PRODUCT SPECIFICATION

CJTconn	Product Description	USB TYPE-C CONNECTOR 6PIN / 16PIN / 24PIN SERIES			Rev	A0
	Part Number	----------	Doc. No.	CJ-SPEC-03	Date:	2023-12-15
	Approved By: Haisen Li	Checked By: Diankui Wan	Revised By: Haisen Li		Page	1 / 6

1. SCOPE

1.1. CONTENTS

This specification covers the performance, tests and quality requirements for the USB C-Type Connector used in mobile phone, etc.

1.2. QUALIFICATION

When tests are performed on the subject product line, the procedures specified specifications 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. 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.

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

1.Housing：Refer To CJT Drawings

2.Contact：Refer To CJT Drawings

3.Shell：Refer To CJT Drawings

3.3 RATINGS

Current：

(1) 14Pin/16Pin/24Pin: 5.0 A Max. for VBUS Pins，1.25 A for VCONN Pin and GND Pins，
0.25 A for all of other Pins.

(2) 6Pin: 3.0 A Max. for VBUS Pins，1.25 A for VCONN Pin and GND Pins，
0.25 A for all of other Pins.

Voltage：20 V AC/DC (RMS. max)

Storage Temperature Range : -45℃ to +85℃

Operating Temperature：-40 °C to +105°C (Including Terminal Temperature Rise)

3.4 STANDARD ATMOSPHERIC CONDITION

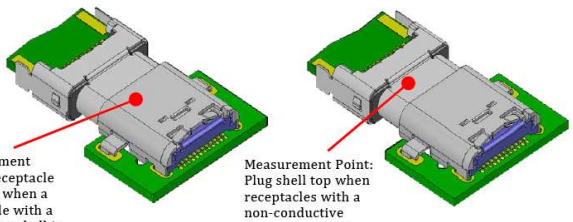
Unless otherwise specified, the standard range of atmospheric condition for making measurements and tests are as follows:

Ambient temperature：15°C to 35°C

Relative humidity：25%RH to 85%RH

Air pressure：86kPa to 106kPa

3.5 TEST REQUIREMENTS AND PROCEDURES SUMMARY

TEST ITEM (FREQUENCY)		REQUIREMENTS	PROCEDURE
	Appearance	No defects such as cracks, scratches or blemishes.	
A. ELECTRICAL REQUIREMENT **Test shall be performed in mated condition with mating applicable modules.**			
A1	Low Level Contact Resistance	40 milliohms Max.	Connect with applicable modules, then contact resistance shall be measured between each coupled terminals.(See Figure 1) Measure at 20 mV Max, 100mA. (EIA-364-23B)
A2	Insulation Resistance	Between conductors：100 Megaohms Min.	Unmated /mated connectors, Apply 100VDC between adjacent terminals.(EIA-364-21)
A3	Dielectric withstanding voltage	Between conductors：Without damages such as arc or breakdown etc.	Unmated /mated connectors, Apply 100VAC(RMS) between adjacent terminals.(EIA-364-20)
A4	Temperature Rising	The temperature rise shall not exceed 30 °C at any point on the USB Type-C mated plug and receptacle under test. Figure 3-58 Temperature Measurement Point  	Contact series-wired, apply test current of loaded rating current to the circuit, and measure the temperature rising by probing on soldered areas of contacts, after the temperature becomes stabilized deduct ambient temperature from the measured value. (5.0 A for VBUS Pins，1.25 A for VCONN Pin and GND Pins，0.25 A for all of other Pins.) (EIA-364-70, method 2)

PRODUCT SPECIFICATION

CJT conn	Product Description	USB TYPE-C CONNECTOR 6PIN / 16PIN / 24PIN SERIES			Rev	A0
	Part Number	----------	Doc. No.	CJ-SPEC-03	Date:	2023-12-15
	Approved By: Haisen Li	Checked By: Diankui Wan	Revised By: Haisen Li		Page	3 / 6

B. MECHANICAL REQUIREMENT

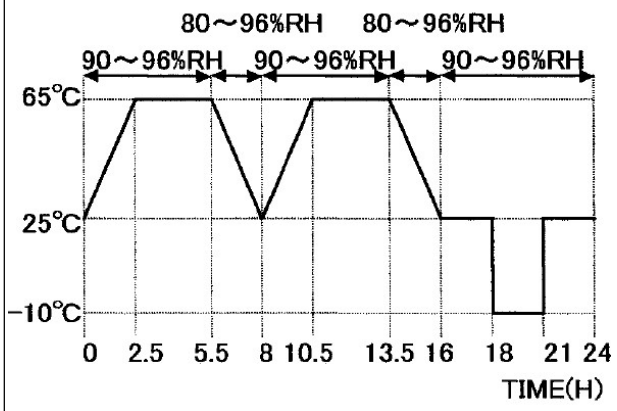
Test shall be performed in mated condition with mating applicable modules.

B1	Insertion Force	5~20N	Measure force necessary to mate connector assemblies at maximum rate of 12.5 mm(0.492)/min.(EIA-364-13)
B2	Extraction Force	8~20N(0~32cycle) 6~20N(33~10000cycle)	Measure force necessary to mate connector assemblies at maximum rate of 12.5 mm(0.492)/min. (EIA-364-13)
B3	Durability	Insertion Force：5~20N Extraction Force：8~20N(0~32cycle) 6~20N(33~10000cycle) LLCR：50 milliohms Max. Appearance：No physical damage to any part of the connector	The durability rating shall be 10,000 cycles minimum for the USB Type-C connector family. The durability test shall be done at a maximum rate of 500+/-50 cycles per hour. (EIA-364-09)

C. ENVIRONMENTAL REQUIREMENT

Test shall be performed in mated condition with mating applicable modules.

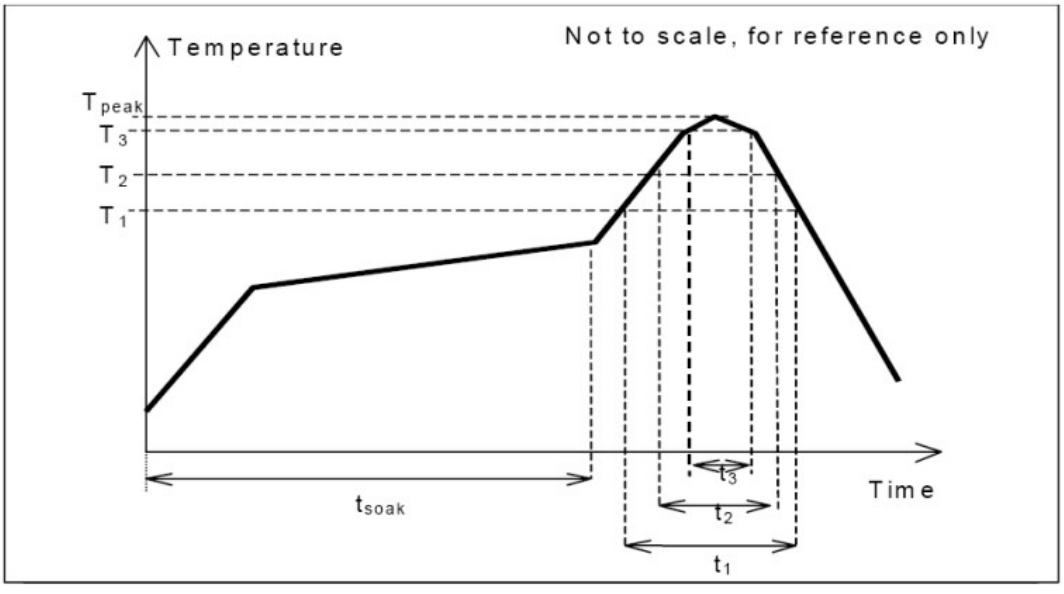
TEST ITEM (FREQUENCY)		REQUIREMENTS	PROCEDURE
C1	Temperature life	LLCR：50 milliohms Max.	After exposing to a temperature of 105℃+/-2℃ for 120h, the specimen shall be subjected to standard atmospheric conditions for 1h, then measurement shall be made. For other procedures. (EIA-364-17B)
C2	Salt Spray	Appearance：No damage.	The connector shall be subjected to a fine mist solution at a temperature of 35+/-2℃ for (Refer To CJT Drawings) continuously. Salt solution concentration is 5+/-1% by weight. Then it shall be subjected to standard atmospheric conditions for 1h, and so measurement shall be made. For other procedure. (EIA-364-26B)

C3	Humidity	LLCR: 10 mΩ Max change for post test Dielectric Strength: No breakdown Insulation resistance: 100 MΩ Min. Appearance: No damage.	Following cyclic test shall be for 7cycles in mating condition. The connector housing shall be subjected to ambient temperature fo 1h or 2h, after which measurement shall be made. (EIA-364-31B.) *Temperature reduced from 65℃ to -10℃ within 30min. *Humidity uncontrolled at a temperature less then 25℃. 
C4	Solderability	Solder tails shall pass 95% Min coverage	Solder temperature: 245±5℃ Duration:5±0.5sec. (EIA-364-52)
C5	Resistance to soldering heat	No physical damage shall occur	Pre heat:150~180°C,90±30sec. Heat:230°C min. , 35±5sec Peak temp.: 260°C max. Duration:2 cycles
C6	Water Ingression(selective fordifferent P/N)	(1) IEC 60529 – IPX7 (2) IEC 60529 – IPX8 (Note: This is the waterproof test item for waterproof products.)	(1) 1.0m/30 minutes, No water is allowed to enterthe enclosure. Use water contact detectionpaper or color liquid. (2) 1.5m/30 minutes, No water is allowed to enterthe enclosure. Use water contact detectionpaper or color liquid.

RESISTANEC TO INFRARED REFLOW SOLDERING HEAT

Parameter	Reference	Specification
Average temp gradient in preheating		2.5°C/s
Soak time	Tsoak	2-3 minutes
Time above 217°C	T1	60
Time above 230°C	T2	50
Time above 250°C	T3	5
Peak temperature in reflow	Tpeak	260°C(+0/-5°C)
Temperature gradient in cooling		-5°C/s max

Lead Free Process



This profile is the minimum requirement for evaluating soldering heat resistance of components. Heat transfer method used for reflow soldering is hot air convection. The actual air temperatures used to achieve the specified profile is higher and largely dependent on the reflow equipment.

3.7 TEST SEQUENCE

Test group		A	B	C	D	E	F	G	
Group sample size		5	5	5	5	5	5	5	
1	Appearance	1，9	1，9	1，5	1，9	1，3	1	1，4	
2	A1: LLCR	2,8	2，6	2，4	2，6				
3	A2:InsulationResistance		3，7		3，7				
4	A3:DielectricStrength		4，8		4，8				
5	B1:Insertion Force	3,6							
6	B2:Extraction Force	4,7							
7	B3: Durability	5							
8	C1: Temperature life		5						
9	C2: Salt Spray			3					
10	C3: Humidity				5				
11	C4:Solderability					2			
12	C5: Resistance to soldering heat ldering heat						2	2	
13	C6:Water Ingression							3	