

Micro MNL Blind Mate 6P connector

1. Introduction

1.1 Purpose

The purpose of this test is to evaluate the performance of Micro MNL Blind Mate 6P connector.

1.2 Scope

This report covers the electrical, mechanical and environmental performance for Micro MNL Blind Mate 6P connector. Testing was performed at TE Connectivity Shanghai Electrical Test Laboratory (Building ID 554) between 2022-11-11 and 2023-04-06.

The associated test number is TP-22-02503 & TP-23-00299.

1.3 Conclusion

The items listed in Clause 1.5 conformed to performance requirements of criteria described in Clause 3. The testing results are only responsible for the specimens tested.

1.4 Test Specimens

Product Description

Micro MNL Blind Mate 6P connector

Specimens received on 2023-02-13 with the following part numbers were used for test:

Test Group	Part No.	Part Rev.	Description	Qty. (pcs)
1	2425486-1	A	Mirco MNL PLUG 6P Blind Mate	5
	794607-1	A	Mirco MNL Receptacle with UL1007 26AWG 15cm long	30
	2425487-1	A	Mirco MNL Cap 6P Blind Mate	5
	1-794609-0	A	Mirco MNL Tab with UL1007 26AWG 15cm long	30
2	2425486-1	1	Micro MNL PLUG 6P Blind mate	3
	2425487-1	1	Micro MNL Cap 6P Blind mate	3
	794606-1	A	Mirco MNL Receptacle with UL1007 24AWG 15cm long	18
	1-794608-0	A	Mirco MNL Tab with UL1007 24AWG 15cm long	18
4	2425486-1	1	Micro MNL PLUG 6P Blind mate	3
	2425487-1	1	Micro MNL Cap 6P Blind mate	3
	794606-1	A	Mirco MNL Receptacle with UL1007 24AWG 15cm long	18
	1-794608-0	A	Mirco MNL Tab with UL1007 24AWG 15cm long	18

1.5 Test Sequence

Test Item	Test Group		
	1	2	3
	Test Sequence		
Examination of Product	1,13	1,7	1,6
Dielectric Withstanding Voltage	4,12		
Humidity and Temperature Cycling	9		
Insulation Resistance	3,11		
Low Level Contact Resistance	2,6,8,10	4	2,4
Temperature Life	7		
Thermal Shock	5		

Test Item	Test Group		
	1	2	3
	Test Sequence		
Contact Insertion Force		2	
Mating Force		3	
Retention Force Test		6	5
Temperature Rise			3
Unmating Force		5	

Note: a). Test group defined per customer requirement.
 b). Numbers indicate sequence in which tests are performed.

1.6 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

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

2. Summary of Test

Group	SN	Description	Test Item	Qty(pcs)	Test Result				Requirement	Conclusion	
					Max	Min	Avg	Unit			
1	1	All samples	Examination of Product	5	No physical damage				/	No physical damage	Meet Spec.
	2		Low Level Contact Resistance		5.04	4.33	4.61	mΩ	20 mΩ Max.	Meet Spec.	
	3		Insulation Resistance		20.70	5.69	11.52	10 ¹¹ Ω	1000 MΩ (=1*10 ⁹ Ω) Min.	Meet Spec.	
	4		Dielectric Withstanding Voltage		No breakdown or flashover.				/	No breakdown or flashover.	Meet Spec.
	5		Thermal Shock		No physical damage				/	No physical damage	Meet Spec.
	6		Low Level Contact Resistance		6.15	4.28	5.37	mΩ	20 mΩ Max.	Meet Spec.	
	7		Temperature Life		No physical damage				/	No physical damage	Meet Spec.
	8		Low Level Contact Resistance		7.95	5.04	6.19	mΩ	20 mΩ Max.	Meet Spec.	
	9		Humidity and Temperature Cycling		No physical damage				/	No physical damage	Meet Spec.
	10		Low Level Contact Resistance		12.60	4.51	7.31	mΩ	20 mΩ Max.	Meet Spec.	
	11		Insulation Resistance		2.28	0.47	1.48	10 ¹¹ Ω	100M Ω (=1*10 ⁸ Ω) Min.	Meet Spec.	
	12		Dielectric Withstanding Voltage		No breakdown or flashover.				/	No breakdown or flashover.	Meet Spec.
	13		Examination of Product		No physical damage				/	No physical damage	Meet Spec.
2	1	All samples	Examination of Product	3	No physical damage				/	No physical damage	Meet Spec.
	2	2425486-1	Contact Insertion Force	3	6.79	6.18	6.43	N	6.86 N Max.	Meet Spec.	

Group	SN	Description	Test Item	Qty(pcs)	Test Result				Requirement	Conclusion
					Max	Min	Avg	Unit		
2	2	2425487-1	Contact Insertion Force	3	4.30	1.45	2.22	N	6.86 N Max.	Meet Spec.
	3	All samples	Mating Force	3	19.5	13.8	17.3	N	41.16 N Max.	Meet Spec.
	4		Low Level Contact Resistance	3	4.08	3.21	3.63	mΩ	20 mΩ Max.	Meet Spec.
	5		Unmating Force	3	13.3	12.4	13.0	N	4.12 N Min.	Meet Spec.
	6		2425486-1	Retention Force Test	3	67.5	60.0	63.8	N	17.4 N Min.
		2425487-1	Retention Force Test	3	62.9	52.6	57.6	N	17.4 N Min.	Meet spec.
	7	All samples	Examination of Product	3	No physical damage			/	No physical damage	Meet Spec.
3	1	All samples	Examination of Product	3	No physical damage			/	No physical damage	Meet Spec.
	2		Low Level Contact Resistance	3	3.37	2.61	3.06	mΩ	20 mΩ Max.	Meet Spec.
	3		Temperature Rise	3	13.7	12.0	12.6	°C	30 °C Max.	Meet Spec.
	4		Low Level Contact Resistance	3	3.76	2.92	3.28	mΩ	20 mΩ Max.	Meet Spec.
	5	2425486-1	Retention Force Test	3	34.6	28.3	32.1	N	17.74 N Min.	Meet Spec.
		2425487-1	Retention Force Test	3	34.6	26.0	29.1	N	17.74 N Min.	Meet Spec.
	6	All samples	Examination of Product	3	No physical damage			/	No physical damage	Meet Spec.

3. Test Procedures and Requirements

3.1 Dielectric Withstanding Voltage

Apply 1500 volts AC between the adjacent contacts of mated specimens for 1 minute.

Requirement: No breakdown or flashover.

Test Method: EIA-364-20

3.2 Examination of Product

Visual Inspection: Appearance and function examination according to the applicable inspection spec.

Requirement: No physical damage.

Test Method: EIA-364-18B-2007

3.3 Humidity and Temperature Cycling

Subject mated specimens to 10 cycles (1cycle=24hours) of humidity-temperature cycling. Each cycle consists of temperature between 25°C and 65°C and humidity between 80%~98% RH.

Requirement: No physical damage.

Test Method: EIA-364-31F-2019

3.4 Insulation Resistance

Apply 500 V DC. between adjacent circuits and between the surface of housing and contact of mated connectors.

Requirement: 1000 MΩ Min. (Initial); 100 MΩ Min. (Final)

Test Method: EIA-364-21F-2020

3.5 Low Level Contact Resistance

Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.

requirement: 20 milliohms maximum

Test Method: EIA 364-23D-2022

3.6 Temperature Life

Subjected mated specimens to a temperature of 105 °C for 96 hours.

Requirement: No physical damage.

Test Method: EIA-364-17C-2011

3.7 Thermal Shock

Subject mated specimens to 25 cycles of thermal shock with each cycle consisting of 30 minutes dwells at -40 and 105 °C.

The transition time between cold and hot temperatures is less than 5 minutes.

Requirement: No physical damage.

Test Method: EIA-364-32G-2014

3.8 Contact Insertion Force

Measure the force required to insert contacts into housing. Operation Speed: 12.7 mm / min.

Requirement: 6.86 N Max.

Test Method: EIA-364-05C-2020

3.9 Mating Force

Measure axial force necessary to mate specimens at Operation speed 12.7 mm / min.

Requirement: 41.16 N Max.

Test Method: EIA-364-13E-2011

3.10 Retention Force Test

Apply an axial pull-off load to crimped wire from housing. Operation Speed: 12.7 mm / min. TG2 is at the status of TPA closed. TG3 is at the status of TPA opened.

Requirement: 17.74 N Min.

Test Method: EIA-364-29.

3.11 Temperature Rise

Apply test current 2.8A and monitor ΔT between sample and ambient temperature.

Requirement: 30 °C Max. above ambient temperature

Test Method: EIA-364-70C-2014

3.12 Unmating Force

Measure axial force necessary to mate specimens at Operation speed 12.7 mm / min.

Requirement: 4.12 N Min

Test Method: EIA-364-13E-2011

4. Validation

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2023-02-07

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2023-04-19

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