

东莞市翰皓精密电子有限公司

DONGGUAN HANHAO PRECISION ELECTRONIC CO.,LTD

Product Specification [产品规格书]:	Document No	PS-3001-07
Subject [主题]: 3.0mm Pitch M3001 Series Connector Specification	Date Issued	2012/09/08
	Date Revised	2020/03/12
	Version	B

This specification is referred to the 3.00mm series wire to board connector

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【1. 适用范围 Scope】

此种规格包括3.00mm Pitch M3001 Series连接器规格说明.

This Specification Covers the 3.00mm Pitch M3001 Series Connector Specification.

【2. 规格与料号 Spec and Part number】

规格内容 Specification	产品料号 Production No.
端子/Terminal	M3001FT/M3001MT
胶壳/Housing	M3001FH-XX/M3003FH-2*XX M3001MH-XX/M3003MH-2*XX
针座/Wafer	M3002W-XX M3002WR-XX M3004W-2*XX M3004WR-2*XX

【3. 材质与表面处理 Disposal of Material and surface】

规格内容 Specification	材质 Materials	表面处理 Disposal of Surface	
端子/Terminal	磷铜(C5191)/Phosphor Bronze	1、Nickel Plated: 50u" Min ,Tin Plated: 100u" Min 2、Contact area 30u"Au Plated、 Over 20u"Nickel.	
胶壳/Housing	PA66	UL 94V-2/UL94V-0	
针座/Wafer	Base	LCP	UL 94V-2/UL94V-0
	PIN	黄铜(C2680/H65)/Brass	1、Nickel Plated: 50u" Min ,Tin Plated: 100u" Min 2、Contact area 30u" Au Plated;Solder area Over Tin 100u" Plated ; Over 50u"Nickel

(上述参数请以工程图为准/Please Refer to the Project drawing for the above Specification)

【4. 额定等级 Ratings and applicable wires】

项目【Item】	规格【Standard】	
额定电压 Rated Voltage (Max.)	250V	
额定电流 Rated Current (Max.)	5A	
使用温度范围 Ambient temperature Range	-40℃~+105℃	
适用线径 Applicable wire insulation AWG(mm ²)	AWG#20~22 (0.50~0.35mm ²)	Insulation 绝缘 O. D. 1.85mm(Max.)

【 *升温时含端子.Including terminal temperature rise. 】

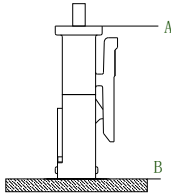
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【5. 性能 PERFORMANCE】

5-1. 电气的性能 Electrical Performance.

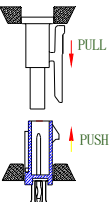
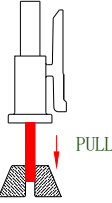
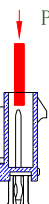
项目 【Item】	条件 【Test Condition】	规格 【Requirement】
5-1-1 接触阻抗 Contact Resistance	<p>公母配合, 开放电压 20mV 以下, 电流 10mA 检测连接器 A~B 区. Mate connectors, measure by dry circuit, 20mV MAX, 10mA. (Based upon EIA-364-06A).</p> 	<p>Initial: 10 milliohms Max. After Test: 20 milliohms Max.</p>
5-1-2 绝缘阻抗 Insulation Resistance	<p>公母配合, 在相邻端子, 端子与地片之间, 使用 500V 的直流电, 检测连接器. Mate connectors, apply 500V DC between adjacent terminal or ground. (Based upon EIA-364-21B / MIL-STD-202 Method 302 Cond.B)</p>	1000 Megohms Min.
5-1-3 耐电压 Dielectric Strength	<p>公母配合, 在相邻端子, 端子与地片之间, 使用 1000V 的交流电 1 分钟, 检测连接器. Mate connectors, apply 1000V AC for 1 minute between adjacent terminal or ground. (Based upon EIA-364-20A / MIL-STD-202 Method 301)</p>	<p>外观无损伤, 无打火花 No Breakdown and Flashover</p>
5-1-4 铆线后端子接触阻抗 Contact resistance on crimped portion	<p>铆线后之端子, 开放电压 20mV 以下, 电流 10mA 检测连接器. Crimp the applicable wire on to the terminal measure by dry circuit 20mV MAX, 10mA.</p>	10 milliohms Max.

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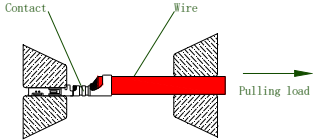
5-2. 机械的性能 Mechanical Performance.

项目 【Item】		条件 【Test Condition】	规格 【Requirement】
5-2-1	插拔力 Insertion & withdraw Force	<p>以每分钟 $50 \pm 3\text{mm}$ 的速率插入和拔出。 Insert and withdraw Connectors at the speed rate of $50 \pm 3\text{mm}/\text{minute}$.</p> 	<p>参照第 6 项 Refer to paragraph 6</p>
5-2-2	端子保持力 Terminal/ Housing Retention Force	<p>以每分 $50 \pm 3\text{mm}$ 的速率, 将端子从Housing 内轴向拔出的力量。 Apply axial pull out force at the speed rate of $50 \pm 3\text{mm}/\text{minute}$ on the terminal assembled in the housing.</p> 	<p>24.5N {2.5kgf} Min.</p>
5-2-3	端子插入力 Terminal Insertion Force	<p>铆线后之端子插入 Housing 所需最大力量。 Insert the crimped terminal into the housing.</p>	<p>14.7N {1.5kgf} Max.</p>
5-2-4	Pin 针保持力 Pin Retention Force	<p>以每分 100mm 的速率, 将 PIN 针从 Wafer 内轴向拔出的力量。 Apply axial push force at the speed rate of 100mm/minute.</p> 	<p>13.7N {1.4kgf} min.</p>

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项目 【Item】		条件 【Test Condition】	规格 【Requirement】		
5-2-5	端子压着强度 (Crimped contact)	固定铆线后的端子，使电线与端子分离时所需的最小力量。 Fix the crimped terminal, apply axial pull out force on the wire. (Do not crimp insulation part).	AWG(mm ²)	AWG #20 0.50mm ²	AWG #22 0.35mm ²
			Spec	60N	50N
			Min. N.	(85N)a	(75N)a
5-2-6	公母座带卡扣保持力 Male/Female Housing Retention Force	将插好端子的公母座含卡扣以每分钟 50±3mm 的速度拔出所需要力量。 Mateconnectors and apply pull-out force at the speed rate of 50±3mm/min. This Test should be done with positive lock locked.	58.8N(6.0kgf) MIN		

5-3. 环境性能及其它 Environmental Performance and Others.

项目 【Item】		条件 【Test Condition】	规格 【Requirement】	
5-3-1	重复插拔 Repeated Insertion/ Withdrawal	以每分钟不超过 10 次的速率, 将公母插拔 30 次。 When mated up to 30 cycles repeatedly by the rate of 10 cycles per minute.	接触阻抗 Contact Resistance	20 milliohms Max.
5-3-2	温升测试 Temperature Rise	公母连接器配合后, 加载额定电流直到温度上升到稳定状态, 然后再测量温升 (EIA364-70, Method 1) Mating connectors shall be energized at rating current until thermal stability is achieved, and then measured the temperature rise. (EIA364-70, Method 1)	温升测试 Temperature rise	30°C Max.
5-3-3	振动测试 Vibration test	振幅: 1.5mm P-P 时间: 20~200~20 Hz in 3minute 持续时间: 每轴向 3 小时 加速度: 44m/S ² 开放电压: 20mV 以下 开放电流: 10mA 以下 Amplitude: 1.5mm P-P Sweep time: 20~200~20 Hz in 3 minute Duration: 3 hours in each X.Y.Z axials. (Based upon EIA-364-28B/MIL-STD-202 Method 213B Cond.A)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
			瞬断 Discontinuity	1 micro-second Max.
			电压降落 Voltage Drop	20mV/A Max

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项目 【Item】		条件 【Test Condition】	规格 【Requirement】	
5-3-4	冲击测试 Shock test	在 X.Y.Z 上 6 个方向上,以 981m/s ² (100G 的力量)冲击下各 3 回. 作用时间: 6ms 981m/s ² {100G}, 3 strokes in each X.Y.Z. axes. Operation time:6ms (Based upon EIA-364-27B/MIL-STD-202 Method 213B Cond. A)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
			瞬断 Discontinuity	1 micro-second Max.
5-3-5	耐热性 Heat Resistance	105±2°C, 96 hours. (Based upon MIL-STD-202 Method 108A Cond. A)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
5-3-6	耐寒性 Cold Resistance	-40±3°C, 96 hours. (Based upon EIA-364-105)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
5-3-7	耐湿性 Humidity	温度: 40±2°C 湿度: 90~95%(RH) 持续时间: 96 hours Temperature: 40±2°C Relative Humidity: 90~95% Duration: 96 hours (Based upon EIA-364-31A/MIL-STD-202 Method 103B Cond. B)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
			耐电压 Dielectric Strength	Must meet 5-1-3
			绝缘阻抗 Insulation Resistance	500 Megohms Min.
5-3-8	温度变化 Temperature Cycling	从-40°C持续 30 分钟升至+105°C持续 30 分钟, 循环 5 次. 5 cycles of: a) -40°C 30 minutes. b) +105°C 30 minutes. (Based upon EIA-364-32B)	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
5-3-9	盐水喷雾 Salt Spray	在温度 35±2°C, 盐水浓度 5±1%下, 盐水喷雾 48±1 小时. 48±1 hours exposure to a salt spray from the 5±1% solution at 35±2°C. (Based upon EIA-364-26B/MIL-STD-202 Method 101D Cond. B). 注: 此项测试只针对先冲后镀端子	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.

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项目 【Item】		条件 【Test Condition】	规格 【Requirement】	
5-3-10	焊锡附着性 Solder-ability	焊接时间: 3~5 秒. 焊接温度: 245±5℃. Soldering time: 3~5sec solder. Temperature: 245±5℃.	Solder Wetting	浸渍面积需 95%以上 95% of immersed area must show no voids, pin holes.

【6. 综合插入力及拔出力 INSERTION/WITHDRAWAL FORCE】<Connector mating force>

PIN 数 No. of CKT	初次插入力(最大值) First Insertion (kgf Max.)	30 次拔出力(最小值) 30 th Withdrawal (kgf Min.)	PIN 数 No. of CKT	初次插入力(最大值) First Insertion (kgf Max.)	30 次拔出力(最小值) 30 th Withdrawal (kgf Min.)
Single	0.8	0.25	7	5.6	1.75
2	1.6	0.50	8	6.4	2.00
3	2.4	0.75	9	7.2	2.25
4	3.2	1.00	10	8.0	2.50
5	4.0	1.25	11	8.8	2.75
6	4.8	1.50	12	9.6	3.00
双排 (DOUBLE ROW)					
2*01	1.6	0.5	2*07	11.2	3.50
2*02	3.2	1.00	2*08	12.8	4.00
2*03	4.8	1.50	2*09	14.4	4.50
2*04	6.4	2.00	2*10	16.0	5.00
2*05	8.0	2.50	2*11	17.6	5.50
2*06	9.6	3.00	2*12	19.2	6.00

注: 以上插拔次数为 30 次 Note: Insertion and Withdrawal for 30Cycles