、裂纹等。 No damage, loose or crack, no discontinuity.</p>	<p>加速度 490 m/s² 持续时间 11ms 正弦半波, 每个轴向测试 3 次 通电电流 DC 100mA Acceleration: 490 m/s² Duration 11ms Half sine wave, 3times per direction, XYZ Applied current: DC 100mA;</p>
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5-3 环境特性 Environmental Performances

序号 No.	实验项目 Test Items	规格值 Specifications	条件·方法/Test conditions
1	<p>耐热性 Heat Resistance(Life)</p>	<p>接触电阻: 信号端子 80mΩ Max 电源端子 30m Ω Max 外观: 无破损、裂纹、零件松动 LLCR: Signal PIN 80mΩ Max Power PIN 30m Ω Max Appearance: No damage, loose or crack, no discontinuity.</p>	<p>公母座嵌合状态下, 放置于 105±2℃环境中 96 小时。测量试验后的接触电阻。 The mated connector is exposed in the heat chamber 105±2℃ for 96 hours, and measure the contact resistance after the test.</p>
2	<p>耐湿性 Humidity</p>	<p>接触电阻: 信号端子 80mΩ 以下 电源端子 30mΩ 以下 绝缘电阻: 信号端子 100MΩ 以上 电源端子 1000MΩ 以上 外观: 无破损、裂纹、零件松动 Contact resistance: Signal PIN 80mΩ Max. Power PIN 30mΩ Max. Insulation resistance: Signal PIN 100MΩ Min. Power PIN 1000MΩ Min. Appearance: No damage, loose or crack, no discontinuity.</p>	<p>(MIL-STD-202F Method-103B Condition B) 公母座嵌合状态下, 放置于 40±2℃、相对湿度 90~95%RH 的环境中 96 小时。测量试验后的接触电阻。 Temperature: 40℃; Humidity: 90~95%; Duration: 96hours;</p>

3	耐寒性 Cold Resistance	接触电阻: 信号端子 80mΩ Max 电源端子 30m Ω Max 外观: 无破损、裂纹、零件松动 LLCR: Signal PIN 80mΩ Max Power PIN 30m Ω Max Appearance: No damage, loose or crack, no discontinuity.	公母座嵌合状态下,放置于-55±2℃环境中 96 小时, 测量试验后的接触电阻。 The mated connector is exposed in the heat chamber -55±2℃ for 96 hours. It shall be measured the contact resistance after the test.
4	盐水喷雾试验 Salt Spray Test	外观没有明显腐蚀 No evident corrosion.	公母座嵌合状态下, 放置于 35±2℃、浓度 5±1%的盐水喷雾中 48 小时。取出之后使用纯水清洗, 干燥后测量接触电阻。 The mated connector is exposed in the salt spray chamber 35±2℃, 5±1% salt density for 48 hours. It shall be measured the contact resistance after the test.
5	SO₂ 气体实验 SO₂ Gas Test	没有会损害连接器功能的腐蚀 接触电阻: 信号端子 80mΩ Max 电源端子 30m Ω Max No corrosion that would impair connector functionality LLCR: Signal PIN 80mΩ Max Power PIN 30m Ω Max	公母座嵌合状态下, 放置于 25±2℃、相对湿度 75+/-5%RH、SO ₂ 浓度 25±5ppm 的环境中 96 小时。测量试验后的接触电阻。 The mated connector is exposed in the SO ₂ gas chamber 25±2℃, 75+/-5%RH 、 25±5 ppm for 96 hours. It shall be measured the contact resistance after the test.
6	H₂S 气体实验 H₂S Gas Test	外观没有明显腐蚀 No evident corrosion. 接触电阻:80mΩ Max. LLCR: 80mΩ Max.	公母座嵌合状态下, 放置于 40±2℃、相对湿度 75%RH、H ₂ S 浓度 3±1ppm 的环境中 96 小时。测量试验后的接触电阻。 The mated connector is exposed in the H ₂ S gas chamber 40±2℃, 75%RH 、 3±1ppm for 96 hours. It shall be measured the contact resistance after the test.
7	耐氨 NH₃ resistance	接触电阻:80mΩ Max. LLCR: 80mΩ Max.	28%氨水 / 25±3℃ / 40min

<p>8</p>	<p>温度循环 Temperature cycling</p>	<p>接触电阻: 信号端子 80mΩ 以下 电源端子 30mΩ 以下 绝缘电阻: 信号端子 100MΩ 以上 电源端子 1000MΩ 以上 外观: 无破损、裂纹、零件松动 Contact resistance: Signal PIN 80mΩ Max. Power PIN 30mΩ Max. Insulation resistance: Signal PIN 100MΩ Min. Power PIN 1000MΩ Min. Appearance: No damage, loose or crack, no discontinuity.</p>	<p>公母座嵌合状态下, 放置于下图所示的环境中, 实施 5 个循环。 The mated connector is exposed 5 cycles in the following temperature.</p>  <p>The graph shows a temperature profile over time. The y-axis is Temperature/°C with markers at 85°C, 0°C, and -55°C. The x-axis is Time/minutes. A cycle consists of a 30-minute dwell at 85°C, a 2-3 minute transition to -55°C, a 30-minute dwell at -55°C, and a 2-3 minute transition back to 85°C. The entire sequence is labeled as 1 cycle.</p>
<p>9</p>	<p>温湿度循环 Temperature and humidity cycling</p>	<p>接触电阻 80mΩ 以下 耐电压: 没有闪络、火花放电及绝缘破坏 LLCR:80mΩ Max. DWV:No flashover, spark over nor dielectric breakdown.</p>	<p>公母座嵌合状态下, 放置于下图所示的环境中, 实施 10 个循环。测量试验后的接触电阻。 The mated connector is exposed 10 cycles in the following conditions. It shall be measured the contact resistance after the test.</p>  <p>The graph shows a temperature and humidity profile over time. The y-axis has markers for +80±2°C and 90~95%RH, and -20±3°C. The x-axis is Time. A cycle consists of a 2-hour dwell at +80±2°C and 90~95%RH, a 2-hour dwell at -20±3°C, and a 2-hour dwell at +80±2°C and 90~95%RH. The entire sequence is labeled as 1 cycle.</p>

5-4 其他特性 Other performances

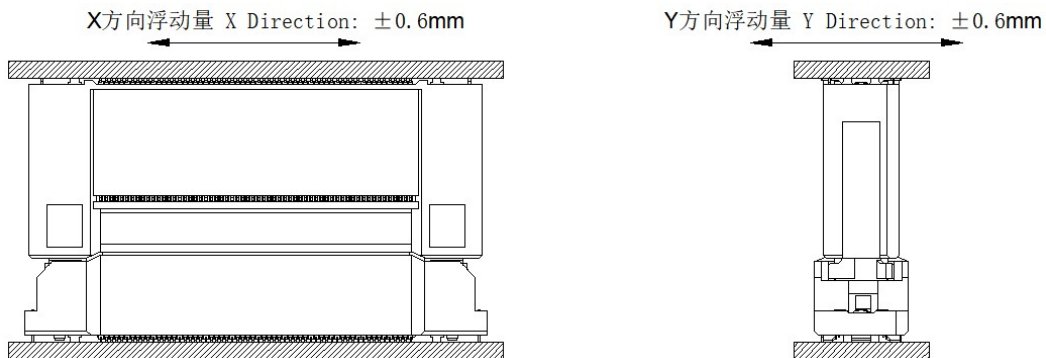
序号 No.	实验项目 Test Items	规格值 Specifications	条件·方法/Test conditions
1	焊锡性 Solderability	浸渍部 95%以上有被焊锡覆盖 Solder shall be covered 95% or more of the area that is dipped into the bath.	将端子焊锡部用助焊剂湿润后,放入 240±3℃ 的无铅 Sn-Ag-Cu 系锡槽中浸 3±0.5 秒。 The contact of connector shall be put into the flux and dipped into Pb free solder bath(Type of Sn-Ag-Cu)240±3℃、3±0.5s.
2	焊锡耐热性 Solder heat resistance	产品无脱落,端子没有松动、变形 The product shall not fall off, and the contact shall be not loose or deformed.	[回流焊] 峰值温度 MAX 260℃ 220℃以上且 60 秒以内 [烙铁] 360℃,5 秒以内 [Reflow] Peak temperature MAX 260℃ 220℃ or more and within 60 seconds [Soldering iron] 360℃ MAX. for 5 seconds

6.浮动量 Floating Range

嵌合状态下容许的浮动范围:

The allowable floating range in mating state is as below:

- ① X 方向浮动量 X Direction: ±0.6mm
- ② Y 方向浮动量 Y Direction: ±0.6mm



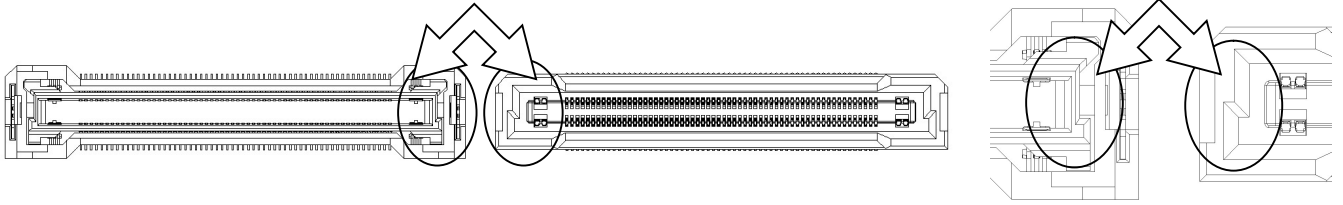
※注意: 使用过程中请勿超出所允许的浮动量!

※Note: Do not exceed the allowed floating range during use!

7. 使用注意事项/Attention of using

- 连接器有可防止误插入的防呆功能，请在使用前确认配合方向。

There is a Fool-proofing function to protect from incorrectly inserting, please confirm the mating direction in prior use.

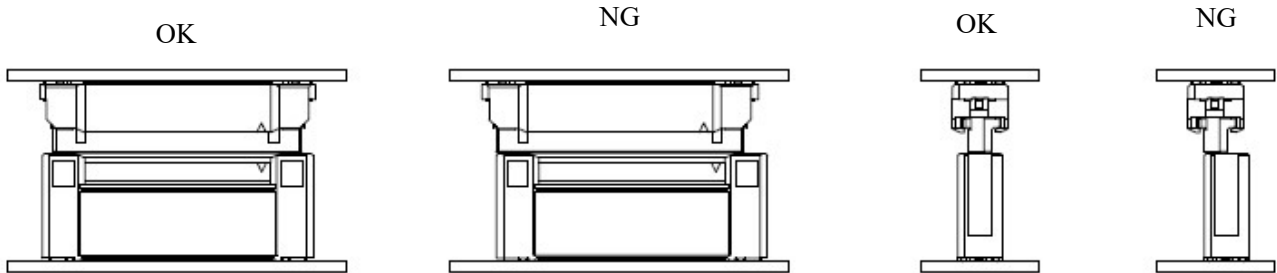


When the connector is mating, shall not be twisted, and then mate it slowly.

- 确保在无倾斜状态下嵌合，请勿暴力插拔。

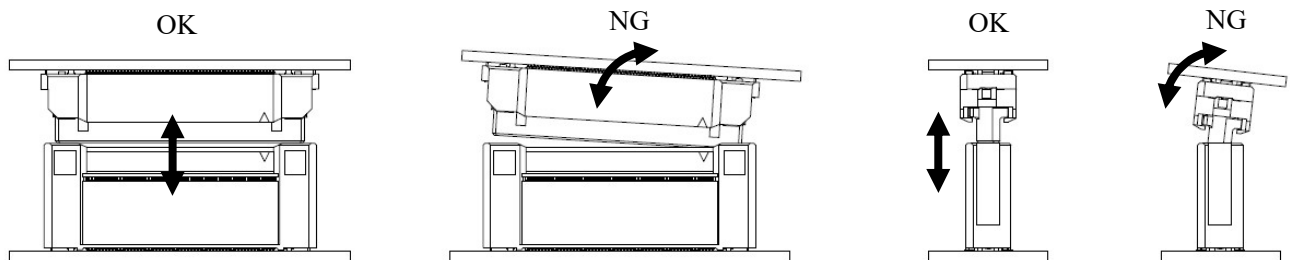
- 嵌合时，请先对准连接器，让倒角滑入后，再直插进去。请勿倾斜或错位插入。

When mating, please align the connectors and make the chamfer slide in firstly, then insert them straightly. Do not tilt or misalign to insert.

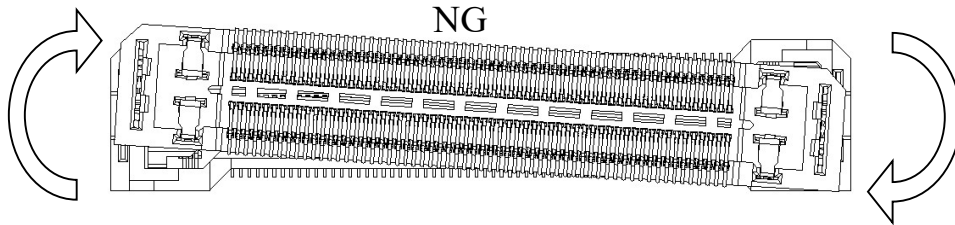


- 分离时，请将连接器垂直拆开。如果倾斜拆开连接器，则外壳可能会被损坏。

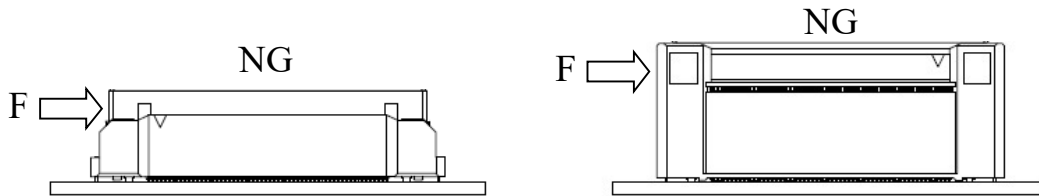
During separation, please unmate the connectors vertically. If unmate by tilting, the housing may be broken.



- 请注意在旋转方面不可施加过大的应力。
Be careful not to apply excessive stress in the direction of rotation.



- 注意请不要给连接器施加外部应力，否则会对功能造成致命性影响。
Pay attention not to give external stress for connectors. It causes fatal damage to the function.



- 请勿使用连接器来固定 PCB 板。在实际应用场合中，在连接器贴片的附近位置，必须使用螺丝来进行固定。对连接器，或是模组状态下施加加速度时，请设定在 43.12m/s^2 以下。（无共振叠加）
Do not use connector to fix PCB. In application, it should use screws to fix the PCB around the connector. When acceleration is applied to the connector or module, please Set below 43.12m/s^2 . (No resonance superposition)