Ultra-Fast Fully Insulated FASTON* Receptacle Terminals

1. SCOPE

1.1. Content

This specification covers the performance requirements for Ultra-Fast fully insulated FASTON* receptacle terminals. These terminals consist of a FASTON* receptacle body enclosed in a fully insulated housing. They mate with FASTON* tabs on devices used in home entertainment centers, business machines, copying equipment, computer peripherals, appliances, and other commercial equipment.

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.

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 TE Connectivity (TE) Documents

109-1: General Requirements for Test Specifications
114-2123: Application Specification (Ultra-Fast Series)

2.2 Commercial Standards

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
CSA C22.2 No 153: Quick-Connect Terminals
DIN VDE 0627: Connectors and Plug-And-Socket Devices
UL 310: 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

Receptacle body: Brass or phosphor bronze, tin plated
Housing: Nylon type 6/6, UL94 V-2
Tabs (for test purposes): Brass, temper 2, CDA alloy
Wire (for test purposes): Complies with UL310, 600 Volt rating

3.3. Ratings

Voltage Rating: 600 Volts AC maximum

Operating Temperature Rating: 105°C maximum

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical, and environmental performance requirements specified in Figure 1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of Product	Meets requirements of product drawing and TE application specification (114-2123). After testing, there shall be no corrosive influence on the performance and no physical damage that would impair product performance	EIA-364-18 Visual and dimensional (C of C) inspection per the product drawing.
Electrical		
Dielectric Withstanding Voltage, Insulation Puncture Test **(Without pre-conditioning outlined in UL 310 6.6.2.5)**	No breakdown or flashover	UL 310 (600 Volt Rating) Duration: 1 minute 3400 VAC at sea level Test wired terminals in Number 12 shot **(differs from 7 ½ shot dictated in spec)** after coating end with insulating material Rate of Application: 500V per second **Do Not pre-condition as outlined in UL 310 6.6.2.5**
Dielectric Withstanding Voltage, Insulation Puncture Test	No breakdown or flashover	UL 310 (600 Volt Rating) Duration: 1 minute 3400 VAC at sea level Test wired terminals in Number 12 shot **(differs from 7 ½ shot dictated in spec)** after coating end with insulating material Rate of Application: 500V per second
Dielectric Withstanding Voltage, Flashover Test	No breakdown or flashover	UL 310 (600 Volt Rating) Duration: 1 minute 3000 VAC at sea level Test on flat metal plate without wires, See figure 4 Rate of Application: 500V per second
Dielectric Withstanding Voltage, Receptacle, Tab Entry Position	No breakdown or flashover Terminal Size — Applied Voltage (AC) 250 Series — 1000 VAC 187 Series — 1000 VAC 110 Series — 600 VAC	EIA-364-20, Method B, Condition I Duration: 1 minute Test between contact and flat metal plate, See figure 5. Rate of Application: 500V per second

Figure 1 (continued next page)

Temperature Rise vs. Current	Temperature rise at specific current: 20°C (maximum) temperature rise **Wire Size (AWG) / Current (Amperes) .110 / Others** 26: 1 / 1 24: 2 / 2 22: 2 / 3 20: 3 / 4 18: 4 / 7 16: 5 / 10 14: 8 / 15 12: - / 20 10: - / 24	UL 310 A temperature shall be considered to be stable when three successive readings taken at intervals of 5 minutes indicate no further rise above the ambient temperature
Current Cycling	65°C maximum temperature rise. △ Temperature rise between 24 and 500 cycles shall not exceed 15°C on any conductor. **Wire Size (AWG) / Current (Amperes) .110 / Others** 26: 2 / 2 24: 4 / 4 22: 4 / 6 20: 6 / 8 18: 8 / 14 16: 10 / 20 14: 15 / 30 12: - / 40 10: - / 48	UL 310 Subject samples to 500 current cycles of 45 minutes “ON” and 15 minutes “OFF”
Mechanical		
Crimp Tensile	Wire Size (AWG) / Crimp Tensile (lbs. minimum) 26: 4 24: 6 22: 10 20: 16 Above values are less than maximum withdrawal force. See figure 2. 18: 20 16: 30 14: 60 12: 70 10: 80	UL 310 Apply a direct and gradual pull at a rate of 1 inch per minute, 1 minute hold at specified load.
Secureness of Insulation Test (Unassembled)	No separation of the insulation from the terminal body	UL 310 Subject unwired terminals to a 3lb pull **(differs from 1lb pull dictated in spec)** between the insulation and terminal for 1 minute

Figure 1 (continued next page)

Secureness of Insulation Test **(Unassembled - Without pre-conditioning outlined in UL 310 6.7.3)**	No separation of the insulation from the terminal body	UL 310 Subject unwired terminals to a 3lb pull **(differs from 1lb pull dictated in spec)** between the insulation and terminal for 1 minute **Do Not pre-condition as outlined in UL 310 6.7.3**
Secureness of Insulation Test (Assembled)	No separation of the insulation from the terminal body	UL 310 Subject wired terminals to a 6lb pull **(differs from 5lb pull dictated in spec)** between the insulation and terminal for 1 minute
Secureness of Insulation Test **(Assembled - Without pre-conditioning outlined in UL 310 6.7.3))**	No separation of the insulation from the terminal body	UL 310 Subject wired terminals to a 6lb pull **(differs from 5lb pull dictated in spec)** between the insulation and terminal for 1 minute **Do Not pre-condition as outlined in UL 310 6.7.3**
Engagement/Disengagement Force	See Figure 2	UL 310 Engage and disengage terminals and tabs 6 times
Environmental		
Temperature Life (136°C/7 days)	No physical damage detrimental to the product performance	EIA 364-17, Method A Subject wired terminals to 136°C for 7 days

Figure 1 (end)

Tab Size (Plain Brass)	Terminal Plating	Force (lbs.)					
		First Insertion	First Withdrawal			Sixth Withdrawal	
		Individual (max)	Individual (max)	Average (min)	Individual (min)	Average (min)	Individual (min)
.250	Tin	17	17	5	3	4	3
.205/.187		15	20	5	3	3	2
.110		12	14	3	2	2	1

Figure 2

Engagement and Disengagement Forces

3.6. Product Qualification Test Sequence

Test of Examination	TEST GROUP (a)											
	1	2	3	4	5	6	7	8	9	10	11	12
	TEST SEQUENCE (b)											
Examination of product	1,4	1,4	1,4	1,3	1,3	1,3	1,3	1,3	1,3	1,4	1,3	1,3
Dielectric Withstanding Voltage, Insulation Puncture Test **(Without pre-conditioning)**		2	3									
Dielectric Withstanding Voltage, Insulation Puncture Test				2(c)								
Dielectric Withstanding Voltage, Flashover Test					2							
Dielectric Withstanding Voltage, Receptacle, Tab Entry Position						2						
Temperature Rise vs. Current	2											
Current Cycling	3											
Crimp Tensile		3										
Secureness of Insulation Test (Unassembled)									2			
Secureness of Insulation Test (Unassembled-**Without pre-conditioning)**							2					
Secureness of Insulation Test (Assembled)											2(c)	
Secureness of Insulation Test (Assembled-**Without pre-conditioning)**								2		3		
Engagement/Disengagement Force												2
Temperature Life, (136°C/7 days)			2							2		

Figure 3

NOTE

(a) See Para 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

(c) Uncrimped terminals and wires in test groups 4 and 11 shall be conditioned in the environments indicated. After conditioning, each sample is crimped to the appropriate wire and the electrical or mechanical test is performed.

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Terminals and tabs shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1, 2, 3, and 4 shall each consist of 20 samples of each wire size and terminal type per group. Test groups 5, 6, 7, 8, 9, 10, 11, and 12 shall each consist of 20 samples of each terminal type per group. All samples to be terminated shall be crimped to appropriate tin-plated test conductors.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 3.

C. Acceptance

1. Requirements put on the test samples, as indicated in the Requirements portion of Figure 1, exist as either the upper or lower statistical tolerance limit (95% confidence, 98% reliability). All samples tested in accordance with this specification shall meet the stated tolerance limit.
2. Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification.

4.2. Quality Conformance Inspection

The applicable quality inspection plan will 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.

4.3. Certification

This product has been recognized under the Component Recognition Program of Underwriters Laboratories Inc., Electrical File Number E-66717 and certified by Canadian Standards Association File Numbers LR-7189. Also, VDE Testing and Certification Institute, Reference No. 4751_1431_1047.

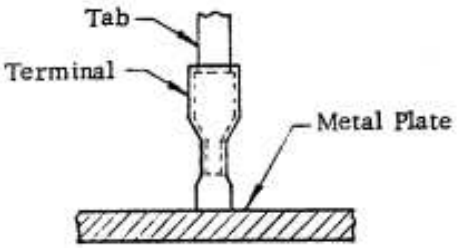

Figure 4
(Dielectric Withstanding Voltage, Flashover Test Setup)

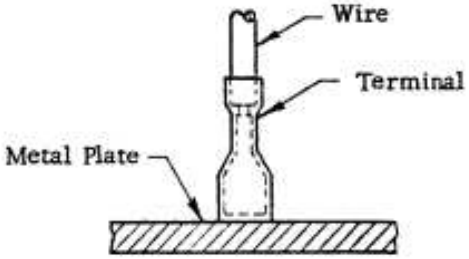

Figure 5
(Dielectric Withstanding Voltage, Receptacle, Tab Entry Position Test Setup)