



浙江联和电子有限公司  
ZHEJIANG LIANHE ELECTRONICS CO., LTD.

## 承 认 书

### SPECIFICATION FOR APPROVAL

客户名称 CUSTOMER: \_\_\_\_\_

品名 DESCRIPTION: \_\_\_\_\_ NH1.0型压接式条形连接器

料号 CUSERTOMER PART NO: \_\_\_\_\_ A1002

### 客户确认 APPROVED SIGNATURES

核准 APPROVAL: \_\_\_\_\_

日期 DATE: \_\_\_\_\_

工程 ENGINEERING: \_\_\_\_\_

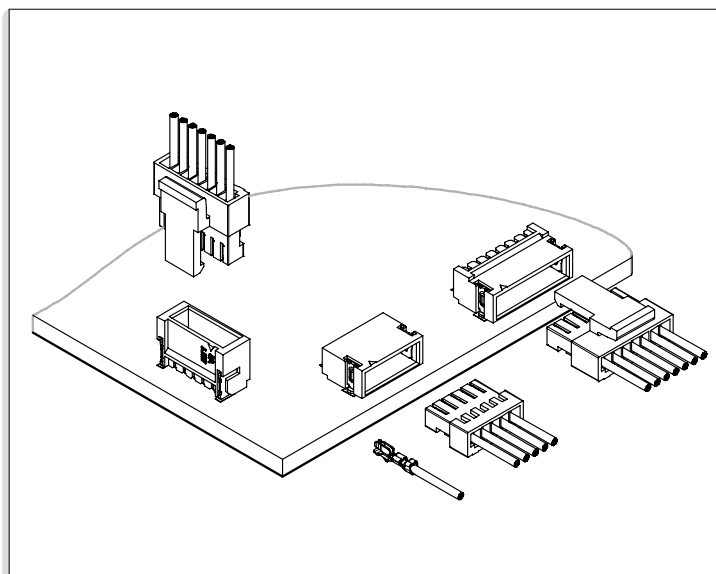
日期 DATE: \_\_\_\_\_

品管 QC: \_\_\_\_\_

日期 DATE: \_\_\_\_\_

承认结果: ☐ 承认 ☐ 不承认

☐ 重新送样



### 规格 Specifications

1. 极数 Poles: 2 to 20P
2. 额定电流 Current rating: 1.0A AC,DC
3. 额定电压 Voltage rating: 50V AC,DC
4. 温度范围 Temperature range: -25°C to +105°C  
(含通电温度上升值)  
(Including temperature rise in applying electrical current)
5. 接触电阻 Contact resistance: 初期 Initial value /  $\leq 20\text{m}\Omega$   
环境测试后 After environmental testing /  $\leq 40\text{m}\Omega$
6. 绝缘电阻 Insulation resistance:  $\geq 100\text{M}\Omega$
7. 耐电压 Withstanding voltage: 500V AC/minute
8. 适用线规 Applicable wire: AWG #32 to #28
9. 线材绝缘外径 Wire insulation O.D.: 0.4 to 0.8mm



|                                  |    |
|----------------------------------|----|
| 目录(COVER)                        | 1  |
| 料号说明(DESCRIPTION OF ITEM NUMBER) | 2  |
| 图纸(DRAWING)                      | 5  |
| 产品性能测试(PERFORMANCE TEST)         | 16 |
| 实验报告(TEST REPORT)                | 21 |
| 认证(CERTIFICATION)                | 24 |
| PBT RoHS 报告(PBT RoHS REPORT)     | 35 |
| 端子 RoHS报告(TERMINAL RoHS REPORT)  | 45 |
| LCP RoHS 报告(LCP RoHS REPORT)     | 53 |
| MSDS                             | 64 |
| 反馈与建议(FEEDBACK AND SUGGESTIONS)  | 74 |

制订 Edit: 王夫日期 DATE: 2024-05-03审核 Check: 天琴日期 DATE: 2024-05-03批准 Approval: 季育文日期 DATE: 2024-05-03

# NH1.0型料号说明 Description of item number

## 壳体料号说明 HOUSING

|                                                                                                                                                      |                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A 1002 - S H B 02 X2 - N* - * - * - * - * - *                                                                                                        |                                                                                                                                                                                                                            |
| A: Wire to Board Connectors<br>B: Board-in Connectors<br>C: Wire to Wire Connectors<br>D: Hard Splices Connectors<br>F: FFC/FPC Connectors<br>I: IDC |                                                                                                                                                                                                                            |
| 系列号 Series Number                                                                                                                                    |                                                                                                                                                                                                                            |
| 特征类别(默认空)<br>Feature Category: S=锁片型                                                                                                                 |                                                                                                                                                                                                                            |
| 产品类别<br>Product Category:                                                                                                                            | H=壳体 Housing<br>P=密封件 Water Proofing<br>F=配件 Fitting                                                                                                                                                                       |
| 同类别多型号序号(默认空)<br>Same Series Different Type: B-ZZ                                                                                                    |                                                                                                                                                                                                                            |
| 单列极数 The Pin Number of Single Row: 01~**                                                                                                             |                                                                                                                                                                                                                            |
| 多列列数 The Pin Number of Several Row: X2~X* (无则空)                                                                                                      |                                                                                                                                                                                                                            |
| M为堵孔, *为堵孔序号(例M1.2.5)(无则空)                                                                                                                           |                                                                                                                                                                                                                            |
| 壳体材料<br>Housing Material:                                                                                                                            | 1=PA66<br>2=PA66灼热丝-G<br>3=PA46<br>4=PA6T<br>5=PA9T<br>6=PB<br>7=PP<br>8=LCP<br>9=U=UL                                                                                                                                     |
| 壳体材料特性<br>Housing Material Specialty:                                                                                                                | 10=PC<br>11=PA66无卤灼热丝<br>12=PA66高灼热丝B<br>13=PA66增强<br>V2 UL阻燃等级标准(默认不注明)<br>V0 UL阻燃等级标准<br>Z=灼热丝是按照(IEC60695/GB/T5169)标准,<br>符合GWIT750°C, GWF1960°C<br>ZG=灼热丝加玻纤                                                           |
| 壳体颜色<br>Housing Color:                                                                                                                               | OR=橙色 Orange<br>P=粉色 Pink<br>R=红色 Red<br>VI=紫色 Violet<br>Y=黄色 Yellow<br>GY=灰色 Gray<br>BK=黑色 Black<br>G=绿色 Green<br>BL=蓝色 Blue<br>BR=棕色 Brown<br>TR=透明白 Transparent<br>W=白色 White<br>EC=米白 ECRU<br>TG=透明绿 Transparent Green |
| 壳体材料2/3/4/5/8/12默认米色<br>壳体材料7默认黑色<br>壳体材料1/6/9/10/11默认白色<br>壳体材料13默认透明<br>(默认可为空)                                                                    |                                                                                                                                                                                                                            |
| 无卤标识<br>无卤产品加HF,有卤默认为空                                                                                                                               |                                                                                                                                                                                                                            |
| 客户专用代码<br>Customer Special Code: 表示和常规件不同,用来代表某个客户                                                                                                   |                                                                                                                                                                                                                            |
| 备注:*部分内容只在产品标签中体现! 其他特殊要求位置不固定                                                                                                                       |                                                                                                                                                                                                                            |

A 1002 -DHWVB 02 X2-N\*-C\*-\*\*-\*\*-\*--\*\*--\*\*--\*\*--\*\*--

page 3 of 74

# NH1.0型料号说明 Description of item number



## 端子料号说明 TERMINAL

A 1002 N - T 2 2 A 30 5 P 2 (\*) Y - 1 - \* (\*) \*

A: Wire to Board Connectors  
B: Board-in Connectors  
C: Wire to Wire Connectors  
F: FFC/FPC Connectors  
I: IDC  
D: Chain Terminals and Splices

系列号 Series Number

K=直形带锁 N=直形  
Z=旗形带锁 Q=旗形  
X=横插带锁 H=横插  
Y=叉形端子 J=插片  
R=环形端子 C=圆形  
G=接线端子  
W=鲨鱼齿端子  
特征类别(默认空) B=子弹形端子  
Feature Category: U=耳扒形端子

产品类别 Product Category: T=端子 Terminal

同类别多型号序号(默认空)  
Same Series Different Type: 1-9

同型号多尺寸序号(默认空)  
Same Type Different size: 1-9

适用线规(默认空) A=小脚 B=中脚  
Applicable Wire: C=高脚 D=大脚

料带厚度单位: mm X100 (0.3X100=30 默认空)

配合厚度单位: mm X10 (0.5X10=5 默认空)  
注: 所有<灰色>说明, 为D系列分类附加料号及说明!

Z=紫铜 Copper  
S=不锈钢 Stainless Steel  
P=磷青铜 Phos.Bronze  
材质 Material: B=黄铜 Brass

0=素材酸洗 None  
1=镀镍 Nickel Plating  
2=镀亮锡 Tin Plating  
3=镀镍光亮锡 Matt Tin-Nickel Plating  
4=镀铅锡 Tin-Lead Plating  
5=镀铜锡 Tin-Cu Plating  
6=镀镍银 Silver-Nickel Plating  
7=镀镍金 Gold-Nickel Plating  
8=镀镍局部金 Nickel-Gold  
9=镀亮锡局部金 Half Gold-Tin Plating  
表面处理  
Surface processing: 10=镀镍亮锡 Tin-Nickel Plating

镀层厚度(默认为空)

包装说明: Y=有字、N=无字

包装方式: 0=散装(袋装)、1=盘装、4=八角盘装、5=编带装 (常规默认为空)

包装数量: -\*\*K: 客户定制数量,默认数量为空

客户专用代码  
Customer Special Code: 表示和常规件不同,用来代表某个客户

其他说明: 如(U)=UL、软、低铅等

备注:表面处理内容只在产品标签中体现! 其他特殊要求位置不固定

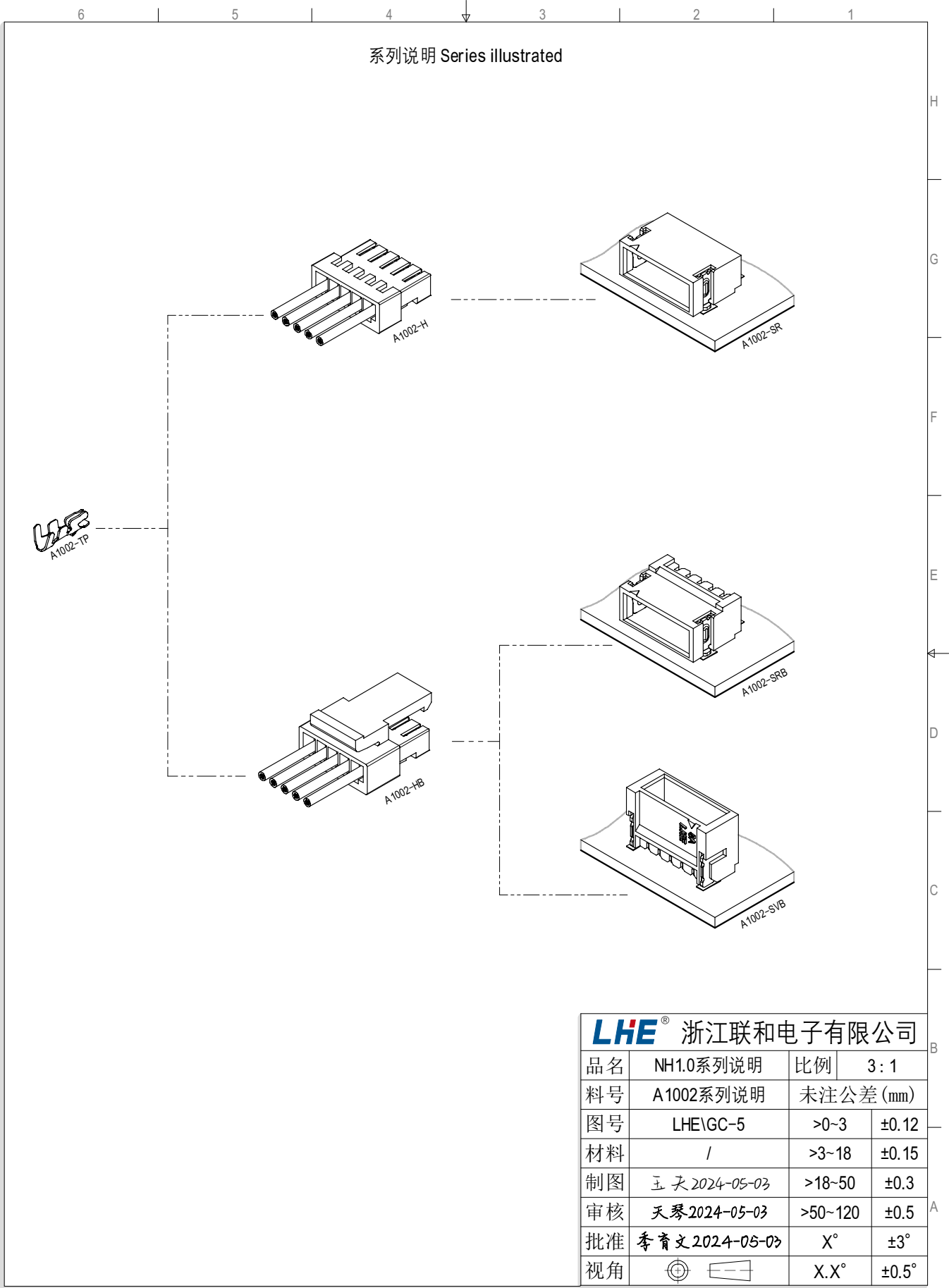
## 其它料号说明 OTHER

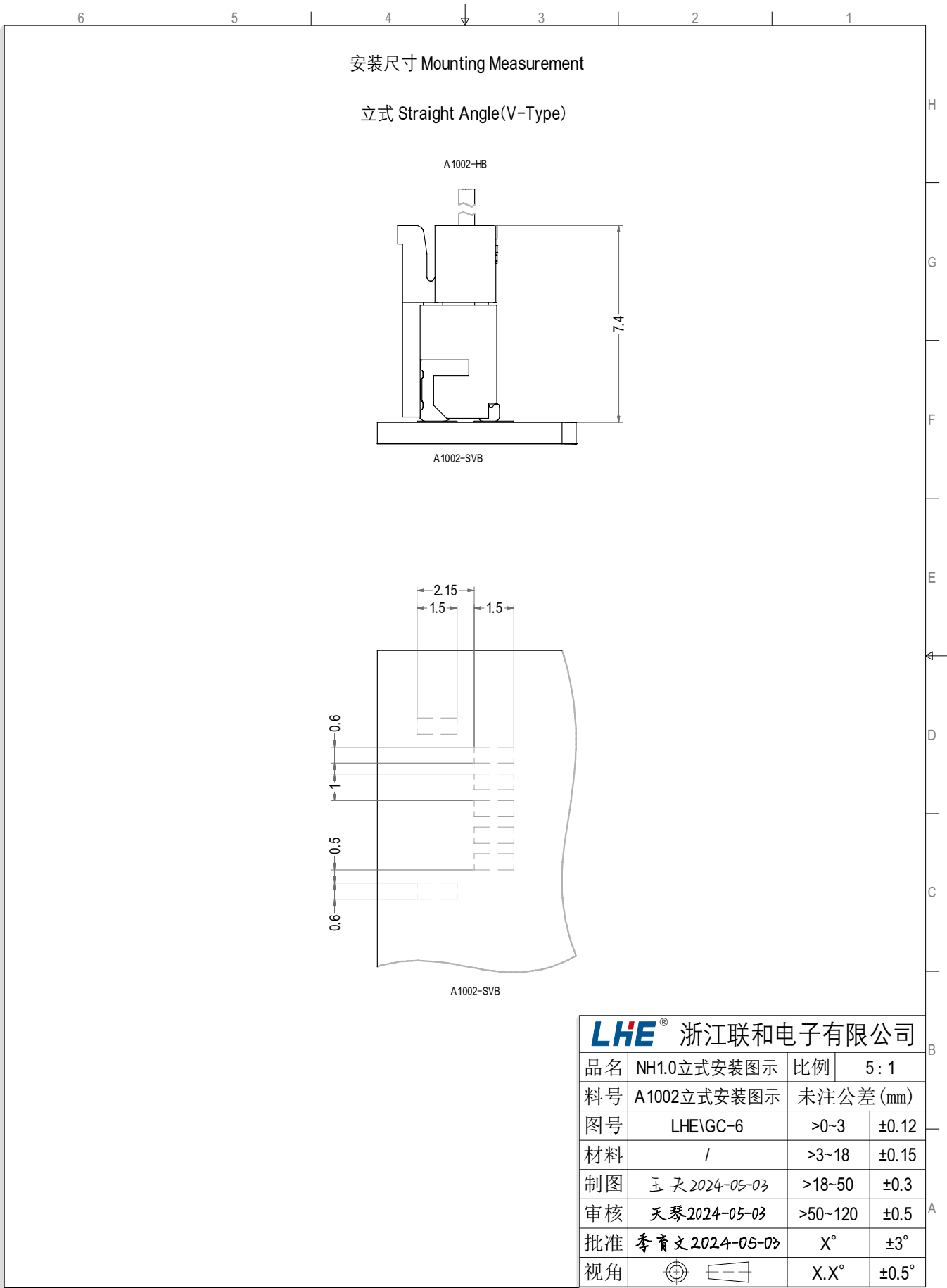
P 0001 - B

P: Other Types

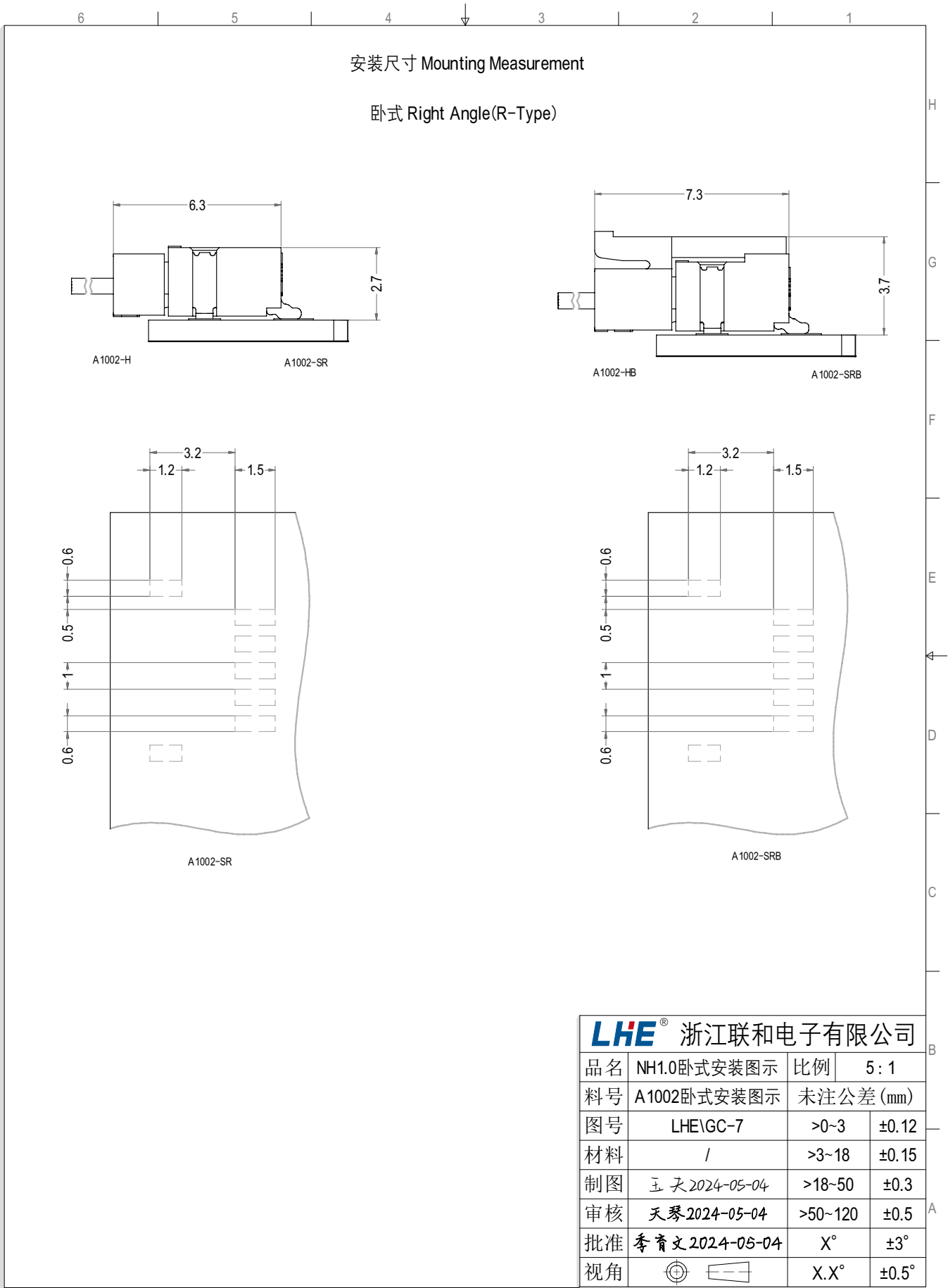
产品序号 Product Number

同型号序号 Same Series Different Type: B-Z  
(默认空)

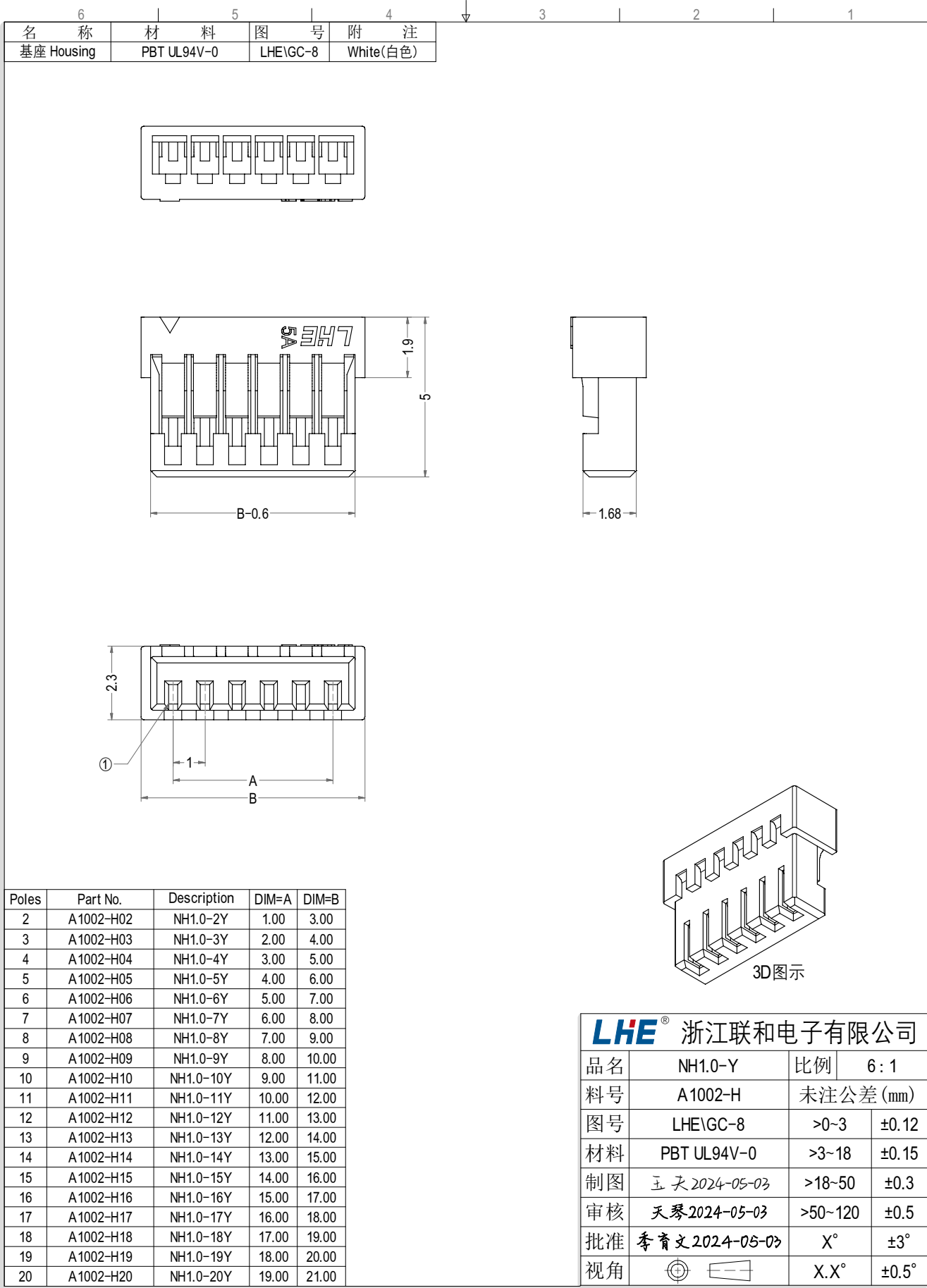




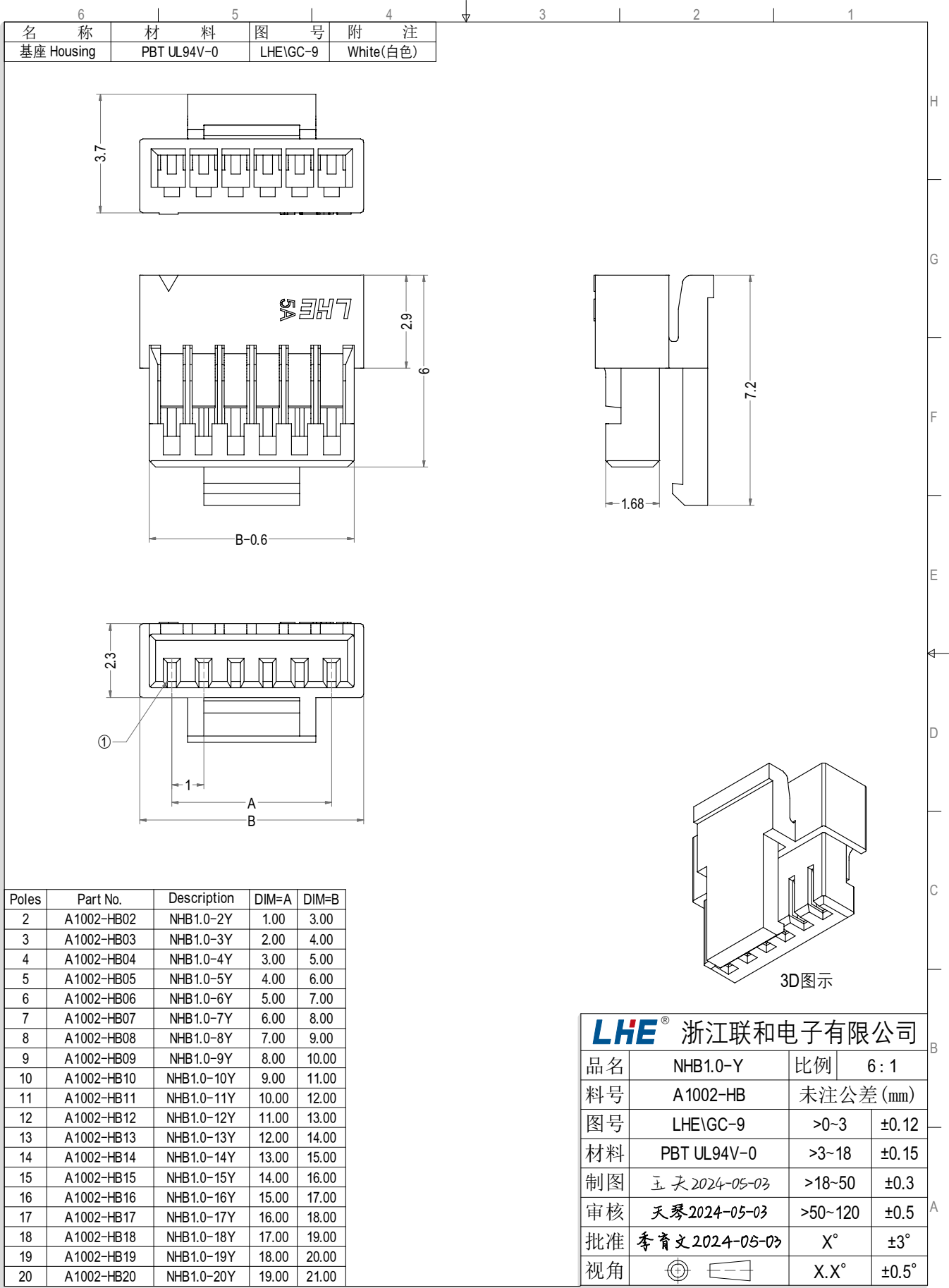
NH1.0安装尺寸 Mounting Measurement



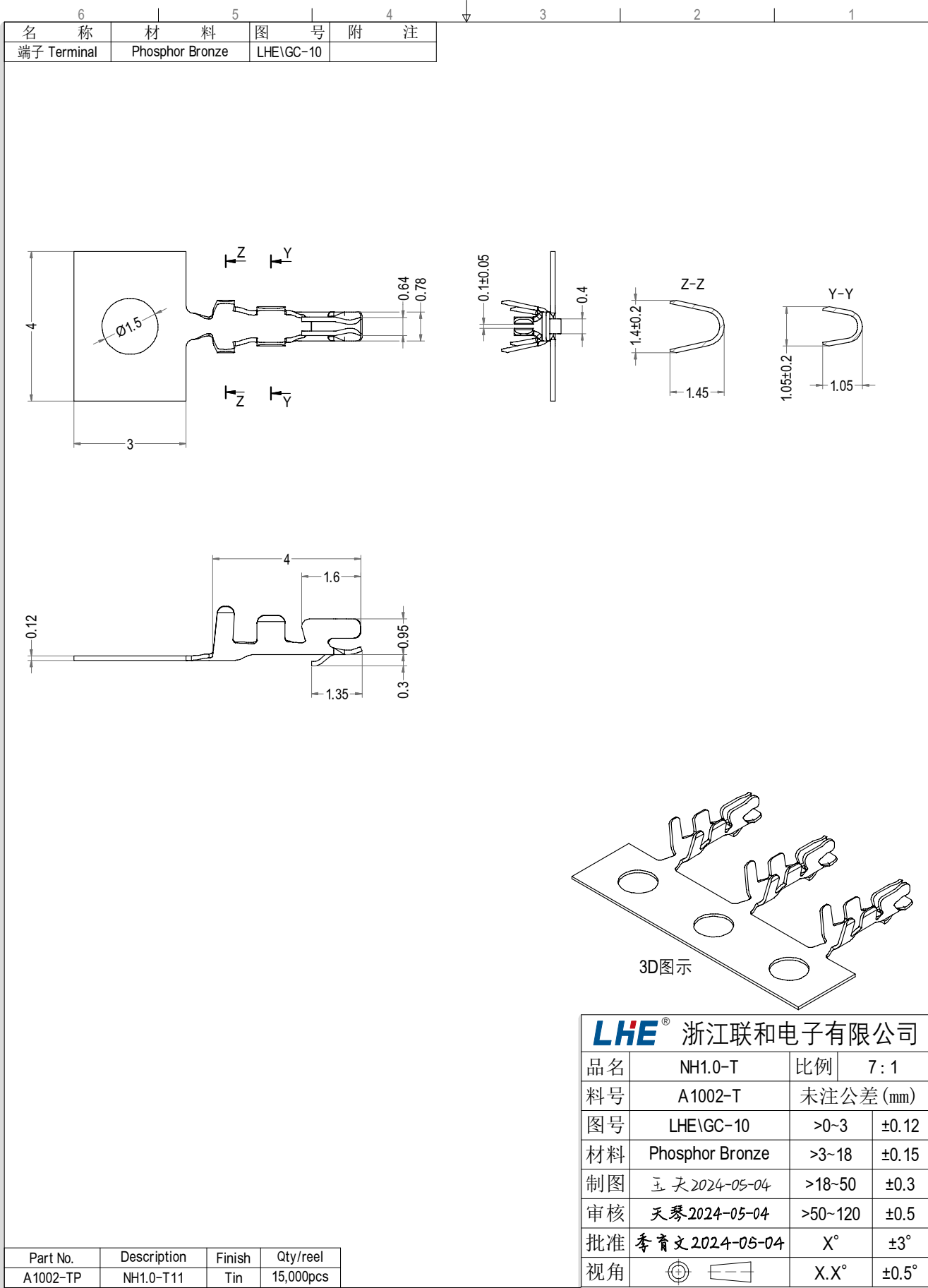
NH1.0型连接器承认书图面



NH1.0型连接器承认书图面



NH1.0型连接器承认书图面



NH1.0型连接器承认书图面



6

5

4

3

2

1

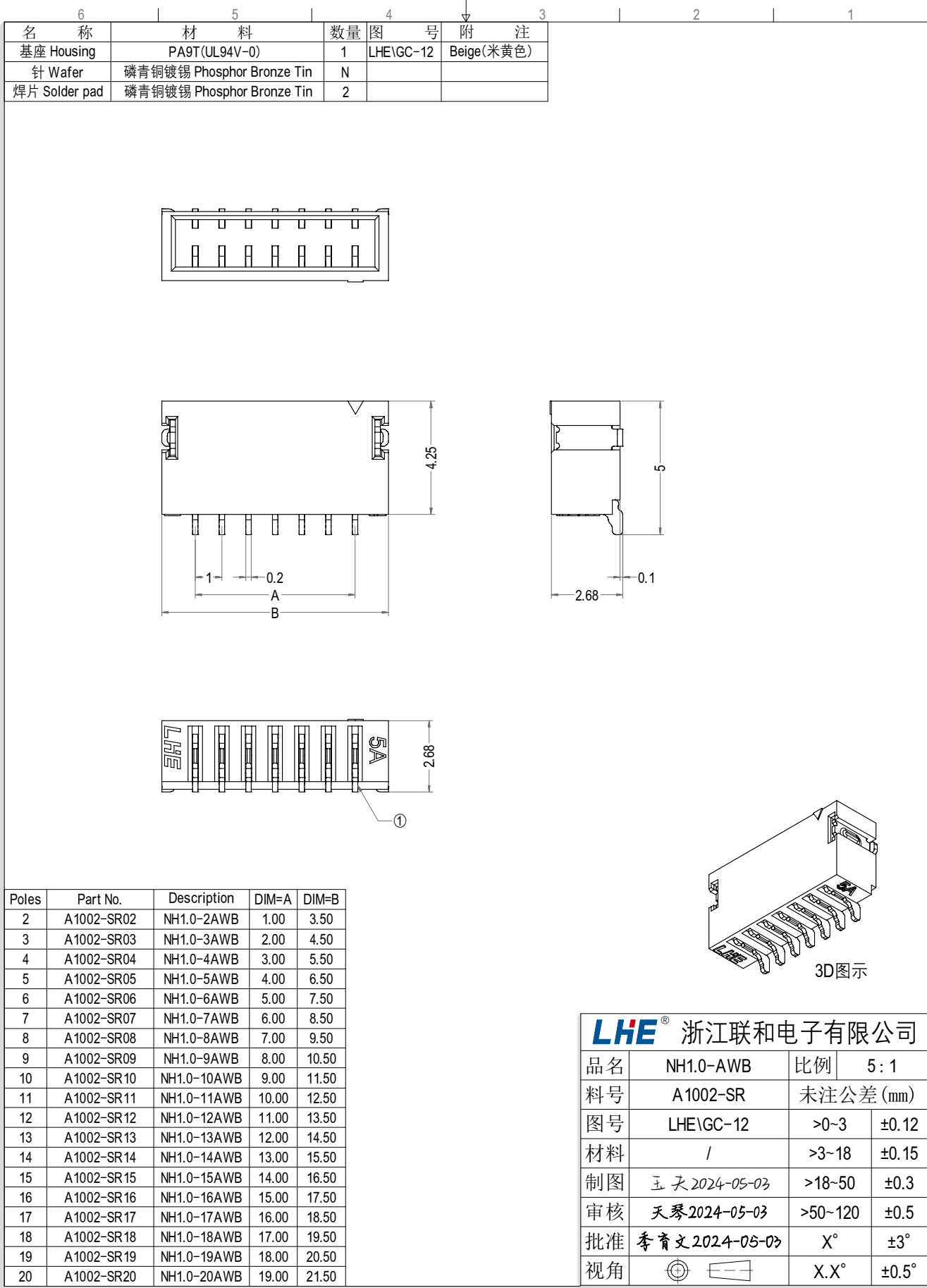
|               |                           |    |           |            |
|---------------|---------------------------|----|-----------|------------|
| 名 称           | 材 料                       | 数量 | 图 号       | 附 注        |
| 基座 Housing    | LCP(UL94V-0)              | 1  | LHE\GC-11 | Beige(米黄色) |
| 针 Wafer       | 磷青铜镀锡 Phosphor Bronze Tin | N  |           |            |
| 焊片 Solder pad | 磷青铜镀锡 Phosphor Bronze Tin | 2  |           |            |
| 盖子 CAP        | LCP(UL94V-0)              | 1  |           | Beige(米黄色) |

| Poles | Part No.     | Description | DIM=A | DIM=B |
|-------|--------------|-------------|-------|-------|
| 2     | A 1002-SVB02 | NHB1.0-2AB  | 1.00  | 4.00  |
| 3     | A 1002-SVB03 | NHB1.0-3AB  | 2.00  | 5.00  |
| 4     | A 1002-SVB04 | NHB1.0-4AB  | 3.00  | 6.00  |
| 5     | A 1002-SVB05 | NHB1.0-5AB  | 4.00  | 7.00  |
| 6     | A 1002-SVB06 | NHB1.0-6AB  | 5.00  | 8.00  |
| 7     | A 1002-SVB07 | NHB1.0-7AB  | 6.00  | 9.00  |
| 8     | A 1002-SVB08 | NHB1.0-8AB  | 7.00  | 10.00 |
| 9     | A 1002-SVB09 | NHB1.0-9AB  | 8.00  | 11.00 |
| 10    | A 1002-SVB10 | NHB1.0-10AB | 9.00  | 12.00 |
| 11    | A 1002-SVB11 | NHB1.0-11AB | 10.00 | 13.00 |
| 12    | A 1002-SVB12 | NHB1.0-12AB | 11.00 | 14.00 |
| 13    | A 1002-SVB13 | NHB1.0-13AB | 12.00 | 15.00 |
| 14    | A 1002-SVB14 | NHB1.0-14AB | 13.00 | 16.00 |
| 15    | A 1002-SVB15 | NHB1.0-15AB | 14.00 | 17.00 |
| 16    | A 1002-SVB16 | NHB1.0-16AB | 15.00 | 18.00 |
| 17    | A 1002-SVB17 | NHB1.0-17AB | 16.00 | 19.00 |
| 18    | A 1002-SVB18 | NHB1.0-18AB | 17.00 | 20.00 |
| 19    | A 1002-SVB19 | NHB1.0-19AB | 18.00 | 21.00 |
| 20    | A 1002-SVB20 | NHB1.0-20AB | 19.00 | 22.00 |

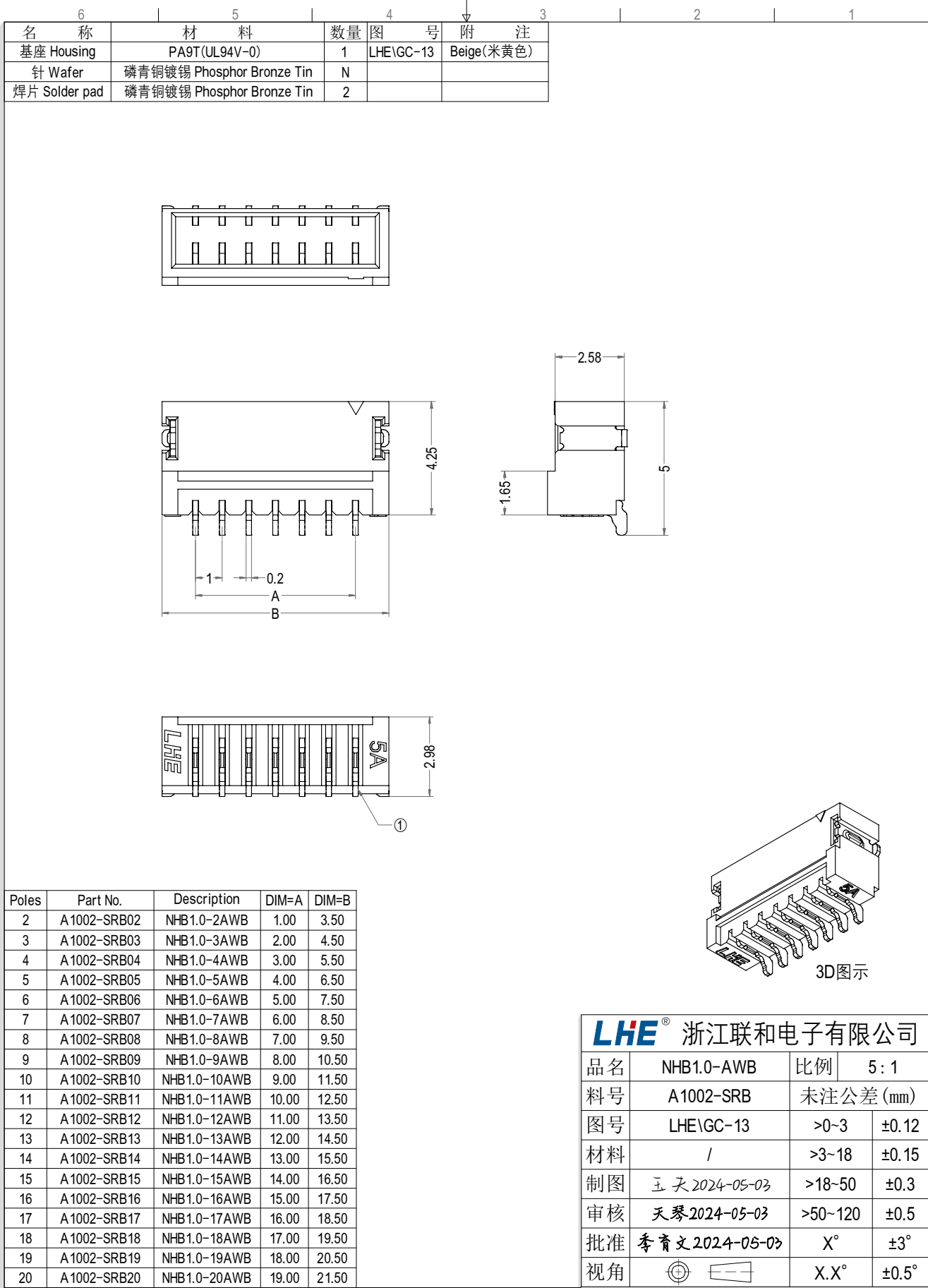
LHE® 浙江联和电子有限公司

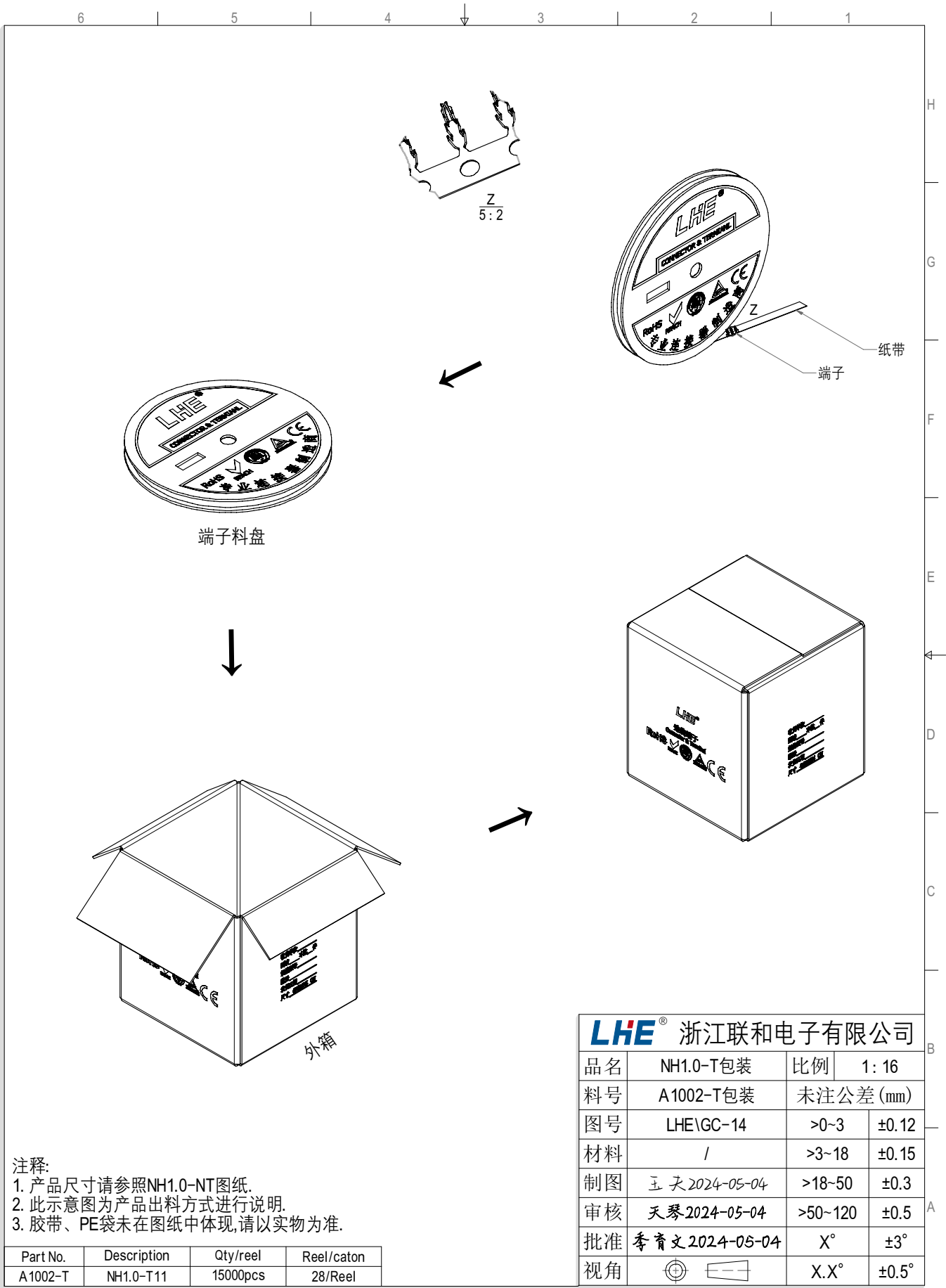
|    |                |          |       |
|----|----------------|----------|-------|
| 品名 | NHB1.0-AB      | 比例       | 5 : 1 |
| 料号 | A1002-SVB      | 未注公差(mm) |       |
| 图号 | LHE\GC-11      | >0~3     | ±0.12 |
| 材料 | /              | >3~18    | ±0.15 |
| 制图 | 王天 2024-05-03  | >18~50   | ±0.3  |
| 审核 | 天琴 2024-05-03  | >50~120  | ±0.5  |
| 批准 | 李育文 2024-05-03 | X°       | ±3°   |
| 视角 |                | X.X°     | ±0.5° |

NH1.0型连接器承认书图面

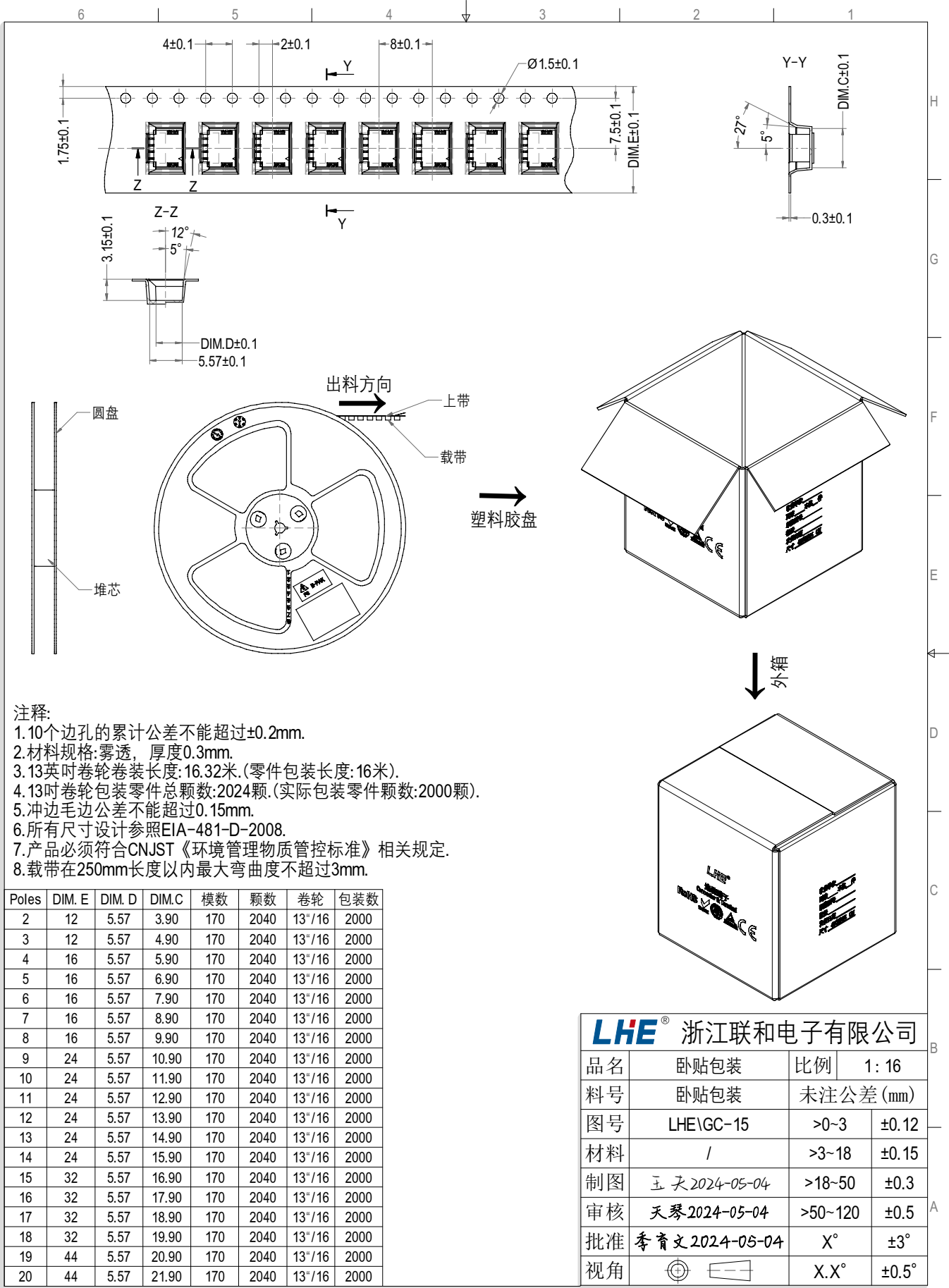


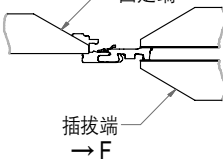
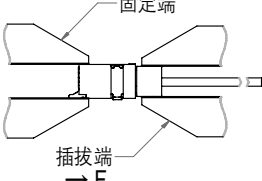
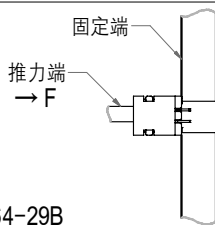
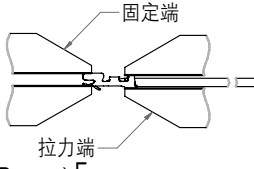
NH1.0型连接器承认书图面





NH1.0型连接器承认书图面



| 项目 Item                                        | 测试条件 Test Condition                                                                                                                                                                                                                                                                       | 规格要求 Requirement                                                                                                                                                                                                                                                                                                                                                                                                         |                               |                                |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------|
| 1.外观<br>Appearance                             | 目测 Visual by eye<br>视力 Light: >1.0<br>照明 Lamp: 200~300Lx<br>目测距离 Space: 0.3~0.5m<br>GB/T 5095.1 Method 1a                                                                                                                                                                                 | 1.塑料件表面应无明显疤痕、凹陷、开裂及影响使用的变形。<br>Plastic part: smooth and flat surface without discolor, broken, crack distortion defects is acceptable.<br>2.金属件表面无锈蚀、氧化、无明显机械损伤等缺陷。<br>Metal part: tight and even surface without rust, oxide, fog and obvious physical damage defects is acceptable.<br>3.导线表面清洁、无破损等缺陷, 印字及标志清晰。<br>Wire: clearing surface without discolor, broken defects, indistinct words and mark is acceptable. |                               |                                |
| 2.壳体/端子固定力<br>Terminal/Housing Retention Force | 固定连接器或测力计, 在连接器轴线方向施加规定的拉力;<br>速度不大于25mm/min。<br>Apply axial pull out force at the speed rate of not more 25mm/min on the pin assembled in the housing.<br>GB/T 5095.8 Method 15d/EIA-364-29B                                                                                             | ≥5N                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |                                |
| 3. 插入力与拔出力<br>Insertion and Withdrawal Force   | 单PIN相配的接触器以1mm/s~5mm/s的速度沿接插器轴线方向插入和拔出。<br>Insertion and withdraw single contact at the speed rate of 1mm/s~5mm/s.                                                                                     | 极数<br>Poles                                                                                                                                                                                                                                                                                                                                                                                                              | 插入力(最大值N)<br>Insertion(N Max) | 拔出力(最小值N)<br>Withdrawal(N Min) |
|                                                | 相配的连接以1mm/s~5mm/s的速度沿接插器轴线方向插入和拔出。<br>Insertion and withdraw connectors at the speed rate of 1mm/s~5mm/s.<br>GB/T 5095.7 Method 13b/EIA-364-13B                                                       | 1                                                                                                                                                                                                                                                                                                                                                                                                                        | 1st<br>5.0                    | 1st<br>0.5                     |
| 4. 针的固定力<br>Pin Retention Force                | 固定连接器或测力计, 在连接器轴线方向对针施加规定的推力;<br>速度不大于25mm/min。<br>Apply axial push out force at the speed rate of not more 25mm/minute on the terminal assembled in the base.<br>GB/T 5095.8 Method 15a/ EIA-364-29B  | ≥2N                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |                                |
| 5. 压着部位抗拉强度<br>Crimping Pull Out Force         | 在试验装置夹头中固定测试样品, 在连接的轴线方向施加拉力;<br>速度不大于25mm/min。<br>Fix the crimped terminal, apply axial pull out force on the wire at the speed rate of not more 25mm/min.<br>GB/T 5095.8 Method 16d/EIA-364-08B     | AWG.28#                                                                                                                                                                                                                                                                                                                                                                                                                  | ≥11N                          |                                |
|                                                |                                                                                                                                                                                                                                                                                           | AWG.30#                                                                                                                                                                                                                                                                                                                                                                                                                  | ≥7N                           |                                |
|                                                |                                                                                                                                                                                                                                                                                           | AWG.32#                                                                                                                                                                                                                                                                                                                                                                                                                  | ≥5N                           |                                |
|                                                |                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |                                |

| 项目 Item                                     | 测试条件 Test Condition                                                                                                                                                                                                                                                                                                                                                                                                                          | 规格要求 Requirement                   |                         |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------|
| 6. 机械振动<br>Vibration                        | 插合连接器, 串联在一直流电源上, 电流100mA;<br>并模拟正常工作状态, 振频为10~55Hz、振幅1.5mm;<br>每一轴线扫频循环次数10次、2小时。<br>Frequency: 10~55Hz Amplitude: $\pm 1.5\text{mm}$<br>Duration: 2 hours in each X,Y,Z axes<br>GB/T 5095.4 Method 6d/EIA-364-28D                                                                                                                                                                                                                          | 外观<br>Appearance                   | 无损伤<br>No Damage        |
|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                              | 接触电阻<br>Contact Resistance<br>LLCR | $\leq 40\text{m}\Omega$ |
| 7. 机械冲击<br>Shock                            | 连接器相配, 沿X,Y,Z三轴正反方向各冲击3次(总共18次),<br>在测试过程中通以100mA电流。<br>冲击强度: $490\text{m/s}^2$ 持续时间: 11ms<br>Mated connectors and subject to the following shock<br>conditions, 3 times of shock shall be applied for each 6 directions<br>along 3 mutually perpendicular axes, passing DC 100mA current<br>during the test (Total of 18 shocks) Test Pulse:<br>Half Sine Peak Value: $490\text{m/s}^2$ Duration: 11ms<br>GB/T 5095.4 Method 6c/EIA-364-27B | 中断 Intermittence                   | $\leq 1\mu\text{ sec}$  |
|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                              | 外观<br>Appearance                   | 无损伤<br>No Damage        |
| 8. 机械寿命<br>Repeated<br>insertion/withdrawal | 以每分钟插拔10次的速率, 插拔50次。<br>When mated up to 50 cycles repeatedly by the rate of 10 cycles<br>per minute.<br>GB/T 5095.5 Method 9a/EIA-364-09C                                                                                                                                                                                                                                                                                                   | 接触电阻<br>Contact Resistance<br>LLCR | $\leq 40\text{m}\Omega$ |
|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                              | 外观<br>Appearance                   | 无损伤<br>No Damage        |
| 9. 接触电阻<br>Contact Resistance               | 插合连接器, 用小功率电路进行测试。<br>Mate connectors, measure by dry circuit.<br>GB/T 5095.2 Method 2a/EIA-364-23B                                                                                                                                                                                                                                                                                                                                          | $\leq 20\text{m}\Omega$            |                         |
| 10. 绝缘电阻<br>Insulation Resistance           | 在相邻接触件之间或地线之间, 用500V DC电压进行测试。<br>Apply 500V DC between adjacent terminal or ground.<br>GB/T 5095.2 Method 3a/EIA-364-21C                                                                                                                                                                                                                                                                                                                    | $\geq 100\text{M}\Omega$           |                         |
| 11. 耐电压<br>Dielectric Strength              | 相邻接触件之间或地线之间施加50Hz 500V AC(有效值),<br>漏电流1mA的电压作用, 时间1min。<br>Mate connectors, apply 500V AC for 1 minute between adjacent<br>terminal or ground.<br>GB/T 5095.2 Method 4a/EIA-364-20B                                                                                                                                                                                                                                                         | 无击穿和飞弧现象<br>No Breakdown           |                         |
| 12. 温度上升<br>Temperature Rise                | 插合连接器, 通以最大允许电流。<br>GB/T 5095.3 Method 5a/EIA-364-70A                                                                                                                                                                                                                                                                                                                                                                                        | 温度最大上升<br>Temperature Rise         | $\leq 30^\circ\text{C}$ |
| 13. 耐高温<br>Heat Resistance                  | 连接器配合后, 于 $+105^\circ\text{C} \pm 2^\circ\text{C}$ 的空气中放置96小时, 然后再回到<br>室温中放置1~2小时测定<br>Mated connectors are exposed to a temperature of $+105^\circ\text{C} \pm 2^\circ\text{C}$<br>for 96 hours.<br>GB/T 5095.6 Method 11i /EIA-364-17B                                                                                                                                                                                                    | 外观<br>Appearance                   | 无损伤<br>No Damage        |
| 14. 耐低温<br>Clod Resistance                  | 连接器配合后, 于 $-25^\circ\text{C} \pm 2^\circ\text{C}$ 的空气中放置96小时, 然后再回到<br>室温中放置1~2小时测定<br>Mated connectors are exposed to a temperature of $-25^\circ\text{C} \pm 2^\circ\text{C}$<br>for 96 hours.<br>GB/T 5095.6 Method 11i /EIA-364-17B                                                                                                                                                                                                      | 接触电阻<br>Contact Resistance<br>LLCR | $\leq 40\text{m}\Omega$ |

| 项目 Item                                                                 | 测试条件 Test Condition                                                                                                                                                                                                                                                                          | 规格要求 Requirement                                                                                                                                                                                                                                                                |                  |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 15. 恒定湿热<br>Humidity                                                    | 温度 Temperature: 40±2°C<br>相对湿度 Relative Humidity: 90%~95%<br>搁置时间 Duration: 96h, 取出恢复2小时后检查<br>GB/T 5095.6 Method 11c/EIA-364-31B                                                                                                                                                            | 外观<br>Appearance                                                                                                                                                                                                                                                                | 无损伤<br>No Damage |
|                                                                         |                                                                                                                                                                                                                                                                                              | 耐电压<br>Dielectric Strength                                                                                                                                                                                                                                                      | 500V             |
| 16. 温度循环<br>Temperature cycle                                           | 把测试样品放入高低温试验箱中,按下列步骤调试温度:<br>a)在-25°C±2°C的恒温条件下放置0.5小时;<br>b)在+105°C±2°C的恒温条件下放置0.5小时;<br>从a)到b)为一个循环周期,共进行5个循环。恢复1h后检查。<br>状态转换时间不多于1小时。<br>Mated connectors are exposed to 5 cycles of:<br>a)-25°C±2°C 0.5hour b)+105°C±2°C 0.5hour<br>GB/T 5095.6 method 11d/EIA-364-32C                  | 绝缘电阻<br>Insulation Resistance                                                                                                                                                                                                                                                   | ≥ 100MΩ          |
|                                                                         |                                                                                                                                                                                                                                                                                              | 接触电阻<br>Contact Resistance<br>LLCR                                                                                                                                                                                                                                              | ≤ 40mΩ           |
| 17.盐雾<br>Salt Spray                                                     | 把先冲后镀*的测试样品从试验箱顶悬挂下来,采用浓度为5%±1(质量百分比)的氯化钠溶液,连续雾化24小时,试验后用流动的蒸馏水轻轻洗去表面沉积物。在常温常驻湿条件下恢复1~2小时。<br>24 hour exposure to a saltspray from the 5%±1 solution.<br>GB/T 5095.6 Method 11f/EIA-364-26B                                                                                                  | 外观无损伤(五金件应无露出底金属的严重锈蚀;使用预镀的型材,其落料面允许有不影响其性能的轻微腐蚀。)<br>Appearance:No Damage(No erosion with material exposed.And with plating material,slight erosion on the cutting surface acceptable)                                                                                         |                  |
| 18. 可焊性<br>Solderability                                                | 把测试样品需要焊接的部位浸入焊锡炉中(锡炉温度235°C±5°C)2±0.5秒钟。<br>Soldering time: 2±0.5 sec Solder Temperature:235°C±5°C<br>GB/T 5095.6 Method 12a/EIA-364-52                                                                                                                                                     | 上锡率≥90%<br>90% of immersed area must show no voids,pin holes                                                                                                                                                                                                                    |                  |
| 19. 耐焊接热<br>Resistance to Soldering Heat                                | 把测试样品需要焊接的部位浸入焊锡炉中(锡炉温度260°C±5°C);5±1秒钟后,在正常的条件下恢复1小时。<br>Soldering time: 5±1 sec Solder Temperature:260°C±5°C<br>GB/T 5095.6 Method 12d/EIA-364-56A                                                                                                                                         | 外观<br>Appearance                                                                                                                                                                                                                                                                | 无损伤<br>No Damage |
| 20. 灼热丝测试<br>Glow Wire<br>(只针对GWT750°C产品<br>Only for GWT750°C products) | 750C灼热丝顶部接触试验样品,<br>接触时间:(30±1) s<br>接近和离开速率: 10mm/s~25mm/s<br>灼热丝进入或贯穿试验样品深度:(7±0.5) mm<br>750°C glow wire contacts with mated connector.<br>Time: (30+1) s<br>Speed of closing to and leaving: 10mm/s-25mm/s<br>Depth that glow wire penetrates mated connector: ( 7-05 mm<br>GB/T 5169.10 | 1.试验样品燃烧时间不超过2s。<br>The time that mated connector burns is not more than 2s.<br>2、灼热丝离开后的30s内样件无火焰或灼热情况,且无滴落物或滴落物不燃烧。<br>30s after glow wire leaves mated connector, it does not burn or is no incandescence and it does not fall something or falling something does not burn. |                  |
| 21. 耐酸性(二氧化硫)<br>Acid resistance(SO <sub>2</sub> )                      | 连接器闭合连接,3±1ppm,<br>40±2°C.96 小时<br>Mated connector,3±1ppm,40±2°C<br>Duration 96hours<br>GB/T2423.51                                                                                                                                                                                          | 接触电阻<br>Contact Resistance<br>LLCR                                                                                                                                                                                                                                              | ≤ 40mΩ           |

| 项目 Item                 | 测试条件 Test Condition                                                                                                                                                 | 规格要求 Requirement                   |       |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------|
| 22.氨气测试<br>Ammonia test | 连接器闭合连接，放置于浓度为 25 mL/L 的 3% 的 NH <sub>3</sub> 的空气中7小时<br>Mated connector is put into atmosphere that rated 25 ml/L of 3% NH <sub>3</sub> for 7 hours<br>GB/T2423.51 | 接触电阻<br>Contact Resistance<br>LLCR | ≤40mΩ |

\* 先冲后镀为定制端子。常规端子为先镀后冲, 无法通过盐雾试验。

制订 Edit: 王夫

日期 DATE: 2024-05-03

审核 Check: 天琴

日期 DATE: 2024-05-03

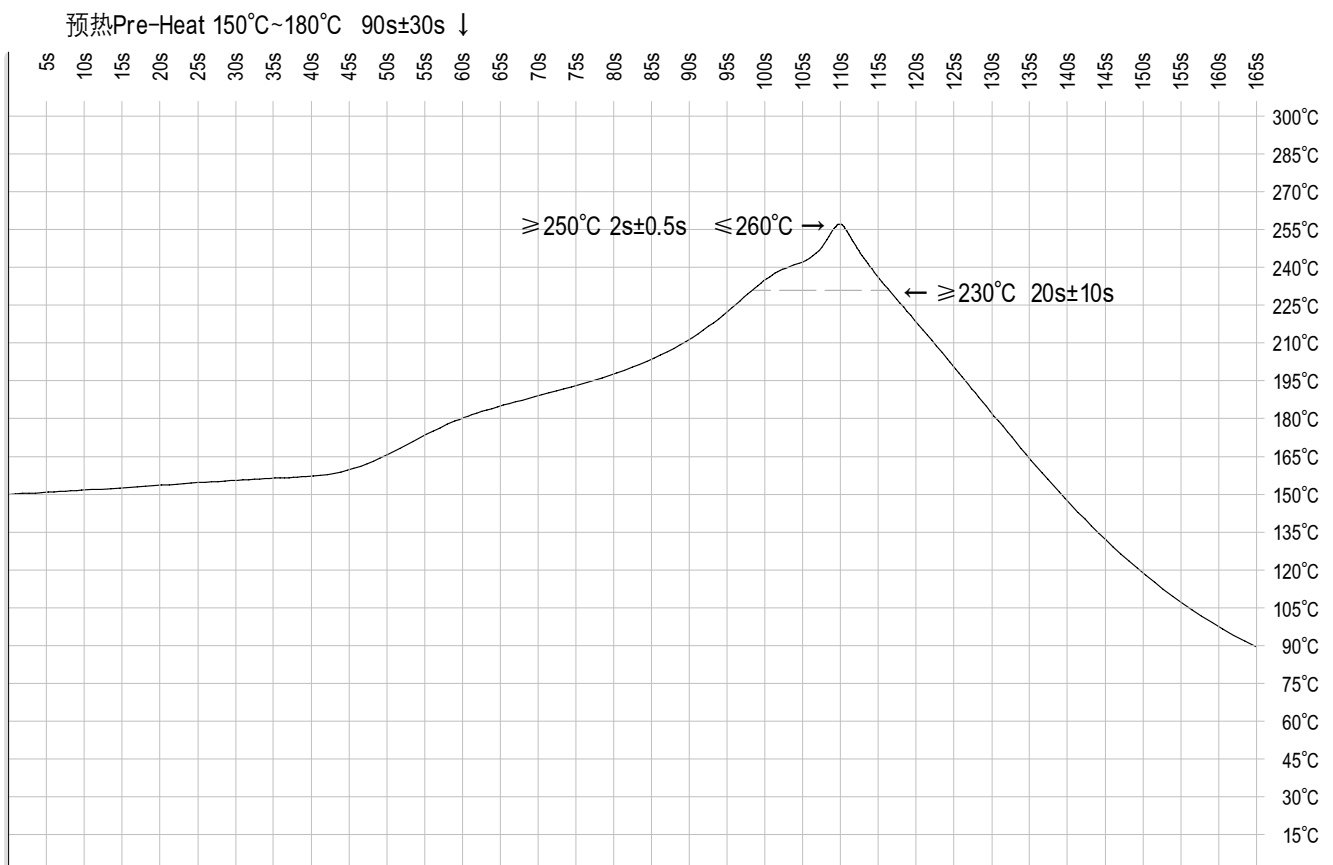
批准 Approval: 季育文

日期 DATE: 2024-05-03

## 无铅回流焊要求 Pb-free reflow profile requirements

| 参数 Parameter                                     | 参考 Reference | 规格 Specification |
|--------------------------------------------------|--------------|------------------|
| 平均温度梯度预热 Average Temperature Gradient Preheating |              | 2.5°C/s          |
| 浸泡时间 Soak time                                   | tsoak 2-3    | minutes          |
| 150°C以上时间 Time above 150°C                       | T1           | 60s              |
| 180°C以上时间 Time above 180°C                       | T2           | 50s              |
| 250°C以上时间 Time above 250°C                       | T3           | 2±0.5s           |
| 焊接温度 Peak temperature in reflow                  | Tpeak        | 255°C (-0/+5°C)  |
| 温度梯度的冷却 Temperature gradient in cooling          |              | Max -5°C/s       |

## 温度条件图 TEMPERATURE CONDITION GRAPH



注: 对耐热性的最低要求, 是在回流焊中使用空气对流的传热方法评估焊接部件。该曲线图表明需要达到规定的空气温度, 而实际过程很大程度上取决于回流焊装置。

Note: The minimum required heat resistance of the section is to evaluate the welded components. Heat transfer method is used for hot air convection in reflow welding. The actual air temperature used to achieve the specified profile depends largely on the reflow device.

| LHE® 浙江联和电子有限公司                                                                                        |                                                                                                |                    |                    |          |                          |                          |       |     |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------|--------------------|----------|--------------------------|--------------------------|-------|-----|
| 产品性能测试报告                                                                                               |                                                                                                |                    |                    |          |                          |                          |       |     |
| 品名<br>(DESCRIPTION)                                                                                    | NH1.0                                                                                          |                    | 测定者<br>(Inspector) | 吴智原      | 测定条件<br>(Test Condition) | 温度: 22℃<br>(Temperature) |       |     |
| 料号<br>(MODEL NO.)                                                                                      | A1002                                                                                          |                    | 日期<br>(Date)       | 2024/3/5 |                          | 湿度: 65% (Humidity)       |       |     |
| 试验项目<br>(Test Title)                                                                                   | 规格<br>(Specification)                                                                          |                    | 测定值(Data)          |          |                          |                          |       | COM |
|                                                                                                        |                                                                                                |                    | X1                 | X2       | X3                       | X4                       | X5    |     |
| 带线胶壳与针座插拔力<br><带锁扣><br>(Connector assemble with cable and wafer. mating and unmating force with latch) | 2 pin Unit: N<br>Mating force 20 max.<br>Unmating force 16 min.                                | 插入(Mating)         | 5.25               | 6.50     | 6.00                     | 5.00                     | 6.25  | ok  |
|                                                                                                        |                                                                                                | 拔出(Unmating)       | 31.50              | 33.00    | 29.50                    | 29.00                    | 30.50 | ok  |
|                                                                                                        | 8 pin Unit: N<br>Mating force 50 max.<br>Unmating force 19 min.                                | 插入(Mating)         | 19.50              | 22.0     | 23.50                    | 20.50                    | 21.00 | ok  |
|                                                                                                        |                                                                                                | 拔出(Unmating)       | 45.50              | 46.00    | 43.50                    | 43.00                    | 44.50 | ok  |
| 端子和胶壳的固定力<br>(Terminal Retention in housing)                                                           | 5N Min                                                                                         |                    | 8.25               | 9.50     | 8.00                     | 11.25                    | 10.50 | ok  |
| 端子和插针单独插入力<br>(Single terminal and PIN withdrawal force)                                               | 5N Max                                                                                         |                    | 1.75               | 1.25     | 1.50                     | 2.00                     | 2.25  | ok  |
| 端子和插针单独拔出力<br>(Single terminal and PIN withdrawal force)                                               | 0.5N Min                                                                                       |                    | 1.00               | 1.25     | 1.00                     | 1.00                     | 0.75  | ok  |
| 插针和壳体的固定力<br>(PIN Retention in insulator)                                                              | 10N Min                                                                                        |                    | 25.00              | 27.00    | 22.00                    | 23.00                    | 25.00 | ok  |
| 锁扣固定力<br>(Latch force)                                                                                 | 15N Min(2 PIN)                                                                                 |                    | 27.00              | 29.00    | 28.00                    | 27.50                    | 29.50 | ok  |
| 盐雾试验<br>(Salt spray)                                                                                   | 雾化24小时, 后镀端子不能有腐蚀现象<br>(Spray time:24 hours, terminals stamping then plating must not corrode) |                    | PASS               | PASS     | PASS                     | PASS                     | PASS  | ok  |
|                                                                                                        | 接触电阻<br>(Contact Resistance)                                                                   | 40m Ω Max          | 11.7               | 12.4     | 11.5                     | 13.2                     | 12.9  | ok  |
| 温度循环<br>(Temperature cycling)                                                                          | 外观<br>(Appearanc)                                                                              | 无损伤<br>(No damage) | PASS               | PASS     | PASS                     | PASS                     | PASS  | ok  |
|                                                                                                        | 接触电阻<br>(Contact Resistance)                                                                   | 40m Ω Max          | 11.90              | 12.80    | 12.40                    | 13.90                    | 13.40 | ok  |
|                                                                                                        | 绝缘电阻<br>(Insulation Resistance)                                                                | 100M Ω Min         | PASS               | PASS     | PASS                     | PASS                     | PASS  | ok  |
|                                                                                                        | 耐电压<br>(Dielectric Withstanding Voltage)                                                       | 500V,AC/minute     | PASS               | PASS     | PASS                     | PASS                     | PASS  | ok  |

## 针焰实验(Needle flame experiment)

|                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |     |     |     |    |                  |  |
|-------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|-----|-----|----|------------------|--|
| 测试目的(Test Purposes)     |                                                                                     | 确定AB11069W-S16-10产品在针焰条件下是否符合标准要求<br>Determine if the AB11069W-S16-10 Does the product meet the standard requirements under the condition of needle flame                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |     |     |     |    |                  |  |
| 测试条件(Test Conditions)   |                                                                                     | 温度35±2℃<br>Temperature 35 ± 2 ℃;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                     |     |     |     |    |                  |  |
| 测试方法(Test Method)       |                                                                                     | 对产品施加试验火焰持续时间为 12s。火焰高度 12mm±1mm<br>The test flame was applied to the product for 12 s. Flame height 12 mm ± 1 mm                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     |     |     |     |    |                  |  |
| 参照标准(With Reference to) |                                                                                     | GB/T5169.5-2008                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |     |     |     |    |                  |  |
| 判定标准(Test Standard )    |                                                                                     | a. 试验样品无火焰和灼热, 并且规定的铺底层或包装绢纸没有起燃<br>b. 在移开针焰后, 试验样品和周围的零部件的火焰或灼热在 30s 之内熄灭, 即 tb< 30s, 而且周围的零部件没有完全烧毁, 以及规定的铺底层或包装绢纸没有起燃。<br>a. The test sample has no flame and heat, and the specified bedding or wrapping paper does not ignite<br>b. After removing the needle flame, the flame or burning heat of the test sample and the surrounding parts will be extinguished within 30s, i.e. TB < 30s, and the surrounding parts are not completely burnt out, and the specified underlay or wrapping silk paper does not ignite |                                                                                     |     |     |     |    |                  |  |
| 测试设备(Test Equipment)    |                                                                                     | 针焰试验机<br>Needle flame testing machine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     |     |     |     |    |                  |  |
| 测试程序 (Test Program)     |                                                                                     | 外观检验→固定样品→试验启动 →观察→记录起火时间                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |     |     |     |    |                  |  |
| (The test results)      | 测试图片Test Picture                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                     |     |     |     |    |                  |  |
|                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |     |     |     |    |                  |  |
|                         | 项次<br>Items                                                                         | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2                                                                                   | 3   | 4   | 5   | 备注 |                  |  |
|                         | 第一组<br>group1                                                                       | 无起燃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 无起燃                                                                                 | 无起燃 | 无起燃 | 无起燃 | /  |                  |  |
|                         | 第二组<br>group2                                                                       | 无起燃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 无起燃                                                                                 | 无起燃 | 无起燃 | 无起燃 | /  |                  |  |
|                         | 结果results                                                                           | OK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | OK                                                                                  | OK  | OK  | OK  | /  |                  |  |
| (The results determine) | 样品数量<br>The Number of Samples<br>8PCS                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 合格数<br>The Number of competency                                                     |     |     | 10  |    | 结 果Results<br>OK |  |
|                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 不合格数Unqualified                                                                     |     |     | 0   |    |                  |  |
|                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 外观Appearances                                                                       |     |     | OK  |    |                  |  |

核准 (Approved): 陈 浙 海

测试人 (Testing Person): 王 夫

## 灼热丝实验(Glow wire experiment)

|                                 |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                 |                                                                                     |              |              |                                                                                       |                        |                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|--------------|--------------|---------------------------------------------------------------------------------------|------------------------|------------------------|
| 测试目的(Test Purposes)             |                                                                                                                                                                                                                                                      | 确定AB11069W-S16-10灼热丝材料产品在灼热丝条件下是否符合标准要求<br>Determine if the AB11069W-S16-10 Does the product meet the standard requirements under the condition of glow wire                                                         |                 |                                                                                     |              |              |                                                                                       |                        |                        |
| 测试条件(Test Conditions)           |                                                                                                                                                                                                                                                      | 灼热丝起燃温度(GWIT)记录值为起始温度加 25K(对于 900℃和 930℃则是 30K, 960℃记为 GWIT:>960/厚度)<br>Gwire ignition temperature(GWIT)recorded value is the starting temperature plus 25K(for 900℃ and 930℃ is 30K, 960℃ is GWIT:>960 / thickness) |                 |                                                                                     |              |              |                                                                                       |                        |                        |
| 测试方法(Test Method)               |                                                                                                                                                                                                                                                      | 施加试验火焰持续时间为 30s。试验温度 750℃<br>The test flame duration was 30 s. Test temperature: 750 ℃                                                                                                                               |                 |                                                                                     |              |              |                                                                                       |                        |                        |
| 参照标准(With Reference to)         |                                                                                                                                                                                                                                                      | 根据 GB/T 5169.12-2006 及 GB/T 5169.13-2013 执行。                                                                                                                                                                         |                 |                                                                                     |              |              |                                                                                       |                        |                        |
| 判定标准(Test Standard )            |                                                                                                                                                                                                                                                      | 试验样条无火焰, 并且规定的铺底层或包装绢纸没有起燃。<br>The test sample has no flame and heat, and the specified bedding or wrapping paper does not ignite                                                                                    |                 |                                                                                     |              |              |                                                                                       |                        |                        |
| 测试设备Test Equipment)             |                                                                                                                                                                                                                                                      | 灼热丝试验仪<br>Glow-wire tester                                                                                                                                                                                           |                 |                                                                                     |              |              |                                                                                       |                        |                        |
| 测试程序 (Test Program)             |                                                                                                                                                                                                                                                      | 外观检验→固定样条→试验启动 →观察→记录起火时间                                                                                                                                                                                            |                 |                                                                                     |              |              |                                                                                       |                        |                        |
| (The test results)              | 测试图片Test Picture                                                                                                                                                                                                                                     |                                                                                                                                                                                                                      |                 |                                                                                     |              |              |                                                                                       |                        |                        |
|                                 |                                                                                                                                                                   |                                                                                                                                                                                                                      |                 |  |              |              |  |                        |                        |
|                                 | 材料规格                                                                                                                                                                                                                                                 | 试片尺寸<br>(长 X 宽 X 厚)                                                                                                                                                                                                  | 起始<br>温度<br>(℃) | 样品                                                                                  | 起燃时间<br>(Ti) | 熄灭时间<br>(Te) | 现象记录                                                                                  | GWIT                   | GWFI                   |
|                                 |                                                                                                                                                                                                                                                      | 单位:mm                                                                                                                                                                                                                |                 |                                                                                     | 单位:秒         |              |                                                                                       | 判定:PASS 或 FAIL         |                        |
|                                 | A66V0 002                                                                                                                                                                                                                                            | 60X60X2.5                                                                                                                                                                                                            | 750             | 第 1 个                                                                               | 不起燃          | /            | 不起燃,无滴落                                                                               | PASS<br>(GWIT:775/2.5) | PASS<br>(GWFI:750/2.5) |
|                                 |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                 | 第 2 个                                                                               | 不起燃          | /            | 不起燃,无滴落                                                                               |                        |                        |
|                                 |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                 | 第 3 个                                                                               | 不起燃          | /            | 不起燃,无滴落                                                                               |                        |                        |
|                                 | A66V0 002                                                                                                                                                                                                                                            | 60X60X2.5                                                                                                                                                                                                            | 775             | 第 1 个                                                                               | 不起燃          | /            | 不起燃,无滴落                                                                               | FAIL                   | PASS<br>(GWFI:775/2.5) |
|                                 |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                 | 第 2 个                                                                               | 不起燃          | /            | 不起燃,无滴落                                                                               |                        |                        |
|                                 |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                 | 第 3 个                                                                               | 8            | 26           | 接触后很快就起燃,熔融但无滴落,起燃后 26S 熄灭                                                            |                        |                        |
|                                 | A66V0 002                                                                                                                                                                                                                                            | 60X60X2.5                                                                                                                                                                                                            | 800             | 第 1 个                                                                               | 6            | 32           | 接触后很快就起燃,熔融但无滴落,起燃后 32S 熄灭                                                            | FAIL                   | PASS<br>(GWFI:800/2.5) |
|                                 |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                 | 第 2 个                                                                               | 5            | 31           | 接触后很快就起燃,熔融但无滴落,起燃后 28S 熄灭                                                            |                        |                        |
|                                 |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                      |                 | 第 3 个                                                                               | 6            | 33           | 接触后很快就起燃,熔融但无滴落,起燃后 33S 熄灭                                                            |                        |                        |
| 测试须知<br>(The test requirements) | 1. 灼热丝起燃温度(GWIT)记录值为起始温度加 25K(对于 900℃和 930℃则是 30K, 960℃记为 GWIT:>960/厚度):<br>2. 产品在移开灼热丝之后持续燃烧的时间≤30s, 即 Te≤Ta(施加时间)+30S, 并且包装绢纸没有起燃, 则灼热丝可燃性指数(GWFI)即为 PASS, 记录为 GWFI:温度/厚度:<br>3. 本实验灼热丝 Ta(施加时间)为 30S, 则 Te≤60S<br>4. 如果 3 个其中有 1 个不合格则最终结果为不合格: . |                                                                                                                                                                                                                      |                 |                                                                                     |              |              |                                                                                       |                        |                        |

核准 (Approved): 陈浙海

测试人 (Testing Person): 玉夫



## Component - Plastics

File Number: E331274

Celanese (Suzhou) Engineering Plastics Co Ltd  
N. 155 Song Bei Road, Suzhou Industrial Park, Suzhou Jiangsu 215024 CN



## FRIANYL: A3 RV0 (a)(b)(f2)

Polyamide 66 (PA66), pellets, unfilled

- (a) - Virgin and regrind up to 50% by weight inclusive, have the same basic material characteristics.  
(b) - Virgin and regrind up to 100% by weight inclusive, have the same basic characteristics with respect to flammability.  
(f2) - Subjected to one or more of the following tests: Ultraviolet Light, Water Exposure or Immersion in accordance with UL 746C, where the acceptability for outdoor use is to be determined by UL.

| Flammability                          | Value           | Test Method              |
|---------------------------------------|-----------------|--------------------------|
| Flame Rating                          |                 | UL 94                    |
| 0.25 mm, ALL                          | V-0             | IEC 60695-11-10, -20     |
| 0.38 mm, ALL                          | V-0             |                          |
| 0.75 mm, ALL                          | V-0             |                          |
| 1.5 mm, ALL                           | V-0             |                          |
| 3.0 mm, ALL                           | V-0             |                          |
| Glow Wire Flammability Index          |                 | IEC 60695-2-12           |
| 0.75 mm                               | 960 °C          |                          |
| 1.5 mm                                | 960 °C          |                          |
| 3.0 mm                                | 960 °C          |                          |
| Glow Wire Ignition Temperature        |                 | IEC 60695-2-13           |
| 0.75 mm                               | 775 °C          |                          |
| 1.5 mm                                | 775 °C          |                          |
| 3.0 mm                                | 775 °C          |                          |
| Electrical                            | Value           | Test Method              |
| Hot-wire Ignition (HWI)               |                 | UL 746                   |
| 0.25 mm                               | PLC 4           |                          |
| 0.38 mm                               | PLC 4           |                          |
| 0.75 mm                               | PLC 4           |                          |
| 1.5 mm                                | PLC 4           |                          |
| 3.0 mm                                | PLC 3           |                          |
| High Amp Arc Ignition (HAI)           |                 | UL 746                   |
| 0.25 mm                               | PLC 1           |                          |
| 0.38 mm                               | PLC 1           |                          |
| 0.75 mm                               | PLC 0           |                          |
| 1.5 mm                                | PLC 0           |                          |
| 3.0 mm                                | PLC 0           |                          |
| Comparative Tracking Index (CTI)      | PLC 0           | UL 746                   |
| Dielectric Strength                   | 25 kV/mm        | ASTM D149<br>IEC 60243-1 |
| High Voltage Arc Tracking Rate (HVTR) | PLC 0           | UL 746                   |
| Inclined-Plane Tracking (1.0 kV)      | 60 min          | ASTM D2303               |
| Volume Resistivity                    | 1.0E+13 ohms-cm | ASTM D257<br>IEC 60093   |
| Arc Resistance                        | PLC 5           | ASTM D495                |



## Component - Plastics

File Number: E331274

| Thermal               | Value   | Test Method            |
|-----------------------|---------|------------------------|
| RTI Elec              |         | UL 746                 |
| 0.25 mm               | 65.0 °C |                        |
| 0.38 mm               | 130 °C  |                        |
| 0.75 mm               | 130 °C  |                        |
| 1.5 mm                | 130 °C  |                        |
| 3.0 mm                | 130 °C  |                        |
| RTI Imp               |         | UL 746                 |
| 0.25 mm               | 65.0 °C |                        |
| 0.38 mm               | 105 °C  |                        |
| 0.75 mm               | 105 °C  |                        |
| 1.5 mm                | 105 °C  |                        |
| 3.0 mm                | 105 °C  |                        |
| RTI Str               |         | UL 746                 |
| 0.25 mm               | 65.0 °C |                        |
| 0.38 mm               | 115 °C  |                        |
| 0.75 mm               | 120 °C  |                        |
| 1.5 mm                | 120 °C  |                        |
| 3.0 mm                | 120 °C  |                        |
| Physical              | Value   | Test Method            |
| Dimensional Stability | 0.0 %   | ASTM D1042<br>ISO 2796 |
| Outdoor Suitability   | f2      | UL 746C                |

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2017/12/23

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E106764

Component - Plastics

Guide Information

**POLYPLASTICS CO LTD**

18-1 KONAN 2 CHOME, MINATO TOKYO 1088280 JP

**E130i(d)(e)(f1)**

Liquid Crystal Polymer (LCP), thermotropic aromatic polyester "LAPEROS", furnished as pellets

| Color  | Min. Thk<br>(mm) | Flame<br>Class | HWI | HA | RTI<br>Elec | RTI<br>Imp | RTI<br>Str |
|--------|------------------|----------------|-----|----|-------------|------------|------------|
| NC, BK | 0.75             | V-0            | 2   | 0  | 240         | 220        | 240        |
|        | 1.5              | V-0            | 1   | 0  | 240         | 220        | 240        |
|        | 3.0              | V-0            | 0   | 0  | 240         | 220        | 240        |

Comparative Tracking Index (CTI): 4

Dielectric Strength (kV/mm): 30

High-Voltage Arc Tracking Rate (HVTR): 0

Dimensional Stability (%): 0

Inclined Plane Tracking (IPT) kV: -

Volume Resistivity ( $10^8$  ohm-cm): 16

High Volt, Low Current Arc Resis (D495): 5

(d) - Virgin and regrind up to 50% by weight incl., have the same basic material characteristics in NC and BK with a minimum thickness of 0.75mm.

(e) - Regrind from 25-50% by weight inclusive has an Impact RTI of 180C at thicknesses greater than 1.5mm.

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1992-08-19

Last Revised: 2017-05-27

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**IEC and ISO Test Methods**

| Test Name                      | Test Method     | Units             | Thk (mm) | Value        |
|--------------------------------|-----------------|-------------------|----------|--------------|
| Flammability                   | IEC 60695-11-10 | Class (color)     | 0.75     | V-0 (NC, BK) |
|                                |                 |                   | 1.5      | V-0 (NC, BK) |
|                                |                 |                   | 3.0      | V-0 (NC, BK) |
| Glow-Wire Flammability (GWFI)  | IEC 60695-2-12  | °C                | 0.75     | 960          |
|                                |                 |                   | 1.5      | 960          |
|                                |                 |                   | 3.0      | 960          |
| Glow-Wire Ignition (GWIT)      | IEC 60695-2-13  | °C                | 0.75     | 850          |
|                                |                 |                   | 1.5      | 850          |
|                                |                 |                   | 3.0      | 900          |
| IEC Comparative Tracking Index | IEC 60112       | Volts (Max)       | -        | -            |
| IEC Ball Pressure              | IEC 60695-10-2  | °C                | -        | -            |
| ISO Heat Deflection (1.80 MPa) | ISO 75-2        | °C                | -        | -            |
| ISO Tensile Strength           | ISO 527-2       | MPa               | -        | -            |
| ISO Flexural Strength          | ISO 178         | MPa               | -        | -            |
| ISO Tensile Impact             | ISO 8256        | kJ/m <sup>2</sup> | -        | -            |
| ISO Izod Impact                | ISO 180         | kJ/m <sup>2</sup> | -        | -            |
| ISO Charpy Impact              | ISO 179-2       | kJ/m <sup>2</sup> | -        | -            |

# ECBT2.E364711 - Connectors for Use in Data, Signal, Control and Power Applications - Component

## Connectors for Use in Data, Signal, Control and Power Applications - Component

See General Information for Connectors for Use in Data, Signal, Control and Power Applications - Component

### ZHEJIANG LIANHE ELECTRONIC CO LTD

E364711

Chuangxin Road, YueQing Bay Port Zone  
Yueqing, Zhejiang 325600 CHINA

**Connector,** Model(s) 1.58-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW., 1.58-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 1.58-LHE followed by 2, followed by 1 thru 12, followed by A(T).

**Connector,** Model(s) 1.58-LHE, f/b 2 thru 6, f/b A(T), 1.58-LHE, f/b 2 thru 6, f/b Y(T), 1.58-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 2510-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 2510-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 2510-LHE followed by 2, followed by 1 thru 12, followed by A(T)

**Connector,** Model(s) 2510-LHE, f/b 2 thru 6, f/b A(T), 2510-LHE, f/b 2 thru 6, f/b Y(T), 2510-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 5.08-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5.08-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 5.08-LHE followed by 2, followed by 1 thru 12, followed by A(T)

**Connector,** Model(s) 5.08-LHE, f/b 2 thru 6, f/b A(T), 5.08-LHE, f/b 2 thru 6, f/b Y(T), 5.08-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 51005-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 51005-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 51005-LHE followed by 2, followed by 1 thru 12, followed by A(T)

**Connector,** Model(s) 51005-LHE, f/b 2 thru 6, f/b A(T), 51005-LHE, f/b 2 thru 6, f/b Y(T), 51005-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 51006-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 51006-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 51006-LHE followed by 2, followed by 1 thru 12, followed by A(T)

**Connector,** Model(s) 51006-LHE, f/b 2 thru 6, f/b A(T), 51006-LHE, f/b 2 thru 6, f/b Y(T), 51006-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 5102-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5102-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 5102-LHE followed by 2, followed by 1 thru 12, followed by A(T)

**Connector,** Model(s) 5102-LHE, f/b 2 thru 6, f/b A(T), 5102-LHE, f/b 2 thru 6, f/b Y(T), 5102-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 5240-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5240-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 5240-LHE followed by 2, followed by 1 thru 12, followed by A(T)

**Connector,** Model(s) 5240-LHE, f/b 2 thru 6, f/b A(T), 5240-LHE, f/b 2 thru 6, f/b Y(T), 5240-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 5500-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5500-LHE f/b 2 thru 6, f/b A2 or AW

**Connector,** Model(s) 5500-LHE followed by 2, followed by 1 thru 12, followed by A(T)

**Connector,** Model(s) 5500-LHE, f/b 2 thru 6, f/b A(T), 5500-LHE, f/b 2 thru 6, f/b Y(T), 5500-LHE, f/b 2, f/b 1 thru 12, f/b Y(T), 5557 followed by 2 thru 6, followed by A(T), 5557 followed by 2 thru 6, followed by A2 or AW, 5557 followed by 2 thru 6, followed by Y(T)

**Connector,** Model(s) 5557 followed by 2, followed by 1 thru 12, followed by A(T).

- Connector,** Model(s) 5557 followed by 2, followed by 1 thru 12, followed by A2 or AW
- Connector,** Model(s) 5557 followed by 2, followed by 1 thru 12, followed by Y(T)
- Connector,** Model(s) 5559-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5559-LHE f/b 2 thru 6, f/b A2 or AW
- Connector,** Model(s) 5559-LHE followed by 2, followed by 1 thru 12, followed by A(T).
- Connector,** Model(s) 5559-LHE, f/b 2 thru 6 , f/b A(T), 5559-LHE, f/b 2 thru 6, f/b Y(T), 5559-LHE, f/b 2, f/b 1 thru 12 , f/b Y(T), 5566-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5566-LHE f/b 2 thru 6, f/b A2 or AW
- Connector,** Model(s) 5566-LHE followed by 2, followed by 1 thru 12, followed by A(T)
- Connector,** Model(s) 5566-LHE, f/b 2 thru 6 , f/b A(T), 5566-LHE, f/b 2 thru 6, f/b Y(T), 5566-LHE, f/b 2, f/b 1 thru 12 , f/b Y(T), 5569-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5569-LHE f/b 2 thru 6, f/b A2 or AW
- Connector,** Model(s) 5569-LHE followed by 2, followed by 1 thru 12, followed by A(T)
- Connector,** Model(s) 5569-LHE, f/b 2 thru 6 , f/b A(T), 5569-LHE, f/b 2 thru 6, f/b Y(T), 5569-LHE, f/b 2, f/b 1 thru 12 , f/b Y(T), 5600-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 5600-LHE f/b 2 thru 6, f/b A2 or AW
- Connector,** Model(s) 5600-LHE followed by 2, followed by 1 thru 12, followed by A(T)
- Connector,** Model(s) 5600-LHE, f/b 2 thru 6 , f/b A(T), 5600-LHE, f/b 2 thru 6, f/b Y(T), 5600-LHE, f/b 2, f/b 1 thru 12 , f/b Y(T), 63080-LHE f/b 2 , f/b 1 thru 12, f/b A2 or AW, 63080-LHE f/b 2 thru 6, f/b A2 or AW
- Connector,** Model(s) 63080-LHE followed by 2, followed by 1 thru 12, followed by A(T)
- Connector,** Model(s) 63080-LHE, f/b 2 thru 6 , f/b A(T), 63080-LHE, f/b 2 thru 6, f/b Y(T), 63080-LHE, f/b 2, f/b 1 thru 12 , f/b Y(T), B2502 followed by 2 thru 16, followed by Y(T), BH3.5-2A(T), BH3.5-2Y(T), MX3.0 followed by 2 thru 12, followed by A(T), MX3.0 followed by 2 thru 12, followed by A2 or AW, MX3.0 followed by 2 thru 12, followed by Y(T)
- Connector,** Model(s) MX3.0 followed by 2, followed by 1 thru 12, followed by A(T).
- Connector,** Model(s) MX3.0 followed by 2, followed by 1 thru 12, followed by A2 or AW
- Connector,** Model(s) MX3.0 followed by 2, followed by 1 thru 12, followed by Y(T)
- Connector,** Model(s) PA-LHE f/b 2, f/b 1 thru 12, f/b Y(T), PA-LHE followed by 2 thru 12, followed by A(T)
- Connector,** Model(s) PA-LHE followed by 2 thru 12, followed by A2 or AW
- Connector,** Model(s) PA-LHE followed by 2 thru 12, followed by Y(T)
- Connector,** Model(s) PA-LHE followed by 2, followed by 1 thru 12, followed by A(T)
- Connector,** Model(s) PA-LHE followed by 2, followed by 1 thru 12, followed by A2 or AW
- Connector,** Model(s) PH, PHB, XHB, JC25, SCN followed by -2 thru -20, followed by Y(T), A, AW or AWD
- Connector,** Model(s) PHB followed by 2 thru 16, followed by Y(T). followed by 2 thru 16, followed by AWD, A, AW
- Connector,** Model(s) Series 1.25, 1254, 1255 followed by -2 thru -25, followed by Y(T), A or AW
- Connector,** Model(s) Series 5264 followed by -2 thru -16, followed by Y(T), A or AWD
- Connector,** Model(s) SM followed by -2 thru -18, followed by Y(T) or A(T)
- Connector,** Model(s) VH, 3.96 followed by -2 thru -16, followed by Y(T), A, AW or AWG
- Connector,** Model(s) XA-LHE f/b 2, f/b 1 thru 12, f/b Y(T), XA-LHE followed by 2 thru 12, followed by A(T)
- Connector,** Model(s) XA-LHE followed by 2 thru 12, followed by A2 or AW
- Connector,** Model(s) XA-LHE followed by 2 thru 12, followed by Y(T)
- Connector,** Model(s) XA-LHE followed by 2, followed by 1 thru 12, followed by A(T)
- Connector,** Model(s) XA-LHE followed by 2, followed by 1 thru 12, followed by A2 or AW
- Connector,** Model(s) XH followed by -2 thru -20, followed by Y(T), A, AW, AWGD, AWD or AWGDJ
- Connector,** Model(s) ZH followed by 2 thru 16, followed by AWD or A, ZH followed by 2 thru 16, followed by Y(T).

Model(s) 1.25, followed by -2 thru -16, followed by AB or AWB

Model(s) 51146 or FI-S, followed by -2 thru -16, followed by AB or AWB

Model(s) A5001, followed by -2 thru -7, followed by Y, Y(T), AD or AWD

Model(s) B2501-LHE, A2004-LHE, A4203-LHE, PHR-LHE, PHD-LHE, CH2.5-LHE, DF11-LHE, PHSD-LHE, A5001-LHE, 35155-LHE, 35156-LHE, 5195-LHE, 5196-LHE, followed by 2 thru 16, followed by Y(T)

Model(s) BHS-LHE, SMH250-LHE, SMH200-LHE, L6.2-LHE, 1806-LHE, 2060-LHE, 2541-LHE, JC15-LHE, XHD-LHE, followed by -2, followed by A(T), or Y(T)

Model(s) JWPf-LHE, B2541-LHE, NV-LHE, DV-LHE, SGN-LHE, SJN-LHE, SDN-LHE, SIN-LHE, 35150-LHE, 35151-LHE, 35180-LHE, 35182-LHE, 35524-LHE, 35965-LHE, RCY-LHE, LC-LHE, VR-LHE, SHJ-LHE, SHL-LHE, DF19-LHE, ACH-LHE, DF13-LHE, IL-Z-LHE, 51146-LHE, SATA-LHE, XSR-LHE, SUR-LHE, SUH-LHE, ZE-LHE, ZND-LHE, ZPD-LHE, A1502-LHE, SFH-LHE, 51004-LHE, PUD-LHE, A20010-LHE, 35507-LHE, DF3-LHE, PND-LHE, RE-LHE, RA-LHE, RF-LHE or A3963, followed by -2 thru -15, followed by Y(T), YB(T) or YC(T), A, A-K, AW, AW-K, AD, AD-K, AWGD, AWGD-K, AQ, AQ-K, AWQ, AWQ-K, AD(BH) or AD(BH)-K.

Model(s) PH, followed by -2 thru -16, followed by AB or AWB

Model(s) PHB, SZN-LHE, SAN-LHE, JC20-LHE, EH-LHE, EI-LHE, EL-LHE, S-EL-LHE, followed by 2 thru 16, followed by AWD, A, AW

Model(s) PHB, SZN-LHE, SAN-LHE, JC20-LHE, EH-LHE, EI-LHE, EL-LHE, S-EL-LHE, followed by 2 thru 16, followed by Y(T)

Model(s) PHB, XH, XHB or XHBD, followed by -2 thru -16, followed by AB or AWB.

Model(s) RAST 5-LHE TAB HEADER ASSY, TH, Vertical, Cat. Nos. 1969738-LHE, 1969740-LHE, 1971845-LHE, 1971846-LHE, 1971895-LHE, 1971896-LHE, 1971946-LHE thru 1971949-LHE, 1971954-LHE thru 1971957-LHE, 2232008-LHE thru 2232011-LHE, 2232000-LHE thru 2232003-LHE, 2232016-LHE thru 2232019-LHE, 1971962-LHE thru 1971965-LHE, 2232024-LHE thru 2232027-LHE, 2232289-LHE thru 2232292-LHE, 2232043-LHE thru 2232074-LHE, 2232298-LHE thru 2232301-LHE, 2232511-LHE, 2232532-LHE, 2232557-LHE, 2232559-LHE, 2232560-LHE, 2232562-LHE, 2232563-LHE, 2232565-LHE, 2232566-LHE, 2232568-LHE, 2232569-LHE, 2232571-LHE, 2232572-LHE, 2232574-LHE, 2232575-LHE, 2232577-LHE, 2232578-LHE, 2232580-LHE, 2232581-LHE, 2232583-LHE, 2232584-LHE, 2232586-LHE, 2232587-LHE, 2232589-LHE, 2232590-LHE, 2232592-LHE, 2232593-LHE, 2232595-LHE, 2232596-LHE, 2232598-LHE, 2232599-LHE, 2232601-LHE, 2232602-LHE, 2232604-LHE, 2232605-LHE, 2232607-LHE, 2232608-LHE, 2232611-LHE thru 2232682-LHE, 2292457-LHE, 2292458-LHE, may incorporate prefix and/or suffix number.), followed by -2 thru -7, followed by Y, Y(T), AD or AWD.

Model(s) SY, followed by -2, followed by Y, Y(T), A or A(T)

Model(s) SYP, SYR, BH4.0-LHE, A10001-LHE, A7501-LHE, A8001-LHE, C2541-LHE, C2542-LHE, D250R-LHE, D280K-LHE, D300R-LHE, D350R-LHE, D400B-LHE, D430R-LHE, D470G-LHE, D480J-LHE, D480K-LHE, D480N-LHE, D480Q-LHE, D520H-LHE, D520K-LHE, D520Q-LHE, D620G-LHE, D630J-LHE, D630N-LHE, D630Q-LHE, D700G-LHE, F001-LHE, F002-LHE, HIF3-LHE, MC100-LHE, MC100-LHE, ME020-LHE, ME010-LHE, F2541-LHE, D2301-LHE, 1719057-LHE, 1719059-1-LHE, P0011-LHE, P0012-LHE, P0013-LHE, C6001-LHE, D2201-LHE, D2202-LHE or P0001-LHE, followed by -2, followed by Y, Y(T), A or A(T).

Model(s) VL-LHE, YL-LHE, SL-LHE, FL-LHE, YHD200-LHE, HA-LHE, LGC-LHE, JR-LHE, SP-LHE, 5025-LHE, followed by 2, followed by 1 thru 12, followed by A(T), Y(T), A2 or AW

Model(s) VL-LHE, YL-LHE, SL-LHE, FL-LHE, YHD200-LHE, HA-LHE, LGC-LHE, JR-LHE, SP-LHE, 5025-LHE, followed by 2 thru 12, followed by A(T), Y(T), A2 or AW

Model(s) XHD, XHE or XHQ, followed by -2 thru -15, followed by Y(T), YB(T) or YC(T), A, A-K, AW, AW-K, AD, AD-K, AWGD, AWGD-K, AQ, AQ-K, AWQ, AWQ-K, AD(BH) or AD(BH)-K.

Model(s) ZH, followed by -2 thru -16, followed by AB or AWB

Model(s) ZHR-LHE, SH-LHE, GH-LHE, NH-LHE, C1251-LHE, DF14-LHE, 5501-LHE, 75416-LHE, 543-LHE, followed by 2 thru 16, followed by AWD or A

Model(s) ZHR-LHE, SH-LHE, GH-LHE, NH-LHE, C1251-LHE, DF14-LHE, 5501-LHE, 75416-LHE, 543-LHE, followed by 2 thru 16, followed by Y(T)

Marking: Company name or trademark  , model designation and the Recognized Component Mark,  on the device or carton.

Last Updated on 2020-02-20

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## 产品认证证书

证书编号: CQC17134174484

发证日期: 2021年01月20日

有效期至: 2025年08月31日

委托人名称 浙江联和电子有限公司  
及注册地址 浙江省乐清市乐清湾港区乐商创业园

制造商名称 浙江联和电子有限公司  
及注册地址 浙江省乐清市乐清湾港区乐商创业园

生产企业名称 浙江联和电子有限公司  
及生产地址 浙江省乐清市乐清湾港区创新路8号

产品名称和系列、规格、型号 连接器聚酰胺 66(PA66)  
型号见附件, 材料名称: 聚酰胺 (PA66), 材料牌号: A3RV0, 全色, 球压:200℃, 灼热丝可燃性指数(GWFI):960/0.3, 灼热丝起燃温度(GWIT):960/0.3, 燃烧等级:V-0@0.3mm,CTI600, 红外光谱,差示扫描量热和热重分析见报告 00601-2020134003037

产品标准和技术要求 GB/T 5169.21-2017, GB/T 5169.12-2013, GB/T 5169.13-2013, GB/T 5169.16-2017, GB/T 4207-2012, GB/T 6040-2019, GB/T 19466.1-2004, GB/T 19466.2-2004, GB/T 19466.3-2004, ISO 11358-1:2014

认证模式 产品检测+获证后监督

上述产品符合 CQC13-036047-2009 认证规则的要求, 特发此证。  
证书有效期内本证书的有效性依据发证机构的定期监督获得保持。

可通过扫描下方二维码或登录国家认监委网站 ( www.cnca.gov.cn ) 查验证书信息



签发: 陆杨

中国质量认证中心

<http://www.cqc.com.cn>

中国·北京·南四环西路188号9区 100070

电话: +86 10 83886666

C 0453132

Verification No.: CLZJ1411264692

**VERIFICATION OF LVD COMPLIANCE**

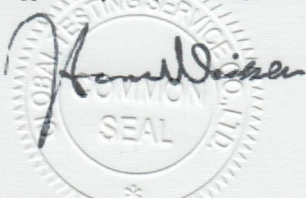
Applicant: Zhejiang Lianhe Electrical Co., Ltd.  
Houyu village, Shifan town, Yueqing city, Zhejiang province, China.  
Manufacturer: Same as applicant  
Product Description: Connector Terminal  
Model No: A1001, A1002, A1003, A1251, A1252, A1253, A1254, A1255, A1256, A1257, A1501, A1502, A1503, A2001, A2002, A2003, A2004, A2005, A2006, A2007, A2501, A2502, A2503, A2504, A2505, A2506, A2507, A2541, A2542, A2543, A2544, A2545, A3961, A3962, A3963, A3564, A5081, A5082, B1501, B1502, B2001, B2002, B2501, B2502, C01581, C01582, C1251, C2001, C2002, C2501, C2502, C2505, C2506, C3001, C3002, C3003, C3004, C3005, C3006, C3501, C3502, C3701, C3702, C4001, C4002, C4141, C4142, C4201, C4202, C4203, C4204, C4601, C4602, C4501, C4502, C4503, C4504, C5001, C5002, C5031, C5032, C6201, C6202, C6351, C6352, C6701, C6702, D2801, D2802, D2803, D4801, D4802, D4803, D4804, D6301, D6302, D6303

Sufficient samples of the product have been tested and found to be in conformity with

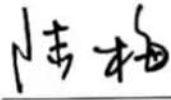
Test Standard: EN 60320-1:2001/A1:2007  
EN 60529:1991/A1:2000As shown in the  
Test Report Number(s): TLZJ1411264692  
Date of issue: November 27, 2014**Conclusion**

This Verification of LVD Compliance has been granted to the applicant based on the results of tests, performed by laboratory of Global Testing Services Co., Ltd on sample of the above-mentioned product in accordance with the provisions of the relevant specific standards and the Low Voltage Directive 2014/35/EU. The CE marking as shown below can be affixed, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The affixing of the CE marking presumes in addition that conditions the conditions in annexes III and IV of the Directive are fulfilled.

Approved by: Hermann Weiher

Global Testing Services Co., Ltd  
E-mail: info@gts-lab.com http://www.gts-lab.com  
Room 1501-1502, No. 520 Yishan Rd., Xuhui District, Shanghai, 200235 ChinaFor and on behalf of  
Global Testing Services Co., Ltd

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|  <b>PRODUCT CERTIFICATION</b>                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CERTIFICATE NO.:</b> CQC17134174484                                                                                                                                                                                                                                                       | <b>Valid from:</b> Jan.20,2021<br><b>Valid until:</b> Aug.31,2025                                                                                                                                                                                                                                                                                                   |
| <b>NAME AND REGISTERED ADDRESS OF THE APPLICANT</b>                                                                                                                                                                                                                                          | Zhejiang Lianhe Electronics Co., Ltd.<br>Yueshang Pioneer Park,Yueqingwan Area, Yueqing City, Zhejiang Province                                                                                                                                                                                                                                                     |
| <b>NAME AND REGISTERED ADDRESS OF THE MANUFACTURER</b>                                                                                                                                                                                                                                       | Zhejiang Lianhe Electronics Co., Ltd.<br>Yueshang Pioneer Park,Yueqingwan Area, Yueqing City, Zhejiang Province                                                                                                                                                                                                                                                     |
| <b>NAME AND LOCATION OF THE FACTORY</b>                                                                                                                                                                                                                                                      | Zhejiang Lianhe Electronics Co., Ltd.<br>No. 8, Chuangxin Road, Yueqing Bay Port District, Yueqing City, Zhejiang Province                                                                                                                                                                                                                                          |
| <b>PRODUCT NAME, MODEL AND SPECIFICATION</b>                                                                                                                                                                                                                                                 | Connector ( PA66 )<br>See Annex , Material name: PA66, material grade: A3RV0, All color, Ball pressure:200°C, Glow-Wire Flammability Index(GWFI): 960/0.3, Glow-Wire Ignition Temperature(GWIT):960/0.3, Flammability:V-0@0.3mm, CTI600 , Infrared Analysis,Differential Scanning Calorimetry(DSC), Thermogravimetry (TG) to see report Ref.No: 00601-2020134003037 |
| <b>THE STANDARDS AND TECHNICAL REQUIREMENTS FOR THE PRODUCTS</b>                                                                                                                                                                                                                             | GB/T 5169.21-2017, GB/T 5169.12-2013, GB/T 5169.13-2013, GB/T 5169.16-2017, GB/T 4207-2012, GB/T 6040-2019, GB/T 19466.1-2004, GB/T 19466.2-2004, GB/T 19466.3-2004, ISO 11358-1:2014                                                                                                                                                                               |
| <b>TYPE OF CERTIFICATION SCHEMES</b>                                                                                                                                                                                                                                                         | Product Testing + Follow up Factory Inspection                                                                                                                                                                                                                                                                                                                      |
| This is to certify that the above mentioned product(s) complies with the requirements of certification rules of CQC13-036047-2009.<br>The validity of the certificate is subject to positive result of the regular follow up inspection by issuing certification body until the expiry date. |                                                                                                                                                                                                                                                                                                                                                                     |
| The certificate information is available through the QR code below or CNCA's website: <a href="http://www.cnca.gov.cn">www.cnca.gov.cn</a>                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                           |  <b>SIGNATURE:</b>                                                                                                                                                                           |
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|                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                     |
| <a href="http://www.cqc.com.cn">http://www.cqc.com.cn</a>                                                                                                                                                                                                                                    | Section 9, No.188, Nansihuan Xilu, Beijing 100070 P.R.China                                                                                                                                                                                                                                                                                                         |
| Tel: +86 10 83886666                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                     |

C 0453132



*CQC has issued an IQNet recognized certificate that the organization:*

**ZheJiang Lianhe Electronics Co.,Ltd.**

Registered Address: Yueqing Bay Port Area, Yueqing City, Wenzhou City, Zhejiang Province, P.R.China  
Operation Address: No.8 Innovation Road, Yueqing Bay Port Area, Yueqing City, Wenzhou City, Zhejiang Province, P.R.China

*has implemented and maintains an*  
**Environmental Management System**

*for the following scope:*

Design and Production of Connector and Related Management Activities

*which fulfils the requirements of the following standard:*

**GB/T 24001-2016 / ISO 14001:2015**

*Issued on:* February 12, 2020

*Expires on:* February 11, 2023

**Registration Number: CN00120E30414R0S/3302**

*This attestation is directly linked to the IQNet Partner's original certificate and shall not be used as a stand-alone document*



Alex Stoichitoiu  
President of IQNet

Lu Mei  
President of CQC



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SGS

## 检测报告

编号: SHAEC23015565204

日期: 2023 年 09 月 28 日

第 1 页, 共 10 页

客户名称: 浙江联和电子有限公司  
客户地址: 浙江省乐清市乐清湾港区乐商创业园  
浙江省乐清市乐清湾港区电子信息产业园红旗路 8 号

样品名称: PBT 连接器 白色  
型号: GH-7Y  
客户参考信息: 见附件  
以上样品及信息由客户提供。

SGS 工作编号: TIC1020230922183257HWHB  
样品接收时间: 2023 年 09 月 25 日  
检测周期: 2023 年 09 月 25 日 ~ 2023 年 09 月 28 日  
检测要求: 根据客户要求检测。  
检测方法: 见后续页。  
检测结果: 见后续页。

| 检测要求                                                                                                                                                | 结论 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 欧盟 RoHS 指令 2011/65/EU 附录 II 的修正指令(EU) 2015/863- 铅、汞、镉、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs)、邻苯二甲酸二丁酯(DBP)、邻苯二甲酸丁苯酯(BBP)、邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP) | 符合 |

通标标准技术服务(上海)有限公司  
授权签名

罗萍

Carol Luo 罗萍  
批准签署人

scan to see the report



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中国·上海·徐汇区宜山路889号3号楼 邮编: 200233 tHL (86-21) 61402594 fHL (86-21) 61156899 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

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## 检测报告

编号: SHAEC23015565204

日期: 2023 年 09 月 28 日

第 2 页, 共 10 页

## 检测结果:

## 检测部件外观描述:

| 样品序号 | 样品编号 | SGS 样品 ID               | 样品描述 |
|------|------|-------------------------|------|
| SN1  | A1   | SHA23-0155652-0001.C001 | 白色固体 |

## 备注:

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = 方法检测限

(3) ND = 未检出 (&lt; MDL)

(4) "-" = 未规定

欧盟 RoHS 指令 2011/65/EU 附录 II 的修正指令(EU) 2015/863- 铅、汞、镉、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs)、邻苯二甲酸二丁酯 (DBP)、邻苯二甲酸丁苄酯(BBP)、邻苯二甲酸二(2-乙基己基)酯 (DEHP)和邻苯二甲酸二异丁酯(DIBP)

检测方法: 参考 IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 和 IEC 62321-8:2017, 采用 ICP-OES, UV-Vis 和 GC-MS 进行分析。

| 检测项目            | 限值   | 单位    | MDL | A1 |
|-----------------|------|-------|-----|----|
| 镉 (Cd)          | 100  | mg/kg | 2   | ND |
| 铅 (Pb)          | 1000 | mg/kg | 2   | 11 |
| 汞 (Hg)          | 1000 | mg/kg | 2   | ND |
| 六价铬(Cr(VI))     | 1000 | mg/kg | 8   | ND |
| 多溴联苯之和(PBBs)    | 1000 | mg/kg | -   | ND |
| 一溴联苯(MonoBB)    | -    | mg/kg | 5   | ND |
| 二溴联苯(DiBB)      | -    | mg/kg | 5   | ND |
| 三溴联苯(TriBB)     | -    | mg/kg | 5   | ND |
| 四溴联苯(TetraBB)   | -    | mg/kg | 5   | ND |
| 五溴联苯(PentaBB)   | -    | mg/kg | 5   | ND |
| 六溴联苯(HexaBB)    | -    | mg/kg | 5   | ND |
| 七溴联苯(HeptaBB)   | -    | mg/kg | 5   | ND |
| 八溴联苯(OctaBB)    | -    | mg/kg | 5   | ND |
| 九溴联苯(NonaBB)    | -    | mg/kg | 5   | ND |
| 十溴联苯(DecaBB)    | -    | mg/kg | 5   | ND |
| 多溴二苯醚之和(PBDEs)  | 1000 | mg/kg | -   | ND |
| 一溴二苯醚(MonoBDE)  | -    | mg/kg | 5   | ND |
| 二溴二苯醚(DiBDE)    | -    | mg/kg | 5   | ND |
| 三溴二苯醚(TriBDE)   | -    | mg/kg | 5   | ND |
| 四溴二苯醚(TetraBDE) | -    | mg/kg | 5   | ND |
| 五溴二苯醚(PentaBDE) | -    | mg/kg | 5   | ND |
| 六溴二苯醚(HexaBDE)  | -    | mg/kg | 5   | ND |
| 七溴二苯醚(HeptaBDE) | -    | mg/kg | 5   | ND |
| 八溴二苯醚(OctaBDE)  | -    | mg/kg | 5   | ND |



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检测报告      编号: SHAEC23015565204      日期: 2023 年 09 月 28 日      第 3 页, 共 10 页

| 检测项目                   | 限值   | 单位    | MDL | A1 |
|------------------------|------|-------|-----|----|
| 九溴二苯醚(NonaBDE)         | -    | mg/kg | 5   | ND |
| 十溴二苯醚(DecaBDE)         | -    | mg/kg | 5   | ND |
| 邻苯二甲酸二丁酯 (DBP)         | 1000 | mg/kg | 50  | ND |
| 邻苯二甲酸丁苄酯 (BBP)         | 1000 | mg/kg | 50  | ND |
| 邻苯二甲酸二(2-乙基己基)酯 (DEHP) | 1000 | mg/kg | 50  | ND |
| 邻苯二甲酸二异丁酯 (DIBP)       | 1000 | mg/kg | 50  | ND |

备注:

(1) 最大允许限值引用自 RoHS 指令(EU) 2015/863。

(2) IEC 62321 系列等同于 EN 62321 系列。

(3) 2021 年 7 月 22 号开始, DEHP, BBP, DBP 和 DIBP 的限制适用于医疗器械, 包括体外医疗器械, 监控仪表, 包括工业监测和控制仪器。

除非另有说明, 参照 ILAC-G8:09/2019, 使用简单接受 ( $w=0$ ) 的二元判定规则进行符合性判定。

除非另有说明, 此报告结果仅对检测的样品负责。本报告未经本公司书面许可, 不可部分复制。

检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



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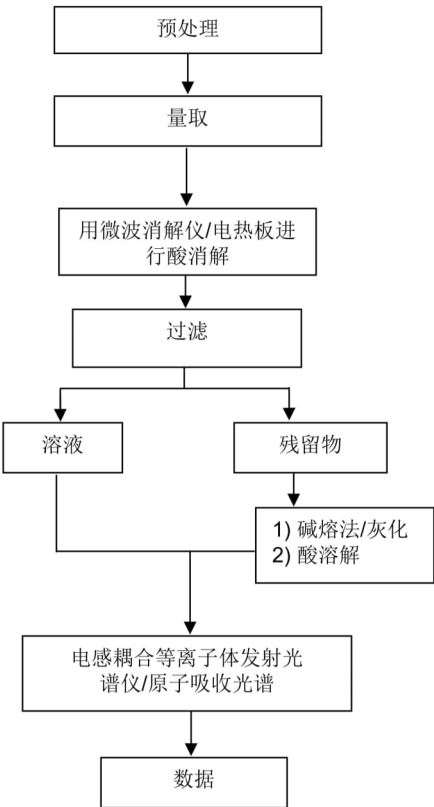
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第 4 页，共 10 页

附件

元素检测流程图

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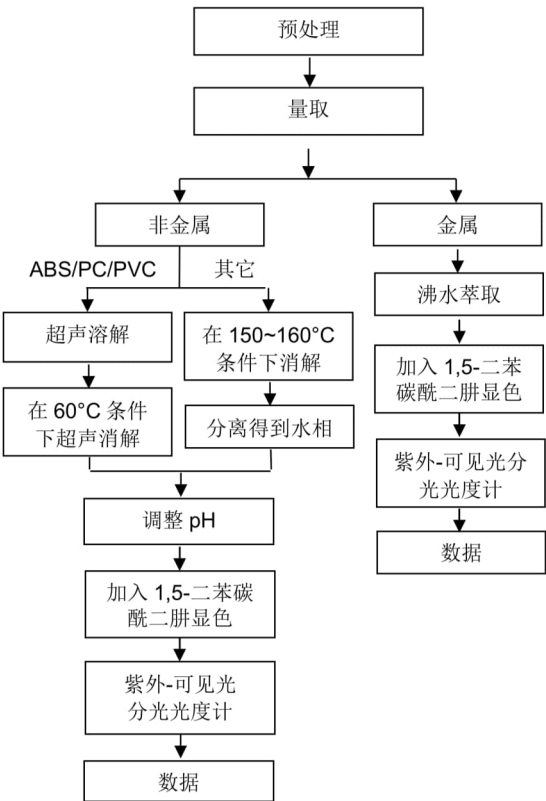
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日期: 2023 年 09 月 28 日

第 5 页, 共 10 页

六价铬检测流程图



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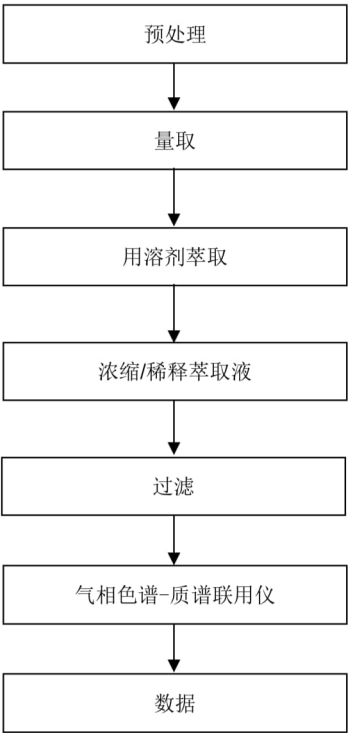
检测报告  
附件

编号: SHAEC23015565204

日期: 2023 年 09 月 28 日

第 6 页, 共 10 页

PBBs/PBDEs 检测流程图



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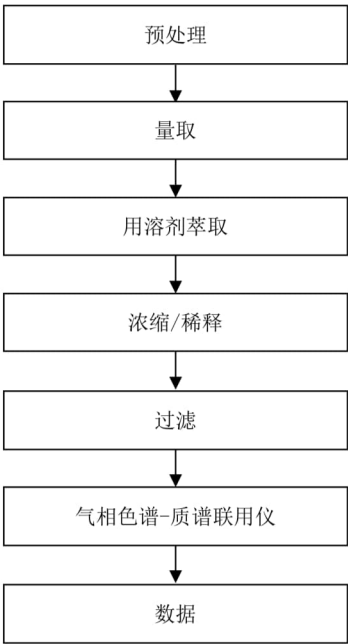
检测报告  
附件

编号: SHAEC23015565204

日期: 2023 年 09 月 28 日

第 7 页, 共 10 页

Phthalates 检测流程图



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编号: SHAEC23015565204

日期: 2023年09月28日

第8页, 共10页

附件:

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编号: SHAEC23015565204

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第 9 页, 共 10 页

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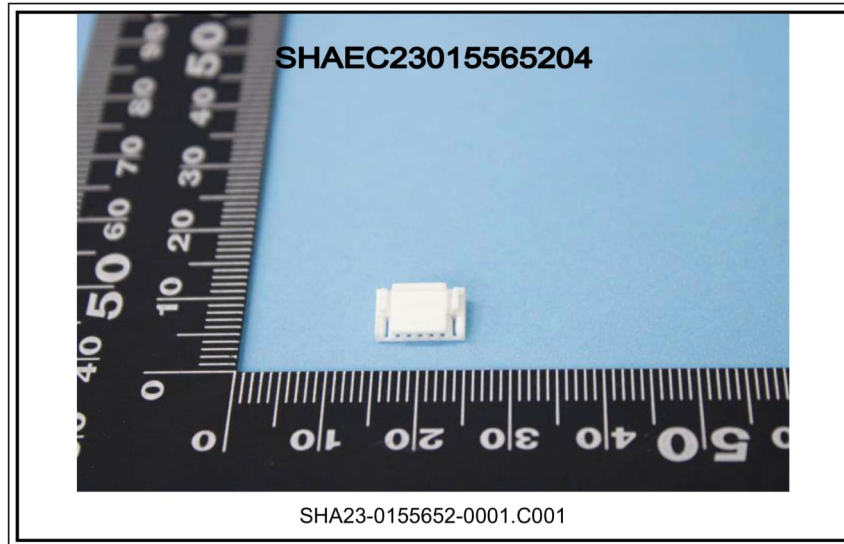
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编号: SHAEC23015565204

日期: 2023 年 09 月 28 日

第 10 页, 共 10 页

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检测  
TESTING  
CNAS L0599

## 检测报告

编号: SHAEC24008425816

日期: 2024 年 05 月 07 日

第 1 页, 共 8 页

客户名称: 浙江联和电子有限公司  
客户地址: 浙江省乐清市乐清湾港区乐商创业园  
浙江省乐清市乐清湾港区电子信息产业园红旗路 8 号

样品名称: 端子 针  
客户参考信息: 见附件  
以上样品及信息由客户提供。

SGS 工作编号: TIC1020240424174615KLN9  
样品接收时间: 2024 年 04 月 26 日  
检测周期: 2024 年 04 月 26 日 ~ 2024 年 05 月 07 日  
检测要求: 根据客户要求检测。  
检测方法: 见后续页。  
检测结果: 见后续页。

| 检测要求                                                     | 结论 |
|----------------------------------------------------------|----|
| 欧盟 RoHS 指令 2011/65/EU 附录 II 的修正指令(EU) 2015/863-铅、汞、镉和六价铬 | 符合 |

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胡敏

Dora Hu 胡敏  
批准签署人

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检测报告 编号: SHAEC24008425816 日期: 2024 年 05 月 07 日 第 2 页, 共 8 页

检测结果:

检测部件外观描述:

| 样品序号 | 样品编号 | SGS 样品 ID               | 样品描述 |
|------|------|-------------------------|------|
| SN1  | A3   | SHA24-0084258-0001.C003 | 银色金属 |

备注:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL= 方法检测限
- (3) ND = 未检出( < MDL)
- (4) "-" = 未规定

欧盟 RoHS 指令 2011/65/EU 附录 II 的修正指令(EU) 2015/863-铅、汞、镉和六价铬

检测方法: 参考 IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 和 IEC 62321-7-1:2015, 采用 ICP-OES/AAS 和 UV-Vis 进行分析。

| 检测项目          | 限值   | 单位     | MDL  | A3 |
|---------------|------|--------|------|----|
| 铅 (Pb)        | 1000 | mg/kg  | 2    | 37 |
| 汞 (Hg)        | 1000 | mg/kg  | 2    | ND |
| 镉 (Cd)        | 100  | mg/kg  | 2    | ND |
| 六价铬 (Cr(VI))▼ | -    | µg/cm² | 0.10 | ND |

备注:

- (1) 最大允许极限值引用自RoHS指令(EU) 2015/863。
- (2) IEC 62321系列等同于 EN 62321系列。
- (3) ▼ = a. 当六价铬的浓度高于0.13 µg/cm²时, 样品为阳性, 即含有六价铬;  
b. 当六价铬的浓度为ND (低于0.10 µg/cm²) 时, 样品为阴性, 即未检测到六价铬;  
c. 当六价铬的浓度介于0.10 µg/cm²与0.13 µg/cm²之间时, 无法直接判定是否检测到六价铬, 因不同个体的样品表面差异可能会影响测定结果。

由于未获知样品的存储条件和生产日期, 样品的六价铬检测结果仅能代表检测时样品含六价铬的状态。

除非另有说明, 参照 ILAC-G8:09/2019, 使用简单接受 (w=0) 的二元判定规则进行符合性判定。  
除非另有说明, 此报告结果仅对检测的样品负责。本报告未经本公司书面许可, 不可部分复制。



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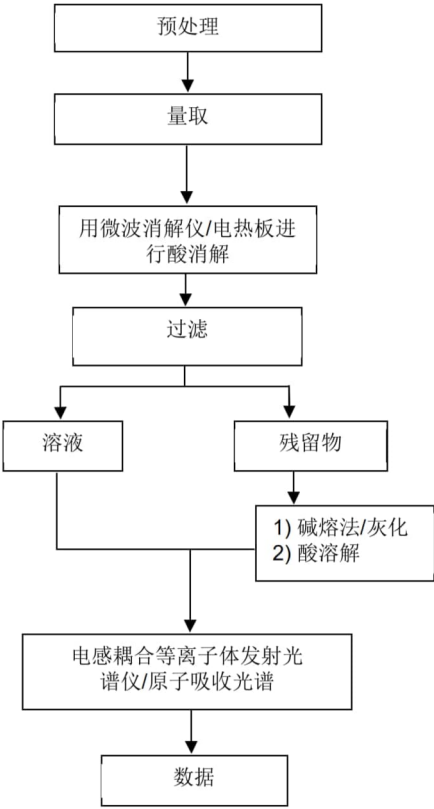
日期：2024 年 05 月 07 日

第 3 页，共 8 页

附件

元素检测流程图

样品按照下述流程被完全消解



收  
检  
spectic  
marks



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检测报告

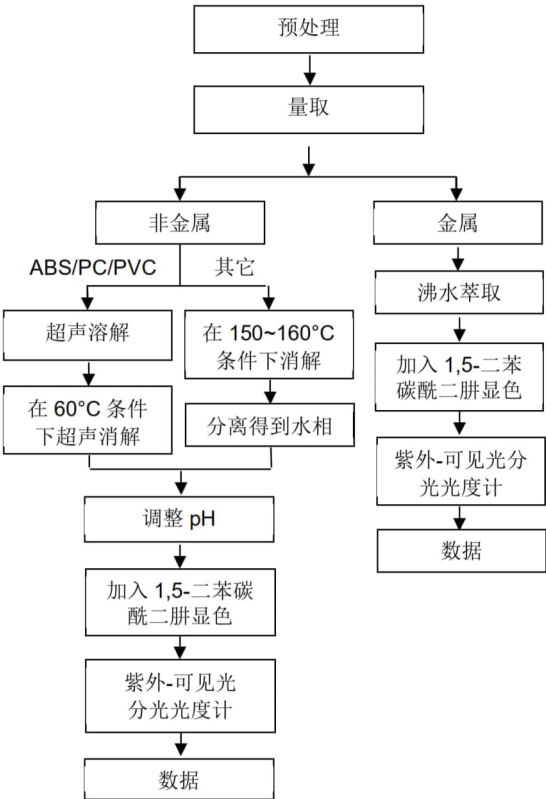
附件

编号: SHAEC24008425816

日期: 2024 年 05 月 07 日

第 4 页, 共 8 页

六价铬检测流程图



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第 5 页, 共 8 页

附件:

1.0, SH, SHD, 1.25, 51021, DF14, DF13, GH, ZH, PH, PHB, PA, PHSD, DF11, C1251, 51047, 51146, FI-S, PHD, YHD200, PA, SMP, SMW, SMH, SMH200, SMH200-H, YH200, 20039WR, 杜邦 2.0, XH/TJC3, XA, HA, XHB, XHD, XHE, EH, EI, 小四 P, 5263, 5264, 5267, 5268, SZN, SAN, SCN, SCND, JC15, JC20, JC25, 5102, 5240, SMH250, SMP250, SMW250, 25048HS, 25045HP, SM, TJC8, 杜邦 2.54, TJC8A, 杜邦带锁, TJC8B, TJC8H, 5051, 2510, 美尚美, 43640, 43645, 43020, 43025, 5500, 5600, VH, VHRR, YH396, VHR, 35156, 2139, 3.96, 90331, 5195, 5196, 39612, FL, 5557, 5559, 5566, 5569, SL, RV42, EL, YL, 小 EL, 8981, 大四 P, 5058, 5.08, L6.2, VL, VLP/VLR, TJC2, TJC2A, TJC2B, TJC4, TJC1, 1806, MX3.0, 1.58, 51005, 51006, BH3.5, BH4.0, 63080, 51004, TJC15, A4203, CL014, OTP, MKH, SMF, Cy-X201, 35108, 35150, 35151, 35224, 35180, 35965, 42021, 42022, 42002, 35955, SA, SCS, 35189, 35196, CH10, CH2.5, 543, SLP, SLR, YHL500, YWL500, FFC, FPC, 20030, 250, LGC, S11, YH025, 35155, 25415, 5197, 5198, 110, 2.8, 6.3, SCS

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编号: SHAEC24008425816

日期: 2024 年 05 月 07 日

第 6 页, 共 8 页

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P0001 P0002 P0003 P0004 P0005 P0006 P0007 P0008 P0009  
P0010 P0011 P0012 P0013 P0014 P0015 P0016 P0017 P0018  
P0019 P0020 P0021 P0022 P0023 P0024 P0025 P0026 P0027



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检测报告 编号: SHAEC24008425816 日期: 2024 年 05 月 07 日 第 7 页, 共 8 页

D2301 D2302 D2303 D2304 D2305 D2306 D2307 D2308 D2309  
D6001 D6002 D6003 D6004 D6005 D6006 D6007 D6008 D6009  
D2201 D2202 D2203 D2204 D2205 D2206 D2207 D2208 D2209  
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D630J D700G A20012 P0032 B4001 A0801 A1271 A1803  
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A20013 A1202 D2501 A1801 A1802



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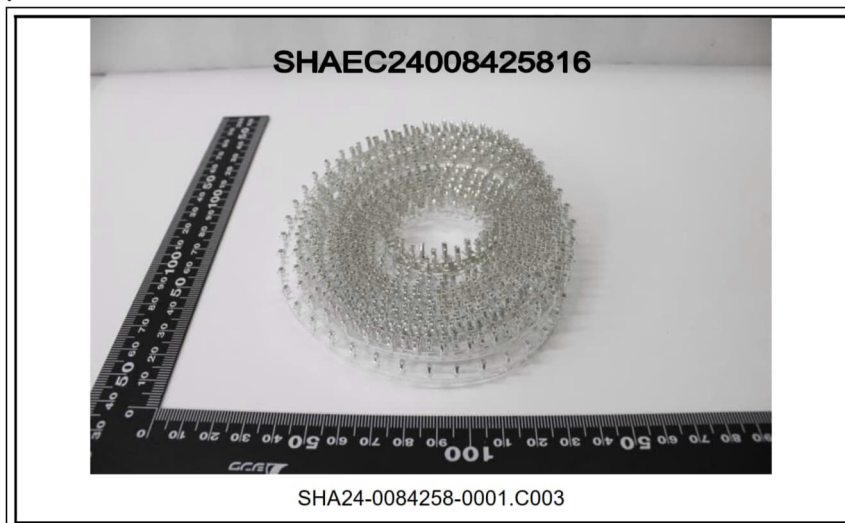
## 检测报告

编号: SHAEC24008425816

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第 8 页, 共 8 页

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## 检测报告

编号: SHAEC24008219302

日期: 2024 年 04 月 29 日

第 1 页, 共 11 页

客户名称: 浙江联和电子有限公司  
客户地址: 浙江省乐清市乐清湾港区乐商创业园  
浙江省乐清市乐清湾港区电子信息产业园红旗路 8 号

样品名称: LCP 连接器  
型号: 1.25-4AB  
客户参考信息: 见附件  
以上样品及信息由客户提供。

SGS 工作编号: TIC1020240423173125DXY5  
样品接收时间: 2024 年 04 月 24 日  
检测周期: 2024 年 04 月 24 日 ~ 2024 年 04 月 29 日  
检测要求: 根据客户要求检测。  
检测方法: 见后续页。  
检测结果: 见后续页。

| 检测要求                                                                                                                                                   | 结论 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 欧盟 RoHS 指令 2011/65/EU 附录 II 的修正指令(EU) 2015/863-铅、汞、镉、六价铬、多溴联苯 (PBB)、多溴二苯醚 (PBDE)、邻苯二甲酸二(2-乙基己基)酯 (DEHP)、邻苯二甲酸丁基酯 (BBP)、邻苯二甲酸二丁酯 (DBP)和邻苯二甲酸二异丁酯 (DIBP) | 符合 |

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Jenny Lan 兰柳珍  
批准签署人

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检测报告 编号: SHAEC24008219302 日期: 2024 年 04 月 29 日 第 2 页, 共 11 页

检测结果:

检测部件外观描述:

| 样品序号 | 样品编号 | SGS 样品 ID               | 样品描述   |
|------|------|-------------------------|--------|
| SN1  | A1   | SHA24-0082193-0001.C001 | 米色塑料部分 |

备注:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL= 方法检测限
- (3) ND = 未检出( < MDL)
- (4) "-" = 未规定

欧盟 RoHS 指令 2011/65/EU 附录 II 的修正指令(EU) 2015/863-铅、汞、镉、六价铬、多溴联苯 (PBB)、多溴二苯醚 (PBDE)、邻苯二甲酸二(2-乙基己基)酯 (DEHP)、邻苯二甲酸丁苄酯 (BBP)、邻苯二甲酸二丁酯 (DBP)和邻苯二甲酸二异丁酯 (DIBP)

检测方法: 参考 IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 和 IEC 62321-8:2017, 采用 ICP-OES/AAS, UV-Vis 和 GC-MS 进行分析。

| 检测项目             | 限值   | 单位    | MDL | A1 |
|------------------|------|-------|-----|----|
| 铅 (Pb)           | 1000 | mg/kg | 2   | 7  |
| 汞 (Hg)           | 1000 | mg/kg | 2   | ND |
| 镉 (Cd)           | 100  | mg/kg | 2   | ND |
| 六价铬 (Cr(VI))     | 1000 | mg/kg | 8   | ND |
| 多溴联苯之和 (PBB)     | 1000 | mg/kg | -   | ND |
| 一溴联苯 (MonoBB)    | -    | mg/kg | 5   | ND |
| 二溴联苯 (DiBB)      | -    | mg/kg | 5   | ND |
| 三溴联苯 (TriBB)     | -    | mg/kg | 5   | ND |
| 四溴联苯 (TetraBB)   | -    | mg/kg | 5   | ND |
| 五溴联苯 (PentaBB)   | -    | mg/kg | 5   | ND |
| 六溴联苯 (HexaBB)    | -    | mg/kg | 5   | ND |
| 七溴联苯 (HeptaBB)   | -    | mg/kg | 5   | ND |
| 八溴联苯 (OctaBB)    | -    | mg/kg | 5   | ND |
| 九溴联苯 (NonaBB)    | -    | mg/kg | 5   | ND |
| 十溴联苯 (DecaBB)    | -    | mg/kg | 5   | ND |
| 多溴二苯醚之和 (PBDE)   | 1000 | mg/kg | -   | ND |
| 一溴二苯醚 (MonoBDE)  | -    | mg/kg | 5   | ND |
| 二溴二苯醚 (DiBDE)    | -    | mg/kg | 5   | ND |
| 三溴二苯醚 (TriBDE)   | -    | mg/kg | 5   | ND |
| 四溴二苯醚 (TetraBDE) | -    | mg/kg | 5   | ND |
| 五溴二苯醚 (PentaBDE) | -    | mg/kg | 5   | ND |
| 六溴二苯醚 (HexaBDE)  | -    | mg/kg | 5   | ND |
| 七溴二苯醚 (HeptaBDE) | -    | mg/kg | 5   | ND |
| 八溴二苯醚 (OctaBDE)  | -    | mg/kg | 5   | ND |



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| 检测项目                   | 限值   | 单位    | MDL | A1 |
|------------------------|------|-------|-----|----|
| 九溴二苯醚 (NonaBDE)        | -    | mg/kg | 5   | ND |
| 十溴二苯醚 (DecaBDE)        | -    | mg/kg | 5   | ND |
| 邻苯二甲酸二(2-乙基己基)酯 (DEHP) | 1000 | mg/kg | 50  | ND |
| 邻苯二甲酸丁苄酯 (BBP)         | 1000 | mg/kg | 50  | ND |
| 邻苯二甲酸二丁酯 (DBP)         | 1000 | mg/kg | 50  | ND |
| 邻苯二甲酸二异丁酯 (DIBP)       | 1000 | mg/kg | 50  | ND |

备注:

(1) 最大允许限值引用自 RoHS 指令(EU) 2015/863。

(2) IEC 62321 系列等同于 EN 62321 系列。

(3) 2021 年 7 月 22 号开始, DEHP, BBP, DBP 和 DIBP 的限制适用于医疗器械, 包括体外医疗器械, 监控仪表, 包括工业监测和控制仪器。

除非另有说明, 参照 ILAC-G8:09/2019, 使用简单接受 ( $w=0$ ) 的二元判定规则进行符合性判定。

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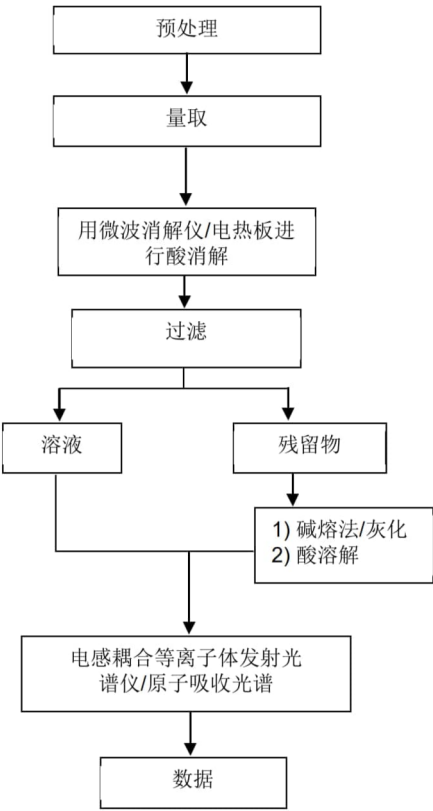
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第 4 页，共 11 页

附件

元素检测流程图

样品按照下述流程被完全消解



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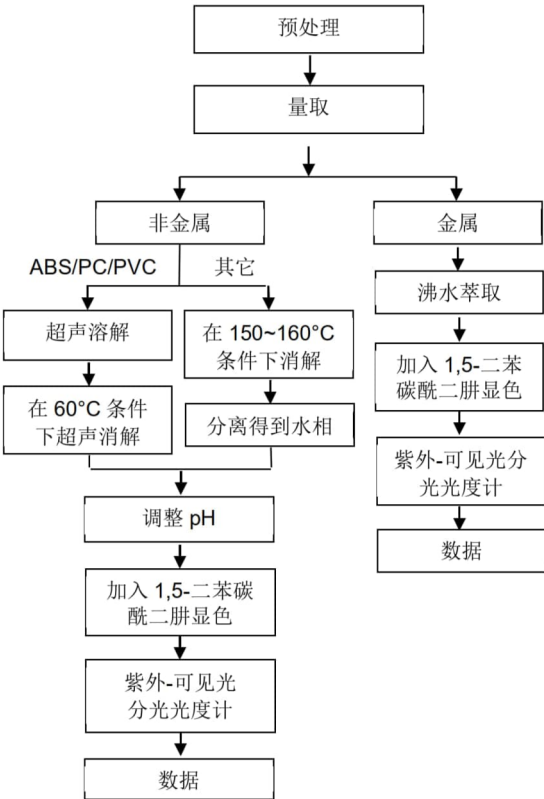
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编号: SHAEC24008219302

日期: 2024 年 04 月 29 日

第 5 页, 共 11 页

六价铬检测流程图



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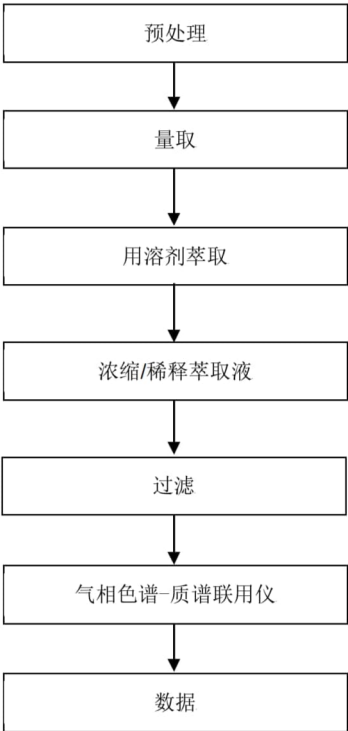
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附件

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日期：2024 年 04 月 29 日

第 6 页，共 11 页

PBB/PBDE 检测流程图



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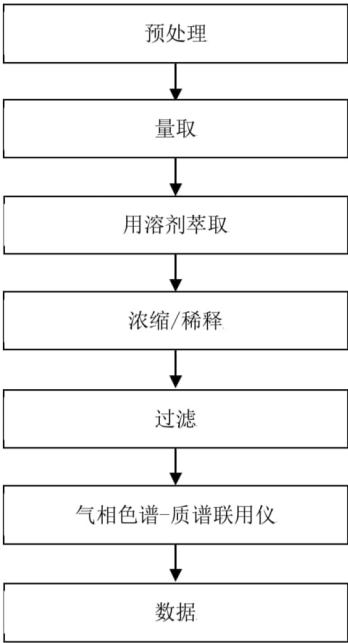
检测报告  
附件

编号：SHAEC24008219302

日期：2024 年 04 月 29 日

第 7 页，共 11 页

Phthalates 检测流程图



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## 检测报告

编号: SHAEC24008219302

日期: 2024 年 04 月 29 日

第 8 页, 共 11 页

附件:

1.0, SH, SHD, 1.25, 51021, DF14, DF13, GH, ZH, PH, PHB, PA, PHSD, DF11, C1251, 51047, 51146, FI-S, PHD, YHD200, PA, SMP, SMW, SMH, SMH200, SMH200-H, YH200, 20039WR, 杜邦 2.0, XH/TJC3, XA, HA, XHB, XHD, XHE, EH, EI, 小四 P, 5263, 5264, 5267, 5268, SZN, SAN, SCN, SCND, JC15, JC20, JC25, 5102, 5240, SMH250, SMP250, SMW250, 25048HS, 25045HP, SM, TJC8, 杜邦 2.54, TJC8A, 杜邦带锁, TJC8B, TJC8H, 5051, 2510, 美尚美, 43640, 43645, 43020, 43025, 5500, 5600, VH, VHRR, YH396, VHR, 35156, 2139, 3.96, 90331, 5195, 5196, 39612, FL, 5557, 5559, 5566, 5569, SL, RV42, EL, YL, 小 EL, 8981, 大四 P, 5058, 5.08, L6.2, VL, VLP/VLR, TJC2, TJC2A, TJC2B, TJC4, TJC1, 1806, MX3.0, 1.58, 51005, 51006, BH3.5, BH4.0, 63080, 51004, TJC15, A4203, CL014, OTP, MKH, SMF, Cy-X201, 35108, 35150, 35151, 35152, 35180, 35965, 42021, 42022, 42002, 35955, SA, SCS, 35189, 35196, CH10, CH2.5, 543, SLP, SLR, YHL500, YWL500, FFC, FPC, 20030, 250, LGC, S11, YH025, 35155, 25415, 5197, 5198, 110, 2.8, 6.3, SCS

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A1001 A1002 A1003 A1004 A1005 A1006 A1007 A1008 A1009



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编号: SHAEC24008219302

日期: 2024 年 04 月 29 日

第 9 页, 共 11 页

A1251 A1252 A1253 A1254 A1255 A1256 A1257 A1258 A1259  
A1501 A1502 A1503 A1504 A1505 A1506 A1507 A1508 A1509  
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A3961 A3962 A3963 A3964 A3965 A3966 A3967 A3968 A3969  
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C25010 C25011 C25012 C25013 C25014 C25015 C25016 C25017 C25018  
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C3961 C3962 C3963 C3964 C3965 C3966 C3967 C3968 C3969  
C4001 C4002 C4003 C4004 C4005 C4006 C4007 C4008 C4009  
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P0001 P0002 P0003 P0004 P0005 P0006 P0007 P0008 P0009  
P0010 P0011 P0012 P0013 P0014 P0015 P0016 P0017 P0018



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P0019 P0020 P0021 P0022 P0023 P0024 P0025 P0026 P0027  
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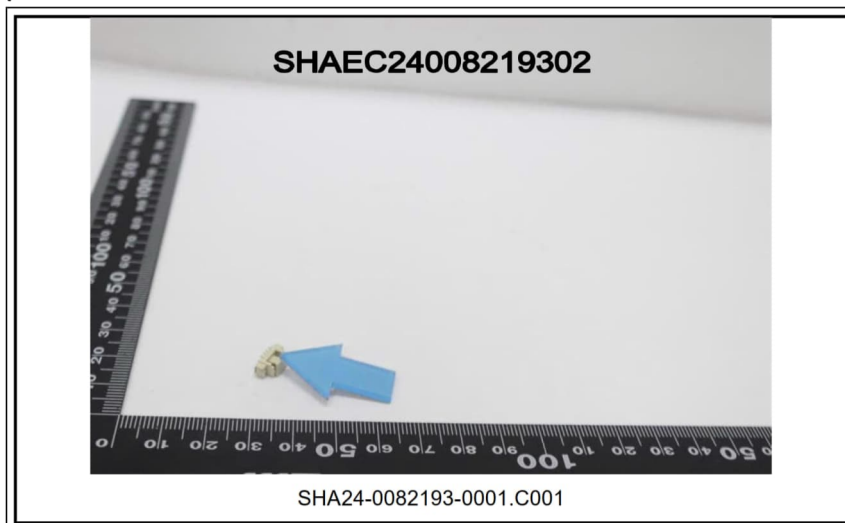
## 检测报告

编号: SHAEC24008219302

日期: 2024 年 04 月 29 日

第 11 页, 共 11 页

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## 物質安全資料表

## 一、物品與廠商資料

|                                                         |
|---------------------------------------------------------|
| 物品名稱：CCP PBT 複合材料                                       |
| 其他名稱：1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000系列   |
| 建議用途及限制使用：                                              |
| 製造商或供應商名稱、地址及電話：長春人造樹脂廠股份有限公司/台北市松江路301號7樓/(02)25001800 |
| 緊急聯絡電話/傳真電話：(07)3711301/(07)3710819                     |

## 二、危害辨識資料

|           |
|-----------|
| 物品危害分類：NA |
| 標示內容：NA   |
| 象徵符號：     |
| 警 示 語：    |
| 危害警告訊息：無  |
| 危害防範措施：無  |
| 其他危害：     |

## 三、成分辨識資料

| 混合物                        |                |
|----------------------------|----------------|
| 化學性質                       |                |
| 危害物質成分之中英文名稱               | 濃度或濃度範圍（成分百分比） |
| Polybutylene Terephthalate | 40~99          |
| Glass Fiber                | 10~50          |
| Additives                  | 0.4~40         |

## 四、急救措施

|                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 不同暴露途徑之急救方法：                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>吸入：當吸入加熱所產生之氣體時，應立即移至通風良好之處，如有必要則送醫治療。</li> <li>皮膚接觸：若被高溫的液體產物濺到皮膚，應立即沖水，冷卻後變硬之固體不可從傷處任意移走，經一段時間後會自行脫落，若情況危急應送醫治療。</li> <li>眼睛接觸：若被高溫的液體產物濺到眼睛，立即送醫並以大量的冷水沖洗。</li> <li>食入：無</li> </ul> |
| 最重要症狀及危害效應：無                                                                                                                                                                                                                  |
| 對急救人員之防護：無                                                                                                                                                                                                                    |
| 對醫師之提示：無                                                                                                                                                                                                                      |

## 五、滅火措施

|                      |
|----------------------|
| 適用滅火劑：水、乾粉、泡沫、二氧化碳   |
| 滅火時可能遭遇之特殊危害：無       |
| 特殊滅火程序：依B級火災處理       |
| 消防人員之特殊防護設備：穿著個人防護裝備 |

## 六、洩漏處理方法

|                      |
|----------------------|
| 個人應注意事項：處理時應穿著個人防護裝備 |
| 環境注意事項：包裝袋洩露會造成環境污染  |

清理方法：直接以掃帚清理作為回收料使用

#### 七、安全處置與儲存方法

處置：作業時配戴防護手套,及防塵口罩,避免粉塵由口鼻吸入

儲存：應存放於乾燥及通風良好之處

#### 八、暴露預防措施

工程控制：ND

| 控制參數                       |                         |                       |      |
|----------------------------|-------------------------|-----------------------|------|
| 八小時日時量平均<br>容許濃度<br>TWA    | 短時間時量平均<br>容許濃度<br>STEL | 最高容許<br>濃度<br>CEILING | 生物指標 |
| 依無毒粉塵標準<br>8HR 容許量 10mg/m3 |                         |                       | ND   |
| 個人防護設備：                    |                         |                       |      |
| • 呼吸防護：防粉塵用防護面罩            |                         |                       |      |
| • 手部防護：隔熱手套                |                         |                       |      |
| • 眼睛防護：安全防護鏡               |                         |                       |      |
| • 皮膚及身體防護：長袖工作服及安全鞋        |                         |                       |      |
| 衛生措施：工作後應徹底洗淨雙手            |                         |                       |      |

#### 九、物理及化學性質

|                      |              |
|----------------------|--------------|
| 外觀：固體                | 氣味：無臭        |
| 嗅覺閾值：                | 熔點：225℃      |
| Ph值：ND               | 沸點/沸點範圍：>350 |
| 易燃性(固體,氣體)：          | 閃火點：>355 °C  |
| 分解溫度：>300℃           | 測試方法：        |
| 自燃溫度：>420℃           | 爆炸界限：無可獲得的數據 |
| 蒸氣壓：ND               | 蒸氣密度：ND      |
| 密度：1.3-1.7           | 溶解度：不溶於水     |
| 辛醇／水分配係數(log Kow)：ND | 揮發速率：ND      |

#### 十、安定性及反應性

安定性：安定

特殊狀況下可能之危害反應：粉塵危害

應避免之狀況：加熱至300℃以上

應避免之物質：強鹼,強氧化劑

危害分解物：ND

#### 十一、毒性資料

暴露途徑：無

症狀：無

急毒性：無

慢毒性或長期毒性：無

#### 十二、生態資料

生態毒性：NA

持久性及降解性：持久性

|            |
|------------|
| 生物蓄積性：NA   |
| 土壤中之流動性：NA |
| 其他不良效應：NA  |

## 十三、廢棄處置方法

|                                |
|--------------------------------|
| 廢棄處置方法：PBT複合材料料頭外售,交由回收料廠商粉碎回收 |
|--------------------------------|

## 十四、運送資料

|                        |
|------------------------|
| 聯合國編號：Not regulated    |
| 聯合國運輸名稱：Not regulated  |
| 運輸危害分類：Not regulated   |
| 包裝類別：SEA BULK,太空包,紙袋   |
| 海洋污染物（是／否）：否           |
| 特殊運送方法及注意事項：運送過程保持貨品乾燥 |

## 十五、法規資料

|                    |
|--------------------|
| 適用法規：Not regulated |
|--------------------|

## 十六、其他資料

|      |                                    |                             |  |
|------|------------------------------------|-----------------------------|--|
| 參考文獻 |                                    |                             |  |
| 製表單位 | 名稱：長春人造樹脂廠股份有限公司高雄廠                |                             |  |
|      | 地址/電話：高雄縣仁武鄉仁武村工業一路14號/(07)3711301 |                             |  |
| 製表人  | 職稱：副課長                             | 姓名：吳福利                      |  |
| 製表日期 | 2008/09/16 04:35:39 PM             | 修改日期：2008/09/16 04:35:39 PM |  |
| 備註   |                                    |                             |  |

|                                       |                       |                            |
|---------------------------------------|-----------------------|----------------------------|
| 编号: LHES006                           |                       |                            |
| MSDS                                  |                       |                            |
| 1. 物品成分与厂商资料                          |                       |                            |
| 厂商名称: 浙江联和电子有限公司                      | 物品编号: QSN6.5-0.1      |                            |
|                                       | 物品名称: 磷铜端子            |                            |
|                                       | 纯物质:                  |                            |
|                                       | 危害物质成分(%) 无           |                            |
| 2. 成份辨识资料                             |                       |                            |
| 成份名称                                  | 化学文摘社登记号码(CAS No.)    | 浓度范围(成分百分比 Percentage (%)) |
| 铜(Cu)                                 | 7440-50-8             | 余量                         |
| 磷(P)                                  | 7723-14-0             | 0.0026-0.005%              |
| 锌(Zn)                                 | 7440-66-6             | 0.03-0.04%                 |
| 镍(Ni)                                 | 7440-02-0             | 0.054-0.063%               |
| 锑(Sb)                                 | 7440-36-0             | 0.00015%                   |
| 铅(Pb)                                 | 7439-92-1             | <0.005%                    |
| 铁(Fe)                                 | 7439-89-6             | 0.005-0.0059%              |
| 纯镍(Ni)                                | 7440-02-0             | 0.054-0.063%               |
| 纯锡(Sn)                                | 7440-31-5             | 6.2 %                      |
| 2. 危害辨认资料                             |                       |                            |
| 严重危害效应                                | 健康危害效应: 本产品在不具健康危害及危害 |                            |
|                                       | 环境影响: 本产品在不具对环境不具影响   |                            |
|                                       | 物理性及化学性危害: 固体/无味/多色   |                            |
|                                       | 特殊危害: 固体时(防火或高温)无特殊危害 |                            |
| 主要症状: 无                               |                       |                            |
| 3. 急救措施                               |                       |                            |
| 急救方法                                  | 吸入: 无吸入               |                            |
|                                       | 皮肤接触: 接触无危害           |                            |
|                                       | 食入: 无食入               |                            |
| 主要症状及危害效应: 无                          |                       |                            |
| 4. 灭火措施                               |                       |                            |
| 通用灭火器: 二氧化碳, 泡沫, 干粉化学灭火器, 水雾等         |                       |                            |
| 灭火时可能遭遇之特殊危害: 会引起火灾                   |                       |                            |
| 消防人员之特殊防护装备: 使用从氧式吸防护具                |                       |                            |
| 5. 泄漏处理方法                             |                       |                            |
| 个人应注意事项: 注意工作台面清洁, 作业时及时清洗手           |                       |                            |
| 环境注意事项: 将泄漏之物料以容器盛装以便回收或废弃            |                       |                            |
| 清理方式: 工作台面每天作业前/后须擦拭干净, 建议可以戴手套或手指套作业 |                       |                            |
| 6. 安全处置与储存方法                          |                       |                            |
| 处置: 废弃物可送到政府许可的废弃物处理中心进行处理            |                       |                            |

|                                                                                |                                   |
|--------------------------------------------------------------------------------|-----------------------------------|
| 储存：空调仓，23±5℃，湿度 65%以下，仓库里面安装灭火器                                                |                                   |
| 7. 暴露预防措施                                                                      |                                   |
| 个人防护设备                                                                         | 呼吸防护：口罩，一般无此要求，可以建议采用             |
|                                                                                | 手部防护设备：手套火手指套，一般无此要求，可以建议采用       |
|                                                                                | 眼睛防护：安全目镜或眼镜                      |
|                                                                                | 皮肤及身体防护：穿工作服，经常勤洗                 |
| 卫生措施：建议使用安全目镜，进食前应洗手及脸部，平时多运动，保持健康体力                                           |                                   |
| 8. 物料及化学性质                                                                     |                                   |
| 物质状态：固体                                                                        | 形状：连接器                            |
| 颜色：多色                                                                          | 气味：无味                             |
| PH 值：未测定                                                                       | 沸点：未测定                            |
| 分解温度：未测定                                                                       | 爆炸介限：无                            |
| 自然温度：固体无                                                                       | 溶解度：固体无                           |
| 9. 安全性及反应性                                                                     |                                   |
| 安全性：正常状态下安全                                                                    |                                   |
| 特殊状况下可能之危害反应：无                                                                 |                                   |
| 应避免之状况：避免接触火源和太阳光直射                                                            |                                   |
| 应避免之物质：火和酸碱性质物质                                                                |                                   |
| 危害分解物：无                                                                        |                                   |
| 10. 毒性资料                                                                       |                                   |
| 急毒性                                                                            | 吸入：无                              |
|                                                                                | 皮肤接触：无                            |
|                                                                                | 眼睛：无                              |
| 局部效应：无                                                                         | 特殊效应：无                            |
| 11. 废弃物处理方法：废弃物可送到政府许可的废弃物处理中心进行处理                                             |                                   |
| 12. 运送资料                                                                       |                                   |
| 联合国编号：无                                                                        | 运输规定：并无危险分类                       |
| 运送方法及注意事项：勿重压，轻拿轻放                                                             |                                   |
| 13. 适用法规：1.劳工安全卫生设施规划；2.危害物及有害物通讯规划；3.索尼环境通用规定；4 劳工工业环境空气中有害物容许溶度标准；5 道路交通安全规划 |                                   |
| 14. 其他资料：                                                                      |                                   |
| 15.法规资料                                                                        |                                   |
| 适用法规                                                                           | 1.劳工安全卫生设施规则<br>2.RoHS 法规及有害物通识规则 |
| 16.其它资料                                                                        |                                   |
| 参考文献                                                                           | 有害化学物质中文资料库，环保局                   |
| 制表单位                                                                           | 浙江联和电子有限公司                        |
| 制造商及供应商地址                                                                      | 浙江省温州乐清市乐清湾港区创新路8号                |
| 电话                                                                             | 0577-62383699                     |
| 制表者                                                                            | 季育文                               |
| 制表日期                                                                           | 2022-3-23                         |

## SAFETY DATA SHEET (SDS)

Issued: December 3, 2015

Revised: March 9, 2016

FileNo. 4052-1

## 1. Chemical Product &amp; Company Identification

CHEMICAL PRODUCT NAME: LAPEROS® E130i VF2201  
 NAME OF COMPANY: Polyplastics Co., Ltd.  
 ADDRESS: 2-18-1 Konan, Minato-ku, Tokyo, 108-8280 Japan  
 SECTION IN CHARGE: Quality Assurance Dept.  
 TELEPHONE NUMBER: 03-6711-8605  
 FACSIMILE NUMBER: 03-6711-8616

## 2. Hazards identification

## [ GHS CLASSIFICATION ]

Physical and Chemical Hazards : • Flammable solids : Classification not possible  
 • Self-reactive substances and mixtures : Not applicable  
 • Pyrophoric solids : Not classified  
 • Self-heating substances and mixtures : Not classified  
 • Substances and mixtures, which in contact with water, emit flammable gases : Not classified  
 • Oxidizing solids : Not classified  
 • Corrosive to metal : Not classified

Health Hazards : • Carcinogeneses : No hazard  
 • Specific target organ/systemic toxicity (Repeated exposure) : No hazard

[ GHS CLASSIFICATION ]  
 Environmental Hazards : No hazard  
 [ SYMBOL ] : None  
 [ SIGNAL WORD ] : None  
 [ HAZARD STATEMENT ] : None  
 [ PRECAUTIONARY STATEMENTS ]  
 Prevention : • Wash hands thoroughly after handling.  
 • Wear protective gloves.  
 Response : -  
 Storage : Avoid direct sunlight and store in a well-ventilated place.  
 Disposal : Dispose of contents/container in accordance with local & national regulations.

## 3. Composition/information on ingredients

SUBSTANCE/PREPARATION : Preparation  
 COMMON CHEMICAL NAME : Aromatic Liquid Crystal Polymer  
 SYNONYMS : Aromatic Liquid Crystal Polymer(LCP)  
 INGREDIENTS AND COMPOSITION : LCP ≥ 69%, Glass fiber 30%, Others ≤ 1%  
 CHEMICAL FORMULA : not open  
 SERIAL No. IN OFFICIAL GAZETTE : 7-2577(base resin) (Law Concerning Examination and Regulation of Manufacture, etc., of Chemical Substances)  
 CAS No. : 147310-94-9(base resin)  
 INGREDIENTS CONTRIBUTING TO THE HAZARD : Cadmium, lead, hexavalent chromium and mercury are not used in this grade.

## 4. First-aid measures

INGESTION : When a gas generated from the molten polymer has been inhaled, move to area of fresh air without delay and wait until the victim is recovered. If sick feeling continues, ask a physician for advice.

SKIN CONTACT : Cool the contacted skin with clean water without delay, if a contact with the polymer in a molten form. Do not force to remove the solid resin on the skin. If any burns are observed on

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EYE CONTACT                                   | the skin, ask a physician for advice.<br>: Cool and rinse the eye with clean water for at least 15 minutes when the eyes had contact with molten polymer. In case of wearing contact lenses, remove the lenses as soon as possible, and ask a physician for advice. When the eye had contact with the polymer in an ordinary solid form, rinse the eye with clean water without delay. If the discomfort persists, ask a physician for advice.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SWALLOW                                       | : Help to vomit as much as possible. If sick feeling continues, and ask a physician for advice.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <hr/>                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5. Fire-fighting measures                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| EXTINGUISHING MEDIA                           | : Water, foam fire-extinguishing agent, powder fire-extinguishing agent, and carbon dioxide gas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SPECIFIC METHODS                              | : Extinguish the fire with water. A method of extinguishing an ordinary fire may be applied. Do not apply water directly to processing machines.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| SPECIFIC HAZARDS                              | : Incomplete combustion leads to generation of toxic gases such as carbon monoxide or phenol, in addition to carbonic acid gas and water.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS | : In case the fire gained force, use a gas mask or other protective equipment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <hr/>                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 6. Accidental release measures                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| PERSONAL PRECAUTIONS                          | : When pellets were spilled on the road or floor, wipe them off with a besom or cleaner not to cause slipping.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ENVIRONMENTAL PRECAUTION                      | : Handle the spillage in accordance with provisions given in the "Resin pellet spillage preventive manual", in order to prevent intakes by marine animals and birds.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <hr/>                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 7. Handling and storage                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| HANDLING                                      | : LCP polymer in a pellet form will neither ignite nor explode at room temperatures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| HANDLING 2                                    | : This pellets spilled on the floor are likely to cause slipping. Remove such spillage at any times.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| HANDLING 3                                    | : For molding work, effective means for local exhaust are required to discharge gases generated by melt processing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| HANDLING 4                                    | : Avoid inhaling of gases generated in molding work.<br>Do not directly touch resin of high temperature.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| HANDLING 5                                    | : Avoid retaining hot resin in the processing machines for many hours.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| HANDLING 6                                    | : Glass fibers are not generally exposed in a single substance under normal processing and handling conditions as they are compounded in pellets. However, the following measures will be necessary to minimize the exposure to glass fibers or dusts containing glass fibers, when pellets or molded parts containing glass fibers are cut, ground or burnt, depending on environmental and operational conditions.<br>·Those who are sensitive in skin to glass fiber should wear suitable(protective) clothes to minimize the exposure of their skin.<br>·Wash working clothes apart from other laundry, so that the latter will not cause contamination with glass fibers.<br>·Provide the workshop with partitions to prevent diffusion of glass fiber dusts.<br>·Pay precautions not to rub face, neck or arms with hands. Wash hands and gargle after working without fall.<br>·Keep dust sources totally enclosed. |

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                           | <ul style="list-style-type: none"> <li>·Provide local air exhausters and implement periodical inspections and adjustments at least once a year.</li> <li>·Reduce cutting and grinding processes to the possible minimum, and devise working procedures to minimize dust generation.</li> <li>·Provide dust-preventive masks, protective glasses and gloves for personal hygiene.</li> <li>·Determine the operational environment at indoor working places and confirm the effects of environmental improvement.</li> </ul> <p>Note) Glass fibers are, like road dusts, told to be least hazardous to human bodies, but proper measures are required to avoid useless inhaling.</p> |
| STORAGE                                   | : Keep the substance away from any fire or heat sources for the sake of safe storage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| STORAGE 2                                 | : Handle in accordance with municipal rules and regulations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| RECOMMENDED PACKAGING MATERIALS           | : No information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <hr/>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 8. Exposure controls/ personal protection |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| CONTROL CONCENTRATION                     | : None at present                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PERMISSIBLE CONCENTRATION                 | : OSHA PEL/1985<br>Max. permissible concentration of inactive powder 15mg/m3<br>- ditto - (Aspiration ) 5 mg/m3<br>ACGIH TLV/1992 1993<br>Exposure limit of the powder TWA 10 mg/m3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ENGINEERING MEASURE                       | : ·When handling dust: Use totally enclosed containers resisting dust explosion.<br>·When heat melted in molding: Effective local ventilation must be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| PERSONAL PROTECTIVE EQUIPMENT             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| RESPIRATORY PROTECTION                    | : Wear a dust-proof mask.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| HAND PROTECTION                           | : Wear heat-resisting gloves against burns, when handling molten polymer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| EYE PROTECTION                            | : Wear protective glasses or goggles.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| SKIN & BODY PROTECTION                    | : Wear long sleeve clothes against burns, when handling molten polymer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <hr/>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 9. Physical and chemical properties       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| APPEARANCE etc.                           | : Pellet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| BOILING POINT                             | : Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| VAPOUR PRESSURE                           | : Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| VOLATILITY                                | : Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| INITIAL BOILING POINT                     | : Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| SUBLIMATION                               | : None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MELTING POINT                             | : 335°C~345°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| DENSITY                                   | : 1.61                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SOLUBILITY                                | : Insoluble in water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| FLASH POINT                               | : No finding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| IGNITION POINT                            | : 540°C or higher                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| EXPLOSION PROPERTY                        | : Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| INFLAMMABILITY                            | : It is flammable, but shows self-fire extinguishing characteristics when kept away from flame.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| REACTIVITY WITH WATER                     | : None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| OXIDIZABILITY                             | : None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SELF-REACTIVITY                           | : None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| DUST EXPLOSIVENESS                        | : No finding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <hr/>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 10. Stability and reactivity              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| STABILITY AND REACTIVITY                  | : Stable for normal storage or handling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## 11. Toxicological information

|                                                                                     |                                                                                                                                    |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| SKIN CORROSION/IRRITATION                                                           | : No finding.                                                                                                                      |
| SERIOUS EYE DAMAGE/IRRITATION                                                       | : Gas generated in drying or melting is irritating eyes and skins.                                                                 |
| RESPIRATORY OR SKIN SENSITISATION                                                   | : No finding.                                                                                                                      |
| ACUTE TOXICITY(INCLUDING LD50)                                                      | : No finding.                                                                                                                      |
| SUBACUTE TOXICITY                                                                   | : No finding.                                                                                                                      |
| CHRONIC TOXICITY                                                                    | : No finding.                                                                                                                      |
| CARCINOGENECITY                                                                     | : No finding.                                                                                                                      |
| MUTAGENECITY(Micro organisms, chromosomal aberration)                               | : No finding.                                                                                                                      |
| REPRODUCTIVE TOXICITY                                                               | : No finding.                                                                                                                      |
| TERATOGENICITY                                                                      | : No finding.                                                                                                                      |
| OTHERS(Including generation of hazardous gases by reaction with water, for example) | : No finding in this report means that there will be no hazard in general, but no proving data available at the time of reporting. |
| OTHER CAUTIONS                                                                      | : With regard to dust, the maximum permissible concentration and limits are fixed by OSHA and ACGIH.                               |
| OTHER CAUTIONS 2                                                                    | : Information on hazards of glass fibers as filler.                                                                                |

## 〈Effects on Human Bodies〉

## (1) Effects on skin

Stimulation to the skin with glass fibers may be caused when glass fibers diameter is larger than  $4.5 \sim 5 \mu\text{m}$ . They give mechanical stimulation followed by itchiness to the skin, but further continuous exposure reportedly results in extinction of stimulation. It may sometimes leads to irritable dermatitis complicated with urticaria or eczema-like reaction. It is, however reported that such dermatitis is not so serious in general and does not last too long. Therefore, skin stimulation can be prevented by proper use of glass fibers.

## (2) Effects on Tumor

Investigations made on glass fibers till today reveal that there is neither increase in mortality of glass fiber production workers due to lung cancer or mesothelioma nor such cases reported.

## 〈Animal Test Report〉

It is suggested that carcinogenicity of mineral fibers is dependent on their shapes rather than on their constituents. According to a report on experiments using 17 kinds of artificial mineral fibers in various sizes prepared by Dr.Stanton of National Cancer Institute, in USA, statistical studies on correlations between the diameter and length of fibers and the coincidence of mesothelioma have revealed that mineral fibers having a diameter smaller than  $0.25 \mu\text{m}$  and a length larger than  $8 \mu\text{m}$  are closely related to the coincidence of cancers. Since these experiments were performed by artificially dosing the subject animals with a large quantity of glass fibers and consequently they are quite different from the actual exposures to human bodies, it is told to be problematic to make a conclusion that mineral fibers are hazardous to human health, basing on the results obtained from these experiments. Up to the present time, there is no result obtainable to demonstrate a mechanism of glass fibers causing lung cancers in spite of experiment by long exposure to glass fibers with high concentration.

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12. Ecological information            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| BIODEGRADABILITY                      | : No finding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| BIOACCUMULATION                       | : No finding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| FISH TOXICITY                         | : No finding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| HAZARDS TO OZONE LAYER                | : None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 13. Disposal considerations           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| WASTE FROM RESIDUES                   | : This is designated as waste plastics among industrial wastes by the Wastes Disposal Law. Disposal waste pellets through licensed wastes handlers or local autonomous bodies if they are handling wastes disposal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| WASTE FROM RESIDUES 2                 | : When disposed by incineration, use the well controlled incinerators in accordance with the Wastes Disposal Law, Air Pollution Control Law and Water Pollution Prevention Law.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 14. Transport information             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UN CLASSIFICATION NUMBER              | : Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| OTHER CAUTIONS                        | : Handle with care so as not to give damages to containers or not to be subjected to wetting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| OTHER CAUTIONS 2                      | : Secure the containers firmly so as not to cause collapsing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 15. Regulatory information            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| WASTE DISPOSAL LAW                    | : Waste plastics among industrial wastes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 16. Other information                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| HANDLING OF THE DETAILS GIVEN ABOVE   | : This SDS is the English version translated from the Japanese SDS which is prepared for domestic use.<br>Details given above are based on references, information and data available at this moment, but no warranty can be made on exactness of these details. They are also prepared on the assumption that the product will be handled in a normal way. For special handling, adequate safety and environmental measures should be taken in respect to its applications. Our products are not specifically intended for implants for medical and dental applications, and therefore they are not recommended for such applications.<br>"No finding" in this report means that there will be no hazard in general, but no proving data is available at the time of reporting. |
| WHERE TO CALL FOR FURTHER INFORMATION | : Polyplastics Co., Ltd. Quality Assurance Dept. Tel. No 03-6711-8605                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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