WIRE TO BOARD WAFER, P=1.2mm TOP ENTRY CONNECTOR

1. SCOPE

1.1. Contents

This specification covers the performance, tests and quality requirements for the Tyco Electronics WIRE TO BOARD WAFER, P=1.2mm TOP ENTRY CONNECTOR

1.2. Qualification

When tests are performed on the subject product line, the procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENT

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

- 109-1: General Requirements for Test Specifications
- 109-197：Test Specification（AMP Test Specifications vs EIA and IEC Test Methods）
- 501-57979：Test Report

2.2. Industry Standard

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 product shall be as specified on the applicable product drawing.

3.3. Ratings

A. Voltage：50 VAC rms.

B. Current：2 A For AWG#28

C. Temperature：- 25℃ to 85℃

3.4. Performance and Test description

The 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 EIA-364.

3.5. Test Requirements and Procedures Summary

TEST ITEM		REQUIREMENT	PROCEDURE
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.
ELECTRICAL REQUIREMENT			
2	Contact Resistance	20 m Ohm Max(Initial) 40 m Ohm Max(Final)	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA Max. Wire to used:AWG#30~AWG#28 EIA-364-23B.
3	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 0.5 mA Max.	500 VAC for 1minute Test between adjacent circuits of unmated connector. EIA-364-20B
4	Insulation Resistance	100 M Ohm Min.(Initial) 100 M Ohm Min.(Final)	Impressed voltage 500 VDC. Test between adjacent circuits of unmated connector. EIA-364-21C.
5	Temperature Rising	30℃ Max. Under loaded rating current.	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value.
MECHANICAL REQUIREMENT			
6	Mating Force	See Note 3	Operation Speed： 1~5 mm/min. Measure the force required to mate connector. EIA-364-13B
7	Un-mating Force	See Note 3	Operation Speed： 1~5 mm/min. Measure the force required to un-mate connector. EIA-364-13B
8	Durability	See Note	Operation Speed： 1~5 cycle/min. Durability Cycles：30 Cycles EIA-364-9C
9	Vibration	No electrical discontinuity greater than 1μsec shall occur. See Note 1.	Subject mated connectors to 10-55-10Hz traversed in 1minutes at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes. EIA-364-28D
10	Mechanical Shock	No electrical discontinuity greater than 1μsec shall occur. See Note 1.	Accelerate Velocity：490m/s^2 （50G） Waveform：Half-sine shock plus Duration：11msec. No. of Drops：3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. EIA-364-27B
11	Solder ability	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning： 1. Intended for nontin and nontin-alloy lead-finishes for 93+3/-5℃、1hrs. <JESD22-B102D, Condition C> Solder pot temperature: 245±5℃, 5sec.

Figure 1（Cont.）

ENVIRONMENTAL REQUIREMENTS			
TEST ITEM		**REQUIREMENT**	**PROCEDURE**
12	Resistance to Reflow Soldering Heat [See Note 2]	No physical damage shall occur.	Pre-soak condition, 85℃/85%RH for 168 hours. Pre Heat：150~180℃, 90±30sec. Heat：230℃ Min., 30±10sec. Peak Temp.：260+0/-5℃, 20~40sec. Duration：3 cycles Test spec. 109-201, Condition B, Fig 3.
13	Thermal Shock	See Note 1	Mated Connector -55+/-3℃ (30 min.), +85+/-2℃ (30 min.) Perform this cycle, repeat 5 cycles EIA-364-32C
14	Humidity-Temperature Cycle	See Note 1	Mated Connector 25~65℃, 90~95% RH, 10 Cycles, EIA-364-31B.
15	Temperature Life (Heat Aging)	See Note 1.	Mated Connector 85℃, 250 hours, EIA-364-17B.
16	Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed.	Subject mated connectors to 35+/-2 ℃ and 5+/-1% salt condition for 48hours. After test, rinse the sample with water and recondition the room temperature for 1 hour. EIA-364-26B.

Figure 1（End）

Note 1：Shall meet visual requirements, show no physical damage, and meet requirement of additional tests as specified in the test sequence in Figures 2

Note 2：Resistance to soldering process is indicated on notes of customer drawing. Select the appropriate test type which drawing notes are matched with.

Note 3：MATING & UNMATING FORCE REQUIREMENT：

NO. OF CONTACT	INITIAL								FINAL			
	MATING FORCE(MAX)				UNMATING FORCE(MIN)				UNMATING FORCE(MIN)			
2	10	N	1.02	Kgf	2.5	N	0.26	Kgf	1.0	N	0.10	Kgf
3		N		Kgf								
4		N		Kgf								
5	14	N	1.43	Kgf	3.0	N	0.31	Kgf	1.5	N	0.15	Kgf
6		N		Kgf								

3.6. Product Qualification and Requalification test

Test or Examination	Test Group								
	A	B	C	D	E	F	G	H	I
	Test Sequence（a）								
Examination of Product	1,7	1,3	1,6	1,9	1,5	1,5	1,9	1,3	1,3,5
Contact Resistance	2,8		2,5	4,6	2,4	2,4	4,6		
Dielectric withstanding Voltage				3,8			3,8		
Insulation Resistance				2,7			2,7		
Temperature Rising		2							
Mating Force	3,6								
Un-mating Force	4,7								
Durability	5								
Vibration			4						
Mechanical Shock			3						
Solder ability						3			
Resistance to Soldering Heat									2,4
Thermal Shock					3				
Humidity Temperature Cycling				5					
Temperature Life							5		
Salt Spray								2	

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

（b）Discontinuities shall not take place in this test group, during tests.

Figure 2

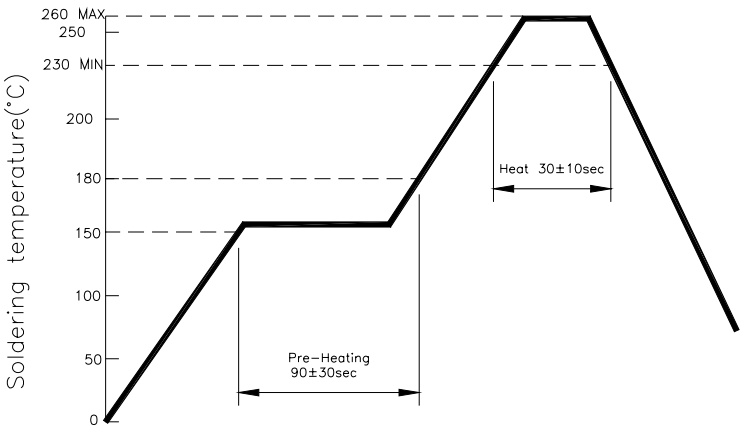

Figure 3. Resistance to flow solder heat