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**PRODUCT SPECIFICATION****Micro USB Receptacle Connector**

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**1. SCOPE****1.1. Content**

This specification covers performance, tests and quality requirements for Micro USB connector. Applicable product descriptions and part numbers are as shown in product drawing.

**1.2. Qualification**

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

**2. APPLICABLE DOCUMENTS****2.1 TE Connectivity 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.

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

501-115024-1: Qualification Test Report

**2.2. Commercial Standard and Specifications:**

Test Methods for Electronic Component Parts: EIA-364.

USB cables and Connectors Class Document Revision 2.0

**3. REQUIREMENTS****3.1 Design and Construction**

Product shall be of the design, construction and cosmetic 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.

**3.4 Ratings**

A. Voltage: 30 volts AC

B. Current:

- ① 1,5 pin :1.8A Max. 2,3,4 pin: 0.5A Max.
- ② 2,4 and 4 pin: 1A Min.
- C. Temperature: -30 to 85°C

### 3.5 Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements.

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

#### 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of the product	Meets requirements of product drawing.	Visual, dimensional and functional per applicable inspection plan. EIA 364-18

#### ELECTRICAL

Low Level Contact Resistance (LLCR).	30 mΩ Max.(initial) ΔR=10mΩ Max.(final)	Measure at 20mV (Max) open circuit at 100mA. Four-wire measurement method must be used. See Figure 2.
Insulation resistance.	1000 MΩ Min.	Mated connector with 500 V DC between adjacent contact for 1 min.
Dielectric strength	No breakdown.	Mated connector with 100 V AC between adjacent contact for 1 min.
Temperature rise	30°C Max.	Measured at maximum rated current with series all contacts.

#### MECHANICAL

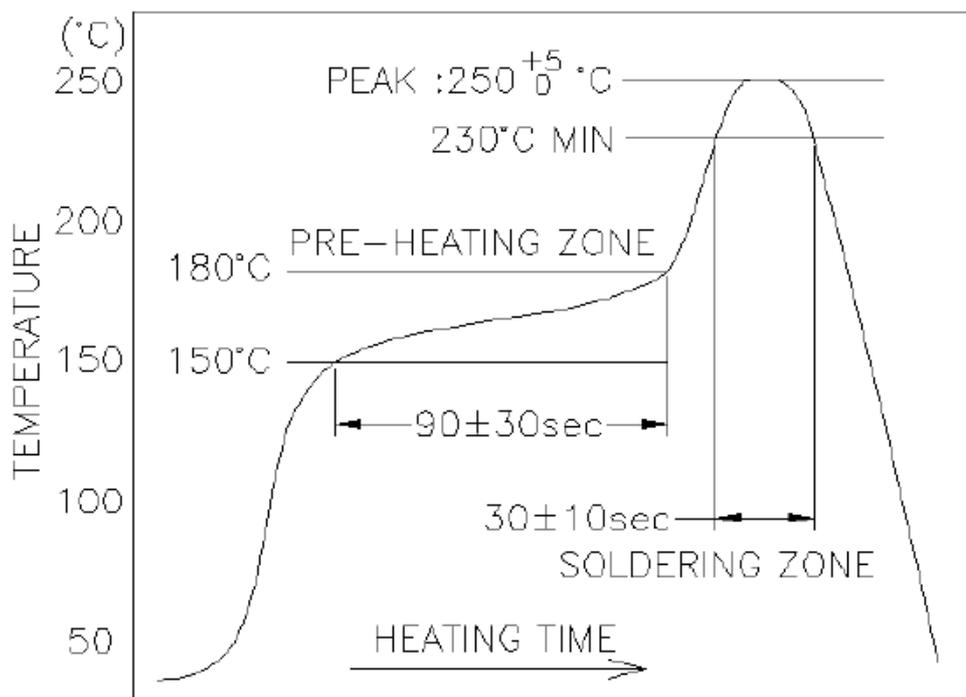
Insertion force	35N Max.	Measure force to mate at a rate of 12.5mm per minute maximum.
Extraction force	8N Min.	Measure force to mate at a rate of 12.5mm per minute maximum.
Random vibration.	Discontinuity max 1 us	5 to 500Hz 0.01 g <sup>2</sup> /Hz 100min at each axis, totally 300 min for 3 axis IEC 68-2-64
Sine Vibration	No cosmetic damage and shall meet requirement of subsequent test.	10 to 150Hz 5.1G acceleration Sweep rate at 1 octave/minute 90 min on each plane, total 270 minutes IEC 68-2-64
Mechanical shock.	Discontinuity max 1 us	30G; 6ms; 3.4m/s half sine pulse 6 successive shocks in 3 mutually perpendicular axis IEC 68-2-27
Durability	Contact resistance: 40mΩ Max.	Manual insertion for 10,000 cycles at a rate of 1 insertion per second

**ENVIRONMENTAL**

Test Description	Requirement	Procedure
Thermal Shock.	No cosmetic damage and shall meet requirement of subsequent test.	-40°C to 85°C Transition time between extremes 0-5minutes 10minutes at each extreme temperature 640 cycles IEC 68-2-14
Humidity Stress Test	No cosmetic damage and shall meet requirements of subsequent tests.	85°C @ 85% R.H. 1000 hours IEC 60068-2-78
Solderability	Solderable area shall have a minimum of 95% solder coverage.	245±3°C, for 2-3 seconds,
Resistance to reflow soldering heat	No cosmetic damage and shall meet requirement of subsequent test.	Test with reflow profile for soldering heat resistance described in Figure 1 Though oven 3 times

**\*IR reflow requirements:**

**All samples have to be soldered on PWB and reflow twice total before measuring and testing.**



**Figure 1**

### 3.6. Product Qualification and Requalification Test Sequence

Description	A	B	C	D	E	F	G
Examination of the product	1,8	1,13	1,5	1,3	1,5	1,3	1,3
Low Level Contact Resistance	2,5,7	2,8	2,4		2,4		
Insulation resistance.		3,9					
Dielectric strength		4,10					
Temperature rise				2			
Insertion force		5,11					
Extraction force		6,12					
Random vibration.	3						
Sine Vibration			3				
Mechanical shock.	4						
Durability		7					
Thermal shock.	6						
Humidity Stress Test					3		
Solderability						2	
Resistance to reflow soldering heat							2
Sample size (pcs)	5	5	5	5	5	5	5

## 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.

#### B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified.

### 4.2. Requalification Testing

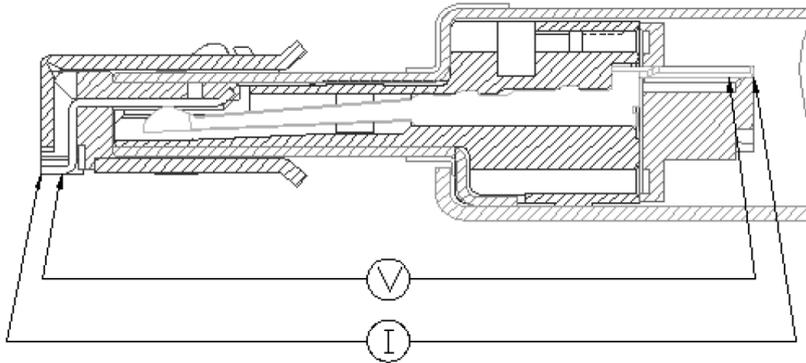
If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

### 4.3. Acceptance

Acceptance is based on verification that the product meets the requirements. 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 resubmitted.

### 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



**Figure 2 Measuring method of contact resistance**