

MONOPLUG 2.5 Connector

1. SCOPE

1.1. Content

This specification covers performance, tests, and quality requirements for the Monoplug 2.5 connector system. Base numbers covered by this specification are listed in Figure 1. Compatible mating parts include tab headers (P/N 1971817, 1971818, 1971921, 1971922) and PCB frames (P/N 964575, 964576) for either single or double sided PC boards. These are shown in Figure 2.

| Connector Type | Single Sided Keying | Double Sided Keying |
|--------------------|---------------------|---------------------|
| Fully Loaded | 2232892 | 2232884 |
| | 2232893 | 2232885 |
| Selectively Loaded | 2232890 | 2232894 |
| | 2232891 | 2232895 |

Figure 1

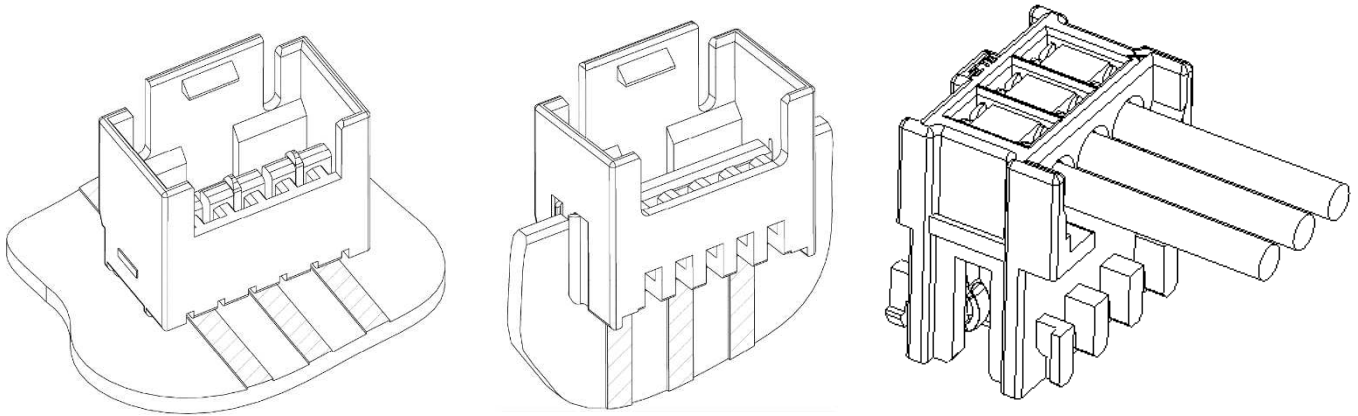


Figure 2

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 3 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line has been completed for this product line. The Qualification Test Report number is 501-106198.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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 Connectivity Specifications

| | |
|----------------------------|---|
| 114-106198 | Application Specification – Monoplug 2.5 Connector System |
| 501-106198 | Qualification Test Report – Monoplug 2.5 Connector System |
| 2232884 | Customer Drawing – Monoplug 2.5 Connector System |

2.2. Commercial Standards and Specifications

| | |
|-----------|--|
| IEC 61984 | International Standard – Safety Requirements and Tests |
| IEC 60335 | International Standard – Safety of Household and Similar Appliance |
| IEC 60512 | International Standard – Connectors for Electronic Equipment – Tests and Measurements |
| IEC 60695 | International Standard – Fire Hazard Testing |
| UL 1977 | Safety Standards – Component Connectors for Use in Data, Signal, Control, and Power Applications |
| EIA-364 | Electrical Connector/Socket Test Procedures Including Environmental Classifications |

2.3. Reference Documents

| | |
|-------------------------|---|
| 109-1 | General Requirements for Testing |
| 102-950 | Qualification of Separable Interface Connectors |

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

Materials used in the construction of this product shall be as specified on the applicable TE drawing.

3.3. Ratings

- A. Voltage Rating: 50 VAC (250 VAC for selectively loaded versions only)
- B. Current Rating: 2 A
- C. Temperature Rating: -40°C to $+110^{\circ}\text{C}$
- D. Ingress Protection (IP) Rating: IP00

3.4. Performance Requirements and Test Description

The product should meet the electrical, mechanical and environmental performance requirements specified in Figure 3. All tests shall be performed at ambient environmental conditions otherwise specified per IEC 60512-1.

Preparation for all tests groups includes 24 hours of preconditioning at ambient environmental test conditions.

3.5. Test Requirements and Procedure Summary

| Test Description | Requirement | Procedure |
|---|---|---|
| Examination of Product | Meets requirements of product drawing and TE specification (114-106198). After testing, there shall be no corrosive influence on the performance and no physical damage. | IEC 60512-1-1 |
| Electrical | | |
| Contact Resistance – Specified Test Current Method | Initial: 10 mΩ (milliohms) maximum (Ri) Final: 5+Ri or 1.5*Ri mΩ (milliohms) maximum | IEC 60512-2-2 See Figure 4. Subtract the bulk resistance of the wire from the measurement. Protect wire from corrosion during testing. Test on mated connectors. Test Current = 1A |
| Current-Temperature Derating Curve | 110°C (Per IEC 60512-5-2, must specify an upper temperature limit) | IEC 60512-5-2 |
| Temperature Rise of IDC | 45°C maximum temperature rise | IEC 60512-5-1 Measure the temperature rise above ambient created by the energizing current. Measurement must be taken at a place where there is no influence from air convection. Measure in the area on the IDC area. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1°. |
| Temperature Rise | $T \leq 110^{\circ}\text{C}$ | IEC 60512-5-1 Measure the temperature rise above ambient created by the energizing current. Measurement must be taken at a place where there is no influence from air convection. Measure in the contact area between the mated connectors. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1°. |
| Dielectric Withstanding Voltage | No breakdown or flashover. Leakage Current: 2.0 mA (maximum) | IEC 60512-4-1, Method C Apply 370 VAC for 1 minute for fully loaded specimens and 1370 VAC for 1 minute for selectively loaded specimens. Test on unmated connectors. |
| Insulation Resistance | 5 MΩ (megaohms) minimum | IEC 60512-3-1, Method C Apply 500 VDC for 1 minute between adjacent contacts. Test on unmated connectors. |
| Contact Resistance – Voltage Drop Method | 22.5 mV or 1.5x (maximum) | IEC 60998-2-3 See Figure 5. Subtract the bulk resistance of the wire from the measurement. Protect wire from corrosion during testing. Test on mated connectors. |
| Mechanical | | |
| Engaging and Separating Forces (Terminal or Tab Header) | Engaging: 6N (maximum) Separating: 1N (maximum) | IEC 60512-13-1 Operating Speed: 25.4 mm/min Number of Cycles: 1 |

Figure 3 (continued)

| | | |
|---|--|---|
| Contact Retention in Insert | 20 N (minimum) | IEC 60512-15-1 Operating Speed: 25.4 mm/min |
| Termination Tensile Strength | 30 N (minimum) | IEC 60998-2-3 Operating Speed: 25.4 mm/min Test 90° to the mating direction in the IDC area. |
| Polarization Test | No damage which could impair normal usage. | IEC 60512-13-5 Mating Force: 20 N (maximum) Operating Speed: 25.4 mm/min |
| Engaging and Separating Forces of a Connector | No damage which could impair normal usage. | IEC 60512-9-1 Mate and unmate connector 10 times. Operation Speed: 25.4 mm/min |
| Impact Test | No damage which could impair normal usage. | IEC 60512-7-2 Subject connectors to a single fall from a height of 1 m onto an uncoated concrete floor in each axis. |
| Wire Movement Test | No damage which could impair normal usage. | EN 60998 Part 2-3 Apply 3N for 15 minutes on end of 260 mm length wire around a circuit with a 6.5 mm diameter. |

Environmental

| | | |
|--|---|--|
| Thermal Cycling | No damage which could impair normal usage. | IEC 60998-2-3 Lower Temperature Limit: 30°C Upper Temperature Limit: 85°C Number of Cycles: 192 |
| Saturated Atmosphere in the Presence of Sulfur Dioxide | No damage which could impair normal usage. | IEC 60512-11-7 Subject connector to 0.2 dm ³ SO ₂ and 2 dm ³ H ₂ O at 40°C for 8 hours. |
| Dry Heat | No damage which could impair normal usage. | IEC 60512-11-9 Subject connector to 110°C for 7 days. |
| Cold | No damage which could impair normal usage. | IEC 60512-11-10 Subject connector to -40°C for 2 hours. |
| Ball Pressure Test | 2 mm diameter (maximum) | IEC 60695-10-2 Test connector at 125°C for 1 hour. |
| Glow Wire Test | Flame duration ≤ 30 seconds (Test at 850°C). Flame duration ≤ 2 seconds (Test at 750°C). | IEC 60695-2-11 according to IEC 60335-1 To be tested on Un-Mated Connectors Test temperatures = 850°C, 750°C, and 550°C |
| Proof Tracking Index | 250 V | IEC 60112 Test Liquid A |

Figure 3 (end)



NOTE

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 6.

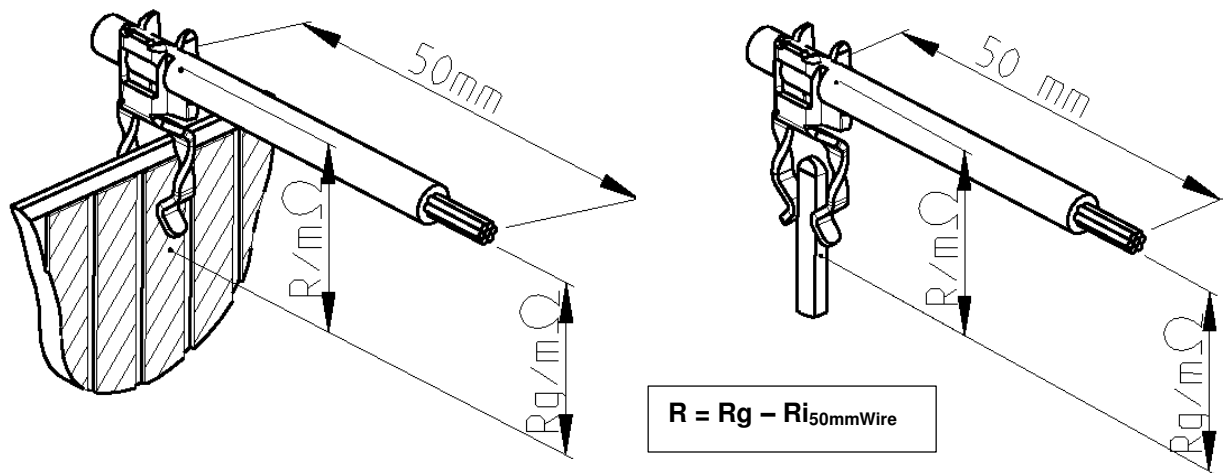


Figure 4

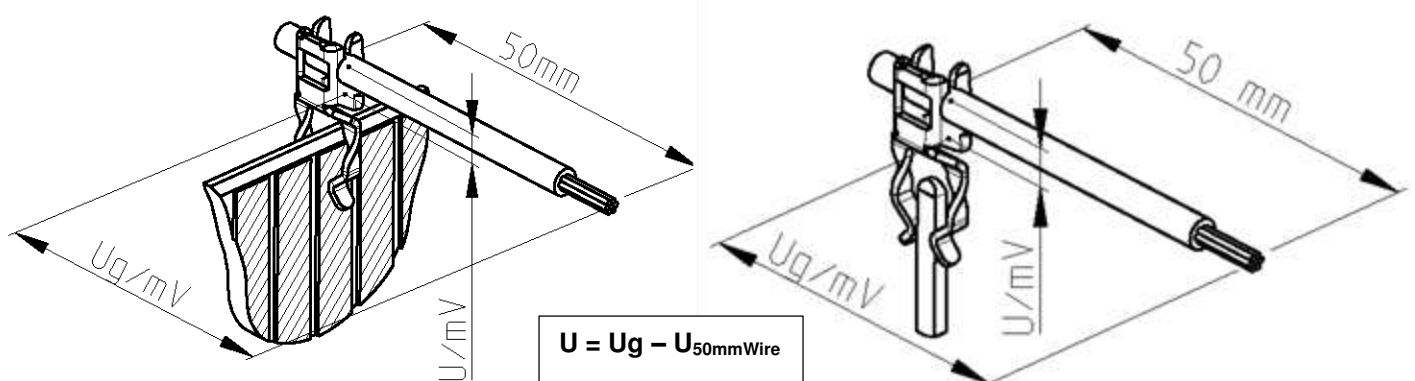


Figure 5

3.6. Product Qualification and Requalification Test Sequence

| TEST OR EXAMINATION | TEST GROUP (a) | | | | | | | | | | | | |
|--|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| | TEST SEQUENCE (b) | | | | | | | | | | | | |
| Examination of Product | 1, 4 | 1, 5 | 1, 7 | 1, 8 | 1, 3 | 1, 3 | 1, 3 | 1, 3 | 1, 3 | 1, 5 | 1, 3 | 1, 3 | 1, 3 |
| Contact Resistance – Specified Test Current Method | | 2, 4 | 2, 5 | 2, 6 | | | | | | | | | |
| Current-Temperature Derating Curve | | | 3 | | | | | | | | | | |
| Temperature Rise of IDC | | | | | | | | | 2 | | | | |
| Temperature Rise | | | 4 | | | | | | | | | | |
| Dielectric Withstanding Voltage | | | 6 | 7 | | | | | | | | | |
| Insulation Resistance | | | | | | | | | | | | | |
| Contact Resistance – Voltage Drop Method | | | | | | | | | | 2, 4 | | | |
| Engaging and Separating Forces (Tab Header) | 2 | | | | | | | | | | | | |
| Contact Retention in Insert | 3 | | | | | | | | | | | | |
| Termination Tensile Strength | | | | | | | 2 | | | | | | |
| Polarization Test | | | | | 2 | | | | | | | | |
| Durability (Mechanical Operation Endurance) | | 3 | | | | | | | | | | | |
| Impact Test | | | | | | | | 2 | | | | | |
| Wire Movement Test | | | | | | 2 | | | | | | | |
| Thermal Cycling | | | | | | | | | | 3 | | | |
| Saturated Atmosphere in the Presence of Sulfur Dioxide | | | | 5 | | | | | | | | | |
| Dry Heat | | | | 4 | | | | | | | | | |
| Cold | | | | 3 | | | | | | | | | |
| Ball Pressure Test | | | | | | | | | | | 2 | | |
| Glow Wire Test | | | | | | | | | | | | 2 | |
| Proof Tracking Index | | | | | | | | | | | | | 2 |

Figure 6



NOTE

(a) See paragraph 4.2.

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

4. QUALITY ASSURANCE PROVISIONS

4.1. Test Conditions

Unless otherwise specified, all the tests shall be performed in any combination of the following test conditions shown in Figure 7.

| | |
|----------------------|------------------|
| Temperature | 15°C – 35°C |
| Relative Humidity | 45% – 75% |
| Atmospheric Pressure | 86.6 – 106.6 KPa |

Figure 7

4.2. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. See Figure 8 for minimum number of connectors per test group

| WIRE SIZE | TEST GROUP | | | | | | | | | | | | |
|----------------------|------------|---|---|---|---|---|---|---|---|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 0.22 mm ² | | 3 | 3 | 3 | | 3 | 3 | | | 3 | | | |
| 0.35 mm ² | | 3 | 3 | 3 | | 3 | 3 | | | 3 | | | |
| Any Size | 3 | | | | 3 | | | 3 | 3 | | 3 | 3 | 3 |

Figure 8

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 6.

4.3. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.4. Acceptance

Acceptance is based on verification that the product meets the requirements in Figure 3. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.5. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

单击下面可查看定价，库存，交付和生命周期等信息

[>>TE Connectivity\(泰科\)](#)