



PRODUCT SPECIFICATION

(產品規格書)

Ordering information

2116-	2*	40	G	00	R/L1/L2	U
Series	2: Double Row	No. of Pin Count	G: Gold Plated	00:Gold Flash	R: Right Angle L1:Dip Length L2:Mating Length	U: Tube Package

PRODUCT NAME (產品名稱)	DOCUMENT No.: (文件編號)	Rev. (版本)	OUPIIN
Header 2.0mm x 2.0mm (RoHS)	2116spec	A1	(歐品)
	Approved (核準)	Checked (審核)	Prepared (製作)
	Q.A. Section Chief	Amy Chiu	MAR.11/2010

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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 Header 2.0mm x 2.0mm, 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 Header 2.0mm x 2.0mm, 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-202F	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. Products required carrier tape should meet the proper specification per purchase order. Connector container and the packaging specification is shown in package drawing.
(產品包裝可依客戶指定要求.本產品採用 Tube Package 包裝，具體見包裝圖面.)

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

Rating current is 2.0A, rating voltage is 250V DC/AC RMS.

額定電流 2.0A，額定電壓 250V DC/AC RMS。

3.7 STORAGE AND OPERATING TEMPERATURE 儲存與使用溫度

Temperature range: -40°C~+105°C, including terminal temperature rise for rating current.

溫度範圍：-40°C~+105°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-202F. Finish shall be free of contaminants.

(產品可焊性符合 MIL-STD-202F 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)

WAVE SOLDERING (波峰接)

Each cycle consists of three consecutive phases.

(每個焊接週期包括三個連續的階段)

1. Preheat (預熱)

The steady temperature of the preheat zone is 90~125°C.

(預熱區最終溫度控制在90~125°C)

2. Soldering (焊接)

To avoid the secondary tin-melting, the temperature on PCB upper surface is 160°C Max. for products with lead, or 200°C Max. for lead-free products. The temperature of the PCB bottom surface shall not be exceed 100°C more than the temperature of the PCB upper surface. The peak temperature is during 230~255°C for products with lead, or 255~265°C for lead-free products. The tin dip time is duration for 3~10 seconds.

(有鉛產品板面溫度不得超過160°C，無鉛產品板面溫度不得超過200°C，以防止貼片零件二次熔錫。板面溫度與板底的溫度溫差不得超過100°C。板下溫度峰值有鉛產品維持在230~255°C，無鉛產品控制在255~265°C。浸錫時間控制在3~10秒。)

3. Cool Down (冷卻)

Cool down shall not exceed 6°C per second.

(冷卻速度不超過6°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. MIL-STD-202, Method 302, Condition B (500 V DC±10%). (測試產品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)(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 0.3 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 0.3 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. (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	Contact Resistance: 30 mΩ Max. after testing. (測試後接觸阻抗比初始值增大不超過 30mΩ)	The sample should be mounted the tester and fully mated and unmated 100 mating cycles specified at the rate of 25mm/min (重復進行配合產品 100 次插拔.)
6. Connector Retention Force (產品保持力)	Retention Force : 4.9 N .per contact 保持力: 4.9 N .per pin	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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7. Thermal shock (熱衝擊)	After testing, no damage, Contact Resistance 30 mΩ max.. (測試後,產品無損壞, 接觸阻抗: 30 mΩ 最大)	Temperature range from -40°C to +105°C .Start from -40°C, after 30 min. change to +105°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: -40°C ~ +105°C; 從 -40°C 開始, 30 分鐘後換到+105°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.)
8. Humidity (恆溫恆濕)	After testing, no damage, Contact Resistance 40mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 500MΩ min. (測試後,產品無損壞, 接觸阻抗: 40 mΩ 最大; 耐電壓測試 OK, 絕緣阻抗 500MΩ 最小;)	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。)
9.High Temperature Life (高溫老化)	After testing, no damage, Contact Resistance 40 mΩ max.. (測試後,產品無損壞, 接觸阻抗: 30 mΩ 最大)	Subject product to 105°C for 96 hours continuously. MIL-STD-202, Method 108. (產品置於 105°C 連續 96 小時, 適用 MIL-STD-202, 方法 108。)
10. Salt Spray (鹽霧)	After testing, no damage, Contact Resistance 50mΩ max.. (測試後,產品無損壞, 接觸阻抗: 50 mΩ 最大)	5±1% salt concentration 16 hours 35±2°C MIL-STD-202, Method 101 Condition B. (鹽水濃度 (重量比) 5±1%, 時間 16 小時, 溫度 35±2°C; MIL-STD-202, 方法 101 條件 B.)
11. Solder ability (可焊性)	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;)	Soldering time: 3 to 5 Seconds (焊接時間: 3~5 秒) Peak Temperature: 245±5°C. (最高溫度: 245±5°C.)



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Material Housing : 038-PA6T (E430NK Black)

[SGS Test Report Click here](#)

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尼龍6T物性表

ARLEN¹⁾ 的各種規格及物性

Mitsui Chemicals, Inc.

Properties	Units	C215N	C230N	C240N	CH230N	CH245NK	C430N	C630N	C645NK	E430N
玻纖含量	%	15	30	40	30	45	30	30	45	30
比重	-	1.62	1.72	1.75	1.63	1.77	1.66	1.66	1.79	1.66
機械特性 (乾燥狀態)										
引伸強度	MPa	110	170	180	160	160	170	170	150	170
引伸破壞強度	%	3	3	3	4	3	4	4	3	3
曲折強度	MPa	180	260	280	240	250	250	250	240	250
彈性係數	MPa	6,000	12,000	13,000	11,000	14,000	11,400	11,000	14,000	11,400
耐衝擊強度	(凹口) J/m	40	70	75	80	90	85	85	90	80
洛氏硬度	M-scale	105	110	110	95	95	95	95	95	100
溫度特性										
熔點	?	310	310	310	310	310	310	310	310	320
玻璃轉化溫度	?	85	85	85	85	85	85	85	85	95
熱變型溫度	1.82 MPa ?	280	295	295	290	290	295	295	290	305
線膨脹係數 機械方向	MD 10 ⁻⁵ /?	2.7	2.5	1.7	1.5	1.2	1.2	1.2	0.8	2.2
線膨脹係數 垂直方向	TD	8.8	7.4	7.0	8.9	8.0	9.2	9.1	7.8	7.3
電氣特性 (乾燥狀態)										
體積電阻	cm	10 ¹⁵	10 ¹⁵	10 ¹⁵	10 ¹⁵	10 ¹⁵	10 ¹⁵	10 ¹⁵	10 ¹⁵	10 ¹⁵
介電係數	10 ⁶ Hz -	3.5	3.9	4.0	4.0	4.3	4.0	4.0	4.3	3.6
介電消散因數	10 ⁶ Hz -	0.015	0.012	0.011	0.013	0.011	0.013	0.012	0.011	0.012
介電破壞電壓	kV/mm	17	20	22	25	22	26	22	19	24
其它特性										
模收縮率 (2 mm厚) 機械方向	MD %	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.3
模收縮率 (2 mm厚) 垂直方向	TD	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.4	0.9
吸水率 (2 mm厚水中浸泡24小時)	23 ? %	0.4	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.2
	100 ?	3.8	3.0	2.8	3.0	2.8	3.0	3.0	2.3	2.7
防火等級	UL94 -	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0
流動長度 ²⁾	0.5 mm ² mm		33	30	40	36	53	70	48	45

) The above figures are just representative values but not specification values.

!) Width: 10 mm, cylinder temp.: 320 ?, mold temp.: 130 ?, injection pressure: 100 MPa.



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Material Housing :UL

MITSUI CHEMICALS INC PERFORMANCE POLYMERS DIV SHIODOME CITY CENTER,#1-5-2,HIGASHI-SHINBASHI MINATO-KU, TOKYO 105-7117, JAPAN											UL Underwriters Laboratories Inc	
											E52579	
Material Dsg	Color	Min. Thk mm	Flame Class	H		RTI			H	D	C	
				W	A	Elec	Mech		V	4		
				1	1		Imp	Str	T	9	T	
				0	0	65	65	65	0	5	0	
A3(d)(e)	ALL	0.75	HB	—	—	65	65	65				
A315(e)	ALL	0.75	HB	—	—	65	65	65				
A335	NC	0.75	HB	—	—	65	65	65				
		3.00	HB	0	0	65	65	65				
A340(e)	ALL	0.75	HB	—	—	65	65	65				
		1.50	HB	—	—	105	105	105				
		3.00	HB	—	—	115	115	115				
A340N(e)	ALL	0.75	V-0	0	1	65	65	65	1	6	1	
		1.50	V-0	0	1	120	120	120				
		3.00	V-0	0	0	120	120	120				
AB4200n(e)	ALL	0.75	V-0	—	—	65	65	65				
C18(s)#	ALL	0.86	HB	—	—	65	65	65				
C1800#	ALL	0.86	HB	—	—	65	65	65				
C1850#	ALL	0.86	HB	—	—	65	65	65				
C2(d)(e)	ALL	0.75	HB	—	—	65	65	65				
C215(e)	ALL	0.75	HB	—	—	65	65	65				
C215N(e)	ALL	0.75	V-0	—	—	65	65	65			2	
C230(e)(r)	ALL	0.86	HB	—	—	65	65	65				
C230N(e)	ALL	0.75	V-0	—	—	65	65	65			2	
C240(e)	ALL	0.75	HB	—	—	65	65	65				
		1.50	HB	—	—	115	95	115				
		3.00	HB	—	—	115	105	115				
C240N(e)	ALL	0.75	V-0	0	0	65	65	65	1	6	1	
		1.50	V-0	0	0	120	105	115				
		3.00	V-0	0	0	120	115	125				
C240NK(r1)	ALL	0.75	V-0	0	0	65	65	65	1	6	1	
		1.50	V-0	0	0	120	105	115				
		3.00	V-0	0	0	120	115	125				
C430N(e)	ALL	0.85	V-0	0	0	140	65	65			1	
		1.50	V-0	0	0	140	65	65				
		3.00	V-0	0	0	140	65	65				
C430N(e)(r)	ALL	0.85	V-0	—	—	65	65	65			1	
C630N(e)(r2)	ALL	0.75	V-0	—	—	140	65	65				
		3.00	V-0	—	—	140	65	65			1	
C645N(e)	ALL	0.75	V-0	—	—	65	65	65				
		3.00	V-0	—	—	65	65	65				
C645NK(r1)	NC	0.75	V-0	—	—	65	65	65				
C645NK(r1)	NC	0.80	V-0	—	—	65	65	65				
		3.00	V-0	—	—	65	65	65				
C830NK#	BK	0.75	V-0	—	—	65	65	65				
CE2200NK	BK	0.86	V-0	—	—	65	65	65				
CH230N(e)	ALL	0.75	V-0	0	0	130	90	125			1	
		1.50	V-0	0	0	130	120	125				
		3.00	V-0	0	0	130	120	125				
CH230N(e)(r)	ALL	0.85	V-0	—	—	65	65	65			1	
CH245N(e)	ALL	0.75	V-0	—	—	130	120	125				
		3.00	V-0	—	—	130	120	125				
CH245NK(r1)	NC	0.75	V-0	—	—	65	65	65				
CH245NK(r1)	NC	0.80	V-0	—	—	65	65	65				
		3.00	V-0	—	—	65	65	65				
★E430NT5(r)	ALL	0.80	V-0	—	—	65	65	65				
E440NK	ALL	0.80	V-0	—	—	65	65	65				
GB4200N(e)	ALL	0.87	V-0	—	—	65	65	65				

(r)-Virgin and regrind up to 50% by weight inclusive have the same flammability properties only
 (r1)-Virgin and regrind from 26% to 50% by weight inclusive have the same flammability and TI properties only
 (r1)-Virgin and regrind from 26% to 50% by weight inclusive have the same flammability, HDT, and TS properties only



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Material Contact : Copper Alloy (SQUAREPIN-Au)

[SGS Test Report Click Here](#)

[如需 SGS 測試報告請點選此處](#)

國 晟 工 業 股 份 有 限 公 司

GWO CHERN INDUSTRIAL CO., LTD.

桃園縣蘆竹鄉海湖村海湖 16 鄰 186 之 28 號

No . 186 – 28 Hai Hu Village . Lu Chu

Hsiang Tao Yuan Hsien Taiwan

電腦分析儀化學成份(Cheical Compositions)測試報告

客戶名稱						
訂單號碼				出貨日期	96/10/24	
國際標準	JIS 國際標準	試材品名	C2700W (SBS)	試材規格	1.08m/m ± 0.02	
化學試驗	CHEMICAL TESTING					
儀器名稱	X 光電腦分析儀 (VACUUM X RAY SPECTROGRAPH)					
此份材質表僅供參考，不做其他證明使用。						
元素名稱	標準規範 %	實際含量 %	元素名稱	標準規範 %	實際含量 %	
銅 (Cu)	63.2-63.8	63.485	鐵 (Fe)	≤ 0.02	0.0017	
鋅 (Zn)	Remainder	36.4794	矽 (Si)	—	—	
鉛 (Pb)	≤ 0.010	≤ 0.01	錳 (Mn)	—	—	
錫 (Sn)	Fe+Sn ≤ 0.02	≤ 0.02	銻 (Sb)	—	—	
鎳 (Ni)	—	—	鋁 (Al)	≤ 0.005	0.0039	
磷 (P)	—	—	其他(other)	—	—	
導電率測試值	架橋式					
機械試驗	MECHANICAL TESTING					
試驗方法	油壓拉伸法					
儀器名稱	電腦萬能材料試驗機 (computer universal machine)					
物理性質	拉力(tesile strength)	降伏點(yield strength)	延伸率(elongation)	硬度(hardness)	CD 值 1	CP 值 2
標準要求	— kgf/m ²	— gf/m ²	15 % 以上	1/4 H	750 m/m 以下	50 m/m 以下
實際數值	36.9 kgf/m ²	18.12 kgf/m ²	37 %	1/4 H	550 m/m	<5 m/m
製造批號	101821	101822				
單位主管	張景松		分析員	何三吾		