
0.5mm Pitch Champ Docking Connector

1. INTRODUCTION**1.1. Purpose**

Testing was performed on the 0.5 mm pitch champ docking connector to determine its performance to the requirements of Product Specification 108-99038.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of 0.5 mm pitch champ docking connector manufactured by the Assembly Division.

1.3. Conclusion

0.5 mm pitch docking connector meets the electrical, mechanical, and environmental performance requirements of Design Objective 108-99046

1.4. Product Description

0.5 mm pitch champ docking connector consisting is designed for printed circuit board applications. The contacts are copper alloy, gold plated on the contact interface and tin-lead free plating on the solder-tail, all over nickel under-plated. The housing material is glass filled insulating polymer,UL94V-0.

1.5. Test Samples

The test samples were randomly selected from normal current production lots, and the following part numbers were used for test:

Test Group	Quantity	Description
A,B,C,D,E,F,G,H	5EA.	0.5 mm pitch champ docking connector

1.6. QUALIFICATION TEST SEQUENCE

Test or Examination	Test Group							
	A	B	C	D(b)	E	F	G	H
	Test Sequence (a)							
Examination of Product	1,7	1,6	1	1,6	1	1,3	1,3	1,3
Low Level Contact Resistance	2,6	2,5	2,4	2,5	4,8			
Dielectric withstanding Voltage					3,7			
Insulation Resistance					2,6			
Temperature Rising						2		
Mating Force	3							
Unmating Force	4							
Durability	5							
Vibration				3				
Mechanical Shock				4				
Solderability							2	
Resistance to Soldering Heat								2
Thermal Shock		4						
Humidity Temperature Cycling					5			
Temperature Life		3						
Salt Spray			3					

Figure 1.

NOTE:

- (a) Numbers indicate sequence in which tests are performed.
- (b) Discontinuities shall not take place in this test group during test.

2. TEST RESULT

2.1. 2120390-1 WITH 2129391-1

GP	TEST ITEMS	REQUIREMENTS	DATA				Judgment
			Max.	Min.	Mean	Std. Dev.	
A	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	75.41	62.09	68.89	2.38	ACCEPTED
	Mating Force (Cable)	Initial ,after interval 14N (1.428 Kgf) Max.	8.2	7.5	7.76	NA	ACCEPTED
	Unmating Force (Cable)	Initial ,after interval 7N(0.71 kgf) Min.	12.3	7.7	10.68	NA	ACCEPTED
	Durability (Cable)	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX.	6.61	0.03	1.86	1.33	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
B	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	79.54	61.07	71.36	4.17	ACCEPTED
	Temperature Life	No physical damage	PASSED				ACCEPTED
	Thermal Shock	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX.	7.78	0	2.25	1.34	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
C	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	83.75	65.13	73.55	4.28	ACCEPTED
	Salt Spray	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX.	7.99	0	1.78	1.31	ACCEPTED

Figure 2 (continued)

GP	TEST ITEMS	REQUIREMENTS	DATA				Judgment
			Max.	Min.	Mean	Std. Dev.	
D	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	82.81	64.5	72.02	4.16	ACCEPTED
	Vibration	No electrical discontinuity greater than 1 μ sec.	PASSED				ACCEPTED
	Mechanical Shock	No electrical discontinuity greater than 1 μ sec.	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX.	4.24	0	1.29	0.77	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
E	Examination of Product	No physical damage	PASSED				ACCEPTED
	Insulation Resistance	500 MΩ minimum (Initial) 100 MΩ minimum (Final)	PASSED				ACCEPTED
	Dielectric withstanding Voltage	Current leakage: 0.5 mA MAX.	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX	83.79	53.63	70.35	6.5	ACCEPTED
	Humidity Temperature Cycling	No physical damage.	PASSED				ACCEPTED
	Insulation Resistance	500 MΩ minimum (Initial) 100 MΩ minimum (Final)	PASSED				ACCEPTED
	Dielectric withstanding Voltage	Current leakage: 0.5 mA MAX	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX	2.88	0.01	0.67	0.46	ACCEPTED
F	Examination of Product	No physical damage	PASSED				ACCEPTED
	Temperature Rising	30 °C Max. whole contacts under loaded specified current (0.6A.)	21.8	21	21.42	0.224	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
G	Examination of Product	No physical damage	PASSED				ACCEPTED
	Solder-ability	Wet solder coverage : 95% Min	PASSED				ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
H	Examination of Product	No physical damage	PASSED				ACCEPTED
	Resistance to Soldering Heat	No physical damage	PASSED				ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED

Figure 2 (End)

2.2. 2120390-1 WITH 2129392-1

GP	TEST ITEMS	REQUIREMENTS	DATA				Judgment
			Max.	Min.	Mean	Std. Dev.	
A	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	64.81	42.87	53.19	4.96	ACCEPTED
	Mating Force	Initial ,after interval 14N (1.428 Kgf) Max.	6.2	4.4	5.18	NA	ACCEPTED
	Unmating Force	Initial ,after interval 5N(0.51 kgf) Min.	4.2	2.6	3.48	NA	ACCEPTED
	Durability	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX.	15.83	0.01	2.11	2.33	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
B	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	64.75	47.24	56.25	2.82	ACCEPTED
	Temperature Life	No physical damage	PASSED				ACCEPTED
	Thermal Shock	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX.	4.75	0.01	1.37	0.9	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
C	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	61.35	45.86	54.27	2.13	ACCEPTED
	Salt Spray	No physical damage	TBD				TBD
	Low Level Contact Resistance	Δ 25 mΩ MAX.	14.76	0.01	2.36	1.9	ACCEPTED

Figure 3 (continued)

GP	TEST ITEMS	REQUIREMENTS	DATA				Judgment
			Max.	Min.	Mean	Std. Dev.	
D	Examination of Product	No physical damage	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX.	72.14	50.61	58.06	2.99	ACCEPTED
	Vibration	No electrical discontinuity greater than 1 μ sec.	PASSED				ACCEPTED
	Mechanical Shock	No electrical discontinuity greater than 1 μ sec.	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX.	4.76	0	1.06	0.66	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
E	Examination of Product	No physical damage	PASSED				ACCEPTED
	Insulation Resistance	500 MΩ minimum (Initial) 100 MΩ minimum (Final)	PASSED				ACCEPTED
	Dielectric withstanding Voltage	Current leakage: 0.5 mA MAX.	PASSED				ACCEPTED
	Low Level Contact Resistance	90 mΩ MAX	69.05	49.36	57.34	2.8	ACCEPTED
	Humidity Temperature Cycling	No physical damage.	PASSED				ACCEPTED
	Insulation Resistance	500 MΩ minimum (Initial) 100 MΩ minimum (Final)	PASSED				ACCEPTED
	Dielectric withstanding Voltage	Current leakage: 0.5 mA MAX	PASSED				ACCEPTED
	Low Level Contact Resistance	Δ 25 mΩ MAX	1.88	0.01	0.64	0.39	ACCEPTED
F	Examination of Product	No physical damage	PASSED				ACCEPTED
	Temperature Rising	30 °C Max. whole contacts under loaded specified current (0.6A.)	21.3	20.1	20.62	0.344	ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
G	Examination of Product	No physical damage	PASSED				ACCEPTED
	Solder-ability	Wet solder coverage : 95% Min	PASSED				ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED
H	Examination of Product	No physical damage	PASSED				ACCEPTED
	Resistance to Soldering Heat	No physical damage	PASSED				ACCEPTED
	Examination of Product	No physical damage	PASSED				ACCEPTED

Figure 3(End)

APPLICABLE PART NUMBER AND DESCRIPTION

Part Number	Description
□-2129390-□	RECEPTACLE ASSY, 0.5mm PITCH CHAMP DOCKING CONNECTOR, 70 POS
□-2129391-□	PLUG ASSY, 0.5mm PITCH CHAMP DOCKING CONNECTOR, 70 POS
□-2129392-□	DOCK ASSY, 0.5mm PITCH CHAMP DOCKING CONNECTOR, 70 POS

Appendix 1