# FASTON RECEPTACLE FLAG HOUS5ING 3P .250 SERIES
# Material Evaluation

## 1. INTRODUCTION

### 1.1 Purpose

Testing was performed on the TE Connectivity FASTON RECEPTACLE FLAG HOUS5ING 3P .250 SERIES 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 22Apr2018 to 08May2018. The associated test number is TP-18-00931.

### 1.3 Conclusion

Based on the test results, all specimens meet the specification. See summary of testing for more details. 1969706-x 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 | 1-1969705-1 | HSG, RECEPT, FLG FASTON, .250 SRS, 3 POS without moisture | 6 | |
| | 63963-1 | FASTON 250 FLAG REC 14 AWG NPST | 18 | |
| 2 | 1-1969705-1 | HSG, RECEPT, FLG FASTON, .250 SRS, 3 POS without moisture | 6 | |
| | 63963-1 | FASTON 250 FLAG REC 14 AWG NPST | 18 | |
| 3 | 1-1969705-1 | HSG, RECEPT, FLG FASTON, .250 SRS, 3 POS with moisture | 6 | |
| | 63963-1 | FASTON 250 FLAG REC 14 AWG NPST | 18 | |

### 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 | | |
| Dielectric withstanding Voltage | 2 | | |
| Contact Intention Force | | 1 | 1 |
| Contact Retention Force | | 2 | 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℃ to 35℃
Relative Humidity: 25% to 75%


| Indicates Change

## 2. SUMMARY OF TESTING

2.1 Dielectric test, 3400V AC

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

Table 3-leakage current, test set 1

| Specimen ID | 1-1 | 1-2 | 1-3 | 1-4 | 1-5 | 1-6 |
|---|---|---|---|---|---|---|
| contact2-contact | NB | NB | NB | NB | NB | NB |
| contact1-housing | NB | NB | NB | NB | NB | NB |
| contact2-housing | NB | NB | NB | NB | NB | NB |
| contact3-housing | NB | NB | NB | NB | NB | NB |

2.2 Contact insertion force test

Refer to table 4 and table 5 for contact insertion force summary data in pounds and figure 1 for typical force plots. Table 4 is the test data for sequence 2, housing without moisture; table 5 is the test data for sequence 3, housing with moisture. All recorded values were below the requirement of 7.0 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 | 4.10 |
| Maximum | 6.37 |
| Mean | 4.96 |
| Standard Deviation | 0.59 |
| N= | 18 |
| Requirement | 7.0lbf Max |

Table 5-Contact insertion force summary data in pounds, test set 3

| Pounds | Contact insertion force |
|---|---|
| Minimum | 3.80 |
| Maximum | 6.44 |
| Mean | 5.11 |
| Standard Deviation | 0.73 |
| N= | 18 |
| Requirement | 7.0lbf Max |

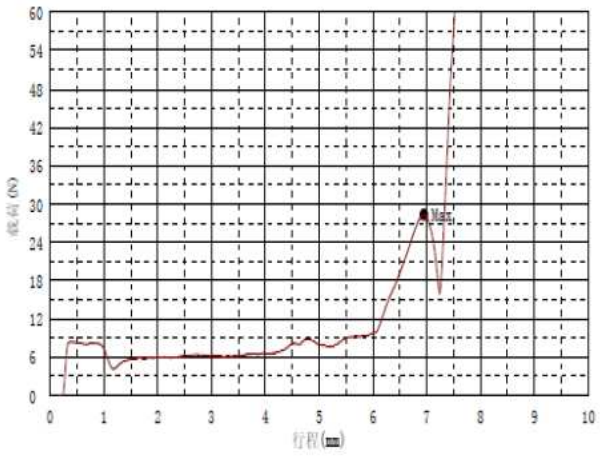


Figure 1- typical contact insertion force profile plot

2.3 Contact retention force

Refer to table 6 and table 7 for contact retention force summary data in pounds and figure 2 for typical retention force profile plot. Table 6 is the retention force test data for sequence 2, housing without moisture; table 7 is the retention force test data for sequence 3, housing with moisture. All recorded values were up the requirement of 15.0 lbf Min for contact retention force per test request.

Table 6-Contact retention force summary data in pounds, test set 2

| Pounds | Contact retention force |
|---|---|
| Minimum | 20.07 |
| Maximum | 28.18 |
| Mean | 22.91 |
| Standard Deviation | 1.79 |
| N= | 18 |
| Requirement | 15.0 lbf Min |

Table 7-Contact retention force summary data in pounds, test set 3

| Pounds | Contact retention force |
|---|---|
| Minimum | 25.34 |
| Maximum | 33.89 |
| Mean | 28.76 |
| Standard Deviation | 2.67 |
| N= | 18 |
| Requirement | 15.0 lbf Min |

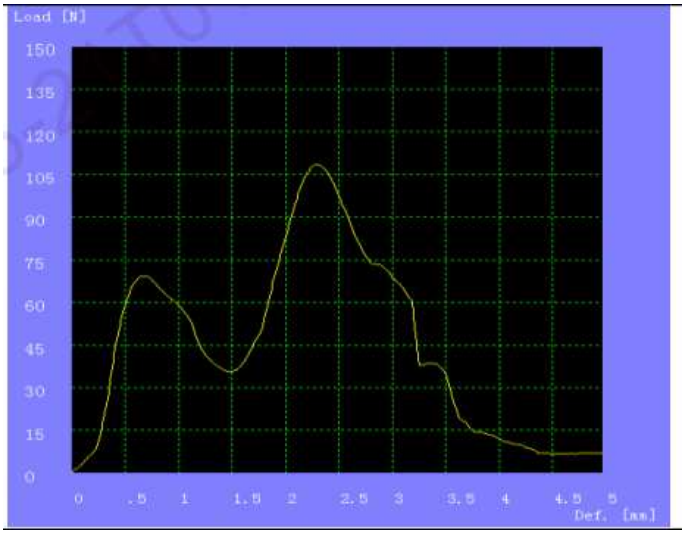

Figure 2- typical retention force profile plot

## 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 B

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.

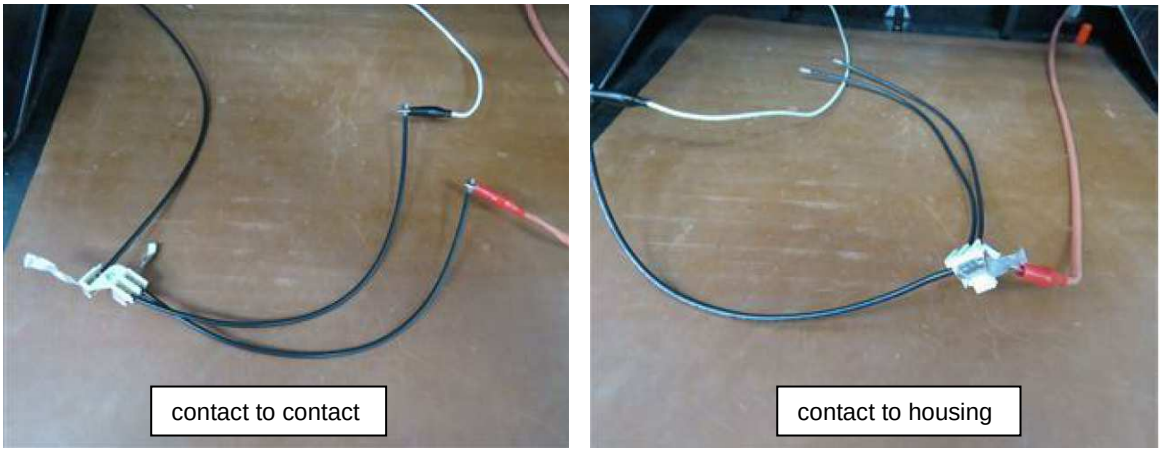

Figure 3- test setup of DWV

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 4 – 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 100mm/min until the terminal was fully removed from the housing. Refer to figure 7 for an image of typical test setup.

Figure – 7 typical retention force setups

## 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 |

## 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.