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

PRODUCT SPECIFICATION

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				APPROVED	CHECKED	WRITTEN
				BY	BY	BY
A2	NEW RELEASE	2022.05.28	Haisen Li	***Jack Yin***	***Diankui Wan***	***Haisen Li***
A1	MODIFY THE INFORMATION	2020.12.12	Diankui Wan			
A0	NEW RELEASE	2009.06.24	Zhouchaohui			
REV.	DESCRIPTION	DATE	NAME	DOCUMENT NO: PS-A3963-002		

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PRODUCT SERIES NAME： A3963 SERIES

1.SCOPE:

This specification covers the requirements for product performance of 3.96mm pitch wire to wire or wire to board connector series.

2.PART NAME & PART NUMBERS

Part Name	Part Number
Housing	A3963H A3963HA/HB/HC/HD A3963HM/HMA
Terminal	A3963-T A3963-T-H A3963M-T
Wafer	A3963WV A3963WVA A3963WR A3963WVD A3963WRD A3963WRH

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-0
Terminal	Brass/Phosphor Bronze		Tin over Nickel/Gold over Nickel
Wafer	Body	Nylon 66/PBT/LCP	UL94V-0
	Pin	Brass	Tin over Nickel/Gold over Nickel

4. RATINGS & APPLICABLE WIRES

Item	Standard		
Rated Voltage (max.)	250V AC DC		Insulation O.D. 3.40mm (max.)
Rated Current (max.) and Applicable Wires	AWG #16	10A AC DC (W-B 2-circuit)	
	AWG #18	8.5A AC DC (W-B 2-circuit)	
	AWG #20	7A AC DC (W-B 2-circuit)	
	AWG #22	6A AC DC (W-B 2-circuit)	
Ambient Temperature Range	-40℃~105℃*		

*: Including terminal temperature rise

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5. CONDITIONS：

Number	Item	Requirement
①	Bend up	3°max.
	Bend down	3°max.
	Twisting	4°max.
	Rolling	6°max.
②	Bell mouth (flare)	0.1-0.4 mm
③	Cut-off tab length	0.3 mm max.
④	Extruded wire length	0.5-1.0 mm
⑤	Seam	Seam shall not be opened and no wire
⑥	Wire strip length	3.0-3.5 mm ref.
⑦	Lance height	1.0 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 (Kg)
		Crimp Width	Crimp Height	Crimp Width	Crimp Height	
#16	A3963-T A3963-T-H A3963M-T	1.85	1.45-1.60	2.95 (max)	3.05	10.00(min)
#18			1.00-1.40		2.85	9.00(min)
#20			1.15~1.25		2.65	5.90(min)
#22			0.95~1.05		2.65	3.60(min)

Note： no distorted after terminal crimped.

The crimp width at the conductor part & crimp height at the insulation part is a reference value, so adjust it according to a wire to be used。

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)	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)	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)	No Breakdown
6-1-4	Contact Resistance on Crimped Portion	Crimp the applicable wire on to the terminal, measure by dry circuit, 20mV max., 10mA.	5mΩ max.

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6.2 MECHANICAL PERFORMANCE

Test Description		Procedure		Requirement
6-2-1	Insertion & Withdrawal Force	Insert and withdraw connectors at the speed rate of 25 ± 3mm/minute.		1.00kgf per circuit Max. mate force & 0.20kgf per circuit Min. unmate force
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)	AWG #16	10.0kgf min.
			AWG #18	9.0kgf min.
			AWG #20	5.9kgf min.
			AWG #22	3.9kgf min.
6-2-3	Locking Strength	A socket housing and a header shall be mated. A load shall be applied between them.The load to come them off etch other shall be measured. Testing speed: 25 ± 3mm/minute.		2P: 1.5kgf Min. 3P~10P: 5kgf Min.
6-2-4	Terminal Insertion Force	Insert the crimped terminal into the housing at a constant speed of 25±3mm per minute.		1.5kgf max.
6-2-5	Terminal/Housing Retention Force	Apply axial pull out force at the speed rate of 25 ± 3mm/minute on the terminal assembled in the		2.5kgf min.
6-2-6	Post Retention Force	Apply axial push force at the speed rate of 25 ± 3mm/minute.		2.5kgf min.
6-2-7	Durability	When mated up to 30 cycles repeatedly by the rate of 10 cycles per minute.	Contact Resistance	20mΩ max.
6-2-8	Vibration	Amplitude: 1.52mm P-P Sweep time: 10-55-10 Hz/min 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.

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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)	Temperature Rise	30°C max.
6-3-2	Heat Resistance	85 ± 2°C, 250 hours (Based upon JIS C0021/MIL-STD-202 Method 108A Cond. A)	Appearance	No Damage
			Contact Resistance	20mΩ max.
6-3-3	Humidity	Temperature: 40 ± 2°C Relative Humidity: 90 ~ 95% Duration: 96 hours (Based upon JIS C0022/MIL-STD-202 Method 103B Cond. B)	Appearance	No Damage
			Contact Resistance	20mΩ max.
			Insulation Resistance	100MΩ min.
			Dielectric Withstanding Voltage	Must meet 6-1-3
6-3-4	Temperature Cycling	25 cycles of: a) - 55°C 30 minutes b) +85°C 30 minutes (Based upon JIS C0025)	Appearance	No Damage
			Contact Resistance	20mΩ max.
6-3-5	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)	Appearance	No Damage
			Contact Resistance	20mΩ max.
6-3-6	SO_2 Gas	24 hours exposure to 50 ± 5ppm. SO_2 gas at 40 ± 2°C.	Appearance	No Damage
			Contact Resistance	20mΩ max.
6-3-7	NH_3 Gas	40 minutes exposure to NH_3 gas evaporating from 28% Ammonia solution.	Appearance	No Damage
			Contact Resistance	20mΩ max.
6-3-8	Solderability	Soldering Time: 3~5 sec. Solder Temperature: 240 ± 5°C	Solder Wetting	Solder coverage: 95% MIN
6-3-9	Resistance to Soldering Heat	Normal materials Soldering Time: 3~5 sec. Solder Temperature: 250 ± 5°C High temperature resistant materials Soldering Time:3~5 sec. Solder Temperature: 260 ± 5°C	Appearance	No Damage