

QUALIFICATION TEST REPROT

501-60025 Rev. O

Product Specification : 108-60047 Rev. O
Reference Test Report No. : TR-95006-053
Date : 23 Jan. 2005
Classification : UNRESTRICTED

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DIST	O	Released FB00-0020-05	C.W	23Jan. 05	Prepared by	PE	tyco <i>Electronics</i>	Tyco Electronics AMP Shanghai Ltd	
					Reviewed by	PE Manager			
					Approved by	QA Manager			
					JAMES .LU	NO			
					PAGE	TITLE			
					1 of 8	AMP Connector, FH 0.6 Stacking Connector Lead Free Version			
	LTR	REVISION RECORD	DR	DATE					

1. Introduction

1.1 Intention

Testing was performed on the FH 0.6 BTB Stacking Connector to determine if it meets the requirements of AMP Specification, 108-60047, Rev. O.

1.2 Scope

This report covers the electrical, mechanical and environmental performance requirements of the FH 0.6 BTB Stacking Connector.

1.3 Conclusion

The FH 0.6 BTB Stacking Connector meets the electrical, mechanical and environmental performance requirements of Product Specification, 108-60047. Rev. O.

1.4 Product Description

0.6 mm Pitch, Stack height variations from 4 mm~18 mm with grand plate for high signal transmission.

1.5 Test Samples

Samples were taken randomly from current production. The following samples were used:

Part Number	Description
1-5353184-0	Plug Ass'y FH 0.6 BTB Conn. W/G-plate 140 Pos.
1-5316077-0	Rec. Ass'y FH 0.6 BTB Conn. W/G-Contact 140 Pos.

Fig. 1

2. Test Contents

No.	Test Items	Requirements	Judge ment
2.1	Confirmation of Product	Inspect Visually	Accept-able
Electrical Requirements			
2.2	Termination Resistance (Low Level)	Initial; 55 mΩ Max. Final; 75 mΩ Max. : and ΔR20 mΩ max.	Accept-able
2.3	Dielectric withstanding Voltage	Initial/Final ; 0.2kVAC,(50 Hz), 1 minute No abnormality allowed	Accept-able
2.4	Insulation Resistance	Initial; 500 MΩ Min. Final; 100 MΩ Min.	Accept-able
2.5	Capacitance	At 1k Hz,5pF Max.	Accept-able

Fig. 2 (to be continued)

No.	Test Items	Requirements	Judge ment
Mechanical Requirements			
2.6	Vibration (Low Frequency)	10~55~10 Hz/1 minutes, 98m/s ² (10G), Amplitude: 1.52 mm, X, Y & Z Axes: 2 hours each No electrical discontinuity greater than 0.1 μsec. shall occur. 75 mΩ Max. (Final) and ΔR20 mΩ max.	Accep -table
2.7	Physical Shock	No electrical discontinuity greater than 0.1 μsec. allowed. 490 m/s ² (50G), Halfsine Wave . XYZ 3 drops 75 mΩ Max. (Final) and ΔR20 mΩ max.	Accep -table
2.8	Connector Mating Force	0.9N(0.09 kgf) Max. Head Operation Speed: 100 mm/minute	Accep -table
2.9	Connector Unmating Force	0.1N(0.01 kgf) Min. Head Operation Speed: 100mm/minute	Accep -table
2.10	Durability (Repeated Mating/Unmating)	Repeated mating/unmating for 50 cycles at a rate of 100 mm/min.	Accep -table
2.11	Solderability	Solder Temperature: 230°C, Flux α -100 Wet solder coverage: 95 % Min.	Accep -table

Fig. 2 (to be continued)

No.	Test Items	Requirements	Judge ment
Environmental Requirements			
2.12	Resistance to Soldering Heat	No physical damage shell occur.	Accep- table
2.13	Thermal Shock	—40°C~85°C, 5 cycles 75 mΩ Max., and ΔR20 mΩ max.	Accep- table
2.14	Temperature-Humidity Cycling	25°C~65°C, 90~95% Insulation resistance (Final) 100 MΩ Min. 75 mΩ Max., and ΔR20 mΩ max.	Accep- table
2.15	Industrial SO2 Gas	10 ppm, 25°C, 95% RH 24 Hrs. 75 mΩ Max., and ΔR20 mΩ max.	Accep- table
2.16	Temperature Life	85°C, 96 Hrs. 75 mΩ Max., and ΔR20 mΩ max.	Accep- table
2.17	Resistance to Cold	—40°C, 96 Hrs. 75 mΩ Max., and ΔR20 mΩ max.	Accep- table

Fig. 2 (End)

3. Product Qualification Test Sequence

Test Items	Test Group											
	1	2	3	4	5	6	7	8	9	10	11	12
	Test Sequence (a)											
Confirmation of Product	1,7	1,3	1,5	1,5	1,9	1,3	1,3	1,5	1,5	1,5	1,5	1,5
Termination Resistance (Low Level)			2,4	2,4	2,8			2,4	2,4	2,4	2,4	2,4
Dielectric withstanding Voltage	2,5											
Insulation Resistance	3,6											
Capacitance		2										
Vibration (Low Frequency)			3									
Physical Shock				3								
Connector Mating Force					3,6							
Connector Unmating Force					4,7							
Durability (Repeated Mating/Unmating)					5							
Solderability						2						
Resistance to Soldering Heat							2					
Thermal Shock								3				
Temperature-Humidity Cycling	4								3			
Industrial SO2 Gas										3		
Temperature Life (Heat Aging)											3	
Resistance to Cold												3

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

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3. Test Result

Test Group	Test Items	Unit	Result						Spec.	Judge-ment	
			Set	N	Max.	Min.	Ave.	S			
1	Dielectic withstanding Voltage (Initial)	/	3	3	/	/	/	/	No creeping discharge nor flashover shall occur.	Accept	
	(Final)	/	3	3	/	/	/	/		▲	
2	Insulation Resistance (Initial)	Ω	3	372	2.43×10^{12}	2.12×10^{12}	2.26×10^{12}	/	5.0×10^8 Min.		
	(Final)	Ω	3	372	1.38×10^{11}	1.29×10^{11}	1.32×10^{11}	/	1.0×10^8 Min.		
3	Capacitance	PF	3	30	0.95	0.81	0.87	0.261	5PF Max.		
4	Vibration (Initial)	mΩ	3	372	26.03	23.23	24.27	0.366	55 mΩ Max. (Initial) ΔR=20 mΩ max.		
	(Final)	mΩ	3	372	25.48	23.37	24.28	0.338			
5	Physical Shock (Initial)	mΩ	3	372	26.72	23.26	24.47	0.519	55 mΩ Max. (Initial) ΔR=20 mΩ max.		
	(Final)	mΩ	3	372	26.95	23.21	24.43	0.590			
6	Connector Mating Force (Initial)	N	3	3	0.43	0.35	0.37	/	0.9 Max.		
	(Final)	N	3	3	0.47	0.43	0.45	/	0.9 Max.		
7	Connector Unmating Force (Initial)	N	3	3	0.25	0.21	0.23	/	0.1 Max.		
	(Final)	N	3	3	0.33	0.27	0.32	/	0.1 Max.		
8	Durability (Repeated Mating/Unmating) (Initial)	mΩ	3	372	26.16	23.42	24.46	0.465	55 mΩ Max. (Initial) ΔR=20 mΩ max.	▼	
	(Final)	mΩ	3	372	25.48	23.49	24.42	0.375		Accept	

Test Group	Test Items	Unit	Result						Spec.	Judg.
			Set	N	Max.	Min.	Ave.	S		
9	Solderability	/	5	5	/	/	/	/	Wet solder coverage 95% Min.	Acceptable
10	Resistance to Soldering Heat	/	5	5	/	/	/	/	No physical damage	↑
11	Thermal Shock (Initial)	mΩ	3	372	26.73	23.35	24.29	0.511	55 mΩ Max. (Initial)Δ R20= mΩ max.	
	(Final)	mΩ	3	372	25.66	23.36	24.47	0.396		
12	Temperature(Humidity) (Initial)	mΩ	3	372	26.36	23.31	24.37	0.620	55 mΩ Max. (Initial)Δ R20= mΩ max.	
	Cycling (Final)	mΩ	3	372	25.87	23.23	24.38	0.500		
13	Industrial (Initial) SO ₂ Gas	mΩ	3	372	26.33	23.19	24.27	0.615	55 mΩ Max. (Initial)Δ R20 =mΩ max.	
	(Final)	mΩ	3	372	25.73	23.21	24.20	0.448		
14	Temperature(Initial) Life	mΩ	3	372	25.82	23.39	24.49	0.425	55 mΩ Max. (Initial)Δ R20 =mΩ max.	↓
	(Final)	mΩ	3	372	26.55	23.48	24.52	0.467		
15	Resistance (Initial) to Cold	mΩ	3	372	25.91	23.53	24.55	0.359	55 mΩ Max. (Initial)Δ R20= mΩ max.	Acceptable
	(Final)	mΩ	3	372	25.60	23.43	24.42	0.344		