

025 (0.64III) Series Connector, SMD Horizontal

1. INTRODUCTION

1.1. Purpose

Testing was performed on the 025 (0.64III) Series Connector, SMD Horizontal to determine if it meets the requirements of Product Specification 108-51110 Rev A3.

1.2. Scope

This report covers the results of electrical, mechanical and environmental performance requirements testing of 025 (0.64III) Series Connector, SMD Horizontal.

1.3. Conclusion

025 (0.64III) Series Connector, SMD Horizontal meets the requirements of Product Specification 108-51110 Rev A3.

1.4. Product Description

This connector has been designed for use of automotive wire to board connector.

1.5. Test Samples

Samples were taken randomly from current production. The following samples where used (Fig. 1)

Part Number	Part Description
2237145-1	8P 1 Row 025 (0.64) Cap SMT (Male)
2291172-1	8P 025 (0.64) Cap SMT (Male)
2237149-2	8P 025 (0.64) Cap SMT (Male)
2291173-1	12P 025 (0.64) Cap SMT (Male)
2291174-1	16P 025 (0.64) Cap SMT (Male)
2237067-1	24P 025 (0.64) Cap SMT (Male)
2237138-1	32P 025 (0.64) Cap SMT (Male)
2237147-1	8P 1 Row 0.64III Plug Assy (Female)
1717103-1	8P 0.64III Plug Assy (Female)
1717106-1	12P 0.64III Plug Assy (Female)
1746872-1	12P 0.64III Plug Assy Short Body (Female)
1717109-1	16P 0.64III Plug Assy (Female)
2237049-1	16P 0.64III Plug Assy (Female)
2237152-1	16P 0.64III Plug Assy Short Body (Female)
1717112-1	24P 0.64III Plug Assy (Female)
1717118-1	32P 0.64III Plug Assy (Female)
1674311-1	0.64III Receptacle Contact (AVSS 0.5mm ²)
1674311-7	0.64III Receptacle Contact (AVSS 0.5mm ²)

Figure 1

1.6. Reference Test Report No

- TR-51005
- TR-51006

2. TEST CONTENTS

Item No	Test Description	Requirement	Judgement
3.5.1	Confirmation of Product	Meet requirements of product drawing and TE Specification 114-5329	Acceptable
ELECTRICAL			
3.5.2	Termination Resistance (Low Level)	8 mΩ Max (Initial) 16 mΩ Max (Final)	Acceptable
3.5.3	Termination Resistance (Specified Current)	8 mΩ Max (Initial) 16 mΩ Max (Final)	Acceptable
3.5.4	Dielectric Withstanding Voltage	No creeping discharge or flashover shall occur	Acceptable
3.5.5	Insulation Resistance	100 MΩ Min (Initial) 100 MΩ Min (Final)	Acceptable
3.5.6	Current Leakage	3mA Max	Acceptable
3.5.7	Temperature Rise	60°C Max	Acceptable
3.5.8	Over Current Loading	No ignition is allowed during the test	Acceptable
MECHANICAL			
3.5.9	Vibration (High Frequency)	No electrical discontinuity greater than 1μsec shall occur. Satisfy requirements of test item on the test sequence	Acceptable
3.5.10	Shock	No electrical discontinuity greater than 1μsec shall occur	Acceptable
3.5.11	Connector Mating Force	70N Max	Acceptable
3.5.12	Connector Unmating Force	70N Max	Acceptable
3.5.13	Connector Locking Strength	100N Min	Acceptable
3.5.14	Contact Insertion Force	10N Max per contact	Acceptable
3.5.15	Contact Retention Force (Latch Only)	30N Min	Acceptable
3.5.16	Contact Retention Force (Secondary Lock)	100N Min	Acceptable
3.5.17	Resistance to "Kojiri"	Satisfy requirements of test item on the test sequence	Acceptable
3.5.18	Solderability (Reflow Soldering)	Fillet shall be formed around the contact	Acceptable
3.5.19	Handling Ergonomics	No abnormalities allowed in manual mating/unmating handling	Acceptable
3.5.20	Retention Force of Tab	20N Min	Acceptable
3.5.21	Resistance to Soldering Heat	No cracks, deformation, discoloration that are problematic in function shall appear.	Acceptable

Item No	Test Description	Requirement	Judgement
ENVIRONMENTAL			
3.5.22	Thermal Shock	Satisfy requirements of test item on the test sequence Monitor resistance-variation during the test	Acceptable
3.5.23	Humidity (Steady State)	Satisfy requirements of test item on the test sequence Current Leakage: 3mA Max	Acceptable
3.5.24	Industrial Gas (SO ₂)	Satisfy requirements of test item on the test sequence	Acceptable
3.5.25	Temperature Life (Heat Aging)	Satisfy requirements of test item on the test sequence	Acceptable
3.5.26	Resistance to Cold	Satisfy requirements of test item on the test sequence	Acceptable
3.5.27	Humidity Temperature Cycling	Satisfy requirements of test item on the test sequence Monitor resistance-variation during the test	Acceptable
3.5.28	Dust Bombardment	Satisfy requirements of test item on the test sequence	Acceptable
3.5.29	Compound Environment Resistance	Satisfy requirements of test item on the test sequence No electrical discontinuity greater than 1μsec shall occur Monitor resistance-variation during the test	Acceptable
3.5.30	Condensation	Satisfy requirements of test item on the test sequence Monitor current leakage during the test	Acceptable

Figure 2 (End)

3. PRODUCT QUALIFICATION TEST ITEM

Test or Examination		Test Group															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Test Sequence (a)															
3.5.1	Confirmation of Product	1	1,5	1,6	1,4	1,5	1,5	1,6	1,5	1,6	1,4	1,5	1,6	1,7	1,4	1,3	1,3
3.5.2	Termination Resistance (Low Level)	2	2,6	2,7		2,6	2,6	2,7	2,6	2,7		2,6	2,7	2,8			
3.5.3	Termination Resistance (Specified Current)	3	3,7	3,8		3,7	3,7	3,8	3,7	3,8		3,7	3,8	3,9			
3.5.4	Dielectric Withstanding Voltage	7						10				9					
3.5.5	Insulation Resistance	6						9				8			5		
3.5.6	Current Leakage							5							3		
3.5.7	Temperature Rise	4									4,9			4,10			
3.5.8	Over Current Loading		4														
3.5.9	Vibration (High Frequency)			5										6			
3.5.10	Shock				3												
3.5.11	Connector Mating Force	8															
3.5.12	Connector Unmating Force	9															
3.5.13	Connector Locking Strength	10					9	11		11	5	11					
3.5.14	Contact Insertion Force	11															
3.5.15	Contact Retention Force (Latch Lock)	12															
3.5.16	Contact Retention Force (Secondary Lock)	13					10	12		12	6	12					
3.5.17	Resistance to "Kojiri"					4											
3.5.18	Solderability (Reflow Soldering)																2
3.5.19	Handling Ergonomics	5					8			10	3	10					
3.5.20	Retention Force of Tab	14														4	
3.5.21	Resistance to Soldering Heat															2	
3.5.22	Thermal Shock						4										
3.5.23	Humidity (Steady State)							4									
3.5.24	Industrial SO ₂ Gas								4								
3.5.25	Temperature Life (Heat Aging)			4	2					5			4				
3.5.26	Resistance to Cold										2						
3.5.27	Humidity Temperature Cycling											4					
3.5.28	Dust Bombardment												5				
3.5.29	Compound Environment Resistance													5			
3.5.30	Condensation														2		

Figure 3


NOTE

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

4. SUMMARY OF TEST RESULT

Group	Test Items			Spec	Judge	
1	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
	3.5.4	Dielectric Withstanding Voltage	Cont. – Cont.	Initial	No creeping discharge or flashover	OK
			Cont. – HSG	Initial		OK
	3.5.5	Insulation Resistance	Cont. – Cont.	Initial	Over 1000 MΩ	OK
			Cont. – HSG	Initial	Over 1000 MΩ	OK
	3.5.7	Temperature Rise	All poles	Initial	60°C Max	OK
	3.5.11	Connector Mating Force		Initial	70N Max	OK
	3.5.12	Connector Unmating Force		Initial	70N Max	OK
	3.5.13	Connector Locking Strength		Initial	100N Min	OK
	3.5.14	Contact Insertion Force		Initial	10N Max	OK
	3.5.15	Contact Retention Force	Latch	Initial	30N Min	OK
	3.5.16	Contact Retention Force	Secondary	Initial	100N Min	OK
3.5.19	Handling Ergonomics		Initial	No abnormalities in manual mating/unmating handling	OK	
3.5.20	Retention Force of Tab		Initial	20N Min	OK	
2	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)	16.5A, 3600s	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
			20.2A, 200s	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
			22.5A, 5s	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	30.0, 1s	Initial	8 mΩ Max	OK		
		Final	16 mΩ Max	OK		
	3.5.3	Termination Resistance (Specified Current)	16.5A, 3600s	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
			20.2A, 200s	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
22.5A, 5s			Initial	8 mΩ Max	OK	
			Final	16 mΩ Max	OK	
30.0, 1s	Initial	8 mΩ Max	OK			
	Final	16 mΩ Max	OK			
3.5.8	Over Current Loading		During	No ignition	OK	
3	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
-	Electrical Discontinuity Monitor		During	No electrical discontinuity greater than 1μsec	OK	
4	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	-	Electrical Discontinuity Monitor		During	No electrical discontinuity greater than 1μsec	OK

Figure 4 (Cont.)

Group	Test Items			Spec	Judge	
5	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
6	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.13	Connector Locking Strength		Final	100N Min	OK
	3.5.16	Contact Retention Force	Secondary	Final	100N Min	OK
3.5.19	Handling Ergonomics		Final	No abnormalities in manual mating/unmating handling	OK	
-	Resistance Variation Monitor		During	Reference	OK	
7	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.4	Dielectric Withstanding Voltage	Cont. – Cont.	Final	No creeping discharge or flashover	OK
			Cont. – HSG	Final		OK
	3.5.5	Insulation Resistance	Cont. – Cont.	Final	Over 1000 MΩ	OK
			Cont. – HSG	Final		OK
3.5.6	Current Leakage		During	3mA Max	OK	
3.5.13	Connector Locking Strength		Final	100N Min	OK	
3.5.16	Contact Retention Force	Secondary	Final	100N Min	OK	
8	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
9	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.7	Temperature Rise	All poles	Initial	60°C Max	OK
				Final	60°C Max	OK
3.5.13	Connector Locking Strength		Final	100N Min	OK	
3.5.16	Contact Retention Force	Secondary	Final	100N Min	OK	
3.5.19	Handling Ergonomics		Final	No abnormalities in manual mating/unmating handling	OK	

Figure 4 (Cont.)

Group	Test Items			Spec	Judge	
10	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.13	Connector Locking Strength		Final	100N Min	OK
	3.5.16	Contact Retention Force	Secondary	Final	100N Min	OK
3.5.19	Handling Ergonomics		Final	No abnormalities in manual mating/unmating handling	OK	
11	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.4	Dielectric Withstanding Voltage	Cont. – Cont.	Final	No creeping discharge or flashover	OK
			Cont. – HSG	Final		OK
	3.5.5	Insulation Resistance	Cont. – Cont.	Final	Over 1000 MΩ	OK
			Cont. – HSG	Final		OK
	3.5.13	Connector Locking Strength		Final	100N Min	OK
3.5.16	Contact Retention Force	Secondary	Final	100N Min	OK	
3.5.19	Handling Ergonomics		Final	No abnormalities in manual mating/unmating handling	OK	
-	Resistance Variation Monitor		During	Reference	OK	
12	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)		Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
3.5.3	Termination Resistance (Specified Current)		Initial	8 mΩ Max	OK	
			Final	16 mΩ Max	OK	
13	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.2	Termination Resistance (Low Level)	Direction: Z	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
			Direction: X	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
			Direction: Y	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.3	Termination Resistance (Specified Current)	Direction: Z	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
			Direction: X	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
			Direction: Y	Initial	8 mΩ Max	OK
				Final	16 mΩ Max	OK
	3.5.7	Temperature Rise All poles	Direction: Z	Initial	60°C Max	OK
				Final	60°C Max	OK
			Direction: X	Initial	60°C Max	OK
Final				60°C Max	OK	
Direction: Y			Initial	60°C Max	OK	
			Final	60°C Max	OK	
-	Electrical Discontinuity Monitor		During	No electrical discontinuity greater than 1μsec	OK	
-	Resistance Variation Monitor		During	Reference	OK	

Figure 4 (Cont.)

Group	Test Items			Spec	Judge	
14	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.5	Insulation Resistance	Cont. – Cont.	Final	Over 1000 MΩ	OK
			Cont. – HSG	Final		OK
3.5.6	Current Leakage		During	3mA Max	OK	
15	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.20	Retention Force of Tab		Final	20N Min	OK
16	3.5.1	Confirmation of Product		Initial	Meet requirements of product drawing	OK
				Final		OK
	3.5.18	Solderability (Reflow Soldering)		Final	Fillet shall be formed around the contact	OK

Figure 4 (End)