

# PRODUCT SPECIFICATION

## (產品規格書)

### Ordering information

4977- 1X 10 M T R A  
 Series 1: 1 Row 02~10 M: Male Pin T: Tin Plated R: Right Angle A: Tray  
 No. of Pin Per Row F: Female Pin Package

A1:JAN.18/2012.  
 A2:MAY.11/2015.(UL94V-0.)  
 A3:NOV.23/2015.(改耐壓)

| PRODUCT NAME<br>(產品名稱)     | DOCUMENT No.:<br>(文件編號) | Rev.<br>(版本)           | OUPIIN                  |
|----------------------------|-------------------------|------------------------|-------------------------|
| 6.35mm Wafer<br><br>(RoHS) | 4977spec-R              | A3(I732)               | (歐品)                    |
|                            | <b>Approved</b><br>(核準) | <b>Checked</b><br>(審核) | <b>Prepared</b><br>(製作) |
|                            | Q.A. Section Chief      | Amy Chiu               | NOV.23/2015             |

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## 1. SCOPE (範圍)

This product specification defines the product performance and the test methods to ascertain the performance of the 6.35mm Wafer, 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 6.35mm Wafer 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

Current Rating :13 AMP (2~4P),11 AMP (5~10P)

額定電流: 13AMP(2~4P) , 11AMP(5~10P)

Rating Voltage is 600V DC/AC RMS.

額定電壓 600V DC/AC RMS。

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

Temperature range: -55°C~+105°C, including terminal temperature rise for rating current.

溫度範圍：-55°C~+105°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)

#### WAVE SOLDERING (波峰接)

Each cycle consists of three consecutive phases.

(每個焊接週期包括三個連續的階段)

#### 1. Preheat (預熱)

The steady temperature of the preheat zone is 90~125°C.

(預熱區最終溫度控制在90~125°C)

#### 2. Soldering (焊接)

To avoid the secondary tin-melting, the temperature on PCB upper surface is 160°C Max. for products with lead, or 200°C Max. for lead-free products. The temperature of the PCB bottom surface shall not be exceed 100°C more than the temperature of the PCB upper surface. The peak temperature is during 220~245°C for products with lead, or 235~260°C for lead-free products. The tin dip time is duration for 3~5 seconds.

(有鉛產品板面溫度不得超過160°C，無鉛產品板面溫度不得超過200°C，以防止貼片零件二次熔錫。板面溫度與板底的溫度溫差不得超過100°C。板下溫度峰值有鉛產品維持在220~245°C，無鉛產品控制在235~260°C。浸錫時間控制在3~5秒。)

#### 3. Cool Down (冷卻)

Cool down shall not exceed 6°C per second.

(冷卻速度不超過6°C/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準。)

## 5. PERFORMANCE AND TEST DESCRIPTION

### (性能及測試)

#### 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述的機械，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<br>(項目)                        | Requirements<br>(要求)  | Test Methods<br>(檢測方法)   |
|--------------------------------------|---|--|
| 1. Confirmation of Product<br>(產品確認) | Product shall be conforming to the requirements of applicable product drawing.<br>(產品必須滿足相關檔的規定)  | Check the dimensions and functions per applicable product drawing in your eyes.<br>(目視，尺寸及功能依產品圖面檢查)   |
| 2. Insulation Resistance<br>(絕緣阻抗)   | 1000 M $\Omega$ Min.<br>(最小)  | Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector.<br>MIL-STD-202, Method 302, Condition B (500 V DC $\pm$ 10%).<br>(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 $\pm$ 10%) |
| 3. Dielectric Strength<br>(耐電壓)      | Connector must withstand test potential of 5000 V AC for 1 minute. Current leakage must be 0.5 m A max.<br>(樣品必須承受測試電壓 5000V AC，時間一分鐘，漏電流不大於 0.5 mA.)   | Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. MIL-STD-202, Method 301.<br>(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。)  |
| 4. Humidity<br>(恆溫恆濕)                | After testing, no damage, Contact Resistance 30 m $\Omega$ max.. Dielectric Strength should be OK, Insulation Resistance should be 1000 M $\Omega$ min.<br>(測試後,產品無損壞，接觸阻抗：30 m $\Omega$ 最大；耐電壓測試 OK, 絕緣阻抗 1000M $\Omega$ 最小;)                        | Temperature :40 $\pm$ 2 $^{\circ}$ C 96 hours.<br>(溫度：40 $\pm$ 2 $^{\circ}$ C 96 小時)<br>Relative Humidity : 90-95%;<br>(相對濕度：90-95%; )<br>Duration :96 Hours. MIL-STD-202, Method 108,<br>(時間：96 小時；MIL-STD-202，方法 108。)   |
| 5. Solder ability<br>(可焊性)           | Appearance of the specimen shall be inspected after the test with the assistance of a magnifier capable of giving a magnification of 10 X for any damage such as pinholes, void or rough surface.<br>(樣品在測試完成後，在放大倍數為 10 倍的顯微鏡下，檢查外觀損壞如：小孔，空焊，外觀粗糙度；) | Soldering time: 3 to 5 Seconds<br>(焊接時間：3~5 秒)<br>Peak Temperature: 245 $\pm$ 5 $^{\circ}$ C.<br>(最高溫度：245 $\pm$ 5 $^{\circ}$ C.)  |

Material Housing : 007-2-PA66(NC)

[SGS Test Report Click here](#)

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# TECHNYL®

## TECHNYL® A 50H1

Product Datasheet - July 2004

### Description

Flame retardant polyamide 66, unreinforced, heat stabilised, for injection moulding.

### Product Applications

This phosphorus and halogen free flame retardant grade, offers excellent filling qualities combined with good stiffness.

It is particularly suitable for moulding insulating parts for electrical components:

- Components for electrical connections: junction blocks, terminal blocks, connectors.

This product is available in natural. Other colours can be provided upon request.

### Processing

The material is supplied in airtight bags, ready for use. In the case that the virgin material has absorbed moisture, it must be dried to a final moisture content of less than 0,2% with a dehumidified air drying equipment at approx 80°C.

Recommended moulding conditions :

Barrel temperatures :

- feed zone 265 - 275°C
- compression zone 265 - 275°C
- front zone 270 - 280°C

Mould temperatures : 60 at 80°C

### Safety

Please refer to the Material Safety Data Sheet



Engineering Plastics

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CHALLENGING BOUNDARIES 

## TECHNYL® A 50 H1

The values of properties are for natural grade.

| Properties  | Standards        | Unit              | Values |         |
|---|------------------|-------------------|--------|---------|
|   |                  |                   | d.am** | Cond.** |
| <b>Physical</b>   |                  |                   |        |         |
| Water absorption (24 h at 23°C)                           | ISO 62           | %                 | 0.58   | -       |
| Water absorption (30 min at 100°C)                        | ISO 62           | %                 | 0.58   | -       |
| Density   | ISO 1133-A       | g/cm <sup>3</sup> | 1.16   | -       |
| Molding shrinkage Parallel (1) (Rhodia EP)                | RHODIA-EP        | %                 | 1.20   | -       |
| Molding shrinkage normal or perpendicular (1) (Rhodia EP) | RHODIA-EP        | %                 | 1.12   | -       |
| <b>Mechanical</b>   |                  |                   |        |         |
| Tensile modulus   | ISO 527 type 1 A | MPa               | 3800   | 2200    |
| Tensile strength at yield                                 | ISO 527 type 1 A | MPa               | 95     | 53      |
| Tensile strain at yield                                   | ISO 527 type 1 A | %                 | 4.22   | 22.30   |
| Tensile strain at break                                   | ISO 527 type 1 A | %                 | 21     | 140     |
| Tensile strength at break                                 | ISO 527 type 1 A | MPa               | 75     | 46      |
| Flexural modulus  | ISO 178          | MPa               | 3700   | 1710    |
| Flexural maximum stress                                   | ISO 178          | MPa               | 137    | 61      |
| Charpy notched impact strength                            | ISO 178 1eA      | kJ/m <sup>2</sup> | 3.20   | 10.10   |
| Charpy unnotched impact strength                          | ISO 178 1eU      | kJ/m <sup>2</sup> | 130    | -       |
| Charpy unnotched impact strength                          | ISO 178 1eU      | kJ/m <sup>2</sup> | -      | 118     |
| Notched impact strength                                   | ISO 130 1A       | kJ/m <sup>2</sup> | 3      | 10      |
| <b>Flammability</b>                                       |                  |                   |        |         |
| Flammability UL 94 (Thickness 0.4 mm)                     | ISO 1210 UL 94   |                   | VO     | -       |
| Flammability UL 94 (Thickness 0.8 mm)                     | ISO 1210 UL 94   |                   | VO     | -       |
| Flammability UL 94 (Thickness 1.6 mm)                     | ISO 1210 UL 94   |                   | VO     | -       |
| Flammability UL 94 (Thickness 3.2 mm)                     | ISO 1210 UL 94   |                   | VO     | -       |
| Glow wire flammability index (thickness = 0.8)            | IEC 60695-2-12   | °C                | 960    | -       |
| Glow wire flammability index (thickness = 1.6)            | IEC 60695-2-12   | °C                | 960    | -       |
| Glow wire flammability index (thickness = 3.2)            | IEC 60695-2-12   | °C                | 960    | -       |
| Glow wire ignitability temperature (Thickness = 1.6)      | IEC 60695-2-12   | °C                | 725    | -       |
| <b>Thermic</b>  |                  |                   |        |         |
| Melting Temperature                                       | ISO 11357        | °C                | 263    | -       |
| Heat deflection temperature, 1.8 Mpa                      | ISO 75 A1        | °C                | 85     | -       |
| Heat deflection temperature 0.45 Mpa                      | ISO 75 B1        | °C                | 237    | -       |
| <b>Electrical</b>   |                  |                   |        |         |
| Compassive tracking Index vol. A                          | IEC 60112        | Vol               | 600    | -       |

Identification Code: =>PA66 FR30=<

The information contained in this document is supplied in good faith. It is based on the existing technical knowledge of the products as listed, and on the tests and experiments carried out in our laboratories. It is to be used only as an indication and shall not be construed in any way as a formal commitment or warranty on our part. Compliance of our products with your conditions of use can only be determined pursuant to your own prior appropriate test. The listed values of properties are for natural grade, if not otherwise specified.

\* d.am = Dry As Moulded.

\*\* Cond. = Conditioned according ISO 1110.



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CHALLENGING BOUNDARIES





# PRODUCT SPECIFICATION OF OUPIIN

## Material Housing :UL

UL iQ™ for Plastics

頁 1 / 1

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Component - Plastics

E44716

### RHODIA ENGINEERING PLASTICS

QUARTIER BELLE-ETOILE, AVE RAMBOZ, BOITE POSTALE 64, ST FONS CEDEX 69192 FR

### A 50H1 (r3)(f2)

Polyamide 66 (PA66), unfilled, "Technyl", furnished as pellets

| Color | Min Thk (mm) | Flame |     | RTI |      | RTI |     |
|-------|--------------|-------|-----|-----|------|-----|-----|
|       |              | Class | HWI | HAI | Elec | Imp | Str |
| ALL   | 0.4          | V-0   | 4   | 3   | 130  | 100 | 115 |
|       | 0.75         | V-0   | 2   | 3   | 130  | 105 | 120 |
|       | 1.5          | V-0   | 2   | 3   | 130  | 105 | 120 |
|       | 3.0          | V-0   | 2   | 3   | 130  | 105 | 120 |

Comparative Tracking Index (CTI): 0

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): 0

Dimensional Stability (%): -

Inclined Plane Tracking (IPT): -

Volume Resistivity (10<sup>9</sup> ohm-cm): -

High Volt, Low Current Arc Resis (D495): 6

(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.

(r3) - Virgin and regrind up to 50% by weight inclusive have the same basic material characteristics

NOTE - Materials designated "Technyl" may be prefixed by the letters "TY".

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL94 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:2004-12-14  
Last Revised:2013-04-05

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### IEC and ISO Test Methods

| Test Name                      | Test Method     | Units             | Thickness Tested (mm) | Value     |
|--------------------------------|-----------------|-------------------|-----------------------|-----------|
| Flammability                   | IEC 60695-11-10 | Class (color)     | 0.4                   | V-0 (ALL) |
|                                |                 |                   | 0.75                  | V-0 (ALL) |
|                                |                 |                   | 1.5                   | V-0 (ALL) |
|                                |                 |                   | 3.0                   | V-0 (ALL) |
| Glow-Wire Flammability (GWFI)  | IEC 60695-2-12  | C                 | 0.4                   | 960       |
|                                |                 |                   | 0.75                  | 960       |
|                                |                 |                   | 1.5                   | 960       |
|                                |                 |                   | 3.0                   | 960       |
| Glow-Wire Ignition (GWIT)      | IEC 60695-2-13  | C                 | 0.4                   | 960       |
|                                |                 |                   | 0.75                  | 960       |
|                                |                 |                   | 1.5                   | 775       |
|                                |                 |                   | 3.0                   | 700       |
| IEC Comparative Tracking Index | IEC 60112       | Volts (Max)       | -                     | -         |
| IEC Ball Pressure              | IEC 60695-10-2  | C                 | 3.0                   | 190       |
| 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> | -                     | -         |

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The materials covered in this database are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. THE FINAL ACCEPTANCE OF THE COMPONENT IS DEPENDENT UPON ITS INSTALLATION AND USE IN COMPLETE PRODUCTS SUBMITTED TO UNDERWRITERS LABORATORIES.

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Material Contact : Copper Alloy (Phosphor Bronze)

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**REPORT OF MATERIAL TEST**  
**材料測試報告**

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

No.: 372166

DATE: JUL.30,2014

Customer 顧客名稱 : 歐品電子有限公司  
Commodity 商品名稱 : C 5191 R PHOSPHOR BRONZE STRIP ( H )  
Applied Standard 引用標準 : JIS H 3110 Phosphor bronze sheets, plates and strips

|   |      |                 |               |
|---|------|-----------------|---------------|
| Manufacture No.                         | 銅捲號  | 36C063C         |               |
| (Specification)                         | 產品規格 | Standard        |               |
| Thickness (mm)                          | 產品厚度 | 0.250           |               |
| Width (mm)                              | 產品寬度 | 15.000          |               |
| Length (mm)                             | 產品長度 |                 |               |
| (Chemical Analysis Test)                | 化性測試 |                 |               |
| P(%)                                    | 磷    | 0.030 - 0.350   | 0.118         |
| Sn(%)                                   | 錫    | 5.500 - 7.000   | 5.807         |
| Cu+Sn+P(%)                              | 銅錫磷  | min. 99.500     | 99.958        |
| (Mechanical & Physical Test)            | 物性測試 |                 |               |
| Thickness Test (mm)                     | 厚度測試 | -0.010 +0.010   | 0.249         |
| Width Test (mm)                         | 寬度測試 | -0.10 +0.00     | GOOD          |
| Tensile Strength (kgf/mm <sup>2</sup> ) | 抗拉強度 | 58.00 - 65.00   | 61.09         |
| Elongation (%)                          | 伸長率  | min. 10.00      | 25.08         |
| Hardness Test (Hv)                      | 硬度   | 180.0 - 210.0   | 192.0 - 194.0 |
| Grain Size (mm)                         | 結晶粒度 | -               |               |
| Electric Conductivity (%)               | 導電率  | 16.40           |               |
| (Other Information)                     | 其他資訊 |                 |               |
| Delivery No.                            | 出貨單號 | 37A110          |               |
| Customer Purchase Order                 | 採購單號 | PO.B02A14061311 |               |



QA Supervisor: 周建偉

A980301 G3600302CH

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