PRODUCT SPECIFICATION

(產品規格書)

Ordering information

7912-A	15	F	C	00	D	A
Series	Position	F: Female	C：Selective Gold Plated	00:Gold Flash	D: SMD Type	A：Tray Package

A1:DEC.04/2014.
A2:JAN.08/2016(修改絕緣)

PRODUCT NAME (產品名稱)	**DOCUMENT No.:** (文件編號)	**Rev.** (版本)	**OUPIIN**
D-SUB Connector	7912specA-D	A2(I512)	(歐品)
Right Angle SMD Type	**Approved** (核準)	**Checked** (審核)	**Prepared** (製作)
(RoHS)	Q.A. Section Chief	Sunny Tsai	JAN.08/2016

1. **SCOPE**（範圍）..... 3

2. **REFERENCE DOCUMENTS**（参考文件）..... 3

3. **FEATURE & DIMENSIONS**（特徵及尺寸）..... 3

3.1. PRODUCT DIMENSION （產品尺寸）..... 3
3.2. PCB/PANEL LAYOUT（印刷電路板佈局）..... 3
3.3. BILL OF MATERIAL（材料清單）..... 3
3.4. MECHANICAL & ELECTRICAL CHARACTERISTIC（機械及電器特性）..... 3
3.5. PACKAGING（包裝）..... 3
3.6 RATING CURRENT AND RATING VOLTAGE (額定電流與額定電壓）..... 4
3.7 OPERATING TEMPERATURE (使用溫度)）..... 4

4. Environmental（環境要求）..... 4

4.1. SOLDERABILITY（可焊性）..... 4
4.2. RESISTANCE TO SOLDER HEAT（耐焊接熱）..... 4
INFRARED REFLOW（紅外線回流焊接）..... 4
1 Preheat（預熱）..... 4
2 Soldering（焊接）..... 4
3 Cool Down（冷却）..... 4

***5.* PERFORMANCE AND TEST DESCRIPTION**（性能及測試）..... 5

5.1. REQUIREMENT（要求）..... 5
5.2. TEST CONDITION（測試條件）..... 5
5.3. SAMPLE SELECTION（樣品選擇）..... 5

Table I: Test Requirements and Procedure 6

(附錄一: 測試要求)

Table II: Reflow soldering profile 7

(附錄二: 回流焊接曲線圖)

Table III: Material 8-11

(附錄三: 材料證明)

1. SCOPE （範圍）

This product specification defines the product performance and the test methods to ascertain the performance of the D-SUB Connector Right Angle 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 D-SUB Connector Right Angle 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）
EIA 364	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。) Tray Packag 包裝

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 OPERATING TEMPERATURE *使用溫度*

Temperature range: -65°C~+125°C.
溫度範圍：-65°C~+125°C。

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℃ per second.
(溫度增加不超過 4℃ /秒,)

2 Soldering （焊接）

Maximum allowable time above reflow temperature of 150~200℃ is 90~120 seconds. Maximum temperature in this interval is 250℃, not to exceed 5 seconds.
(回流焊溫度150~200℃時最長不超過90~120秒. 最高溫度250℃時間不超過5秒.)

3 Cool Down （冷卻）

Cool down shall not exceed 5℃ per second.
(冷卻速度不超過5℃/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准.)

5. PERFORMANCE AND TEST DESCRIPTION

（性能及测試）

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.
(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)

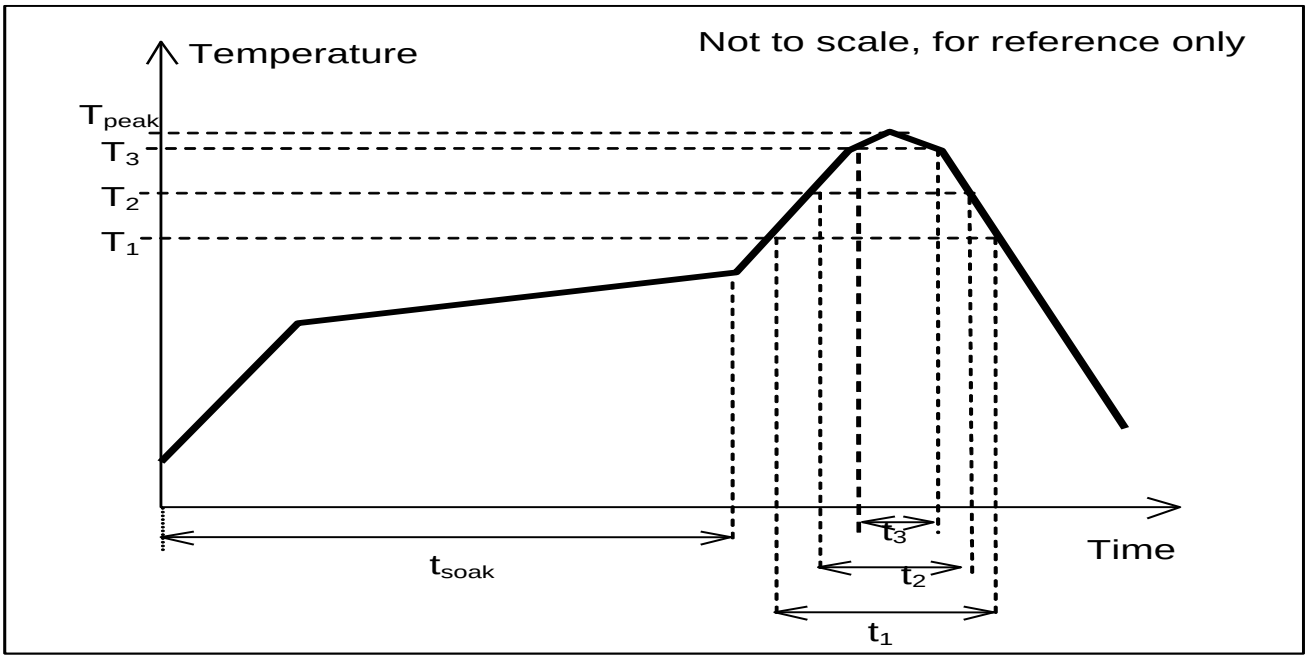
Items (項目)	Requirements (要求)	Test Methods (檢測方法)
1. Confirmation of Product (產品確認)	Product shall be conforming to the requirements of applicable product drawing. (產品必須滿足相關檔的規定)	Check the dimensions and functions per applicable product drawing in your eyes. (目視，尺寸及功能依產品圖面檢查)
2. Contact Resistance (接觸阻抗)	30 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)	5000 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. Thermal shock (熱衝擊)	After testing, no damage, Contact Resistance 30 mΩ max..,Insulation Resistance should be 5000 MΩ min. (測試後,產品無損壞， 接觸阻抗：30 mΩ最大, 絕緣阻抗 5000MΩ最小;)	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. (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.)
5. Humidity (恆溫恆濕)	After testing, no damage, Contact Resistance 30 mΩ max. (測試後,產品無損壞， 端子接觸阻抗：30 mΩ最大)	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。)
6.Temperature Life (溫鍍老化)	After testing, no damage, Contact Resistance 30 mΩ max..,Insulation Resistance should be 5000 MΩ min. (測試後,產品無損壞， 接觸阻抗：30 mΩ最大, 絕緣阻抗 5000MΩ最小;)	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。)

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}	180 Seconds (max)
Time Above 150~200°C	t_1	120 Seconds (max)
Time Above 200~230°C	t_2	60 Seconds (max)
Time Above 230~245°C	t_3	5~10 Seconds (max)
Peak temperature in reflow (回流焊接中最高溫度)	T_{peak}	250°C (–5/+0°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：058-PA9T(GN2330NK)

SGS Test Report Click here

如需 SGS 測試報告請點選此處

Material properties of Genestar

★

	Unit	Test method	Genestar (flame-retardant grade)								Other products for reference					
Grade			G2330	G2450	GN2330	GN2450	GT2330	GN2332	GW2458HF	GW2508	PA6T	PA46	PPS	LCP	LCP	LCP
Type		(ASTM)	12	9	1	1	2	1	1	1	Zytel	Stanyl	Fortron	Zenite	Vectora	Vectora
			standard	high strength	high weld strength	high weld strength	toughness	high flow	low warpage, high flow	low warpage, high strength	FR52G30L	TE250F8	1140A6	6130L	E130i	E471i
Glass fiber content	%	-	33	45	33	45	33	33	45	50	30	40	40	30	30	40
Physical properties																
Specific gravity	g/cm3	-	1.68	1.77	1.62	1.73	1.58	1.62	1.73	1.78	1.65	1.68	1.67	1.62	1.61	1.74
Water absorption (105F.40C/95%RH/96hrs)	%	-	0.9	0.6	1.0	0.7	1.0	1.0	0.8	0.7	2.6	3.6	0.06	[0.04]	[0.04]	[0.04]
Flammability	-	UL94	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0
Mechanical properties																
Tensile strength	MPa	D638	185	190	190	210	195	172	175	185	179	163	208	150	150	138
Tensile elongation	%	D638	3.1	2.7	3.2	2.6	3.2	2.6	2.5	2.5	2.7	2.8	2.5	2.7	2.4	2.5
Weld strength	MPa	D638	45	30	54	40	60	36	35	35	57	57	67	22	20	19
Weld elongation	%	D638	0.5	0.2	0.7	0.4	0.8	0.3	0.3	0.3	0.7	0.7	0.7	0.2	0.2	0.2
Flexural strength	MPa	D790	222	240	225	260	233	210	222	245	227	223	257	170	167	161
Flexural modulus	GPa	D790	11	14	11	14	10	10	15	16	10	12	13	12	11	12
Izod impact strength (notched)	J/m	D256	100	100	100	100	100	100	100	100	90	90	80	120	116	_
Bar-flow length (610F.320C/0.5mmt/750kgf)	mm	-	66	51	55	37	45	85	71	50	60	62 (590F)	31	85 (645F)	80 (645F)	104 (645F)
Rockwell hardness	R scale	D785	125	125	125	125	125	125	125	125	125	125	123	-	-	-
Thermal properties																
Melting point	F/C	-	583/306	583/306	583/306	583/306	583/306	583/306	583/306	583/306	590/310	563/295	536/280	-	-	-
Glass transition	F/C	-	257/125	257/125	257/125	257/125	257/125	257/125	257/125	257/125	185/85	140/60	194/90	-	-	-
DTUL (1.82MPa)	F/C	D648	545/285	545/285	545/285	545/285	545/285	545/285	545/285	545/285	545/285	545/285	509/265	509/265	527/275	509/265
Electrical properties																
Dielectric strength	MV/m	D149	30	30	30	30	30	30	30	30	[28]	24	24	[30]	[30]	[30]
Volume resistivity	Ωcm	D257	10^{15}	10^{16}	10^{15}	10^{16}	10^{16}	10^{16}	10^{15}	10^{16}	[10^{15}]	10^{15}	10^{15}	[10^{16}]	[10^{16}]	[10^{16}]
Tracking resistance	V	IEC-CTI	550	550	400	400	400	400	>600	400	[400]	225	175	[175]	[175]	[175]
Dielectric constant (10GHz)	-	D150	3.4	3.8	3.4	[3.8]	[3.4]	3.5	3.8	3.9	[3.4]	4.1	3.8	[4.2]	[4.2]	[4.2]
Dielectric loss tangent (10GHz)	-	D150	0.0095	0.0097	0.0097	[0.0097]	[0.0097]	0.0101	0.0098	0.0098	[0.009]	0.0123	0.0064	[0.018]	[0.018]	[0.018]
Dimensional characteristics																
Molding shrinkage :in direction of flow	%	-	0.1	0.1	0.1	0.1	0.1	0.1	0.03	0.02	0.1	0.1	0.04	0.1	0.1	0.05
(1mmt) :at right angles to flow	%	-	0.6	0.5	0.6	0.5	0.6	0.6	0.40	0.30	0.6	0.7	0.50	0.6	0.6	0.38

* Table shows typical values, which are not specified values.

20050225

Material Housing :UL

for enhanced search functionality please visit UL's **iQ™ family of databases**

Component - Plastics **E90350**

KURARAY CO LTD

GENESTAR DIV, OTE CENTER BLDG 1-1-3, OTEMACHI, CHIYODA-KU TOKYO 100-8115 JP

GN2330(#)

Polyamide 9T (PA9T), furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.75	V-0	0	0	150	120	130
	1.5	V-0	0	0	150	130	140
	3.0	V-0	0	0	150	130	140

Comparative Tracking Index (CTI): 1

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): 5

Dimensional Stability (%): -

(#) - Suffix optional.

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: 2001-07-10

Last Revised: 2008-09-08

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 (ALL)
			1.5	V-0 (ALL)
			3.0	V-0 (ALL)
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	-	-

Material Contact : Copper Alloy (Phosphor Bronze)

SGS Test Report Click here

如需 SGS 測試報告請點選此處

GUO CHING PRECISION CO., LTD

試 驗 成 績 表
REPORT OF MATERIAL TEST

客戶： 歐品電子有限公司 Customer

國慶精密股份有限公司
桃園縣龜山鄉大崗村大湖路2-17號
TEL： 03-2115391~8
FAX： 03-2115399

品名： C5191-H Product　　尺寸： 0.200x 29.5x C Size

料號： 1020109011 Lot No　　日期： 102/01/29 Date

化 學 成 份
CHEMAICAL COMPOSITION

元素 ELEMENT		Cu	P	Sn	
規範 SPEC	MAX	-	0.350	7.000	
	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 Conductirity
規範 SPEC	CONDITION	-	-	HV	-	-
	MAX	70.000	-	200.000	-	-
	MIN	58.000	8.000	180.000	-	-
測驗值 MEASURE-MENT VALUE		61.430	23.000	195.000	-	14.500

國慶精密 股份有限公司 TEL:(03)2115391-8

Approved by: 品保專 102.1.29　　Checked by: 製單 102.1.29

Material Shell : Copper Alloy (Brass:Plared Ni)

SGS Test Report Click here

如需 SGS 測試報告請點選此處

中國鋼鐵 CHINA STEEL

品 質 證 明 書
TEST CERTIFICATE

中國鋼鐵股份有限公司
CHINA STEEL CORPORATION
中華民國高雄市小港區中鋼路1號
1 CHUNG KANG ROAD, HSIAO KANG, KAOHSIUNG(812)
TAIWAN, REPUBLIC OF CHINA.
TEL:(07)802-1111 FAX:(07)802-2511,(07)801-9427

F0168-02 0487

客戶名稱 SOLD TO	永發鋼鐵工業股份有限公司 YUNG FA STEEL & IRON INDUSTRY CO., LTD.		產品名稱 PRODUCT	CR SHEET-COIL	
			發票號碼 INVOICE NO.	YW73265093	證明書編號 CERTIFICATE NO. 970306F0168
規格名稱 SPEC.	JIS G3141 SPCC-SD, OILED. (CQ2, UE) R-35		客戶編號 CUSTOMER NO.	35489006	中鋼訂單編號 CSC ORDER NO. DC48786
			交運日期 SHIPPING DATE	MAR. 05, 2008	證明書日期 T/C ISSUE DATE MAR. 06, 2008
檢驗 INSP.	CSC MILL INSPECTION.	T/C 02	客戶訂單編號 CUST ORDER NO.		

項目 ITEM NO.	產品序號 LABEL NO.	尺寸 MATERIAL DESCRIPTION 厚度 THICK. MM	寬度 WIDTH MM	長度 LENGTH MM	數量 QTY	質量 MASS KGS	爐號 HEAT NO.	鋼捲號碼 COIL NO.	試片編號 SAMPLE ID.	拉伸試驗 *1 G.L.=50 MM 降伏 Y.S. N/MM2	抗拉 T.S.	伸長 EL. %	*05 硬度 RB	化學成份 CHEMICAL ANALYSIS % C X10 2	Mn X10 2	P X10 3	S	Si	Cu	Ni X10 2	Cr	Mo	T.Al X10 3	備註 REMARK
001	F051932	0.40	1219	COIL	1	9,555	6C974	675268	675268	175	328	44.2	38	4	17	12	8	1					54	
		TOTAL:			1	9,555																		

註釋 NOTES
*01 拉伸試驗 TENSILE TEST
*05 硬度試驗 HARDNESS TEST

KG/MM2 = N/MM2 / 9.80665
INF:FOR REFERENCE ONLY

SURVEYOR TO

茲證明本表所列產品，均依材料規格製造及試驗，並符合規格之要求。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS BEEN MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENT OF THE ABOVE MATERIAL SPECIFICATION.

Lii Wei
冶金技術處處長
GENERAL MANAGER, METALLURGICAL DEPARTMENT