1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality

assurance provisions of Micro-SIM Push-Pull Type.

Applicable product description 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. 501-61060 : Test Report

2.2 Commercial Standards and Specifications

A. EIA-364 Test Method for Electronic and Electric Parts

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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

Material : Copper alloy, Au plating on contact area over Ni plating.

B. Housing

Material : Thermo Plastic, UL94V-0

C. Shell

Material : Stainless steel, Tin over Ni plating.

3.3 Ratings :

A. Voltage Rating : 30V AC/DC Max.

B. Current Rating : 1.0A AC/DC Max. Per Contact

C. Operating Environment

Operating Temperature Rating :－30℃ to +85℃ (Including temperature rising)

Operating Relative Humidity : 95% Max. (non-condensing)

※ High Limit temperature includes Raised Temperature by Operation.

D. Storage Environment

Storage temperature : -30℃ to +85℃ (with Packing)

Storage Relitive Humidity : 15% to 70% RH

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(15~35℃), Relative Humidity(20~80%), Air Pressure(86~106kPa), unless otherwise specified.

3.5 Test Requirements and Procedures Summary

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	No physical damage	Visual inspection No physical damage
		Electrical Requirements	
3.5.2	Contact Resistance （Low Level）	Initial, 50mΩ Max. After test, 80mΩ Max.	Mate connector with dry circuit(20mV Max., 100mA Max.) at Min. Deflection position. 4-wire measurement is required. Resistance of termination wires shall be deducted from the reading. [IEC 60512-3-1] Refer to FiG.4
3.5.3	Insulation Resistance	Initial, 1000MΩ Min. After test, 100MΩ Min.	Apply 100VDC with un-mating condition between adjacent contacts for 1 minute. [IEC 60512-3-1]
3.5.4	Dielectric withstanding Voltage	No voltage breakdown.	Apply 500VAC with un-mating condition between adjacent contacts for 1 minute. [IEC 60512-3-1]
3.5.5	Temperature Rise	After test, 30℃ Max.	Connec t series, Mate connector and measure the temperature rise at the rated current after 2hours. [EIA-364-70A]
		Mechanical Requirements	
3.5.6	Contact normal Force	At Contact Point Stroke : 0.55mm Requirement : 20gf Min 70gf Max	Measure contact normal force at normal working range. (Speed : 25±3mm/minuate) Refer to FiG.5
3.5.7	Durability	No physical damage and shall meet requirements of subsequent tests.	5,000 cycles - Mechanically Operated : 500 cycle/hour - Manually Operated : 200 cycle/hour
3.5.8	Vabration	No physical damage. No change to performance. No discontinuity greater than 1.0 microsecond.	Apply for 2 hours in each 3 mutually perpendicular axes(total 6 hours). Frequency=10-55-10Hz (Sweep time :1 minute max.) Amplitude=1.5mm, Current=100mA [EIA-364-28E Condition Ⅰ]
3.5.9	Shock	No physical damage. No change to performance. No discontinuity greater than 1.0 microsecond.	Apply 3 successive shocks in each direction along the 3 mutually perpendicular axes(total 18 shocks) Pulse shape=harf sine Peak acceleration=490m/s2(50G) Duration of pulse=11ms [EIA-364-27B Condition Ⅰ]

3.5.10	Soldering Strength	5Kgf Min.	Apply a force to the connector in each parallel direction(X & Y) with PCB until the breakdown of connecotr or soldering parts occurs.
Environmental Requirements			
3.5.11	Dry cold (steady state)	No physical damage and shall meet requirement of subsequent test.	-30℃ ±3℃ for 48 hours Recovery period 2 hours at ambient atmosphere. [MIL-STD-202 Method 108]
3.5.12	Dry heat (steady state)	No physical damage and shall meet requirement of subsequent test.	+85℃ ±2℃ for 48 hours Recovery period 2 hours at ambient atmosphere. [MIL-STD-202 Method 108]
3.5.13	Thermal Shock (change of temperature)	No physical damage and shall meet requirement of subsequent test.	Ta=-40℃ for 30 min ; then change of temp.=25℃ , 5minute max.; then Tb=+85℃ for 30 min. After 24cycles, cool to ambient for 2 hours.
3.5.14	Damp heat (steady state)	No physical damage and shall meet requirement of subsequent test.	96 hours at Temp. 85℃ ±2℃, R/H 85 ± 5%; After test, cool to ambient temp. for 2 hours.
3.5.15	Salt spray	No physical damage and shall meet requirement of subsequent test.	48 hours spray, At temp. 35±2 ℃ R/H 90~95%, Salt NaCl mist 5% After test wash parts and return to room ambient for 2 hours. [EIA-364-26B]
3.5.16	Mixed Gas	No mechanical damage.	48 hours, H2S 3ppm + SO2 10ppm At temp. 40±2 ℃, R/H 80% After test return to ambient temp. for 1~2 hours. [IEC 60068-2-60 Ke Method 1]
Para.	Test Items	Requirements	Procedures
3.5.17	Solderability	Solderable area shall have a minimum of 95% solder coverage. For lead free solder pot temperature shall be 240℃±5℃	Peak Temperature : 240℃±5℃, Reflow Time(230℃ Min) : 45~60 seconds.

3.5.18	Resistance to Reflow Heat	No mechanical damage allowed.	Temperature profile;as shown in Fig.3 Reflow 2 times. EIA 364-56

Fig. (END)

The meaning of text “mechanical damage” in the table above is :

- No dimension change
- No pinhole corrosion of plating
- No general corrosion of plating
- No adhesion problem of plating
- No blistering of plating
- No flaking of plating
- No loosen parts
- No cracks on any parts

4. Product Qualification Test Sequence

Para.	Test Examination	Test Group									
		1	2	3	4	5	6	7	8	9	10
		Test Sequence (a)									
3.5.1	Examination of Product	1,3	1,5	1	1,7	1,5	1,3	1,5	1,7	1,10	1,7
3.5.2	Contact resistance		2,4		2,4,6	2,4		2,4	2,4,6		5
3.5.3	Insulation resistance									2,5,8	3
3.5.4	Dielectric withstanding Voltage									3,6,9	4
3.5.5	Temperature Rise										6
3.5.6	Contact Normal Force	2									
3.5.7	Durability		3								
3.5.8	Vabration				3						
3.5.9	Shock				5						
3.5.10	Soldering Strength			2							
3.5.11	Dry cold (steady state)								3		
3.5.12	Dry heat (steady state)								5		
3.5.13	Thermal Shock									4	
3.5.14	Damp heat(steady state)									7	
3.5.15	Salt spray					3					
3.5.16	Mixed Gas							3			
3.5.17	Solderability						2				
3.5.18	Resistance to Reflow Heat										2

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

Fig. 2

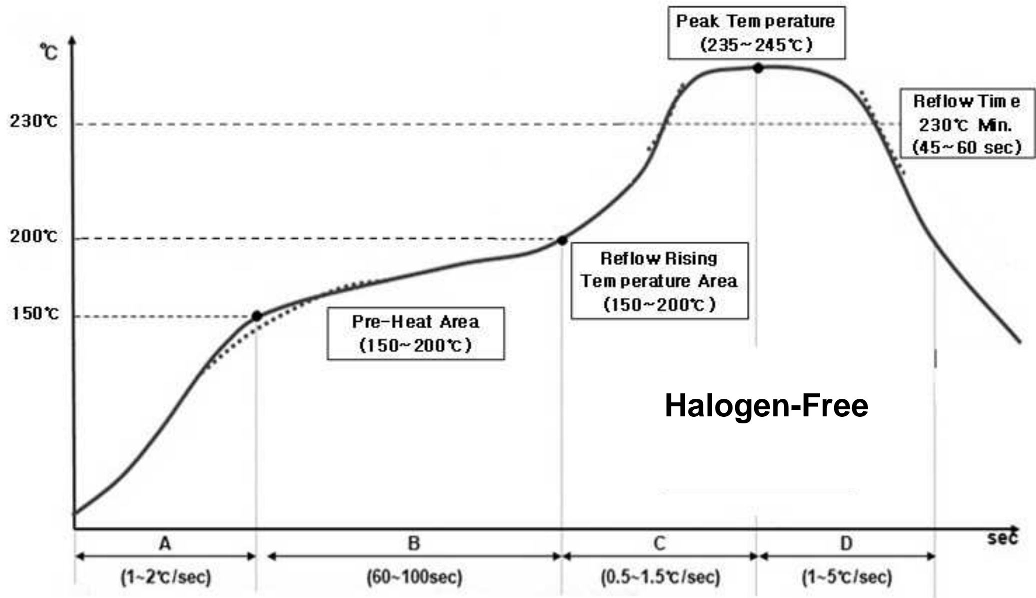

Fig.3 Reflow temperature profile

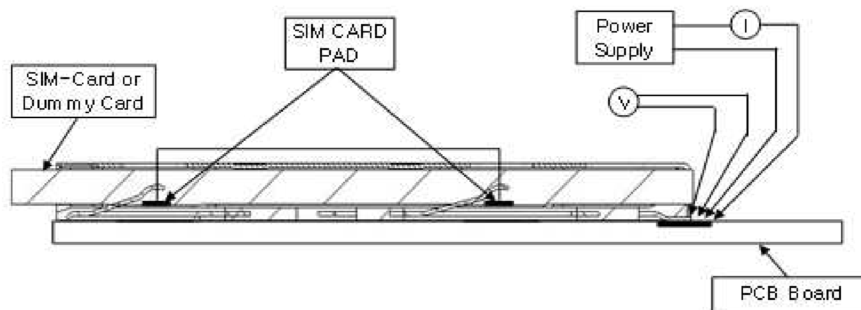

Fig.4 Termination Resistance Measuring Points

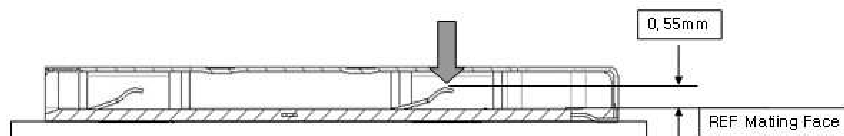

Fig.5 Contact Normal Force