

025 (0.64II) Series Connector**1. SCOPE**

1.1. Content

This specification covers the requirements for product performance, test method and quality assurance provisions for the TE Connectivity (TE) 025 (0.64II) Series Connector.

The product is mated with SWS or YZK receptacle contact. TE Connectivity do not guarantee about failure due to SWS or YZK product.

Applicable product description and part numbers are as follow.

Part Number	Part Description
*1) X-2237122-X	4P 1Row 025 (0.64) Cap SMT (Male)
*1) X-2237126-X	4P 1Row 0.64II Plug Assembly (Female)
*2) Sumitomo Wire Systems Co. Ltd.	0.64II Receptacle Contact
*2) Yazaki Parts Co. Ltd.	0.64II Receptacle Contact

*1) Note: The model number (part number) is configured with a single digit number with a dash in the list parent number. For more information on the dash with a number for each parent numbers refer to the drawing or catalog for the customer. It should be noted that if the prefix is zero, zero and dash are omitted.

*2) Note: See customer drawing about 0.64II receptacle contact part number. Inquire contact maker about the contact specifications.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 and 2 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents and forms constitute 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. Unless otherwise indicated, the latest edition of the document applies.

2.1. TE Documents

- 109-1 : Test Specification (General Requirements for Testing)
- 109-201 : Component Heat Resistance to Lead-Free Reflow Soldering
- 501-166016 : Qualification Test Report

2.2. Industry Documents

- JASO D616 : Automotive Parts – Test Methods and General Performance Requirements for Wiring Harness Connectors
- JASO D623 : Test Methods and General Performance Requirements for Wiring Harness Connector Operation
- JIS C1509-1 : Electroacoustics – Sound Level Meter Part 1 : Specifications
- JIS C5402-5-2 : Current Carrying Capacity Tests – Test 5b : Current Temperature Derating

2.3. Other Specification

- See instruction sheet of contact maker for application specification of 0.64II receptacle contact.

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction, materials and physical dimensions specified on the applicable product drawing.

3.2. Materials

A. Tab (Male)

Material: Copper Alloy

Finish: Post-Tin

B. Housing

Male Material: PPS

Female Material: PBT

3.3. Ratings

- Voltage Rating: 12V DC
- Temperature Rating: -40 to 85°C
(Ambient temperature + Temperature rise due to energized current)

3.4. Performance Requirements and Test Description

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1 and 2. All tests shall be performed in the room temperature, unless otherwise specified.

3.5. Test Requirements and Procedures Summary

Item No	Test Description	Requirement	Procedure
3.5.1	Appearance	No deleterious deformation	Visually or using magnifier and like using appropriate light. JASO D616, Section 6.2
MECHANICAL			
3.5.2	Terminal Retaining Force (Primary Latch)	25N Min	Operation Speed: 50mm/min Apply an axial pull-off load to crimped Wire JASO D616, Section 6.7
	Terminal Retaining Force (Complete Latch)	70N Min	Operation Speed: 50mm/min Measure terminal retaining force with complete latch JASO D616, Section 6.7
3.5.3	Insertion Removal Feel	No deleterious catch or the like	Insert and remove by hand and check feeling
3.5.4	Insertion Force of Terminal into Housing	10N Max per terminal	Operation Speed: 50mm/min Measure the force required to insert terminal into housing JASO D616, Section 6.6
3.5.5	Housing Removal Force	5N Max	Operation Speed: 50mm/min Measure the force required for removal without actuating the locking device
3.5.6	Connector Insertion Force	70N Max	Operation Speed: 50~100mm/min Measure the force required to mate the connectors JASO D616, Section 6.3
3.5.7	Connector Removal Force	70N Max	Operation Speed: 50mm/min Measure the force required to unmate connectors (deactivate the lock) JASO D616 Section 6.3
3.5.8	Locking Strength	100N Min	Operation Speed: 50mm/min Pull mated housing without terminals in 5 direction, measure locking strength. Figure 3 JASO D616 Section 6.5
3.5.9	Unlocking Strength	5N to 70N	Measure the force when lock engagement allowance becomes zero. JASO D623 Section 5.4
3.5.10	Connector Pry Resistance	No deformation, reverse or erroneous engagement of the male terminal due to prying interference. 5mΩ Max	Operation Speed: 5~10mm/min Apply force of 294N, check for connector engagement. JASO D616 Section 6.32 When connector is engaged, check for continuity by perform low voltage current resistance

Figure 1 (Cont.)

Item No	Test Description	Requirement	Procedure	
MECHANICAL				
3.5.11	Connector Engagement Sound	55dB Min	Measure peak sound pressure at frequency of 5 kHz or more. JASO D623 Section 5.3	
3.5.12	Solderability (Reflow Soldering)	Fillet shall be formed around the contact	Test connector on PCB (FR4, Thickness 1.6mm) <Sn-Ag-Cu Solder Paste> Pre-Heat: 180±10°C, 60~120sec Min Soldering: 217°C, 40±5sec Min Peak Temperature: 235°C, 10sec Temperature measured at contact / peg	
3.5.13	Retention Force of Tab	20N Min	Measure the retention force between housing and tab contact after resistance to soldering heat Operation speed: 100mm/min	
3.5.14	Resistance to Soldering Heat	No cracks, deformation, discoloration that are problematic in function shall appear.	TEC-109-201 Test Method B, Condition B Solder Temperature: 260°C 20~40sec within 5°C of peak	
ELECTRICAL				
3.5.15	Low Voltage Current Resistance	5mΩ Max (Initial) 10mΩ Max (Final)	Subject mated terminals assembled in housing to 20mV Max open circuit at 10mA	
3.5.16	Voltage Drop	5mΩ Max (Initial) 10mΩ Max (Final)	Subject mated terminals assembled in housing to Normal Current: 14V Max open circuit at 1A Subject mated terminals assembled in housing to Maximum Current: 12V Max open circuit at I _{max} all poles	
		Wire Size (mm ²)		I _{max} all poles (A)
		0.3		4.5
0.5	5			
3.5.17	Temperature Rise under Energization	Provide terminal temperature rise characteristics, basic curve and derating curve	Subject mated terminals assembled in housing to I _{max} one pole Subject mated terminals assembled in housing to I _{max} all poles	
		Wire Size (mm ²)		I _{max} one pole (A)
		0.3		8
0.5	11			
3.5.18	Insulation Resistance	100MΩ Min (Initial) 100MΩ Min (Final)	Impressed voltage 500VDC on mated connector JASO D616, Section 6.11	

Figure 1 (Cont.)

Item No	Test Description	Requirement	Procedure
ELECTRICAL			
3.5.19	Withstand Voltage	No dielectric breakdown or flashover	Impressed voltage 1kVAC (50Hz or 60Hz) for 1 min on mated connector JASO D616, Section 6.12
3.5.20	Leak Current	1mA Max	Impressed voltage 14VDC
ENVIRONMENTAL RESISTANCE			
3.5.21	Repeated Insertion / Removal Durability	Satisfy requirements of test item on the "3.6 product qualification"	Pry mated connector at 100N Up and down direction Right to left direction Repeat 10 times JASO D616, Section 6.31
3.5.22	Dropping Impact	Satisfy requirements of test item on the "3.6 product qualification"	Free fall connector with surface temperature not exceed 0°C Height of 1000mm onto an iron board 5mm thick in 5 direction - Up, down, right, left and engaged surface 3 times each JASO D616, Section 6.24
3.5.23	Heat Resistance	Satisfy requirements of test item on the "3.6 product qualification"	Mated connector 120°C, 120hrs JASO D616, Section 6.17
3.5.24	Cold Resistance	Satisfy requirements of test item on the "3.6 product qualification"	Mated connector -40°C, 120hrs Insert and remove connectors 5 times after test
3.5.25	Thermal Shock	Satisfy requirements of test item on the "3.6 product qualification"	Mated connector -40°C/30min, 85°C/30min Making this a cycle, repeat 1000 cycles Leave connector untouched for 2hrs after test. Monitor low voltage current resistance during test.

Figure 1 (Cont.)

Item No	Test Description	Requirement	Procedure		
ENVIRONMENTAL RESISTANCE					
3.5.26	Combined Environment	Satisfy requirements of test item on the "3.6 product qualification" No resistance fluctuation greater than 7Ω for 1μsec shall occur	Mated connector Insert and remove connectors 5 times before test Energizing current: I _{max} all poles 45mins ON, 15min OFF Energizing range: Figure 4 Vibration frequency: 5 to 15Hz: 10mm(p-p) 15 to 25Hz: 44.1m/s ² 25 to 100Hz: 19.6m/s ² 100 to 200Hz: 4.9m/s ² Vibration direction and period: 3 axis (up/down, right/left, front/rear) Log sweep for 20min Vibration range: Figure 4 Temperature range: Figure 4 Duration: 300hrs Monitor resistance fluctuation and after this test check if instantaneous interruption occurs for 0.5hr on "Vibration Resistance"		
				Wire Size (mm ²)	I _{max} all poles (A)
				0.3	4.5
				0.5	5
3.5.27	High Temperature Operation	Satisfy requirements of test item on the "3.6 product qualification"	Mated connector 80°C, 1hr Insert and remove connectors 5 times after test		
3.5.28	Temperature / Humidity Cycle Test	Satisfy requirements of test item on the "3.6 product qualification"	Mated connector Condition Figure 5 Making this condition a cycle Repeat 10 cycles JASO D616, Section 6.23		

Figure 1 (End)

3.6. Product Qualification Test Item

Test or Examination		Initial	3.5.21	3.5.22	3.5.23	3.5.24	3.5.25	3.5.26	3.5.27	3.5.28
			Repeated Insertion / Removal Durability	Dropping Impact	Heat Resistance	Cold Resistance	Thermal Shock	Combined Environment	High Temperature Operation	Temperature / Humidity Cycle Test
3.5.1	Appearance	○	○	○	○	○	○	○	○	○
3.5.2	Terminal Retaining Force	○			○	○	○			○
3.5.3	Insertion Removal Feel	○								
3.5.4	Insertion Force of Terminal into Housing	○								
3.5.5	Housing Removal Force	○								
3.5.6	Connector Insertion Force	○								
3.5.7	Connector Removal Force	○								
3.5.8	Locking Strength	○			○					
3.5.9	Unlocking Strength	○								
3.5.10	Connector Pry Resistance	○								
3.5.11	Connector Engagement Sound	○								
3.5.12	Solderability (Reflow Soldering)	○								
3.5.13	Retention Force of Tab	○								
3.5.14	Resistance to Soldering Heat	○								
3.5.15	Low Voltage Current Resistance	○	○		○	○	○	○		○
3.5.16	Voltage Drop	○	○		○	○	○	○		○
3.5.17	Temperature Rise under Energization	○			○			○		
3.5.18	Insulation Resistance	○						○		○
3.5.19	Withstand Voltage	○						○		○
3.5.20	Leak Current							○		○

Figure 2



NOTE
○ = Tested

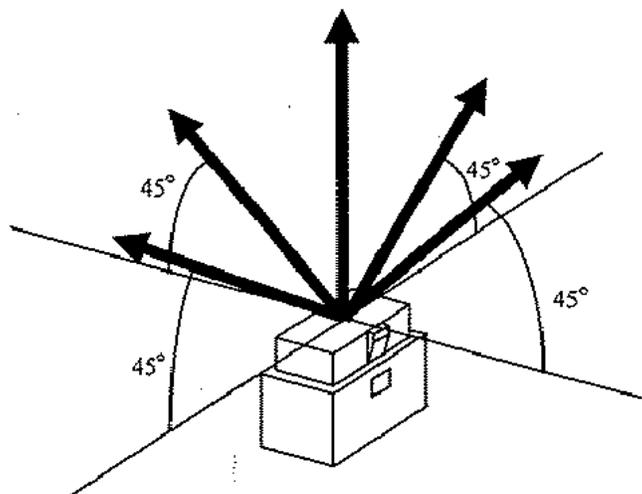


Figure 3

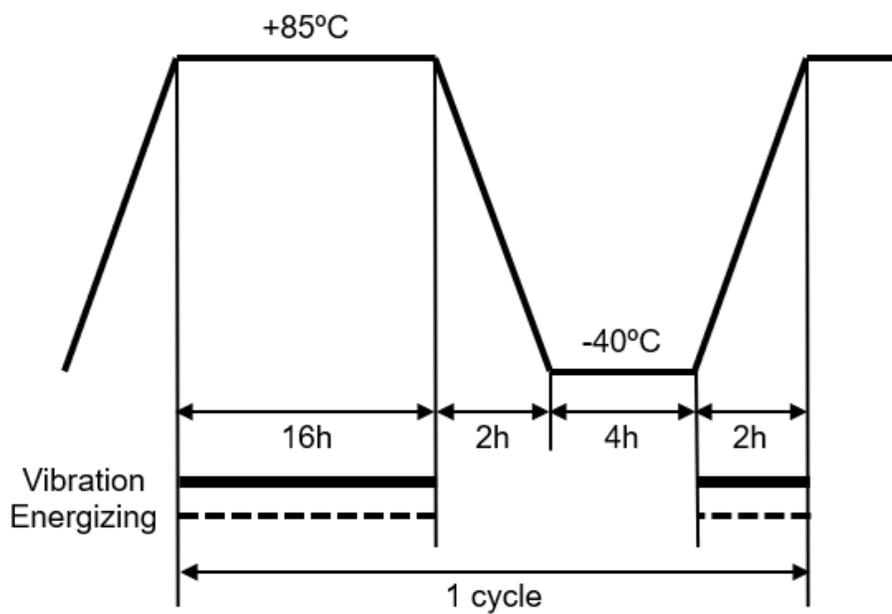


Figure 4

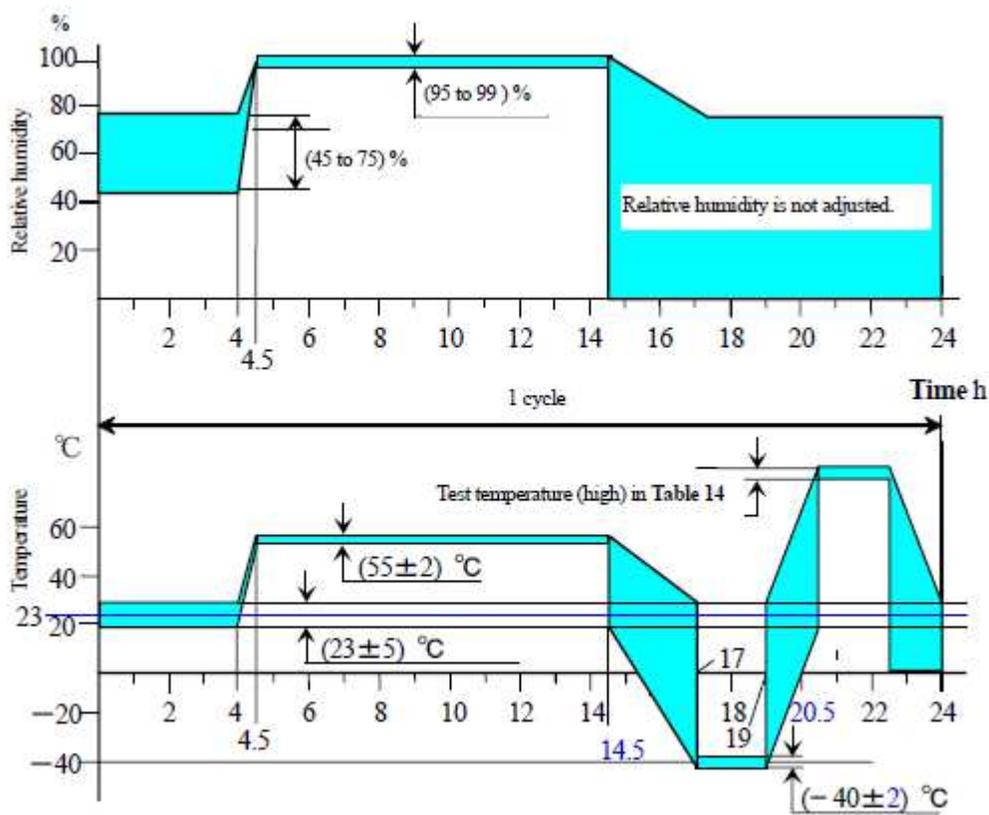


Figure 5