



Product Specification [产品规格书]:	Document No	PS-2021-01
Subject [主题]: 2.00mm Pitch 2021 Series Connector Specification	Date Issued	2019/06/09
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This specification is referred to the 2.00mm series wire to board connector

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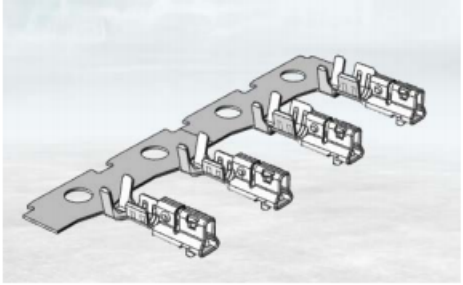
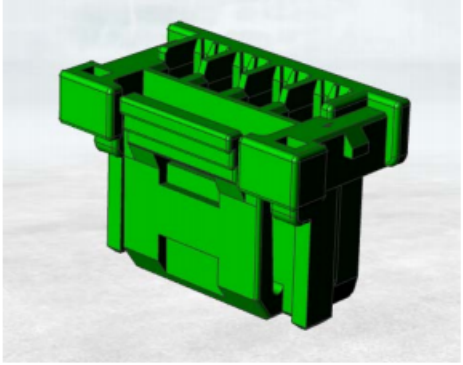
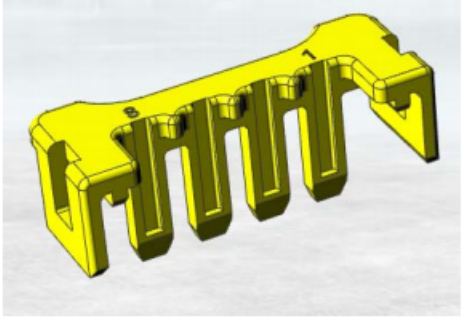
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**【1.适用范围 Scope】**

此种规格包括 2.00mm Pitch 2021 Series 连接器规格说明.

This Specification Covers the 2.00mm Pitch 2021 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
端子/Terminal	2021TX-XSXX	
胶壳/Housing	2021H-XX-XXXX	
TPA	C2021-XX-PTXX	



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### 【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/Phosphor Bronze	Underplate: Ni 40~120u"(1~3um)overall
	镍硅铜合金/ C7025	Top planting: Sn 80~200u"(2~5um)overall
胶壳/Housing	High temperature thermoplastic	UL 94V-0
TPA	PBT+GF	UL 94V-0

(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.)	125V Max.	[AC/DC]
额定电流 Rated Current (Max.)	3A Max.	
使用温度范围 Ambient temperature Range	-40℃~+125℃ (C7025)/ -40℃~+105℃ (Phosphor Bronze)	
适用线径 Applicable wire insulation O.D	22 AWG (0.35mm <sup>2</sup> ) 24 ~26 AWG (0.22~0.13mm <sup>2</sup> ) Insulation O.D. 1.50mm(Max.)	

#### 【\*1. 不通电时，需满足使用温度范围

Non-operating connectors after reflow must follow the operating temperature range condition

#### 2. 温升时包含端子

This includes the terminal temperature rise generated by conducting electricity.

#### 3. 适用的电线也必须满足规定的温度范围

Applicable wire must also meet the specified temperature range.



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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	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).	Initial: 10 milliohms Max. After Test: 20 milliohms Max.
5-1-2	绝缘阻抗 Insulation Resistance	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)	1000 Megohms Min.
5-1-3	耐电压 Dielectric Strength	公母配合,在相邻端子,端子与地片之间,使用 500V 的交流电 1 分钟,检测连接器. Mate connectors, apply 500V AC for 1 minute between adjacent terminal or ground. (Based upon EIA-364-20A / MIL-STD-202 Method 301)	没有击穿和电火花 No Breakdown and Flashover
5-1-4	铆线后端子接触阻抗 Contact resistance on crimped portion	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.	5 milliohms Max.
5-1-5	电压降 Voltage Drop	在距离压接段75mm或100mm处,分别测量开路电压降(12±1V)和短路电压降(1±0.05A)。从总电阻中减去导线电阻。 Measure voltage drop by 12±1V of open circuit and 1±0.05A of short circuit at the 75or100mm of point from crimped section. Subtract wire conductor resistance from total resistance.	10mV/A 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	插入力及拔出力 Insertion and Withdrawal Force	以每分钟 25.4±3mm 的速率插入和拔出. 除去锁扣 Insert and withdraw connectors at the speed rate of 25±3mm/minute. However, it is measured without HSG lock	参照第 6 项 Refer to paragraph 6	
5-2-2	端子压着强度 Crimping Pull Out Force	固定铆线后的端子, 使电线与端子分离时所需的最小力量, (绝缘铆爪打开). Fix the crimped terminal, apply axial pull out force on the wire. (Measure without insulation crimp).	AWG# 22 (0.35mm <sup>2</sup> )	50N(5.1kgf) MIN
			AWG# 24 (0.22mm <sup>2</sup> )	35N(3.57kgf) MIN
			AWG# 26 (0.13mm <sup>2</sup> )	20N(2.04kgf) MIN
5-2-3	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.	不加 TPA Without Retainer	15 N MIN. {1.53kgf MIN.}
			加 TPA With Retainer	35 N MIN. {3.57kgf MIN.}
5-2-4	端子插入力 Terminal Insertion Force	铆线后之端子插入 Housing 所需最大力量. Insert the crimped terminal into the housing.	9.8N {1.0kgf} Max.	
5-2-5	线端与板端保持 力 Housing / Wafer Retention Force	配对连接器, 以 25±3mm/min 的速度施加拉出力。这个测试应该在锁合状态下进行 Mate connectors and apply pull-out force at the speed rate of 25±3mm/min. This test should be done with positive lock locked.	1 to 2 pin	40N {4.08kgf} MIN.
			3 to 6 pin	50N {5.1kgf} MIN.
			> 6 pin	60N {6.12kgf} 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	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/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	耐振动性 Vibration	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 <sup>2</sup> 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 axis. (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.
			电压降 Voltage Drop	20mV/A Max
			瞬断 Discontinuity	1 micro-second Max.
5-3-4	冲击测试 Shock test	在 X.Y.Z 上 6 个方向上,以 981m/s <sup>2</sup> (100g 的力量)冲击下各 3 回. 作用时间: 6ms With mounted to equipment and mated connectors, subject to the following shock conditions: Peak value: 981m/s <sup>2</sup> (100G) Duration: 3 strokes in each X, Y, Z axes. Operation time: 6ms	外观 Appearance	无异状 No Damage
			瞬断 Discontinuity	1 micro-second Max.

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项 目 【Item】		条 件 【Test Condition】	规 格 【Requirement】	
5-3-5	耐热性 Heat Resistance	125±2℃, 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±2℃, 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: 60±2℃ 湿度: 90~95%(RH) 持续时间: 96 hours Temperature: 60±2℃ 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 Meg ohm Min.
5-3-8	温度变化 Temperature Cycling	从-40℃持续30分锺升至+125℃持续30分锺, 循环1000次. With mated connectors, expose to following conditions: 1000 cycles of a) -40℃: 30 minutes b) +125℃: 30 minutes The test specimens shall be conditioned at ambient room conditions for 1~2 hours, after which the specified measurements shall be performed	外观 Appearance	无异状 No Damage
			插入拔出手感 Insertion and Withdrawal Feeling	无刮痕 No scratches
			端子保持力 Terminal / Housing Retention Force	Must meet 5-2-3
			端子压着强度 Crimping Pull Out Force	Must meet 5-2-2
			线端与板端保持力 Housing / Wafer Retention Force	Must meet 5-2-5



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			接触阻抗 Contact Resistance	20 milliohms Max.
			电压降 Voltage Drop	20mV/A MAX.
5-3-9	盐水喷雾 Salt Spray	在温度 $35\pm 2^{\circ}\text{C}$ , 盐水浓度 $5\pm 1\%$ 下, 盐水喷雾 $48\pm 1$ 小时. $48\pm 1$ hours exposure to a salt spray from the $5\pm 1\%$ solution at $35\pm 2^{\circ}\text{C}$ . (Based upon EIA-364-26B/MIL-STD-202 Method 101D Cond. B).	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.
5-3-10	SO <sub>2</sub> gas	接插件对插后, 并暴露在条件下 $50\pm 5\text{ppm}$ SO <sub>2</sub> 气体在 $40\pm 2^{\circ}\text{C}$ 下 24 小时。 Mate connectors and expose to the conditions to $50\pm 5\text{ ppm SO}_2$ gas at $40\pm 2^{\circ}\text{C}$ for 24 hours.	外观 Appearance	无异状 No Damage
			接触阻抗 Contact Resistance	20 milliohms Max.





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

PIN 数 No. of CKT	单位 UNIT	插入力 (最大值) Insertion Force (MAX.)			PIN 数 No. of CKT	单位 UNIT	插入力 (最大值) Insertion Force (MAX.)		
		1 次	6 次	30 次			1 次	6 次	30 次
02	N(kgf)	35.2 (3.6)	33.3 (3.4)	33.3 (3.4)	09	N(kgf)	82.3 (8.4)	73.5 (7.5)	73.5 (7.5)
03	N(kgf)	43.1 (4.4)	40.1 (4.1)	40.1 (4.1)	10	N(kgf)	88.2 (9.0)	78.4 (8.0)	78.4 (8.0)
04	N(kgf)	50.9 (5.2)	47.0 (4.8)	47.0 (4.8)	11	N(kgf)	94.0 (9.6)	83.3 (8.5)	83.3 (8.5)
05	N(kgf)	58.8 (6.0)	53.9 (5.5)	53.9 (5.5)	12	N(kgf)	99.9 (10.2)	88.2 (9.0)	88.2 (9.0)
06	N(kgf)	64.6 (6.6)	58.8 (6.0)	58.8 (6.0)	13	N(kgf)	107.6 (11.0)	94.9 (9.7)	94.9 (9.7)
07	N(kgf)	70.5 (7.2)	63.7 (6.5)	63.7 (6.5)	14	N(kgf)	113.9 (11.6)	100.2 (10.2)	100.2 (10.2)
08	N(kgf)	76.4 (7.8)	68.6 (7.0)	68.6 (7.0)	15	N(kgf)	120.2 (12.3)	105.6 (10.8)	105.6 (10.8)
PIN 数 No. of CKT	单位 UNIT	拔出力 (最小值) Insertion Force (MIN.)			PIN 数 No. of CKT	单位 UNIT	拔出力 (最小值) Insertion Force (MIN.)		
		1 次	6 次	30 次			1 次	6 次	30 次
02	N(kgf)	1.0 (0.1)	1.0 (0.1)	1.0 (0.1)	09	N(kgf)	4.7 (0.48)	4.7 (0.48)	5.4 (0.55)
03	N(kgf)	1.5 (0.15)	1.5 (0.15)	2.1 (0.21)	10	N(kgf)	5.3 (0.54)	5.3 (0.54)	5.8 (0.59)
04	N(kgf)	2.0 (0.2)	2.0 (0.2)	3.2 (0.33)	11	N(kgf)	5.8 (0.59)	5.8 (0.59)	6.2 (0.63)
05	N(kgf)	2.8 (0.29)	2.8 (0.29)	3.7 (0.38)	12	N(kgf)	6.4 (0.65)	6.4 (0.65)	6.6 (0.67)
06	N(kgf)	3.5 (0.36)	3.5 (0.36)	4.2 (0.43)	13	N(kgf)	6.7 (0.68)	6.7 (0.68)	7.0 (0.71)
07	N(kgf)	3.9 (0.4)	3.9 (0.4)	4.6 (0.47)	14	N(kgf)	7.2 (0.73)	7.2 (0.73)	7.4 (0.75)
08	N(kgf)	4.2 (0.43)	4.2 (0.43)	5.0 (0.51)	15	N(kgf)	7.7 (0.79)	7.7 (0.79)	7.8 (0.80)