
FASTON* .187 Ultra-Pod Flag Receptacle Assembly

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the FASTON* .187 Ultra-Pod Flag Receptacle Assembly.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 23Nov04. The Qualification Test Report number for this testing is 501-594. This documentation is on file at and available from Engineering Practices and Standards (EPS).

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. Tyco Electronics Documents

- 109-197: AMP Test Specifications vs EIA and IEC Test Methods
- 114-2124: Application Specification
- 501-594: Qualification Test Report

2.2. Industry Standards

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- UL 310: Electrical Quick Connect Terminals, Standard for

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. Ratings

- Voltage: 600 volts AC
- Temperature: -40 to 105°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per EIA-364.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and Application Specification 114-2124.	Visual and dimensional (C of C) inspection per product drawing.
ELECTRICAL		
Low level contact resistance.	1 milliohm maximum initial. 5 milliohms maximum final.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage.
Withstanding voltage, Test Condition A.	1 minute hold with no breakdown or flashover.	EIA-364-20, Condition I; and UL 310 600 Volt Rating. 3400 volts AC at sea level. Test wired specimens in number 12 lead shot after coating end with insulating material.
Withstanding voltage, Test Condition C.	1 minute hold with no breakdown or flashover.	EIA-364-20, Condition I; and UL 310 600 Volt Rating. 3000 volts AC at sea level. Test specimens on flat metal plate. See Figure 3.
Withstanding voltage, receptacle, tab entry position.	1 minute hold with no breakdown or flashover.	EIA-364-20, Condition I. 1000 volts AC at sea level. Test specimens on flat metal plate. See Figure 4.
Temperature rise vs current.	30°C initial maximum temperature rise at specified current. 45°C final maximum temperature rise at specified current.	EIA-364-70, Method 1. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1°C. See Figure 5.
Current cycling.	See Figure 5.	EIA-364-55. Subject mated contacts to 500 cycles of 45 minutes ON and 15 minutes OFF.

Figure 1 (cont)

Test Description	Requirement	Procedure								
MECHANICAL										
Crimp tensile.	<table border="1"> <thead> <tr> <th>Wire Size (AWG)</th> <th>Crimp Tensile (N [lbf] minimum)</th> </tr> </thead> <tbody> <tr> <td>22</td> <td>35.6 [8]</td> </tr> <tr> <td>20</td> <td>57.8 [13]</td> </tr> <tr> <td>18</td> <td>88.9 [20]</td> </tr> </tbody> </table>	Wire Size (AWG)	Crimp Tensile (N [lbf] minimum)	22	35.6 [8]	20	57.8 [13]	18	88.9 [20]	EIA-364-8. Determine crimp tensile at a maximum rate of 25.4 mm [1 in] per minute.
Wire Size (AWG)	Crimp Tensile (N [lbf] minimum)									
22	35.6 [8]									
20	57.8 [13]									
18	88.9 [20]									
Durability.	See Note.	EIA-364-9. Manually mate and unmate specimens for 6 cycles.								
Contact retention.	Contacts shall not dislodge from its insulator when subjected to a minimum force of 44.5 N [10 lbf].	EIA-364-29. Measure force necessary to push a fully seated contact out of housing at a maximum rate of 12.7 mm [.5 in] per minute.								
Engagement/disengagement force.	See Figure 6.	EIA-364-13. Engage and disengage terminals and tabs 6 times at a maximum rate of 12.7 mm [.5 in] per minute.								
ENVIRONMENTAL										
Humidity-temperature cycling.	See Note.	EIA-364-31, Method III. Subject mated specimens to 10 cycles (10 days) between 25 and 65°C at 80 to 100% RH.								
Temperature life.	See Note.	EIA-364-17, Method A. Subject mated specimens to 118°C for 33 days.								
Heat age.	See Note.	Subject wired specimens to 136°C for 7 days.								

NOTE

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)							
	1	2	3	4	5	6	7	8
	Test Sequence (b)							
Examination of product	1,5	1,4	1,4	1,3	1,3	1,3	1,3	1,9
Low level contact resistance								2,7
Withstanding voltage, Test Condition A		2	3					
Withstanding voltage, Test Condition C				2				
Withstanding voltage, receptacle, tab entry position					2			
Temperature rise vs current	2,4(c)							3,8
Current cycling	3(c)							
Crimp tensile		3						
Durability								4
Contact retention						2		
Engagement/disengagement force							2	
Humidity-temperature cycling								6
Temperature life								5
Heat age			2					

- NOTE** (a) See paragraph 4.1.A.
 (b) Numbers indicate sequence in which tests are performed.
 (c) Temperature rise and voltage drop measurements during current cycling are to be collected simultaneously. Prepare samples in accordance with UL 310.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test group 1 shall consist of 20 specimens of the maximum and minimum wire size and terminal type. Test group 2 shall consist of 20 specimens of each wire size and terminal type. Test groups 3, 4, 5, 6 and 7 shall each consist of 20 specimens of each terminal type. Test group 8 shall consist of 20 specimens of each terminal type per group on the maximum wire size for the intended range of wires. All terminated specimens shall be crimped to the appropriate tin plated test conductors.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

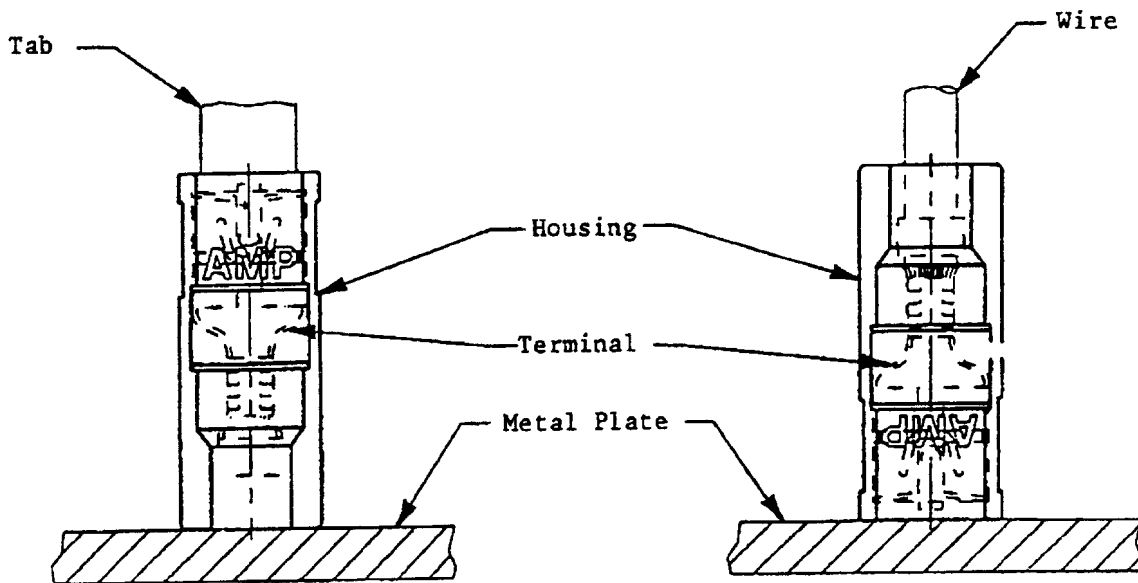


Figure 3
Metal Plate Test Fixture
Dielectric Condition C

Figure 4
Receptacle
Tab Entry Portion

Wire Size (AWG)	Test Current (amperes)		Test Voltage Drop (millivolts maximum)		Temperature Rise	
	Heating	Cycling	24 Cycles	500 Cycles	Heating	Cycling
22	3	6	14	18	30°C maximum initial 45°C maximum final	85°C maximum
18	7	14	17	21		

Figure 5

Tab Size (plain brass)	Force N [lbf]					
	1 st Insertion	1 st Withdrawal			6 th Withdrawal	
	Individual Maximum	Individual Maximum	Average Minimum	Individual Minimum	Average Minimum	Individual Minimum
.187	44.5 [10]	88.9 [20]	22.2 [5]	13.3 [3]	13.3 [3]	8.9 [2]

Figure 6