

Serial ATA Connector

1. INTRODUCTION

1.1. Purpose

Testing was performed on the Tyco Electronics Serial ATA Connector to determine its conformance to the requirements of Product Specification 108-57564, Revision A.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of the Serial ATA Connector.

1.3. Conclusion

The Serial ATA Connector listed in paragraph 1.5. conformed to the electrical, mechanical, and environmental performance requirements of Product Specification 108-57564, Revision A.

1.4. Product Description

The Serial ATA Connector is a high-speed serial link replacement for the parallel ATA attachment of mass storage devices.

1.5. Test Specimens

Test specimens were representative of normal production lots. The following specimens were used for test.

Test Group	Quantity	Description
A, B, C, D, E, F	5 ea.	22P Serial ATA Connector SMT.
A, B, C, D, E, G	5 ea.	22P Serial ATA Connector DIP.

1.6. Qualification Test Sequence

Test or Examination	Test Group						
	A	B	C	D	E	F	G
	Test Sequence (a)						
Examination of product.	1, 5	1, 9	1, 5	1, 8	1, 3	1	1, 3
Low level contact resistance.	2, 4	3, 7	2, 4				
Insulation resistance.				2, 6			
Dielectric withstanding voltage.				3, 7			
Mating force.		2					
Unmating force.		8					
Durability.	3(b)	4(b)					
Retention force.						3	
Mechanical shock.		6					
Vibration.		5					
Humidity.				5			
Temperature life.			3				
Thermal shock.				4			
Solderability.					2		
Resistance to wave soldering heat.							2
Resistance to reflow soldering heat.						2	

NOTE

- (a) Numbers indicate sequence in which test are performed.
 (b) Preconditioning, 20 cycles for the 50-durability cycles requirement, 50 cycles for the 500-durability cycles requirement. The insertion and removal cycle is at the maximum rate of 200 cycles per hours.
 (c) Discontinuities shall not take place in this test group, during tests.

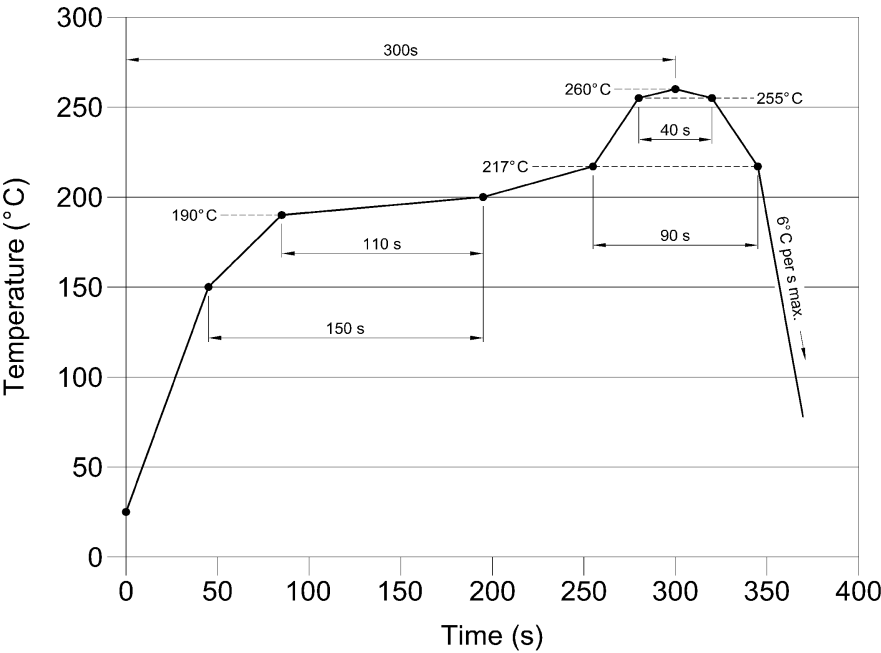
Figure 1

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2. TEST RESULT

Test Group	Test Description	Requirement	Test Result				Judgment
			Max.	Min.	Ave.	σ	
A	Examination of product.	Meets product drawing.	PASSED				Accepted
	Low level contact resistance.	30 M Ω max. initial.	28.27	25.93	27.319	0.761	Accepted
	Durability.	No damage	PASSED				Accepted
	Low level contact resistance.	45 M Ω max. final.	29.05	28.1	28.693	0.343	Accepted
	Examination of product.	Meets product drawing.	PASSED				Accepted
B	Examination of product.	Meets product drawing.	PASSED				Accepted
	Mating force.	20 N max.	19.01	16.5	17.711	0.746	Accepted
	Low level contact resistance.	30 M Ω max initial.	28.77	25.78	27.398	0.85	Accepted
	Durability.	No damage	PASSED				Accepted
	Vibration.	No discontinuities of 1 μ s or longer duration.	PASSED				Accepted
	Mechanical shock.	No discontinuities of 1 μ s or longer duration.	PASSED				Accepted
	Low level contact resistance.	45 M Ω max final.	28.35	26.98	27.629	0.42	Accepted
	Unmating force.	4 N Min.	8.4	6.5	7.37	0.595	Accepted
	Examination of product.	Meets product drawing.	PASSED				Accepted
C	Examination of product.	Meets product drawing.	PASSED				Accepted
	Low level contact resistance.	30 m Ω max initial.	28.12	25.99	27.166	0.782	Accepted
	Temperature life.	No damage.	PASSED				Accepted
	Low level contact resistance.	45 m Ω max final.	28.66	26.98	27.785	0.578	Accepted
	Examination of product.	Meets product drawing.	PASSED				Accepted
D	Examination of product.	Meets product drawing.	PASSED				Accepted
	Insulation resistance.	1000 M Ω max.	PASSED				Accepted
	Dielectric withstanding voltage.	No breakdown or flashover.	PASSED				Accepted
	Thermal shock.	No damage.	PASSED				Accepted
	Humidity.	No damage.	PASSED				Accepted
	Insulation resistance.	1000 M Ω max.	PASSED				Accepted
	Dielectric withstanding voltage.	No damage.	PASSED				Accepted
	Examination of product.	Meets product drawing.	PASSED				Accepted
E	Examination of product.	Meets product drawing.	PASSED				Accepted
	Solderability.	95% solder coverage min.	PASSED				Accepted
	Examination of product.	Meets product drawing.	PASSED				Accepted
F	Examination of product.	Meets product drawing.	PASSED				Accepted
	Resistance to reflow soldering heat.	No damage.	PASSED				Accepted
	Retention force.	1 N min per contact.	8.9	6.1	7.44	0.862	Accepted
G	Examination of product.	Meets product drawing.	PASSED				Accepted
	Resistance to wave soldering heat.	No damage.	PASSED				Accepted
	Examination of product.	Meets product drawing.	PASSED				Accepted

Figure 2 (end)



Temperature Profile of Reflow Soldering
Figure 3