

1. Scope:

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of 025 G W-W Connectors. 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 AMP Specifications:

- | | | |
|----|---------------|---|
| A. | 109-5000 | Test Specification, General Requirements for Test Methods |
| B. | 114-5250-2/-3 | Application Specification: Crimping of 025 Receptacle Contact |
| C. | 114-5340 | Application Specification: Crimping of 025 TH Tab Contact |
| C. | 501-5409 | 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 D0204 | Method of High and Low Temperature Test for Automobile Parts |
| E. | JIS D1601 | Vibration Testing Method for Automobile Parts |
| F. | JIS R5210 | Portland Cement |

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 :

| Description | Material | Finish |
|---------------------|--------------|-------------|
| Tab (Male) | Brass | Tin Plating |
| Receptacle (Female) | Copper Alloy | Tin Plating |

Fig.1

B. Housing : PBT

3.3 Ratings :

A. Voltage Rating : 12 V DC

B. Temperature Rating:

| Pos. | Rating[°C] |
|------|---|
| 8 | -30~105°C (Ambient temperature + Temperature rise due to energized current) Except for mechanical evaluations |
| 12 | |
| 16 | |
| 24 | |
| 32 | |

Fig.2

3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig.3 and Fig4. 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 | Meets requirements of product drawing and AMP Specification 114-5250, 114-5302. | Visually, dimensionally and functionally inspected per applicable quality inspection plan | |
| Electrical Requirements | | | | |
| 3.5.2 | Termination Resistance (Low Level) | 8 mΩ Max. (Initial) 16 mΩ Max. (Final) | Subject mated contacts assembled in housing to 20 mV Max. Open circuit at 10 mA. Fig. 5 AMP Spec. 109-5311-1 | |
| 3.5.3 | Termination Resistance (Specified Current) | 8 mV/A Max. (Initial) 16 mV/A Max. (Final) | Subject mated contacts assembled in housing to 12 V Max. Open circuit at 1A. Fig.5 AMP Spec. 109-5311-2 | |
| 3.5.4 | Current Leakage | 1 mA Max. | Impressed voltage 13V DC for 1 minute. Fig.6 AMP Spec. 109-5312 | |
| 3.5.5 | Temperature Rise | 55°C Max. (Initial) 65°C Max. (Final) | Measure temperature rising by energized current; 3A. Current applied to every other position. Fig.7 AMP Spec. 109-5310 | |
| Mechanical Requirements | | | | |
| 3.5.6 | Connector Mating Force | Refer to Fig.12 | Operation Speed: 100mm/min. Measure the force required to mate connectors. AMP Spec. 109-5206 | |
| 3.5.7 | Connector Unmating Force | Refer to Fig.12 | Operation Speed: 100mm/min. Measure the force required to unmate connectors. (without housing lock) AMP Spec. 109-5206 | |
| 3.5.8 | Crimp Tensile Strength | Wire Size | Crimp Tensile Strength Unit; N | |
| | | mm ² | | AWG |
| | | 0.3 | | 22 |
| | | 0.5 | 20 | 88 Min. |
| 3.5.9 | Connector Locking Strength | 100N Min. | Apply an axial pull-off load to one of the mated housing, measure locking strength. Operation Speed: 100mm/min. AMP Spec. 109-5210 | |

Fig.3 (To be continued)

| Para. | Test Items | Requirements | | Procedures |
|-----------------------------------|-----------------------------------|--|-----------|--|
| 3.5.10 | Contact Retention Force | Primary Lock | 30N Min. | Operation Speed: 100mm/min. Measure contact retention force AMP Spec. 109-5212 |
| | | W/ TPA | 100N Min. | |
| 3.5.11 | Panel Lock Strength | 100N Min. | | Operation Speed: 100mm/min. Measure locking strength refer to Fig.8 |
| 3.5.12 | Unlocking Force | 20N Max. | | Measure lock releasing force to overlap area=0. |
| Environmental Requirements | | | | |
| 3.5.13 | Vibration | No electrical discontinuity greater than 1 μ sec. shall occur. Satisfy requirements of test item on the "3.6 sequence". | | Vibration Frequency: 10→50→10Hz/8min. Acceleration: 66.6 m / s ² Vibration Direction and Duration: X: 2 hours, Y: 2 hours, Z: 4 hours Mounting: Fig. 9 |
| 3.5.14 | Overloaded Current | No meltage and ignition are allowed during the test. | | Applied current 14A for 1 hour after 11A for 24 hours at 60°C |
| 3.5.15 | Rush Current | Satisfy requirements of test item on the "3.6 sequence". | | 60°C, 1000 cycles. Refer to Fig.10 |
| 3.5.16 | Temperature Life (Heat Aging) | Satisfy requirements of test item on the "3.6 sequence". | | 100°C, 120hours AMP Spec. 109-5104 |
| 3.5.17 | Durability (Repeated Mate/Unmate) | Satisfy requirements of test item on the "3.6 sequence". | | 10 cycles AMP Spec. 109-5213 |
| 3.5.18 | Resistance to "Kojiri" | Satisfy requirements of test item on the "3.6 sequence". | | Mated/Pre-mated connector by 78N. Direction: Back/Front, Right/Left 10 cycles AMP Spec. 109-5215 |
| 3.5.19 | Current Cycling | Satisfy requirements of test item on the "3.6 sequence". | | Applied current referred to Fig.11 70°C |
| 3.5.20 | Drop Impact | No detrimental breakage without hindrance. | | Connector is assembled with crimped terminals using 200mm wires. Drop it onto the concrete surface. Direction: X, Y and Z. |

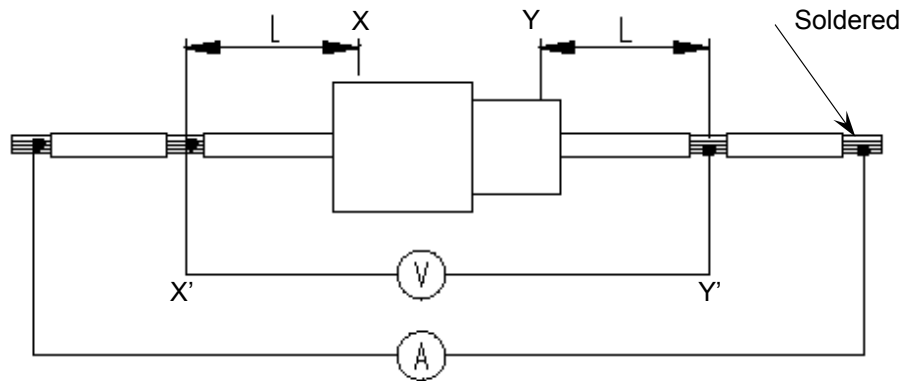
Fig. 3 (End)

3.6 Product Qualification Test Sequence

| Para. | Test Items | Test Group | | | | | | |
|--------|-------------------------------------|------------------------------|-----|-----|-----|-----|------------|-----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | Test Sequence ^(a) | | | | | | |
| 3.5.1 | Confirmation of Product | 1 | 1,5 | 1,3 | 1,5 | 1,5 | 1,5, 9,13 | 1,3 |
| 3.5.2 | Terminal Resistance (Low Level) | 3 | 2,6 | | 2,6 | 2,6 | 2,6, 10,14 | |
| 3.5.3 | Terminal Resistance (Rated Current) | 4 | 3,7 | | 3,7 | 3,7 | 3,7, 11,15 | |
| 3.5.4 | Current Leakage | 5 | | | | | | |
| 3.5.5 | Temperature Rising | 6 | 8 | | 8 | 8 | 16 | |
| 3.5.6 | Connector Mating Force | 2 | | | | | | |
| 3.5.7 | Connector Unmating Force | 8 | | | | | | |
| 3.5.8 | Crimp Tensile Strength | 9 | 9 | | | 9 | | |
| 3.5.9 | Housing Locking Strength | 11 | | | | 11 | | |
| 3.5.10 | Contact Retention Force | 10 | | | | 10 | | |
| 3.5.11 | Panel Lock Strength | 12 | | | | | | |
| 3.5.12 | Unlocking Force | 7 | | | | | | |
| 3.5.13 | Vibration | | 4 | | | | | |
| 3.5.14 | Overloaded Current | | | 2 | | | | |
| 3.5.15 | Rush Current | | | | 4 | | | |
| 3.5.16 | Temperature Life (Heat Aging) | | | | | 4 | | |
| 3.5.17 | Durability (Repeated Mate/Unmate) | | | | | | 4 | |
| 3.5.18 | Resistance to "Kojiri" | | | | | | 8 | |
| 3.5.19 | Current Cycling | | | | | | 12 | |
| 3.5.20 | Drop Impact | | | | | | | 2 |

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

Fig.4



Reduce resistance of X-X' and Y-Y' (wire "L") from X'-Y'

Fig.5

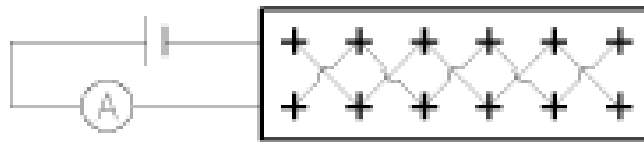
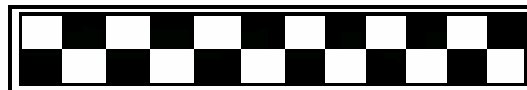


Fig.6



■; Loaded

| Pos. | Wire Size (mm ²) | Current (A) | Temperature Rising |
|------|------------------------------|-------------|--|
| 8 | 0.5 | 4 | 55°C Max. (Initial) 65°C Min. (Final) |
| 12 | | 4 | |
| 16 | | 4 | |
| 24 | | 4 | |
| 32 | | 4 | |

Fig.7

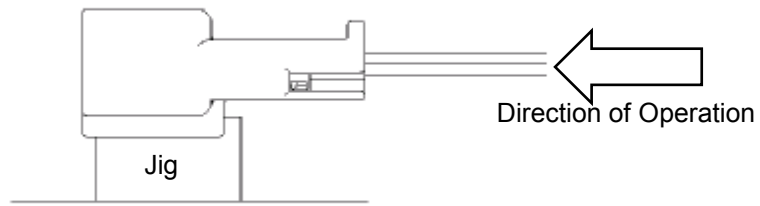


Fig.8

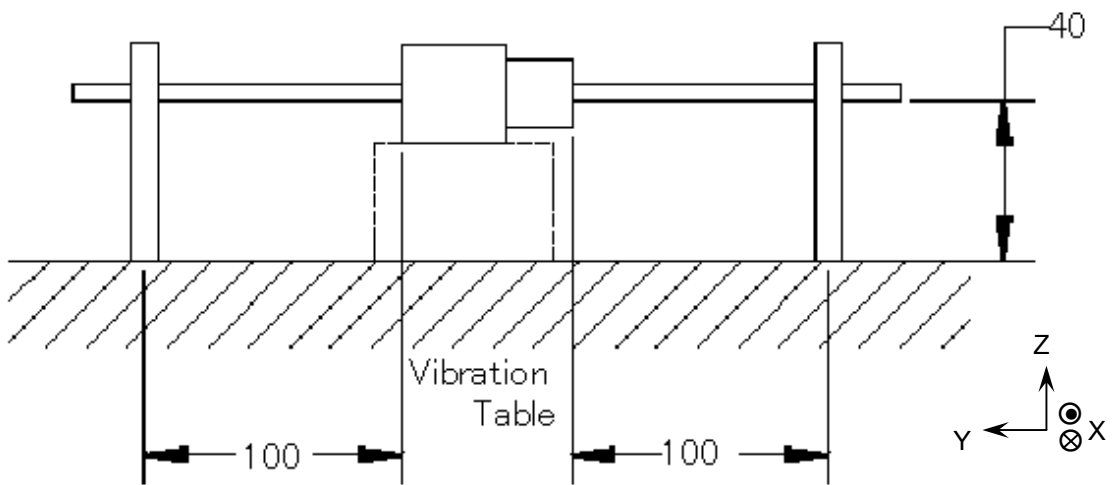


Fig. 9

| Wire Size (mm ²) | Current (A) | Test condition | Duration |
|------------------------------|-------------|----------------|--------------------------------------|
| 0.5 | 6 | A | 1min. ON / 9min. OFF: 1000cycles |
| | 15 | B | 10sec. ON / 590sec. OFF: 1000 cycles |

Fig.10

| Wire Size (mm ²) | Current (A) | Duration |
|------------------------------|-------------|-------------------------------------|
| 0.5 | 3 | 45 min. ON / 15 min OFF: 300 cycles |

Fig.11

| Connector Mating Force, Connector Unmating Force [N] Max | | | | |
|--|-------|-------|-------|-------|
| 8Pos | 12Pos | 16Pos | 24Pos | 32Pos |
| 30 | 35 | 42 | 53 | 70 |

Fig.12

| Part No.* | Description |
|-----------|---|
| 1565804 | 025 G 8POS. CAP ASSY (MALE CONNECTOR) |
| 1376352 | 025 SER 8POS. PLUG ASSY (FEMALE CONNECTOR) |
| 1473407 | 025 G 12POS. CAP ASSY (MALE CONNECTOR) |
| 1318774 | 025 SER 12POS. PLUG ASSY (FEMALE CONNECTOR) |
| 1473410 | 025 G 16POS. CAP ASSY (MALE CONNECTOR) |
| 1318386 | 025 SER 16POS. PLUG ASSY (FEMALE CONNECTOR) |
| 1473413 | 025 G 24POS. CAP ASSY (MALE CONNECTOR) |
| 1318917 | 025 SER 24POS. PLUG ASSY (FEMALE CONNECTOR) |
| 1612268 | 025 G 32POS. CAP ASSY (MALE CONNECTOR) |
| 1318747 | 025 SER 32POS. PLUG ASSY (FEMALE CONNECTOR) |
| 1674298 | 025 TH RECEPTACLE CONTACT |
| 1674742 | 025 TH TAB CONTACT |

Appendix.1

*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.