

YUEQING HONGYI ELECTRONICS CO., LTD  
乐清市宏一电子有限公司

SPECIFICATION FOR APPROVAL

承认书

|                     |                 |
|---------------------|-----------------|
| CUSTOMER<br>客户名称    |                 |
| DESCRIPRION<br>产品名称 | 1511 系列连接器      |
| ITEM NO<br>编 号      | HY-A15005 (A30) |
| DATE<br>日 期         | 2022-09-03      |

CUSTOMER ACKNOWLEDGEMENT SEAL

客户承认印签

| (APPROVAL) 核准  | (ENGINEERING) 工程 | (PURCHASE) 采购 | (QUALITY) 品质 |
|--|------------------|---------------|--------------|
|  |                  |               |              |
| 承认结果: <input type="checkbox"/> 通过 <input type="checkbox"/> 不通过 <input type="checkbox"/> 重新送样 |                  |               |              |

IS09001

IS014001

IS045001

IATF16949 体系认证

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# 产 品 承 认 书 目 录

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# PRODUCT SPECIFICATION

## 产品规范

### 1、Scope

#### 适用范围

This specification includes the following specifications, including the specification of 1511 series connector

本规范包括下列此种规格包括 1511 系列连接器规格说明

### 2、Appearance and Dimension

#### 外观及尺寸

2.1 Appearance: Product surface without defect, dirt, crack, and mechanical damage, Contact without rust, plating not oxidized and not peeled.

产品表面不应有对制品有害的缺陷、污垢、裂痕及机械损伤；接触件无锈蚀、镀层氧化脱落等现象

2.2 Dimension: According to drawings

外形尺寸：依照附图

### 3、Disposal of Material and surface

#### 材料与表面处理

| Specification<br>规格内容 | Material<br>材质                   | Finish<br>表面处理                        | Environmental<br>protection grade<br>环保等级 |                                       |
|-----------------------|----------------------------------|---------------------------------------|---|---------------------------------------|
| Terminal<br>端子        | Phosphor bronze<br>锡青磷铜 厚 0.15mm | Tin Plating: 2.5~5 μm<br>镀锡: 2.5~5 μm | RoHS2.0                                   |                                       |
| Housing<br>胶壳         | PA66 UL94V-0                     | Color: White<br>颜色: 白色                |   |                                       |
| Wafer<br>卧贴针座         | Plastic<br>塑壳                    | LCP UL94V-0                           |   | Color: Beige<br>颜色: 米色                |
|                       | Contact<br>插针                    | Phosphor bronze<br>锡青磷铜 厚 0.40mm      |   | Tin Plating: 2.5~5 μm<br>镀锡: 2.5~5 μm |
| Wafer<br>立贴针座         | Plastic<br>塑壳                    | LCP UL94V-0                           |   | Color: Beige<br>颜色: 米色                |
|                       | Contact<br>插针                    | Phosphor bronze<br>锡青磷铜 厚 0.40mm      |   | Tin Plating: 2.5~5 μm<br>镀锡: 2.5~5 μm |

#### 4、Ratings and applicable wires

##### 额定等级

| Item<br>项目                          | Standard<br>规格 |
|-------------------------------------|----------------|
| Rated Voltage<br>额定电压               | 350V AC/DC     |
| Rated Current<br>额定电流               | 3A AC/DC       |
| Ambient temperature Range<br>使用温度范围 | -25℃- +105℃    |
| Applicable wire insulation<br>适用线径  | AWG24#-28#     |

#### 5、Electrical Performance

##### 电气性能

| N0.<br>序号 | Ltem<br>项目                   | Test mode<br>试验方法   | Requirement<br>技术要求   |
|-----------|------------------------------|---|---|
| 5.1       | ContactResistance<br>接触电阻    | Male female cooperation, open voltage less than 20mV, current 100mA detection connector at both ends<br><br>公母配合, 开放电压20mV 以下, 电流100mA 检测连接器连接器两端 | Initial:20mΩ Max<br>初始: 20mΩ Max<br><br>After Test: 30mΩ Max<br>试验后: 30mΩ Max |
| 5.2       | withstandvoltage<br>耐电压      | Mate connectors, apply 500V AC for 1 minute between adjacent terminal or ground<br><br>公母配合, 在相邻端子, 端子与地片之间, 使用500V 的交流电1 分钟, 检测连接器               | No Breakdown and Flashover<br><br>外观无损伤, 无打火花                                 |
| 5.3       | InsulationResistance<br>绝缘电阻 | Mate connectors, apply 500V DC between adjacent terminal or ground<br><br>公母配合, 在相邻端子, 端子与地片之间, 使用500V 的直流电, 检测连接器                                | 1000MΩ Min  |

## 6、机械性能

### Mechanical Performance

| NO.<br>序号 | Ltem<br>项目                                       | Test mode<br>试验方法   |                          | Requirement<br>技术要求                    |
|-----------|--|---|--------------------------|--|
| 6.1       | Terminal crimping<br>wire strength<br>端子压接导线强度   | Fix the crimped terminal,<br>apply axial pull out force on<br>thewire<br><br>固定铆线后的端子, 使电线与端<br>子分离时所需的最小力量   | AWG#24 wire<br>AWG#24 导线 | 30N Min                                |
|           |  |   | AWG#26 wire<br>AWG#26 导线 | 20N Min                                |
|           |  |   | AWG#28 wire<br>AWG#28 导线 | 13N Min                                |
| 6.2       | Terminal/<br>Housing<br>Retention Force<br>端子保持力 | Apply axial pull out force at the speed rate<br>of25.4±3mm/minute on the terminal assembled<br>in the Housing<br><br>以每分25.4±3mm 的速率, 将端子从Housing 内轴<br>向拔出 |                          | Per contact: 10N Min<br>单一接触点: 10N Min |
| 6.3       | Insertion &<br>withdraw Force<br>插拔力             | Insert and withdraw Connectors at the speed<br>rate of 25.4±3mm/minute<br><br>以每分 25.4±3mm 的速率插入和拔出   |                          | Refer to paragraph 8<br>参照第 8 项        |
| 6.4       | Pin Retention<br>Force<br>Pin 针保持力               | Apply axial push force at the speed rate of<br>25.4±3mm/minute<br><br>以每分 25.4±3mm 的速率, 将 PIN 针从 Wafer<br>内轴向拔出   |                          | Per contact: 10N Min<br>单一接触点: 10N Min |

## 7、Endurance Characteristics:

### 环境性能

| NO.<br>序号 | Ltem<br>项目                                | Test mode<br>试验方法   | Requirement<br>技术要求           |  |
|-----------|---|---|-------------------------------|--|
| 7.1       | Repeated Insertion/<br>Withdrawal<br>重复插拔 | When mated up to 30 cycles repeatedly by the rate of 10 cycles per minute<br><br>以每分钟不超过 10 次的速率, 将公母插拔 30 次  | Contact Resistance<br>接触电阻    | 30 mΩ Max                                    |
| 7.2       | Temperature Rise<br>温升测试                  | Mating connectors shall be energized at rating current until thermal stability is achieved, and then measured the temperature rise<br><br>公母连接器配合后, 加载额定电流直到温度上升到稳定 状态, 然后再测量温升 | Temperature Rise<br>温升测试      | 30℃ Max                                      |
| 7.3       | Vibration test<br>振动测试                    | Amplitude: 1.5mm P-P<br>Sweep time: 10~55~10 HZ in 1 minute<br>Duration: 2 hours in each X.Y.Z axials<br><br>振幅: 1.5mm P-P<br>时间: 10~55~10 HZ in 1 minute<br>持续时间: 每轴向 2 小时     | Appearance<br>外观              | No damage<br>无异常                             |
|           |   |   | Contact Resistance<br>接触电阻    | 30 mΩ Max                                    |
|           |   |   | Discontinuity<br>瞬断           | 1 micro-second Max.                          |
| 7.4       | Heat Resistance<br>耐热性                    | 105±2℃,96 hours   | Appearance<br>外观              | No damage<br>无异常                             |
|           |   |   | Contact Resistance<br>接触电阻    | 30 mΩ Max                                    |
| 7.5       | Cold Resistance<br>耐寒性                    | -25±3℃,96 hours   | Appearance<br>外观              | No damage<br>无异常                             |
|           |   |   | Contact Resistance<br>接触电阻    | 30 mΩ Max                                    |
| 7.6       | Humidity<br>耐湿性                           | Temperature: 60±2℃<br>Relative Humidity: 90~95%<br>Duration: 96 hours<br><br>温度: 60±2℃<br>湿度: 90~95%(RH)<br>持续时间: 96 hours  | Appearance<br>外观              | No damage<br>无异常                             |
|           |   |   | Contact Resistance<br>接触电阻    | 30 mΩ Max                                    |
|           |   |   | Withstand Voltage<br>耐电压      | No Breakdown and Flashover<br>外观无损伤,<br>无打火花 |
|           |   |   | Insulation Resistance<br>绝缘电阻 | 1000MΩ Min                                   |

| NO.<br>序号 | Ltem<br>项目                     | Test mode<br>试验方法  | Requirement<br>技术要求           |   |
|-----------|--------------------------------|--|-------------------------------|---|
| 7.7       | 温度变化<br>Temperature<br>Cycling | 5 cycles of: a) -25°C 30 minutes<br>b) +105°C 30 minutes   | Appearance<br>外观              | No damage<br>无异常                                  |
|           |                                | 从-25°C持续30 分钟升至+105°C持续30 分钟, 循环5 次  | Contact<br>Resistance<br>接触电阻 | 30 mΩ Max   |
| 7.8       | Salt spray<br>盐雾               | 24±1 hours exposure to a salt spray from the 5±1% solution at 35±2°C   | Appearance<br>外观              | No damage<br>无异常                                  |
|           |                                | 在温度35±2°C, 盐水浓度5±1%下, 盐水喷雾24±1 小时  | Contact<br>Resistance<br>接触电阻 | 30 mΩ Max   |
| 7.9       | Solderability<br>焊锡附着性         | Soldering Time: 3-5sec solder<br>Temperature: 245±5°C<br><br>焊接时间: 3-5 秒<br>焊接温度: 245±5°C  | Solder Wetting<br>焊料润湿        | Immersion area<br>above 95%<br><br>浸渍面积 95%<br>以上 |
| 7.10      | Solder- Resistance<br>焊锡耐热性    | SMT reflow soldering heat resistance range:<br>Soldering time:5~10sec<br>solder. Temperature:255±5°C<br>SMT 型回流焊接耐热范围:<br>焊接时间: 5~10 秒.<br>焊接温度: 255±5°C<br><br>Please refer to the 9.1 solder reflow<br>temperature curve<br>回流焊请参考 9.1 温度曲线图 | Appearance<br>外观              | No damage<br>无异常                                  |

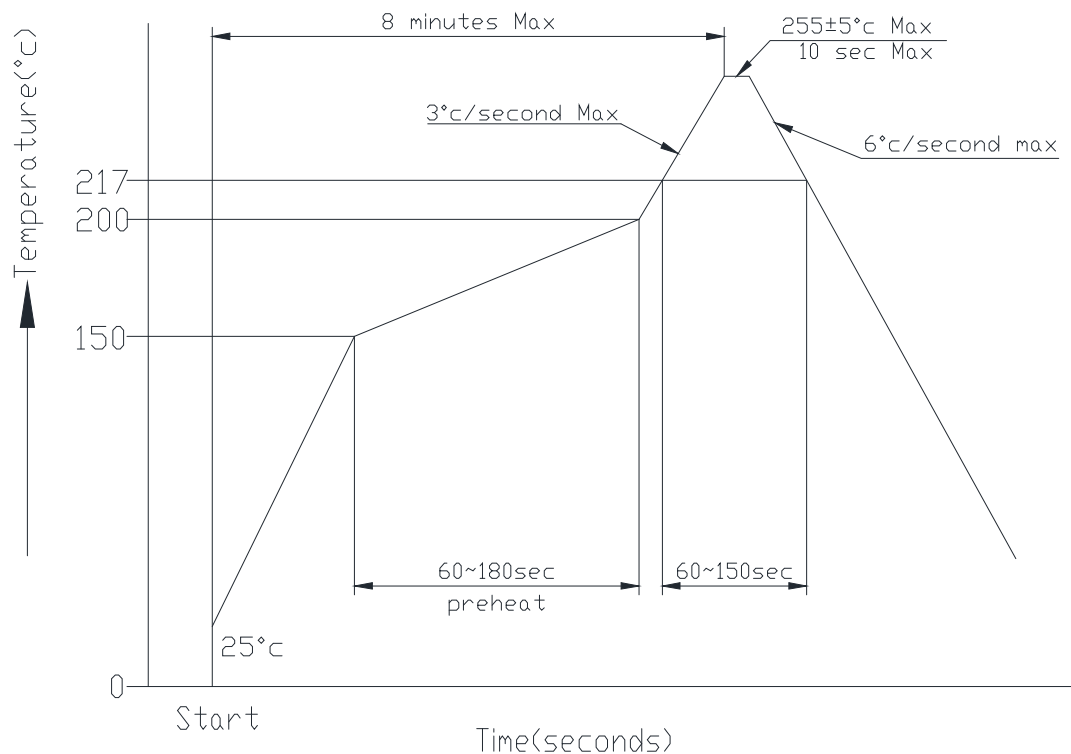


## 8、INSERTION/WITHDRAWAL FORCE

## 综合插入力及拔出力

| No. of<br>CTK<br>PIN 数 | At Initial<br>初始值   |                     | At 30th<br>插拔 30 次  | No. of<br>CTK<br>PIN 数 | At Initial<br>初始值   |                     | At 30th<br>插拔 30 次  |
|------------------------|---------------------|---------------------|---------------------|------------------------|---------------------|---------------------|---------------------|
|                        | I. F (N Max)<br>插入力 | W. F (N Min)<br>拔出力 | W. F (N Min)<br>拔出力 |                        | I. F (N Max)<br>插入力 | W. F (N Min)<br>拔出力 | W. F (N Min)<br>拔出力 |
| 2                      | 25                  | 10                  | 4                   | 12                     | 65                  | 30                  | 14                  |
| 3                      | 30                  | 12                  | 5                   | 13                     | 65                  | 32                  | 15                  |
| 4                      | 35                  | 14                  | 6                   | 14                     | 70                  | 34                  | 16                  |
| 5                      | 40                  | 16                  | 7                   | 15                     | 70                  | 34                  | 17                  |
| 6                      | 45                  | 18                  | 8                   |                        |                     |                     |                     |
| 7                      | 50                  | 20                  | 9                   |                        |                     |                     |                     |
| 8                      | 55                  | 22                  | 10                  |                        |                     |                     |                     |
| 9                      | 55                  | 24                  | 11                  |                        |                     |                     |                     |
| 10                     | 60                  | 26                  | 12                  |                        |                     |                     |                     |
| 11                     | 60                  | 28                  | 13                  |                        |                     |                     |                     |

## 9、 SMT lead-free process temperature curve SMT 无铅工艺温度曲线



Notes: Please check the reflow soldering condition by your own devices beforehand. Because the condition changes by the soldering devices, P.C. boards, and so on

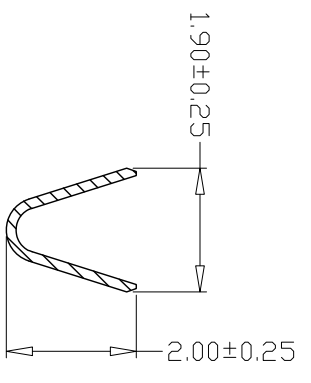
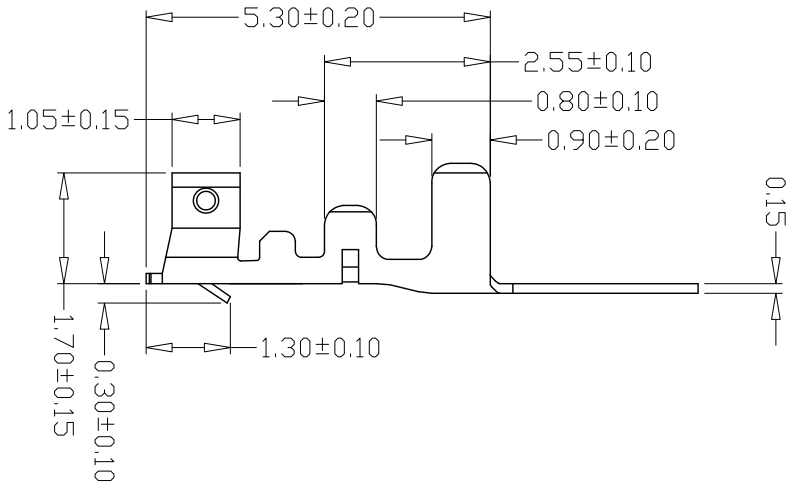
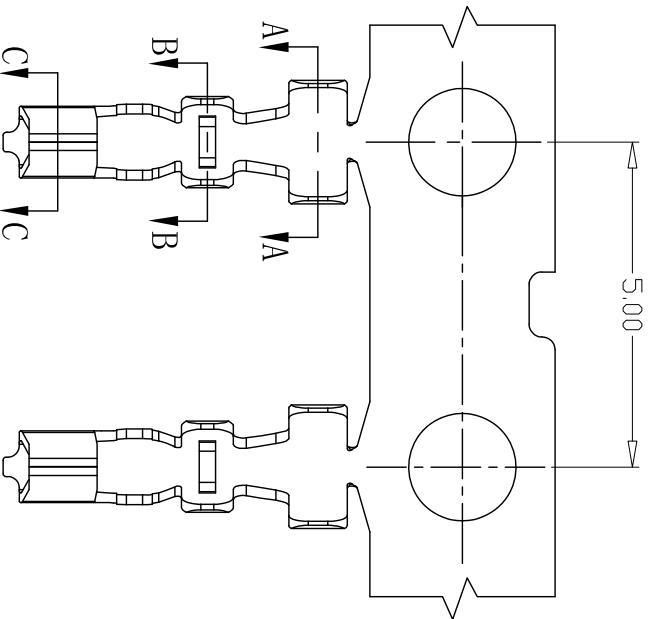
注记: 由于 P.C 板等焊接装置改变条件,所以请预先用自己的装置检查回流焊的条件

## 10、 Caution 注意事项

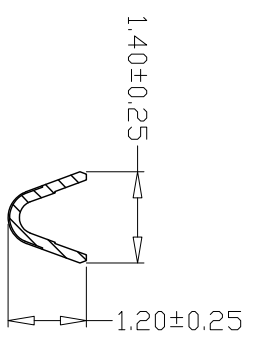
plastic because of characteristics with water after package is opened should avoid exposure to, the temperature is higher than 30 °C, humidity is higher than 60%RH in the environment, and in the 24 hours after all after use, to prevent subsequent reflow, wave soldering process to produce foaming phenomenon of deformation

塑料因具有吸水之特性包装拆封后应避免暴露于, 温度高于 30°C, 湿度高于 60%RH 的环境中, 并在拆封后 24 小时内全数使用完毕, 防止后续回流焊、波峰焊制程产生起泡变形现象

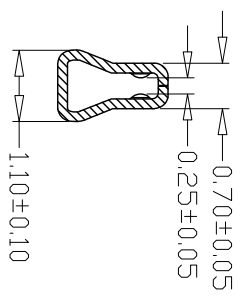
|            |            |         |                     |             |
|------------|------------|---------|---------------------|-------------|
| 版本<br>REV. | 日期<br>DATE | ECN NO. | 变更内容<br>DESCRIPTION | 制图<br>DRAWN |
|            |            |         |                     |             |



SEC: A-A



SEC: B-B



SEC: C-C

SPECIFICATIONS

- 1、Current Rating: 3A AC, DC
- 2、Voltage Rating: 350V AC, DC
- 3、Temperature Range: -25°C~+105°C
- 4、Contact Resistance: 20mΩ Max
- 5、Insulation Resistance: 1000MΩ Min
- 6、Withstanding Voltage: 500V AC/minute
- 7、Material: C5191 Tin-plated
- 8、Applicable Wire Sizes: AWG#24~28#

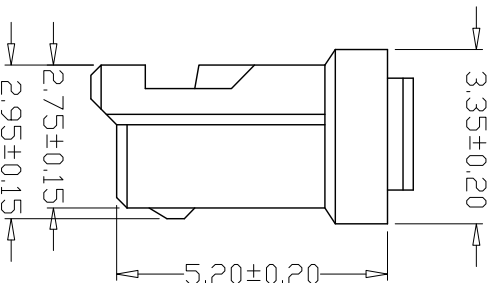
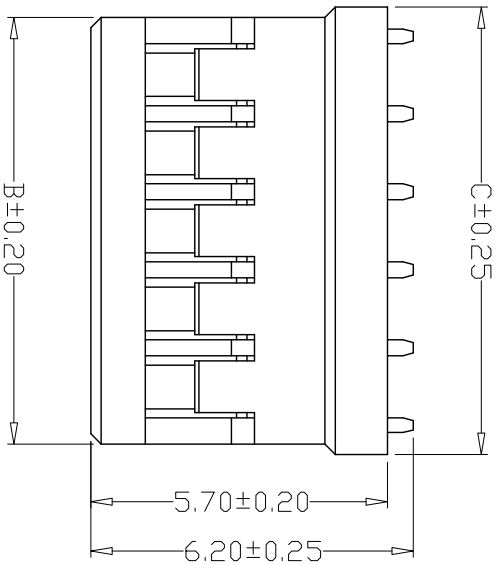
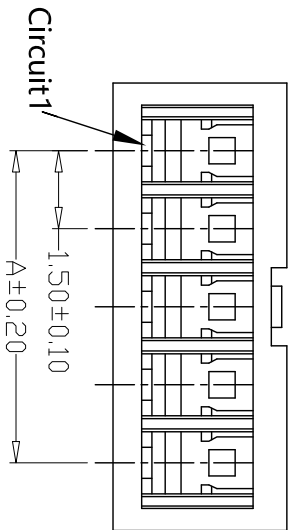
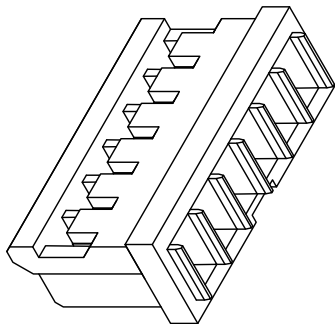
|                   |            |                |              |                   |          |             |     |
|-------------------|------------|----------------|--------------|-------------------|----------|-------------|-----|
| GENERAL TOLERANCE |            | 制图<br>Mapping  | 张迎春          | 料号<br>PART NO.    | A15005-T | 版本<br>REV.  | A   |
| X±0.25            | X°±2°      | 审核<br>Audit    | 钱岳生          | 品名<br>TITLE       | 1511端子   | 页次<br>SHEET | 1/1 |
| X±0.25            | X°±1°      | 核准<br>Approved | 张名           | 客户料号<br>CUST. NO. |          |             |     |
| .XX±0.15          | .XX°±0.5°  | 单位<br>Units    | 2022. 09. 03 |                   |          |             |     |
| .XXX±0.10         | .XXX°±0.5° | mm             | 比例<br>SCALE  |                   |          |             |     |

乐清市宏一电子有限公司  
Yueqing Hongyi Electronics Co., Ltd

|            |            |         |                     |             |
|------------|------------|---------|---------------------|-------------|
| 版本<br>REV. | 日期<br>DATE | ECN NO. | 变更内容<br>DESCRIPTION | 制图<br>DRAWN |
|            |            |         |                     |             |

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- 3、Temperature Range: -25°C~+105°C
- 4、Contact Resistance: 20mΩ Max
- 5、Insulation Resistance: 1000MΩ Min
- 6、Withstanding Voltage: 500V AC/minute
- 7、Material: PA66, White UL94V-0



| PIN  | 尺寸 (mm) |       |       |
|------|---------|-------|-------|
|      | A       | B     | C     |
| -02Y | 1.50    | 3.70  | 4.10  |
| -03Y | 3.00    | 5.20  | 5.60  |
| -04Y | 4.50    | 6.70  | 7.10  |
| -05Y | 6.00    | 8.20  | 8.60  |
| -06Y | 7.50    | 9.70  | 10.10 |
| -07Y | 9.00    | 11.20 | 11.60 |
| -08Y | 10.50   | 12.70 | 13.10 |
| -09Y | 12.00   | 14.20 | 14.60 |
| -10Y | 13.50   | 15.70 | 16.10 |
| -11Y | 15.00   | 17.20 | 17.60 |
| -12Y | 16.50   | 18.70 | 19.10 |
| -13Y | 18.00   | 20.20 | 20.60 |
| -14Y | 19.50   | 21.70 | 22.10 |
| -15Y | 21.00   | 23.20 | 23.60 |

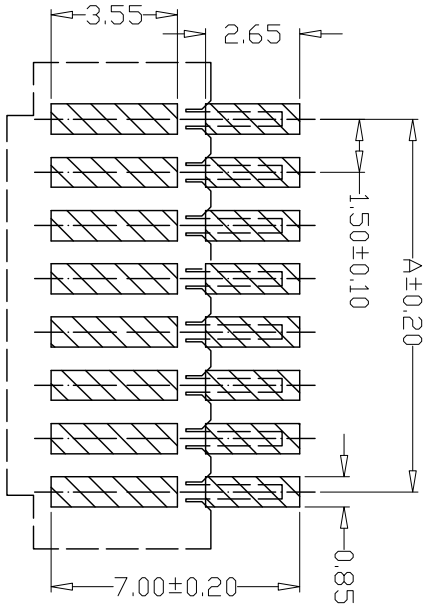
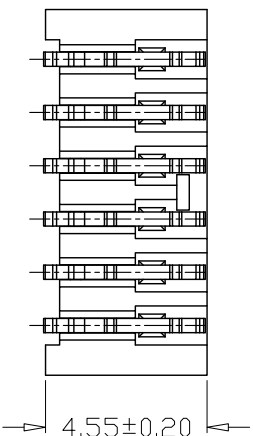
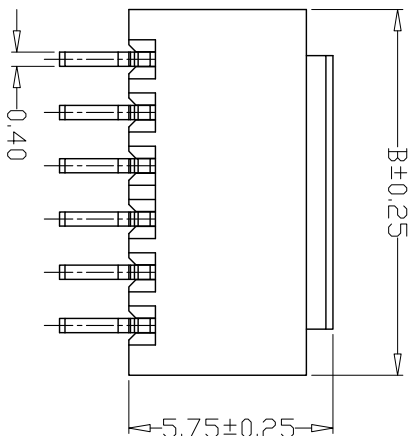
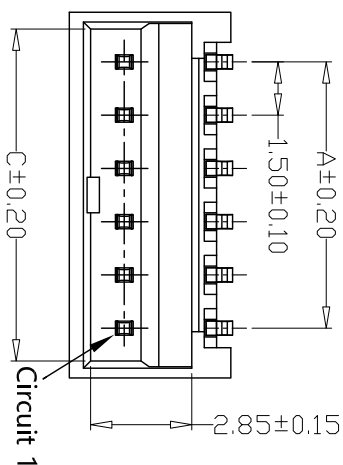
|                   |                 |              |              |
|-------------------|-----------------|--------------|--------------|
| GENERAL TOLERANCE |                 | 制图 Mapping   |              |
| X $\pm$ 0.25      | X $\pm$ 2°      | 2022. 09. 02 | 张迎春          |
| X $\pm$ 0.25      | X $\pm$ 1°      | 审核 Audit     | 钱岳生          |
| .XX $\pm$ 0.15    | .XX $\pm$ 0.5°  | 核准 Approved  | 张名           |
| .XXX $\pm$ 0.10   | .XXX $\pm$ 0.5° | 单位 Units     | 2022. 09. 03 |
|                   |                 | mm           | 比例 SCALE     |

|                   |           |             |     |
|-------------------|-----------|-------------|-----|
| 料号<br>PART NO.    | A15005-nY | 版本<br>REV.  | A   |
| 品名<br>TITLE       | 1511孔座    | 页次<br>SHEET | 1/1 |
| 客户料号<br>CUST. NO. |           |             |     |
|                   |           |             |     |

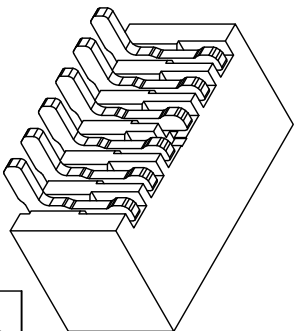
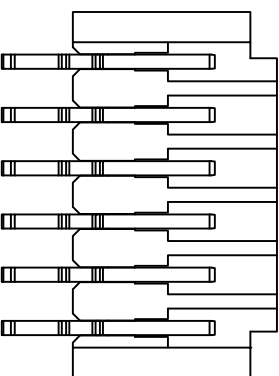
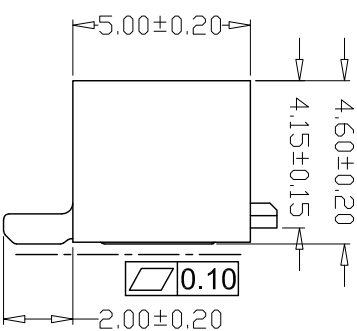
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- 4、Contact Resistance: 20mΩ Max
- 5、Insulation Resistance: 1000MΩ Min
- 6、Withstanding Voltage: 500V AC/minute
- 7、Material  
Wafer: LCP UL94V-0  
PIN: C2680 Tin-plated



PCB LAYOUT



| PIN    | 尺寸 (mm) |       |       |
|--------|---------|-------|-------|
|        | A       | B     | C     |
| -02AWB | 1.50    | 4.30  | 3.35  |
| -03AWB | 3.00    | 5.80  | 4.85  |
| -04AWB | 4.50    | 7.30  | 6.35  |
| -05AWB | 6.00    | 8.80  | 7.85  |
| -06AWB | 7.50    | 10.30 | 9.35  |
| -07AWB | 9.00    | 11.80 | 10.85 |
| -08AWB | 10.50   | 13.30 | 12.35 |
| -09AWB | 12.00   | 14.80 | 13.85 |
| -10AWB | 13.50   | 16.30 | 15.35 |
| -11AWB | 15.00   | 17.80 | 16.85 |
| -12AWB | 16.50   | 19.30 | 18.35 |
| -13AWB | 18.00   | 20.80 | 19.85 |
| -14AWB | 19.50   | 22.30 | 21.35 |
| -15AWB | 21.00   | 23.80 | 22.85 |

| GENERAL TOLERANCE |                 | 制图 Mapping  | 张迎春          |
|-------------------|-----------------|-------------|--------------|
| X $\pm$ 0.25      | X $\pm$ 2°      | 审核 Audit    | 钱岳生          |
| X $\pm$ 0.25      | X $\pm$ 1°      | 批准 Approved | 张名           |
| .XX $\pm$ 0.15    | .XX $\pm$ 0.5°  | 单位 Units    | 2022. 09. 03 |
| .XXX $\pm$ 0.10   | .XXX $\pm$ 0.5° | 比例 SCALE    |              |

| 料号 PART NO. | 品名 TITLE        | 客户料号 CUST. NO. | 版本 REV. |
|-------------|-----------------|----------------|---------|
| A15005-nAWB | 1511卧式贴片        |                | A       |
|             | WAFFER SMT TYPE |                | 1/1     |

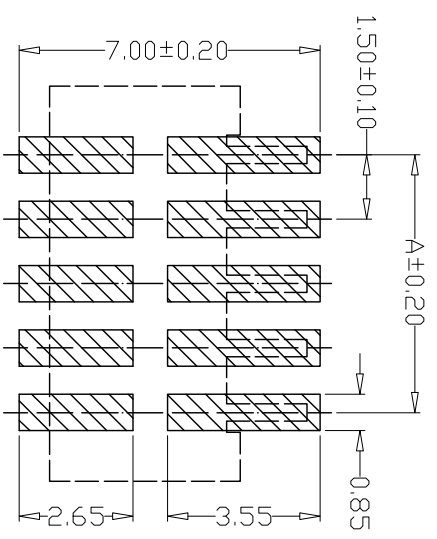
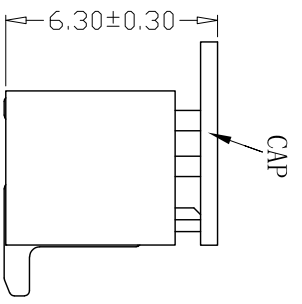
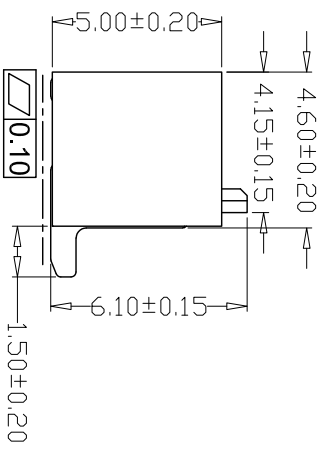
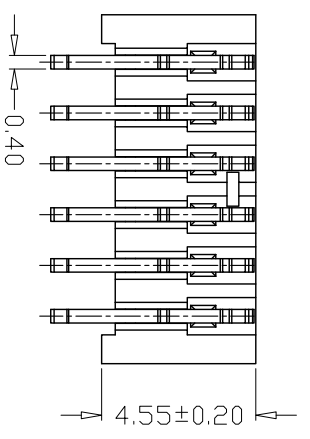
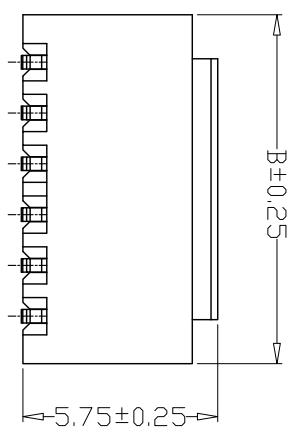
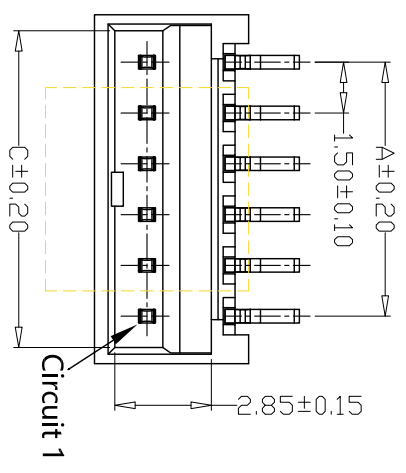
乐清市宏一电子有限公司  
YueQing HongYi Electronics Co., Ltd

| 版本 REV. | 日期 DATE | ECN NO. | 变更内容 DESCRIPTION | 制图 DRAWN |
|---------|---------|---------|------------------|----------|
|         |         |         |                  |          |

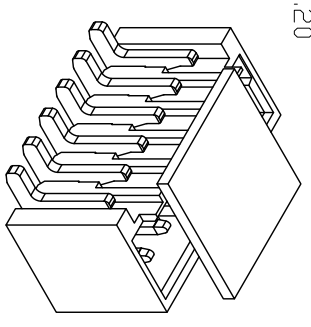
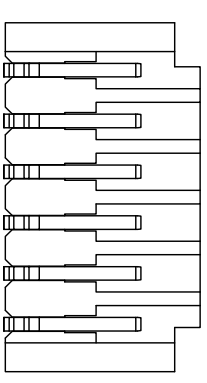
|      |      |         |             |       |
|------|------|---------|-------------|-------|
| REV. | 日期   | ECN NO. | 变更内容        | 制图    |
|      | DATE |         | DESCRIPTION | DRAWN |

SPECIFICATIONS

- 1、Current Rating: 3A AC, DC
  - 2、Voltage Rating: 350V AC, DC
  - 3、Temperature Range: -25°C~+105°C
  - 4、Contact Resistance: 20mΩ Max
  - 5、Insulation Resistance: 1000MΩ Min
  - 6、Withstanding Voltage: 500V AC/minute
  - 7、Material
- Wafer: LCP UL94V-0  
 PIN: C2680 Tin-plated



PCB LAYOUT



| PIN   | 尺寸 (mm) |       |       |
|-------|---------|-------|-------|
|       | A       | B     | C     |
| -02AB | 1.50    | 4.30  | 3.35  |
| -03AB | 3.00    | 5.80  | 4.85  |
| -04AB | 4.50    | 7.30  | 6.35  |
| -05AB | 6.00    | 8.80  | 7.85  |
| -06AB | 7.50    | 10.30 | 9.35  |
| -07AB | 9.00    | 11.80 | 10.85 |
| -08AB | 10.50   | 13.30 | 12.35 |
| -09AB | 12.00   | 14.80 | 13.85 |
| -10AB | 13.50   | 16.30 | 15.35 |
| -11AB | 15.00   | 17.80 | 16.85 |
| -12AB | 16.50   | 19.30 | 18.35 |
| -13AB | 18.00   | 20.80 | 19.85 |
| -14AB | 19.50   | 22.30 | 21.35 |
| -15AB | 21.00   | 23.80 | 22.85 |

|                   |            |             |            |
|-------------------|------------|-------------|------------|
| GENERAL TOLERANCE |            | 制图 Mapping  | 张迎春        |
| X±0.25            | X°±2°      | 审核 Audit    | 钱岳生        |
| X±0.25            | X°±1°      | 批准 Approved | 张名         |
| .XX±0.15          | .XX°±0.5°  | 单位 Units    | 2022.09.03 |
| .XXX±0.10         | .XXX°±0.5° | mm          | SCALE      |

|                      |            |          |     |
|----------------------|------------|----------|-----|
| 料号 PART NO.          | A15005-nAB | 版本 REV.  | A   |
| 品名 TITLE             | 1511 连接器   | 页次 SHEET | 1/1 |
| 客户料号 WAFFER SMT TYPE |            |          |     |
| CITL. NO.            |            |          |     |

乐清市宏一电子有限公司  
 YueQing HongYi Electronics Co., Ltd