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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 Hard Metric Connector , 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 Hard Metric Connector 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)
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. 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 1.0A, rating voltage is 500V DC/AC RMS.
額定電流 1.0A，額定電壓 500V DC/AC RMS。

3.7 STORAGE AND OPERATING TEMPERATURE 儲存與使用溫度

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-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) (IEC-512-2 Test 2a)	Subject mated contacts assembled in housing to closed circuit of 100m A 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 AC 750 V max.)
3. Insulation Resistance (絕緣阻抗)	10000 MΩ Min. (最小)	Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connector. IEC-512-2 Test 3a, 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：IEC-512-2 Test 3a)(500V DC±10%)
4. Dielectric Strength (耐電壓)	Connector must withstand test potential of 750 V AC for 1 minute. Current leakage must be 0.5 mA max. (IEC-512-2 Test 4a) (樣品必須承受測試電壓 750V 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：IEC-512-2 Test 4a)
5. Durability (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 500 cycles specified at the rate of 25mm/min (重復進行配合產品 500 次插拔.)
6. Connector Mated / Unmated Force (產品插拔力)	Mated force : 0.75 N max. per contact Unmated force : 0.15 N min. per contact 插入力: 0.75 N 最大 拔出力: 0.15 N 最小	Mate and Unmate female and male together at a speed rate of less than 10mm per second and measure the mating and unmating force. (IEC-512-7 test 13a) (軸向力以 10mm/秒的速度從塑膠本體對插後拔出)



PRODUCT SPECIFICATION OF OUPIIN

7. Dry Heat	After testing, no damage, Contact Resistance 30 mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 10000 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 10000MΩ 最小;)	Mate female and male together and expose them into an ambient condition for temperature 125°C for 16hours. Measure after 2hours at the ordinary temperature. (IEC-512-6 test 11 i)
8. Cold	After testing, no damage, Contact Resistance 30 mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 10000 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 10000MΩ 最小;)	Mate female and male together and expose them into an ambient condition for temperature -55°C for 2hours. Measure after 2hours at the ordinary temperature.
9. Thermal shock (熱衝擊)	After testing, no damage, Contact Resistance 30 mΩ max.. Dielectric Strength should be OK, Insulation Resistance should be 10000 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 10000MΩ 最小;) (IEC-512-6 test 11d)	Temperature range from -55°C to +125°C .Start from -55°C, after 30 min. change to +125°C; change time is no more than 30 seconds. Total 5 cycles. IEC-512-6 test 11d. (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: IEC-512-6 test 11d.)
10.High temperature (高溫)	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;)	Mate female and male together and expose them into an ambient condition for temperature 70 C for 1000hours, passing DC 1A in series. Measure after 2hours at the ordinary temperature. (產品置於 70±2°C 連續 1000 小時, 適用 IEC-512-5 test 9b)
11.Resistance to soldering heat 耐焊接熱	No damage 產品無損壞	Leave subject product in the 245±5°C chamber for 5 Seconds 產品置於 245±5°C 烘箱內 5 秒。

Material Housing : 004-PBT

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長春人造樹脂廠股份有限公司

台北市 10477 松江路三零一號七樓

CHANG CHUN PLASTICS CO.,LTD.

TLX:2253 LONGLITE

NO.301 SONGKIANG ROAD, 7FL., TAIPEI, 10477 TAIWAN

FAX: (02)25033378

CABLE ADDRESS: LONGLITE TAIPEI

TEL: (02)25038131

材質證明*

MATERIAL FORMULATION CONFIDENTIAL REPORT *

材質名稱 Type of Material : PBT (Poly Butylene terephthalate)聚丁烯對苯二甲酸酯
規格 Grade : PBT 4130-104FC、4130-202F、4830-BKC、4830-NCB

說明 Description :

PBT 複合材料包含 PBT 純樹脂、玻纖、溴化耐燃劑及少量添加劑。

The raw material of PBT compound contains PBT pure resin, glass fiber, flame retardant, and few of additives.

PBT 複合材料成分表

Chemical Composition of PBT Compound

		規格 Grade		4130-104FC 4130-202F	4830-BKC 4830-NCB
組成 Chemical Composition		Molecular formula	CAS Number	含量(%) Content (%)	含量(%) Content (%)
1	PBT 樹脂 PBT resin	$(C_{12}H_{12}O_4)_n$	26062-94-2	43~61	47~63
2	玻璃纖維 Glass Fiber	$SiO_2 \cdot CaO \cdot Al_2O_3$	65997-17-3	28~32	28~32
3	耐燃劑 Flame Retardant	$(C_{18}H_{16}Br_4O_3)_n$ $(C_{16}H_{10}Br_4O_3)_n$ Sb_2O_3	68928-70-1 71342-77-3 1309-64-4	10~20	8~16
4	添加劑 Additives	N.A.	NA	1~5	1~5

供應商 MATERIAL SUPPLIER

Company : CHANG CHUN PLASTICS CO., LTD. KAOHSIUNG FACTORY

Signature : Tseng, Ching-Neng

Address : No. 14 KUNG-YEH 1ST ROAD, JEN-WU INDUSTRIES DISTRICT,
KAOHSIUNG, TAIWAN, ROC.

Date : Mar.31, 2005



PRODUCT SPECIFICATION OF OUPIIN

Material Housing :UL

UL iQ for Plastics Yellow Card

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QMFZ2 Component - Plastics

Monday, February 26, 2007

E59481

CHANG CHUN PLASTICS CO LTD
7TH FL 301 SONGKIANG RD TAIPEI TW

Material Designation: **4130 (a)**

Product Description: Polybutylene Terephthalate (PBT), glass reinforced, designated "LONGLITE" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.40	V-0	4	0	75	75	75	-	-
	0.74	V-0	4	0	120	120	140	-	-
	1.5	V-0	3	0	120	120	140	-	-
	3.0	V-0	2	0	120	120	140	-	-

CTI: 2 IEC CTI (V): - HVTR: 4 D495: 7 IEC Ball Pressure (°C): 210

Dielectric Strength (kV/mm): 28	Volume Resistivity (10⁹ohm-cm): 14	Dimensional Stability(%): -
ISO Tensile Strength (MPa): -	ISO Flexural Strength (MPa): -	ISO Heat Deflection (°C): -
ISO Tensile Impact (kJ/m²): -	ISO Izod Impact (kJ/m²): -	ISO Charpy Impact (kJ/m²): -

(a) Ball pressure temperature of 210 C in accordance with IEC.695.10.2 and IEC 950.5.4.10

Report Date: 9/1/1987

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UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULI.



PRODUCT SPECIFICATION OF OUPIIN

Material Cover : 009-LCP

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Zenite™ LCP

liquid crystal polymer resin

Zenite™ 6130(L) BK & WT 30% Glass Reinforced Liquid Crystal Polymer Resin

Zenite™ 6130(L) is a 30% glass reinforced LCP resin having excellent toughness and an HDT of 260 C. The L version is lubricated . It is suited for use in automotive, electrical/electronic, telecommunications, and aerospace applications.

Property	Test Method	Units	Value
Mechanical			
Tensile Strength, 0.8mm (0.032in)	ASTM D 638	MPa (kpsi)	
-40C (-40F)			250 (36.3)
23C (73F)			165 (23.9)
120C (250F)			82 (11.9)
149C (300F)			55 (8.0)
200C (392F)			22 (3.2)
250C (482F)	21 (3.0)		
Tensile Strength, 3.2mm (0.125in)	ASTM D 638	MPa (kpsi)	
-40C (-40F)			185 (26.8)
23C (73F)			130 (18.8)
120C (250F)			60 (8.7)
149C (300F)			50 (7.3)
200C (392F)			35 (5.2)
250C (482F)	14 (2.0)		
Elongation at Break	ASTM D 638	%	2.5

Contact DuPont for MSDS, general guides and/or additional information about ventilation, handling, purging, drying, etc.

Mechanical properties measured at 23°C (73°F) unless otherwise stated.

Mechanical properties measured at 3.2mm (0.125in) unless otherwise stated.

During molding, use protective equipment and clothing. Skin contact with molten Zenite™ resins can cause severe burns. Be particularly alert during purging.

970522TE22

The data listed here fall within the normal range of product properties but they should not be used to established specification limits nor used alone as the basis of design.

The DuPont Company assumes no obligation or liability for any advice furnished by it or for results obtained with respect to this information. All such advice is given and accepted at the buyer's risk. The disclosure of information herein is not a license to operate under, or a recommendation to infringe, any patent of DuPont or others. DuPont warrants that the use or sale of any material which is described herein and is offered for sale by DuPont does not infringe any patent covering the material itself, but does not warrant against infringement by reason of the use thereof in combination with the other materials or in the operation of any process.

CAUTION: Do not use in medical applications involving permanent implantation in the human body.

For other medical applications, see "DuPont Medical Caution Statement", II-50102.

Dial DuPont First (800) 441-0575 • Automotive Inquiries (800) 533-1313



PRODUCT SPECIFICATION OF OUPIIN

Material Housing :UL

UL iQ™ for Plastics

第 1 頁 , 共 1 頁

Component - Plastics

E344082

TICONA

ZENITE BUSINESS LINE, 8040 DIXIE HWY, FLORENCE KY 41042

6130(+)

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

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI		RTI Str
					Elec	Imp	
BK	0.19	V-0	-	-	130	130	130
ALL	0.38	V-0	4	4	130	130	130
	0.75	V-0	3	4	240	220	240
	1.5	V-0	1	4	240	220	240
	3.0	V-0	0	4	240	220	240

Comparative Tracking Index (CTI): 4

Dimensional Stability (%): -

High-Voltage Arc Tracking Rate (HVTR): 4

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

Dielectric Strength (kV/mm): -

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

(+) - Virgin and regrind up to 50% by weight inclusive, have the same basic material characteristics.

NOTE - (1) Material designations that are color pigmented may be followed by suffix letters and numbers. (2) Material designations may be prefixed by "ZEN" for Zenite grades.

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: 1989-10-11
Last Revised: 2010-12-31

Underwriters Laboratories Inc®



IEC and ISO Test Methods

Test Name	Test Method	Units	Thickness	
			Tested (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.19	V-0 (BK)
			0.38	V-0 (ALL)
			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	-	-

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<http://iq.ul.com/iq/newiq/List.aspx?ULID=100832602>

2011/1/25



PRODUCT SPECIFICATION OF OUPIIN

Material Contact : Copper Alloy (Phosphor Bronze)

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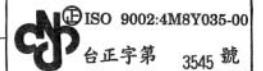
REPORT OF MATERIAL TEST

MILL CERTIFICATE

DATE: DEC. 07, 2004

Customer: 弘振企業股份有限公司

Commodity: C 5191 R PHOSPHOR BRONZE STRIP (H)



Applied Standard: CNS 9503 Phosphor Bronze Sheets, Plates and Strips

Chemical Analysis Test

Work No.	Size of Product			P(%)	Sn(%)	Cu+Sn+P(%)				
	Thickness (mm)	Width (mm)	Length (mm)							
	Standard									
34C164A	0.400	17.000		0.129	5.837	99.978				

Mechanical & Physical Test

Work No.	Size of Product			Dimension Test		Tension Test		Hardness Test HV	Grain Size (mm)	Electric Conductivity (%)
	Thickness (mm)	Width (mm)	Length (mm)	Thickness (mm)	Width (mm)	Tensile Strength (kgf/mm ²)	Elongation (%)			
	Standard			-	(-) 0.10 - (+) 0.00	min. 58	-			
34C164A	0.400	17.000		GOOD.	GOOD.	58.75	26.02	187.0 - 189.0	-	15.4

QC Supervisor 謝建忠

MINCHALI METAL INDUSTRY CO., LTD.
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