

**Micro USB Connector**

**1. Purpose:**

This is qualification test. Testing was performed on below products to determine it compliance with the requirements of product specification 108-115022-1.

**2. Scope:**

This test report covers the electrical, mechanical and environmental performance requirements of Micro USB connector.

Testing was performed at Tyco Electronics Shanghai Electrical Components Test Laboratory between Jun 1, 2011 and July 19, 2011.

**3. Conclusion:**

The product met the electrical, mechanical, and environmental performance requirements of TE product specification 108-115022-1.

**4. Test samples:**

Samples were taken randomly from current production. The following part numbers were used for test:

Description	Product Part No.
uUSB Receptacle B type, 2 DIP Reverse	1932788-1

**5. Test Contents**

Test Description	Requirement	Judgment
Examination of the product	Meets requirements of product drawing.	Acceptable
Low Level Contact Resistance (LLCR).	30 mΩ Max.(initial) ΔR=10mΩ Max.(final)	Acceptable
Insulation resistance.	1000 MΩ Min.	Acceptable
Dielectric strength	No breakdown.	Acceptable
Temperature rise	30°C Max.	Acceptable
Insertion force	35N Max.	Acceptable
Extraction force	8N Min.	Acceptable
Random vibration.	Discontinuity max 1 us	Acceptable
Sine Vibration	No cosmetic damage and shall meet requirement of subsequent test.	Acceptable
Mechanical shock.	Discontinuity max 1 us	Acceptable
Durability	Contact resistance: 40mΩ Max.	Acceptable
Thermal Shock.	No cosmetic damage and shall meet requirement of subsequent test.	Acceptable
Humidity Stress Test	No cosmetic damage and shall meet requirements of subsequent tests.	Acceptable
Solderability	Soldering area shall have a minimum of 95% solder coverage.	Acceptable

Test Description	Requirement	Judgment
Resistance to reflow soldering heat	No cosmetic damage and shall meet requirement of subsequent test.	Acceptable

6. The test was conducted in the following environmental conditions prevailed during testing:

Temperature: 15°C to 35°C      Relative Humidity: 25% to 75%

7. Test Sequence

Description	A	B	C	D	E	F	G
Examination of the product	1,8	1,13	1,5	1,3	1,5	1,3	1,3
Low Level Contact Resistance	2,5,7	2,8	2,4		2,4		
Insulation resistance.		3,9					
Dielectric strength		4,10					
Temperature rise				2			
Insertion force		5,11					
Extraction force		6,12					
Random vibration.	3						
Sine Vibration			3				
Mechanical shock.	4						
Durability		7					
Thermal shock.	6						
Humidity Stress Test					3		
Solderability						2	
Resistance to reflow soldering heat							2

8. Test Result

Group	Test Item	N	Condition	Test Result			Requirement	Judgment
				Max	Min	Ave		
A	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
	LLCR	5x4	Initial	14.63 mΩ	1.68 mΩ	6.91 mΩ	30mΩ Max	PASS
	Random vibration	5	Final	No discontinuities of 1 us or longer duration.			Discontinuities max 1 us	PASS
	Mechanical shock	5	Final	No discontinuities of 1 us or longer duration.			Discontinuities max 1 us	PASS
	LLCR	5x4	ΔR	9.35 mΩ	-1.00 mΩ	1.65 mΩ	ΔR=10 mΩ Max	PASS
	Thermal Shock	5	Final	No physical damage occurred.			No abnormalities	PASS
	LLCR	5x4	ΔR	8.36 mΩ	-8.12 mΩ	2.22 mΩ	ΔR=10 mΩ Max	PASS
	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
B	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
	LLCR	5x4	Initial	27.84 mΩ	4.63 mΩ	18.03 mΩ	30mΩ Max	PASS
	IR	5x4	Initial	9.89x10 <sup>10</sup> Ω	1.07x10 <sup>10</sup> Ω	4.52x10 <sup>10</sup> Ω	1000 MΩ Min	PASS
	DS	5x4	Initial	No physical damage occurred.			No abnormalities	PASS
	Insertion force	5	Initial	17.55N	9.48 N	12.78 N	35N Max N	PASS
	Extraction force		Initial	16.08 N	12.16 N	14.03 N	8N Min N	PASS
	Durability	5	Final	No physical damage occurred.			No abnormalities	PASS

	LLCR	5x4	△R	9.81 mΩ	-8.80 mΩ	2.12 mΩ	△R=10 mΩ Max	PASS
	IR	5x4	Final	9.82x10 <sup>10</sup> Ω	1.63x10 <sup>10</sup> Ω	5.09x10 <sup>10</sup> Ω	1000 MΩ Min	PASS
	DS	5x4	Final	No physical damage occurred.			No abnormalities	PASS
	Insertion force	5	Final	16.54 N	11.87 N	13.84 N	35N Max	PASS
	Extraction force	5	Final	14.55 N	12.35 N	13.61 N	8N Min	PASS
	Examination	5	Final	No physical damage occurred.			No abnormalities	PASS
C	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
	LLCR	5x4	Initial	23.43 mΩ	4.67 mΩ	11.88 mΩ	30mΩ Max	PASS
	Sine vibration	5	Final	No physical damage occurred.			No abnormalities	PASS
	LLCR	5x4	△R	9.89 mΩ	-6.19 mΩ	1.14 mΩ	△R=10 mΩ Max	PASS
	Examination	5	Final	No physical damage occurred.			No abnormalities	PASS
D	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
	Temp. rise	5	Final	26.70°C	24.95°C	25.87°C	30°C Max	PASS
	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
E	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
	LLCR	5x4	Initial	29.08 mΩ	20.15 mΩ	24.04 mΩ	30mΩ Max	PASS
	Humidity stress test	5	Initial	No physical damage occurred.			No abnormalities	PASS
	LLCR	5x4	△R	7.35 mΩ	-6.14 mΩ	0.46 mΩ	△R=10 mΩ Max	PASS
	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
F	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
	Solderability	5	Final	More than 95% solder coverage			Min 95% solder coverage	PASS
	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
G	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS
	Resistance to reflow soldering heat	5	Final	No physical damage occurred.			No abnormalities	PASS
	Examination	5	Initial	No physical damage occurred.			No abnormalities	PASS

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*END*