
**Alternate Material Two Circuit Heavy Duty Burner
Connector**

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the Tyco Electronics Alternate Material Two Circuit Heavy Duty Burner Connector which provides a reliable means of connect/disconnect for range surface burner units.

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 15Dec06. The Qualification Test Report number for this testing is 501-165-2. 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

- 108-1056: Product Specification (Two Circuit Heavy Duty Burner Connector)
- 109-197: Test Specification (AMP Test Specifications vs EIA and IEC Test Methods)
- 114-1028: Application Specification (Heavy Duty Burner Connectors)
- 501-165: Qualification Test Report (Two Circuit Heavy Duty Burner Connector)
- 501-165-2: Qualification Test Report (Alternate Material Two Circuit Heavy Duty Burner Connector)

2.2. Industry Document

EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

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: 300 volts AC
- Current: See Figure 4 for applicable current carrying capability
- Temperature: -40 to 200°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.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing.	EIA-364-18. Visual and dimensional (C of C) inspection per product drawing.
Final examination of product.	Meets visual requirements.	EIA-364-18. Visual inspection.
ELECTRICAL		
Low Level Contact Resistance (LLCR).	ΔR 5 milliohms maximum.	EIA-364-23. Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage. See Figure 3.
Current cycling.	See Note.	EIA-364-55, Condition B, Test Method 2. Subject specimens to 3500 cycles at 11.25 amperes DC for 15 minutes ON and 15 minutes OFF.
Temperature rise vs current.	30°C 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 4.
MECHANICAL		
Random vibration.	See Note.	EIA-364-28, Test Condition VII, Condition Letter D. Subject mated specimens to 2.22 G's rms between 5 to 500 Hz. Two hours in each of 3 mutually perpendicular planes. See Figure 5.

Figure 1 (continued)

Test Description	Requirement	Procedure								
Mechanical shock.	See Note.	EIA-364-27, Condition A. Subject mated specimens to 50 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 5.								
Mating force.	12 pounds maximum.	EIA-364-13. Measure force necessary to mate specimens at a maximum rate of 1 inch per minute.								
Unmating force.	1.5 pounds minimum.	EIA-364-13. Measure force necessary to unmate specimens at a maximum rate of 1 inch per minute.								
Contact insertion force.	6 pounds maximum per contact.	EIA-364-5. Measure force necessary to insert contact into housing.								
Contact retention.	Contacts shall not dislodge.	EIA-364-5. Apply axial load of 25 pounds to the contact and hold for 60 seconds.								
Crimp tensile.	<table border="1"> <thead> <tr> <th>Wire Size (AWG)</th> <th>Crimp Tensile (pounds minimum)</th> </tr> </thead> <tbody> <tr> <td>18</td> <td>30</td> </tr> <tr> <td>16</td> <td>45</td> </tr> <tr> <td>14</td> <td>60</td> </tr> </tbody> </table>	Wire Size (AWG)	Crimp Tensile (pounds minimum)	18	30	16	45	14	60	EIA-364-8. Determine crimp tensile at a maximum rate of 1 inch per minute.
Wire Size (AWG)	Crimp Tensile (pounds minimum)									
18	30									
16	45									
14	60									
Durability.	See Note.	EIA-364-9. Mate and unmate specimens for 3500 cycles at a maximum rate of 600 cycles per hour.								
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, Test Condition 7, Test Time Condition C. Subject mated specimens to 200°C for 500 hours.								

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
	Test Sequence (b)		
Initial examination of product	1	1	1
LLCR	3,7	3,8	
Current cycling			3
Temperature rise vs current		4,9	2,4
Random vibration	5	7(c)	
Mechanical shock	6		
Mating force	2		
Unmating force	8		
Contact insertion force		2	
Contact retention		11	
Crimp tensile (d)	9		
Durability	4		
Humidity/temperature cycling		5(e)	
Temperature life		6	
Final examination of product		10	5

NOTE

- (a) See paragraph 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.
- (c) Discontinuities not measured.
- (d) Terminal removed from housing
- (e) Precondition specimens with 10 durability cycles.

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 5 assemblies loaded with 1 contact on 18 AWG wire and 1 contact on 16 AWG wire. Test group 2 shall consist of 5 assemblies (10 contacts) on 18 AWG wire and 5 assemblies (10 contacts) on 14 AWG wire. Test group 3 shall consist of 5 assemblies (10 contacts) on each wire size.

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.

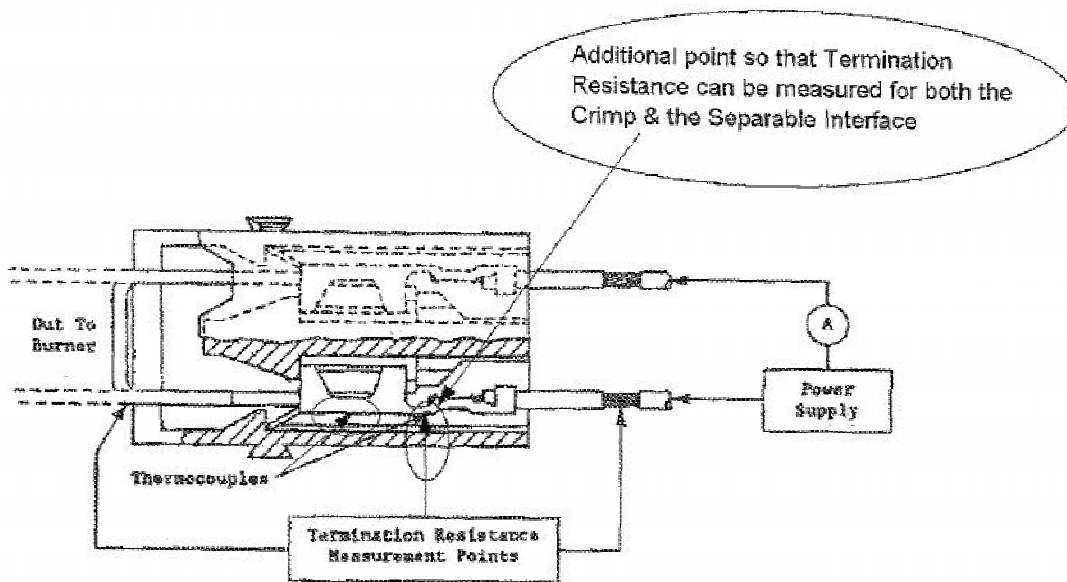


Figure 3
Temperature and Resistance Measurement Points

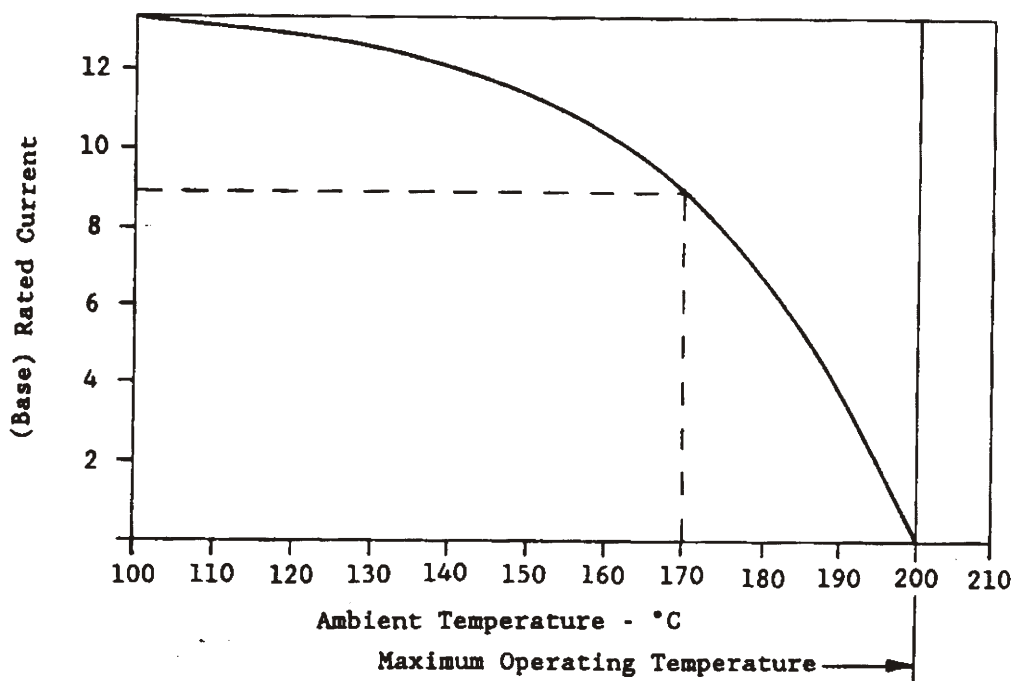


Figure 4
Current Carrying Capability

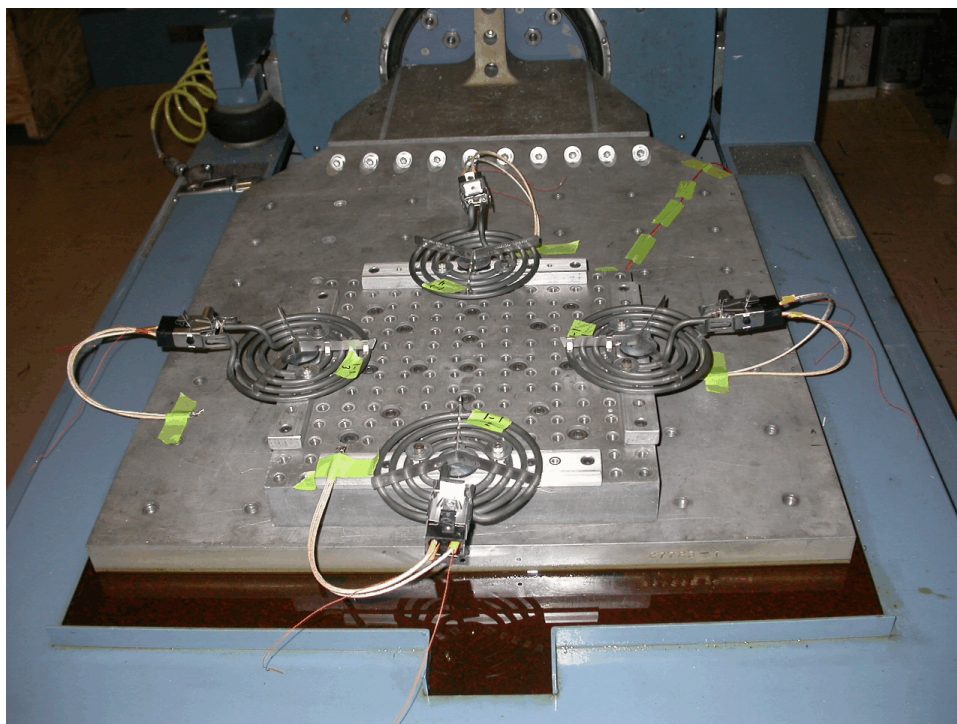


Figure 5
Vibration & Mechanical Shock Mounting Fixture