FASTON RECEPTACLE HOUSING 4 POSITION RED .250 SERIES
Material Evaluation

1. INTRODUCTION

1.1 Purpose

Testing was performed on the TE Connectivity FASTON receptacle housing to evaluate a new material

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of faston receptacle housing. The specimens listed in Table 1 of paragraph 1.4 were subject to the test sequence outlined in Table 2 of paragraph 1.5. Testing was performed at the Shanghai Electrical Components Test Laboratory during 09Apr2018 to 16Apr2018. The associated test number is TP-18-00789.

1.3 Conclusion

Based on the test results, all specimens meet the specification. See summary of testing for more details. x-521498-x, x-1969141-x, x-1969483-x, 1969398-2, 1969399-2 and 1969484-2 are qualified based on similarity.

1.4 Test Specimens

Specimens with the following part number as Table 1 were used for this test. Refer to table 1 for test specimen identification information.

Table 1

Test Group	Part No	Description	Qty.	Comments
1	2-521498-2	FASTON 250 REC HSG 4 CIR RED	6	
	63306-1	FASTON 250 REC 18-14 AWG BR	24	
2	2-521498-2	FASTON 250 REC HSG 4 CIR RED	6	
	63306-1	FASTON 250 REC 18-14 AWG BR	24	
4	2-521498-2	FASTON 250 REC HSG 4 CIR RED	6	

1.5 Test Sequence

Specimens identified in table 1 were subjected to the test sequence outlined in Table 2.

Table 2-Test sequence

Test	Test Group		
	1	2	3
	Test Sequence		
Examination of Product	1		1,3
Dielectric withstanding Voltage	2		
Contact Intention Force		1	
Contact Retention Force		2	
Mold Stress Test			2

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% to 75%

| Indicates Change

2. SUMMARY OF TESTING

2.1 Dielectric test, 3400VAC

No dielectric breakdown occurred due to the application of a test voltage potential of 3400VAC, refer to table 3

Table 3-leakage current, test set 1

Specimen ID	2-1	2-2	2-3	2-4	2-5	2-6
1-2	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN
2-3	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN
contact-housing	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN	NO BREAKDOWN

2.2 Contact insertion force test

Refer to table 4 for contact insertion force summary data in pounds and figure 1 for typical force plots. Table 4 is the test data for sequence 2. All recorded values were below the requirement of 4.0 lbf maximum for contact insertion per test request.

Table 4-Contact insertion force summary data in pounds, test set 2

Pounds	Contact insertion force
Minimum	0.67
Maximum	1.33
Mean	1.03
Standard Deviation	0.18
N=	10
Requirement	4.0lbf Max

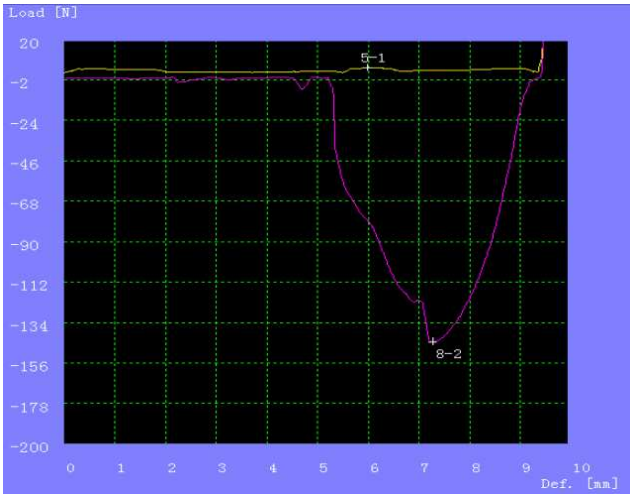

Figure 1- typical contact insertion force profile plot

2.3 Contact retention force

Refer to table 5 for contact retention force summary data in pounds and figure 2 for typical retention force profile plot. All recorded values were up the requirement of 15.0 lbf Min for contact retention force per test request.

Table 5-Contact retention force summary data in pounds, test set 2

Pounds	Contact retention force
Minimum	28.99
Maximum	33.80
Mean	31.25
Standard Deviation	1.56
N=	10
Requirement	15.0 lbf Min

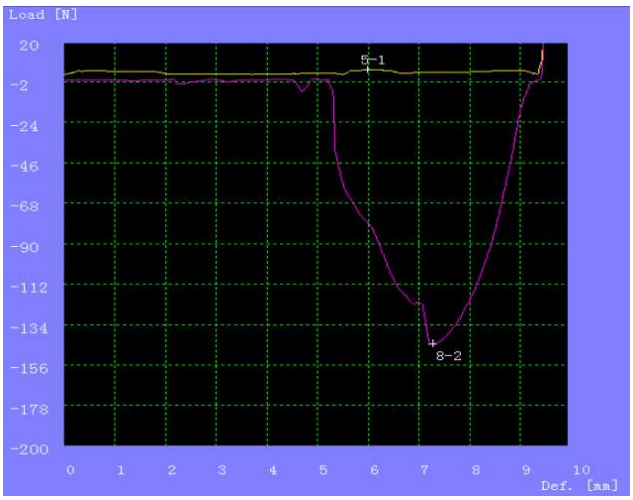

Figure 2- typical retention force profile plot

2.4 Mold stress test

No warpage, shrinkage, distortion, or other physical damage that would be detrimental to product performance was visible due to exposure to the mold stress test. The specimens exhibited a slight color change during exposure. Refer to figure 3 for typical before and after images.

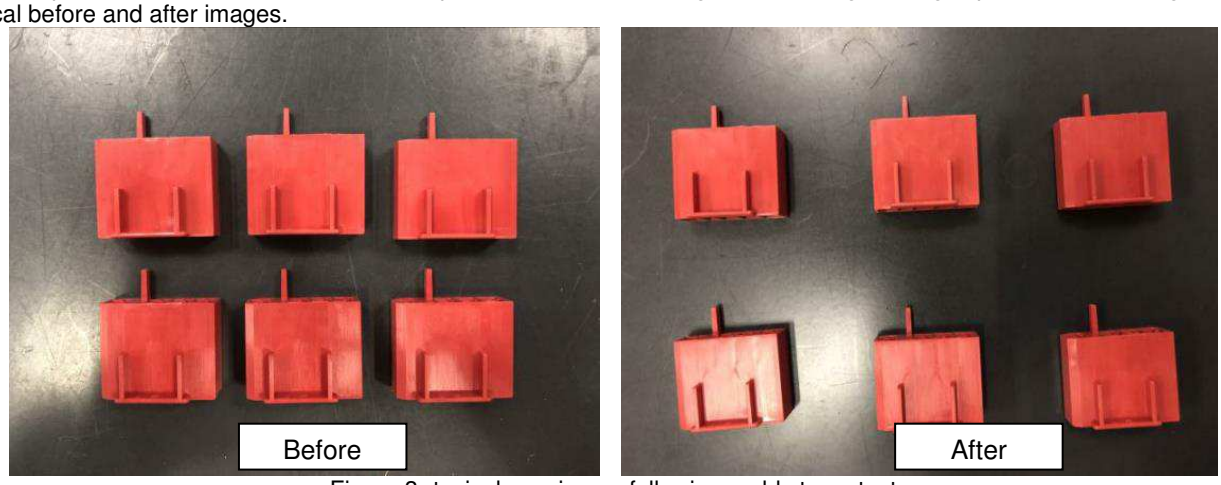

Figure 3- typical specimens following mold stress test

3. TEST PROCEDURES

3.1 Examination of Product
Visual Inspection: appearance, and function of specimens pursuant to the applicable inspection plan.
Requirements: Meets requirements of product drawing and no physical damage.
Test Method: EIA-364-18

3.2 Dielectric Strength
The test specimens were tested in the as-specified state. The test voltage shall be raised from zero to the specified value as uniformly as possible, at a rate of approximately 500 volts (AC or DC) per second. Dielectric withstanding voltage was measured separately between the closest adjacent contacts at 3400 V for 1 minute. Take picture of initial testing to make insurance of the same method is used. Measure and record the performance of the specimens. Execute visual check after test.

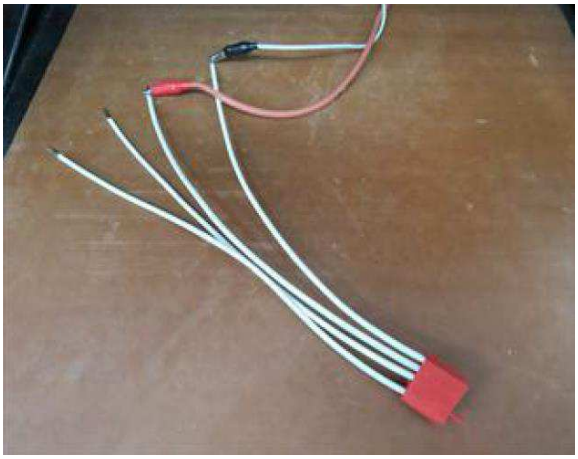
Figure 4- test setup of DWV-contact and contact

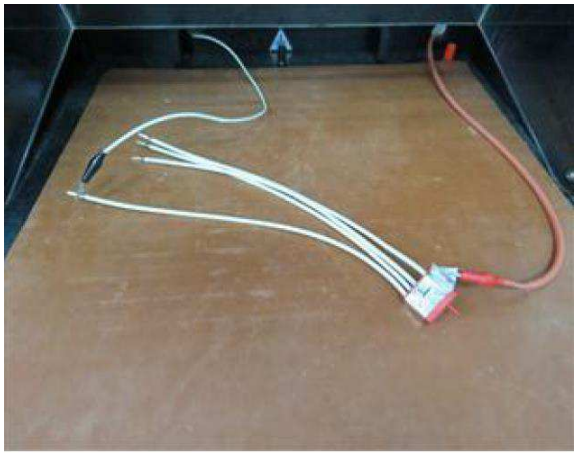
Figure 5- test setup of DWV-contact and housing

3.3 Contact insertion force
Execute visual check before test, and take picture. Mount test specimen with fixtures in a normal manner, and take picture. Edit test procedure according to test method then perform test. Test Condition: Measure the force required to insert contact into housing. Test Speed: 60 mm/min. Export test data and test curve, execute visual check and take picture after test. Refer to figure 5 for an image of the typical test setup. Testing was performed in accordance with EIS-364-05B

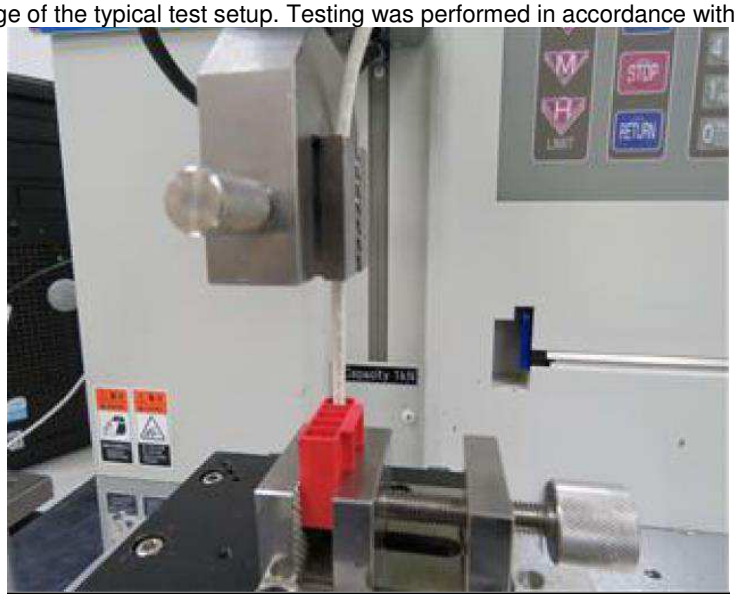

Figure 6 – typical contact insertion force setup

3.4 contact retention force
The housing was clamped to a free floating x/y and rotational table at the base of the tensile/compression machine. The wire of the terminal was clamped in an air jaw to the moveable crosshead of the tensile/compression machine. Force was then applied in an upward direction at a rate of 60mm/min until the terminal was fully removed from the housing. Refer to figure 6 for an image of typical test setup.

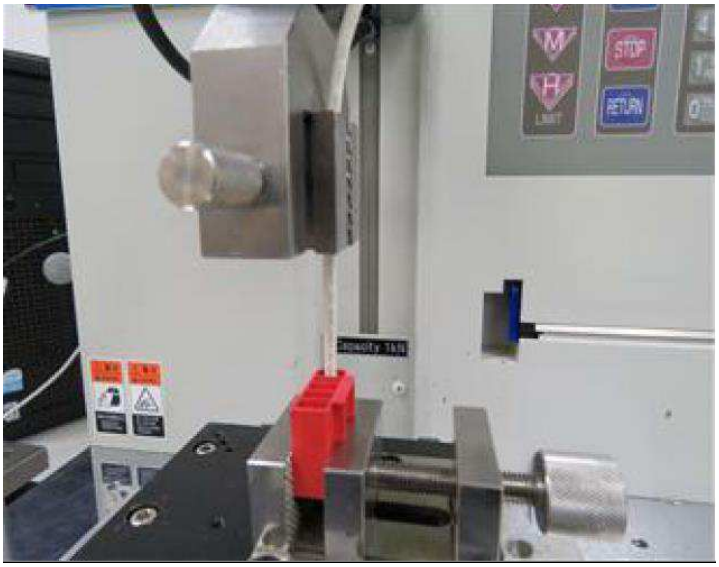

Figure – 7 typical retention force setups

3.5 mold stress test

receptacle housing specimens was exposure to a temperature of 140℃ for a duration of 7.0 hours in a circulating-air oven. Following the exposure, the specimens were removed from the oven and allowed to cool to room ambient temperature before determining compliance. Testing was performed in accordance with UL1977-3th edition.

4. CALIBRATION

4.1 Calibration Statement

All equipment containing a calibration number is calibrated and traceable through TE Connectivity (TE).

4.2 Equipment List

Equipment Name	Calibration Number
Dielectric Strength Tester (Chroma 19073)	E-00057
Load Tester (MAX-1KN-H-2 500N)	E-00017
Temperature Chamber (Espec PHH-201)	E-00

5. VALIDATION

Requested by:

_____ ____/____/____

Product Engineer

TE Connectivity India Pvt Ltd.

Prepared by:

_____ ____/____/____

Test Engineer

Shanghai Electrical Components Test Lab.

Approved by:

_____ ____/____/____

Manager

Shanghai Electrical Components Test Lab

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| Indicates Change