# Nickel-Plated SOLISTRAND* STRATO-THERM* Terminals

## 1. SCOPE

1.1. Content

This specification defines the performance, tests, and quality requirements for the TE Nickel Plated SOLISTRAND STRATO-THERM, terminals. Terminals covered by this specification are intended for termination to stranded, nickel plated, high temperature wire conforming to SAE AS22759 Class 1 wire.

1.2. Qualification

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

## 2. APPLICABLE DOCUMENTS

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 Documents

- 109-1: General Requirements for Testing
- 109 Series: Test Specifications as indicated in Figure 1
- 501-134027 Rev A: (Applicable Qualification Test Report)

2.2. Industry Documents

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- IEC-60512: Electronic Equipment - Tests and Measurements
- SAE AS7928: Terminals, Lug, Splices, Conductor: Crimp Style, Copper, General Specification for

2.3. Reference Document

109-197: Test Specification (TE Test Specifications vs. EIA and IEC Test Methods)

## 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

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

3.3. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.4. Test Requirements and Procedures Summary

| Test Description | Requirement | Procedure |
|---|---|---|
| Initial examination of product. | Meets requirements of product drawing. | EIA-364-18.<br>Visual examination and dimensional (C of C) inspection per product drawing. |
| Final examination of product. | Meets visual requirements.<br>See Note 1. | EIA-364-18.<br>Visual examination. |
| **ELECTRICAL** | | |
| Voltage drop | SAE AS7928, paragraph 3.5.1<br>See Figure 3. | SAE AS7928, paragraph 4.7.2 |
| Current cycling | SAE AS7928, paragraph 3.5.2<br>See Figure 3. | SAE AS7928, paragraph 4.7.3 |
| **MECHANICAL** | | |
| Vibration. | SAE AS7928, paragraph 3.5.6<br>See Note 2. | SAE AS7928, paragraph 4.7.7 |
| Termination tensile strength | SAE AS7928, paragraph 3.5.7<br>See Figure 3. | SAE AS7928, paragraph 4.7.8 |
| **ENVIRONMENTAL** | | |
| Salt spray | SAE AS7928, paragraph 3.5.4<br>See Note 1 and Note 2. | SAE AS7928, paragraph 4.7.5 |
| Temperature cycling | See Note 2. | IEC 60512-11-4<br>Subject samples to 50 cycles of:<br>30 minutes at -55°C<br>30 minutes at room temperature<br>30 minutes at 343°C<br>30 minutes at room temperature |

***NOTE 1***
*Area within and immediately adjacent to the crimp barrel are typically deformed to a degree that some base metal will be visable prior to salt spray testing. This is a normal condition. Therefore, exposed base metal existing PRIOR to testing shall not be interpreted as a failure during the* ***post*** *salt spray examination*

***NOTE 2***
*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 2.*

***Figure 1***

3.5. Product Qualification and Requalification Test Sequence

| Test or Examination | Test Group (a) | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| | Test Sequence (b) | | | |
| Initial examination of product | 1 | 1 | 1 | 1 |
| Voltage drop | 2,4 | 2,4 | 2,4 | 2,4 |
| Current cycling | 3 | | | |
| Vibration | | 3 | | |
| Termination tensile strength | | 6 | 6 | |
| Salt spray | | | 3 | |
| Temperature cycling | | | | 3 |
| Final examination of product | 5 | 5 | 5 | 5 |

(a) See Paragraph 4.1.A.
(b) Numbers indicate sequence in which tests are performed.

***Figure 2***

## 4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. Each test group shall consist of 10 terminals of each wire size.

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

4.2. 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.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. 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.

4.4. 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.

| Wire Size (AWG) | Test Current (amperes) | Maximum Voltage Drop (mV) – Millivolt Drop of Equivalent Length of Wire Plus Appropriate Value Below | | Tensile Strength (pounds minimum) |
|---|---|---|---|---|
| | | Initial | After test | |
| 26 | 3 | 5 | 8 | 5 |
| 24 | 4.5 | 5 | 8 | 7 |
| 22 | 9 | 5 | 8 | 11 |
| 20 | 11 | 5 | 8 | 13 |
| 18 | 16 | 5 | 8 | 27 |
| 16 | 22 | 5 | 8 | 35 |
| 14 | 32 | 5 | 8 | 49 |
| 12 | 41 | 5 | 8 | 77 |
| 10 | 55 | 5 | 8 | 105 |
| 8 | 73 | 5 | 8 | 158 |
| 6 | 101 | 5 | 8 | 210 |
| 4 | 135 | 2 | 4 | 300 |
| 2 | 181 | 2 | 4 | 440 |
| 1/0 | 245 | 2 | 4 | 700 |

**Figure 3**
(Millivolt Drop and Tensile Strength Requirements)