2.5mm Pitch Battery Connector

1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of 2.5mm Pitch Battery Connector.

Applicable product descriptions and part numbers are as shown in Appendix 2.

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- 5264 : 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

(1)Plug

- Material：Copper Alloy
- Finish：Ni under plated all over.
  Palladium-nickel plated and gold-flash plated at contact area.
  Gold flash plated or Tin plated at soldering area.
  See product drawings.

(2)Receptacle

- Material：Copper Alloy
- Finish：Ni under plated all over.
  Palladium-nickel plated and gold-flash plated at contact area.
  Tin plated at soldering area.

B. Housing

(1) Plug : Thermoplastic Molding Compound
Color :Black, UL94V-0

(2) Receptacle : Thermoplastic Molding Compound
Color :Black, UL94V-0

3.3 Ratings

A. Voltage Rating : 30V DC
B. Current Rating : 6 A
C. Temperature Rating : －20℃ to +80℃

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	Meets requirements of product drawing.	Visual inspection No physical damage
		Electrical Requirements	
3.5.2	Termination Resistance (Low Level)	30mΩ Max. (Initial) ΔR 20mΩ Max.(Final)	Subject mated contacts assembled in housing to 20 mV Max. open circuit at 10 mA. Fig.2 AMP Spec. 109-5311-1
3.5.3	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage :0.5Ma Max.	1kVAC for 1 minute. Test between adjacent circuits of mated connectors. AMP Spec. 109-5301
3.5.4	Insulation Resistance	1000MΩ Min. (Initial) 100MΩ Min. (Final)	500V DC for 1 minute. Test between adjacent circuits of mated connectors. AMP Spec. 109-5302
3.5.5	Temperature Rising	30℃ Max. under loaded rating current.	Measure temperature rising by energized current. AMP Spec. 109-5310
		Mechanical Requirements	
3.5.6	Connector Mating Force	1Pos. : 9 N (0.9 kgf) Max.	Operation Speed : 100mm/min. Measure the force required to mate connectors. AMP Spec. 109-5206
3.5.7	Connector Unmating Force	1Pos.: 0.3 N (0.03 kgf) Min.	Operation Speed : 100mm/min. Measure the force required to unmate connectors. AMP Spec. 109-5206
3.5.8	Durability (Repeated Mate / Unmating)	ΔR 20mΩ Max. (Final)	Operation Speed : 100mm/min. Number of Cycles Plug : 6000 cycles Recptacle : 2000 cycles AMP Spec. 109-5213
3.5.9	Vibration (Low Frequency)	No electrical discontinuity greater than 0.1 μ sec. shall occur. ΔR 20mΩ Max.	Mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52mm amplitude 2 hours each of 3 mutually perpendicular planes. 100 mA applied. AMP Spec. 109-5201

Fig. 1 (CONT.)

Para.	Test Items	Requirements	Procedures
3.5.10	Physical Shock	No electrical discontinuity greater than 0.1 μ sec. shall occur. ΔR 20mΩ Max.	Accelerated Velocity : 50G Waveform : Halfsin Duration : 11m sec. Velocity Change : 11.3 m/sec. Number of Drops : 3 drops each to normal and reversed directions of X, Y and Z axes, totally 18 drops. 100 mA applied. AMP Spec. 109-5208 Condition A
3.5.11	Solderability	Wet Solder Coverage : 95 % Min.	Solder Temperature : 230 ± 5 ℃ Immersion Duration : 3 ± 0.5 sec. Flux : Alpha 100 AMP Spec. 109-5203
Environmental Requirements			
3.5.12	Thermal Shock	ΔR 20mΩ Max.	Mated connector −40℃ /30min., 85℃ /30 min. Make this a cycle, repeat 5 cycles. AMP Spec. 109-5103
3.5.13	Humidity-Temperature Cycling	Insulation resistance(Final) 100 MΩ Min. Termination resistance ΔR 20MΩ Max.	Mated connector, make 25～65℃, 95% R. H. 24 hours a cycle, repeat 10 cycles. Cold shock −10℃ performed AMP Spec. 109-5106
3.5.14	Salt Spray	ΔR 20mΩ Max.	Mated connectors with 5 %, 35℃ concentration for 24 hours. AMP Spec. 109-5101
3.5.15	Resistance to Soldering Heat	No physical damege shall occur.	Test connector on PCB. Solder Tempature : 260 ± 5℃ Immersion Duration : 10 ± 1 sec. AMP Spec. 109-5204 Condition A & C Manual Soldering Temparature : 350±5℃ Duration : 3 +1/ 0 sec No Pressurize a Tine
3.5.16	Industrial Gas (SO2)	ΔR 20mΩ Max.	Mated connector SO2 Gas : 10ppm, 95 % R. H. 25℃, 24 hours AMP Spec. 109-5107 Condition A
3.5.17	Temperature Life (Heat Aging)	ΔR 20mΩ Max.	Mated connector 85℃, Duration :96 hours AMP Spec. 109-5104 Condition A

Fig. 1 (End)

3.6 Product Qualification Test Sequence

Test Examination	Test Gruoup										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence (a)										
Examination of Product	1,7	1,5	1,9	1,6	1,5	1,5	1,5	1,5	1,3	1,3	1,3
Termination Resistance (Low Level)		2,4	2,8	2,5	2,4	2,4	2,4	2,4			
Dielectric withstanding Voltage	3,6										
Insulation Resistance	2,5										
Vibration (Low Frequency)				3							
Physical Shock				4							
Connector Mating Force			3,6								
Connector Unmating Force			4,7								
Durability (Repeated Mate / Unmating)			5								
Solderability									2		
Humidity-Temperature Cycling	4	3									
Resistance to Soldering Heat										2	
Thermal Shock					3						
Salt Spray						3					
Industrial SO_2 Gas							3				
Temperature Life (Heat Aging)								3			
Temperature Rising											2

Appendix 1

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

The applicable product descriptions and part numbers are as shown in Appendix.2.

Product Part No.	Description
6123978-1 6123987-1	PLUG CONNECTOR 4P(OFF-SET TYPE)
6318790-1 6318792-1 1-6318792-1	PLUG CONNECTOR 5P(OFF-SET TYPE)
6318977-3	PLUG CONNECTOR 6P(OFF-SET TYPE)
6376042-2	PLUG CONNECTOR 5P
6318573-4	PLUG CONNECTOR 7P
6376462-7	PLUG CONNECTOR 10P

Appendix 2

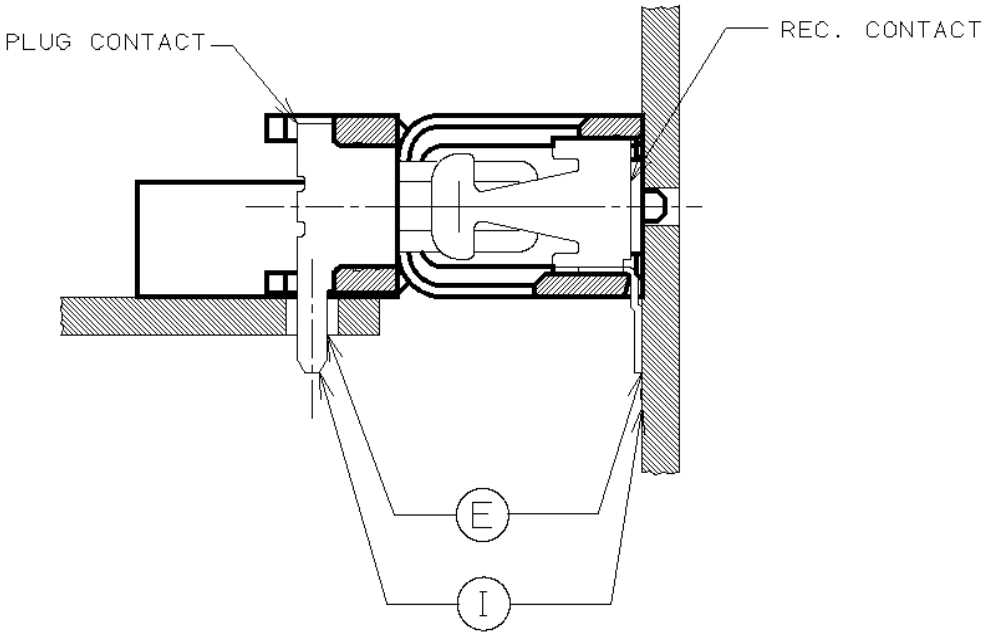

Fig.2