CJTconn 長江連接器有限公司 CHANGJIANG CONNECTORS CO.,LTD.

PRODUCT SPECIFICATION

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A4	REVISE	2023/5/5	APPROVED	CHECKED	WRITTEN
A3	REVISE	2023/4/10	BY	BY	BY
A2	REVISE	2020.12.16	*Jack Yin*	*Diankui Wan*	*Xi Chen*
A1	REVISE	2019.11.25			
A0	NEW RELEASE	2010.07.12			
REV.	DESCRIPTION	DATE	DOCUMENT NO: PS-C4201-005		

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1.SCOPE:

This specification covers the requirements for product performance of 4.20 mm pitch wire to wire or wire to board or board to board connector series.

2.PART NAME & PART NUMBERS

Part name		Part number
Housing		C4201HF/HFA//HFB/HFC/HFD/HFI/HFS C4201HM/HMA/HMB/HMD
Terminal	normal material	C4201F-T/C4201M-T C4201F-T-H/HH C4201M-T-H/HH C4201F-T-A C4201F-T-A-H/HH C4201F-T-B C4201F-T-B-H/HH C4201FS-T
	high conductive	C4201F-TCA-H/HH C4201M-TCA-H
Wafer	solid pin header	C4201WV C4201WR C4201WRG C4201WVS C4201WRS
	formed pin header	C4201WVA C4201WRA

3. CONSTRUCTION. DIMENSIONS . MATERIAL & SURFACE FINISH

Construction and dimensions shall be in accordance with the referenced drawings.
Material and surface finish shall be as specified below.

Part name		Material	Surface finish
Housing		Nylon 66	UL94V-2/UL94V-0
Terminal		Brass/Phosphor bronze	Tin over Nickel/Gold over Nickel
		High conductive copper alloy	
Wafer	Post	Brass	Tin over Nickel/Gold over Nickel
		High conductive copper alloy	
	Body	Nylon 66/Nylon 46/Nylon 6T/Nylon 9T/LC	UL94V-2/UL94V-0

4. RATINGS & APPLICABLE WIRES

MAXIMUM CURRENT RATING (Amperes)
WIRE-TO-WIRE

Brass				
Wire Size \ Circuits	2~3	4~6	7~10	12~24
AWG#16	9.0	8.0	7.0	6.0
AWG#18	9.0	8.0	7.0	6.0
AWG#20	7.0	6.0	5.0	5.0
AWG#22	5.0	4.0	4.0	4.0
AWG#24	4.0	3.0	3.0	3.0
AWG#26	3.0	2.0	2.0	2.0
AWG#28	2.0	1.0	1.0	1.0

Phosphor Bronze				
Wire Size \ Circuits	2~3	4~6	7~10	12~24
AWG#16	8.0	7.0	6.0	5.0
AWG#18	8.0	7.0	6.0	5.0
AWG#20	6.0	5.0	4.0	4.0
AWG#22	4.0	3.0	3.0	3.0
AWG#24	3.0	2.0	2.0	2.0
AWG#26	2.0	1.0	1.0	1.0
AWG#28	1.0	1.0	1.0	1.0

High conductive copper alloy						
Wire Size	Circuits					
	2~3	4~5	6~8	10~12	14~18	20~24
AWG#16	13.0	12.0	11.0	10.5	10.0	9.5
AWG#18	11.0	10.0	9.0	8.5	8.0	7.5
AWG#20	9.5	8.5	8.0	7.5	7.0	6.5

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MAXIMUM CURRENT RATING (Amperes) WIRE-TO-BOARD

Brass				
Circuits / Wire Size	2~3	4~6	7~10	12~24
AWG#16	9.0	8.0	7.0	6.0
AWG#18	9.0	8.0	7.0	6.0
AWG#20	7.0	6.0	5.0	5.0
AWG#22	5.0	4.0	4.0	4.0
AWG#24	4.0	3.0	3.0	3.0
AWG#26	3.0	2.0	2.0	2.0
AWG#28	2.0	1.0	1.0	1.0

Phosphor Bronze				
Circuits / Wire Size	2~3	4~6	7~10	12~24
AWG#16	8.0	7.0	6.0	5.0
AWG#18	8.0	7.0	6.0	5.0
AWG#20	6.0	5.0	4.0	4.0
AWG#22	4.0	3.0	3.0	3.0
AWG#24	3.0	2.0	2.0	2.0
AWG#26	2.0	1.0	1.0	1.0
AWG#28	1.0	1.0	1.0	1.0

High conductive copper alloy						
Circuits / Wire Size	2~3	4~5	6~8	10~12	14~18	20~24
AWG#16	12.5	11.5	10.0	9.0	8.5	8.0
AWG#18	10.5	9.5	8.5	8.0	7.5	7.0
AWG#20	9.0	8.0	7.0	6.5	6.0	5.5

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MAXIMUM CURRENT RATING (Amperes)
BOARD-TO-BOARD

Brass				
Circuits / Wire Size	2~3	4~6	7~10	12~24
	9.0	8.0	7.0	6.0

Phosphor Bronze				
Circuits / Wire Size	2~3	4~6	7~10	12~24
	8.0	7.0	6.0	5.0

High conductive copper alloy						
Circuits / Wire Size	2	4	6~8	10~12	14~18	20~24
	11.5	11.0	9.5	8.0	6.5	5.0

5. CONDITIONS：

The conditions shall be in accordance with the referenced drawing of next page.

Number	Item	Requirement
(1)	Bend up	4°Max.
	Bend down	4°Max.
	Twisting	3°Max.
	Rolling	8°Max.
(2)	Bell mouth (flare)	0.2-0.5 mm
(3)	Cut-off tab length	0.20 mm Max.
(4)	Extruded wire length	0-1.0 mm
(5)	Seam	Seam shall not be opened and no wire allowed out of crimping area
(6)	Wire strip length	1.2-1.7 mm ref.
(7)	Lance height	0.3 mm ref.

After crimping，the crimped areas [(5)、(6)] should be as follows.

Wire Size (AWG)	Terminal Part Number	Conductor(mm)		Insulation(mm)		Crimp Strength (kgf)
		Crimp Width	Crimp Height	Crimp Width	Crimp Height	
#16	-HH	1.95(Max)	1.14-1.24	2.50(Max)	2.85max)	7.0(min)
#18	-H C4201FS-T	1.69(Max)	1.00-1.10	2.68(Max)	2.38(max)	9.0(min)
#20		1.64(Max)	0.83-0.93	2.65(Max)	2.24(max)	5.9(min)
#22		1.63(Max)	0.69-0.90	2.61(Max)	2.24(max)	4.0(min)
#24		1.63(Max)	0.67-0.88	2.60(Max)	2.21(max)	3.0(min)
#26	C4201F-T C4201M-T	1.27(Max)	0.64~0.74	1.54(Max)	1.46(max)	1.9(min)
#28		1.27(Max)	0.62~0.72	1.52(Max)	1.46(max)	1.0(min)

6. PERFORMANCE

6.1 ELECTRICAL PERFORMANCE

Test Description		Procedure	Requirement
6-1-1	Contact Resistance	Mate connectors, measure by dry circuit, 20mV Max. 10mA. (Based upon JIS C5402 5.4/EIA-364-23)	10mΩ Max.
6-1-2	Insulation Resistance	Mate connectors, apply 500V DC between adjacent terminal or ground. (Based upon JIS C5402 5.2/MIL-STD-202 Method 302 Cond. B/EIA 364-21)	1000MΩ Min.
6-1-3	Dielectric Withstanding Voltage	Mate connectors, apply 1500V AC (rms) for 1 minute between adjacent terminal or ground. (Based upon JIS C5402 5.1/MIL-STD-202 Method 301/EIA-364-20)	No Breakdown
6-1-4	Contact Resistance on Crimped Portion	Crimp the applicable wire to the terminal, measured by dry circuit, 20mV MAX, 10 mA Max.	5mΩ Max.

6.2 MECHANICAL PERFORMANCE

Test Description		Procedure	Requirement
6-2-1	Insertion & Withdrawal Force Per Circuit for: wire to wire; wire to board (formed pin header); & wire to board (solid pin header)	Insert and withdraw connectors at the speed rate of 25 ± 3mm/minute.(Based upon EIA 364-13)	Tin,W-W & W-B(formed pin): Insertion Force: 15.6 N Max. Withdrawal Force: 0.5N W-B(solid pin): Insertion Force: 13.3 N Max. Withdrawal Force: 0.5N

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6-2-1	Insertion & Withdrawal Force Per Circuit for: wire to wire; wire to board (formed pin header); & wire to board (solid pin header)	Insert and withdraw connectors at the speed rate of 25 ± 3mm/minute.(Based upon EIA 364-13)		Gold,W-W & W-B(formed pin): Insertion Force: 4.9 N Max. Withdrawal Force: 0.5N W-B(solid pin): Insertion Force: 3.4 N Max. Withdrawal Force: 0.5N
6-2-2	Crimping Pull Out Force	Fix the crimped terminal, apply axial pull out force on the wire at the speed rate of 25 ± 3mm/minute. (Based upon JIS C5402 6.8/EIA 364-08)	#16	88N/9.0kgf Min.
			#18	88N/9.0kgf Min.
			#20	59N/6.0kgf Min.
			#22	39N/4.0kgf Min.
			#24	29N/3.0kgf Min.
			#26	19N/1.9kgf Min.
			#28	9.8N/1.0kgf Min.
6-2-3	Crimp Terminal Insertion Force	Insert the crimped terminal into the housing.		1.5kgf Max.
6-2-4	Terminal/Housing Retention Force	Apply axial pull out force at the speed rate of 25 ± 3mm/minute on the terminal assembled in the housing.(Based upon EIA 364-05)		3.1kgf Min.
6-2-5	Header Terminal Retention Force	Apply axial push force at the speed rate of 25 ± 3mm/minute.(Based upon EIA 364-05)		solid pin header: 1.0kgf Min. formed pin header: 1.0kgf Min.
6-2-6	Panel Insertion and Withdrawal Forces	Insert and withdraw connectors at the speed rate of 25 ± 3mm/minute.(Based upon EIA 364-13)		Insertion Force: 225N Max. Withdrawal Force: 157N Min.
6-2-7	Durability	Per EIA-364-09 C, mate connectors 100 cycles for tin plated product, 250 cycles for gold plated product at a maximum rate of 10 cycles per minute based on mated pairs of 30u" Au or 100u" tin at the contact interface.	Contact Resistance	20mΩ Max.
6-2-8	Vibration	Amplitude: 1.52mm P-P Sweep time: 10-55-10 Hz in 1 minute Duration: 2 hours in each X.Y.Z. axes (Based upon MIL-STD-202 Method 201A)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
			Discontinuity	1μsec. Max.
6-2-9	Physical Shock	490m/s² {50G}, 3 strokes in each X.Y.Z. axes. (Based upon JIS C0041/MIL-STD-202 Method 213B Cond. A)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
			Discontinuity	1μsec. Max.

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6.3 ENVIRONMENTAL PERFORMANCE AND OTHERS

Test Description		Procedure		Requirement
6-3-1	Temperature Rise	Carrying rated current load. (Based upon UL 498/EIA 364-70 Method B)	Temperature Rise	30°C Max.
6-3-2	Heat Resistance	105 ± 2°C, 96 hours (Based upon JIS C0021/MIL-STD-202 Method 108A Cond. A/EIA 364-17 Test Condition 3 Method A)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-3	Cold Resistance	-40 ± 3°C, 96 hours (Based upon JIS C0020)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-4	Humidity	Temperature: 40 ± 2°C Relative Humidity: 90 ~ 95% Duration: 96 hours (Based upon JIS C0022/MIL-STD-202 Method 103B Cond. B/EIA 364-31 Method III Test Condition A.)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
			Insulation Resistance	1000MΩ Min.
			Dielectric Withstanding Voltage	Must meet 6-1-3
6-3-5	Thermal Shock	Per EIA-364-32, method A, test condition I, test duration A-4: mate connectors and expose for 10 cycles between –55 °C and 105 °C; dwell 0.5 hours at each temperature.	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-6	Salt Spray	24 hours exposure to a salt spray from the 5 % solution at 35 ± 2°C. (Based upon JIS C0023/MIL-STD-202 Method 101D Cond. B/EIA 364-26)	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-7	SO2 Gas	24 hours exposure to 50 ± 5ppm. SO2 gas at 40 ± 2°C.	Appearance	No Damage
			Contact Resistance	20mΩ Max.
6-3-8	Solderability	Soldering Time: 3~5 sec. Solder Temperature: 240 ± 5°C (Based upon EIA 364-52)	Solder Wetting	95% of immersed area must show no voids, pin holes
6-3-9	Resistance to Soldering Heat	<u>Normal materials</u> Soldering Time: 3~5 sec. Solder Temperature: 250 ± 5°C <u>High temperature resistant materials</u> Soldering Time:3~5 sec. Solder Temperature: 260 ± 5°C (Based upon EIA 364-29)	Appearance	No Damage