PRODUCT SPECIFICATION 規格書

MINI-FIT HCS(High Current System)

Scope:(範圍)

This specification covers the 4.20mm spacing wire to board connector series specifically for High-Current performance (這份規範包含間距 4.2mm 線對板的連接器系列.具體是針對大電流規格)

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1.Product Name and Part Number 產品名稱和零件編號

Part Name 產品類別	Part Number 產品料號
Housing 膠殼	ZH-5700-HXXX ZH-5800-HXXX
Terminal 端子	ZH-5700-TXXX ZH-5800-TXXX
Wafer 公座	ZH-5900-WXXSX (180°)
	ZH-5900-WXXRX (90°)

2.Construction, Dimensions, Material & Surface Finish 建議使用的材質及電鍍方式

Part Name 產品類別		Material 材料	Surface Finish, etc 型號及電鍍方式
Housing 膠殼		Nylon 66 尼龍 66	UL 94V-2 / UL94V-0
Terminal 端子		Copper alloy (高导铜)	Tin plated/Gold plated (鍍錫/鍍金)
Wafer 公座	Insulator 絕緣體	Nylon 66	UL 94V-2 / UL94V-0
	Contact 接觸件	Brass 黃銅 / Copper alloy 高导铜	Tin plated 鍍錫

3. Ratings and Applicable Wires 規格及適用電線

Item 項目		wire-to-board/线对板						
Rated Voltage (MAX) 最大額定電壓		**600V AC (rms)/DC**						
Rate Current & Applic-Wire 最大額定電流和適用電線	Wire size	2*1P	2*2P	2*3P 2*4P	2*5P 2*6P	2*7P 2*8P 2*9P	2*10P 2*11P 2*12P	Insulation OD 電線絕緣外徑 Ø2.30mm (MAX)
	AWG 16#	12.5	11.5	10.0	9.0	8.5	8.0	
	AWG 18#	11.5	10.5	9.5	8.5	8.0	7.5	
	AWG 20#	9.0	8.0	7.0	6.5	6.0	5.5	

4. Ambient Temperature Range/使用環境溫度範圍

Ambient Temperature Range/使用環境溫度範圍：-25℃ ~+85℃

5. Performance 性能

5-1. Electrical Performance 電氣性能

Item 項目		Test Method and Condition 測試方法及條件	Requirement 基準
5-1-1	Contact Resistance 接觸阻抗	Test Method測試方法: EIA-364-23 Mate connectors 公母連接器對插後 Test Current 測試電流: 100 mA Open Voltage 開路電壓: 20 mV MAX	Initial 初始值: 10 mΩ MAX
5-1-2	Insulation Resistance 絕緣阻抗	Test Method測試方法:EIA-364-21 apply 500V DC between adjacent terminal or ground 供給500V DC電壓於相鄰端子間或端子與接地間	1000 MΩ MIN
5-1-3	Dielectric Strength 耐電壓	Test Method測試方法: EIA-364-20 apply 1500V AC. for 1 minute between adjacent terminal or ground. 供給1500V AC電壓，通電1分鐘於相鄰端子間或端子與接地間	No Breakdown and Flashover 無擊穿和電火花 Leakage current 漏電流 ≤0.5mA

5-2. Mechanical Performance 機械性能

Item 項目		Test Method and Condition 測試方法及條件	Requirement 基準	
5-2-1	Insertion Force and Withdrawal Force 插入力和拔出力	Test Method測試方法:EIA-364-13 Mate connectors Insert and withdraw connectors at the speed rate of 25±3mm minute 公母連接器對插後以每分鐘25±3mm的速度進行連接器的插入和拔出	Insertion Force 插入力 1.50 Kgf(MAX)/ Pin	
			Withdrawal Force 撥出力 0.05 Kgf(Min)/ Pin	
5-2-2	Crimping Pull Out Force 打包拉力	Fix the crimped terminal, apply axial pull out force on the wire at the speed rate of 25±3mm minute. 固定壓著電線之端子，施加軸向之拉力於電線上以每分鐘25±3mm的速度進行測試	AWG#16	8.0(MIN)
			AWG#18	8.0(MIN)
			AWG#20	5.5(MIN)
5-2-3	Terminal / Housing Retention Force 端子退出膠殼的保持力	Test Method測試方法:EIA-364-29 Apply axial pull out force at the speed rate of 25±3mm minute on the terminal assembled in the housing. 將端子組裝於膠殼後，施加軸向拉力於端子上退出膠殼，以每分鐘25±3mm的速度進行測試	3.0 Kgf（MIN）	
5-2-4	Pin Retention Force PIN 針保持力	Apply axial push force at speed rate of 25±3mm minute on the contact pin assembled in the base wafer.（施加軸向拉力於PIN針上使之脫離本體，以每分鐘25±3mm的速度進行測試）	Hollow Pin （空心PIN）: 1.0(Min) Solid Pin （實心PIN）: 2.5(Min)	

5-3. Environmental Performance and Others 耐環境性能

Item 項目		Test Method and Condition 測試方法及條件	Requirement 基準	
5-3-1	Repeated Insertion and Withdrawal 寿命插拔	Mate connector up to 30 cycles repeatedly at a rate of 10 cycles per minute. After which the contact resistance shall be measured.（以每分鐘10次的速度，將連接器公母對插30次後量測數據）	Contact Resistance 接觸阻抗	20 mΩ MAX
5-3-2	Temperature Rise 溫升測試	Test Method測試方法:EIA-364-70B Each terminals of the sample will be connected in series and the load current is. Test for 4 hours and record the initial temperature, the maximum temperature and the temperature variation. Requirements for 將樣品各端子串聯,負載電流,測試4H,記錄初始溫度值、最高溫度值、溫度變化值.	Temperature Rise 溫度變化值	30℃ MAX
5-3-3	Shock 衝擊	Test Method測試方法:EIA-364-27A Mated connector shall be mounted on a PCB and subjected to the shock test of the following conditions： Acceleration : 50G 3 strokes in each X,Y,Z axials. 連接器安裝在PCB板上進行振動測試，衝擊測試條件以50G加速度為條件 X Y Z三個方向每個方向衝擊3次	Appearance 外觀	No damage 無損傷
			Contact Resistance 接觸阻抗	20 mΩ MAX
			Discontinuity 瞬斷	1.0 microsecond MAX
5-3-4	Thermal Aging 耐高溫	Test Method測試方法:EIA-364-17 Mated connector shall be placed in a temperature chamber on the following conditions : 公母連接器放在以下溫度條件下： * Temperature : 105 ± 3 ℃（溫度：105 ± 3度） * Duration : 96 ± 4 Hours（時間：96 ± 4小時）	Contact Resistance 接觸阻抗	20 mΩ MAX
			Appearance 外觀	No damage 無損傷
5-3-5	Cold Resistance 耐低溫	Mated connector shall be placed in a temperature chamber on the following conditions : 公母連接器放在以下溫度條件下： * Temperature : -40 ± 3 ℃（溫度：-40±3度） * Duration : 96 ± 4 Hours（時間：96±4小時）	Contact Resistance 接觸阻抗	20 mΩ MAX
			Appearance 外觀	No damage 無損傷
5-3-6	Humidity 耐濕度	Test Method測試方法:EIA-364-31 Mated connector shall be placed in a humidity chamber on the following conditions :（公母連接器應放在濕度室條件下） * Temperature: 40 ±2 ℃（溫度：40±2度） * Relative humidity: 90~95%（相對濕度：	Contact Resistance 接觸阻抗	20 mΩ MAX
			Insulation Resistance 絕緣阻抗	1000mΩ MIN
			Dielectric Strength	must meet依照

		90-95%） * Period: 96 Hours（期間：96小時）	耐電壓	5-1-3
			Appearance 外觀	No damage 無損傷
5-3-7	Constant temperature and humidity 恆溫恆濕	Mated connector as to the following conditions : 公母連接器處於下列溫濕度條件下 * Humidity : 93 ± 3% （相對濕度：93 ± 3%） * Temperature : 40 ± 3℃（溫度：40±3度） * Duration : 96 H（持續時間：96H）	Contact Resistance 接觸阻抗	20 mΩ MAX
			Appearance 外觀	No damage 無損傷
5-3-8	Salt Spray 鹽霧	Test Method測試方法:EIA-364-26 Mated connector shall be placed on a salt spray chamber on the following conditions : 公母連接器應放在監霧室條件下 * Salt Solution Density : 5 ± 1% 鹽霧以5±1%鹽水溶液噴灑而成 *Temperature樣品曝露於溫度: 35 ± 2℃ * Duration :24 Hours（鹽霧過24小時） 此標準適用於先衝後鍍端子	Appearance 外觀	No damage 無損傷
5-3-9	Solderability 焊錫性	Test Method測試方法:EIA-364-52 Immerse fluxed soldered section of contact pin into a solder bath with the following conditions : 將焊劑焊接產品表面浸在焊錫槽內條件下 * Solder temperature焊錫溫度: 230℃ ±5℃ * Immersion Period浸錫時間: 3 ±0.5 sec	immersed area 浸錫	95% of immersed area must show no voids nor pin holes 浸錫區域95%不可有空洞和針孔
5-3-10	Resistance to Soldering Heat 焊錫耐熱	Mated connector shall be dipped on solder bath with the following conditions : 公母連接品浸在下麵錫槽的條件下） Solder temperature : 260 ±5℃ 焊錫溫度：260度±5度 Immersion Period : 5 ±0.5 sec 浸錫時間：5±0.5秒	Appearance 外觀	No damage 無損傷