

## 2.54mm Pitch Pin Header Series

### 1.0 Scope

This specification covers the requirements for product performance and test methods of WAYCONN's 2.54mm Pitch Header Series Connectors of the part numbers specified as below.

Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

### 2.0 Rating

2.1 Voltage Rating : 250V AC/DC

2.2 Current: 3Amp

2.3 Temperature Range:

Storage : -20°C to +70°C.

Operating : -40°C to +105°C.

### 3.0 Material and Finish:

All tests shall be performed as below conditions unless otherwise specified.

3.1 Housing: PBT/ PA6T/ LCP Thermal Plastic (Refer to the drawing)

3.2 Contact: Phosphor Bronze/ Copper Alloy (Refer to the drawing)

3.3 Finish: Plating refer to the drawing

### 4.0 Test Methods and Requirements:

4.1 Examination of product:

4.1.1 **Examination of product (Outward Appearance Structure)**

#### Test Method and Condition:

With eyes in accordance with drawing. Confirmed by using proper measuring instruments. The test shall be accordance with **EIA 364-18**.

#### Requirement:

1. Outward appearance shall be good without such injurious problem;
  2. Structure shall be meet the design and dimensional requirements of drawing.
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**4.2 Electrical Performance**

4.2.1 **Low Level Contact Resistance**

**Test Method and Condition:**

Subject mated contacts assembled in housing to 20mV maximum open circuit at 100 mA maximum. The object of this test is to detail a standard method to measure the electrical resistance across a pair of mated contacts such that the insulating films, if present will not be broken or asperity melting will not occur. The test shall be accordance with **EIA 364-23** (or MIL-STD-1344A, Method 3002.1, Test Condition B)

**Requirement:**

1. Initial: 30 mΩ Max.
2. After test: 30 mΩ Max.

4.2.2 **Insulation Resistance**

Test Method: Test between adjacent contacts of mated and unmated connector assemblies. The object of this test procedure is to detail a standard method to assess the insulation resistance of 2.54mm Pitch Pin Header. This test procedure is used to determine the resistance offered by insulation connector to a DC potential current through or on the surface of the members. The test shall be accordance with **EIA 364-21** (or MIL-STD-202F, Method 302, Test Condition B)

**Requirement:**

1. Initial: 1000 mΩ Min.
  2. After test: 1000 mΩ Min.
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### 4.2.3 Dielectric Withstanding Voltage

#### Test Method and Condition:

Test between adjacent contacts of mated and unmated connector assemblies. The object of this test procedure is to detail a test method to prove that a 2.54mm Pin Header can operate safely at its rated voltage and withstand momentary over potentials due to switching, surges and/or other similar phenomena. The test shall be accordance with **EIA 364-20** (or MIL-STD-202F, Method 301, Test Condition B)

#### Requirement:

1. 500 V AC for one minute at sea level
2. No flashover or insulation breakdown

### 4.2.4 Contact Current Rating

Test Method: When measured at an ambient temperature of 25°C. With Power applied to the contacts, the  $\Delta T$  shall not exceed 60°C (at any point in the 2.54mm Pin Header under test)

The object of this test procedure is to detail a standard method to assess the current carrying capacity of mated 2.54mm Female Header contacts. The test shall be accordance with **EIA 364-70 Method B**

#### Requirement:

1. 1A at 50°C.

## 4.3 Mechanical Performance

### 4.3.1 Durability

#### Test Method and Condition:

Fully mating and unmating the contacts for 300 cycles at rate of 25.4mm/min. The object of this test procedure is to detail a uniform test method for determining the effects caused by subjecting a 2.54mm Pin Header to the conditioning action of inserting and extraction, simulating the expected life of the connectors. Durability cycling with a gauge is intended only to produce mechanical stress. Durability performed with mating components is intended to produce both mechanical and wear stress. The test shall be accordance with **EIA 364-09**.

#### Requirement:

- 1.No evidence of damage and meeting electrical performances.
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### 4.3.2 Connector Insertion Force

#### **Test Method and Condition:**

Measured with Tension gauge and Tension tester. At a rate of 25.4mm/min. The object of this test is to detail a standard method for determining the mechanical forces required for inserting a 2.54mm Pin Header. The test shall be accordance with **EIA 364-13**

#### **Requirement:**

1. 300gf Max./Pin

### 4.3.3 Connector Unmating Force

**Test Method and Condition:** Measured with Tension gauge or Tension tester. Measure the force required to unmate assemblies at a rate of 25.4mm/min. The object of this test is to detail a standard method for determining the mechanical forces required for extracting a 2.54mm Pin Header. The test shall be accordance with **EIA 364-13**

#### **Requirement:**

1. 20gf Min./Pin

### 4.3.4 Contact Retention Force

**Test Method and Condition:** Measured with Tension gauge or Tension tester in same direction. Measure force required to mate assemblies at a rate of 25.4mm/min.

#### **Requirement:**

1. 300gf /Min.

### 4.4.1 Salt Spray

#### **Test Method and Condition:**

MIL-STD-202F, Method 101D, Test Condition B Subject to 4 hours(Tin plated) at 35°C with 5% Salt-solution concentration.

#### **Requirement:**

1. Meeting visual requirement, no physical damage.
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### 4.4.2 Solderability

#### Test Method and Condition:

Subject unmated 2.54mm Pin Header connectors shall be tested according to the condition list below:

1. Steam Aging Temperature: 90 ~ 96°C
2. Steam Aging Duration: 8 Hours  $\pm$ 5 min
3. Soldering Temperature: 245 $\pm$ 5°C
4. Soldering Time: 4~5 sec.

The object of test procedure is to detail a uniform test methods for determining the solderability of 2.54mm Pin Header. The test shall be accordance with EIA 364-52

#### Requirement:

1. The surface of the portion to be soldered shall at least 95% covered with new solder coating.

### 4.4.3 Resistance to Soldering Heat

#### Test Method and Condition:

1. PBT Thermoplastic can be withstand 215 $\pm$ 5°C Temperature of Tin Pass Wave Soldering.  
(Time:5S $\pm$ 1S - DIP Type)
2. PA46 Thermoplastic can be withstand 235 $\pm$ 5°C Temperature of Tin Pass Wave Soldering.  
(Time:5S $\pm$ 1S - DIP Type)
3. PA46 Thermoplastic can be withstand 250 $\pm$ 5°C Temperature of IR Stove.  
(Time:5~10sec. - SMT Type)
4. PA9T/LCP/PA6T Thermoplastic can be withstand 260 $\pm$ 5°C Temperature of IR Stove.  
(Time:5~10sec. - SMT Type)

#### Requirement:

1. No evidence of damage
2. Meeting the electrical Performace

### 4.4.4 SMT Type Product Pass IR Reflow Test

#### Test Method and Condition:

Temperature: 220°C~225°C~230°C~240°C~265°C Speed: 8mm/sec.

Temperature exceed 217°C, Product need stay IR Reflow stove 90 sec. at least

Temperature exceed 260°C, Product need stay IR Reflow stove 5 sec. at least

#### Requirement:

1. No evidence of damage
  2. Meeting the electrical Performace
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5.0 Test Sequence:

Test Group (a)		Sample Groups											
Test Item	Test Description	A	B	C	D	E	F	G	H	I	J	K	L
4.1.1	Examination of product	1,8	1,9	1,3	1,3	1,3							
4.2.1	Low Level Contact Resistance	2	8										
4.2.2	Insulation Resistance	3	7										
4.2.3	Dielectric Withstanding Voltage	4	6										
4.2.4	Contact Current Rating	5	5										
4.3.1	Durability		2										
4.3.2	Connector Mating Force	6	3										
4.3.3	Contact Unmating Force	7	4										
4.3.4	Contact Retention Force			2									
4.4.1	Salt Spray				2								
4.4.2	Solderability					2							
Number of Test Samples (Minimum)		5	5	5	5	5							

Notes:

- a. Samples shall be prepared in accordance with applicable manufacturer's instructions and shall be selected at random from current production.
- b. The numbers in the table indicate sequence in which tests are performed.
- c. Precondition samples with 5 cycles durability.
- d. All the tests shall be performed in the sequence, indicated by the number in the columns.
- e. Each test groups shall consist of minimum of eight connectors. A minimum of 30 contacts shall be selected and identified. Unless otherwise specified, these contacts shall be used for all measurements.
- f. this specification application to all series of 2.54mm Pitch Pin Header .