Product Specification [产品规格书]	Ducument No	PS-4255-02
Subject [主题]: 4.20mm Pitch A4200&A4201 Series Connector Specification	Date Issued	2022/06/20
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This specification is referred to the 4.20mm series wire to board connector

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1. 适用范围[SCOPE]:

此种规格包括 MX4.20mm Pitch 系列连接器规格说明

This Specification Covers the MX4.20mm Pitch Series Connector Specification

2. 规格与料号[Spec and Part number]:

规格内容 Specification	产品料号/Production No.	产品图示 Picture of Product
胶壳/Housing	H4201-1xNP-XX & H4202-1xNP-XX H4201-2xNP-XX & H4202-2xNP-XX	NONE
端子/Terminal	T4201BT & T4201BT-CGJ T4202BT & T4202BT-GJ & T4202BT-CGJ	NONE
针座/Wafer	W4202V(R)-1xNP-XX & W4202V(R)-2xNP-XX W4202RD-1xNP-XX & W4202RD-2xNP-XX W4202VT-1xNP-XX & W4202VT(VTD)-2xNP-XX W4201VT-2xNP-XX & W4202LRD-2xNP-XX	NONE

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
胶壳/Housing		Nylon 66	UL 94V-2 & UL 94V-0
端子/Terminal		黄铜/ Brass 磷铜/Phosphor Bronze	Tin Plated: Over 40μ″.Nickel: Over 10μ Tin Plated: Over 70μ″.Nickel: Over 30μ
针座 Wafer	胶座/Base	Nylon 66 & Nylon 6T Nylon 9T & LCP	UL 94V-2 & UL 94V-0
	导体 Contacts	黄铜/Brass	Tin Plated: Over 100μ″.Nickel: Over 30μ Gold-Flash: Over 0.8μ″.Nickel: Over 30μ

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

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4.额定等级 [Ratings and applicable wires]

项目【Item 】	规格【Standard 】	
额定电压 Rated Voltage (Max.)	600V	AC/DC
额定电流 Rated Current (Max.)	7A	
使用温度范围 Ambient temperature Range	-25℃~+85℃	
适用线径 Applicable wire insulation O.D	AWG 16#~24# Insulation O.D. 3.10mm(Max.)	

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	对组合状态下连接器，于其两端施以最大测试电压 20mV 以及最大测试电流 100mA. A maximum voltage of 20mV and a maximum current of 100mA are applied to the mate connector.	最大容許值.20m 欧姆 Contact Resistance: 20 milliohms Max.
5-1-2	绝缘阻抗 Insulation Resistance	对相邻两接触导体，于一分钟时间内施予 500V D/C 电压，并量测其间绝缘阻抗值. Apply 500V D/C for 1 minute between adjacent contacts to measure the insulation resistance.	最初容许值.1000M 欧姆 Insulation Resistance: Initial 1000megohms Min
5-1-3	耐电压 Dielectric Strength	对组合状态下连接器，于其相邻两导体末端各施以电压 1500V A/C(实效值) 时间 1 分钟，且漏电流必须小于 0.5mA(毫安培) Apply 1500V A/C (rms) for 1 minute and the leakage current shall not exceed 0.5mA to the adjacent terminal and ground of the mate connectors.	无损毁或者产生火花 No Breakdown and Flashover;

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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 & Retention Force	以每分锺 25.4±3mm 的速率插入和拔出. Insert and withdraw Connectors at the speed rate of 25.4±3mm/minute.	参照第 6 项 Refer to paragraph 6
5-2-2	端子保持力 Terminal/ Housing Retention Force	以每分 25.4±3mm 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 25.4±3mm/minute on the terminal assembled in the housing.	30N {3.0kgf} MINIMUM Retention force
5-2-3	端子插入力 Crimp Terminal Insertion Force (into housing)	铆线后之端子插入 Housing 所需最大力量. Insert the crimped terminal into the housing.	14.7N {1.5kgf} MAXIMUM Insertion force
5-2-4	Pin 针保持力 Pin Retention Force	以每分 25.4±3mm 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 25.4±3mm/minute.	9.8N {1.0kgf} min.
5-2-5	端子压着强度 Tensile strength (Crimped connections)	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).	16 Awg wire = 9.0kgf/Min. 18 Awg wire = 8.0kgf/Min. 20 Awg wire = 6.0kgf/Min. 22 Awg wire = 4.0kgf/Min. 24 Awg wire = 3.0kgf/Min.

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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	耐久性 Durability	以组合状态下连接器且未经环境测试，依每分钟 内进行 10 次嵌入与拔出之最大速率，连续 30 次嵌 入与拔出往返测试 Mate Connectors up 30 Cycles at a Maximun rate of 10 cycles Per minute prior to environmental test	经耐久性试验后接触阻抗： 最大值 40m 欧姆. (After the test) Contact resistance : 40 milliohms Max.
5-3-2	温升测试 Temperature Rise	以组合状态下连接器，通过最大容许电流， 量测其导体温度上升值 Mate connector.measure the temperature rise of contact when the maximum rated current is passed	组合状态下之连接器温度上升 最大容许值 30℃ Max. Mate connectors Temperature Rise: 30℃/Max.
5-3-3	耐 振 动 Vibration	以组合状态下连接器焊接于电路板作为试验样品，依照随附如下规格要求，进行耐振动试验，试验过程中确认是否产生不连续电流（断电）现象，并于试验过后量测其接触阻抗 A mated connector shall be mounted on a printed Circuit board and subjected to a vibration test of the following conditions.During the test, test current continuity shall be checked. After the test, contact resistance shall be measured.Frequency （频率）： 10~55~10 Hz/minute.Amplitude （振幅）： 1.5 mm P-PDirection （方向））:1. Axis of up and down. 上下轴向(Y 轴) 2. Axis of right the left. 左右轴向(X 轴) 3. Axis of front and back. 前后轴向(Z 轴) Period（周期）: 2 hours for each direction. （每一个轴向持续 2 小时）	外观：不可有异状 Appearance： No Damage 接触阻抗：最大值 40m 欧姆 Contact Resistance: 40 milliohms Max. 电流中断：1μsec Max Current Discontinuity: 1 micro second Max.

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5-3-4	耐冲击性 Shock	在 DC 1mA 状态下，包含嵌合轴，相互垂直的 6 个方向，用 490m/s2{50g}冲击，各 3 回 490m/s2{50G}, 6 strokes in each X.Y.Z. axes.	外观：不可有异状 Appearance: No Damage
			接触阻抗：最大值 40m 欧姆 Contact Resistance: 40 milliohms Max.
			电流中断：1μsec Max Current Discontinuity: 1 micro second Max.
5-3-5	耐寒性 Cold Resistance	Mate connectors: Duration: 96 hours; Temperature: -25±3° C	外观：不可有异状 Appearance: No Damage
			接触阻抗：最大值 40m 欧姆 Contact Resistance: 40 milliohms Max.
5-3-6	恒温恒湿 Humidity	以组合状态下连接器放置于恒定温度与湿度的空间，依照随附如下规格要求，进行恒温恒湿试验，并于试验过后量测其接触阻抗、绝缘阻抗、以及耐电压测试。 A mated connector shall be placed in a humidity chamber of the following conditions. After the test, the contact resistance, the insulation resistance and the dielectric withstanding voltage shall be measured. Temperature(温度) : 40±2℃. Relative Humidity(相对湿度): 90%~95% (RH). Period(周期): 96 hours continuously. (持续 96 小时)	外观：不可有异状 Appearance: No Damage
			接触阻抗：最大值 40m 欧姆 Contact Resistance: 40 milliohms Max.
			绝缘阻抗：最小值 500M 欧姆 Insulation Resistance: 500 Megohms Min.
			耐电压:无损毁或者产生火花 Dielectric Strength: No Breakdown and Flashover;

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5-3-7	冷热冲击 Thermal Shock	以组合状态下连接器作为试验样品，依照随附如 下规格要求，进行冷热冲击试验，并于试验 过 后量测其接触阻抗、绝缘阻抗、以及耐电压测试 。 A mated connector shall be subjected to a thermal shock test of the following conditions. After the test, the contact resistance, the insulation resistance and the dielectric withstanding voltage shall be measured. 以-55±3℃温度持续 30 分钟，经室温 5 分钟，而 后再以 85±3℃温度持续 30 分钟，再经室温 5 分 钟，构成一次冷热循环，总计循环次数 5 次。 One Cycle Consists Of: -55±3℃ for 30 minutes. → Room Temp. 5 minutes 85±3℃ for 30 minutes. → Room Temp. 5 minutes Total Cycles: 5 Cycles.	外观：不可有异状 Appearance： No Damage 接触阻抗：最大值 40m 欧姆 Contact Resistance： 40 milliohms Max. 绝缘阻抗：最小值 500M 欧姆 Insulation Resistance: 500 Megohms Min. 耐电压:无损毁或者产生火花 Dielectric Strength: No Breakdown and Flashover;
5-3-8	高温老化试验 Thermal Aging	以组合状态下连接器放置于加热烤箱当中，依照随附如下规格要求，进行高温老化试验，并于试验过后量测其接触阻抗。 A mated connector shall be placed in a heat oven of the following conditions. After the test, contact resistance shall be measured. Temperature（温度）：85±2℃Period (周期)： 96 hours continuously. (持续 96 小时)	外观：不可有异状 Appearance： No Damage 接触阻抗：最大值 40m 欧姆 Contact Resistance： 40 milliohms Max.
5-3-9	盐 水 喷 雾 Salt Spray	在温度 35±2℃, 盐水浓度 5 ±1%下, 盐水喷雾 24±1 24±1 hours exposure to a saltspray from the 5 ±1% solution at 35±2℃.	外观：不可有异状 Appearance： No Damage 接触阻抗：最大值 40m 欧姆 Contact Resistance： 40 milliohms Max.

5-3-10	焊锡性 Solder Ability	将连接器 pin 针基板嵌入端，接触热溶状锡料， 依照随附如下规格要求，进行焊锡性试验 Fluxed soldering section of header shall be dipped in solder of the following conditions. 焊接时间：3±0.5 秒. 焊接温度：245±5℃. Soldering Time: 3 ±0.5second. Solder Temperature: 245±5℃.	焊锡覆盖面积需达到 95%以上， 而且不能产生气孔或空隙 Solder entirely：95% of immersed area must show no voids, pin holes.
5-3-11	焊锡耐热性 Resistance To Soldering Heat	波峰焊焊锡工艺，焊接时间：5±0.5 秒. 焊接温度:255±5℃. Wave soldering tin soldering process Soldering time:5±0.5sec Soldering pot:255±5℃. 手工烙铁焊锡工艺，焊接时间：3±0.5 秒. 焊接温度:305±5℃. Anual soldering tin process Soldering time:3±0.5sec Soldering pot:305±5℃. 操作方式:针座焊锡位置,距离导体末端 1.5mm Method：1.5mm From Square Pin or Contact Tip	外观：不可有变形或损坏 Appearance： No deformation or damage.

6.综合插入力及拔出力 [Insertion Force (I.F.) & Withdrawal Force (W.F.)] Unit：Kg/f

PIN 数 No. Of Circuits	首次插入力 First Insertion I.F. (MAX) 插入力	30 次拔出力 30th Withdrawal W.F. (MIN) 拔出力	PIN 数 No. Of Circuits	首次插入力 First Insertion I.F. (MAX) 插入力	30 次拔出力 30th Withdrawal W.F. (MIN) 拔出力
1x02	3.00	0.10	1x05	6.00	0.40
1x03	4.00	0.20	1x06	7.00	0.50
1x04	5.00	0.30			
双排（Double Row）					
2x01	3.00	0.15	2x07	15.00	1.05
2x02	5.00	0.30	2x08	17.00	1.20
2x03	7.00	0.45	2x09	19.00	1.35
2x04	9.00	0.60	2x10	21.00	1.50
2x05	11.00	0.75	2x11	23.00	1.65
2x06	13.00	0.90	2x12	25.00	1.80