SUPER LOW PROFILE SLIDING SIM H=1.95

1. Scope:

1.1 Contents

This specification covers the requirements for product performance test methods and quality assurance provisions of SUPER LOW PROFILE SLIDING SIM H=1.95.
Applicable product descriptions and part numbers are as shown in Appendix 1.

2. Applicable Documents:

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 AMP Specifications:

A. 109-5000: Test Specification, General Requirements for Test Methods
B. 501-115028: Test Report

2.2 Commercial Standards and Specifications:

A. MIL-STD-202: Test Methods for Electronic and Electrical Component Parts.

3. Requirements

3.1 Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2 Materials:

A. Contact:
Copper Alloy (Ni:1.27 μm Min. Contact Area PdNi:1.0 μm Min. Au: 0.2 μm Min. Soldering Au: 0.05 μm Min.)
B. Clip: SUS (Ni:1.3 μm MIN. Soldering Area Tin: 1 μm MIN.)
C. Housing: 30% Glass-filled LCP (UL94V-0), BLACK

3.3 Ratings :

A. Voltage Rating: 15V MAX.
B. Current Rating: 1.2A MAX. /contact
C. Operating Temperature: - 25 °C to 70 °C
D. Durability: 5000cycles

3.4 Performance Requirements and Test Descriptions

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 1. All tests shall be performed in the room temperature, unless otherwise specified.

3.5 Test Requirements and Procedures Summary

Fig. 1

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	Meets requirements of product drawing.	Visual inspection No physical damage
Electrical Requirements			
3.5.2	Contact Resistance (Low Level) See para. 3.6.1	Initial: 50 mΩ Max. Final: 100 mΩ Max.	Subject mated contacts assembled in housing to 20 mV Max open circuit at 100 mA DC. See also para. 3.6.1 In acc. with IEC 60512-2 test 2a
Electrical Requirements			
3.5.3	Insulation Resistance	500 MΩ Min.	Impressed voltage 100 V DC. Unmated card. In acc. with IEC 60512-2 test 3a
3.5.4	Voltage proof	No creeping discharge no flashover shall occur.	500VAC for 1 minute. Unmated card. In acc. with IEC 60512-2 test 4a
3.5.5	Electrical load and Temperature	Temperature at contact-point shall not exceed 70℃	Condition: 50℃Max. 1000hrs Electrical load: 0.8A Use Au-plated dummy card. Card thickness: 0.76mm In acc. With IEC 60512-5 Test 9b
3.5.6	Temperature rise	Temperature limit at contact-point shall not exceed 70℃	Under loaded specified current or rating current. In acc. With IEC 60512-3 Test 5b

Para.	Test Items	Requirements	Procedures
Mechanical Requirements			
3.5.7	Contact normal force	At Contact Point Stroke:0.29mm Requirement: 0.33N Min. 0.43N Max.	Normal force test equipment (Force/ Deflection curve)
3.5.8	Vibration (Sinusoidal) See para. 3.6.2	No electrical discontinuity greater than 1 μ second shall occur; No physical damage.	Slide 0.68mm thick dummy card in the connector. Vibration Frequency: 10-500Hz / 0.8mm, 1oct./min. 6 G Vibration Direction: 3directions. Duration: 2 hours each In acc. with IEC 60512-4 test 6d
3.5.9	Mechanical Operation 1 See para. 3.6.2	Sequence Test Group 1	Operations shall be conducted manual at 70℃ dry heat Operation cycles: 20 Rate: 10-cycle/1 minute. Recovery time: 2 hrs Use Au-plated dummy card Card thickness: 0.76mm In acc. with IEC 60512-5 test 9a
3.5.10	Mechanical Operation 2 See para. 3.6.2	Sequence Test Group 1	Operations shall be conducted manual at -25℃ dry heat Operation cycles: 20 Rate: 10-cycle/1 minute. Recovery time: 2 hrs Use Au-plated dummy card Card thickness; 0.76mm In acc. with IEC 60512-5 test 9a
3.5.11	Mechanical Operation 3 See para. 3.6.2	Sequence Test Group 2	Test shall be conducted using real cards. Operation cycles: 750 Rate: 10-cycle/1 minute. Speed: 10 mm/s In acc. with IEC 60512-5 test 9a
3.5.12	Mechanical Operation 4 See para. 3.6.2	Sequence Test Group 7	Test shall be conducted using real cards. Operation cycles: 5000 Rate: 10-cycle/1 minute. Speed: 10 mm/s In acc. with IEC 60512-5 test 9a
3.5.13	Physical Shock 1 See para. 3.6.2	No electrical discontinuity greater than 1 μ second shall occur. No physical damage.	Slide 0.68mm thick dummy card in the connector. Subject test frame to 40G half sine shock pluses 6ms duration. Endurance: 10shocks in both directions of 3 mutual perpendicular axis. In acc. with IEC 60512-4 test 6c
3.5.14	Physical Shock 2 See para. 3.6.2	No physical damage. Card shall not be ejected.	Slide a real card of 0.68mm thick in the connector. Subject test frame to 500G half-sine shock pluses of 1 ms duration. Endurance: 2 shocks in both directions of 3 mutual perpendicular axis. In acc. with IEC 60512-4 test 6c

Fig. 1 (CONT.)

Para.	Test Items	Requirements	Procedures
Environmental Requirements			
3.5.15	Rapid change of temperature	Sequence Test Group 1	−40°C / 30 min. , 85°C /30 min. Making this a cycle, repeat 5cycles. Recovery time 2 hours. Use 0.76mm thickness Au-plated dummy card. In acc, with IEC 60068-2-14
3.5.16	Dry heat 1	Sequence Test Group 1	70°C, Duration: 16 hrs. Recovery time: 2 hours Sample 1 and 2 unmated Sample 3 and 4 mated: Use Au-plated dummy card. Card thickness: 0.76mm In acc. with IEC 60512-6 Test 11i
3.5.17	Dry heat 2	Sequence Test Group 3	Temperature: 85°C, Duration: 240 hrs. Use Au-plated dummy card. Card thickness: 0.76mm In acc. with IEC 60512-5 Test 9b
3.5.18	Humidity (Steady State)	Sequence Test Group 1	Temperature: 40°C, R.H. 95 % Duration: 240 hours AMP 109-5105
3.5.19	Cold	Sequence Test Group 1	Temperature: -25℃ Duration: 2 hrs. Recovery time: 2 hours Use Au-plated dummy card. Card thickness: 0.76mm In acc. with IEC 60512-5 Test 11j
3.5.20	Solderability	No physical damage allowed.	Soldering iron temperature 380℃ 5sec.Max
3.5.21	Resistance to Soldering Heat See para. 3.6.3	No physical damage shall occur. (Cracks, chips or melting)	2cycles of heat curve covering IR soldering curve specified figure 4-1, 4-2.
3.5.22	Cleaning liquid resistance	Sequence Test Group 6	Unmated card. Isopropyl alcohol; 5minutes. Without rubbing. In acc. with IEC 60068-2-45
3.5.23	Industrial atmosphere	Sequence Test Group 2	SO2; 10mm3/m3 40±2℃、75% Humidity; 48 Hour. Sample1～2; Unmated Sample3～4; Mated Au-plated dummy card Sample5～6; Mated real card

Fig. 1 (End)

4. Product Qualification Test Sequence

Test Items	Test Group						
	1	2	3	4	5	6	7
	Test Sequence (a)						
Examination of Product	1,3,11,16,26	1,4,7,11	1,12	1,3	1,3	1,9	1,8
Termination Resistance	5,14,24	2,5,8,10	2,8			2,6	2,6
Insulation Resistance	6,13,22		3,10			3,7	
Voltage Proof	7,15,23		4,11			4,8	
Electrical load & temperature			6				
Current cycling capacity				2			
Contact normal force	4,25		5,9				3,7
Vibration Sinusoidal	8						
Mechanical Operation 1	18						
Mechanical Operation 2	21						
Mechanical Operation 3		3,9					
Mechanical Operation 4							4
Physical Shock 1	9						
Physical Shock 2	10						
Thermal Shock 1	12						
Dry Heat 1	17						
Dry Heat 2			7				
Humidity	19						5
Cold	20						
Solder Ability					2		
Resistance to Soldering Heat	2						
Cleaning liquid resistance						5	
Industrial atmosphere		6					

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

The applicable product descriptions and part numbers are as shown in Appendix. 1.

Product Part No.	Description
1932768-1	SUPER LOW PROFILE SLIDING SIM ,H1.95

Appendix 1

3.6. Additional Testing Details

3.6.1 Terminal Resistance

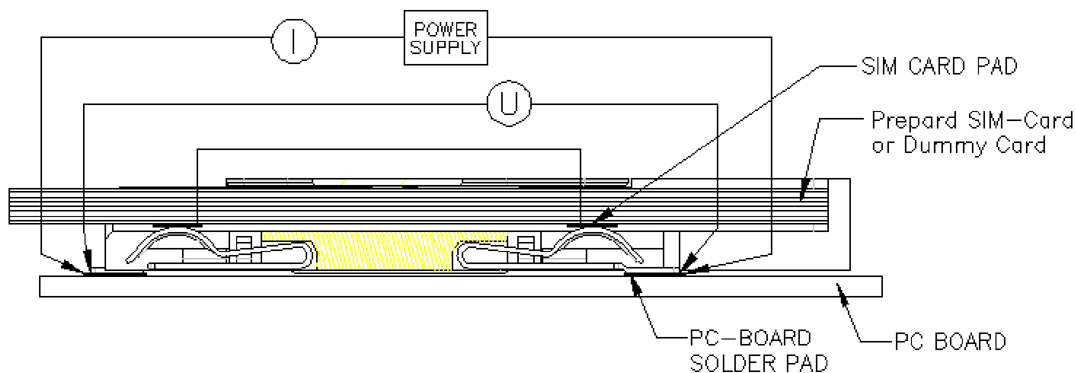

Figure 2.

3.6.2 The actual Phone Hand-sets shall be used for Mechanical Operation, Vibration and Physical Shock tests or else test frame(s) shall simulate the actual application as indicated in figures 3(slide insertion).

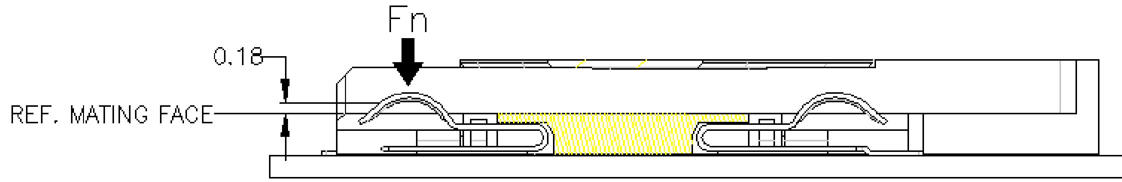

Figure 3.

3.6.3 IR Reflow Profile

Resistance to soldering heat test samples shall be placed on a bare surface of a Printed Circuit Board. Test heat-curve shall cover the IR/Convection solder reflow conditions as Indicated In figure 4. All temperatures refer to the topside of the package as measured on the PC-board surface. Between exposures, parts shall be allowed to cool down to room temperature, for 5 minutes minimum.

	Condition
A : The Speed of Temperature Rising	3±1℃／sec
B : The Start Temperature of Pre-Heating	150±20℃
C : Time of Pre-Heating	90±30sec
D : Time of upper 200 ℃	55sec MAX.
E : Temperature of Peak Point	240℃
F : Time of upper 235℃	10sec MAX.

Number of Reflow times: 2 times.

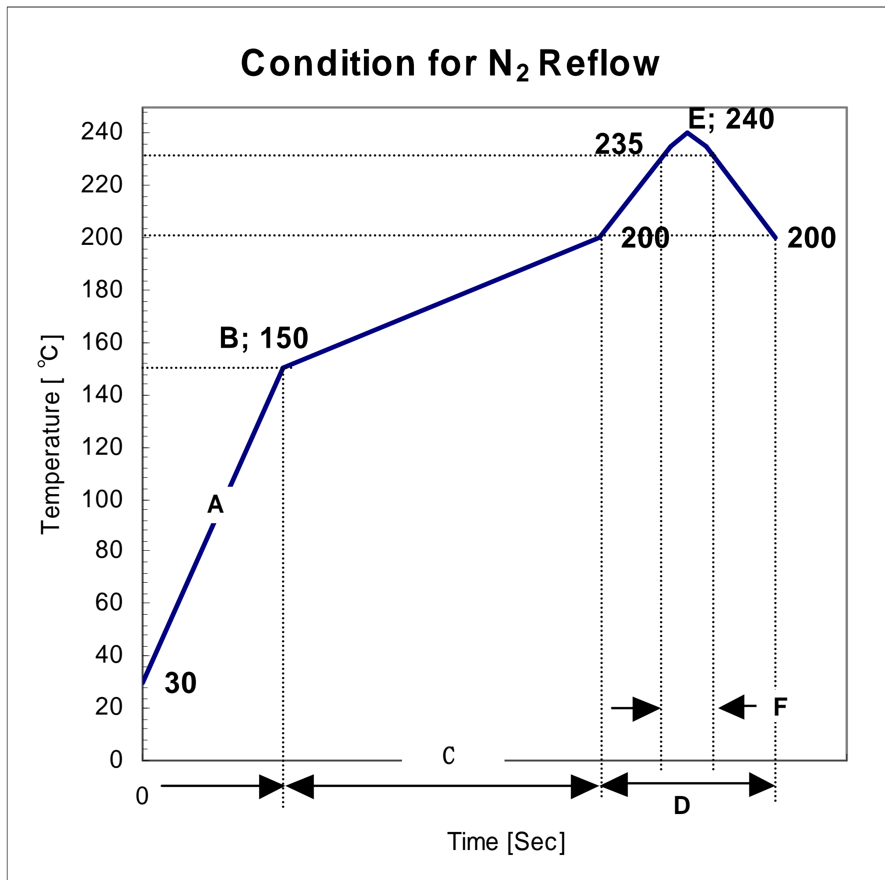

Figure 4-1.

	Condition
A : The Speed of Temperature Rising	3±1℃／sec
B : The Start Temperature of Pre-Heating	180～220℃
C : Time of Pre-Heating	120sec MAX.
D : Time of upper 220 ℃	50sec MIN. 80sec MAX.
E : Temperature of Peak Point	250℃
F : Time of upper 235℃	---

Number of Reflow times; 2 times.

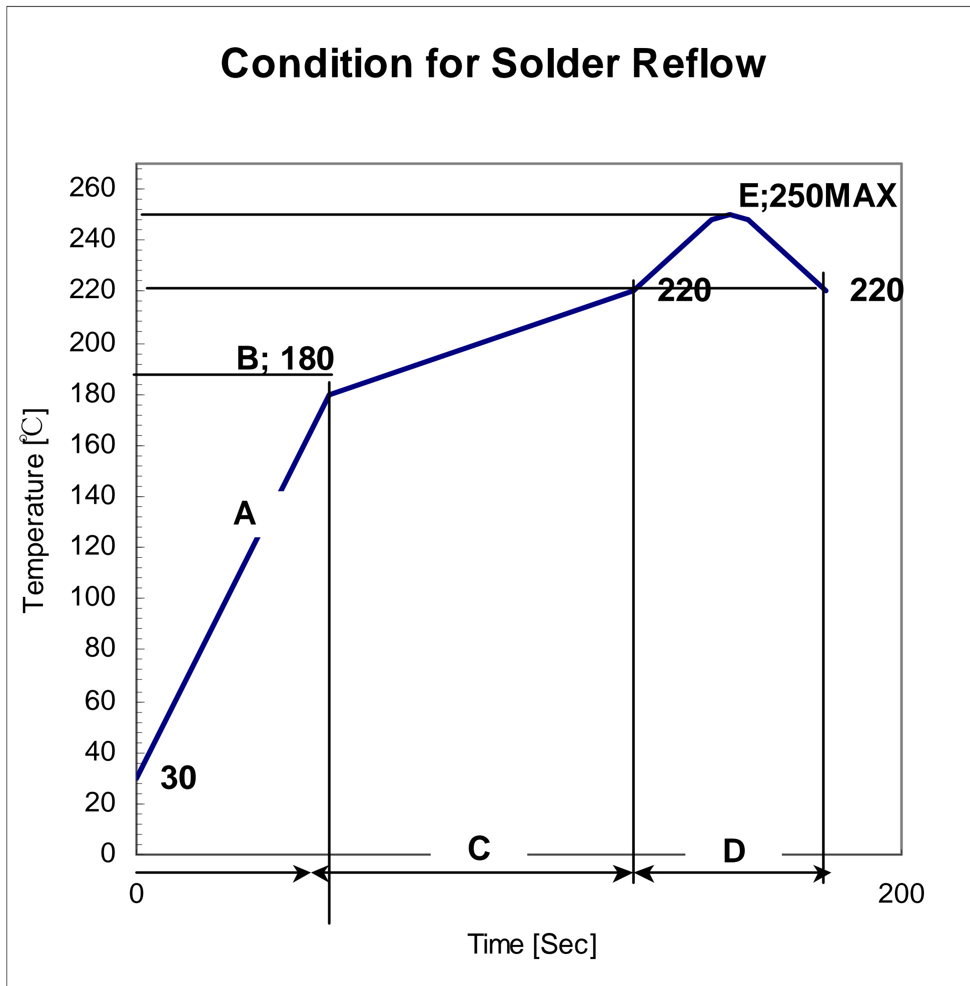

Figure 4-2.