USB SERIES, A TYPE, PLUG

1. INTRODUCTION

1.1. Purpose

Testing was performed on the **USB SERIES, A TYPE, PLUG** connector to determine its conformance to the requirements of Product Specification 108-57304 Rev A.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of **USB SERIES, A TYPE, PLUG** manufactured by the Global Personal Computer Division.

1.3. Conclusion

USB SERIES, A TYPE, PLUG connector meets the electrical, mechanical, and environmental performance requirements of Product Specification 108-57304 Rev A.

1.4. Product Description

USB SERIES, A TYPE, PLUG connector is designed for printed circuit board applications. The contacts are copper alloy, gold plated on the contact interface and Tin or Tin-lead plating on the solder tail, all over nickel under-plated. The housing material is glass filled insulating polymer, UL94V-0.

1.5. Test Samples

The test samples were randomly selected from normal current production lots, and the following part numbers were used for test:

Test Group	Quantity	Description
A, B, C, D, E, F	5 ea.	**USB SERIES, A TYPE, PLUG**

1.6. Qualification Test Sequence

Test or Examination	Test Group					
	A	B	C	D	E	F
	Test Sequence (a)					
Examination of Product	1,5	1,9	1,3	1,9	1,9	1,3
Contact Resistance	2,4	2,6		4,8	4,8	
Insulation Resistance				2,6	2,6	
Dielectric Withstanding Resistance				3,7	3,7	
Durability		5				
Mating Force		3,7				
Unmating Force		4,8				
Humidity-Cycling Test				5		
Thermal Shock					5	
High Temperature Life	3					
Solderability			2			
Resistance to Soldering Heat						2

Figure 1.

NOTE：（a）The numbers indicate sequence in which tests were performed.

2. TEST RESULT

GP	TEST	SPEC.	DATA			
			Mean	σ	Max.	Min.
A	Contact Resistance	30mΩ Max.	16.98	1.3	18.96	14.24
	High Temperature Life	85℃for 250hrs.	OK	--	OK	OK
	Contact Resistance	30mΩ Max.	19.32	1.3	22.22	16.01
	Appearance	No Damage.	OK	--	OK	OK
B	Contact Resistance	30mΩ Max.	17.11	1.2	20.34	14.96
	Mating Force	3.57kg Max.	1.58	0.1	1.70	1.36
	Unmating force	1.02kg Min.	1.70	0.1	1.91	1.54
	Durability	1500 cycles.	OK	--	OK	OK
	Contact Resistance	30mΩ Max.	18.77	1.2	21.11	16.84
	Mating Force	3.57kg Max.	1.40	0.09	1.55	1.25
	Unmating force	1.02kg Min.	1.45	0.09	1.65	1.30
	Appearance	No Damage.	OK	--	OK	OK
C	Solderability	245±5℃	OK	--	OK	OK
	Appearance	No Damage.	OK	--	OK	OK
D	Insulation Resistance	1000 MΩ Min.	OK	--	OK	OK
	Dielectric Withstanding Resistance	500 VAC for 1 minute.	OK	--	OK	OK
	Contact Resistance	30mΩ Max.	16.11	1.1	18.98	14.22
	Humidity-Cycling Test	168 hours.	OK	--	OK	OK
	Insulation Resistance	1000 MΩ Min.	OK	--	OK	OK
	Dielectric Withstanding Resistance	500 VAC for 1 minute.	OK	--	OK	OK
	Contact Resistance	30mΩ Max.	18.11	1.3	20.25	16.23
	Appearance	No Damage.	OK	--	OK	OK
E	Insulation Resistance	1000 MΩ Min.	OK	--	OK	OK
	Dielectric Withstanding Resistance	500 VAC for 1 minute.	OK	--	OK	OK
	Contact Resistance	30mΩ Max.	16.42	1.0	19.21	14.10
	Thermal Shock	-55~85℃, 10 cycles.	OK	--	OK	OK
	Insulation Resistance	1000 MΩ Min.	OK	--	OK	OK
	Dielectric Withstanding Resistance	500 VAC for 1 minute.	OK	--	OK	OK
	Contact Resistance	30mΩ Max.	18.70	1.1	21.15	16.01
	Appearance	No Damage.	OK	--	OK	OK
F	Resistance to Wave Soldering Heat	No Damage.	OK	--	OK	OK
	Resistance to Reflow Soldering Heat	No Damage.	OK	--	OK	OK
	Appearance	No Damage.	OK	--	OK	OK

Figure 2