42741 Piggyback FASTON

1. Introduction

1.1 Purpose

This is a product (qualification) test. The purpose of this test is to evaluate the performance of 42741 Piggyback FASTON with reduced Plating thickness. Testing was performed on below products to determine its compliance with the requirements of 108-20019 Rev.E2.

1.2 Scope

This report covers the electrical, mechanical, environmental, and material performance for 42741 Piggyback FASTON. Testing was performed at TE Connectivity Shanghai Electrical Test Laboratory (Building ID 554) between 2023-03-30 and 2023-05-22.
The associated test number is TP-23-00671.

1.3 Conclusion

Based on the test results, all samples meet the requirement according to customer requirement.
The testing results are only responsible for the specimens tested.

1.4 Test Specimens

Product Description

42741 Piggyback FASTON

Specimens received on 2023-03-13 with the following part numbers were used for test:

Test Group	Part No.	Part Rev.	Description	Qty. (pcs)	Part No.	Part Rev.	Description	Qty. (pcs)	Comments
1	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	14 AWG Wire
	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	18 AWG Wire
2	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	14 AWG Wire
	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	18 AWG Wire
3	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	14 AWG Wire
	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	18 AWG Wire
4	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	14 AWG Wire
	42741-8	CP4	TERMINAL GROUP NUMBER	5	62627-2	M5	250 FASTON TAB BR	5	18 AWG Wire

1.5 Test Sequence

Test Item	Test Group [a]			
	1	2	3	4
	Test Sequence [b]			
Contact Extraction Force	4			
Contact Insertion Force	3			
Voltage Drop	2,6	2,4	2,4	2,4
Durability Test	5			
Examination of Product	1,7	1,5	1,5	1,5
Overload Test		3		
Temperature Cycling Test				3
Vibration Test			3	

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	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.
	2	42741-8/62627-2 with 18 AWG Wire	Voltage Drop	5	5.86	5.28	5.53	mV	20 mV Max.	Meet Spec.
	2	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	15.39	12.56	13.70	mV	30 mV Max.	Meet Spec.
	3	42741-8/62627-2 with 18 AWG Wire	Contact Insertion Force	5	38.4	31.2	34.4	N	80 N Max.	Meet Spec.
	3	42741-8/62627-2 with 14 AWG Wire	Contact Insertion Force	5	29.9	22.7	26.2	N	80 N Max.	Meet Spec.
	4	42741-8/62627-2 with 18 AWG Wire	Contact Extraction Force	5	40.9	32.5	36.3	N	80 N Max.	Meet Spec.
	4	42741-8/62627-2 with 14 AWG Wire	Contact Extraction Force	5	36.9	26.9	31.1	N	80 N Max.	Meet Spec.
	5	42741-8/62627-2	Durability Test	10	No physical damage.			/	No physical damage.	Meet Spec.
	6	42741-8/62627-2 with 18 AWG Wire	Voltage Drop	5	5.58	3.22	4.57	mV	20 mV Max.	Meet Spec.
	6	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	17.58	12.64	14.20	mV	30 mV Max.	Meet Spec.
	7	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.
2	1	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.
	2	42741-	Voltage Drop	5	5.43	4.76	5.16	mV	20 mV Max.	Meet Spec.

Group	SN	Description	Test Item	Qty (pcs)	Test Result				Requirement	Conclusion
					Max	Min	Avg	Unit		
		8/62627-2 with 18 AWG Wire								
	2	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	15.75	13.39	14.59	mV	30 mV Max.	Meet Spec.
	3	42741-8/62627-2 with 18 AWG Wire	Overload Test	5	10.95	10.50	10.70	mV	20 mV Max.	Meet Spec.
	3	42741-8/62627-2 with 14 AWG Wire	Overload Test	5	26.81	24.19	25.28	mV	30 mV Max.	Meet Spec.
	4	42741-8/62627-2 with 18 AWG Wire	Voltage Drop	5	5.68	5.08	5.30	mV	20 mV Max.	Meet Spec.
	4	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	15.89	13.79	14.74	mV	30mVMax.	Meet Spec.
	5	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.
3	1	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.
	2	42741-8/62627-2 with 18 AWG Wire	Voltage Drop	5	5.72	4.51	4.94	mV	20 mV Max.	Meet Spec.
	2	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	13.27	12.64	13.06	mV	30 mV Max.	Meet Spec.
	3	42741-8/62627-2	Vibration Test	10	No physical damage or no electrical discontinuity greater than 1 µs			/	No physical damage or no electrical discontinuity greater than 1 µs	Meet Spec.
	4	42741-8/62627-2 with 18 AWG Wire	Voltage Drop	5	5.53	4.79	5.03	mV	20 mV Max.	Meet Spec.
	4	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	13.46	12.61	12.88	mV	30 mV Max.	Meet Spec.
	5	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.
4	1	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.
	2	42741-8/62627-2 with 18 AWG Wire	Voltage Drop	5	6.32	5.36	5.95	mV	20 mV Max.	Meet Spec.
	2	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	15.79	14.89	15.36	mV	30 mV Max.	Meet Spec.
	3	42741-8/62627-2	Temperature Cycling Test	10	No physical damage.			/	No physical damage.	Meet Spec.
	4	42741-8/62627-2 with 18 AWG Wire	Voltage Drop	5	6.05	5.38	5.67	mV	20 mV Max.	Meet Spec.
	4	42741-8/62627-2 with 14 AWG Wire	Voltage Drop	5	17.37	13.11	16.23	mV	30 mV Max.	Meet Spec.
	5	42741-8/62627-2	Examination of Product	10	No physical damage.			/	No physical damage.	Meet Spec.

3. Test Procedures and Requirements

2.1 Contact Extraction Force
Measure the force to pull the terminal from housing at a rate of 50mm/min.
Requirement: 80 N max.
Test Method: EIA-364-05C-2020

2.2 Contact Insertion Force
Measure the force to push the terminal into housing at a rate of 50mm/min.
Requirement: 80 N max.
Test Method: EIA-364-05C-2020

2.3 Durability Test
Mate and unmated Terminal and tab for 6 cycles at a maximum rate of 600 cycles per hour.
Requirement: No physical damage occurred
Test Method: Customized Requirement

2.4 Examination of Product
Visual Inspection: Appearance and function examination according to the applicable inspection spec.
Requirement: No physical damage that would impair product performance.
Test Method: EIA-364-18B-2007

2.5 Overload Test
Apple a rated current for mated samples, 12A for 18AWG and 30A for 14AWG, record the voltage drop after current hold for 1h.
Requirement: 14 AWG: 30 mV Max.
18 AWG: 20 mV Max.
Test Method: Customized Requirement

2.6 Temperature Cycling Test
Subject mated parts under below test condition, below is one cycle, total need 5 cycles.
Step1: (100±2) ℃ for 2h.
Step2: (40±2) ℃ & 90&~95%RH for 2h.
Step3: (-25±2) ℃ for 2h.
Requirement: No physical damage.
Test Method: EIA-364-31F-2019

2.7 Vibration Test
Subject mated connector to 10-100-10 Hz, at 10g acceleration, 2hours in X and Y, Z direction, the travel rate is 1octave/min, amplitude of oscillation is 0.75mm
Requirement: No physical damage or no electrical discontinuity greater than 1 μs.
Test Method: EIA-364-28F-2011(R2017)

2.8 Voltage Drop
Record the voltage drop for mating parts by rated current.
Requirement: 14 AWG: 30 mV Max.
18 AWG: 20 mV Max.
Test Method: EIA-364-06C-2006(R2017)

4. Validation

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