Wire-To-Board Serial, 90°SMT, 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 -2473250,2476785,2476787.These crimp snap-in receptacle contacts with insulation support will accept a wire size range of 32-28 AWG. .

1.2. Scope

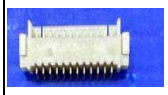
This report covers the electrical, mechanical, and environmental performance of 1.25 mm Wafer connector. Testing was performed between September 1/2023 and October 16/2023.The test file number for this testing is 501-161232.This documentation is on file at and available from TE.

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
2473250-2	1.25 WTB, HDR, 90°SMT, 2P					
2476785-2	1.25MM W T B RECPT,2POS HOUSING					
1-2473250-5	1.25 WTB, HDR, 90°SMT, 15P					
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	2473250-2 2476785-2 1-2473250-5 1-2476785-5 2476787	1.25 WTB, HDR, SMT, RA, 2P 1.25MM W T B RECPT,2POS HOUSING 1.25 WTB, HDR, SMT, RA, 15P 1.25MM W T B RECPT,2POS HOUSING 1.25 Pitch Housing Terminal
B	5		
C	5		
D	5		
E	5		
F	5		
G	5		

H	5	2473250-2 1-2473250-5	1.25 WTB, HDR, SMT, RA, 2P 1.25 WTB, HDR, SMT, RA, 15P
I	5		
J	5	2473250-2 2476785-2 1-2473250-5 1-2476785-5 2476787	1.25 WTB, HDR, SMT, RA, 2P 1.25MM W T B RECPT,2POS HOUSING 1.25 WTB, HDR, SMT, RA, 15P 1.25MM W T B RECPT,2POS HOUSING 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 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 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 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 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 No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	4.256	3.792	4.024
	5	Connector Mating Force:1*2=2 kgf MAX	0.580	0.399	0.489
	5	Connector Unmating Force:0.1*2=0.2 kgf MIN	0.407	0.328	0.367
	5	Durability: No Damage Operation Speed: 10 cycle/min. No. of Cycles: 25 Cycles	No abnormalities		
	5	Termination Resistance after Connector Mating Force:20mΩ MAX	4.629	3.891	4.260
15PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
B	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	3.612	3.435	3.523
	5	Connector Mating Force:1*2=2 kgf MAX	5.257	4.131	4.694

	5	Connector Unmating Force:0.1*2=0.2 kgf MIN	2.989	2.421	2.705
	5	Durability: No Damage Operation Speed: 10 cycle/min. No. of Cycles: 25 Cycles	No abnormalities		
	5	Termination Resistance after Connector Mating Force:20mΩ MAX	4.582	4.279	4.430

2PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
C	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	4.278	3.924	4.101
	5	Vibration :No electrical discontinuity greater than 1microsecond shall occur. 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. No Damage 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, passing DC 1mA. current during the test.	No abnormalities		
	5	Termination Resistance after Physical Shock:20mΩ MAX	5.618	4.472	5.045
15PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
C	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	5.124	4.387	4.756
	5	Vibration :No electrical discontinuity greater than 1microsecond shall occur. 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. No Damage 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, passing DC 1mA. current during the test.	No abnormalities		
	5	Termination Resistance after Physical Shock:20mΩ MAX	5.246	4.258	4.752

2PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
D	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	5.186	4.124	4.655
	5	Termination Resistance after Temperature life:20mΩ MAX	5.244	4.578	4.911
	5	Examination of product:Visual inspection No physical damage	No abnormalities		
15PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
D	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	5.128	4.298	4.713
	5	Termination Resistance after Temperature life:20mΩ MAX	5.468	4.264	4.868
	5	Examination of product:Visual inspection No physical damage	No abnormalities		

2PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
E	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	5.124	4.376	4.750
	5	Termination Resistance after Thermal shock:20mΩ MAX	5.258	4.726	4.759
	5	Examination of product:Visual inspection No physical damage	No abnormalities		
15PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
E	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Termination Resistance:20mΩ MAX	5.264	4.321	4.793
	5	Termination Resistance after Thermal shock:20mΩ MAX	5.688	4.958	5.323
	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	5.248	4.796	5.022
	5	Termination Resistance after Humidity Temperature Cycling:20mΩ MAX	5.786	5.028	5.407
	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	4.926	4.128	4.527
	5	Termination Resistance after Humidity Temperature Cycling:20mΩ MAX	5.258	4.925	5.092
	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	4.688	3.926	4.307
	5	Termination Resistance after Salt Spray:20mΩ MAX	4.589	3.925	4.257
	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	4.385	3.827	4.106
	5	Termination Resistance after Salt Spray:20mΩ MAX	5.778	4.658	5.218
	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 No physical damage	No abnormalities		
	5	Solderability: Wet solder coverage: 95% Min. Solder Temperature: 235+/-5 deg C Duration: 5+/-0.5 sec	More than 95% of tested area was covered with Tin		
	5	Examination of product after test: Visual inspection No physical damage	No abnormalities		
15PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
H	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Solderability: Wet solder coverage : 95% Min. Solder Temperature: 235+/-5 deg C Duration: 5+/-0.5 sec	More than 95% of tested area was covered with Tin		
	5	Examination of product after test: Visual inspection No physical damage	No abnormalities		

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

		Peak Temp.: 235°C Lead-free type No physical damage shall occur. Pre Heat: 100 – 150°C, 60 to sec Min. Heat: 210°C, 30 sec. Min. Peak Temp.: 235°C	
	5	Examination of product after test: Visual inspection No physical damage	No abnormalities

2PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
J	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Temperature Rising:30°C 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.	11.298	10.314	10.806
	5	Examination of product after test: Visual inspection No physical damage	No abnormalities		
15PIN					
Test Group	Number of Data Points	Condition	Results		
			Min	Max	Mean
J	5	Examination of product:Visual inspection No physical damage	No abnormalities		
	5	Temperature Rising:30°C 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.	13.131	11.859	12.495
	5	Examination of product after test: Visual inspection No physical damage	No abnormalities		

Figure 3

3. TEST METHODS

Test methods according to product SPEC 108-161194.