# PRODUCT SPECIFICATION

# (產品規格書)

## Ordering information

| 2531-B | xx | G | 00 | D | x | T |
|---|---|---|---|---|---|---|
| Series | No. of Pin Count | G：Gold Plated | 00:Gold Flash | D：S.M.D Type | A：0.2mm thickness FFC/FPC<br>B：0.3mm thickness FFC/FPC | T：Tape & Reel Package |

A1 JUN.26/2013.(增加 2531-B 產品)
A2:NOV.25/2014.(修改材證連結)
A3:AUG.06/2015(修改焊接秒數)
A4:MAR.14/2016(增加 P6/P7 內容)
A5:Dec.29/2020(Solder Tab 材質改為 C5210)

| **PRODUCT NAME** (產品名稱) | **DOCUMENT No.:** (文件編號) | **Rev.** (版本) | **OUPIIN** |
|---|---|---|---|
| FFC/FPC Connector 0.5mm | 2531spec-B | A6(I570) | (歐品) |
| Flip Lock Type | **Approved** (核準) | **Checked** (審核) | **Prepared** (製作) |
| (RoHS) | Q.A. Section Chief | Ben Lin | 2020-12-29 |

# PRODUCT SPECIFICATION OF OUPIIN

# 1. SCOPE （範圍）

This product specification defines the product performance and the test methods to ascertain the performance of the FFC/FPC pitch 0.50mm Flip Lock Type , which is designed and manufactured by Oupiin Electronic Co.,Ltd.

(本產品規格書規定了由歐品電子有限公司生產的 FFC/FPC pitch 0.50mm Flip Lock Type , 型連接器,產品的特性及測試方法.)

# 2. REFERENCE DOCUMENTS （參考文件）

| | |
|---|---|
| MIL-STD-1344A | Test method for electrical connector<br>（電子連接器測試方法） |
| MIL-STD-202 | Test method for electrical components<br>(電子零件測試方法） |
| EIA 364 | Test method for electrical components<br>（電子零件測試方法） |

# 3. FEATURE & DIMENSIONS （特徵及尺寸）

## 3.1. PRODUCT DIMENSION （產品尺寸）

These connectors shall have the dimensions as shown in drawing.

(本產品的相關尺寸參考圖面.)

## 3.2. PCB/PANEL LAYOUT （印刷電路板佈局）

The recommended PCB layout is shown in drawing.

(本產品適用的 PCB layout 參考圖面.)

## 3.3. BILL OF MATERIAL （材料清單）

Harmful material control follow the requirement of RoHS. The bill of material and product number is described in drawing.

(有害物質控制符合RoHS指令要求.本產品使用的材料參考附件.)

## 3.4. MECHANICAL & ELECTRICAL CHARACTERISTIC（機械及電氣特性）

The connector shall have the mechanical and electrical performance as described in drawing.

(本產品的機械及電氣特性見圖面：)

## 3.5. PACKAGING （包裝）

Products shall be packaged according to requirements specified in purchase order for safe delivery, connector container and the packaging method are shown in package specification.

(產品可依客戶指定要求包裝，包裝材料與包裝方式參見產品包裝規範。)

### 3.6 RATING CURRENT AND RATING VOLTAGE *額定電流與額定電壓*

Rating current is 0.5 A, rating voltage is 50V DC/AC.
額定電流 0.5 A，額定電壓 50V DC/AC。

### 3.7 STORAGE AND OPERATING TEMPERATURE *儲存與使用溫度*

Temperature range: -55°C~+85°C, including terminal temperature rise for rating current.
溫度範圍：-55°C~+85°C，包含接觸端子的額定電流溫升。

## 4. ENVIRONMENTAL（環境要求）

### *4.1. SOLDERABILITY （可焊性）*

Connectors meet solder ability to MIL-STD-202. Finish shall be free of contaminants.
(產品可焊性符合 MIL-STD-202 標準規定的相關要求，表面不得有污染物.)

### *4.2. RESISTANCE TO SOLDER HEAT （耐焊接熱）*

***INFRARED REFLOW （紅外線回流焊接）***

Three cycles. Each cycle consisting of three consecutive phased.
(三個週期，每個週期包括三個連續的階段完成；)

***1. Preheat （預熱）***

Increase in temperature not to exceed 4℃ per second.
(溫度增加不超過 4℃ /秒,)

***2. Soldering （焊接）***

Maximum allowable time above reflow temperature of 150~200℃ is 90~120 seconds. Maximum temperature in this interval is 260℃, not to exceed 5 seconds.
(回流焊溫度150~200℃時最長不超過90~120秒. 最高溫度260℃時間不超過5秒.)

***3. Cool Down （冷卻）***

Cool down shall not exceed 6℃ per second.
(冷卻速度不超過6℃/秒.)

**Note:** （說明）
Device temperature measurements are referenced from the top-center of the package outer surface.
(設備溫度量測時以從頂部中間位置測量為准.)

# 5. PERFORMANCE AND TEST DESCRIPTION

# （性能及测試）

## *5.1. REQUIREMENT （要求）*

Product is designed to meet electrical, mechanical, and environmental performance requirements specified in **Table I**.
(本產品設計符合**附表一**所列的機械，電氣及環境要求.)

## *5.2. TEST CONDITION (測試條件)*

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.
(除非特別注明，所有測試在室溫條件下完成；)

## *5.3. SAMPLE SELECTION （樣品選擇）*

Test samples shall be selected at random from current production. No test samples shall be reused. Samples are pre-conditioned with 10cycles of durability. Each group shall be containing 5 test samples.
(測試樣品從現生產的產品中隨機抽取，所有測試過的樣品不得重複使用. 樣品已預先插拔10次，每組測試有5個樣品；)

# Table I: Test Requirements and Procedures

# (附錄一:測試要求)

| Items (項目) | Requirements (要求) | Test Methods (檢測方法) |
|---|---|---|
| 1. Confirmation of Product (產品確認) | Product shall be conforming to the requirements of applicable product drawing. (產品必須滿足相關檔的規定) | Check the dimensions and functions per applicable product drawing in your eyes. (目視，尺寸及功能依產品圖面檢查) |
| 2. Contact Resistance (接觸阻抗) | 40 mΩ Max. (最大) | Subject mated contacts assembled in housing to closed circuit of 100 mA max. at open circuit voltage of 20 mV max. (所述固定在外殼裏的端子連結到一個封閉回路中測試：電流 100 mA，電壓 20 mV max.) |
| 3. Insulation Resistance (絕緣阻抗) | 50 MΩ Min. (最小) | Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. MIL-STD-202, Method 302, Condition B (500 V DC±10%). (測試產品端子間以及端子與接地間的電阻，適用：MIL-STD-202,方法 302，條件 B ) (500V DC±10%) |
| 4. Dielectric Strength (耐電壓) | Connector must withstand test potential of 250 V AC for 1 minute. (樣品必須承受測試電壓 250V AC，時間一分鐘) | Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. MIL-STD-202, Method 301. (測試產品端子間以及端子與接地間的電壓，適用：MIL-STD-202，方法 301。) |
| 5. Durability (耐久性) | Contact Resistance: 60 mΩ Max. after testing. (測試後接觸阻抗最大 60 mΩ) | The sample should be mounted the tester and fully mated and unmated 50 cycles specified at the rate of 10 cycle max/min (重復進行配合產品 50 次插拔.) |
| 6. FFC/FPC Retention Force (FFC/FPC 保持力) | Retention force : 0.015 Kgf / pin min 0.015 Kgf 最小 | Measure force necessary to unmated between the counterparts connectors.. (軸向力以 25±3mm/分的速度從塑膠本體對插後拔出) |

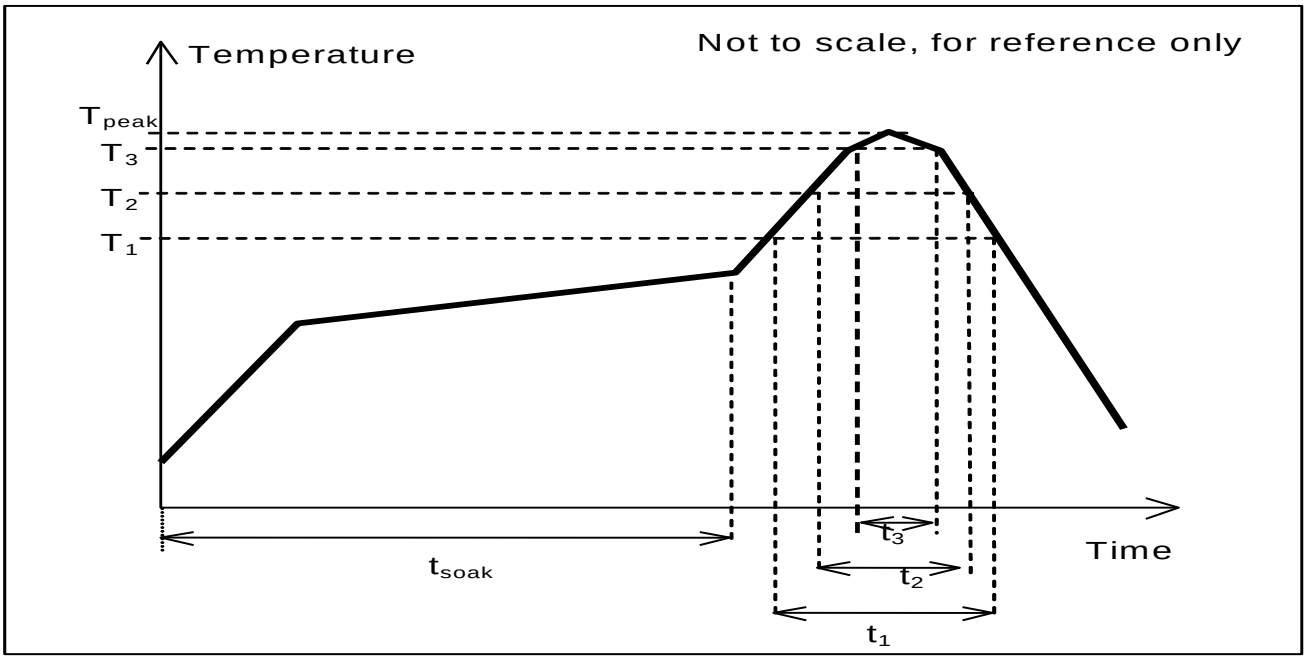
| | | |
|---|---|---|
| 7.Contact/Peg Retention Force (保持力) | Retention force : 0.08 Kgf min | Apply axial pull out force at the rate of 25.4± 3mm/min on the terminal assembled in the housing (軸向力以 25.4±3mm/分的速度從塑膠本體對插後拔出) |
| 8. Thermal shock (熱衝擊) | After testing, no damage, Contact Resistance 60 mΩ max.. (測試後,產品無損壞， 接觸阻抗：60 mΩ最大) | Temperature range from -55°C to +85°C .Start from -55°C, after 30 min. change to +85°C; change time is no more than 30 seconds. Total 5 cycles. MIL-STD-202, Method 107D, condition A. (溫度變化範圍： -55°C~ +85°C；從 -55°C 開始，30 分鐘後換到+85°C；轉換時間不超過 30 秒；共 5 個循環.適用：MIL-STD-202，方法 107D，條件 A.) |
| 9. Humidity (恆溫恆濕) | After testing, no damage, Contact Resistance 60 mΩ max.. (測試後,產品無損壞， 接觸阻抗：60 mΩ最大.) | Temperature :40±2°C 96 hours. (溫度：40±2°C 96 小時) Relative Humidity : 90-95%; (相對濕度 ：90-95%；) Duration :96 Hours. MIL-STD-202, Method 108, (時間：96 小時；MIL-STD-202，方法 108。) |
| 10. Salt Spray (鹽霧) | After testing, no damage, Contact Resistance 60 mΩ max.. (測試後,產品無損壞， 接觸阻抗：60 mΩ最大) | 5±1% salt concentration 48 hours 35±2°C MIL-STD-202, Method 101 Condition B. (鹽水濃度（重量比）5±1%，時間 48 小時，溫度 35±2°C；MIL-STD-202， 方法 101 條件 B.) IEC-364-26A |
| 11. Solder ability (可焊性) | The inspected area of each lead must have 95% solder coverage minimum 浸漬面積需 95%以上 | Soldering time: 3 to 5 Seconds (焊接時間：3~5 秒) Soldering Temperature: 245±5°C. (焊接溫度：245±5°C.) |
| 12.Resistance to soldering heat 耐焊接热 | No damage 產品無損壞 | Leave subject product in the 260±5°C chamber for 5 Seconds 產品置於 260±5°C 烘箱內 5 秒。 |

# Table II: Reflow soldering profile

## (附錄二:回流焊接曲線圖)

**Pb-free reflow profile requirements: (無鉛回流焊接曲線)**

| Parameter (參數) | Reference (參考) | Specification (規格) |
|---|---|---|
| Average Temperature Gradient in Preheating (平均預熱溫度) | | 2.5°C/s |
| Soak Time 25~150°C | $T_{soak}$ | 180 Seconds (max) |
| Time Above 150~200°C | $t_1$ | 120 Seconds (max) |
| Time Above 200~230°C | $t_2$ | 30 Seconds (max) |
| Time Above 230~255°C | $t_3$ | 3 Seconds (max) |
| Peak temperature in reflow (回流焊接中最高溫度) | $T_{peak}$ | 260°C (–0/+5°C) |
| Temperature Gradient in Cooling (冷卻時溫度幅度) | | Max -5°C/s |




This profile is the minimum requirement for evaluating soldering heat resistance of components. Heat transfer method used for reflow soldering is hot air convection. The actual air temperatures used to achieve the specified profile largely dependent on the reflow equipment.

(這個曲線圖是評估原器件焊接抗熱的基本要求. 應用在對流焊接中的熱傳遞方式是熱氣對流. 達到特定曲線圖的實際溫度主要依賴於回流焊接設備.)

# PRODUCT SPECIFICATION OF OUPIIN

Material Housing : I570- LCP E6808I(White)

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## LCP的物性一览表

| 测定项目 | | 测定方法 | 单位 | E6008 | E6006L | E6007LHF | E6807LHF | E6808LHF | E6808UHF | E6810LHF | E7006L | E7008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 充填材料 | | | | 玻璃纤维 | 玻璃纤维 | 玻璃纤维 | 玻璃纤维/无机 | 玻璃纤维/无机 | 玻璃纤维/无机 | 玻璃纤维/无机 | 玻璃纤维 | 玻璃纤维 |
| 标准成型温度 | | | ℃ | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 320 | 320 |
| 比重 | | ASTM D792 | | 1.7 | 1.61 | 1.65 | 1.67 | 1.7 | 1.72 | 1.82 | 1.64 | 1.71 |
| 吸水率 | | ASTM D570 | % | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 成型收缩率 | MD | 住化法 | % | 0.18 | 0.19 | 0.2 | 0.11 | 0.17 | 0.22 | 0.13 | 0.14 | 0.17 |
| | TD | | % | 1.16 | 0.74 | 0.6 | 0.63 | 0.4 | 1.02 | 0.38 | 0.79 | 1.05 |
| 拉伸强度 | | ASTM D638 | MPa | 147 | 164 | 157 | 134 | 130 | 100 | 105 | 133 | 127 |
| 拉伸伸长率 | | | % | 5.2 | 5 | 5.1 | 4.5 | 4.5 | 5 | 4 | 4.5 | 4.2 |
| 弯曲强度 | 23℃ | ASTM D790 | MPa | 143 | 153 | 158 | 145 | 140 | 120 | 133 | 140 | 138 |
| | 200℃ | | MPa | 33 | 34 | - | 29 | | - | - | 21 | 24 |
| 弯曲弹性率 | 23℃ | ASTM D790 | MPa | 12300 | 11300 | 11800 | 12100 | 12500 | 9400 | 12600 | 11200 | 11300 |
| | 200℃ | | MPa | 4900 | 5100 | - | 4500 | | - | - | 3140 | 3230 |
| Izod 冲击强度 | 6.4t V型凹槽(有) | ASTM D256 | J/m | 108 | 137 | - | 118 | 96 | - | - | 78 | 56 |
| | 6.4t V型凹槽(无) | | J/m | 412 | 363 | 251 | 343 | 270 | 350 | 200 | 255 | 275 |
| 剪切强度 | | ASTM D732 | MPa | 51 | 55 | - | 53 | 54 | - | - | 48 | 49 |
| 泊松比 | | ASTM D785 | | 0.46 | 0.45 | - | 0.41 | 0.4 | - | - | 0.45 | 0.42 |
| 洛氏强度 | | ASTM D785 | R比例尺 | R103 | R103 | 106 | R101 | R97 | 96 | 102 | R107 | R107 |
| 负荷弯曲温度 | | ASTM D648 | ℃ | 279 | 284 | 269 | 270 | 270 | 240 | 266 | 242 | 242 |
| 耐焊锡性 | | 住化法 | ℃ | 300 | 300 | 300 | 295 | 280 | 290 | 280 | 275 | 275 |
| 线膨胀系数 | MD | 住化法 | $\times 10^{-5}$/℃ | 1.3 | 2 | 0.2 | 1 | 0.4 | 1 | - | 0.8 | 0.8 |
| (150℃) | TD | | $\times 10^{-5}$/℃ | 5.6 | 8.9 | 8.5 | 6.3 | 8.1 | 6.2 | - | 8.4 | 7.8 |
| 界限氧指数 | | JIS K7201 | - | 48 | 42 | 40 | 45 | 44 | 48 | 48 | 49 | 49 |
| 难燃性 | 难燃等级 | UL94 | mmt | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 |
| | 颜色 | | | ALL | NC, BK | ALL | ALL | NC, BK | NC, BK | NC, BK | NC, BK | NC, BK |
| | 厚度 | | | 0.3 | 0.3mmt | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.38 | 0.38 |
| 热传导率 | | JIS R2618 | W/mk | 0.52 | 0.53 | - | 0.56 | - | - | - | 0.55 | 0.56 |
| | | | kcal/mhr℃ | 0.45 | 0.46 | - | 0.48 | - | - | - | 0.47 | 0.48 |
| 介电常数 | (103Hz) | ASTM D150 | | 4.4 | 4.3 | - | 4.7 | - | - | - | 4.6 | 4.7 |
| | (106Hz) | | | 3.9 | 3.7 | 3.8 | 4.1 | 3.8 | 3.8 | 4.1 | 3.9 | 4.1 |
| | (109Hz) | | | - | - | 3.5 | - | 3.6 | 3.4 | 3.8 | - | - |
| 介电损耗因子 | (103Hz) | | | 0.022 | 0.023 | - | 0.024 | - | - | - | 0.026 | 0.024 |
| | (106Hz) | | | 0.022 | 0.034 | 0.026 | 0.03 | 0.038 | 0.033 | 0.02 | 0.032 | 0.03 |
| | (109Hz) | | | - | - | 0.004 | - | 0.004 | 0.004 | 0.004 | - | - |
| 体积固有电阻 | | ASTM D257 | Ωm | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 |
| 耐电弧性 | | ASTM D495 | sec | 130 | 130 | 124 | 180 | 140 | 132 | 181 | 125 | 125 |
| 耐电弧轨迹性 | | IEC法 | V | 125 | 115 | 175 | 150 | 190 | 200 | 200 | 155 | 155 |

# PRODUCT SPECIFICATION OF OUPIIN

Material Cover : I570- LCP E6808I(BK)

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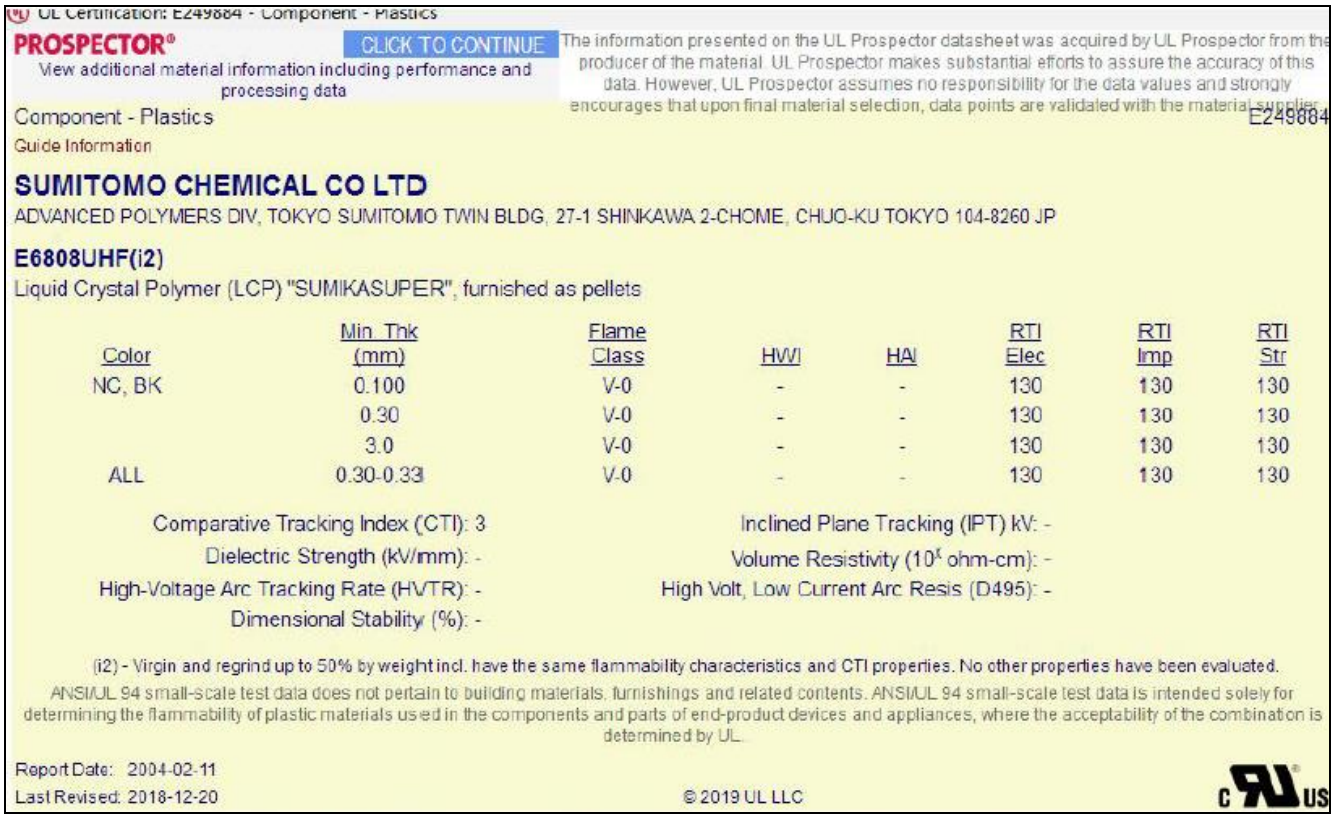
## LCP的物性一览表

| 测定项目 | | 测定方法 | 单位 | E6008 | E6006L | E6007LHF | E6807LHF | E6808LHF | E6808UHF | E6810LHF | E7006L | E7008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 充填材料 | | | | 玻璃纤维 | 玻璃纤维 | 玻璃纤维 | 玻璃纤维/无机 | 玻璃纤维/无机 | 玻璃纤维/无机 | 玻璃纤维/无机 | 玻璃纤维 | 玻璃纤维 |
| 标准成型温度 | | | ℃ | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 320 | 320 |
| 比重 | | ASTM D792 | | 1.7 | 1.61 | 1.65 | 1.67 | 1.7 | 1.72 | 1.82 | 1.64 | 1.71 |
| 吸水率 | | ASTM D570 | % | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 成型收缩率 | MD | 住化法 | % | 0.18 | 0.19 | 0.2 | 0.11 | 0.17 | 0.22 | 0.13 | 0.14 | 0.17 |
| | TD | | % | 1.16 | 0.74 | 0.6 | 0.63 | 0.4 | 1.02 | 0.38 | 0.79 | 1.05 |
| 拉伸强度 | | ASTM D638 | MPa | 147 | 164 | 157 | 134 | 130 | 100 | 105 | 133 | 127 |
| 拉伸伸长率 | | | % | 5.2 | 5 | 5.1 | 4.5 | 4.5 | 5 | 4 | 4.5 | 4.2 |
| 弯曲强度 | 23℃ | ASTM D790 | MPa | 143 | 153 | 158 | 145 | 140 | 120 | 133 | 140 | 138 |
| | 200℃ | | MPa | 33 | 34 | - | 29 | | - | - | 21 | 24 |
| 弯曲弹性率 | 23℃ | ASTM D790 | MPa | 12300 | 11300 | 11800 | 12100 | 12500 | 9400 | 12600 | 11200 | 11300 |
| | 200℃ | | MPa | 4900 | 5100 | - | 4500 | | - | - | 3140 | 3230 |
| Izod 冲击强度 | 6.4t V型凹槽(有) | ASTM D256 | J/m | 108 | 137 | - | 118 | 96 | - | - | 78 | 56 |
| | 6.4t V型凹槽(无) | | J/m | 412 | 363 | 251 | 343 | 270 | 350 | 200 | 255 | 275 |
| 剪切强度 | | ASTM D732 | MPa | 51 | 55 | - | 53 | 54 | - | - | 48 | 49 |
| 泊松比 | | ASTM D785 | | 0.46 | 0.45 | - | 0.41 | 0.4 | - | - | 0.45 | 0.42 |
| 洛氏强度 | | ASTM D785 | R比例尺 | R103 | R103 | 106 | R101 | R97 | 96 | 102 | R107 | R107 |
| 负荷弯曲温度 | | ASTM D648 | ℃ | 279 | 284 | 269 | 270 | 270 | 240 | 266 | 242 | 242 |
| 耐焊锡性 | | 住化法 | ℃ | 300 | 300 | 300 | 295 | 280 | 290 | 280 | 275 | 275 |
| 线膨胀系数 | MD | 住化法 | $\times 10^{-5}$/℃ | 1.3 | 2 | 0.2 | 1 | 0.4 | 1 | - | 0.8 | 0.8 |
| (150℃) | TD | | $\times 10^{-5}$/℃ | 5.6 | 8.9 | 8.5 | 6.3 | 8.1 | 6.2 | - | 8.4 | 7.8 |
| 界限氧指数 | | JIS K7201 | - | 48 | 42 | 40 | 45 | 44 | 48 | 48 | 49 | 49 |
| 难燃性 | 难燃等级 | UL94 | mmt | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 |
| | 颜色 | | | ALL | NC, BK | ALL | ALL | NC, BK | NC, BK | NC, BK | NC, BK | NC, BK |
| | 厚度 | | | 0.3 | 0.3mmt | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.38 | 0.38 |
| 热传导率 | | JIS R2618 | W/mk | 0.52 | 0.53 | - | 0.56 | - | - | - | 0.55 | 0.56 |
| | | | kcal/mhr℃ | 0.45 | 0.46 | - | 0.48 | - | - | - | 0.47 | 0.48 |
| 介电常数 | (103Hz) | ASTM D150 | | 4.4 | 4.3 | - | 4.7 | - | - | - | 4.6 | 4.7 |
| | (106Hz) | | | 3.9 | 3.7 | 3.8 | 4.1 | 3.8 | 3.8 | 4.1 | 3.9 | 4.1 |
| | (109Hz) | | | - | - | 3.5 | - | 3.6 | 3.4 | 3.8 | - | - |
| 介电损耗因子 | (103Hz) | | | 0.022 | 0.023 | - | 0.024 | - | - | - | 0.026 | 0.024 |
| | (106Hz) | | | 0.022 | 0.034 | 0.026 | 0.03 | 0.038 | 0.033 | 0.02 | 0.032 | 0.03 |
| | (109Hz) | | | - | - | 0.004 | - | 0.004 | 0.004 | 0.004 | - | - |
| 体积固有电阻 | | ASTM D257 | Ωm | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 | 1013 |
| 耐电弧性 | | ASTM D495 | sec | 130 | 130 | 124 | 180 | 140 | 132 | 181 | 125 | 125 |
| 耐电弧轨迹性 | | IEC法 | V | 125 | 115 | 175 | 150 | 190 | 200 | 200 | 155 | 155 |

Material Housing :UL



UL Certification: E249884 - Component - Plastics

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Component - Plastics E249884

Guide Information

**SUMITOMO CHEMICAL CO LTD**

ADVANCED POLYMERS DIV, TOKYO SUMITOMO TWIN BLDG, 27-1 SHINKAWA 2-CHOME, CHUO-KU TOKYO 104-8260 JP

**E6808UHF(i2)**

Liquid Crystal Polymer (LCP) "SUMIKASUPER", furnished as pellets

| Color | Min. Thk (mm) | Flame Class | HWI | HAI | RTI Elec | RTI Imp | RTI Str |
|---|---|---|---|---|---|---|---|
| NC, BK | 0.100 | V-0 | - | - | 130 | 130 | 130 |
| | 0.30 | V-0 | - | - | 130 | 130 | 130 |
| | 3.0 | V-0 | - | - | 130 | 130 | 130 |
| ALL | 0.30-0.33 | V-0 | - | - | 130 | 130 | 130 |

Comparative Tracking Index (CTI): 3

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Stability (%): -

Inclined Plane Tracking (IPT) kV: -

Volume Resistivity ($10^x$ ohm-cm): -

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

(i2) - Virgin and regrind up to 50% by weight incl. have the same flammability characteristics and CTI properties. No other properties have been evaluated.

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: 2004-02-11

Last Revised: 2018-12-20

Material Contact : I570-C5210 (2)

SGS Test Report Click here

如需 SGS 測試報告請點選此處

MINCHALI

# REPORT OF MATERIAL TEST
# 材料測試報告

ISO 9001
ISO/TS 16949
IECQ QC080000
ISO 14001
OHSAS 18001 & TOSHMS

No.: 740389 DATE: APR.11.2018

Customer 顧客名稱 : 巨松貿易有限公司
Commodity 商品名稱 : C5210R PHOSPHOR BRONZE FOR SPRING ( EH )
Applied Standard 引用標準 : JIS H 3130 Phosphor bronze sheets, plates&strips for springs

| | | | |
|---|---|---|---|
| Manufacture No. | 鋼卷號碼 | | 71M009B |
| (Specification) | 產品規格 | Standard | |
| Thickness (mm) | 產品厚度 | | 0.350 |
| Width (mm) | 產品寬度 | | 610.000 |
| Length (mm) | 產品長度 | | |
| (Chemical Analysis Test) | 化性測試 | | |
| P(%) | 磷 | 0.030 - 0.350 | 0.132 |
| Fe(%) | 鐵 | max. 0.100 | 0.004 |
| Pb(%) | 鉛 | max. 0.0200 | 0.0015 |
| Zn(%) | 鋅 | max. 0.200 | 0.000 |
| Sn(%) | 錫 | 7.000 - 9.000 | 7.913 |
| Cu+Sn+P(%) | 銅錫磷 | min. 99.700 | 99.983 |
| (Mechanical & Physical Test) | 物性測試 | | |
| Thickness Test (mm) | 厚度測試 | -0.007 +0.007 | 0.354 |
| Width Test (mm) | 寬度測試 | -0.10 +0.00 | GOOD |
| Tensile Strength (kgf/mm2) | 抗拉強度 | 70.00 - 80.00 | 70.07 |
| Elongation (%) | 伸長率 | min. 11.00 | 25.60 |
| Hardness Test (Hv) | 硬度 | 211.0 - 221.0 | 211.0 - 212.0 |
| Grain Size (mm) | 結晶粒度 | - | 0.010 |
| Electric Conductivity (%) | 導電率 | min. 11.00 | 11.90 |
| Yield Strength (Kg/mm2) | 降伏強度 | - | 61.80 |
| (Other Information) | 其他資訊 | | |
| Delivery No. | 出貨單號 | | 740177 |

QA Supervisor: 品管課長 A060701 D7402201ME

MINCHALI METAL INDUSTRY CO., LTD.
名佳利金屬工業股份有限公司
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SEP. 03 2018 10:06AM P. 1

# PRODUCT SPECIFICATION OF OUPIIN

Material Solder Tab : I570-C5210 (2)

SGS Test Report Click here

如需 SGS 測試報告請點選此處

MINCHALI

## REPORT OF MATERIAL TEST
## 材料測試報告

ISO 9001
ISO/TS 16949
IECQ QC080000
ISO 14001
OHSAS 18001 & TOSHMS

No.: 740389 DATE: APR.11.2018

Customer 顧客名稱 : 亞松貿易有限公司
Commodity 商品名稱 : C5210R PHOSPHOR BRONZE FOR SPRING ( EH )
Applied Standard 引用標準 : JIS H 3130 Phosphor bronze sheets, plates&strips for springs

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| Zn(%) | 鋅 | max. 0.200 | 0.000 |
| Sn(%) | 錫 | 7.000 - 9.000 | 7.913 |
| Cu+Sn+P(%) | 銅錫磷 | min. 99.700 | 99.983 |
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| Thickness Test (mm) | 厚度測試 | -0.007 +0.007 | 0.354 |
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