

**USB 3.0 Right Angle Receptacle**

**1. SCOPE**

1.1. Content

This specification covers performance, tests and quality requirements for the USB 3.0 Right Angle Receptacle.

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.

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed. The Qualification Test Report number 501-134050 was issued upon successful qualification testing.

**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

- [501-134050](#): Qualification Test Report (USB 3.0 Right Angle Receptacle)

2.2. Industry Documents

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications

2.3. Reference Document

- [109-197](#) Test Specification (TE Test Specification vs EIA and IEC Test Methods)

**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	Current	Temperature
100 volts AC (RMS)	1.8A applied to Vbus pin and corresponding GRD pins (pin1, pin4, pin7) 0.25A applied to all other pins (pin2, pin3, pin5, pin6, pin8, pin9)	-55 to 85°C

### 3.3. Test Requirements and Procedures Summary

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

TEST DESCRIPTION	REQUIREMENT	PROCEDURE
<b>ELECTRICAL</b>		
Low Level Contact Resistance	30 milliohms maximum for VBUS and GND 50 milliohms maximum for all other contacts +ΔR 10 milliohms maximum for all contacts	EIA-364-23 Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage
Capacitance	2 pF maximum	EIA-364-30 Test between D+ and D- contacts only of unmated specimens.
Dielectric Withstanding voltage	One minute hold with no breakdown or flashover. 5 mA leakage current maximum.	EIA-364-20, Condition I. 100 volts AC (RMS) at sea level. Test between adjacent contacts of mated specimens.
Insulation resistance	100 megohms minimum	EIA-364-21 100 volts DC, 2 minute hold. Test between adjacent contacts of unmated specimens.
<b>MECHANICAL</b>		
Durability	See Note	EIA-364-9. Mate and unmate specimens for 1500 cycles at a maximum rate of 200 cycles per hour manually or 500 cycles per hour automatically.
Durability (precondition 50 cycles)	See Note	EIA-364-9. Mate and unmate specimens for 50 cycles at a maximum rate of 200 cycles per hour manually or 500 cycles per hour automatically.
Reseating (3 mate/unmate cycles)	See Note	EIA-364-9. Mate and unmate specimens for 3 cycles at a maximum rate of 200 cycles per hour manually or 500 cycles per hour automatically.
Insertion force	35 N maximum	EIA-364-13. Measure force necessary to mate specimens at a maximum rate of 12.5 mm per minute
Extraction force	10 N minimum initial 8 N minimum after durability	EIA-364-13. Measure force necessary to unmate specimens at a maximum rate of 12.5 mm per minute.

Figure 1 cont.

TEST DESCRIPTION	REQUIREMENT	PROCEDURE
Solderability	95% minimum solder wetting Critical area of solderability per J-STD-002	TEC 109-11-12-1, Method A Immerse in molten solder at a temperature of +255 C +/- 5 C
Random Vibration	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-28, Test Condition VII, Condition Letter D. Subject mated specimens to 3.10 G's rms between 20 to 500 Hz. Fifteen minutes in each of 3 mutually perpendicular planes
<b>ENVIRONMENTAL</b>		
Humidity/temperature cycling	See Note.	EIA-364-31, Method IV. Subject mated specimens to 24 cycles between 25°C at 80% RH and 65°C at 50% RH with 60 minute dwell time at each temperature.
Mixed flowing gas	See Note.	EIA-364-65, Class IIA (4 gas). Subject specimens to 112 hours of exposure unmated followed by 56 hours of exposure mated (7 days total).
Temperature life (Precondition)	See Note.	EIA-364-17, Method A. Subject mated specimens to 105°C for 72 hours.
Temperature life	See Note.	EIA-364-17, Method A. Subject mated specimens to 105°C for 120 hours.
Thermal Disturbance	See Note.	EIA-364-1000, table 4 Mated specimens cycled 10 times between 15°C and 85°C with a minimum dwell of 5 minutes at each temperature.
Thermal shock	See Note.	EIA-364-32, Test Condition I. Subject mated specimens to 10 cycles between -55 and 85°C with 30 minute dwells at each temperature.


**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 2.*

Figure 1 End

3.4. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)							
	1	2	3	4	5	6	7	8
	TEST SEQUENCE (b)							
LLCR	1,4,6	1,4,6,8	1,4,6	1,4,6,8,10	1,6			
Durability (precondition 50 cycles)	2	2	2	2				
Durability (1500 cycles)					4	4		
Temperature life (precondition)			3	3				
Reseating (3 mate/unmate cycles)	5	7		9				
Temperature life	3							
Thermal shock		3						
Humidity/temperature cycling		5						
Random vibration			5					
Mixed flowing gas				5				
Thermal disturbance				7				
Insertion force					2	2		
Extraction force					3,5	3,5		
Dielectric withstanding voltage						1,6		
Capacitance							1	
Insulation resistance							2	
Solderability								1



**NOTE**

- (a) Specimens were produced, inspected and accepted as conforming to product drawing requirements (C of C). 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 3 specimens.
- (b) Numbers indicate sequence in which tests are performed.

Figure 2 End