TERMINAL .187 FASTON TAB MAG-MATE

1. Introduction

1.1 Purpose

This is a product qualification test. The purpose of this test is to evaluate the performance of TERMINAL .187 FASTON TAB MAG-MATE. Testing was performed on below products to determine its compliance with the requirements of 108-2012.Rev.J.

1.2 Scope

This report covers the electrical and environmental performance for TERMINAL .187 FASTON TAB MAG-MATE. Testing was performed at TE Connectivity Shanghai Electrical Test Laboratory (Building ID 554) between 2023-06-02 and 2023-07-28.
The associated test number is TP-23-01309.

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

Specimens received on 2023-05-23 with the following part numbers were used for test:

Test Group	Part No.	Part Rev.	Description	Qty. (pcs)	Comments
1	63664-2	1	MAG-MATE 27-23 187 FTAB TPBR	10	0.45 mm copper wire
	63664-2	1	MAG-MATE 27-23 187 FTAB TPBR	10	0.62 mm copper wire
	63668-2	1	TAB,187 FASTON, MAG-MATE	10	0.90 mm cooper wire
	63668-2	1	TAB,187 FASTON, MAG-MATE	10	1.10 mm copper wire
2	63664-2	1	MAG-MATE 27-23 187 FTAB TPBR	10	0.45 mm copper wire
	63664-2	1	MAG-MATE 27-23 187 FTAB TPBR	10	0.62 mm copper wire
	63668-2	1	TAB,187 FASTON, MAG-MATE	10	0.90 mm cooper wire
	63668-2	1	TAB,187 FASTON, MAG-MATE	10	1.10 mm copper wire

1.5 Test Sequence

Test Item	Test Group [a]	
	1	2
	Test Sequence [b]	
Current Cycling		3
Examination of Product	1,9	1,5
Humidity and Temperature Cycling	5	
Low Level Contact Resistance	2,4,6,8	2,4
Temperature Life	3	
Thermal Shock	7	

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 ℃ to 35 ℃
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	40	No physical damage.			/	No physical damage.	Meet Spec.
	2	63664-2&0.45 mm Cu	Low Level Contact Resistance	10	4.73	4.59	4.66	mΩ	5.50 mΩ Max.	Meet Spec.
		63664-2&0.62 mm Cu		10	2.70	2.54	2.63	mΩ	3.20 mΩ Max.	Meet Spec.
		63668-2&0.90 mm Cu		10	1.42	1.31	1.38	mΩ	1.70 mΩ Max.	Meet Spec.
		63668-2&1.1 mm Cu		10	1.04	1.00	1.02	mΩ	1.25 mΩ Max.	Meet Spec.
	3	All samples	Temperature Life	40	No physical damage.			/	No physical damage.	Meet Spec.
	4	63664-2&0.45 mm Cu	Low Level Contact Resistance	10	4.77	4.58	4.65	mΩ	5.50 mΩ Max.	Meet Spec.
		63664-2&0.62 mm Cu		10	2.95	2.57	2.76	mΩ	3.20 mΩ Max.	Meet Spec.
		63668-2&0.90 mm Cu		10	1.60	1.46	1.52	mΩ	1.70 mΩ Max.	Meet Spec.
		63668-2&1.1 mm Cu		10	1.20	0.98	1.07	mΩ	1.25 mΩ Max.	Meet Spec.
	5	All samples	Humidity and Temperature Cycling	40	No physical damage			/	No physical damage.	Meet Spec.
	6	63664-2&0.45 mm Cu	Low Level Contact Resistance	10	4.69	4.50	4.61	mΩ	5.50 mΩ Max.	Meet Spec.
		63664-2&0.62 mm Cu		10	2.59	2.45	2.52	mΩ	3.20 mΩ Max.	Meet Spec.
		63668-2&0.90 mm Cu		10	1.35	1.26	1.31	mΩ	1.70 mΩ Max.	Meet Spec.
		63668-2&1.1 mm Cu		10	1.03	0.93	0.98	mΩ	1.25 mΩ Max.	Meet Spec.
	7	All samples	Thermal Shock	40	No physical damage			/	No physical damage.	Meet Spec.
	8	63664-2&0.45 mm Cu	Low Level Contact Resistance	10	4.79	4.52	4.66	mΩ	5.50 mΩ Max.	Meet Spec.
		63664-2&0.62 mm Cu		10	2.67	2.52	2.61	mΩ	3.20 mΩ Max.	Meet Spec.
		63668-2&0.90 mm Cu		10	1.40	1.34	1.37	mΩ	1.70 mΩ Max.	Meet Spec.
		63668-2&1.10 mm Cu		10	1.06	0.95	1.01	mΩ	1.25 mΩ Max.	Meet Spec.
	9	All samples	Examination of Product	40	No physical damage.			/	No physical damage.	Meet Spec.
2	1	All samples	Examination of Product	40	No physical damage.			/	No physical damage.	Meet Spec.
	2	63664-2&0.45 mm Cu	Low Level Contact Resistance	10	4.93	4.63	4.76	mΩ	7.20 mΩ Max.	Meet Spec.
		63664-2&0.62 mm Cu		10	2.65	2.53	2.59	mΩ	4.20 mΩ Max.	Meet Spec.
		63668-2&0.90 mm Cu		10	1.43	1.34	1.38	mΩ	2.20 mΩ Max.	Meet Spec.
		63668-2&1.10 mm Cu		10	1.03	0.91	1.00	mΩ	1.60 mΩ Max.	Meet Spec.
	3	0.45mm copper wire	Current Cycling	10	No physical damage.			/	No physical damage.	Meet Spec.
		0.62mm copper wire		10	No physical damage.			/	No physical damage.	Meet Spec.
		0.90mm cooper wire		10	No physical damage.			/	No physical damage.	Meet Spec.
		1.10mm copper wire		10	No physical damage.			/	No physical damage.	Meet Spec.
	4	63664-2&0.45 mm Cu	Low Level Contact Resistance	10	4.94	4.68	4.80	mΩ	7.20 mΩ Max.	Meet Spec.
		63664-2&0.62 mm Cu		10	2.90	2.54	2.63	mΩ	4.20 mΩ Max.	Meet Spec.
		63668-2&0.90 mm Cu		10	1.44	1.36	1.40	mΩ	2.20 mΩ Max.	Meet Spec.
		63668-2&1.10 mm Cu		10	1.02	0.91	0.98	mΩ	1.60 mΩ Max.	Meet Spec.
	5	All samples	Examination of Product	40	No physical damage.			/	No physical damage.	Meet Spec.

3. Test Procedures and Requirements

3.1 Current Cycling
Subject specimens to 480 cycles of specified current,15minutes ON and 15 minutes OFF.
Test current: 0.45 mm copper wire, test current =8 A.
0.62 mm copper wire, test current =12.1 A.
0.90 mm copper wire, test current =17.8 A.
1.10 mm copper wire, test current =21 A.
Requirement: No physical damage.
Test Method: ECIA EIA-364-55B-2020

3.2 Examination of Product
Visually and tactually inspect to see if the physical damage such as cracks, breakage, damages, rattling and loose of parts, rust, fusion and deformation are present.
Requirement: No physical damage.
Test Method: ECIA EIA-364-18B-2007

3.3 Humidity and Temperature Cycling
Unmated specimens were exposed to 10 cycles of humidity-temperature cycling. Each cycle consisted of temperature between 25 ℃ and 65 ℃ and humidity between 80 %RH~ 100 %RH 24 hours per cycle.
Requirement: No physical damage.
Test Method: ECIA EIA-364-31F-2019

3.4 Low Level Contact Resistance for current cycling test (for test group 2)
Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Requirement: 1.10 mm copper wire, R =1.60 mΩ Max.
0.45 mm copper wire, R=7.20 mΩ Max.
0.62 mm copper wire, R=4.20 mΩ Max.
0.90 mm copper wire, R=2.20 mΩ Max.
Test Method: EIA 364-23D-2022

3.5 Low Level Contact Resistance for environment test (for test group 1）
Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Requirement: 0.45 mm copper wire, R=5.50 mΩ Max.
0.62 mm copper wire, R=3.20 mΩ Max.
0.90 mm copper wire, R=1.70 mΩ Max.
1.10 mm copper wire, R=1.25 mΩ Max.
Test Method: EIA 364-23D-2022

3.6 Temperature Life
Mated specimens were exposed to a temperature of 118℃ for 33 days.
Requirement: No physical damage.
Test Method: ECIA EIA-364-17C-2011

3.7 Thermal Shock
Unmated specimens were subjected to 25 cycles of thermal shock with each cycle consisting of 30 minutes dwells at –65 ℃and 125 ℃.
Requirement: No physical damage.
Test Method: ECIA EIA-364-32G-2014

4. Validation

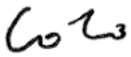
Requested by:

Hu, Chunjie
_____ 2023-05-19
TE Connectivity Product Engineering

Prepared by:


_____ 2023-08-10
TE Connectivity Shanghai Electrical Components Test Lab.

Approved by:


_____ 2023-08-16
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