1. SCOPE

1.1. CONTENTS

A. This specification covers the requirements for product performance, test methods and quality assurance provisions of Wire-To–Board Series Connector.

B. The applicable product descriptions and part number are as shown below, Table 1:

Product Part No.	Descriptions	
X- 440146 -X	Receptacle Assembly, Housing.	Circuit Position.
X- 440147 -X	CRIMP Terminal.	Applicable wire: AWG#28-32.

Table 1

1.2. QUALIFICATION

A. When tests are performed on the subject product line, the procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS AND SPECIFICATIONS

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.

A. 109-1: General Requirements for Test Specifications.

B. 109 series: Test Specification (Comply with MIL-STD-202).

C. Corporate Bulletin 401-76: Cross-reference between AMP test Specifications and Military or Commercial Documents.

D. 501-57229: Test Report.

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

A. Housing: Thermoplastic High Temperature, UL94V-0.

B. Contact: Copper Alloy, Gold plating on contact area, Tin-lead plated on soldertails, Nickel underplated all over.

3.3. RATINGS

A. Voltage: 100 VAC

B. Operating Temperature: -40°C to + 85°C

C. Current: AWG#28: 1A, per contact
AWG#30: 1A, per contact
AWG#32: 0.8A, per contact

3.4. TEST CONDITION

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

3.5. TEST REQUIREMENTS AND PROCEDURES SUMMARY

NO.	TEST ITEMS	REQUIREMENTS		PROCEDURES
3.5.1	Conformity of Product physical requirements	Product shall conform to the requirements of applicable Product Drawing and Application Specification		Visually, inspected per applicable quality inspection plan.
ELECTRICAL PERFORMANCE REQUIREMENTS				
3.5.2.1	Termination Resistance	Initial	20m ohms max.	Subject mated contacts assembled in housing to closed circuit current of 50mA max at open circuit voltage of 50mV max.
		Final	40m ohms max.	
3.5.2.2	Insulation Resistance	100M ohms min. (Initial) 10M ohms min (Final)		Measure by applying test potential between adjacent contacts, and between the contacts and ground in the mated connector assembly. MIL-STD-202, Method 302, Condition B
3.5.2.3	Dielectric Strength	Connector must withstand test potential of 250VAC for 1 min.		Measure by applying test potential between adjacent contacts, and between the contacts and ground in the mated connector assembly. MIL-STD-202, Method 301
MECHANICAL PERFORMANCE REQUIREMENTS				
3.5.3.1	Mating/ Unmating Force	Circuit Pos	Mating N (kgf max)	Unmating N (kgf min)
		2 pos	24.5N (2.5kgf)	1.77N (0.18kgf)
		8 pos	53.9N (5.5kgf)	4.22N (0.43kgf)
		15 pos	88.2N (9.0kgf)	6.28N (0.64kgf)
				Subject terminated contact and pin to mate and unmate to measure the force required to insert and extract by operating at a rate of 25mm a minute.
3.5.3.2	Durability	Termination resistance ?R=10mO shall be met. See Note		Subject connector assembly to 50 cycles of repeated mating / unmating at a rate of 10 cycles a minute.
3.5.3.3	Terminal/Housing Retention Force	800 gf min. per contact		Apply axial load to terminated contact at a rate of 25mm a minute.
3.5.3.4	Tensile Strength of Wire Termination	AWG#28-14.7N (1.5kgf)min. AWG#30-9.8N (1.0kgf)min. AWG#32-4.9N (0.5kgf) min.		Apply axial load to terminated contact at a rate of 100mm a minute.
3.5.3.5	Single PIN Insertion and withdrawal force	Insertion Force standard 4.9N(0.5kgf). Withdrawal force standard 0.49N(0.05kgf)		Apply axial load to terminated contact at a rate of 25mm a minute.

3.5.3.6	PIN Retention Force	Retention force standard 4.9N(0.5kgf) min.	Apply axial load to terminated contact at a rate of 25mm a minute.
ENVIRONMENTAL PERFORMANCE REQUIREMENTS			
3.5.4.1	Temperature Life (Heat Aging)	Termination resistance (low level) shall be met. No Physical damage	Subject mated connector assemblies to temperature life at 85°C±2°C for 96hours.
3.5.4.2	Humidity, Steady State	Insulation Resistance (Final) 500 Mohms min. Termination resistance (low level) shall be met. No Physical damage	Subject mated connectors to steady state humidity at 60°C±2°C and 90-95% R.H for 96hrs
3.5.4.3	Salt Spray	30mΩ Max (Final) No Physical damage	Exposing in a heat chamber at a temperature of 35°C±2°C for 48 hours. EIA-364-26A, condition A.
3.5.4.4	Solderability	The contact solder tails should be covered by a continuous new solder coating for 95% Minimum of affected area.	Subject contacts to solderability testing, as specified and solder transfer at 230±5°C for 3~5sec MIL-STD-202, Method 208
3.5.4.5	Resistance to Soldering Heat	No Physical damage	Subject connector mounted on printed circuit boards to solder bath at 260±5°C for 10±2 seconds (Flow soldering). At 350±5°C for 3±1 seconds (Manual soldering). MIL-STD-202, Method 210, Condition C

Figure 1

NOTE: Shall meet visual requirements, show no physical damages.

3.6. PRODUCT QUALIFICATION AND REQUALIFICATION TEST

Para Ref	Test of Examination	Test Group					
		A	B	C	D	E	F
		Test Sequence (a)					
3.5.1	Examination of Product	1,10	1,6	1,5	1,5	1,4	1,5
3.5.2.1	Termination Resistance	2,8		2,4	2,4		
3.5.2.2	Insulation Resistance		2,5				
3.5.2.3	Dielectric Withstanding Voltage		3				
3.5.3.1	Mating/ Unmating Force	3,4,6,7					
3.5.3.2	Durability	5					
3.5.3.3	Terminal/Housing Retention Force	9					
3.5.3.4	Tensile Strength of Wire Termination						2
3.5.3.5	Single PIN Insertion and withdrawal force						3
3.5.3.6	PIN Retention Force						4
3.5.4.1	Temperature Life				3		
3.5.4.2	Humidity, Steady State		4				
3.5.4.3	Salt Spray			3			
3.5.4.4	Solderability					2	
3.5.4.5	Resistance to Soldering Heat					3	

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

(b) Discontinuities shall not be measured.