Product Name 0.64III / 2.3II Connector

1. Scope:

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of PN 1674932-3 of 0.64Ⅲ/2.3Ⅱ 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 Specifications:

A. 108-5953 : Product Specification of 0.64III/2.3II CONNECTOR
B. 109-5000 : Test Specification, General Requirements for Test Methods
C. 114-5329 : Application Specification of Crimping of 0.64Ⅲ Receptacle Contact
D. 501-78619 : Test Report

2.2 Commercial Standards and Specifications

A. JASO D605 : Multi-pole Connector for automobiles
B. JASO D7101 : Test Methods for Plastic Molded Parts
C. JIS C3406 : Low-Voltage Wires and Cables for Automobiles
D. JIS D0203 : Method of Moisture, Rain and Spray Test for Automobile Parts
E. JIS D0204 : Method of High and Low Temperature Test for Automobile Parts
F. JIS D1601 : Vibration Testing Method for Automobile Parts
G. JIS R5210 : Portland Cement

2.3 Other Specifications:

The performance or crimping condition of 2.3II receptacle contacts depends on the specifications or instruction sheets issued by each contacts manufacturer.

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 Material:

A. Contact:

Description	Material	Finish
0.64III Receptacle (Female)	Copper Alloy	Selective Gold plating over Ni under plating, or Pre-Tinned.

Fig.1

B. Housing : PBT

3.3 Ratings:

A. Voltage Rating : 12VDC

B. Temperature Rating : -30℃ to 105℃

3.4 Performance Requirements and Test Descriptions:

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig.2 and Fig.3. 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	Confirmation of Product	Meet requirements of product drawing and TE Specification 114-5329.		Visually, dimensionally and functionally inspected per applicable quality inspection plan.
		Electrical Requirements		
3.5.2	Termination Resistance (Low Level)	0.64Ⅲ	8mΩ Max.(Initial) 16mΩ Max.(Final)	Subject mated contacts assembled in housing to 20mV Max. open circuit at 10mA. Fig.4 TE Spec. 109-5311-1

Fig.2(To be continued)

Para.	Test Items	Requirements			Procedures
3.5.3	Termination Resistance (Specified Current)	0.64Ⅲ	8mV/A Max.(Initial)		Measure mill volt drop of contact in mated connectors, open circuit at 1A. Fig.4 TE Spec. 109-5311-2
			16mV/A Max.(Final)		
3.5.4	Dielectric Withstanding Voltage	No creeping discharge nor flashover shall occur.			Impressed voltage 1kVAC for 1 min. Mated connector. Fig.5 TE Spec. 109-5301
3.5.5	Insulation Resistance	100MΩ Min.			Impressed voltage 500VDC Mated connector Fig.5 TE Spec.109-5302
3.5.6	Current Leakage	3mA Max.			Impressed voltage 14VDC Fig.6 TE Spec.109-5312
3.5.7	Temperature Rise	Wire Size (mm^2)	Current (A)	Max. Rise(℃)	Measure temperature rising at wire crimped by applied current to all positions. TE Spec.109-5310
		0.5 (0.64Ⅲ contact)	2.2	60	
3.5.8	Over current Loading	No ignition is allowed during the test.			Apply the current to only one position. Applied Current:Fig.7
		Physical Requirements			
3.5.9	Vibration (High Frequency)	No electrical discontinuity greater than 1μsec. Shall occur. Satisfy requirements of test item on the “3.6 sequence”.			Vibration Frequency: 20→200→20Hz/3min. Acceleration:44.1m/s^2 Vibration Direction: X,Y,Z Duration:3hours each Mounting:Fig.8
3.5.10	Shock	Resistance should not be over 7Ω greater than 1μsec.			Acceleration: 980m/s^2 Waveform: Half sine wave Duration: 6msec. Velocity: 3.75 m/s Number of drops: 6 drops each directions of X,Y,and Z axes, total 18 drops Fig.8 TE Spec.:109-5208-D
3.5.11	Connector Mating Force	70N Max.			Operation Speed: 25～100mm/min Measure the force required to mate connectors. TE Spec. 109-5206-A
3.5.12	Connector Unmating force	70N Max.			Operation Speed: 25～100mm/min Measure the force required to un-mate connectors. (without housing lock) TE Spec. 109-5206-A

Fig.2(To be continued)

Para.	Test Items	Requirements		Procedures
3.5.13	Connector Locking Strength	100N Min.		Operation Speed : 100mm/min Apply an axial pull-off load to one of the mated housing, measure locking strength. TE Spec. 109-5210
3.5.14	Contact Insertion Force	10N Max. per contact		Measure the force required to insert contact into housing. TE Spec. 109-5211
3.5.15	Contact Retention Force (Lance only)	Contact	Tensile Strength (N) Min.	Operation Speed : 100 mm/min. Apply an axial pull-off load to crimped wire.
		0.64Ⅲ	49	
3.5.16	Contact Retention Force (Secondary Lock)	100 N Min		Measure contact retention force with secondary lock set it effect. Operation Speed: 100mm/min.
3.5.17	Crimp Tensile Strength	Wire Size (mm^2)	Tensile Strength (N) Min.	Apply an axial pull-off load to crimped wire of contact secured on the tester. Operation speed: 100mm/min TE Spec. 109-5205 Condition B
		0.3 (0.64Ⅲcontact)	55*	
		0.5 (0.64Ⅲcontact)	90*	
		*Included the insulation grip		
3.5.18	Resistance to “Kojiri”	Satisfy requirements of test item on the “3.6 sequence”		This test may be alternatively performed manually. See Fig.9 TE Spec. 109-5215
3.5.19	Handling Ergonomics	No abnormalities allowed in manual mating/unmating Handling.		Manually operated

Fig.2(To be continued)

Para.	Test Items	Requirements	Procedures
		Environmental Requirements	
3.5.20	Thermal Shock	Satisfy requirements of test item on the “3.6 sequence”	Mated connector. -40℃/30min., 100℃/30min. Making this a cycle. Repeat 1000 cycles.
3.5.21	Humidity, Steady State	Current Leakage 3mA Max.	Mated connector. 90~95% R.H. 60±5℃ 96 hours 14V applied. Fig. 6
3.5.22	Industrial Gas(SO_2)	Satisfy requirements of test item on the “3.6 sequence”	Unmated connector SO_2 Gas: 25ppm, 75% R.H. 25℃, 96 hours
3.5.23	Temperature Life (Heat Aging)	Satisfy requirements of test item on the “3.6 sequence”	Mated connector, 120℃, 120 hours TE Spec. 109-5104-5 Condition B
3.5.24	Resistance to Cold	Satisfy requirements of test item on the “3.6 sequence”	Mated connector, -40±3℃, 120 hours TE Spec.109-5108 Condition D
3.5.25	Humidity-Temperature Cycling	Satisfy requirements of test item on the “3.6 sequence”	Mated connector Condition: Fig.9 10cycles
3.5.26	Dust Bombardment	Satisfy requirements of test item on the “3.6 sequence”	Mated connector Subject JIS R5210 cement blow of 1.5kg per 10 seconds in 15 minutes intervals for 8 cycles, with Unmate/Re-mating per 2 cycles TE Spec. 109-5110
3.5.27	Compound Environment Resistance	Resistance should not be over 7Ω greater than 1μsec.	Temperature: 80℃ Vibration frequency: 20→200→20Hz/3min.(log) Accelerated Velocity: 44.1m/s^2 Vibration Direction: X,Y,Z Duration: 300 hours Test Current: Fig.10 Mounting: Fig.8
3.5.28	Condensation	Satisfy requirements of test item of the “3.6 sequence”.	0℃/10min,80/90~95%RH/30min. Making this a cycle. Repeat 48cycles. Monitor current leakage during the test.

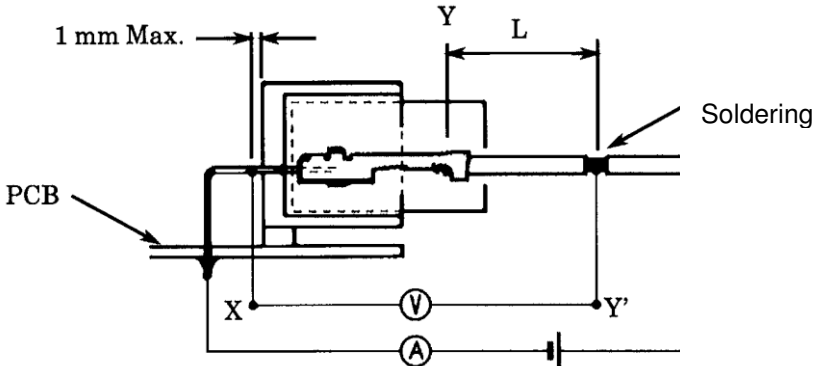
Fig.2(End)

3.6 Product Qualification Test Sequence

Test Examination	Test Group													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Test Sequence*													
Examination of Product	1	1,5	1,6	1,3	1,5	1,5	1,5	1,6	1,5	1,6	1,4	1,5	1,5	1,5
Termination Resistance (Low Level)	4	2,6	2,7		2,6	2,6	2,6	2,7	2,6	2,7		2,6	2,6	
Termination Resistance (Rated Current)	5	3,7	3,8		3,7	3,7	3,7	3,8	3,7	3,8		3,7	3,7	
Dielectric with standing Voltage	7					9	9							
Insulation Resistance	6					8	8							2,4
Current Leakage							4							6
Temperature Rising	8		4,9										4	
Over Current Loading												4		
Vibration (High Frequency)										5			8	
Physical Shock											3			
Connector Mating Force	3													
Connector Unmating Force	9													
Connector Locking Strength	10		11	5	9	11	11							
Contact Insertion Force	2													
Contact Retention Force	11													
Contact Retention Force (Double Lock)	12		12	6	10	12	12							
Crimp Tensile Strength	13		13		11				8					
Resistance to “Kojiri”		4												
Handling Ergonomics	14		10	4	8	10	10							
Thermal Shock					4									
Humidity(Steady State)							4							
Industrial SO_2 Gas									4					
Temperature Life (Heat Aging)			5					4		4	2			
Resistance to Cold				2										
Humidity-Temperature Cycling						4								
Dust Bombardment								5						
Compound Environment Resistance													4	
Condensation														5

* Numbers indicate sequence in which tests are performed.

Fig. 3



Deduct resistance of Y-Y'(wire "L") from X-Y'
Fig.4

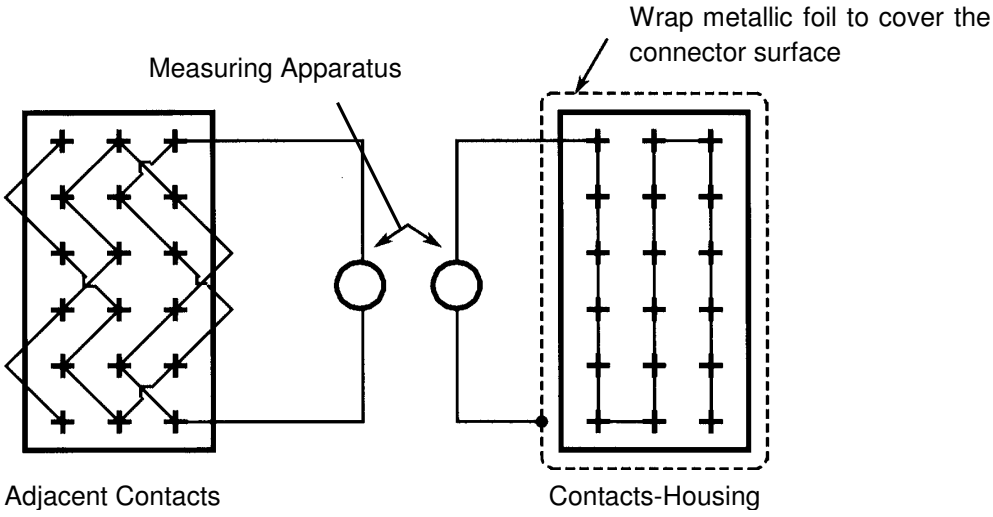


Fig.5

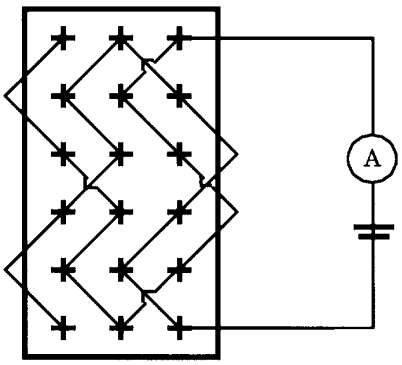


Fig.6

Wire size(mm^2)	Sequence	Test Current(A)	Duration
0.5	①	16.5	60 minutes
	②	20.2	200 sec.
	③	22.5	5 sec.
	④	30.0	1 sec.

Fig. 7 Over current loading

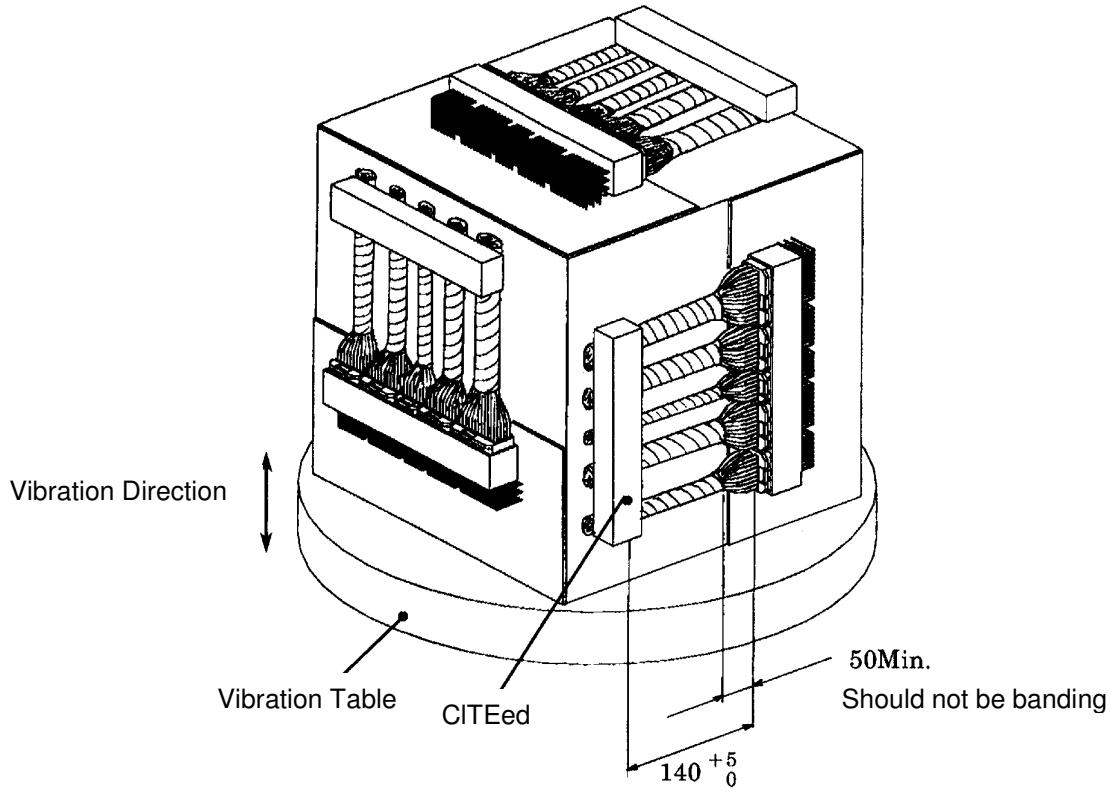


Fig. 8

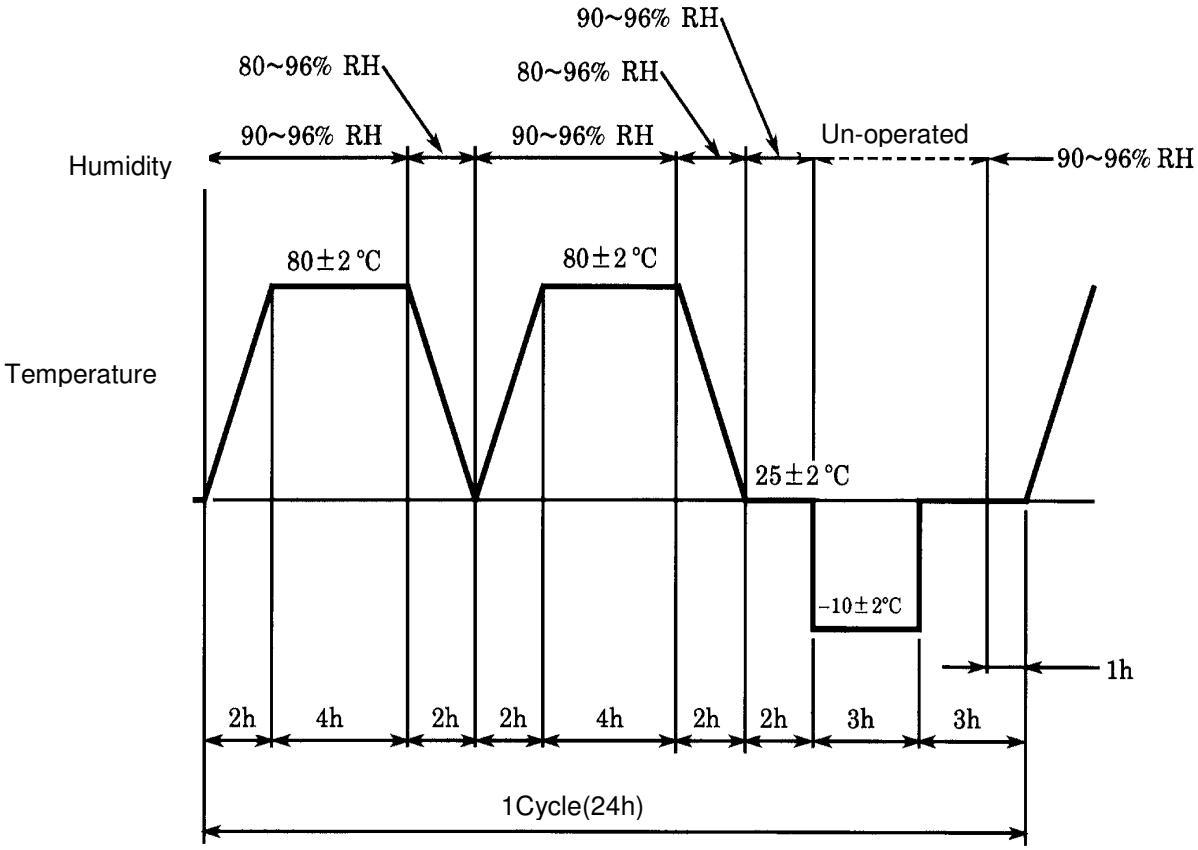


Fig. 9 Humidity-Temperature Cycling

Terminal Type		Wire Size	Testing Method	
Tab Size	Finish		Test Current	Procedures
0.64Ⅲ	Tin-Plating	0.5 mm²	1.2 A	45 min : ON 15 min : OFF 300 Cycles
	Selective Gold	0.5 mm²	10 mA	
2.3II	Tin-Plating	2.0 mm²	4.2 A	

Fig.10 Compound Environment Test Current

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

Product Part No.	Description
1376357*	0.64/2.3 II Series (2 Row) 26Pos. Cap Housing Assembly H-Type
1674932-3	0.64 III/2.3 II Series 26Pos. Plug Housing Assembly
1674311*	0.64 III Receptacle Contact
1674936*	0.64 III Receptacle Contact
	2.3 II Receptacle Conatact(S)
	2.3 II Receptacle Conatact(M)
	2.3 II Receptacle Conatact(L)

Appendix 1

(a) Applicable cap housing assembly for test must be regular dimensions

*Note : Part number is consisted from listed base number and 1 digit numeric prefix and Suffix with dash. Refer to catalog or customer drawing for specific part numbers for each base number. When prefix is zero, zero and dash are omitted.

In addition, please contact us about part number of 2.3 II Receptacle Contact.