PRODUCT SPECIFICATION

產品規格書

產品名稱 Description	產品料號 Part No.	圖號 Drawing No.
2216 (Z)Series Box Header 1.27mmX1.27mm(0.050"X0.050") SMD Type Connector	2216-xxCxxDNx-x	2216D01002
	2216-xxCxxDPx/B1	2216D01004
	2216-xxCxxDLx-x	2216D01007
	2216-xxCxxDN2x	2216D01009
	2216-xxCxxDPx-x	2216D01011
	2216-xxGxxDP/7.3/x	2216D01014
	2216-xxGxxDL/7.3U-M	2216-D0000-001
	2216-ZxxCxxDP-7.6T-P	2216D01019

PRODUCT NAME 產品名稱	**DOCUMENT No.:** 文件編號	**Rev.** 版本	**OUPIIN** 歐品電子
2216 (Z)Series Box Header 1.27mmX1.27mm(0.050"X0.050") SMD Type Connector	Q2216-PSS-001	C	
	Approved 核准	**Checked** 審核	**Prepared** 制作
	Q.A. Section Chief	Joseph Yen	2018.04.16

1. SCOPE 適用範圍

This product specification defines the product performance and the test methods to ascertain the performance of the Box Header 1.27mmX1.27mm(0.050”X0.050”)SMD Type 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Box Header 1.27mmX1.27mm(0.050”X0.050”)SMD 型連接器，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
QQ-N-290A	Specification for nickel plating 鍍鎳規格
MIL-P-81728A	Specification for tin/lead plating 鍍錫鉛規格
MIL-T-10727B	Specification for tin plating 鍍錫規格
UL498	UL standard for safety of attachment plug and receptacle UL安規要求標準
EN/ISO5961	Determination of total lead & cadmium content 總鉛和總鎘含量測定
EN1122	Determination of total lead & cadmium content 總鉛和總鎘含量測定
EN13346	Determination of heavy metals content 重金屬含量測定
EPA3052	Determination of total lead & cadmium content 總鉛和總鎘含量測定

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。

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

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

額定電流 1.0A，額定電壓 150V DC/AC RMS。

3.7 STORAGE AND OPERATING TEMPERATURE 存貯與使用溫度

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, and 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

4.2.1. INFRARED REFLOW 紅外線回流焊接

Each cycle consists of three consecutive phases, as shown in **Table III.**

每個焊接週期包括三個連續的階段，見**附表三**。

4.2.1.1. Preheat 預熱

Increase in temperature not to exceed 4°C per second.

溫度增加速度不超過 4°C /秒。

4.2.1.2. Soldering 焊接

Maximum allowable time above reflow temperature of 150°C is 120 seconds. Maximum temperature in this interval is 260°C, duration is 3~5 seconds.

回流焊溫度在150°C以上的時間最長不超過120秒。最高溫度260°C時間3~5秒。

4.2.1.3. 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准。

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 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。

5.4. TEST SEQUENCE 測試順序

Product qualification test sequence as shown in **Table II.**
產品品質測試順序見**附表二**。

Table I: Test Requirements and Methods

附表一: 測試要求與方法

Items 項目	Requirements 要求	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	20 mΩ Max. initial. 初始狀態最大 20 mΩ。	Subject mated contacts assembled in housing to closed circuit of 100 mA max. 20 mV max. MIL-STD-202, Method 307. 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 max，電壓 20 mV max。適用：MIL-STD-202，方法 307。
3. Insulation Resistance 絕緣阻抗	1000 MΩ Min. 最小 1000 MΩ。	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%). 測試產品相鄰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 (500 V DC±10%)。
4. Dielectric Withstanding Voltage 耐電壓	Connector must withstand test potential of 500 VAC RMS for 1 minute, current leakage must be 0.2mA Max. 產品必須承受測試電壓 500 VAC RMS，時間 1 分鐘，漏電流不大於 0.2 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. 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：MIL-STD-202，方法 301。
5. Durability (Repeated Mating/Un-mating) 耐久性	Contact Resistance: 80 mΩ Max. after testing. 測試後接觸阻抗最大 80 mΩ。	Repeat mate and unmated for connector 5000 cycles, at a speed of 10 cycles per minute.重復進行配合產品 5000 次插拔，速度每分鐘 10 次。
6. Connector Pin Mating /Un-mating Force 單支端子插入力/拔出力	Mating force: 1.2 N Max. Un-mating force: 0.25 N Min. 插入力最大 1.2N，拔出力最小 0.25 N。	At a speed of 25±3 mm/minute, apply axial insert the mating part into fully or pull out from the subject product. 以 25±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。
7. Contact Retention Force 端子保持力	3.0N/Pin. Min. 最小 3.0N/Pin。	Apply axial pull out force at a speed of 25±3 mm/minute on the contact assembled in the housing. 以 25±3mm/分鐘的速度施加軸向拉力從塑膠本體

		上拔出端子。
8. Vibration Sinusoidal Low Frequency 低頻正弦振動	No electrical discontinuity greater than 1 μs shall occur, Contact Resistance: 20 mΩ Max. 不允許出現超過 1 μs 的瞬間斷開，接觸阻抗最大 20 mΩ。	Subject mated connector to 10-55-10 Hz traversed in 1 minute at 1.5 mm amplitude, 2 hours each of 3 mutually perpendicular plane, 10 mA potential applied. MIL-STD-202, Method 201. 對測試產品，在頻率變化每分鐘從 10-55-10 Hz，振幅 1.5 mm 條件下，在互相垂直的三個面上，每個面 2 小時下測量，電流 10 mA。適用：MIL-STD-202，方法 201。
9. Thermal Shock 熱衝擊	After testing, no damage, Contact Resistance 20 mΩ Max. Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min. 測試後產品無損壞，接觸阻抗最大 20 mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。	Temperature range from -55°C to +85°C. Start from -55°C, after 30 minutes, change to +85°C; change time is no more than 30 seconds, total 5 cycles. MIL-STD-202, Method 107, condition A. 溫度變化範圍： -55°C~ +85°C。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：MIL-STD-202，方法 107，條件 A。
10. Humidity (Steady State) 恆溫恆濕	After testing, no damage, Contact Resistance 20 mΩ Max. Dielectric Strength should be OK, Insulation Resistance should be 1000 MΩ Min. 測試後產品無損壞，接觸阻抗最大 20 mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。	Temperature: 40±2°C. Relative Humidity: 90-95%. Duration: 96 Hours. MIL-STD-202, Method 103, condition B. 溫度：40±2°C。相對濕度：90-95%。持續時間：96 小時。適用：MIL-STD-202，方法 103，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. 產品在測試完成後，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: 4 to 6 seconds. Temperature: 260±5°C. MIL-STD-202, Method 208. 焊接時間：4~6 秒。 溫度：260±5°C。 適用：MIL-STD-202，方法 208。
12. Salt Spray 鹽霧	After testing, no damage, Contact Resistance 20 mΩ Max. Dielectric Strength should be OK, Insulation Resistance should be1000 MΩ Min. 測試後產品無損壞，接觸阻抗最大 20 mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。	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。
13.High Temperature Life	After testing, no damage, Contact Resistance 20 mΩ Max. Dielectric	Subject product to 125±3°C for 96 hours continuously. MIL-STD-202, Method 108,

高溫老化	Strength should be OK, Insulation Resistance should be 1000 MΩ Min. 測試後產品無損壞，接觸阻抗最大 20 mΩ；耐電壓測試 OK，絕緣阻抗最小 1000 MΩ。	condition A. 產品置於 125±3°C 連續 96 小時。 適用：MIL-STD-202, 方法 108，條件 A。

Table II: Product Qualification Test Sequence

附表二: 產品測試順序

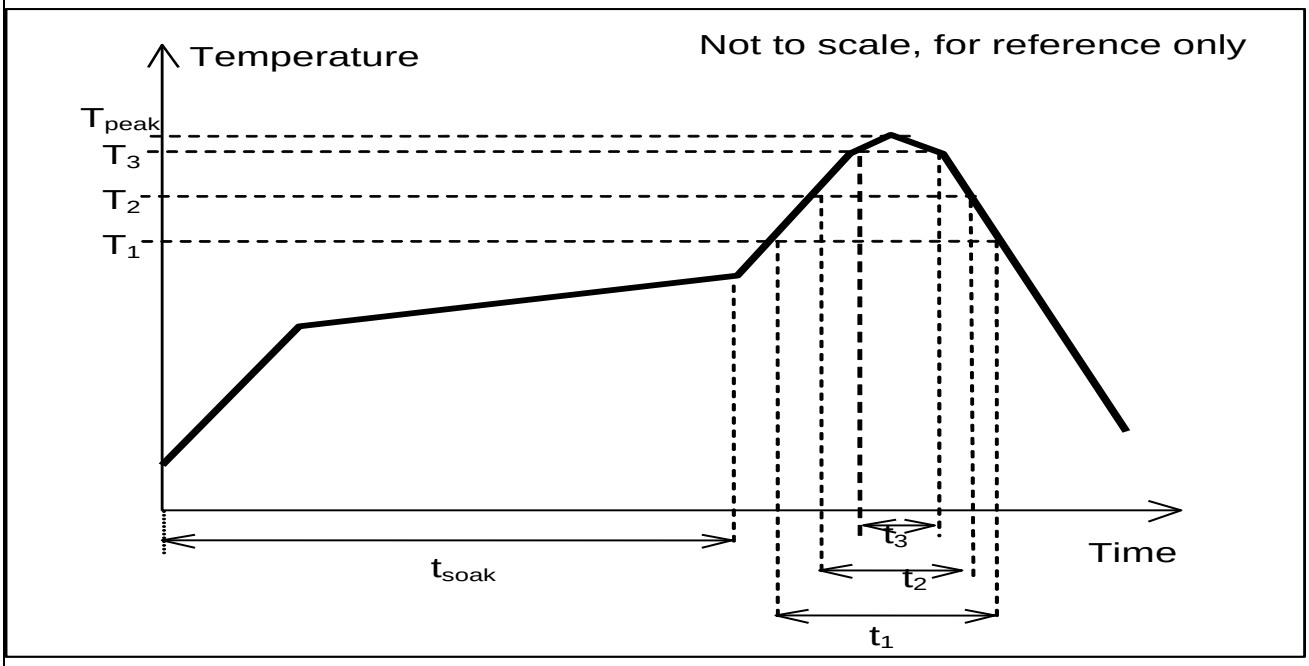
Test Description 測 試 描 述	Test Group 測試分組							
	A	B	C	D	E	F	G	H
1. Conformation of Product 產品確認	1,7	1,4	1,9	1,9	1,9	1,3	1,9	1,9
2. Contact Resistance 接觸阻抗	2,6		2,6	2,6	2,6		2,6	2,6
3. Insulation Resistance 絕緣阻抗	3		3,7	3,7	3,7		3,7	3,7
4.Dielectric Withstanding Voltage 耐電壓	4		4,8	4,8	4,8		4,8	4,8
5.Durability (Repeated Mating/Un-mating) 耐久性	5							
6. Connector Pin Mating/Un-mating Force 單支端子插入/拔出力		2						
7. Contact Retention Force 端子保持力		3						
8. Vibration Sinusoidal Low Frequency 低頻正弦振動			5					
9. Thermal Shock 熱衝擊				5				
10. Humidity (Steady State) 恆溫恆濕					5			
11. Solder-ability 可焊性						2		
12. Salt Spray 鹽霧							5	
13. High Temperature Lift 高溫老化								5

Table III: Reflow Soldering Profile

附表三: 回流焊接曲線圖

Lead-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 平均預熱速度		2.5°C/s
Soak time 25~150°C	t_{soak}	60 Seconds (Max)
Time above 150°C	t_1	120 Seconds (Max)
Time above 200°C	t_2	50 Seconds (Max)
Time above 230°C	t_3	10 Seconds (Max)
Peak temperature in reflow 回流焊接中最高溫度	T_{peak}	260°C (–0/+5°C)
Temperature gradient in cooling 冷卻時溫度幅度		-5°C/s (Max)



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.
這個曲線圖是評估元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：074-LCP

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产品数据表

沃特特种工程塑料

WOTE

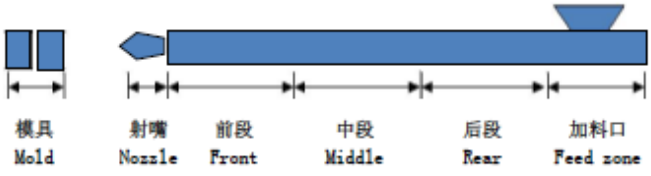
SELCION® KC184BLM

SELCION® LCP KC184BLM is a 40% glass fiber and mineral reinforced LCP for great dimensional stability
SELCION® LCP KC184BLM 是含有 40% 玻纤与矿纤增强的具有优异尺寸稳定性能的 LCP。

性能 PROPERTIES	典型数值 VALUE	单位 UNIT	测试标准 TEST METHOD
机械性能 MECHANICAL			
拉伸强度 Tensile Strength@break	132	MPa	ASTM D638
断裂延长率 Tensile Elongation@break	1.94	%	ASTM D638
弯曲强度 Flexural Strength	180	MPa	ASTM D790
弯曲模量 Flexural Modulus	14.4	GPa	ASTM D790
IZOD 无缺口冲击强度 IZOD un-notched impact strength	395	J/m	
热性能 THERMAL			
热变形温度 Heat distortion temperature 18.5kgf/cm²	283	℃	ASTM D648
物理性能 PHYSICAL			
比重 Specific Gravity	1.68		ASTM D792
成型收缩率 MD / TD	0.1 / 0.3	%	In house
烤炉起泡 270℃, 10min	OK		In house
难燃性能 Flame Retardancy	V-0 (0.3 mmt)		UL-94

加工性能 PROCESSING CONDITIONS	典型数值 VALUE	单位 UNIT	备注 REMARK
射嘴温度 Nozzle Temp.	345-365	℃	355 is recommended
前段温度 Front Temp.	350-370	℃	360 is recommended
中段温度 Middle Temp.	345-365	℃	355 is recommended
后段温度 Rear Temp.	320-340	℃	330 is recommended
加料口温度 Feed zone Temp.	50-70	℃	60 is recommended
模具温度 Mold Temp.	80-120	℃	100 is recommended
干燥温度 Drying Temperature	140-160	℃	150 is recommended
干燥时间 Drying Time	4-8	h	6 Hr is recommended

※ 成型条件根据不同的机种和操作环境而不同



江苏沃特特种材料制造有限公司
江苏省东台市经济开发区纬九路 6-3 号
DONGTAI, JIANGSU, CHINA
Tel: 0515-85390662
Fax: 0515-85390660

Material Housing :UL

iq.ul.com

Component - Plastics [guide info] E478701

Jiangsu Wote High Performance Materials Co Ltd

No. 6-3, Weijiu RD, Economic development zone, Dongtai CN

KC184(@)

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

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
NC, BK	0.3	V-0	4	4	130	130	130
	3.0	V-0	0	4	130	130	130

Comparative Tracking Index (CTI): 3
Dielectric Strength (kV/mm): -
High-Voltage Arc Tracking Rate (HVTR): 1
Dimensional Stability (%): -
Inclined Plane Tracking (IPT): -
Volume Resistivity (10^x ohm-cm): -
High Volt, Low Current Arc Resis (D495): 4

(@) - Represented by one, two or three numbers or letters.

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: 2006-12-13
Last Revised: 2016-02-26

IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.3	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	-	-

Material Contact : Brass C2680

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MINCHALI

REPORT OF MATERIAL TEST

DATE: MAY.22,2002

Customer: 弘振企業股份有限公司 | Commodity: C 2680 R BRASS STRIP (H) | ISO 9002:4M8Y035-00 台正字第 3544 號

Applied Standard: CNS 4383 Brass Sheets,Plates and Strips

Chemical Analysis Test

Work No.	Size of Product Thickness (mm)	Width (mm)	Length (mm)	Cu(%)	Fe(%)	Pb(%)	Zn(%)			
	Standard			64.00 - 68.00	max. 0.050	max. 0.070	REM.			
98A571B	0.400	24.000		65.771	0.025	0.008	REM.			

Mechanical & Physical Test

Work No.	Size of Product Thickness (mm)	Width (mm)	Length (mm)	Dimension Test Thickness (mm)	Width (mm)	Tension Test Tensile Strength (kgf/mm²)	Elongation (%)	Hardness Test HV	Grain Size (mm)	Electric Conductivity (%)
	Standard			(-) 0.010 - (+) 0.010	(-) 0.10 - (+) 0.00	42 - 55	-	140 - 160	-	-
98A571B	0.400	24.000		GOOD.	GOOD.	49.87	18.28	152.0 - 155.0	-	26.1

QC Supervisor 鄭建益

MINCHALI METAL INDUSTRY CO., LTD.
11, Pei Yuan Road, Chung Li City, Taiwan, R. O. C.
Tel : (03)4526141-5 (03)4526017-9
Fax : (03)4529112 (03)4629625