



PRODUCT SPECIFICATION OF Oupiin

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產品規格書

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
H.D. 2.0mm (0.079") Futurebus(+) Dip Type Male/Female Connector	9111-4524B1CB30DT-A001	9111D45033
	9111 -C4524x1xxDT(-Axxx)	9111D450xx
	9111 -C45241CxxDT(-Axxx)	9111D450xx

PRODUCT NAME 產品名稱	DOCUMENT No.: 文件編號	Rev. 版本	OUPIIN 歐品電子
H.D. 2.0mm (0.079") Futurebus(+) Dip Type Male/Female Connector	9111spec-C45	D	
	Approved 核准	Checked 審核	Prepared 制作
	Q.A. Section Chief	Joseph Yen	09.12/2017



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1. SCOPE 適用範圍

This product specification defines the product performance and the test methods to ascertain the performance of the H.D. 2.0mm (0.079") Futurebus(+) Dip Type Male/Female 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 H.D. 2.0mm (0.079") Futurebus(+) Dip Type Male/Female 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
UL1977	UL standard for safety of attachment plug and receptacle UL 安規要求標準
EN/ISO5961	Determination of total lead & cadmium content 總鉛和總鎘含量測定
EN1122	Determination of total lead & cadmium content 總鉛和總鎘含量測定
EN13346	Determination of heavy metals content 重金屬含量測定
EPA3052	Determination of total lead & cadmium content 總鉛和總鎘含量測定

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. 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。

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。



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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 is 1.5A, rating voltage is 42V AC RMS.
額定電流 1.5A，額定電壓 42V AC RMS。

3.7 STORAGE AND OPERATING TEMPERATURE 存貯與使用溫度

Temperature range: -55°C~+125°C, including terminal temperature rise for rating current.
溫度範圍：-55°C~+125°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, 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

4.2.1. INFRARED REFLOW 紅外線回流焊接

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。

4.2.1.1. Preheat 預熱

Increase in temperature not to exceed 4°C per second.
溫度增加速度不超過 4°C/秒。

4.2.1.2. Soldering 焊接

Maximum allowable time above reflow temperature of 150°C is 120 seconds. Maximum temperature in this interval is 260°C, duration is 3~5 seconds. 回流焊溫度在 150°C 以上的時間最長不超過 120 秒。最高溫度 260°C 時間 3~5 秒。



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4.2.1.3. Cool Down 冷卻

Cool down shall not exceed 5°C per second.

冷卻速度不超過 5°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 10 cycles 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。



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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	Initial. Row a 25mΩ max, Row b 35mΩ max, Row c 40mΩ max, Row d 45mΩ max. 初始狀態 a 排阻抗最大 25 mΩ, b 排阻抗最大 35 mΩ, c 排阻抗最大 40 mΩ, d 排阻抗最大 45 mΩ.	Subject mated contacts assembled in housing to closed circuit of 100 mA max. 20 mV max. MIL-STD-202, Method 307. 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 max · 電壓 20 mV max。適用：MIL-STD-202 · 方法 307。
3. Insulation Resistance 絕緣阻抗	1000 MΩ Min. 最小 1000 MΩ。	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%). 測試產品相鄰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 (500 V DC±10%)。
4. Dielectric Withstanding Voltage 耐電壓	Connector must withstand test potential of 1000 VAC RMS for 1 minute, current leakage must be 0.3mA Max. 產品必須承受測試電壓 1000 VAC RMS · 時間 1 分鐘 · 漏電流不大於 0.3 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	Contact Resistance: Δ5 mΩ Max. after testing. 測試後接觸阻抗最大變化 5 mΩ。	Repeat mate and unmated for connector 250 cycles, at a speed of 25.4±3 mm/minute. 重復進行配合產品 250 次插拔 · 速度 25.4±3 mm/分鐘。
6. Connector Pin Mating /Un-mating Force 單支端子插入力/拔出	Mating force: 0.45 N/Pin Max. Un-mating force: 0.15 N/Pin Min. 插入力最大 0.45 N/Pin · 拔出	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。
7. Contact Retention Force 端子保持力	Male connector: 5.0 N/Pin Min. Female connector: 3.0 N/Pin Min. 公產品：最小 5.0 N/Pin · 母產品：最小 3.0 N/Pin。	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
8. Vibration Sinusoidal Low	No electrical discontinuity greater than 1 μs shall occur, Contact	Subject mated connector to 10-500-10 Hz traversed in 1 minute at 1.5 mm amplitude, 2



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<p>Frequency 低頻正弦振動</p>	<p>Resistance: $\Delta 5$ mΩ Max. 不允許出現超過 1 μs 的瞬間斷開，接觸阻抗最大變化 5 mΩ。</p>	<p>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 10-500-10 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。</p>
<p>9. Thermal Shock 熱衝擊</p>	<p>After testing, no damage, Contact Resistance $\Delta 5$ mΩ Max. Dielectric Strength should be OK, Insulation Resistance should be OK. 測試後產品無損壞，接觸阻抗最大變化 5 mΩ；耐電壓測試 OK, 絕緣阻抗測試 OK</p>	<p>Temperature range from -55°C to +125°C. Start from -55°C, after 30 minutes, change to +125°C; change time is no more than 30 seconds, total 5 cycles. MIL-STD-202, Method 107, condition A. 溫度變化範圍：-55°C~ +125°C。從 -55°C 開始 30 分鐘後換到 +125°C，轉換時間不超過 30 秒共 5 個循環。適用：MIL-STD-202，方法 107 條件 A。</p>
<p>10. Humidity (Steady State) 恆溫恆濕</p>	<p>After testing, no damage, Contact Resistance $\Delta 5$ mΩ Max. Dielectric Strength should be OK, Insulation Resistance should be OK. 測試後產品無損壞，接觸阻抗最大變化 5 mΩ；耐電壓測試 OK，絕緣阻抗測試 OK。</p>	<p>Temperature: 55\pm2°C. Relative Humidity: 90-95%. Duration: 56Days. MIL-STD-202, Method 103, condition B. 溫度：55\pm2°C。相對濕度：90-95%。持續時間：56Days。適用：MIL-STD-202，方法 103，條件 B。</p>
<p>11. Solder-ability 可焊性</p>	<p>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. 產品在測試完成後，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。</p>	<p>Soldering time: 4 to 6 seconds. Temperature: 260\pm5°C. MIL-STD-202, Method 208. 焊接時間：4~6 秒。溫度：260\pm5°C。 適用：MIL-STD-202，方法 208。</p>
<p>12. Salt Spray 鹽霧</p>	<p>After testing, no damage, Contact Resistance $\Delta 5$ mΩ Max. Dielectric Strength should be OK, Insulation Resistance should be OK. 測試後產品無損壞，接觸阻抗最大變化 5 mΩ；耐電壓測試 OK，絕緣阻抗測試 OK。</p>	<p>5\pm1% salt concentration 48 hours 35\pm2°C MIL-STD-202, Method 101, condition B. 鹽水濃度 5\pm1%，時間 48 小時，溫度 35\pm2°C。 適用：MIL-STD-202，方法 101，條件 B。</p>
<p>13. High Temperature Life 高溫老化</p>	<p>After testing, no damage, Contact Resistance $\Delta 5$ mΩ Max. Dielectric Strength should be OK, Insulation Resistance should be OK. 測試後產品無損壞，接觸阻抗最大變化 5 mΩ；耐電壓測試 OK，絕緣阻抗測試 OK。</p>	<p>Subject product to 125\pm3°C for 1000 hours continuously. MIL-STD-202, Method 108, condition A. 產品置於 125\pm3°C 連續 1000 小時。 適用：MIL-STD-202，方法 108，條件 A。</p>



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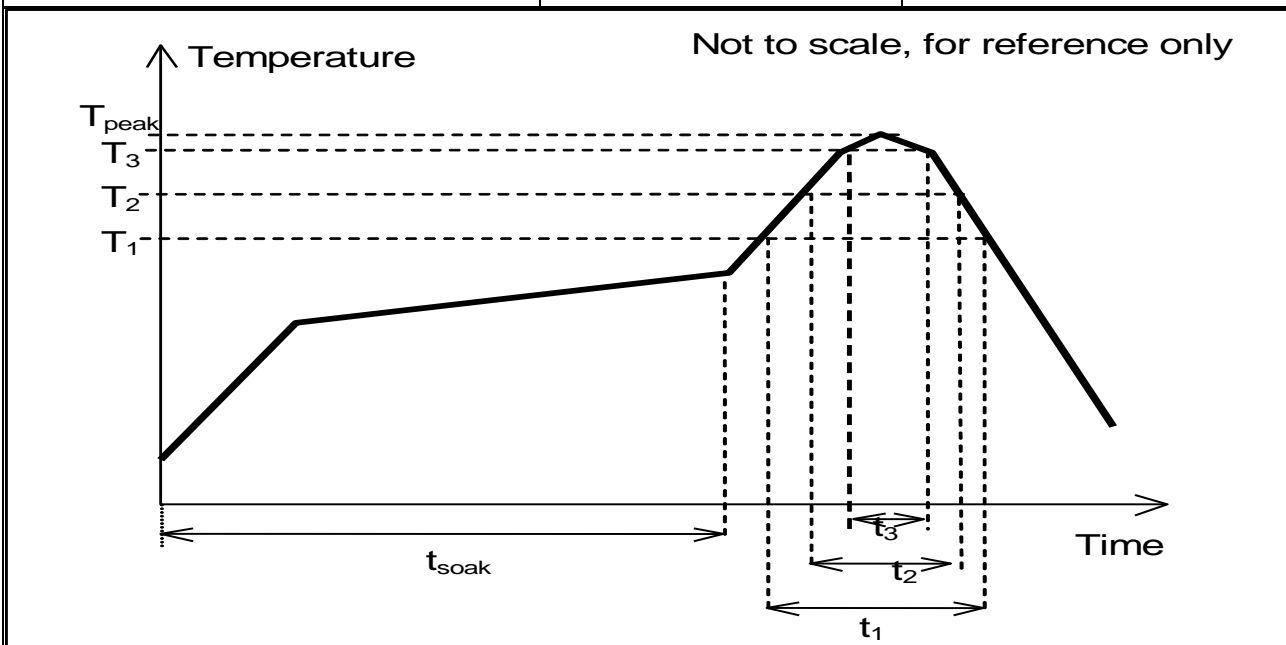
Table II: Reflow Soldering Profile

附表二：回流焊接曲線圖

Lead-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 平均預熱速度		2.5°C/s
Soak time 25~150°C	t_{soak}	60 Seconds (Max)
Time above 150°C	t_1	120 Seconds (Max)
Time above 200°C	t_2	50 Seconds (Max)
Time above 230°C	t_3	30 Seconds (Max)
Peak temperature in reflow 回流焊接中最高溫度	T_{peak}	260°C ($\pm 5^\circ\text{C}$) for 5s Max
Temperature gradient in cooling 冷卻時溫度幅度		-5°C/s (Max)



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.

這個曲線圖是評估元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。



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Material Housing : 070-LCP

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No.301, SONGKIANG ROAD, 7TH FL.,
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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 ⁶ Hz (1 MHz)	4.5
Dielectric Tangent / Df	---	10 ⁶ Hz (1 MHz)	0.036

* Typical data : Not to be constructed as specification

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



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Material Housing :UL

UL iQ™ for Plastics

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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 (10⁸ 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

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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)	0.3	V-0 (BK)
			1.0	V-0 (BK)
			3.0	V-0 (BK)
Glow-Wire Flammability (GWFI)	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 ²	-	-
ISO Izod Impact	ISO 180	kJ/m ²	-	-
ISO Charpy Impact	ISO 179-2	kJ/m ²	-	-

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Material Contact : Copper Alloy (Brass C2680)

[SGS Test Report Click here](#)

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REPORT OF MATERIAL TEST 材料測試報告

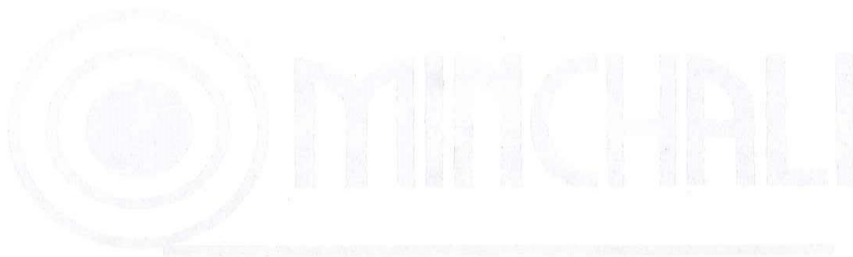
ISO 9001
ISO/TS 16949
IECQ QC080000
ISO 14001
OHSAS 18001 & TOSHMS

No. : 3C1556

DATE: DEC.26,2014

Customer 顧客名稱 : 歐品電子有限公司
Commodity 商品名稱 : C 2680 R BRASS STRIP (H)
Applied Standard 引用標準 : JIS H 3100 Copper and Copper alloy sheets, plates and strips

Manufacture No.	銅卷製號	3AA046A	
(Specification)	產品規格	Standard	
Thickness (mm)	產品厚度		0.400
Width (mm)	產品寬度		27.500
Length (mm)	產品長度		
(Chemical Analysis Test)	化性測試		
Cu(%)	銅	64.000-68.000	64.947
Fe(%)	鐵	max. 0.050	0.013
Pb(%)	鉛	max. 0.0500	0.0003
Zn(%)	鋅	REM.	REM.
(Mechanical & Physical Test)	物性測試		
Thickness Test (mm)	厚度測試	-0.015 +0.010	0.394
Width Test (mm)	寬度測試	-0.10 +0.00	GOOD
Tensile Strength (kgf/mm2)	抗拉強度	42.00 - 55.00	51.06
Elongation (%)	伸長率	-	17.92
Hardness Test (Hv)	硬度	140.0 - 160.0	158.0 - 160.0
Grain Size (mm)	結晶粒度	-	0.015
Electric Conductivity (%)	導電率	-	26.20
(Other Information)	其他資訊		
Delivery No.	出貨單號	3CA079	
Customer Purchase Order	採購單號	PO.B02A14101603	



QA Supervisor: 周建偉

A980301 G3A00203AH

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