



## Motor Connector with .125 Blade Receptacle (GWT)

### 1. Scope

#### 1.1 Content

This specification covers performance, tests and quality requirements for the AMP motor connector. This connector is designed to mate directly with a variety of appliance timing mechanisms which incorporate the use of a .125 inch wide X .020/.025 inch thick tab.

#### 1.2 Qualification

When tests are performed on the subject product line, procedure 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. 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 AMP Documents

- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Government or Commercial Documents
- D. 114-49003: Application Specification

### 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 Material

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

- A. Housing : PC/PET(UL94V-0)
- B. Terminal : Tin Plating , Brass



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## 3.3 Ratings

- A. Voltage: 250v ac
- B. Current: See Figure 4 for applicable current carrying Capability
- C. Temperature: -55 to 105 °C

## 3.4 Test Requirements and Procedures Summary

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 AMP Specification 109-1.

## 3.5 Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements product drawing and AMP Spec 114-49003.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Millivolt drop.	36 mV maximum after 24 current cycles. 54 mV maximum after 500 current cycles.	AMP Spec 109-3. Subject mated contacts to 12 amperes AC.
Dry circuit resistance.	4.5 milliohms maximum	AMP Spec 109-6-6. Subject samples to 20mv maximum open circuit at 100 ma maximum. See Figure 3.
Dielectric with standing voltage.	1240 v AC at sea level. 1 minute hold with no breakdown or flashover.	AMP Spec 109-29-1. Test between adjacent contact of unmated samples
Temperature rise vs current.	30°C maximum temperature rise at 10 amperes.	AMP Spec 109-45-2. Measure temperature rise vs current. See Figure 4.



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Test Description	Requirement		Procedure
Current cycling.	Temperature increase between cycle 24 and cycle 500 shall be 15°C maximum. No individual temperature rise See Note.		AMP Spec 109-51. Subject mated samples to 500 current cycles of 45 minutes ON and 15 minutes OFF with a 12 ampere test current.
MECHANICAL			
Contact Insertion force.	125	1.0 Kg Max.	AMP Spec 109-41. Condition A, Measure the force required to insert contact into a connector housing
	250	2.0 Kg Max.	
Contact Retention force.	125	4.0 Kg Min.	AMP Spec 109-30. Apply an axial pull-off load to crimped wire at a maximum rate of 0.5 inch per minute.
	250	6.0 Kg Min.	
Connector Mating force.	10.0 Kg Max.		Operation speed: 100mm/min Measure the force required to mate connectors. AMP Spec.:109-5206 Condition B
Connector Unmating force.	2.0 Kg Min.		Operation speed: 100mm/min Measure the force required to unmate connectors without housing lock. AMP Spec.:109-5206 Condition B



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Test Description	Requirement	Procedure
ENVIRONMENTAL		
Environmental sequence.	See Note.	Subject samples to the following: 24hours at 70°C and 0 to 10% RH. 24 hours at -40°C 24 hours at 40°C and 96 ±2% RH. Seven cycles of the following: 2.5 hour transition from 25°C to 70°C at 96±2% RH. 3.0 hours steady state at 70°C and 96±2% RH. 2.5 hour transition from 70°C to 25°C at 96±2% RH. 2.5 hour transition from 25°C to 70°C at 96±2% RH. 3.0 hour steady state at 70°C and 96±2% RH. 2.5 hours transition from 70°C to 25°C at 96±2% RH. 1.0 hours steady state at 25°C and 96±2% RH. 1.5 hour transition from 25°C to -40°C at uncontrolled RH. 3.0 hour steady state at -40°C and uncontrolled RH. 1.5 hour transition from -40°C to 25°C at uncontrolled RH. 1.0 hour steady state at 25°C and 96±2% RH.

**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 Test Sequence

Test of Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1,4	1,4	1,5	1,7	1,9
Millivolt drop			2,4	2,5	2,6
Dry circuit resistance					3,7
Dielectric withstanding voltage				3,6	4,8
Temperature rise vs current				4	
Current cycling			3		
Contact insertion force	2				
Contact retention force	3				
Connector mating force		2			
Connector unmating force		3			
Environmental sequence					5

**NOTE**

- (a) See Para 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.

Figure 2

## 4. Quality Assurance Provisions

### 4.1 Qualification Testing

#### A. Sample Selection

Samples shall be prepared in accordance with applicable Sheets and shall be selected at random from current production. Test groups 1,2,3,5,6 and 7 shall each consist of a minimum of 20 data points. Test group 4 shall consist of a minimum of 10 data point. Where specified, all contacts shall be mated to tinned male tabs .020/.025 inch X.125 inch.

#### B. Test Sequence

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

### 4.2 Requalification Testing

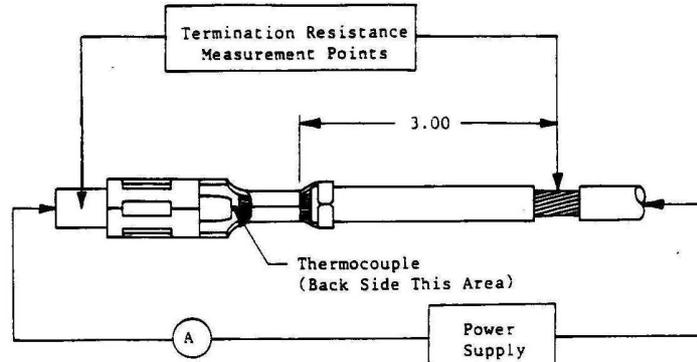
If changes significantly affecting form, fit or function are made to the product for manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

#### 4.3 Acceptance

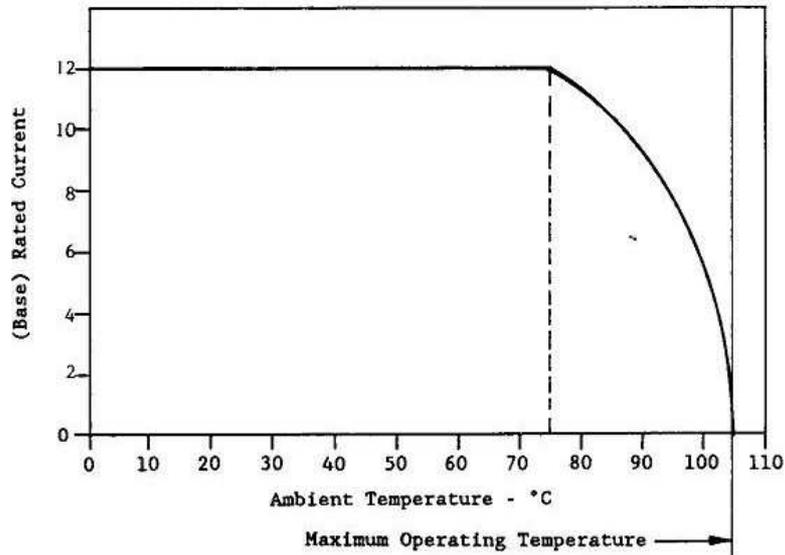
Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing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

#### 4.4 Quality Conformance Inspection

The applicable AMP 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.



Note: Termination resistance = Total resistance - resistance in 3 inches of wire.



Single Circuit,  $I_{RMS}$  or  $I_{DC}$ , 14 Gage Wire, Continuous Operating

Figure 4A

Percent Connector Loading	Wire Size AWG		
	18	16	14
Single Contact	.78	.88	1
25	.67	.75	.86
50	.56	.68	.73
75	.52	.59	.67
100	.48	.54	.62

**NOTE**

To determine acceptable current carrying capacity for percentage connector loading and wire gage indicated, use the Multiplication Factor (F) from the above chart and multiply it times the base rated Current for a single circuit at the maximum ambient operating temperature as shown in Figure 4A.

Figure 4B  
Current Rating