Wire-To-Board Serial, 180°DIP, Pitch 1.25 connector

## 1. INTRODUCTION

### 1.1. Purpose

Testing was performed on the TE Connectivity (TE) to determine its conformance to the requirements of product specification,108-161194 for PN-2473226,2476785,2476787.These crimp snap-in receptacle contacts with insulation support will accept a wire size range of 32-28 AWG. .

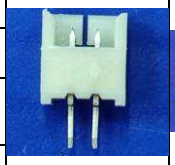
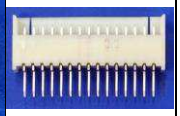
### 1.2. Scope

This report covers the electrical, mechanical, and environmental performance of 1.25 mm Wafer connector. Testing was performed between September 1/2023 and October 16/2023.The test file number for this testing is 501-161234.This documentation is on file at and available from TE.

### 1.3. Conclusion

All part numbers listed in paragraph 1.5 conformed to the electrical, mechanical, and environmental performance requirements of 108-161194.

### 1.4. Product Description

| Product Part No. | Description | Wafer(2P) | Wafer(15P) | Housing(2P) | Housing(15P) | Terminal |
|---|---|---|---|---|---|---|
| 2473226-2 | 1.25 WTB HDR DIP, L=2.3, 2 POS |  |  |  |  |  |
| 2476785-2 | 1.25MM W T B RECPT,2POS HOUSING | | | | | |
| 1-2473226-5 | 1.25 WTB HDR DIP, 15 POS | | | | | |
| 1-2476785-5 | 1.25MM W T B RECPT,15POS HOUSING | | | | | |
| 2476787 | 1.25 Pitch Housing Terminal | | | | | |

### 1.5. Test Specimens

The test specimens were representative of normal production lots, and the following part numbers were used for testing (see Figure 1).

| Test Group | Quantity | Part Number | Description |
|---|---|---|---|
| A | 5 | 2-2473226-2<br>2476785-2<br>1-2473226-5<br>1-2476785-5<br>2476787 | 1.25 WTB HDR DIP, L=2.3, 2 POS<br>1.25MM W T B RECPT,2POS HOUSING<br>1.25 WTB HDR DIP, 15 POS<br>1.25MM W T B RECPT,2POS HOUSING<br>1.25 Pitch Housing Terminal |
| B | 5 | | |
| C | 5 | | |
| D | 5 | | |
| E | 5 | | |
| F | 5 | | |

| | | | |
|---|---|---|---|
| G | 5 | | |
| H | 5 | 2-2473226-2 | 1.25 WTB HDR DIP, 2 POS |
| I | 5 | 1-2473226-5 | 1.25 WTB HDR DIP, 15 POS |
| J | 5 | 2-2473226-2<br>2476785-2<br>1-2473226-5<br>1-2476785-5<br>2476787 | 1.25 WTB HDR DIP, L=2.3, 2 POS<br>1.25MM W T B RECPT,2POS HOUSING<br>1.25 WTB HDR DIP, 15 POS<br>1.25MM W T B RECPT,2POS HOUSING<br>1.25 Pitch Housing Terminal |

**Figure 1**

1.6. Qualification Test Sequence

| Test or Examination | Test Group | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J |
| | Test Sequence (a) | | | | | | | | | |
| Examination of Product | 1, 7 | 1, 9 | 1, 6 | 1, 5 | 1, 5 | 1, 5 | 1, 5 | 1, 3 | 1, 3 | 1, 3 |
| Termination Resistance | | 2, 8 | 2, 5 | 2, 4 | 2, 4 | 2, 4 | 2, 4 | | | |
| Insulation Resistance | 2, 5 | | | | | | | | | |
| Dielectric withstanding Voltage | 3, 6 | | | | | | | | | |
| Temperature Rising | | | | | | | | | | 2 |
| Connector Mating Force | | 3, 7 | | | | | | | | |
| Connector Unmating Force | | 4, 6 | | | | | | | | |
| Durability | | 5 | | | | | | | | |
| Vibration | | | 3 | | | | | | | |
| Physical Shock | | | 4 | | | | | | | |
| Temperature Life | | | | 3 | | | | | | |
| Thermal Shock | | | | | 3 | | | | | |
| Humidity Temperature Cycling | 4 | | | | | 3 | | | | |
| Salt Spray | | | | | | | 3 | | | |
| Solderability | | | | | | | | 2 | | |
| Resistance to Reflow Soldering Heat | | | | | | | | | 2 | |

***NOTE***
*(a) See Paragraph 1.5.*
*(b) Numbers indicate sequence which tests were performed.*

**Figure 2**

1.7. Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15°C to 35°C
Relative Humidity: 20% to 80%

## 2. SUMMARY OF TESTING

2.1.

| 2PIN | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| A | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Insulation Resistance:1000 MΩ Min. (Initial)/100 MΩ Min. (Final) | No abnormalities | | |
| | 5 | Dielectric withstanding Voltage:500V AC | No abnormalities | | |
| | 5 | Humidity Temperature Cycling :Mated Connector<br>25 – 65C°, 95% R.H., 10 cycles | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| A | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Insulation Resistance:1000 MΩ Min. (Initial)/100 MΩ Min. (Final) | No abnormalities | | |
| | 5 | Dielectric withstanding Voltage:500V AC | No abnormalities | | |
| | 5 | Humidity Temperature Cycling :Mated Connector<br>25 – 65C°, 95% R.H., 10 cycles | No abnormalities | | |

| 2PIN | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| B | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 3.884 | 3.019 | 3.451 |
| | 5 | Connector Mating Force:1*2=2 kgf MAX | 0.778 | 0.618 | 0.689 |
| | 5 | Connector Unmating Force:0.1*2=0.2 kgf MIN | 0.711 | 0.423 | 0.567 |
| | 5 | Durability: No Damage<br>Operation Speed: 10 cycle/min.<br>No. of Cycles: 25 Cycles | No abnormalities | | |
| | 5 | Termination Resistance after Connector Mating Force:20mΩ MAX | 5.230 | 4.859 | 4.237 |
| 15PIN | | | | | |
| | | Condition | Results | | |

| Test Group | Number of Data Points | | Min | Max | Mean |
|---|---|---|---|---|---|
| B | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.449 | 4.127 | 4.288 |
| | 5 | Connector Mating Force:1*2=2 kgf MAX | 4.907 | 3.864 | 4.385 |
| | 5 | Connector Unmating Force:0.1*2=0.2 kgf MIN | 3.296 | 2.671 | 2.983 |
| | 5 | Durability: No Damage<br>Operation Speed: 10 cycle/min.<br>No. of Cycles: 25 Cycles | No abnormalities | | |
| | 5 | Termination Resistance after Connector Mating Force:20mΩ MAX | 4.582 | 3.489 | 4.035 |

| **2PIN** | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| C | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.261 | 3.754 | 4.007 |
| | 5 | Vibration: No electrical discontinuity greater than 1microsecond shall occur.<br>No Damage Subject mated connectors to 10-55-10 Hz traversed in 1minutes at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes, passing DC 1mA current during the test. | No abnormalities | | |
| | 5 | Physical Shock: No electrical discontinuity greater than 1microsecond shall occur.<br>No Damage Accelerate Velocity: 490m/s² 50G.<br>Waveform: Half-sine shock plus<br>Duration: 11msec<br>No. of Drops : 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops, passing DC 1mA.<br>current during the test. | No abnormalities | | |
| | 5 | Termination Resistance after Physical Shock:20mΩ MAX | 4.395 | 3.846 | 4.120 |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| C | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.152 | 3.674 | 3.913 |
| | 5 | Vibration: No electrical discontinuity greater than 1microsecond shall occur.<br>No Damage Subject mated connectors to 10-55-10 Hz traversed in 1minutes at 1.52mm amplitude 2 Hours each of 3 mutually perpendicular planes, passing DC 1mA current during the test. | No abnormalities | | |
| | 5 | Physical Shock: No electrical discontinuity greater than 1microsecond shall occur.<br>No Damage Accelerate Velocity: 490m/s² 50G | No abnormalities | | |

| | | | | | |
|---|---|---|---|---|---|
| | | Waveform: Half-sine shock plus<br>Duration: 11msec<br>No. of Drops : 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops, passing DC 1mA. current during the test. | | | |
| | 5 | Termination Resistance after Physical Shock:20mΩ MAX | 4.259 | 3.863 | 4.061 |

| **2PIN** | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| D | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.277 | 3.862 | 4.069 |
| | 5 | Termination Resistance after Temperature life:20mΩ MAX | 4.428 | 4.153 | 4.290 |
| | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| D | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.561 | 3.937 | 4.249 |
| | 5 | Termination Resistance after Temperature life:20mΩ MAX | 4.428 | 4.271 | 4.349 |
| | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |

| **2PIN** | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| E | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 5.016 | 4.573 | 4.794 |
| | 5 | Termination Resistance after Thermal shock:20mΩ MAX | 4.886 | 4.517 | 4.701 |
| | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| E | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.758 | 4.326 | 4.542 |

| | | | | | |
|---|---|---|---|---|---|
| | 5 | Termination Resistance after Thermal shock:20mΩ MAX | 4.821 | 4.563 | 4.692 |
| | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |

| **2PIN** | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| F | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.568 | 4.335 | 4.451 |
| | 5 | Termination Resistance after Humidity Temperature Cycling:20mΩ MAX | 4.281 | 3.765 | 4.023 |
| | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| F | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.487 | 4.129 | 4.308 |
| | 5 | Termination Resistance after Humidity Temperature Cycling:20mΩ MAX | 4.552 | 4.173 | 4.362 |
| | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |

| **2PIN** | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| G | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.236 | 3.549 | 3.888 |
| | 5 | Termination Resistance after Salt Spray:20mΩ MAX | 4.861 | 4.544 | 4.702 |
| | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| G | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |
| | 5 | Termination Resistance:20mΩ MAX | 4.295 | 3.953 | 4.124 |
| | 5 | Termination Resistance after Salt Spray:20mΩ MAX | 4.668 | 4.213 | 4.440 |
| | 5 | Examination of product:Visual inspection No physical damage | No abnormalities | | |

| 2PIN | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| H | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Solderability: Wet solder coverage: 95% Min.<br>Solder Temperature: 235+/-5 deg C<br>Duration: 5+/-0.5 sec | More than 95% of tested area was covered with Tin | | |
| | 5 | Examination of product after test: Visual inspection<br>No physical damage | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| H | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Solderability: Wet solder coverage: 95% Min.<br>Solder Temperature: 235+/-5 deg C<br>Duration: 5+/-0.5 sec | More than 95% of tested area was covered with Tin | | |
| | 5 | Examination of product after test: Visual inspection<br>No physical damage | No abnormalities | | |

| 2PIN | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| I | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Resistance to soldering heat: No physical damage shall occur.<br>Pre Heat: 100 – 150°C, 60 to sec Min.<br>Heat: 210°C, 30 sec. Min.<br>Peak Temp.: 235°C<br>Lead-free type<br>No physical damage shall occur.<br>Pre Heat: 100 – 150°C, 60 to sec Min.<br>Heat: 210°C, 30 sec. Min.<br>Peak Temp.: 235°C | After the test, the appearance of the sample has no deformation, discoloration and blistering | | |
| | 5 | Examination of product after test: Visual inspection<br>No physical damage | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| I | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |

| | | | |
|---|---|---|---|
| | 5 | Resistance to soldering heat: No physical damage shall occur.<br>Pre Heat: 100 – 150°C, 60 to sec Min.<br>Heat: 210°C, 30 sec. Min.<br>Peak Temp.: 235°C<br>Lead-free type<br>No physical damage shall occur.<br>Pre Heat: 100 – 150°C, 60 to sec Min.<br>Heat: 210°C, 30 sec. Min.<br>Peak Temp.: 235°C | After the test, the appearance of the sample has no deformation, discoloration and blistering |
| | 5 | Examination of product after test: Visual inspection<br>No physical damage | No abnormalities |

| **2PIN** | | | | | |
|---|---|---|---|---|---|
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| J | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Temperature Rising:30°C Max. under loaded rating current<br>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. | 12.160 | 11.750 | 11.955 |
| | 5 | Examination of product after test: Visual inspection<br>No physical damage | No abnormalities | | |
| 15PIN | | | | | |
| Test Group | Number of Data Points | Condition | Results | | |
| | | | Min | Max | Mean |
| J | 5 | Examination of product:Visual inspection<br>No physical damage | No abnormalities | | |
| | 5 | Temperature Rising:30°C Max. under loaded rating current<br>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. | 11.680 | 11.410 | 11.545 |
| | 5 | Examination of product after test: Visual inspection<br>No physical damage | No abnormalities | | |

**Figure 3**

## 3. TEST METHODS

Test methods according to product SPEC 108-161194.