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|                                                                                   | Date Issued  | 2025-09-06  | Prepared by | AShu     |
|                                                                                   | Date revised | 2025-09-06  | checked by  | Sangshen |
| Product Specification                                                             | Rev. No.     | A0          | Approved by | Willy    |
| Title : MALE CONNECTOR 排针                                                         |              |             |             |          |

## 1. SCOPE（适用范围）

This specification covers the performance, tests and quality requirements for the MALE CONNECTOR ,(本规范涵盖了 MALE CONNECTOR 排针连接器的性能、测试和质量要求。 )

## 2. PRODUCT DESCRIPTION（产品描述）

| DESCRIPTION（描述） | Part Number（料号）       |
|-----------------|-----------------------|
| 2.54mm 排针,单排单塑  | X6511WV-39H-C60D30    |
|                 | X6511WVS-39H-C60D48R1 |
|                 | X6511WVS-39H-C60D48R2 |
|                 | X6511WR-39H-C60D30R1  |
|                 | X6511WR-39H-C60D30R2  |
|                 | X6511WRS-39H-C60D48   |
| 2.54mm 排母,单排单塑  | X6511FV-39-C85D32     |
|                 | X6511FVS-39-C85D48R1  |
|                 | X6511FVS-39-C85D48R2  |
|                 | X6511FR-39-C85D32     |
|                 | X6511FRS-39-C85D48    |
|                 | X6511FRS-39-C85D30    |

## 3. APPLICABLE DOCUMENT（适用文件）

XKB Connection The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.（下列文件构成本规范的一部分，在此规定的范围内。本规范要求与产品图纸有冲突时，以产品图纸为准。如果本规范的要求与参考文件发生冲突，应以本规范为准。）

EIA 364 Test methods for electrical connectors.

## 4. REQUIREMENTS（要求）

### 4.1. Design and Structure（设计和结构）

Product shall be of the design, structure and physical dimensions specified on the applicable product drawing.  
（ XKB Connection 产品的设计、结构和物理尺寸参考所适用的产品图纸）

|                                                                                   |              |             |             |          |
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#### 4.2. Materials/ Finish (材料/表面处理)

Materials used in the structure of product shall be as specified on the applicable product drawing. (产品结构中使用的材料参考所适用的产品图纸)

4.2.1 Housing(塑胶): PA6T UL94 V-0(黑色)

4.2.1 Contact(端子): Brass 黄铜; Plating(电镀): Au 1u“

#### 4.5. Ratings (额定功率)

| XKB Connection Item (项目)          | Standard (标准)                                        |
|-----------------------------------|------------------------------------------------------|
| Rated Voltage (Maximum)额定电压       | 250 V AC/DC                                          |
| Rated Current (Maximum)额定电流       | 3A                                                   |
| Operating temperature range工作温度范围 | -40 °C~+105 °C<br>From -40 to +105 degree centigrade |

#### 5. TEST STANDARD (测试标准)

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows (除另有说明外, 用以进行测量和测试的标准环境条件范围如下)

5.1 Ambient temperature (环境温度): 5°C to 35°C

5.2 Relative humidity (相对湿度): 45% to 85%

5.3 Air pressure (气压): 86Kpa to 106Kpa

#### 6. HOWEVER, IF DOUBTS ARISE CONCERNING JUDGMENTS. PERFORM UNDER THE FOLLOWING STANDARD CONDITIONS. (但是, 如果对判决产生疑问, 按照下列标准条件执行)

Temperature (温度): 23±1°C.

Humidity (湿度): 50%±2% RH.

Air Pressure (气压): 86~106kPa

#### 7. PERFORMANCE AND TEST DESCRIPTION (性能和测试类型)

|                                                                                  |              |             |             |          |
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## 7.1 APPRARANCE (外观)

| ITEM | DESCRIPTION (类型)   | TEST CONDITION (测试条件) | REQUIREMENT (要求)                                                                      |
|------|--------------------|-----------------------|---------------------------------------------------------------------------------------|
| 1    | Appearance<br>(外观) | Visual. (目视)          | Should not have any flaw<br>Scratch discoloration and<br>crushed (无任何裂痕、刮伤、<br>污染和变形) |

## 7.2 ELECTRICAL (电气)

| ITEM | DESCRIPTION (类型)                        | TEST CONDITION (测试条件)                                                                                                                                                                  | REQUIREMENT (要求)                                                  |
|------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1    | Low level contact<br>resistance. (接触电阻) | Per EIA-364-23 Subject mated<br>connector with a max. voltage of 20mV<br>and current of<br>100mA. (依照EIA-364-23 在配对连接器<br>上施加最大20mV电压和100mA电流。)                                        | Contact terminals接触阻<br>抗: 20 mΩ Max.                             |
| 2    | Insulation<br>Resistance. (绝缘电阻)        | After 500 VDC for 1 minute, measure the<br>insulation resistance between the<br>adjacent contacts of mated and<br>unmated connector assemblies. (使用<br>500 V交流电测试1分钟, 测量相邻两端的绝缘<br>电阻) | 1000 MΩ Min.                                                      |
| 3    | Dielectric strength. (耐<br>电压)          | Apply ac 1000V for 1minute 0.5mA<br>between adjacent terminal or ground.<br>Test method complies with<br>EIA-364-20C (依EIA-364-20C, 相邻两端<br>使用1000V交流电测试1分钟, 电流0.5mA)                  | Without damage to parts<br>arcing or breakdown etc.<br>(无短路或其他损坏) |

| ITEM | DESCRIPTION (类型)                        | TEST CONDITION (测试条件)                                                                                 | REQUIREMENT (要求) |
|------|-----------------------------------------|-------------------------------------------------------------------------------------------------------|------------------|
| 1    | Insertion/Extraction<br>force. (插入/拔出力) | Measure the module insertion extraction<br>force at 25±3mm/min. (插入拔出速度为 25 ±<br>3mm/分钟)<br>EIA364-13 | 1N/PIN min       |

|                                                                                  |              |             |             |          |
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|   |                               |                                                                                                                                   |                                                                                                                                                              |
|---|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | Durability (耐久)               | Per EIA-364-09 Perform 100 cycle Mating/unmating at a rate of 25.4mm/ minute. (依照 EIA-364-09以25.4mm/ minute匀速速度循环插拔100次。)         | Contact resistance 接触电阻: <b>20 mΩ</b> Max.<br>Insulation Resistance 绝缘电阻: <b>1000 MΩ</b> min.<br>No physical damage to Connector shall occur. (不可对连接器造成物理损伤) |
| 3 | Contact retention force (保持力) | Apply axial pull out force on the Terminal assembled in the housing at A rate of 25±3mm min. (对组装在胶壳内的端子施加轴向拉出力, 速度至少为 25 ± 3 毫米) | 0.25Kgf /pinMin。                                                                                                                                             |

### 7.3 MECHANICAL (机械)

### 7.4 ENVIRONMENTAL (环境)

| ITEM | DESCRIPTION (类型)          | TEST CONDITION (测试条件)                                                                                                                                                                                                          | REQUIREMENT (要求)                          |
|------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1    | Thermal Shock (冷热冲击)      | Per EIA-364-32, Mated connectors: expose to 5cycles of: (依照 EIA-364-32,执行如下条件的 5 次循环)<br>Temperature℃ Duration(Minutes)<br>温度 持续时间(分)<br>-40℃ +0/-5 30 Min.<br>+25℃ +10/-5 5 Max.<br>+105℃ +3/-0 30 Min.<br>+25℃ +10/-5 5 Max. | No evidence of physical damage<br>无物理损伤现象 |
| 2    | Temperature life (高温寿命测试) | Per EIA-364-17 Test Condition: 105℃, 96hours. (依照 EIA-364-17,测试条件: 105℃, 96 小时。)                                                                                                                                               | No evidence of physical damage<br>无物理损伤现象 |
| 3    | Humidity resistance (高湿)  | Steady state 40℃,90~95%RH for 96H with mate connectors, After test stored at room temperature for 1 hours test CR and IR. (配对连接器在 40℃ 90~95%RH 的稳定状态下测试 96 小时, 测试后放置室温 1 小时测试接触阻抗与绝缘阻抗)<br>IEC 60512-11-3                      | No evidence of physical damage<br>无物理损伤现象 |

|                                                                                   |              |             |             |          |
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|   |                                       |                                                                                                                                                                                                                                                                                                                                              |                                                                         |
|---|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 4 | XKB Connection Salt Spray Test (盐雾测试) | <p>Mated connectors to 32+/-2℃.Humidity:85%(R.H). PH value:6.5~7.2 and 5+/-1% salt condition for 24hours. After test, rinse the sample with water and recondition the room temperature for 1 hour test CR and IR.</p> <p>(配对连接器放置在 32±2℃, 温度为 85% PH 值 6.5~7.2 和 5%浓度的实验箱内测试 24 小时, 测试后用水清洗样品, 放置室温 1 小时测试接触阻抗与绝缘阻抗)</p> <p>EIA-364-26B.</p> | <p>No evidence of physical damage</p> <p>无物理损伤现象</p>                    |
| 5 | Solder ability (沾锡性)                  | <p>Solder Temperature (焊接温度) : 245+/-3℃</p> <p>Immersion Duration (浸泡时间) : 3 ±0.5 sec.</p> <p>Flux (助焊剂) : RMA 25%</p>                                                                                                                                                                                                                       | <p>Wet Solder Coverage: 95 % Min. (沾锡面积须95%最小)</p>                      |
| 6 | Resistance to soldering heat (焊锡耐热性)  | <p>EIA-364-52</p> <p>Place the connector on the P.C.Board,then immerse the solder pin up to the surface of the board in the solder bath at 260℃±5℃ for 10 seconds.(将连接器置于 PCB 上,然后将露出 PCB 板表面的 Pin 脚部分浸入 260±5℃的锡炉中 10 秒)</p>                                                                                                                | <p>Should not have any flaw scratch and crack.</p> <p>(无任何裂痕、刮伤和破裂)</p> |

## 8. Product Qualification and TEST GROUP (产品验证和测试分组)

| XKB Connection<br>TEST ITEM （测试项目） |                              | TEST GROUP （测试分组） |     |     |     |     |     |     |     |     |     |     |
|------------------------------------|------------------------------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                    |                              | A                 | B   | C   | D   | E   | F   | G   | H   | I   | J   | K   |
|                                    |                              | TEST SEQUENCE     |     |     |     |     |     |     |     |     |     |     |
| 1                                  | Appearance （外观）              | 1,4               | 1,7 | 1,6 | 1,3 | 1,6 | 1,7 | 1,5 | 1,5 | 1,5 | 1,4 | 1,4 |
| 2                                  | Low Level Contact Resistance |                   | 3,6 | 3,7 |     |     | 3,8 | 3,6 | 3,6 | 3,6 |     | 2,5 |

|                                                                                  |              |             |             |          |
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|    |                                             |    |   |   |     |      |   |   |   |   |   |  |
|----|---------------------------------------------|----|---|---|-----|------|---|---|---|---|---|--|
|    | (接触电阻)                                      |    |   |   |     |      |   |   |   |   |   |  |
| 3  | Dielectric withstanding Voltage<br>(耐电压)    |    |   |   | 4,8 | 5,9  |   |   |   |   |   |  |
| 4  | Insulation Resistance (绝缘电阻)                |    |   |   | 3,7 | 4,10 |   |   |   |   |   |  |
| 5  | Durability (耐久)                             |    | 5 |   |     |      |   |   |   |   |   |  |
| 6  | Insertion/Extraction force (插入/<br>拔出)      |    | 4 |   |     |      |   |   |   |   |   |  |
| 7  | Contact retention force (保持力)               |    |   | 2 |     |      |   |   |   |   |   |  |
| 8  | High Temperature (高温)                       |    |   |   | 5   |      |   |   |   |   |   |  |
| 9  | Low Temperature (低温)                        |    |   |   |     | 6    |   |   |   |   |   |  |
| 10 | Humidity resistance (高湿)                    |    |   |   |     |      | 4 |   |   |   |   |  |
| 11 | Salt Spray (盐雾)                             |    |   |   |     |      |   | 4 |   |   |   |  |
| 12 | Solder ability (沾锡性)                        |    |   |   |     |      |   |   |   | 3 |   |  |
| 13 | Reflow Soldering Heat<br>Resistance (焊锡耐热性) |    |   |   |     |      |   |   |   |   | 3 |  |
| 14 | IR-reflow (回流焊)                             | 2  | 2 | 2 |     | 2    | 2 | 2 | 2 | 2 | 2 |  |
|    | Number of Samples Required<br>(所需样本数目)      | 25 |   |   |     |      |   |   |   |   |   |  |

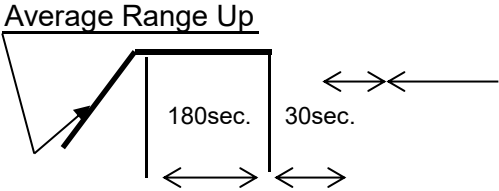
## 9. WAVE SOLDERING (波峰焊)

DIP Suggestions solder temperature at 260°C(500°F) max.5 seconds . ( DIP 型推荐焊接焊锡温度为 260°C (500°F) 最多 5 秒)

## 10. REFLOW PROFILE ( XKB CONNECTIVITY 回流焊炉温图)



|                                                                                  |              |             |             |          |
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(Preheat Temperature预热温度: 150~200℃ Maximum.)  
Temperature Condition Graph.温度状态图  
(Temperature on Board Pattern Side.)

Requirement要求: No physical damaged or plastic melting.: 无物理损伤或塑料熔化

| Rev. | Description | Date revised | Created/<br>Revised by |
|------|-------------|--------------|------------------------|
| A0   | New Release | 2025/09/06   | AShu                   |
|      |             |              |                        |
|      |             |              |                        |