
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
- 109 Series: Test Specifications as indicated in Figure 1
- 114-2123: Application Specification

2.2. Commercial Standards

- 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, UL 94V-2
- Tabs (for test purposes): Brass, temper 2, CDA alloy
- Wire (for test purposes): Complies with UL 310 Paragraph 7, 600 Volt rating

3.3. Ratings

- Voltage: 600 volts AC maximum
- Operating Temperature: 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 Application Spec 114-2123.	TE Spec 109-1. Visual, dimensional and functional per applicable inspection plan.																																	
ELECTRICAL																																			
Dielectric Withstanding Voltage, Test Condition A.	No breakdown or flashover when 3400 volts AC are applied for 1 minute.	UL 310, 600 Volt Rating. Test wired terminals in Number 12 lead shot.																																	
Dielectric Withstanding Voltage, Test Condition C.	No breakdown or flashover at rear of terminal when 3000 volts AC are applied for 1 minute.	UL 310, 600 Volt Rating. Test on flat metal plate. See Figure 4.																																	
Dielectric Withstanding Voltage, Receptacle, Tab Entry Position.	<table><tr><th>Terminal Size</th><th>Applied Voltage (volts AC)</th></tr><tr><td>250</td><td>1000</td></tr><tr><td>187</td><td>1000</td></tr><tr><td>110</td><td>600</td></tr></table>	Terminal Size	Applied Voltage (volts AC)	250	1000	187	1000	110	600	TE Spec 109-29-1. Test wired terminals on a flat metal plate. See Figure 5.																									
	Terminal Size	Applied Voltage (volts AC)																																	
	250	1000																																	
	187	1000																																	
	110	600																																	
No breakdown or flashover, 1 minute hold.																																			
Heating (Temperature Rise).	<table><tr><th>Wire Size (AWG)</th><th colspan="2">Current (amperes)</th></tr><tr><th></th><th>.110</th><th>Others</th></tr><tr><td>26</td><td>1</td><td>1</td></tr><tr><td>24</td><td>2</td><td>2</td></tr><tr><td>22</td><td>2</td><td>3</td></tr><tr><td>20</td><td>3</td><td>4</td></tr><tr><td>18</td><td>4</td><td>7</td></tr><tr><td>16</td><td>5</td><td>10</td></tr><tr><td>14</td><td>8</td><td>15</td></tr><tr><td>12</td><td>—</td><td>20</td></tr><tr><td>10</td><td>—</td><td>24</td></tr></table>	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. Stabilize at specified current and measure 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																																	
20°C maximum temperature rise.																																			

Figure 1 (continued)

Test Description	Requirement			Procedure
Heat Cycling (Current Cycling).	Wire Size (AWG)	Current (amperes)		UL 310. Subject samples to 500 current cycles of 45 minutes ON and 15 minutes OFF.
		.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		
65°C maximum temperature rise. Δ Temperature rise between 24 and 500 cycles shall not exceed 15°C on any conductor.				
MECHANICAL				
Pull Out (Crimp Tensile).	Wire Size (AWG)	Tensile (Lbs minimum)		UL 310. Apply a direct and gradual pull at a rate of 1 inch per minute, 1 minute hold at specified load.
	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			
Secureness of Insulation (Unassembled).	No separation of the insulation from the terminal body.			UL 310. Subject unwired terminals to a 3 pound pull between the insulation and terminal for 1 minute.
Secureness of Insulation (Assembled).	No separation of the insulation from the terminal body.			UL 310. Subject wired terminals to a 6 pound pull between the insulation and terminal for 1 minute.
Engagement-Disengagement (Engaging-Separating).	See Figure 2.			UL 310. Engage and disengage terminals and tabs 6 times.
ENVIRONMENTAL				
Heat Age, 136°C.	Meet Dielectric Withstanding Voltage, Test Condition A; and Secureness of Insulation (assembled and unassembled).			UL 310. Subject terminals to 136°C for 7 days.
Heat Age/Humidity.	Meet Dielectric Withstanding Voltage, Test Condition A.			UL 310. Subject unwired terminals to 100°C for 7 days followed by 85% RH at 30°C for 24 hours.

Figure 1 (end)

Tab Size (Plain Brass)	Terminal Plating	Force (pounds)					
		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. Terminal Tests and Sequences

Test or Examination	Test Group (a)											
	1	2	3	4	5	6	7	8	9	10	11	12
	Test Sequence (b)											
Examination of Product	1	1	1	1	1	1	1	1	1	1	1	1
Dielectric Withstanding Voltage, Test Condition A		2	3	3(c)								
Dielectric Withstanding Voltage, Test Condition C					2							
Dielectric Withstanding Voltage, Receptacle, Tab Entry Position						2						
Heating (Temperature Rise)	2											
Heat Cycling (Current Cycling)	3											
Pull Out (Crimp Tensile)		3										
Secureness of Insulation (Unassembled)							2		3			
Secureness of Insulation (Assembled)								2		3	3(c)	
Engagement-Disengagement (Engaging-Separating)												2
Heat Age, 136°C			2							2		
Heat Age/Humidity				2					2		2	

NOTE

- (a) See paragraph 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.

Figure 3

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 samples 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 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.

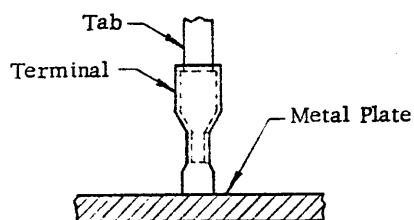


Figure 4
Metal Plate Test Fixture

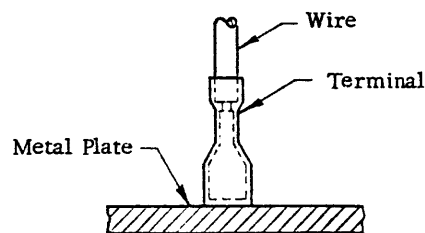


Figure 5
Tab, Receptacle Entry Position