1. Scope：

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of Micro SD Header Connector.
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 TE AMP Specifications：

A. 109-5000：Test Specification, General Requirements for Test Methods

B. 501-115019：Test Report

2.2 Commercial Standards and Specifications

A. MIL-STD-202

B. Micro SD Memory card Application Notes

C. IEC 68-2

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. Au plate on contact area over Ni plate. And Au plate on solder tine over Ni plate.

B. Housing

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Thermoplastic UL94V-0

C. Other

Shell：Copper Alloy. Au separate plate over Ni plate.

3.3 Ratings：

A. Voltage Rating ：30VAC

B. Current Rating ：0.5A

C. Temperature Rating：－25°C to +85°C

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

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	No physical damage	Visual inspection No physical damage
		Electrical Requirements	
3.5.2	Termination Resistance (Low Level)	Signal：100mΩMax.（Initial） ΔR=40mΩMax Switch：300mΩMax	Subject mated contacts assembled in housing to 20mV Max open circuit at 10mA. Refer to Fig.3.
3.5.3	Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 1mA Max.	0.5KVAC（Signal） for 1 minute. Test between adjacent circuits.
3.5.4	Insulation Resistance	1000MΩ Min. （Initial） 100MΩ Min. （Final）	Impressed voltage 500VDC for 1 minute. Test between adjacent circuits. MIL-STD-202, Method 302, Condition B
3.5.5	Temperature Rising	30℃ Max under loaded rating Current.	Contacts series-,apply test current of loaded rating current of the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized Deduct ambient temperature from the measured value. Refer to Fig.5
		Mechanical Requirements	
3.5.6	Connector Mating Force	35N（3.57kgf）Max. （Initial）	Operation Speed：25 mm/min. Measure the force required to mate connectors.
3.5.7	Durability (Office Environment) （Repeated Mate / Unmating）	Signal： ΔR=40mΩMax Switch：300mΩMax	Cycle Rate：7~10 cycles / minute No. of Cycles: 10000cycles. After each 10cycles stop the insertion and rest the connector for 5 to 10 minutes. Air blow card for 3secs at each 100cycle interval from start to 1000cycle. at each 1000cycle interval from 1001 to 10000cycle.

Fig. 1 （CONT.）

Para.	Test Items	Requirements	Procedures
3.5.8	Durability (Harsh Environment) （Repeated Mate / Unmating）	Signal： ΔR=40mΩMax Switch：300mΩMax	Cycle Rate：7~10cycles / minute No. of Cycles: 3000cycles. After each 10cycles stop the insertion and rest the connector for 5 to 10 minutes. Air blow card for 3secs at each 100cycle interval from start to 1000cycle. at each 1000cycle interval from 1001 to 3000cycle. 1. Mate/Unmating：500cycles. 2. Damp Heat 1cycle 3. Mate/Unmating：500cycles 4. Damp Heat 1cycles 5. Mate/Unmating：2000cycles 6. Damp Heat 1cycles 7. H_2S 96Hours
3.5.9	Random Vibration	No electrical discontinuity greater than 100nsec. Shall occur.	5Hz to 500Hz, 0.01g²/HZ 100minutes at each axis, total 300minnutes for 3 axis (IEC 68-2-64)
3.5.10	Sine Vibration	No electrical discontinuity greater than 100nsec. Shall occur.	50m/s² （5.1G）Peak amplitude 10Hz to 150Hz, Sweep rate at 1 octave/minute 90 min. on each plane, total 270min.
3.5.11	Physical Shock	No electrical discontinuity greater than 100nsec. Shall occur.	Accelerated Velocity：490 m/s² （50 G） Waveform：Semi-Sine Duration：11 m sec. Number of Drops：3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. MIL-STD-202 Method 213 Condition A
3.5.12	Solder ability	Wet Solder Coverage： 95% Min.	Solder Temperature：245±3 °C Immersion Duration：3±0.5 seconds
Environmental Requirements			
3.5.13	Thermal Shock	Signal： ΔR=40mΩMax Switch：300mΩMax	Mated, －40°C to 85°C, transition time 0~5 minutes 10 minutes at each extreme temp. 640 cycles (IEC 68-2-14)
3.5.14	Thermal Cycling	Signal： ΔR=40mΩMax Switch：300mΩMax	Mated, －40°C to 85°C, 300 cycles Temp. ramp 15°C/min, 15 minutes dwell time at each extreme temp.
3.5.15	Low temp. lifetest	Signal： ΔR=40mΩMax Switch：300mΩMax	Mated, -40°C, <50% R.H 500 Hours (IEC 60068-2-1)
3.5.16	Humidity Stress Test	Signal： ΔR=40mΩMax Switch：300mΩMax	Mated, 85°C, 85% R.H 1000 Hours (IEC 60068-2-78)

Fig. 1 （CONT.）

Para.	Test Items	Requirements	Procedures
3.5.17	Salt Mist	Signal： ΔR=40mΩMax Switch：300mΩMax	Mated connectors with 5 %, 35℃ concentration for 72 hours. IEC 68-2-52 Condition B
3.5.18	Ammonia gas	Signal： ΔR=40mΩMax Switch：300mΩMax	Mated, 25°C, 24 Hours according to ASTM B858 or ISO 6957
3.5.19	Industrial Gas （H_2S）	Signal： ΔR=40mΩMax Switch：300mΩMax	Mated Dummy card (PCB). H_2S Gas: 3ppm, 90~95% R.H. 40°C, 96hours
3.5.20	Resistance to Reflow Soldering Heat	Tested housing shall show no evidence of deformation or fusion of housing and no physical damage.	Test connector on PCB. Pre-Heat 150～180℃ ：90±30sec. Heat 230℃ ：30±10sec. Heat Peak 255℃ 3 times Refer to Fig 4 JEDEC Std J-STD-020C

Fig. 1 （End）

4. Product Qualification Test Sequence

Test Examination	Test Group													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Test Sequence (a)													
Examination of Product	1,3	1,7	1,5	1,5	1,6	1,3	1,5	1,5	1,5	1,9	1,5	1,5	1,5	1,3
Termination Resistance (Low Level)		2,5	2,4	2,4	2,5		2,4	2,4	2,4	2,6	2,4	2,4	2,4	
Dielectric withstanding Voltage										3,7				
Insulation Resistance										4,8				
Temperature Rising	2													
Connector Mating Force		3,6												
Durability (Office Environment)		4												
Durability (Harsh Environment)			3											
Random Vibration				3										
Sine Vibration					3									
Physical Shock					4									
Solder ability						2								
Thermal Shock							3							
Thermal Cycling								3						
Low temp. lifetest									3					
Humidity Stress Test										5				
Salt Mist											3			
Ammonia gas												3		
Industrial H_2S Gas													3	
Resistance to Reflow Soldering Heat														2

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

Fig. 2

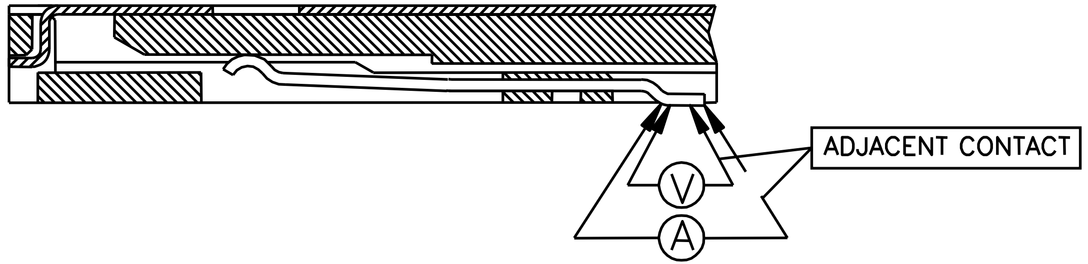

Fig.3 Termination Resistance measuring points

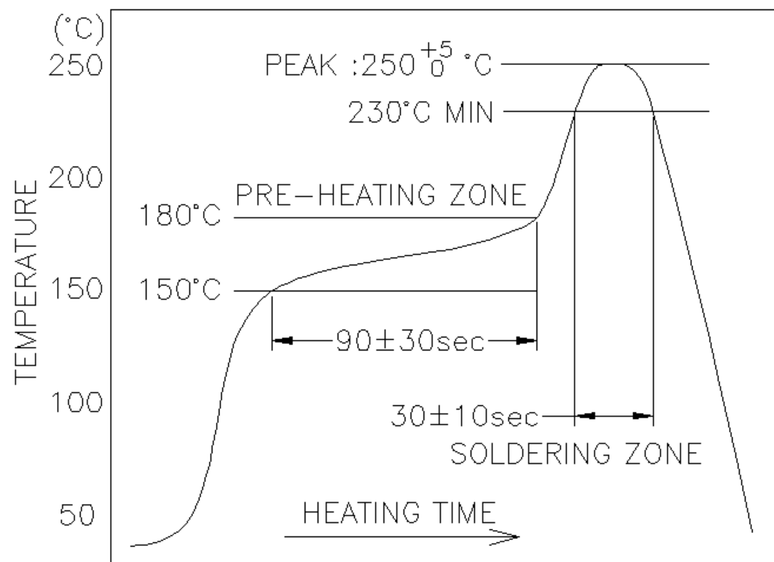

Fig.4 Reflow temperature profile

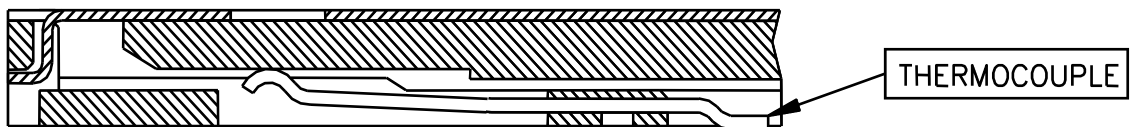

Fig.5 Temperature Resistance Measurement

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

Product Part No.	Description
1932739-1	Micro SD Header Connector
1932739-2	Micro SD Header Connector

Appendix 1