



## PRODUCT SPECIFICATION OF Oupiin

# PRODUCT SPECIFICATION

## 產品規格書

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
High Power Edge Connector	9302-4PxxSxxPxxxCxxDA-Axxx	9302-D0000-xxx
	9302-2AxSxxPxxxCxxxDA	9302-D0000-xxx
	9302-2SxxAxPxxxCxxDA	9302-D0000-xxx
	9302-4SxxAxPxxxCxxDA	9302-D0000-xxx
	9302-4AxSxxPxxxCxxDA	9302-D0000-xxx

PRODUCT NAME 產品名稱	DOCUMENT No.: 文件編號	Rev. 版本	OUPIIN
High Power Edge Connector	9302spec	A1	歐品電子
	<b>Approved</b> 核准	<b>Checked</b> 審核	<b>Prepared</b> 制作
	Q.A. Section Chief	Joseph Yen	02.01/2018



# PRODUCT SPECIFICATION OF Oupiin

## 1. SCOPE 適用範圍

This product specification defines the product performance and the test methods to ascertain the performance of the High power edge connector, which is designed and manufactured by Oupiin Electronic Co., Ltd. This product specification is applicable but not only for those part numbers which be shown in the cover page.

本產品規格書規定了由歐品電子有限公司設計生產的 High Power Edge Connector 型連接器產品的特性及測試方法。本產品規格書適用於但不局限於封面所顯示的產品料號。

## 2. REFERENCE DOCUMENTS 參考文件

MIL-STD-1344	Test method for electrical connector 電子連接器測試方法
MIL-STD-202	Test method for electrical components 電子零件測試方法
EIA364	Test method for electrical components 電子零件測試方法
JIS C 0051	Test method for electrical components 電子零件測試方法
MIL-G-45204C	Specification for gold plating 鍍金規格
IEC-512-3	IEC standard for current carrying capacity tests IEC 電流測試標準
QQ-N-290A	Specification for nickel plating 鍍鎳規格
MIL-P-81728A	Specification for tin/lead plating 鍍錫鉛規格
MIL-T-10727B	Specification for tin plating 鍍錫規格
UL 1977	UL standard for safety of attachment plug and receptacle UL 安規要求標準

## 3. FEATURE & DIMENSIONS 特征及尺寸

### 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見圖面。

### 3.2.MALE AND FEMALE PRODUCT 公母產品裝配

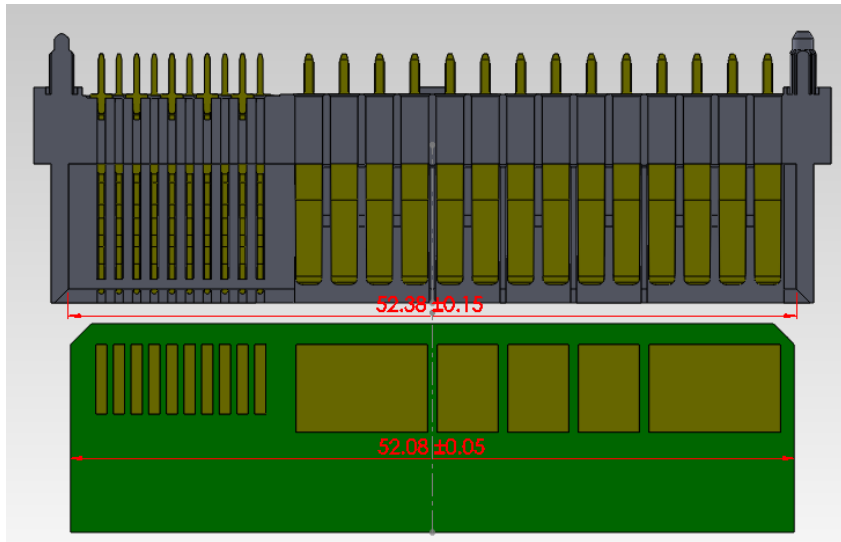
#### 3.2.1. Perpendicular to engaging direction 垂直插入方向

the design of the centering and guiding in the mpc of the free and fixed board connector modules shall accept a misalignment of 0.25MM in transverse and 0.23MM in longitudinal axes of the connector

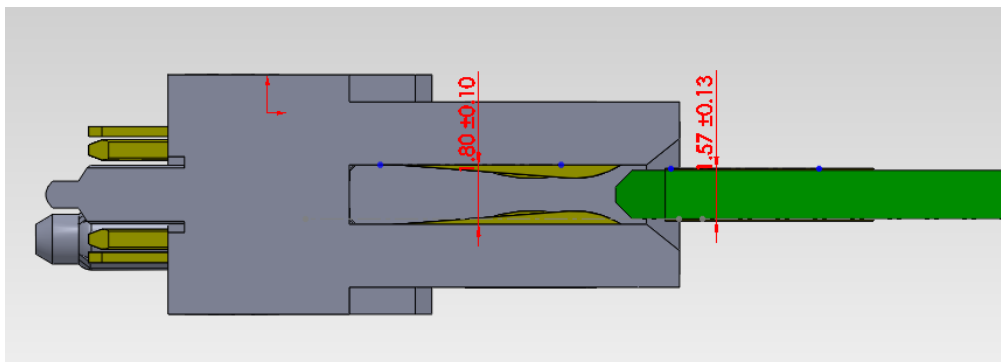
固定板連接器模件的Mpc裡，連接器設計中心線橫向可接受0.25mm和縱向可接受0.23mm的偏差。

## PRODUCT SPECIFICATION OF Oupin

allowed misalignment in transverse axes 在橫向方向允許對插偏差量  $(52.53-52.03)/2=0.25\text{mm}$  最大



allowed misalignment in longitudinal axes 在縱向方向允許對插偏差量  $(1.90-1.44)/2=0.23\text{mm}$  最大

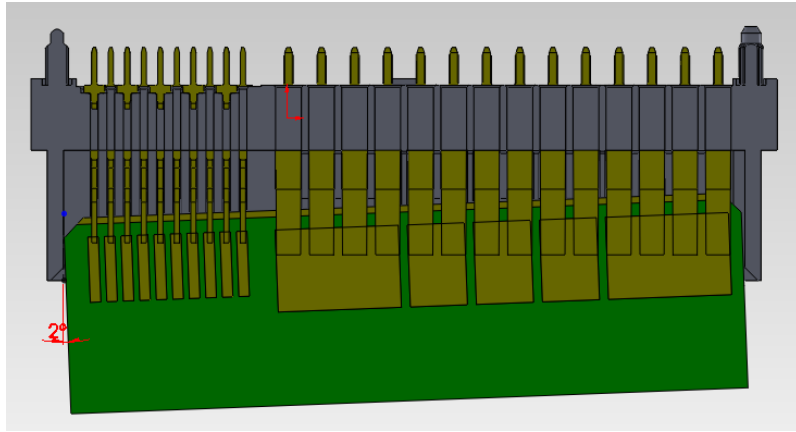
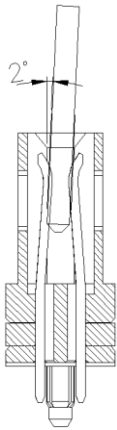


### 3.2.2 Inclination 傾向

The center and guiding in the Mpc OF the free and the fixed board connector modules shall allow an initial angular misalignment of  $2^\circ$  Max in the transverse and longitudinal axes

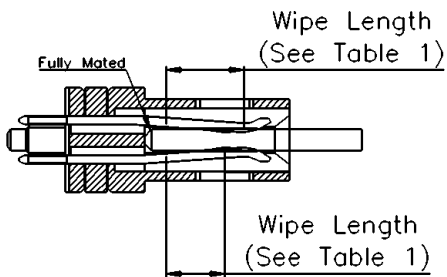
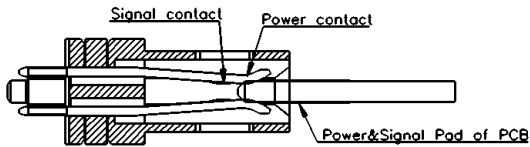
固定板連接器模件的在Mpc裡,連接器可接受橫向和縱向 $2^\circ$  的最大傾斜對插角度。

# PRODUCT SPECIFICATION OF Dupin



### 3.2.3 Capability for products wipe length

產品接觸長度等級



CONTACT	MATING LEVEL	WIPE LENGTH(MIN)
Power Pin	1	5.33mm
Signal Pin	1	4.02mm

### 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 參見圖面。



# PRODUCT SPECIFICATION OF Oupiin

## 3.3. BILL OF MATERIAL 材料清單

Harmful material controlling follows the requirements of RoHS. The bill of material 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見圖面。

## 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參見圖面。

## 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: Power pin: 12.5A (UL) Signal pin: 1.5A

額定電流: Power pin: 12.5A (UL) Signal pin : 1.5A

Rating voltage : Power pin 250V Signal pin 30V

額定電壓 Power pin 250V Signal pin 30V

## 3.7 STORAGE AND OPERATING TEMPERATURE 存貯與使用溫度

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

Storage Temperature :0°C~+40°C, Humidity: 80%RH under, Time limit is 18 months the products are stored.

溫度範圍：-55°C~+105°C,包含接觸端子的額定電流溫升。

儲存溫度：0°C~+40°C · 濕度：80%RH 以下。

## 4.Environmental 環境要求

### 4.1. SOLDERABILITY 可焊性

Connectors meet solder-ability to MIL-STD-202, and 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

#### 4.1. WAVE SOLDER 波峰焊接

Each cycle consists of three consecutive phases. as shown in **Table II**.

每個焊接週期包括三個連續的階段,見附表二。

#### 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。



# **PRODUCT SPECIFICATION OF Oupiin**

## **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 at least.

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，每組測試至少有 5 個樣品。



## PRODUCT SPECIFICATION OF Oupin

**Table I: Test Requirements and Methods**

附表一：測試要求與方法

Items 項目	Requirements 要求	Test Methods 測試方法
1. Confirmation of Product 產品確認	Product shall be conforming to the requirements of applicable product drawing. 產品必須符合相關產品圖面的要求。	Visually, dimensions and functionally inspected per applicable product drawing. 依相關產品圖面，檢查產品的外觀、尺寸及功能
2. Contact Resistance 接觸阻抗	Power pin:0.6 mΩ Max.initial. Signal pin:25 mΩ Max.initial. Contact resistance change $\Delta$ 10 mΩ Max Power pin 初始狀態 0.6mΩ Max, Signal pin 初始狀態 25mΩ Max, 接觸電阻變化值 $\Delta$ 10 mΩ Max	Subject mated contacts assembled in housing to closed circuit of 20 mA max. EIA 364 TP06 所述固定端子連結到一個封閉回路中測試,電流 20 mA max,電壓 20 mV max。適用：EIA 364 TP06
3. Insulation Resistance 絕緣阻抗	Power pin: 5000 MΩ Min. Signal pin : 500 MΩ Min Power pin 最小 5000 MΩ. Signal pin 最小 500 MΩ	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. EIA 364 TP06 ,Condition B (500 V DC $\pm$ 10%). 測試產品相鄰端子間以及端子與接地間的電阻 適用：EIA 364 TP06,條件 B (500 VDC $\pm$ 10%)。
4. Dielectric Withstanding Voltage 耐電壓	Power pin must withstand test potential of 1000 VDC RMS for 1 minute, current leakage must be 1.0mA Max Signal pin must withstand test potential of 500 VDC RMS for 1 minute, current leakage must be 1.0mA Max.. Power pin 必須承受測試電壓 1000 VDC RMS，時間 1 分鐘，漏電流不大於 1.0 mA。Signal pin 必須承受測試電壓 500 VDC RMS，時間 1 分鐘，漏電流不大於 1.0 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. 對產品相鄰端子間以及端子與接地間加載電壓，並測試其漏電流。適用：MIL-STD-202，方法 301。
5. Durability (Repeated Mating/Un-mating) 耐久性	Power contact resistance less than0.6mΩ and signal contact resistance change10 mΩ max. After testing.	Repeat mate and unmated for connector 200 cycles, at a speed of 25.4 $\pm$ 3 mm per minute. 重複進行配合產品 200 次插拔，速度 25.4 $\pm$ 3 mm/分鐘。



## PRODUCT SPECIFICATION OF Dupin

	測試後電源針接觸阻抗不超過 0.6 mΩ · 信號針接觸阻抗比初始值增大不超過 10 mΩ 。	
6. Contact Retention Force 端子保持力	Signal pin: 5N/Pin. Min. Power pin: 32N/Pin. Min. Signal pin 每支最小 5N. Power pin 每支最小 32N	Apply axial pull out force at a speed of 25.4±3 mm/minute on the contact assembled in the housing. 以 25.4±3mm/分鐘的速度施加軸向拉力從塑膠本體上拔出端子。
7. Mating /Un-mating Force 插入力/拔出力	Power : Mating force:0.90N /pin Max. Un-mating force:0.25N /pin Min Signal : Mating force:0.28N /pin Max. Un-mating force:0.06N /pin Min Power 插入力最大: 0.90N /pin Max 。 拔出力最小: 0.25N /pin Min Signal 插入力最大: 0.28N /pin Max 。 拔出力最小: 0.06N /pin Min	At a speed of 25.4±3 mm/minute, apply axial insert the mating part into fully or pull out from the subject product. 以 25.4±3 mm/分鐘的速度 · 軸向完全插入對配插件到被測產品中或從被測產品中拔出。
8. Vibration 機械振動	No electrical discontinuity less than 1μs shall occur, Power contact resistance 0.6 mΩ max and signal contact resistance change 10 mΩ max. After testing. 不允許出現超過 1 μs 的瞬間斷開 · 測試後電源針接觸阻抗最大 0.6mΩ · 信號針接觸阻抗比初始值增大不超過 10 mΩ 。	Subject mated connector to 10-500 Hz traversed in 1 minute at 1.5mm amplitude, 2 hours each of 3 mutually perpendicular planes, 10 mA potential applied. MIL-STD-202, Method 201. 對測試產品 · 在頻率變化每分鐘從 10-500 Hz, 振幅 1.5 mm 條件下 · 在互相垂直的三個面上 · 每個面 2 小時下測量 · 電流 10 mA · 適用 : MIL-STD-202 · 方法 201 。
9. Mechanical Shock 機械沖擊	No electrical discontinuity less than 1us. 電流瞬斷時間小於 1us.	Accelerate Velocity: 490m/s <sup>2</sup> ; Waveform: Half-sine shock plus; Duration: 11msec; 3 drops each to normal and reversed directions of X, Y and Z axes; 速度 490m/s <sup>2</sup> ; 半正弦波 ; 持續 11 毫秒 ; ±X, ±Y, ±Z, 方向各 3 次;
10. Thermal Shock 溫度沖擊	After testing, no damage, Dielectric Strength should be OK; Power contact resistance 0.6mΩ max and signal contact resistance change 10 mΩ max. 測試後產品 無損壞 · 電源針接觸阻抗最大 0.6mΩ · 信號針接觸阻抗比初始值 增大不超過 10 mΩ 。	Temperature range from -55°C to +85°C. Start from -55°C, after 30 minutes, change to +85°C; change time is no more than 5 minutes, total 5 cycles. MIL-STD-202, Method 107, 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 5 分鐘 · 共 5 個循環 · 適用 : MIL-STD-202 · 方法





## **PRODUCT SPECIFICATION OF Oupiin**

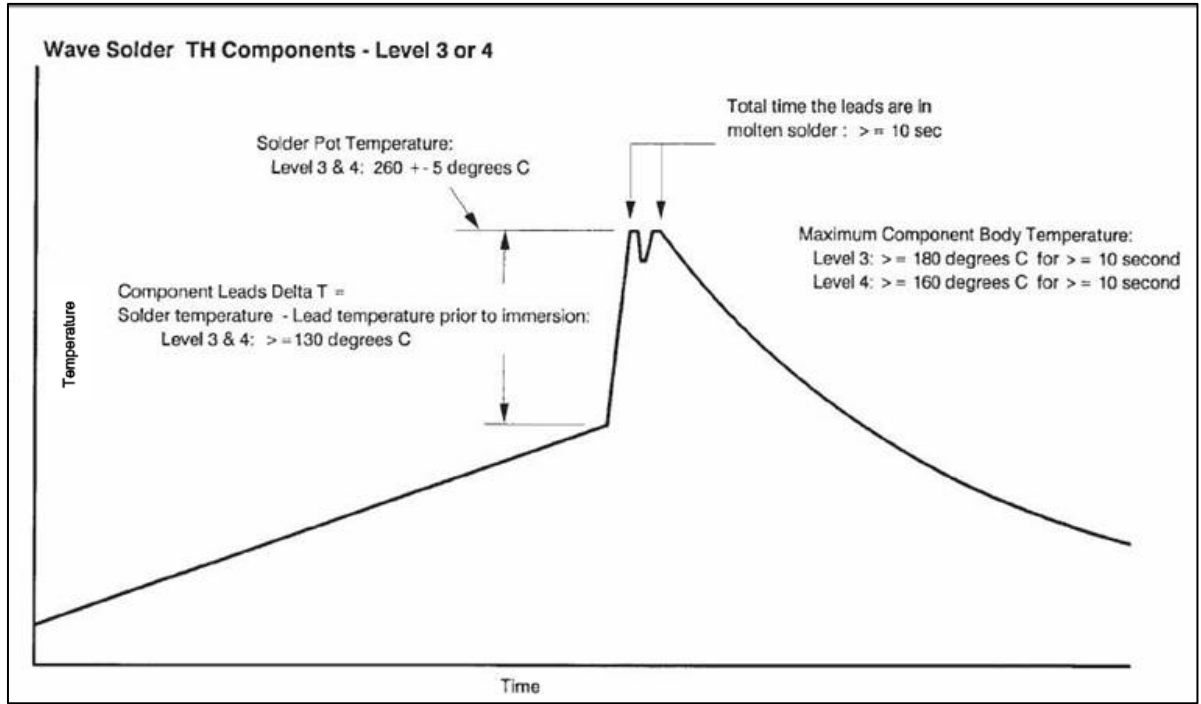
<p>11. Humidity- Temperature Cycle 溫濕度循環</p>	<p>After testing, no damage, Dielectric Strength should be OK · Power contact resistance 0.6 mΩ max and signal contact resistance change 10 mΩ max. 測試後產品無 損壞 · 電源針接觸阻抗不超過 0.6 mΩ · 信號針接觸阻抗比初始值增大 不超過 10 mΩ ·</p>	<p>Subject product to 25~65°C, 90-95%.R.H 4Cycles. Each cycle lasted 24 hours, EIA-364-31 產品置於 25~65°C,相對濕度 : 90-95%,循環 10 次, 24 小時循環一次,適用 : EIA-364-31</p>
<p>12. Test temperature rise for rating current 溫升測試</p>	<p>The temperature rise above shall not exceed housing's RTI. 溫度不能超過塑膠的 RTI 值 (以 UL 標準執行) Ambient conditions - Still air 25°C · 周圍環境溫度 25°C ·</p>	<p>Subject mated contacts assembled in housing to closed circuit of Power Pin: 12.5A (UL) max. Signal Pin: 1.5A max, Test Specification BUS-03- 601 所述固定在外殼包的端子連結到一個封閉回路中 測試 · Power Pin: 12.5 A(UL), Signal Pin: 1.5A · 參考規範 : BUS-03-601</p>
<p>13. Salt Spray 鹽霧</p>	<p>After testing, no damage, Dielectric Strength should be OK. Power contact resistance 0.6 mΩ max and signal contact resistance change 10 mΩ max. 測試後產品無損壞 · 電源針接觸阻 抗不超過 0.6 mΩ · 信號針接觸阻 抗比初始值增大 不超過 10mΩ ·</p>	<p>5±1% salt concentration(PH=7.0) ,48 hours 35±2°C: MIL-STD-202, Method 101, condition B. 鹽水濃度 5±1%(PH=7.0),時間 48 小時 · 溫度 35±2°C · 適用 : MIL-STD-202 · 方法 101 · 條件 B ·</p>
<p>14. High Temperature Life 高溫老化</p>	<p>After testing, no damage, Dielectric Strength should be OK; Power contact resistance 0.6 mΩ max and signal contact resistance change 10 mΩ max. 測試後產品無損壞 · 電源針接觸阻抗 不超過 0.6 mΩ · 信號針接觸阻抗比 初始值增大 不超過 10 mΩ ·</p>	<p>Subject product to 105°C for 240 hours continuously. MIL-STD-202, Method 108, condition A. 產品置於 105°C 連續 240 小時 · 適用 : MIL-STD-202, 方法 108 · 條件 A ·</p>
<p>15. Solderability 可焊性</p>	<p>There shall have a solder coverage of 95% minimum · 產品在測試完成後 · 焊接部位粘錫 面積大於 95% ·</p>	<p>Soldering time: 4 to 6 seconds. Temperature: 260±5°C. MIL-STD-202, Method 208. 焊接時間 : 4~6 秒 · 溫度 : 260±5°C · 適用 : MIL-STD-202 · 方法 208 · 1</p>



# PRODUCT SPECIFICATION OF Oupin

Table II : Weld the curve graph in crest

附表二：波峰焊曲線圖





# PRODUCT SPECIFICATION OF Oupin

Material Housing : 069-LCP(Black)

[SGS Test Report Click here](#)

[如需 SGS 測試報告請點選此處](#)

長春人造樹脂廠股份有限公司

台北市 10477 松江路三 0 一號七樓

CHANG CHUN PLASTICS CO.,LTD.

CABLE ADDRESS :  
LONGLITE TAIPEI  
TLX:22535 LONGLITE

No.301, SONGKIANG ROAD, 7<sup>TH</sup> FL.,  
TAIPEI, 10477 TAIWAN

TEL: (02)2503-8131 (REP)  
FAX: ( 02)2503-3378

## Technical Data

### Liquid Crystalline Polymer Compound

#### LONGLITE® LCP 270B3G / 270N3G

LCP-270B(N)3G is liquid crystalline polymer which contains 30% glass fiber.

LCP-270B(N)3G has advantages of high heat resistance, strength and good flowability.

#### Physical Properties :

Items	Unit	Test Method	270B3G* 270N3G
Features	heat resistance/low warpage		
Filler	%	---	Glass Fiber
Filler Content		ASTM	30
Specific Gravity	---	D792	1.62
Water Absorption	%	D570	0.04
Shrinkage	MD	CCP method	0.19
	TD		0.39
Tensile Strength(RT)	MPa	D638	122
Tensile Elongation(RT)	%		1.8
Flexural Strength (RT)	MPa	D790	190
Flexural Modulus (RT)	GPa		12.5
Izod Impact (3.0t/w notched)	J/m	D256	110
HDT (264 psi)	°C	D648	270
Dielectric Strength	KV/mm	D149	19
Arc Resistance	sec	D495	150
UL-94(NC, BK)	Rating	UL94	V-0
Tracking Resistance (CTI)	V	D257	125
Dielectric Constant / Dk	---	10 <sup>6</sup> Hz (1 MHz)	4.5
Dielectric Tangent / Df	---	10 <sup>6</sup> Hz (1 MHz)	0.036

\* Typical data : Not to be constructed as specification

LCP-270B(N)3G B : Black N : Natural color



# PRODUCT SPECIFICATION OF Ouplin

## Material Housing :UL

UL iQ™ for Plastics

Page 1 of 1

Component - Plastics

E59481

### CHANG CHUN PLASTICS CO LTD

7TH FL, 301 SONGKIANG RD, TAIPEI 104 TW

### 270(X1)3G

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

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
BK	0.3	V-0	4	0	130	130	130
	1.0	V-0	2	0	130	130	130
	3.0	V-0	0	0	130	130	130

Comparative Tracking Index (CTI): **4**

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): -

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

High-Voltage Arc Tracking Rate (HVTR): **2**

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

Dimensional Stability (%): -

(X1) - Maybe replace by one letter N representing Natural color or B representing Black color

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:2013-07-12

Last Revised:2013-07-12

© 2013 UL LLC



## IEC and ISO Test Methods

Test Name	Test Method	Units	Thickness Tested (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.3	V-0 (BK)
			1.0	V-0 (BK)
			3.0	V-0 (BK)
Glow-Wire Flammability (GWF1)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
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>	-	-

© 2013 UL LLC



# PRODUCT SPECIFICATION OF Oupin

Material Power Contact : High Conductivity Copper(C19210)

[SGS Test Report Click here](#)

[如需 SGS 測試報告請點選此處](#)



昆山维迎达电子材料有限公司

KUNSHAN WEI YING DA ELECTRONIC MATERIAL CO., LTD.

## 产品质量证明书

CERTIFICATE OF QUALITY

客户名称 Customer	欧晶	生产日期 Date	2016-04-23
品名 Commodity	C19210	状态 State	H
执行标准 Executive Standard:		JISH3110-2012	

### 尺寸公差 Size & Tolerance (MM)

规格 Specification	厚度公差 Thickness Tolerance	宽度公差 Width Tolerance
0.50*25.50	±0.01	+0~-0.1

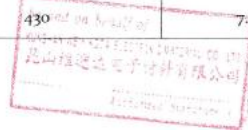
### 化学成份 Chemical Composition (%)

元素 Element	铜 Cu	锡 Sn	磷 P	锌 Zn	铁 Fe	铅 Pb	铜 Cu+锌 Zn+铁 Fe
CAS.NO	7440-50-8	7440-31-5	7723-14-0	7440-66-6	7439-89-6	7439-92-1	---
含量标准 Standard	≥99.0	/	0.015~0.04	/	0.05~0.015	/	≥99.80
实测值 Value	余量	/	0.0330	/	0.052	/	

### 机械性能 Mechanical Properties

项目 Item	抗拉强度 Tensile strength (Mpa)	延伸率 Elongation (%)	硬度 Hardness (HV)	粗糙度 Surface Roughness (μm)	导电率 Electrical Conduc (%IACS)
标准 Standard	≥390	≥4	115-135	---	≥85
实测值 Value	430	7.00	126	0.09	89

审核: 樊美娟



制表: 郑素群



# PRODUCT SPECIFICATION OF Oupin

Material Terminal : Copper Alloy (Phosphor Bronze C5210)

[SGS Test Report Click here](#)

[如需 SGS 測試報告請點選此處](#)



## REPORT OF MATERIAL TEST 材料測試報告

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

No.: 251197

DATE: MAY.21,2013

Customer 顧客名稱 : 名佳利金屬工業股份有限公司  
Commodity 商品名稱 : C5210R PHOSPHOR BRONZE FOR SPRING ( EH )  
Applied Standard 引用標準 : CNS 9503 Phosphor Bronze Sheets, Plates and Strips

Manufacture No.	銅捲製號	24M007A	
(Specification)	產品規格	Standard	
Thickness (mm)	產品厚度	0.300	
Width (mm)	產品寬度	622.000	
Length (mm)	產品長度		
(Chemical Analysis Test)	化性測試		
P(%)	磷	0.030 - 0.350	0.128
Sn(%)	錫	7.000 - 9.000	7.938
Cu+Sn+P(%)	銅錫磷	min. 99.700	99.942
(Mechanical & Physical Test)	物性測試		
Thickness Test (mm)	厚度測試	-	0.292
Width Test (mm)	寬度測試	-0.10 +0.00	6000
Tensile Strength (kgf/mm <sup>2</sup> )	抗拉強度	min. 65.00	72.26
Elongation (%)	伸長率	min. 10.00	23.54
Hardness Test (Hv)	硬度	200.0 - 230.0	224.0 - 226.0
Grain Size (mm)	結晶粒度	-	0.010
Electric Conductivity (%)	導電率	-	12.10
(Other Information)	其他資訊		
Delivery No.	出貨單號		



MINCHALI METAL INDUSTRY CO., LTD.  
名佳利金屬工業股份有限公司  
11, Pei Yuan Road, Chung Li City, Taiwan, R.O.C.  
Tel : (03)4526141-5 (03)4526017-9  
Fax : (03)4529112 (03)4629625

QA Supervisor: 周建偉

A980301 S1800901ME