



PRODUCT SPECIFICATION

(產品規格書)

Ordering information

Top Entry:

2146- 2X 15 C 00 D P T

Series 2: Double No. of C: Selective 00:Gold Flash D:SMD Type N : Without Post T: Tape &
Row Pin Per Row Gold Plated P : With Post Reel Package

Bottom Entry: (2146-Z)

2146-Z 2X 08 C 00 D P T

Series 2: Double No. of C: Selective 00:Gold Flash D:SMD Type N : Without Post T: Tape &
Row Pin Per Row Gold Plated P : With Post Reel Package

A1:JUL.15/2010.

A2:SEP.20/2013.(PCN 塑料)

A3:APR.10/2015.(Top Entry & Bottom Entry 料號區分).

A4:SEP.09/2015.(Top Entry & Bottom Entry 料號變更)

PRODUCT NAME (產品名稱)	DOCUMENT No.: (文件編號)	Rev. (版本)	OUPIIN
P.C.B. Socket 2.0mm	2146spec	A4(I800)	(歐品)
SMD Type	Approved (核準)	Checked (審核)	Prepared (製作)
(RoHS)	Q.A. Section Chief	Amy Chiu	SEP.09/2015



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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 P.C.B. Socket 2.0mm SMD 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 P.C.B. Socket 2.0mm SMD 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 (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)

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 1.0 A, rating voltage is 150V DC/AC RMS.

額定電流 1.0 A，額定電壓 150V DC/AC RMS。

3.7 STORAGE AND OPERATING TEMPERATURE 儲存與使用溫度

Temperature range: -65°C~+125°C, including terminal temperature rise for rating current.

溫度範圍：-65°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. 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°C per second.

(溫度增加不超過 4°C /秒,)

2. Soldering (焊接)

Maximum allowable time above reflow temperature of 150~200°C is 90~120 seconds. Maximum temperature in this interval is 260°C, not to exceed 3~5 seconds.

(回流焊溫度150~200°C時最長不超過90~120秒. 最高溫度260°C時間不超過3~5秒.)

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 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)	20 mΩ Max. initial. (最大.初態)	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)	1000 MΩ Min. (最小)	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. (500 V DC±10%). (測試產品端子間以及端子與接地間的電阻) (500V DC±10%)
4. Dielectric Strength (耐電壓)	Connector must withstand test potential of 500 V AC for 1 minute. Current leakage must be 0.5 mA max. (樣品必須承受測試電壓 500V 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. (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 (Repeated Mating/Unmated) (耐久性)	Contact Resistance: 30 mΩ Max. after testing. (測試後接觸阻抗最大 30mΩ)	The sample should be mounted the tester and fully mated and unmated 100 cycles specified at the rate of 25mm/min (重復進行配合產品 100 次插拔.)
6. Connector Insertion / Withdrawal Force (產品插拔力)	Insertion force : 1.0 N max. per contact Withdrawal force : 0.25N min. per contact 插入力: 1.0 N 最大 拔出力: 0.25 N 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)



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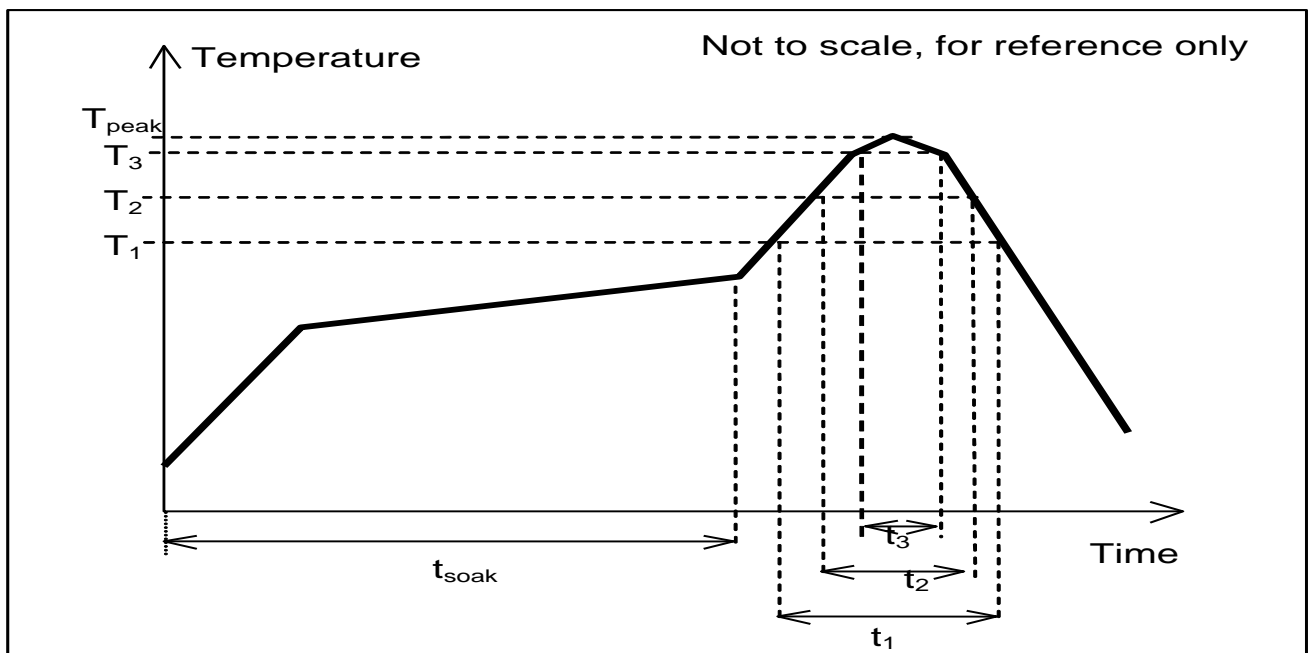
<p>7. Thermal Shock (熱衝擊)</p>	<p>After testing, no damage, Contact Resistance 30 mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ min. (測試後,產品無損壞, 接觸阻抗: 30 mΩ 最大; 耐電壓測試 OK, 絕緣阻抗 1000MΩ 最小;)</p>	<p>Temperature range from -65°C to +85°C .Start from -65°C, after 30 min. 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: -65°C ~ +85°C; 從 -65°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.)</p>
<p>8. Humidity (恆溫恆濕)</p>	<p>After testing, no damage, Contact Resistance 30mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 1000MΩ min. (測試後,產品無損壞, 接觸阻抗: 30 mΩ 最大; 耐電壓測試 OK, 絕緣阻抗 1000MΩ 最小;)</p>	<p>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。)</p>
<p>9.High Temperature (高溫)</p>	<p>After testing, no damage, Contact Resistance 30 mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ min. (測試後,產品無損壞, 接觸阻抗: 30 mΩ 最大; 耐電壓測試 OK, 絕緣阻抗 1000MΩ 最小;)</p>	<p>Subject product to 125±2°C for 96 hours continuously. MIL-STD-202, Method 108. (產品置於 125±2°C 連續 96 小時, 適用 MIL-STD-202, 方法 108。)</p>
<p>10. 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. (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;)</p>	<p>Peak Temperature: 260±5°C. (最高溫度: 260±5°C.) Soldering time: 3 to 5 Seconds (焊接時間: 3~5 秒)</p>

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}	60 Seconds (max)
Time Above 150~200°C	t_1	120 Seconds (max)
Time Above 200~230°C	t_2	50 Seconds (max)
Time Above 235~255°C	t_3	5 Seconds (max)
Peak temperature in reflow (回流焊接中最高溫度)	T_{peak}	260°C ($\pm 5^\circ\text{C}$)
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。)

Material Housing : 017-LCP (E130i-Black)

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1. General physical properties of VECTRA E130i

Table 1-1 General properties (ISO)

Item	Unit	Testing Method	High Heat Resistance,High Flow
			E130i
			Glass fiber reinforced, Standard
Density	g/cm ³	ISO 1183	1.61
Tensile strength*	MPa	ASTM D638	175
Tensile elongation*	%	ASTM D638	2
Flexural strength	MPa	ISO 178	220
Flexural modulus	MPa	ISO 178	15000
Flexural strain	%	ISO 178	2.3
Charpy impact strength(notched)	kJ/m ²	ISO 179/1eA	35
Temperature of deflection under load(1.0MPa)	°C	ISO 75-1,2	280
Weld Shrinkage(0° heat, Flow direction, harden pressure/MPa)	%		0.02
Weld Shrinkage(90° heat, Transverse direction, harden pressure/MPa)	%		0.54
Weld Shrinkage(0° heat, Flow direction, harden pressure/MPa)	%		-
Weld Shrinkage(90° heat, Transverse direction, harden pressure/MPa)	%		-
Volume resistivity	Ohm·cm	IEC 60093	1.0×10 ¹⁶
Surface resistivity	Ohm	IEC 60093	1.0×10 ¹⁰
Dielectric constant(1kHz)		IEC 60250	4.3
Dielectric constant(1MHz)		IEC 60250	3.8
Dielectric constant(10GHz)			3.6
Dielectric dissipation factor(1kHz)		IEC 60250	0.017
Dielectric dissipation factor(1MHz)		IEC 60250	0.032
Dielectric dissipation factor(10GHz)			0.007
Dielectric breakdown strength(Thickness 1mm)	kV/mm	IEC 60243-1	44
Dielectric breakdown strength(Thickness 3mm)	kV/mm	IEC 60243-1	24
Tracking resistance (CTI)	CTI	IEC 60112	125
Arc resistance	s		130
Flammability		UL94	V-0

All figures in the table are the typical values of the material and not the minimum values of the material specifications.

*1)For qualified values of UL (Underwriters Laboratories Inc.) refer to the yellow card (File No.E106764) issued by UL.

*2)This grade comes under item 16 of Annex 1 of the Export Trade Control Order on the basis of the Foreign Exchange and Foreign Trade Law of Japan.



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Material Housing :UL

UL iQ™

頁 1 / 2

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Component - Plastics

E106764

POLYPLASTICS CO LTD

18-1 KONAN 2 CHOME, MINATO TOKYO 1088280 JP

E130i(d)(e)(f1)

Liquid Crystal Polymer (LCP), thermotropic aromatic polyester, "VECTRA" or "LAPEROS", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
NC, BK	0.75	V-0	2	0	240	220	240
	1.5	V-0	1	0	240	220	240
	3.0	V-0	0	0	240	220	240

Comparative Tracking Index (CTI): 4

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): 39

Volume Resistivity (10¹² ohm-cm): 16

High-Voltage Arc Tracking Rate (HVTR): 0

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

Dimensional Stability (%): 0

(d) - Virgin and regrind up to 50% by weight incl., have the same basic material characteristics in NC and BK with a minimum thickness of 0.75mm.

(e) - Regrind from 26-50% by weight inclusive has an Impact RTI of 180C at thicknesses greater than 1.5mm.

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

ANSI/UL94 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: 1992-08-19

Last Revised: 2014-08-22

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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)	0.75	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	0.75	960
			1.5	960
			3.0	960
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	0.75	850
			1.5	850
			3.0	900
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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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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2014-11-24

Material Contact : Copper Alloy (Phosphor Bronze)

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GUO CHING PRECISION CO., LTD

試驗成績表

REPORT OF MATERIAL TEST

客戶 : 歐品電子有限公司	國慶精密股份有限公司
Customer	桃園縣龜山鄉大崗村大湖路2-17號
品名 : C5191-H	尺寸 : 0.200x 29.5x C
Product	Size
料號 : 1020109011	日期 : 102/01/29
Lot No	Date
	TEL : 03-2115391~8
	FAX : 03-2115399

化學成份

CHEMICAL COMPOSITION

元素 ELEMENT	Cu	P	Sn
規範 MAX	-	0.350	7.000
SPEC MIN	93.400	0.030	5.500
分析值 ANALYSIS VALUE	93.975	0.130	5.868

試驗

TEST RESULT

項目 ITEM	抗張 Tensile Strength kgf/mm2	伸長 Elongation %	硬度 Hardness Test o	結晶粒度 Grain Size µm	導電率 Electric Conductivity
規範 CONDITION	-	-	HV	-	-
SPEC MAX	70.000	-	200.000	-	-
SPEC MIN	58.000	8.000	180.000	-	-
測驗值 MEASURE-MENT VALUE	61.430	23.000	195.000	-	14.500



Approved by:



Checked by:

