

## FINE PITCH BTB 8 POS

### 1. Introduction

#### 1.1 Objective

Testing was performed on the FINE PITCH BTB 8 POS to determine if it meets the requirements of Product Specification 108-115185.

#### 1.2 Scope

This report covers the Electrical, Mechanical and environmental performance requirements of FINE PITCH BTB 8 POS.

The qualification testing was performed between 05-DEC-2019 and 04-JAN-2020.

#### 1.3 Conclusion

1.1H Lower Profile Spring Finger meets the Electrical, Mechanical and Environmental performance requirements of Product Specification, 108-115146.

#### 1.4 Product Description

Product Part No.	Products name
2386586-1	FINE PITCH BTB 8 POS REC
2386587-1	FINE PITCH BTB 8 POS PLUG

Fig.1

## 2 Product Qualification Test Sequence

Test Items	Test Groups								
	1	2	3	4	5	6	7	8	9
Over view	1,9	1,11	1,7	1,10	1,8	1,8	1,3	1,3	1,7
LLCR	3	3,7,10	3,6		3,6	3,6			3,5
IR				2,5,8					
DWV				3,6,9					
T-rise									
Radom Vibration	5								
Sine Vibration	6								
Physical Shock	7								
Drop test						5			
Durability	4	4			4	4			
Mating un-mating force	2,8 (5cycles)	2,6,(9 5cycles manual mate)	2,5		(2,7 5cycles manual mate)	2,7 (30cycles)			2,(6 5cycles manual mate)
Click ratio									
contact retentin force								2	
Thermal Shock		5		4					
Humidity- Temperature Cycling									4
Cold temperature			4						
High-temperature and humidity		8		7					
Salt spray					5				
Solder peel off strength							2		
Sample Qty of each group	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs

Fig.2 (To be continued)

Test Items	Test Groups								
	10	11	12	13	14	15	16	17	18
Over view	1,3	1,3	1,3	1,3	1,7	1,5	1,3	1,4	1,5
LLCR					2,6	2,4			2,4
T-rise			2						
Nominal Value of Contact offset requirement		2							
X/Y direction HSG strength				2					
Guiding test	2								
Durability					4				
Mating un-mating force					3				
Click ratio					5				
Temperature life						3			
Surface Mount Solder-ability Test							2		
Resistance to Reflow Soldering Heat:								2	
Flux resistance / penetration:									3
Co-planarity measurement during reflow cycle								3	
Sample Qty of each group	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs	20pcs

Fig.2 (end)

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

### 3. Test Results

Sample Conditions	Measure Item	Unit	Results				Requirement	Judgment
			n	AVE.	MAX.	MIN.		
<b>Test group 1</b>								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Mating	N	20	15.94	14.64	15.29	40N Max.	Acceptable
	Un-mating force	N	20	15.85	12.98	14.76	8N Min.	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.8	8.5	9.4	50 mΩ MAX	Acceptable
Mechanical	Durability	-	20	No abnormalities			5 Cycles	Acceptable
	Radom Vibration	-	20	No abnormalities			1μs MAX	Acceptable
	Sine Vibration	-	20	No abnormalities			1μs MAX	Acceptable
	Physical Shock	-	20	No abnormalities			1μs MAX	Acceptable
Final	Mating	N	20	15.60	13.17	14.08	40N Max.	Acceptable
	Un-mating force	N	20	14.57	12.08	13.11	8N Min.	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable
<b>Test group 2</b>								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Mating	N	20	15.25	14.42	14.95	40N Max.	Acceptable
	Un-mating force	N	20	15.51	13.23	14.35	8N Min.	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.8	8.0	9.0	50 mΩ MAX	Acceptable
Mechanical	Durability	-	20	No abnormalities			5 Cycles	Acceptable
Environmental	Thermal Shock	-	20	No abnormalities			1μs MAX	Acceptable
Pilot process	Mating	N	20	13.81	12.81	13.42	40N Max.	Acceptable
	Un-mating force	N	20	13.53	12.12	12.93	8N Min.	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.5	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	13.4	11.2	12.3	50 mΩ MAX	Acceptable
Environmental	High-temperature and humidity	-	20	No abnormalities			Meet spec	Acceptable
Final	Power pin LLCR	mΩ	20	4.5	3.4	3.9	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	12.9	11.0	12.0	50 mΩ MAX	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Fig.3 (To be continued)

Sample Conditions	Measure Item	Unit	Results				Requirement	Judgment
			n	AVE.	MAX.	MIN.		
Test group 3								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Mating	N	20	15.19	14.41	14.83	40N Max.	Acceptable
	Un-mating force	N	20	14.73	13.52	14.09	8N Min.	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.7	8.2	9.5	50 mΩ MAX	Acceptable
Environmental	Cold temperature	-	20	No abnormalities			Meet spec	Acceptable
Final	Mating	N	20	15.19	14.41	14.83	40N Max.	Acceptable
	Un-mating force	N	20	14.73	13.52	14.09	8N Min.	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	13.2	11.0	12.2	50 mΩ MAX	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable
Test group 4								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	IR	-	20	No abnormalities			Meet spec	Acceptable
	DWV	-	20	No abnormalities			Meet spec	Acceptable
Environmental	Thermal Shock	-	20	No abnormalities			Meet spec	Acceptable
Pilot process	IR	-	20	No abnormalities			Meet spec	Acceptable
	DWN	-	20	No abnormalities			Meet spec	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable
Environmental	High-temperature and humidity	-	20	No abnormalities			Meet spec	Acceptable
Final	IR	-	20	No abnormalities			Meet spec	Acceptable
	DWV	-	20	No abnormalities			Meet spec	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Fig.3 (To be continued)

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

Test group 5								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.7	9.0	9.8	50 mΩ MAX	Acceptable
Mechanical	Durability	-	20	No abnormalities			5 Cycles	Acceptable
Environmental	Salt spray	-	20	No abnormalities			Meet spec	Acceptable
Final	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	13.2	11.2	12.2	50 mΩ MAX	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 6								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Mating	N	20	15.96	14.00	15.60	40N Max.	Acceptable
	Un-mating force	N	20	14.86	13.61	14.26	8N Min.	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	3.9	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.8	9.0	9.9	50 mΩ MAX	Acceptable
Mechanical	Durability	-	20	No abnormalities			30 Cycles	Acceptable
Mechanical	Drop test	-	20	No abnormalities			Meet spec	Acceptable
Final	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	13.2	11.2	12.1	50 mΩ MAX	Acceptable
	Mating	N	20	13.88	13.15	13.45	40N Max.	Acceptable
	Un-mating force	N	20	13.46	12.86	13.20	8N Min.	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 7								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Solder peel off strength	-	20	No abnormalities			Meet spec	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Fig.3 (To be continued)

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

Test group 8								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Retention force	N	20	0.40	0.35	0.37	0.2N Min.	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 9								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Mating	N	20	15.16	14.34	14.83	40N Max.	Acceptable
	Un-mating force	N	20	14.88	13.36	14.06	8N Min.	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	3.9	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.9	9.2	9.9	50 mΩ MAX	Acceptable
Environmental	Humidity-Temperature Cycling	-	20	No abnormalities			Meet spec	Acceptable
Final	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	13.8	9.8	11.9	50 mΩ MAX	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 10								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Guiding test	-	20	No abnormalities			Meet spec	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 11								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Nominal Value of Contact offset requirement	-	20	No abnormalities			Meet spec	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 12								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	T-rise	-	20	27.3	25.2	26.0	ΔT 30°C Max	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Fig.3 (To be continued)

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

Test group 13								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	X direction	N	20	67.12	56.20	61.33	≥35N	Acceptable
	Y direction	N	20	51.29	39.46	43.72	≥35N	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 14								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	3.9	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.9	9.5	10.2	50 mΩ MAX	Acceptable
	Mating	N	20	15.92	14.41	15.03	40N Max.	Acceptable
	Un-mating force	N	20	14.78	13.54	14.13	8N Min.	Acceptable
Mechanical	Durability	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Click ratio	-	20	No abnormalities			Meet spec	Acceptable
Final	Power pin LLCR	mΩ	20	4.5	3.4	3.9	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	12.5	11.1	11.8	50 mΩ MAX	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 15								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	3.9	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.8	9.0	10.0	50 mΩ MAX	Acceptable
Environmental	Temperature life	-	20	No abnormalities			Meet spec	Acceptable
Final	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	13.0	11.0	11.9	50 mΩ MAX	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 16								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Surface Mount Solder-ability Test	-	20	No abnormalities			Meet spec	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Fig.3 (To be continued)



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

Test group 17								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Resistance to Reflow Soldering Heat	-	20	No abnormalities			Meet spec	Acceptable
Mechanical	Co-planarity measurement during reflow cycle	-	20	No abnormalities			Meet spec	Acceptable
Final	Over view	-	20	No abnormalities			Meet spec	Acceptable

Test group 18								
Initial	Over view	-	20	No abnormalities			Meet spec	Acceptable
	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	10.8	9.5	10.1	50 mΩ MAX	Acceptable
Environmental	Flux resistance / penetration	-	20	No abnormalities			Meet spec	Acceptable
Final	Power pin LLCR	mΩ	20	4.5	3.4	4.0	5 mΩ MAX	Acceptable
	Single pin LLCR	mΩ	20	13.4	11.2	12.4	50 mΩ MAX	Acceptable
	Over view	-	20	No abnormalities			Meet spec	Acceptable

Fig.3 (End)