



PRODUCT SPECIFICATION

產品規格書

PRODUCT NAME 產品名稱	產品料號 Part No.	圖號 Drawing No.
2mmHM Power Connector	9113-E12CB30PPSA	9113-D0000-009
	9114-E12CB30PPSA	9114-D0000-012
	9113-E12BCB30PPSA	9113-D0000-031
	9113-E12ACB30PPSA	9113-D0000-030

PRODUCT NAME 產品名稱	DOCUMENT No.: 文件編號	Rev. 版本	OUPIIN 歐品電子
2mmHM Power Connector	9113-Espec+ 9114-Espec	A	
	Approved 核准	Checked 審核	Prepared 制作
	QA. Chief	Joseph Yen	01.08/2018



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1. COPE 適用範圍

This product specification defines the product performance and the test methods to ascertain the performance of the 2mmHM Power 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 2mmHM 電源連接器，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
UL1977	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. 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。

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。



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

Rating current: Power Pin 75A

Rating voltage: 72V DC

(Power).

額定電流: Power Pin: 75A, 額定電壓: 72V DC (電源)

3.7 STORAGE AND OPERATING TEMPERATURE 存貯與使用溫度

Operating Temperature: $-55^{\circ}\text{C} \sim +105^{\circ}\text{C}$ (including terminal temperature rise for rating current);

Storage Temperature: $0^{\circ}\text{C} \sim +40^{\circ}\text{C}$, Humidity: 80%RH under.

使用溫度: $-55^{\circ}\text{C} \sim +105^{\circ}\text{C}$ (包含接觸端子的額定電流溫升);

儲存溫度: $0^{\circ}\text{C} \sim +40^{\circ}\text{C}$ · 濕度: 80%RH 以下。

4 PERFORMANCE AND TEST DESCRIPTION 性能及測試

4.1. 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。

4.2. 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。

4.3. 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。



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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	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	Contact resistance: 0.7mΩ Max. initial. 初始接觸電阻 0.7mΩ 最大；	Subject mated contacts assembled in housing to closed circuit. EIA 364 TP06 所述固定在外殼裏的端子連結到一個封閉回路中測試。適用：EIA 364 TP06.
3. Insulation Resistance 絕緣阻抗	Insulation Resistance Power Pin: 1500 MΩ Min. 產品絕緣電阻值 Power Pin: 最小 1500 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 AC±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 TP21，條件 B (500 V AC±10%)。
4. Dielectric Withstanding Voltage 耐電壓	Power Pin must withstand test potential of 1500 VAC RMS for 1 minute, current leakage must be 1mA Max. Power Pin 必須承受測試電壓 1500 VAC RMS，時間 1 分鐘，漏電流不大於 1 mA。	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. EIA 364 TP20 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：EIA 364 TP20
5. Durability (Repeated Mating/Un-mating) 耐久性	After testing, contact resistance: 0.7mΩ Max. 測試後，接觸阻抗：0.7mΩ 最大。	Repeat mate and unmated for connector 250 cycles, at a speed of 25.4±3mm per minute. 重複進行配合產品 250 次插拔，速度每分鐘 25.4±3mm。
6. Contact Retention Force, 端子保持力，	Power Pin: 25N/Pin Min. 每支最小 25N.	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。



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<p>7.1 Mating /Un-mating Force 插入力/拔出力</p>	<p>Mating force : 5N~16N/Per Connector Module; Un- mating force:5N~16N/Per Connector Module; 插入力:5N~16N 拔出力:5N~16N .</p>	<p>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。</p>
<p>7.2 Connector Pin Press in/Retention Force 單只端子壓入&拔出 PCB 孔的力量</p>	<p>Press in Force per Pin: 50N Max Retention in Force per Pin: Power Pin 10N Min, Plastic post Force:50NMin/pcs. Lead the pin intensity : ≥3kg (Female) 壓入力最大 : 50 N/PIN.拉出力最小 : Power Pin:10N/PIN 塑膠定位 柱保持力 : 50N Min/pcs. 導銷 強度≥3kg (母座)</p>	<p>At a speed of 25.4±3 mm/minute, apply axial Press in PCB to Right Proston or Pull out from PCB. 以 25.4±3 mm/分鐘的速度軸向施加壓力將 Press 部分壓入 PCB 孔適當位置或從 PCB 孔中拉出。</p>
<p>8. Vibration Sinusoidal Low Frequency 低頻正弦振動</p>	<p>No electrical discontinuity greater than 1 μs shall occur, Contact resistance 0.7mΩ max. 不允許出現超過 1 μs 的瞬間斷開· 接觸阻抗 0.7 mΩ 最大</p>	<p>Subject mated connector to 10-500-10 Hz traversed in minute at 1.52 mm amplitude, 2 hours each of 3 mutually perpendicular plane, EIA 364 TP28. 對測試產品· 在頻率變化每分鐘從 10-500-10 Hz, 振幅 1.52 mm 條件下· 在互相垂直的三個面上· 每個面 2 小時下測量。適用 : EIA 364 TP28。</p>
<p>9. Thermal Shock 溫度衝擊</p>	<p>After testing, no damage, Contact resistance:0.7 mΩ Max ; Dielectric Strength should be OK, Insulation Resistance should be 1500 MΩ Min. 測試後產品無損壞,接觸阻抗: 0.7mΩ 最大。耐電壓測試 OK · 絕緣阻抗最小 1500 MΩ</p>	<p>Temperature range from -55°C(30 minutes) to +85°C(30 minutes). Start from -55°C, after 30 minutes, change to +85°C; change time is no more than 30 seconds, total 5 cycles. EIA 364 TP 32. 溫度變化範圍 : -55°C(30 分鐘)~+85°C(30 分鐘)。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 : EIA 364 TP 32</p>
<p>10. Humidity Temperature Cycle 溫濕度循環</p>	<p>After testing, no damage, Contact resistance:0.7 mΩ Max ; Dielectric Strength should be OK, Insulation Resistance should be 1500 MΩ Min. 測試後產品無損壞,接觸阻抗: 0.7mΩ 最大。耐電壓測試 OK · 絕緣阻抗最小 1500 MΩ</p>	<p>Subject product to 25~65°C, 90-95%.RH Duration: 10Cycles. EIA-364-31B 產品置於 25~65°C,相對濕度 : 90-95%,循環 10 次。適用 : EIA 364 TP 31B .</p>
<p>11. Mechanical Shock 機械沖擊</p>	<p>Electrical discontinuity less than 1μs . 電流瞬斷時間小於 1μs.</p>	<p>Accelerate Velocity:490m/s²; Waveform:Half-sine shock plus; Duration:11msec; 3drops each to normal and reversed directions of X,Y and Z axes. 速度 490m/s²; 半正弦波 ; 持續 11 毫秒 ; ±X, ±Y, ±Z, 方向各 3 次;</p>



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<p>12. Test temperature rise for rating current 溫升測試</p>	<p>The temperature rise above ambient shall not exceed 30 °C。 溫度不能超過 30 °C。 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:75A max 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:75A max 參考規範：BUS-03-601</p>
<p>13.Salt Spray 鹽霧</p>	<p>After testing, no damage, Contact resistance:0.7 mΩ Max ; Dielectric Strength should be OK, Insulation Resistance should be 1500 MΩ Min. 測試後產品無損壞,接觸阻抗: 0.7mΩ 最大。耐電壓測試 OK。絕緣阻抗最小 1500 MΩ</p>	<p>5±1% salt concentration 48 hours 35±2°C MIL-STD-202, Method 101, condition B. 鹽水濃度 5±1%。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, Contact resistance:0.7 mΩ Max ; Dielectric Strength should be OK, Insulation Resistance should be 1500 MΩ Min. 測試後產品無損壞,接觸阻抗: 0.7mΩ 最大。耐電壓測試 OK。絕緣阻抗最小 1500 MΩ</p>	<p>Subject product to 105°C for 250 hours continuously. EIA 364 TP 17 產品置於 105°C 連續 250 小時。 適用：EIA 364 TP 17。 Subject product to 125°C for 3 hours continuously. EIA 364TP17 產品置於 125°C 連續 3 小時。適用：EIA364TP17。</p>
<p>15.Low Temperature Test 低溫測試</p>	<p>After testing, no damage, Contact resistance:0.7 mΩ Max ; Dielectric Strength should be OK, Insulation Resistance should be 1500 MΩ Min. 測試後產品無損壞,接觸阻抗: 0.7mΩ 最大。耐電壓測試 OK。絕緣阻抗最小 1500 MΩ</p>	<p>Subject product to -55±3°C for 2 hours, Recovery time 2 hours. continuously. EIA 364-59 產品置於 -55±3°C 連續 2 小時。 恢復時間 2 小時 適用：EIA 364-59。</p>



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Material Housing : 068-LCP(Black)

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Liquid Crystal Polymer

LAPEROS®

GA130

(Glass Fiber 30% filled / Standard)

1. Typical properties

Typical properties of GA130 are shown in Table 2-1.

Table 2-1 Typical properties

Item	Method	Unit	LAPEROS® GA130
Density	ISO1183		1.61
Flexural Strength	ISO178	MPa	195
Flexural Modulus		MPa	15,000
Flexural Elongation at Break		%	1.8
DTUL (1.8MPa)	ISO75/A	Deg.C	280
Flammability	UL94		0.1mmt V-0

Values shown are based on limited testing. These provisional values are not intended for use in establishing maximum, minimum or ranges for specification purposes.

2. Typical Injection Molding Condition

LAPEROS® LCP is a kind of aromatic polyester. Drying before molding is necessary. The typical drying condition is 140~170deg.C at pellet temperature for 4~8 hours using dehumidified air at -40deg.C dew point.

Actual temperature of resin during molding is more important than setting value of the injection machine. It was shown the typical setting value in Table 2-2.



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Material Housing :UL

Component - Plastics

E106764

POLYPLASTICS CO LTD

VECTRA DIVISON, 18-1 KONAN 2 CHOME, MINATO TOKYO 1088280 JP

GA130

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

Color	Min Thk (mm)	Flame Class	Flame		RTI Elec	RTI Imp	RTI Str
			HWI	HAI			
NC, BK	0.10	V-0	4	1	130	130	130
	0.75	V-0	3	1	130	130	130
	1.5	V-0	2	1	130	130	130
	3.0	V-0	1	1	130	130	130

Comparative Tracking Index (CTI): 4

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): -

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

High-Voltage Arc Tracking Rate
(HVTR): 3

High Volt, Low Current Arc Resis (D495): 4

Dimensional Stability (%): -

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:2013-07-31

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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)	0.10	V-0 (NC, BK)
			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	-	-
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 Power Pin : Copper Alloy (C18400)

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INSPECTION REPORT

客戶名稱 CUSTOMER	弘振企業股份有限公司
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TEL : +886-2-2278-1989 FAX : +886-2-2999-9687

品名 PRODUCT	C18400-R540	母料號碼 LOT NO	C09I12-1F	日期 DATE	2014/10/23
規格 SIZE	0.64 X 310	重量 QUANTITY	1454 KG	序號 NO.	131000015

化學成份 CHEMICAL COMPOSITION

成分符號 ELEMENT	Cu	CR	ZR						
規格 SPEC (%)	MIN	0.2	0.03						
	MAX	1.2	0.3						
分析值 ANALYSIS VALUE	99.2250	0.5686	0.1509						

機械特性試驗 MECHANICAL TESTING

項目 ITEM	抗拉強度 Tensile Strength N/mm ²	屈服強度 Yield Strength N/mm ²	伸長率 Elongation %	導電率 Electrical Conductivity %IACS	硬度 Hardness (for reference only) HV
規格 SPEC	MIN 540	500	4	83	150
	MAX 630				190
實測值 MEASURED VALUE	555	510	9.5	90.12	156

尺寸量測 GEOMETRICAL DIMENSIONS

項目 ITEM	厚度 Thickness (mm)	寬度 Width (mm)	粗糙度 Ra um		
規格 SPEC	MIN 0.610	309			
	MAX 0.670	311	0.15		
實測值 MEASURED VALUE	0.640	310	0.07-0.08		

備註 REMARKS

*厚度 ≤ 0.12T 以下者, 硬度僅供參考.

	責任者	品質擔當者
		

