1. Scope:

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of 0.64Ⅲ Series Connector(H-type, V-Type CONN.).

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. 114-5329 : Application Specification
Crimping 0.64Ⅲ Series Receptacle Contact

B. 114-5291 : Application Specification
Crimping of 0.64 Tab Contact

C. 501-5596 : 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

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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 Material:

A. Contact:

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

Fig.1

B. Housing : PBT , SPS, PPS

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 114-5291, 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
3.5.3	Termination Resistance (Specified Current)	0.64Ⅲ	8mV/A Max.(Initial) 16mV/A Max.(Final		Measure mill volt drop of contact in mated connectors, open circuit at 1A. Fig.4
3.5.4	Dielectric Withstanding Voltage	No creeping discharge nor flashover shall occur.			Impressed voltage 1kVAC for 1 min. Mated connector. Fig.5
3.5.5	Insulation Resistance	100MΩ Min.			Impressed voltage 500VDC Mated connector Fig.5
3.5.6	Current Leakage	3mA Max.			Impressed voltage 14VDC Fig.6
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.
		0.5	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 1 μ sec. 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

Fig.2(To be continued)

Para.	Test Items	Requirements	Procedures
3.5.10	Shock	Resistance should not be over 7Ω greater than 1μsec.	Acceleration: 980m/s^2 Waveform: Half sine wave Duration: 6msec. Number of drops: 6 drops each directions of X,Y,and Z axes, total 18 drops Fig.8
3.5.11	Connector Mating Force	70N Max.	Operation Speed: 25～100mm/min Measure the force required to mate connectors.
3.5.12	Connector Unmating force	70N Max.	Operation Speed: 25～100mm/min Measure the force required to unmate connectors. (without housing lock)
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.
3.5.14	Contact Insertion Force	10N Max. per contact	Measure the force required to insert contact into housing.
3.5.15	Contact Retention Force (Lance only)	Contact: 0.64Ⅲ Tensile Strength (N) Min.: 30	Operation Speed : 100 mm/min. Apply an axial pull-off load to crimped wire.
3.5.16	Contact Retention Force (Secondary Lock)	100N 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. 0.3 / 55* 0.5 / 90 *Included the insulation grip	Apply an axial pull-off load to crimped wire of contact secured on the tester. Operation speed: 100mm/min

Fig.2(To be continued)

Para.	Test Items	Requirements	Procedures
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
3.5.19	Handling Ergonomics	No abnormalities allowed in manual mating/unmating Handling.	Manually operated
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 1mA 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
3.5.24	Resistance to Cold	Satisfy requirements of test item on the “3.6 sequence”	Mated connector, -40±3℃, 120 hours
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

Fig.2(To be continued)

Para.	Test Items	Requirements	Procedures
3.5.27	Compound Environment Resistance	Resistance should not be over 7Ω greater than 1μsec. Satisfy requirements of test item on the "3.6 sequence"	Temperature: 80℃ Vibration frequency: 20→200→20Hz/3min.(log) Accelerated Velocity: 44.1m/s² 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.

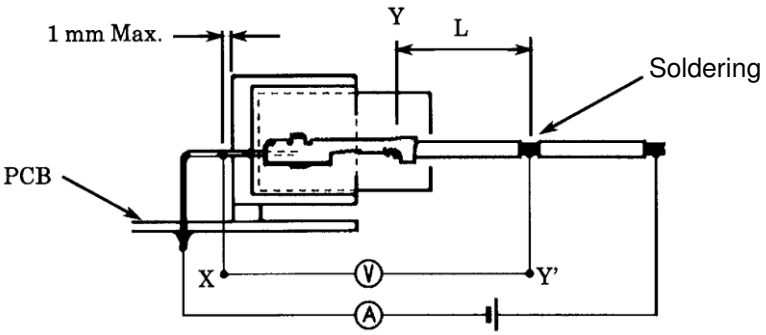
Fig.2(End)

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

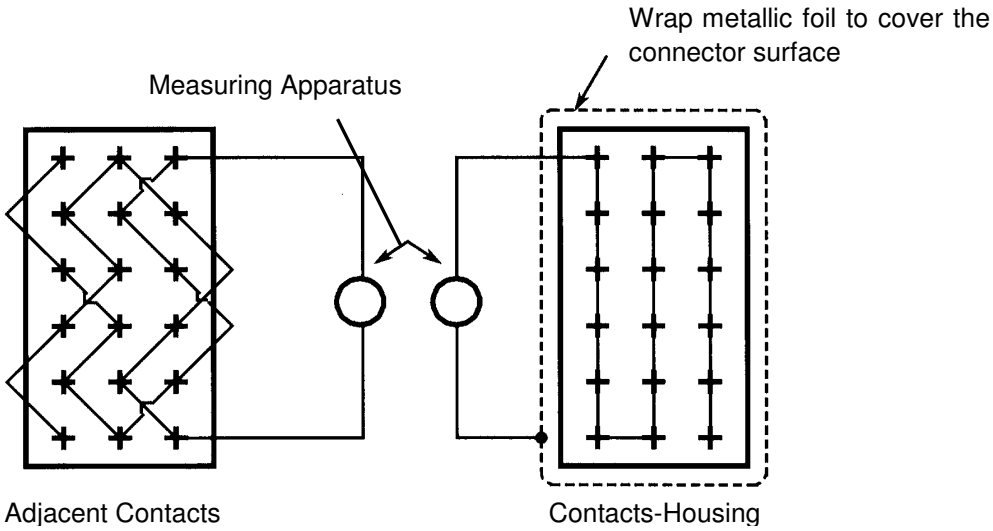


Fig.5

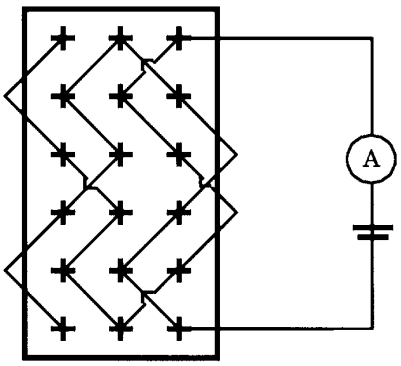


Fig.6

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

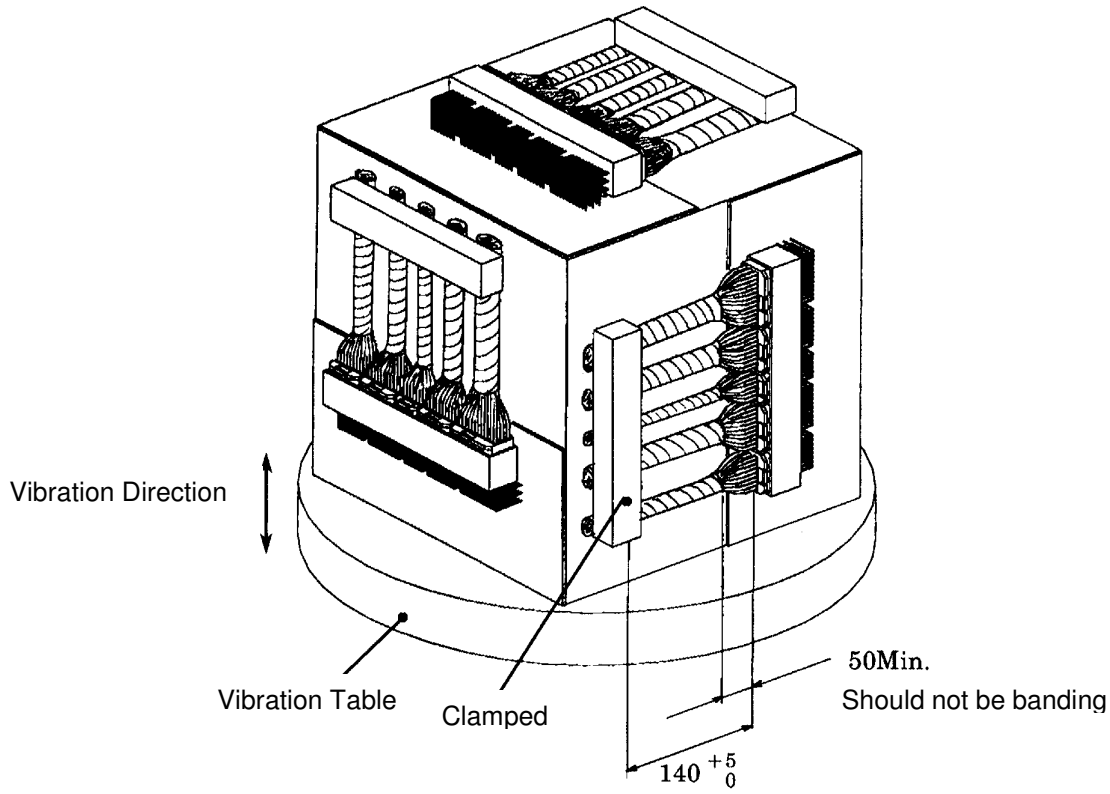


Fig. 8

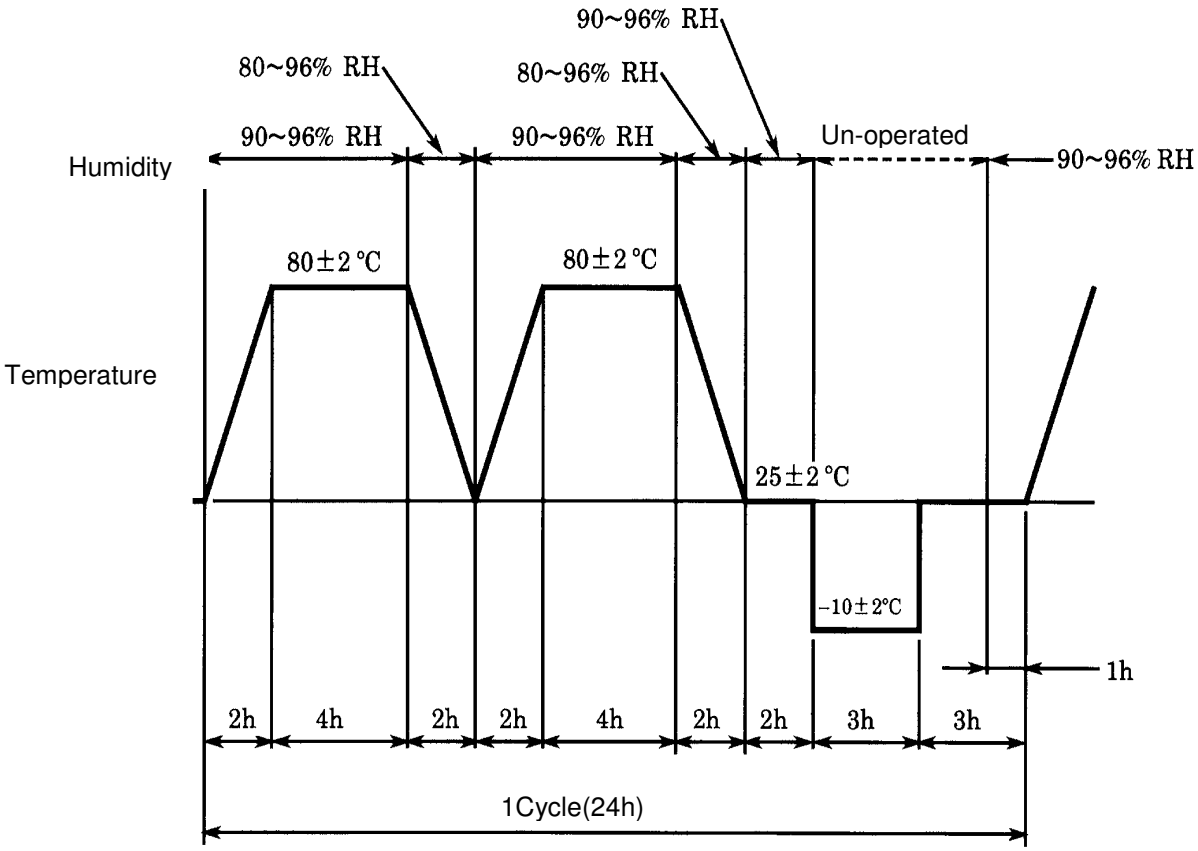


Fig. 9 Humidity-Temperature Cycling

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	

Fig.10 Compound Environment Test Current

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

Product Part No.★	Description
1376350	0.64 Connector 8Pos.Cap Housing Assembly (H-TYPE)
1981469	0.64 Connector 8Pos.Cap Housing Assembly Keying (H-TYPE)
2317945	0.64 Connector 10Pos.Cap Housing Assembly (1ROW H-TYPE)
1318772	0.64 Connector 12Pos.Cap Housing Assembly (H-TYPE)
1473898	0.64 Connector 12Pos.Cap Housing Assembly (V-TYPE)
1318382	0.64 Connector 16Pos.Cap Housing Assembly (H-TYPE)
1565476	0.64 Connector 16Pos.Cap Housing Assembly (V-TYPE)
1318853	0.64 Connector 24Pos.Cap Housing Assembly (H-TYPE)
1376111	0.64 Connector 24Pos.Cap Housing Assembly (V-TYPE)
1565373	0.64 Connector 28Pos.Cap Housing Assembly (V-TYPE)
1565375	0.64 Connector 28Pos.Cap Housing Assembly (V-TYPE)
1318745	0.64 Connector 32Pos.Cap Housing Assembly (H-TYPE)
1318384	0.64 Connector 40Pos.Cap Housing Assembly (H-TYPE)
1376113	0.64 Connector 40Pos.Cap Housing Assembly (V-TYPE)
1746315	0.64 Connector 72 (8+24+40) Pos. Cap Housing Assembly (H-TYPE)
2297730	0.64 Connector 12Pos. Cap Housing Assembly SMT (H-TYPE)
1717103	0.64Ⅲ Connector 8Pos. Plug Housing Assembly
1981471	0.64Ⅲ Connector 8Pos. Plug Housing Assembly Keying
1746875	0.64Ⅲ Connector 8Pos. Plug Housing Assembly(1ROW-TYPE)
2298343	0.64Ⅲ Connector 8Pos. Plug Housing Assembly Short-Type
2317984	0.64Ⅲ Connector 10Pos. Plug Housing Assembly(1ROW-TYPE)
1717106	0.64Ⅲ Connector 12Pos. Plug Housing Assembly
1746872	0.64Ⅲ Connector 12Pos. Plug Housing Assembly(SHORT BODY-TYPE)
1747375	0.64Ⅲ Connector 12Pos. Plug Housing Assembly(KEYING-TYPE)
1717109	0.64Ⅲ Connector 16Pos. Plug Housing Assembly
1717112	0.64Ⅲ Connector 24Pos. Plug Housing Assembly
1717115	0.64Ⅲ Connector 28Pos. Plug Housing Assembly
1717118	0.64Ⅲ Connector 32Pos. Plug Housing Assembly
1674312	0.64Ⅲ Connector 40Pos. Plug Housing Assembly
1674311-1	0.64Ⅲ Receptacle Contact (Sn)
1674311-2	0.64Ⅲ Receptacle Contact（Au）
1674936-1	0.64Ⅲ Receptacle Contact(S)（Sn）
1674936-2	0.64Ⅲ Receptacle Contact(S)（Au）
1827483-1	0.64Ⅲ Receptacle Contact(SS)（Sn）
1827483-2	0.64Ⅲ Receptacle Contact(SS)（Au）

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.