

1.1H Lower Profile Spring Finger

1. Introduction

1.1 Objective

Testing was performed on the 1.1H Lower Profile Spring Finger to determine if it meets the requirements of Product Specification 108-115104.

1.2 Scope

This report covers the Electrical, Mechanical and environmental performance requirements of 1.1H Lower Profile Spring Finger.

The qualification testing was performed between 15-DEC-2015 and 14-JAN-2016.

1.3 Conclusion

1.1H Lower Profile Spring Finger meets the Electrical, Mechanical and Environmental performance requirements of Product Specification, 108-115104.

1.4 Product Description

Product Part No.	Products name	Height (mm)
2292838-3	1.1H Lower Profile Spring Finger	1.1 Max.

Fig.1

2. Test Contents

Para.	Test Items	Requirements	Judgment
2.1	Examination of Product	Meets requirements of product drawing.	Acceptable
Electrical Requirements			
2.2	Termination Resistance (Low Level)	Mated connectors on PCB. Measure device: Open-circuit 20mV max, Mesh currents 10mA 50 mΩ MAX initial, 10 mΩ MAX changed. Refer to Fig.5	Acceptable
2.3	Temperature Rising	Measure temperature rising by current 1.5A. EIA-364-70 Method 1	Acceptable
2.4	Normal Force	Normal force at 0.75mm spring height: 0.7N Min.	Acceptable
2.5	Durability	No. of Cycles: 1500 cycles. Stroke the spring top to 0.4mm product height. Normal force at 0.75mm Spring height: 0.7N Min (Final)	Acceptable
Mechanical Requirements			
2.6	Vibration (Low Frequency)	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular planes. No Electrical discontinuity greater than 1μsec. shall occur. 10mΩ MAX. (Changed)	Acceptable

Fig. 2(to be continued)

Para.	Test Items	Requirements	Judgment
2.7	Physical Shock	Accelerated Velocity : 50 G Waveform : Half sine shock pluses Duration : 11 m sec. Velocity Change : 3.44 m/s Number of Drops : 3 drops each to both directions of X, Y and Z axes, totally 18 drops. No Electrical discontinuity greater than 1μsec. shall occur. 10mΩ MAX. (Changed)	Acceptable
2.8	Peeling Force	Operation speed: 5mm/min. 40N min each direction	Acceptable
2.9	Solderability	Wet Solder Coverage: 95% Min.	Acceptable
2.10	Temperature Life	Mated connector at 0.6mm height, 85°C, 250Hrs. Changed Resistance: 10mΩ Max. EIA-364-17, Method A, condition 3	Acceptable
2.11	Salt Spray	Mated connector at 0.6mm height, Changed Resistance: 10mΩ Max. Solution concentration 5%, temp. 35°C±2°C, Time: 48Hours EIA-364-26B, test condition B.	Acceptable
Enviromental Requirements			
2.12	Thermal Shock	Mated connector at 0.6mm height, -55°C ~85°30min.,10cycles, Changed Resistance: 10mΩ Max. EIA-364-32C, test condition I	Acceptable
2.13	Temperature-Humidity Cycling	Mated connector at 0.6mm height, Make 25~65°C, 90%~95% R. H. 24 hours a cycle, repeat 7 cycles. Change Resistance: 10mΩ Max. EIA-364-31B, Method IV	Acceptable
2.14	Resistance to Soldering Heat	Peak Temp.: 260°C±5°C, 30second; No physical damage shall occur. EIA-364-56B	Acceptable

Fig. 2 (End)

3. Product Qualification Test Sequence

Test Examination		Test Group										
		1	2	3	4	5	6	7	8	9	10	11
		Test Sequence(a)										
1.	Examination of Product	1,7	1,3	1,5	1,5	1	1,3	1,5	1,5	1,5	1,5	1,3
2.	Terminal Resistance	2,6		2,4	2,4			2.4	2,4	2,4	2,4	
3.	Temperature Rising		2									
4.	Normal Force	3,5										
5.	Durability	4										
6.	Vibration			3								
7.	Physical Shock				3							
8.	Peeling Force					2						
9.	Solderability						2					
10.	Temperature Life							3				
11.	Salt Spray								3			
12.	Thermal Shock									3		
13.	Temperature-Humidity										3	
14.	Resistance to Soldering Heat											2

Fig.3

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

4. Test Results

sample Conditions	Measure Item	Unit	Results					Requirement	Judgment
			n	AVE.	MAX.	MIN.	SIG.		
Test group 1									
Plug connector									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
Electrical	LLCR	mΩ	5	23.15	26.37	20.49	2.10	50 mΩ MAX	Acceptable
Mechanical	Normal Force	N	5	0.93	0.96	0.88	0.04	0.7N min.	Acceptable
Mechanical	Durability	-	5	No abnormalities				1500 Cycles	Acceptable
Mechanical	Normal Force	N	5	0.85	0.88	0.77	0.05	0.7N min.	Acceptable
Electrical	△LLCR	mΩ	5	6.33	9.02	1.74	3.13	10 mΩ MAX	Acceptable
Final	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
Test group 2									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
Electrical	1.5A	℃	5	10.5	11	8.5	0.98	30℃ MAX	Acceptable
Final	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
Test group 3									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
	LLCR	mΩ	5	22.71	25.32	20.52	1.99	50 mΩ MAX	Acceptable
Mechanical	Vibration Low frequency	-	5	No discontinuity				1μs MAX	Acceptable
Final (After Vibration Test)	△LLCR	mΩ	5	0.45	2.39	-0.49	1.14	10 mΩ MAX	Acceptable
	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable

Fig.4 (To be continued)

Sample Conditions	Measure Item	Unit	Results					Requirement	Judgment
			n	AVE.	MAX.	MIN.	SIG.		

Test group 4									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
	LLCR	mΩ	5	23.07	24.15	20.84	1.36	50 mΩ MAX	Acceptable
Mechanical	Shock	-	5	No discontinuity				1μs MAX	Acceptable
Final (After Shock Test)	△LLCR	mΩ	5	1.12	3.41	-1.04	1.59	10 mΩ MAX	Acceptable
	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable

Test group 5									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
Mechanical	Peeling Force(X+)	N	5	80.24	87.78	72.03	5.58	40N MIN	Acceptable
Mechanical	Peeling Force(X-)	N	5	80.85	89.55	67.94	7.98	40N MIN	Acceptable
Mechanical	Peeling Force(Y+)	N	5	90.27	96.73	81.88	5.47	40N MIN	Acceptable
Mechanical	Peeling Force(Y-)	N	5	60.88	63.76	57.53	2.73	40N MIN	Acceptable

Test group 6									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
Final (After Solderability)	Solderability	-	5	No loosening of solder joint, No abnormalities				No loosening of solder joint, No abnormalities	Acceptable

Fig.4 (To be continued)

sample Conditions	Measure Item	Unit	Results					Requirement	Judgment
			n	AVE.	MAX.	MIN.	SIG.		

Test group 7									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
	LLCR	mΩ	5	23.15	26.37	20.49	2.10	50 mΩ max.	Acceptable
Final(after Temperature Life)	ΔLLCR	mΩ	5	-0.62	1.29	-3.90	1.97	10 mΩ max.	Acceptable
	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable

Test group 8									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
	LLCR	mΩ	5	22.66	25.19	20.20	2.17	50 mΩ max.	Acceptable
Final(after Salt Spray)	ΔLLCR	mΩ	5	0.19	1.07	-0.41	0.64	10 mΩ max.	Acceptable
	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable

Test group 9									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
	LLCR	mΩ	5	23.02	25.09	21.27	1.41	50 mΩ max.	Acceptable
Final(Thermal Shock)	ΔLLCR	mΩ	5	0.86	1.54	-0.35	0.81	10 mΩ max.	Acceptable
	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable

Fig.4 (To be continued)

sample Conditions	Measure Item	Unit	Results					Requirement	Judgment
			n	AVE.	MAX.	MIN.	SIG.		

Test group 10									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
	LLCR	mΩ	5	22.85	25.18	20.64	2.04	50 mΩ max.	Acceptable
Final(Temp erature-Humidity)	ΔLLCR	mΩ	5	-0.05	0.78	-0.89	0.60	10 mΩ max.	Acceptable
	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable

Test group 11									
Initial	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable
Final (after IR)	Examination of Product	-	5	No abnormalities				No abnormalities	Acceptable

Fig.4 (End)