

The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, TE Connectivity (TE) makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, TE may change these requirements based on the results of additional testing and evaluation. Contact TE Engineering for further details.

## Inverted Poke-In Through Board Connector

### 1. SCOPE

#### 1.1. Content

This specification defines performance, tests, and quality requirements for the TE Connectivity (TE) inverted poke-in through board connector 2213189-[ ].

#### 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 AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

#### 2.1. TE Documents

- [102-950](#) Quality Specification (Qualification of Separable Interface Connectors)
- [109-197](#) Test Specification (TE Test Specifications vs EIA and IEC Test Methods)
- [114-32054](#) Application Specification
- [501-134031](#) Qualification Test Report

#### 2.2. Industry Documents

- EIA-364 Electrical Connector/Socket Test Procedures Including Environmental Classifications
- IEC-60512 Electronic 400 volts AC/DC Equipment—Tests and Measurements

### 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. Ratings

- Voltage: 400 volts AC/DC
- Current: 2 amperes for 24-26 AWG and 3 amperes for 22-18 AWG
- Temperature: -40° to 130°C

#### 3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

Test Description	Requirement	Procedure
Initial Examination of Product	Meets requirements of product drawing and application specification 114-32054.	EIA-364-18 Visual examination and dimensional (C of C) inspection per product drawing.
Final Examination of Product	Meets visual requirements.	EIA-364-18 Visual examination.

Test Description	Requirement	Procedure
Electrical		
Low Level Contact Resistance (LLCR)	10 milliohms maximum initial 20 milliohms maximum final	EIA-364-23 Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage. See Figure 3, LLCR Measurement Points.
Insulation Resistance	1000 megohms minimum initial 500 megohms minimum final.	EIA-364-21 500±10% volts DC, 2-minute hold. Test between adjacent contacts.
Withstanding Voltage	One-minute hold with no breakdown or flashover.	EIA-364-20, Condition I 1800 volts AC at sea level. Test between adjacent contacts.
Temperature Rise vs Current	30°C maximum temperature rise at specified current.	EIA-364-70, Method 1 Stabilize at a single current level until 3 readings at 5-minute intervals are within 1°C. See Figure 3, Temperature Rise Set Up.
Mechanical		
Solderability, Dip Test	Solderable area shall have a minimum of 95% solder coverage.	J-STD-002D, Test S1 Subject contacts to solderability.
Random Vibration (Office)	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28, Test Condition VII, Test Condition Letter D Subject mated specimens to 3.10-G rms vibration between 20 to 500 Hz. Fifteen minutes in each of 3 mutually perpendicular planes. See Figure 3, Vibrations and Mechanical Shock Mounting Fixture.
Mechanical Shock (Office)	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27, Test Condition H Subject mated specimens to 30-G half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 3.
Wire Insertion Force	26 AWG Solid, 8 N Max 24 AWG Solid, 8 N Max 22-18 AWG Solid, 15.6 N Max 20-18 AWG Prebond, 29.0 N Max 18 AWG Stranded, 29.0 N Max	EIA-364-13, Method A Measure force necessary to insert wire at a maximum rate of 12.7-mm per minute.
Wire Retention Force	26-24 AWG Solid, 8 N Min 22-18 AWG Solid, 27 N Min 20-18 AWG Prebond, 21 N Min 18 AWG Stranded, 8 N Min	EIA-364-13 Measure force necessary to extract wire at a maximum rate of 12.7-mm per minute.
Environmental		
Thermal Shock	See Note.	EIA-364-32, Method A, Test Condition I, Test Duration A Subject specimens to 5 cycles between -40° and 130°C with 30-minute dwells at temperature extremes and 1-minute maximum transition between temperatures.

Test Description	Requirement	Procedure
Humidity-Temperature Cycling	See Note.	EIA-364-31, Method IV Subject specimens to 10 cycles (10 days) between 25° and 65°C at 80 to 100% RH with -10°C cold shock.
Temperature Life	See Note.	EIA-364-17, Method A, Test Time Condition C Subject mated specimens to 130°C for 500 hours.



**NOTE**

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the product qualification and re-qualification test sequence given in Figure 2.

**Figure 1**

3.4. Product Qualification and Re-Qualification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)				
	1	2	3	4	5
	TEST SEQUENCE (b)				
Initial Examination of Product	1	1	1	1	1
LLCR	3,6		2,7		
Insulation Resistance				2,6	
Withstanding Voltage				3,7	
Temperature Rise vs Current			3,8		
Solderability, Dip Test		2			
Random/Sinusoidal Vibration	4		6 (c)		
Mechanical Shock	5				
Wire Insertion Force	2				
Wire Retention Force					2
Thermal Shock				4	
Humidity/Temperature Cycling			4	5	
Temperature Life			5		
Final Examination of Product	7	3	9	8	3

(a) See Note below.

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

(c) Discontinuities shall not be measured. Energize at 18°C level for 100% loadings per quality specification 102-950.

**Figure 2**

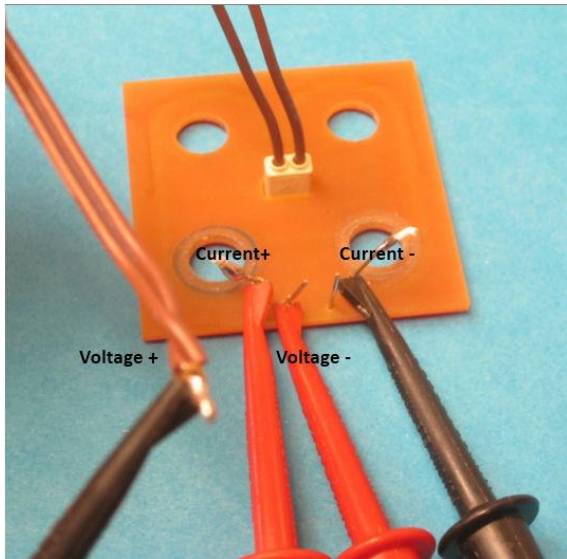


**NOTE**

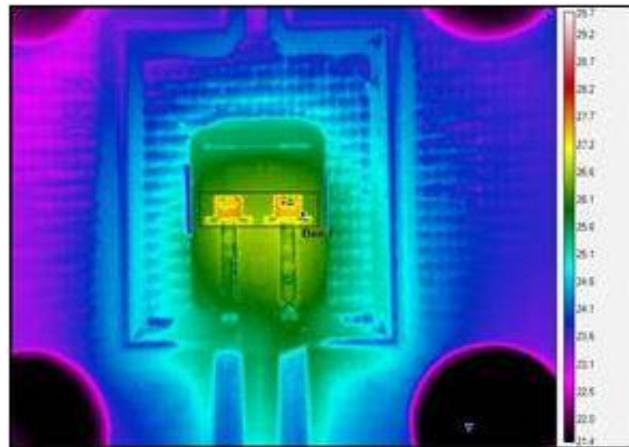
*Specimens shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. Each test group shall consist of the following:*

Sample Quantity	Part Number	Tested With
Test Group 1		
10	2213189-1	18 AWG Stranded Wire
10	2213189-1	18 AWG Prebond Wire
10	2213189-1	18 AWG Solid Wire
10	2213189-1	20 AWG Prebond Wire
10	2213189-1	20 AWG Solid Wire
10	2213189-1	22 AWG Solid Wire
10	2213189-2	24 AWG Solid Wire
10	2213189-2	26 AWG Solid Wire
Test Group 2		
5	2213189-1	—
Test Group 3		
15	2213189-1	22 AWG Solid Wire
15	2213189-1	18 AWG Stranded Wire
15	2213189-2	26 AWG Solid Wire
Test Group 4		
15	2213189-1	22 AWG Solid Wire
15	2213189-1	18 AWG Stranded Wire
15	2213189-2	26 AWG Solid Wire

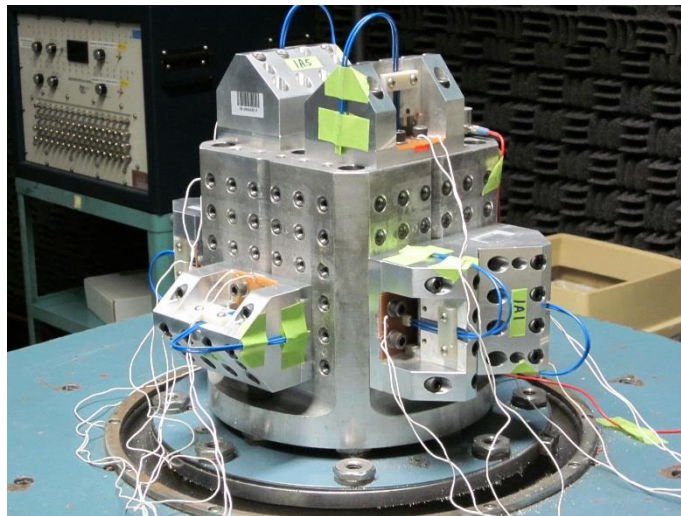
**LLCR Measurement Points**



**Temperature Rise Set Up**



**Vibrations and Mechanical Shock Mounting Fixture**



**Figure 3**