
**USB Connector, A type, Receptacle, Right Angle, DIP,
With Lock Device**

1. SCOPE**1.1. CONTENTS**

This specification covers performance, tests and quality requirements for the TE Connectivity USB Connector, A type, Receptacle, Right Angle, DIP, With Lock Device.

1.2. QUALIFICATION

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

2. APPLICABLE DOCUMENT

The following documents form a part of this specification to the extent specified herein. 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. DESIGN AND CONSTRUCTION

- 109-1 : General requirements for Test Specifications
- 109-197 : Test Specification (TE Test Specifications vs EIA and IEC Test Methods)
- 501-57026 : Test report

2.2. INDUSTRY STANDARD

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

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 product shall be as specified on the applicable product drawing.

3.3. RATINGS

- A. Operation temperature : -20°C to +85°C
- B. Current rating : 1.5 Ampere.
- C. Voltage rating : 30 VAC RMS Max.

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3.4. PERFORMANCE AND TEST DESCRIPTION

The 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 per EIA-364.

3.5. TEST REQUIREMENTS AND PROCEDURES SUMMARY

TEST ITEM	REQUIREMENTS	PROCEDURE
Examination of product	Meets requirements of product drawing. No physical damage.	Visual inspection
ELECTRICAL TEST		
Contact Resistance	30 mΩ Max. (initial) 40 mΩ Max. (Final)	Subject mated contacts assembled in housing to 20 mV Max. open circuit at 100 mA Max. See figure 3. EIA 364-23
Insulation Resistance	1000 MΩ Min.	Test between adjacent contacts of mated and unmated connector assemblies. 500±50 VDC EIA 364-21.
Dielectric Withstanding Voltage	No creeping discharge or flashover shall occur.	Test between adjacent contacts of mated and unmated connector assemblies. 750 VAC for 1 minute. EIA 364-20
Temperature Rising	30°C Max. Under loaded rating current.	1.5A at 250VAC Min. when measured at an ambient temperature of 25°C . EIA-364-70 method B.
Capacitance	2 pF Max. unmated per contact	Test between adjacent circuits of unmated connectors at 1 KHz. EIA 364-30
MECHANICAL TEST		
Connector Mating Force	35 N Max.	Measure force necessary to mate connector assemblies at Max. rate of 12.5 mm/min. EIA 364-13
Connector Unmating Force	10 N Min.	Measure force necessary to mate connector assemblies at Max. rate of 12.5 mm/min. EIA 364-13
Durability	See Notes	1500 Mating and unmating cycles at Max. rate of 200 cycles per hour. EIA 364-09
Vibration	No electrical discontinuity of 1 microsecond or longer duration. See Notes	Subject mated connectors to 5.35 G's rms. 15 minutes in each of three mutually perpendicular planes. See figure 4. EIA 364-28 condition V, Test letter A.
Contact Retention Force	300 gf /pin Min.	Measure the contact retention force with Tensile strength tester.
Physical Shock	No electrical discontinuity of 1 microsecond or longer duration. See Notes	Subject mated connectors to 30 G's half-sine shock pulses of 11 ms duration. Three shocks in each direction applied along three mutually perpendicular planes, 18 total shocks. See figure 4 for the test setup. EIA 364-27, condition H.

Figure 1 (Cont.)

TEST ITEM	REQUIREMENTS	PROCEDURE
ENVIRONMENTAL TEST		
Resistance to Wave Soldering Heat	No physical damage shall occur.	Solder Temp. : 265±5°C, 10±0.5sec. TE spec. 109-202, Condition B
Thermal Shock	See Notes	Mated connector. -55°C/30min., 85°C/30min. 10cycles. EIA 364-32 test condition I.
Humidity Test	See Notes	Mated connectors. 40°C with 90~95% R.H. for 168 hours. EIA 364-31 method II test condition A.
Temperature Life	See Notes	Mated connectors. 85±5°C for 250 hours. EIA 364-17, condition 3 method B.
Solderability	The inspected area of each lead must have 95% solder coverage minimum.	Solder Temperature: 245±5°C Immersion Duration: 5±0.5sec. EIA 364-52
Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed.	Subject mated connectors to 35+/-2°C and 5+/-1% salt condition for 48 hours. After test, rinse the sample with water and recondition the room temperature for 1 hour. EIA-364-26B condition B

Figure 1 (End)

NOTES : Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the test sequence listed in figure 2.

3.6. PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE

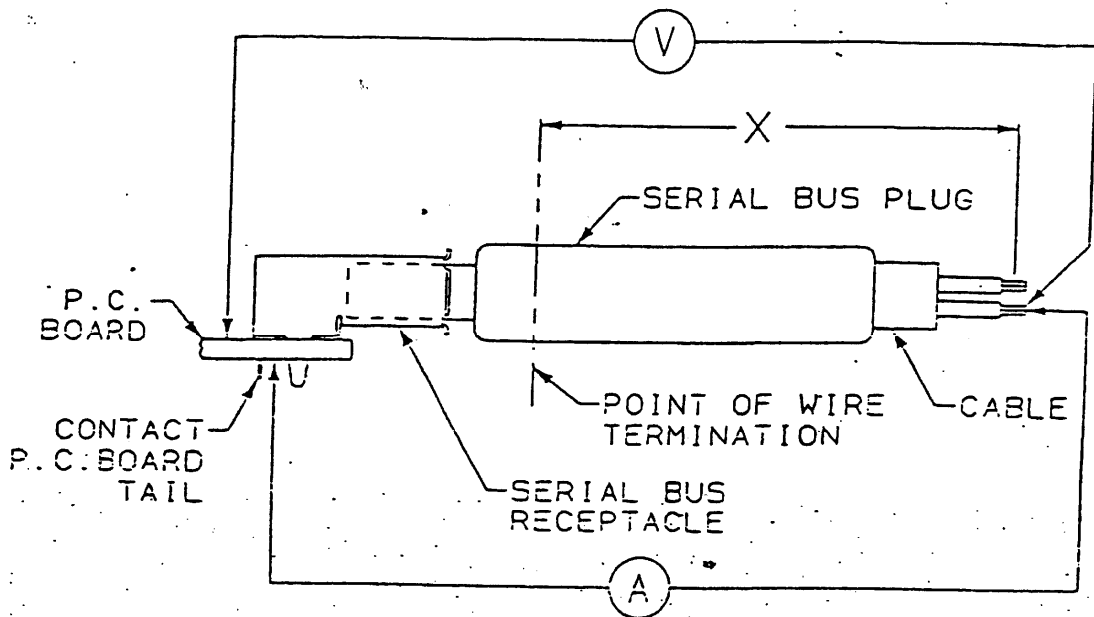
Test or Examination	Test Group (a)						
	A	B	C	D	E	F	G
	Test Sequence (b)						
Examination of Product	1,9	1,5	1,9	1,3	1,3	1,3	1,5
Contact Resistance	3,7	2,4					2,4
Insulation Resistance			3,7				
Dielectric Withstanding Voltage			4,8				
Temperature Rising						2	
Connector Mating Force	2						
Connector Unmating Force	8						
Durability	4						
Capacitance			2				
Vibration	5						
Physical Shock	6						
Thermal Shock			5				
Humidity Test			6				
Temperature Life		3 (c)					
Contact Retention Force					4		
Resistance to Soldering Heat					2		
Solderability				2			
Salt Spray							3

Figure 2

- NOTES:** (a) See Para 4
 (b) Numbers indicate sequence in which tests are performed.
 (c) Precondition samples with 10 cycles durability.

4. SAMPLE SELECTION

Samples shall be prepared in accordance with applicable manufacturers' instructions and shall be selected at random from current production. Test groups 1,2, and 3 shall consist of a minimum of eight connectors. A minimum of 30 contacts shall be selected and identified. Unless otherwise specified, these contacts shall be used for all measurements.



Note: Resistance due to X inches of wire shall be removed from all readings.

Figure 3 Contact Resistance Measurement Points

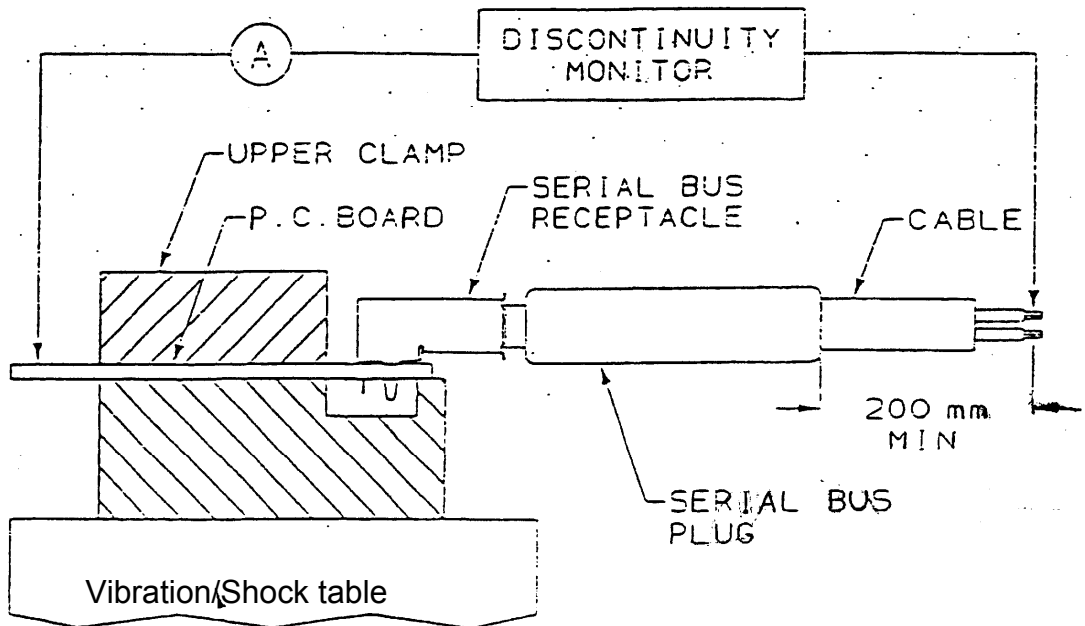
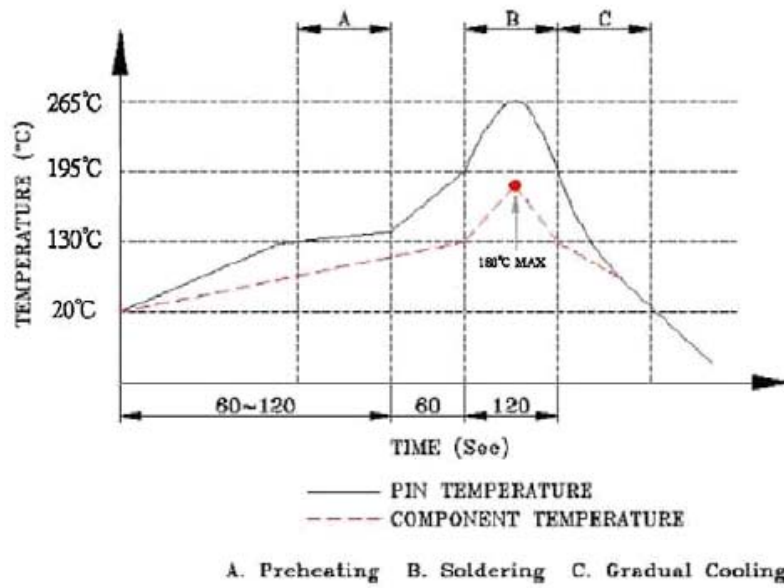


Figure 4 Vibration & Physical Shock Mounting Fixture.



RECOMMENDED WAVE SOLDER

- (1) Tip Temperature : $265 \pm 5^\circ\text{C}$
- (2) Tip Temperature Time : 10 sec Max