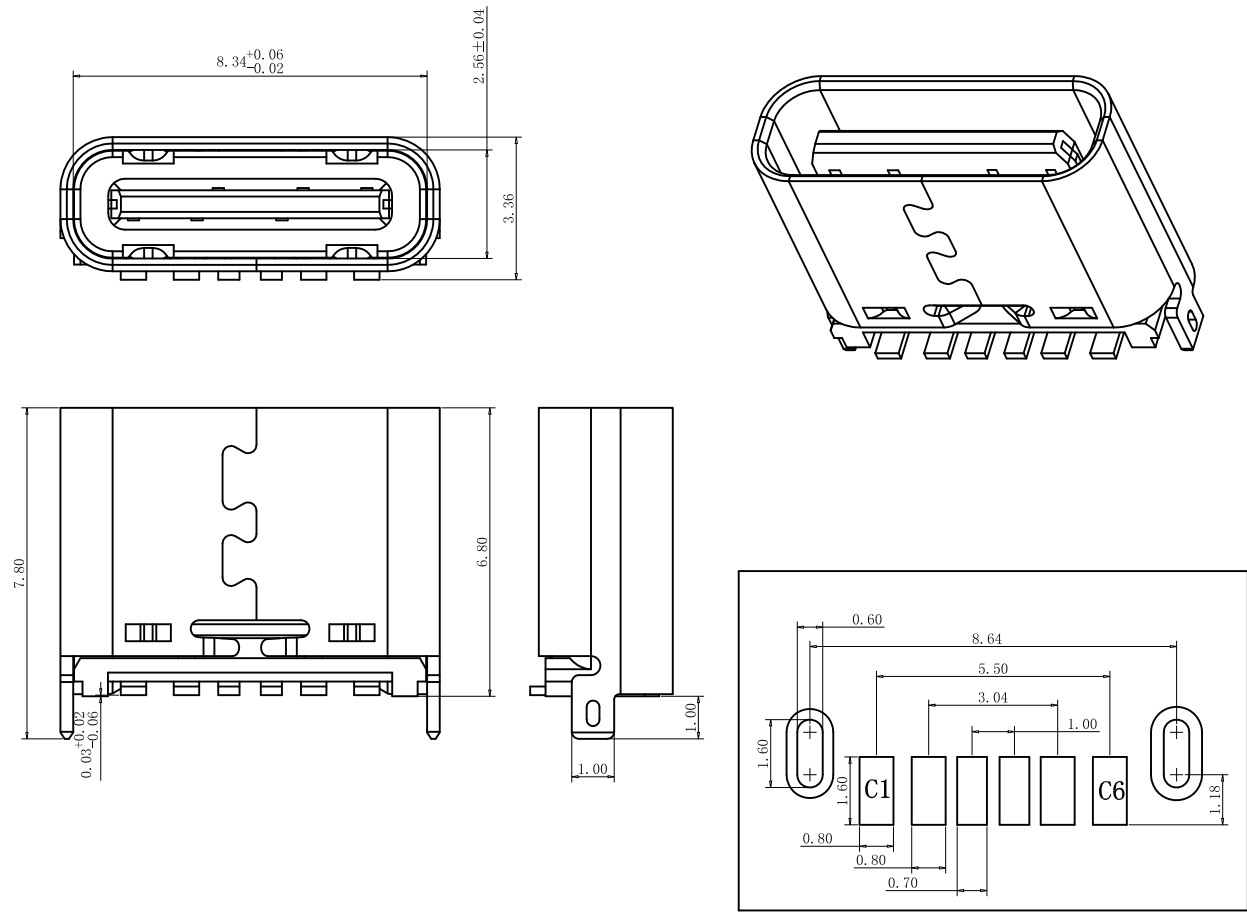


# 6.8

REV.	DESCRIPTION	APPD	DATE



**NOTE:**

- MATERIAL SPECIFICATION:**
  - HOUSING: HIGH TEMPERATURE RESISTANT PLASTIC, UL94 V-0.
  - CONTACTS: COPPER ALLOY
  - MID PLATE: STAINLESS STEEL
  - FRONT SHELL: STAINLESS STEEL
- PLATING SPECIFICATION:**
  - CONTACTS:
    - Ni 50u" MIN. UNDER PLATED OVER ALL.
    - Au PLATED ON THE FUNCTIONAL AREA OF CONTACT. (GOLD PLATING THICKNESS FOLLOW THE P/N)
  - FRONT SHELL: SEE TABLE 1.
  - SHIELD PLATE & EMI PLATE: CLEAR ONLY
- MECHANICAL PERFORMANCE,**
  - INSERTION FORCE: 0.5~2.0kgf.
  - REMOVAL FORCE: 0.8kgf~2.0kgf.
  - DURABILITY: 10000 CYCLES.
- ELECTRICAL PERFORMANCE,**
  - CURRENT RATING: 5.0A  
VOLTAGE RATING: 5.0V
  - LLCR:
    - VBUS & GND PINS AND OTHER PINS: 40m?/PIN MAX.
    - SHIELD: 50m?/MAX.
    - LLCR MAX. CHANGE OF ALL PINS: 10m?.
  - INSULATION RESISTANCE: 100M $\Omega$  MIN
  - DIELECTRIC WITHSTAND VOLTAGE, AC 100V FOR 1 MINUTE.
- ENVIRONMENTAL PERFORMANCE:**
  - OPERATING TEMPERATURE: -25°C~+85°C.
- IR REFLOW:**
  - THE PEAK TEMPERATURE ON THE BOARD SHALL BE MAINTAINED FOR 10 SECONDS AT 260°C.

6 PIN USB Type-C Receptacle Interface (Front View)

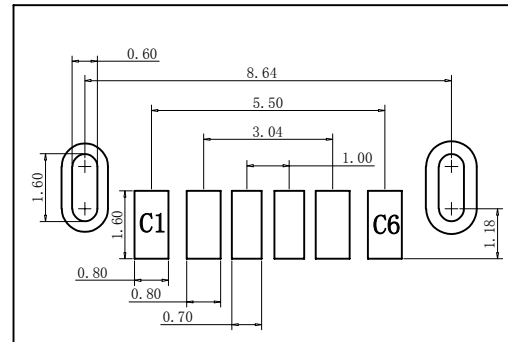
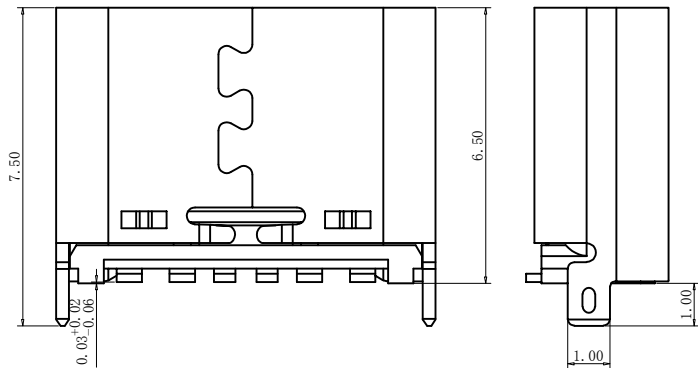
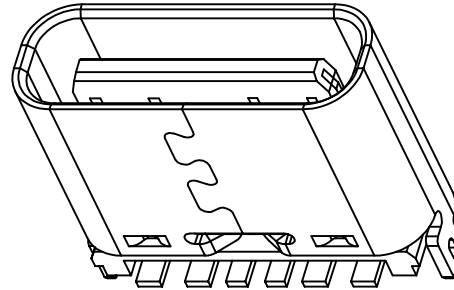
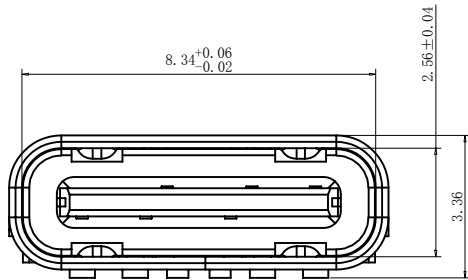
PIN NO.	B12	B9	A5	B5	A9	A12
SIGNAL NAME	GND	Vbus	CC1	CC2	Vbus	GND
PCB PAD NO.	C1	C2	C3	C4	C5	C6

TPLXX-NIS1-2006-A  
 TPL65 6.5高度  
 TPL68 6.8高度

PART NO: TPL68-NIS1-2006-A		MATERIAL:		龙创中业电子科技(东莞)有限公司	
LOT NO:		FINISH:			
UNIT: MM	SIZE: A4	COLOR:		TITLE: USB TYPE C 6pin 母座 立贴SMT 6.8	
TOLERANCES: X.X=±0.35 X.XX=±0.25 X.XXX=±0.15		GENERAL ANGLE: X.X=±3.0° X.XX=±2.0°		DR: 刘静	DWG NO: FP-090012
		CHK:	APP:	SCALE: 1:1	SHEET: 1 OF 1
				REV: A	

# 6.5

REV.	DESCRIPTION	APPD	DATE



**NOTE:**

- MATERIAL SPECIFICATION:**
  - HOUSING:HIGH TEMPERATURE RESISTANT PLASTIC,UL94 V-0.
  - CONTACTS:COPPER ALLOY
  - MID PLATE: STAINLESS STEEL
  - FRONT SHELL: STAINLESS STEEL
- PLATING SPECIFICATION:**
  - CONTACTS:
    - Ni 50u" MIN. UNDER PLATED OVER ALL.
    - Au PLATED ON THE FUNCTIONAL AREA OF CONTACT. (GOLD PLATING THICKNESS FOLLOW THE P/N)
  - FRONT SHELL: SEE TABLE1.
  - SHIELD PLATE&EMI PLATE: CLEAR ONLY
- MECHANICAL PERFORMANCE,**
  - INSERTION FORCE: 0.5~2.0kgf.
  - REMOVAL FORCE: 0.8kgf~2.0kgf.
  - DURABILITY: 10000 CYCLES.
- ELECTRICAL PERFORMANCE,**
  - CURRENT RATING:5.0A  
VOLTAGE RATING:5.0V
  - LLCR:
    - VBUS & GND PINS AND OTHER PINS: 40mA/PIN MAX.
    - SHIELD: 50mA/MAX.
    - LLCR MAX. CHANGE OF ALL PINS: 10mA.
  - INSULATION RESISTANCE: 100MΩ MIN
  - DIELECTRIC WITHSTAND VOLTAGE,AC 100V FOR 1 MINUTE.
- ENVIRONMENTAL PERFORMANCE:**

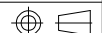
OPERATING TEMPERATURE: -25°C~+85°C.
- IR REFLOW:**

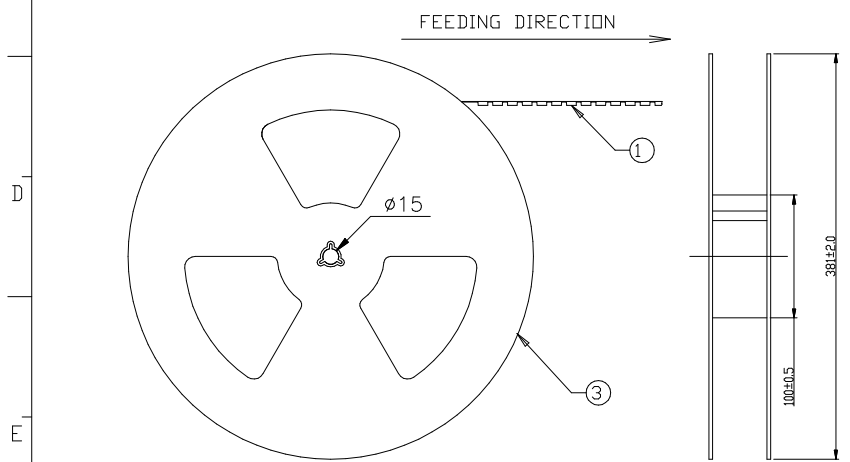
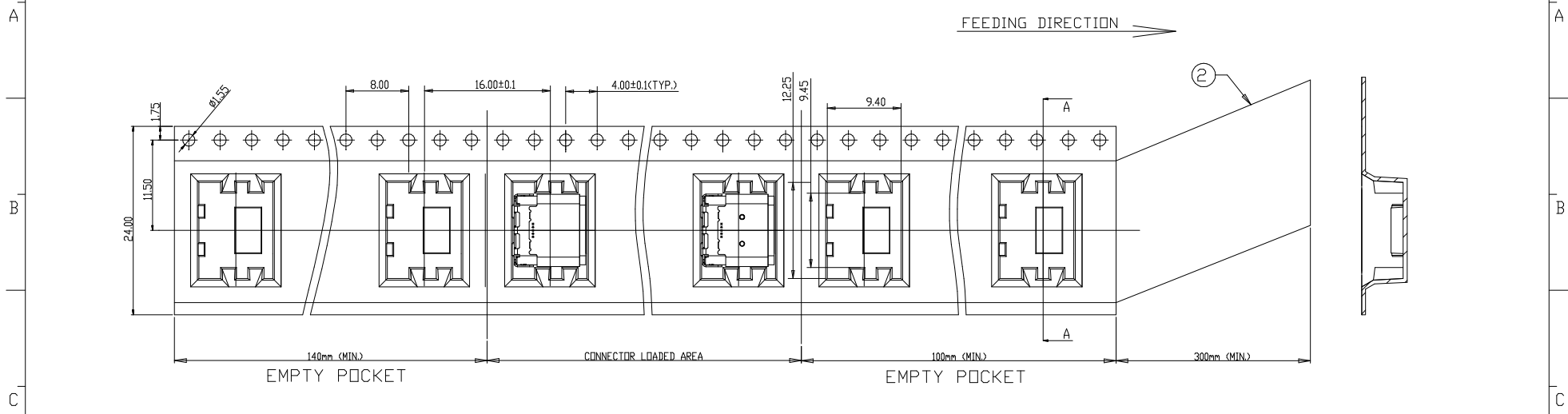
THE PEAK TEMPERATURE ON THE BOARD SHALL BE MAINTAINED FOR 10 SECONDS AT 260°C.

6 PIN USB Type-C Receptacle Interface (Front View)

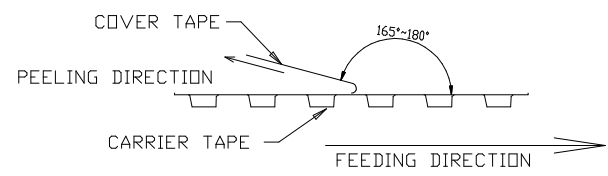
PIN NO.	B12	B9	A5	B5	A9	A12
SIGNAL NAME	GND	Vbus	CC1	CC2	Vbus	GND
PCB PAD NO.	C1	C2	C3	C4	C5	C6

PART NO: <b>TPL65-NIS1-2006-A</b>		MATERIAL:	
LOT NO:		FINISH:	
UNIT: MM		SIZE: A4	
TOLERANCES: X. X=±0.35 X. XX=±0.25 X. XXX=±0.15		GENERAL ANGLE: X. X=±3.0° X. XX=±2.0°	
DR: 刘静		TITLE: <b>USB TYPE C 6pin 母座 立贴SMT6.5</b>	
CHK:		DWG NO: FP-090012	
APP:		SCALE: 1:1	
		SHEET: 1 OF 1	
		REV: A	





NOTES:  
 1. 10 POCKETS HOLE PITCH CUMULATIVE TOLERANCE  $\pm 0.20\text{mm}$ .  
 2. NUMBER OF CONNECTORS : 800 PCS/REEL.  
 3. COVER TAPE PEELING STRENGTH : 0.1 KgF MAX. AT 300mm/min.



③	REEL	POLYSTYRENE	
②	COVER TAPE	POLYESTER	
①	CARRIER TAPE	POLYSTYRENE	
ITEM	DESCRIPTION	MATERIAL	REMARK

X.± 0.30	X.*±	UNITS mm	NAME(INTENDED USE)	龙创中业电子科技(东莞)有限公司 CLASS: <input type="checkbox"/> CONFIDENTIAL <input type="checkbox"/> SECRET <input checked="" type="checkbox"/> GENERAL TITLE:	
.X± 0.25	.X*±				MAT'L
.XX± 0.15	.XX*±	FINISH	APPD:		DWG NO.:
.XXX± 0.10	.XXX*±		Q'TY		CHKD:
THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF FOXCONN INTERCONNECT TECHNOLOGY LIMITED AND SHALL NOT BE REPRODUCED, COPIED OR USED IN ANY MANNER WITHOUT THE PRIOR WRITTEN CONSENT OF FOXCONN INTERCONNECT TECHNOLOGY LIMITED.			DRAW:	SHEET	
				REV.	

## 1. SCOPE(规范)

This Product Specification covers the mechanical, electrical and environmental performances requirements and test methods for USB Type-C Rcpt. connector series products.

本规范包含此连接器产品特性，测试方式及品质要求，适用于USB Type-C板端系列产品。

## 2. APPLICABLE DOCUMENTS(适用文件)

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified latest edition of the specification applies. In the event of conflict between requirements of this specification and product drawing product drawing shall take precedence.

本规格书是以下列文件指定的规范来制定，除非另有要求，否则要以最新版本的文件为准，当文件内容与产品图面发生冲突时，则以产品图面为准。

### 2.1 Commercial standards, specifications and report (产品标准，规范以及报告)

2.1.1. EIA-STANDARD-364:

ELECTRICAL CONNECTOR/SOCKET TEST PROCEDURES

## 3. REQUIREMENTS (规范要求)

### 3.1 Green product requirement(绿色产品要求)

All of green product shall be mated Halogen Free notices and substances forbidden.

所有绿色产品需满足无卤对禁用物质的要求。

### 3.2 Materials and finish(材料与电镀)

3.2.1 Contact : High performance copper alloy

讯号端子：高性能铜合金

Finish(电镀)：(a) Contact Area:1u" Min. Gold plated

接触区域：接触区域镀金至少1u"

(b) Solder tail:100u" Min. Mattin Tin

焊脚区域：镀锡厚度至少100u"

(c) Underplate:50u" Min. Nickel plated all over

底层电镀：整体电镀镍，厚度至少50u"

3.2.2 Housing : Thermoplastic UL94V-0

PA9T GP2450, UL94V-0

塑胶本体：PA9T工程塑胶

I/M Housing : LCP E6808, UL94V-0

I/M 塑胶本体：LCP工程塑胶

3.2.3 Shell: Stainless Steel or SPCC

外壳：不锈钢或铁

Finish(电镀)：50-180u" Ni plated all over

整体电镀镍50-180u"

Middle Shell: Stainless Steel , SUS301

隔离片：不锈钢SUS301

Finish(电镀): (a) Solder tail:80-180u" Min. Mattin Tin

焊脚区域：镀锡厚度80-180u"

(b) Underplate:50u" Min. Nickel plated all over

底层电镀：整体电镀镍，厚度至少50u"

### 3.3 Ratings

3.3.1. Voltage(操作电压)：30V AC Max.(最大交流电30V)

3.3.2 Current(操作电流)：5.0Amperes Max. for VBUS and GND (最小通过电流0.5A)

VBUS及GND端子最大通过电流为5A

(Pin A1 , A4 , A9 , A12 ; Pin B1 , B4 , B9 , B12)

0.9 Amps Max. for all other contact.

其他端子通过最大电流为0.9A

3.3.3 Operating Temperature(操作温度): -25°C ~ +85°C.

3.3.4 Storage Temperature(存放温度): -40°C ~ +85°C.

3.3.5 Storage Humidity(存放湿度):15~70%RH

3.3.6 Test Humidity(测试湿度):40~85%RH

### 3.4 Performance and Test Description(功能及测试描述)

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Paragraph 3.5, All tests are performed at ambient environmental conditions per EIA-STANDARE-364 unless otherwise specified. 产品必须符合段落3.5所列的电子, 机械及环境特性要求, 除非另有规定, 所有测试皆依EIA-364标准环境状态设置。

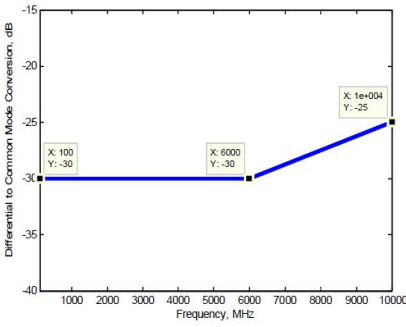
### 3.5 Test Reuirents and Procedures Summary(测试需求及程序)

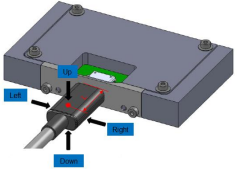
序号	Test Item 测试描述	Requirement 测试要求	Test Condition 测试条件
1	Examination of Product 产品检测	Visual inspection dimensional and functional per applicable quality inspection plan. 目视检验, 尺寸和功能符合适用的检测标准。	Product shall meet requirements of applicable product drawing and specification. 产品须符合产品图面及规范要求。

#### ELECTRICAL(电气特性)

2	Low-Signal Level Contact Resistance 接触电阻	40 m $\Omega$ Max. for VBUS,GND and all other contacts. Maximum change of +10 m $\Omega$ after environmental stresses. 接触阻抗最大为40 m $\Omega$ , 测试后最大增加10 m $\Omega$ 阻抗值	EIA-364-23B Frequency (频率) :1kHz Current (电流) :100mA max Voltage drop(电压降):20mV max Test Sequence in Figure 2 测试方式请参考图二
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3	Insulation Resistance 绝缘阻抗	100M $\Omega$ Minimum 最小100M $\Omega$	EIA-364-21 Apply DC 500 + 10% V between adjacent contacts of mated connectors for 1 minute. 施加直流电500V于端子或接地之间，保持一分钟。
4	Dielectric withstanding Voltage 耐电压	No damage 无击穿	EIA-364-20 Unmated connectors, apply 100 V AC(RMS) between adjacent terminal or ground. 施加交流电100V于端子或接地之间，保持一分钟。
5	Differential Impedance 差分阻抗	76 $\Omega$ minimum 94 $\Omega$ maximum 76 $\Omega$ 最小值 94 $\Omega$ 最大值	EIA-364-108 40 PS (20%-80%) rise time. 40皮秒 (20%-80%) 上升时间
6	Contact Current Rating 接点额定电流 (温升测试)	When the currents are applied to the contacts, the temperature rise shall not exceed 30°C at any point on the USB Type-C mated plug and receptacle under test, when measured at an ambient temperature of 25°C USB Type-C 线端和板端对插之后开始测试，当电流施加到接触点时，温度上升不得超过30°C。 测试环境温度为25°C。	EIA-364-70, Method 2 A current of 5.0 A shall be applied collectively to VBUS pins (i.e., pins A4,A9, B4, and B9) and 1.25 A applied to the VCONN pin (i.e., B5 of the plug connector) with the return path through the corresponding GND pins (i.e., pins A1, A12, B1, and B12). A minimum current of 0.25 A shall also be applied individually to all the other contacts. 5.0A电流用在VBUS脚位 (A4, A9, B4, B9) 1.25A电流用在VCONN脚位，与回路相对应的GND脚位 (A1, A12, B1, B12) 0.25A电流单独应用到其他脚位
7	Differential Insertion Loss of Mated Cable Assemblies 差动插入损耗	The measured differential insertion loss of the mated cable assembly must not exceed the limit defined by the following vertices: 测量对插线缆组件的差动插入损耗必须不超过下面定义的限制： (100 MHz, -0.25 dB),(2.5 GHz,-0.35 dB),(5 GHz, -0.45 dB) , (10 GHz, -0.75 dB) and (15 GHz,-1.85 dB). Super Speed pairs only 只量测高速讯号对	EIA-364-101 100 MHz to 15 GHz Normalized , to 85 ohm differential impedance 100 M Hz到15 G Hz的频率，85欧姆差动特性阻抗。
8	Differential Return Loss of Mated Cable Assemblies 差动拔出损耗	The measured differential insertion loss of the mated cable assembly must not exceed the limit defined by the following vertices: 测量对插线缆组件的差动拔出损耗必须不超过下面定义的限制：	

		(100 MHz, -20 dB),(5 GHz,-20dB),(10 GHz, -13dB) and (15 GHz,-6 dB).	
9	Differential Near-End and Far-End Crosstalk Between Super Speed Pairs 差动近远端串音测试	The differential crosstalk measures the unwanted coupling between differential pairs. Both near-end crosstalk and far-end crosstalk for mated connector pairs are specified. The recommended limit is defined by the following vertices: 在对接的连接器中，D+/D-对以及超高速对之间的差动近端和远端串音应尽量不要超过限制，该限制请参考一下的定义： (100 MHz, -40 dB) (5 GHz, -40 dB) (7.5 GHz, 12-36 dB)	EIA-364-90 40 ps (20%-80%) rise time. 40 皮秒(20%-80%)上升时间
10	Scd21	Defined by the following vertices: (100 MHz, -30 dB), (6 GHz, -30 dB), and (10 GHz, -25 dB). 	
<b>MECHANICAL REQUIREMENT(机械特性)</b>			
11	Insertion Force 插入力	The initial connector insertion force shall be within the range from 5N(0.51 kgf) to 20N (2.04 kgf) 插入力范围 5N(0.51 kgf) 到 20N(2.04 kgf).	EIA-364-13 At a maximum rate of 12.5mm (0.492") per minute. 测试参照EIA-364-13C进行，以每分钟12.5mm速度，量测插入力
12	Withdrawal Force 拔出力	1-1000 Cycles insertion force shall be within the range from 8N(0.82 kgf) to 20N(2.04 kgf) 1000-10000 Cycles insertion force shall be within the range from 6N(0.61 kgf) to 20N(2.04 kgf) 1-1000次拔出力范围为8N(0.82 kgf) 到 20N(2.04 kgf) 1000-10000次拔出力范围为6N(0.61 kgf) 到 20N(2.04 kgf)	EIA-364-13 At a maximum rate of 12.5mm (0.492") per minute. 测试参照EIA-364-13C进行，以每分钟12.5mm速度，量测拔出力

13	Durability 耐久测试	No physical damage to any part of the connector and cable assembly shall occur. 连接器和电缆的任何部分不得出现任何物理损伤。	EIA-364-09 C 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 200 cycles per hour. 测试参照EIA-364-09C 进行, 将样品固定, 以每小时200次(最大)的速度反复插拔。
14	Vibration 震动测试	No mechanical damage contact resistance not exceed 10 mΩ. Signal discontinuity < 1 ms. 电子讯号不连续需小于1微秒, 阻抗不可超越10mΩ	EIA-364-28 Method I) Be carried 100mA DC. Frequency: 10Hz - 55Hz - 10Hz/min. Direction : along three mutually Perpendicular Direction Sweep time : 2 hours along each direction, a total 6 hours 测试参照EIA-364-28, 在X.Y.Z三个方向, 以10HZ-55HZ-10HZ/Min.频率测试, 每个方向2H, 共6H, 利用100毫安培直流电确认电子讯号的连续性。
15	Mechanical Shock 机械冲击	Appearance No Damage Contact Resistance ΔR =10mΩ Max. Discontinuity 1 microsecond Max.	(EIA-364-27) Be carried 100mA DC. Peak acceleration : 50 G max. During of the plus : 11 m Second. Wave : half sinusoidal Number of drops : 18 times Direction : Along 3 mutually perpendicular direction.
16	Wrenching Strength (Plug-only)	 <p>1, The plug no damage for 0.75Nm. (The plug shall be mated with the continuity test fixture after the test forces have been applied to verify no damage has occurred that causes discontinuity or shorting. Test four directions).</p> <p>2, The plug shall disengage when a moment of 2.0 Nm is applied in the up and down directions and a moment 3.5 Nm is applied in the left and right directions.</p>	(USB TYPE-C SPEC) Perpendicular forces are applied to the plug in four directions (i.e., left, right, up, and down). A metal fixture with opening and tongue representative of a receptacle shall be used.



**ENVIRONMENTAL REQUIREMENTS(环境测试)**

17	Solder ability 焊锡性测试	Solder coverage: 95% Min. No mechanical damage or change to appearance. 焊锡面积覆盖率最小95%	EIA-364-52 Subject the test area of contacts into flux for 5~10 seconds and then into solder bath, controlled at 260±5°C, for 5±0.5 seconds. 测试参照EIA-364-52 进行；先将端子置入助锡剂中5~10s，再置入260±5°C锡炉中5±0.5s。
18	Humidity-Temperature Cycle 温、湿度循环测试	Appearance No Damage Dielectric Strength No Breakdown Insulation Resistance 100 MΩ Min.	EIA-364-31  Temperature : 50 ± 2°C  Relative humidity : 90% - 95% Duration : 96 hours It shall be subjected to standard atmospheric condition for 1 hour after which measurements shall be made.
19	Temperature Life 温度寿命	40 m Ω Max. for VBUS and GND and all other contacts. Maximum change of +10 m Ω after environmental stresses. 接触阻抗最大为40mΩ，测试后最大增加10mΩ阻抗值	EIA-364-17 Subject mated samples to temperature life at 105°C for 120 hours. 线端和板端对插后置于温度105°C 达120 h
	Temperature Life (preconditioning) 温度寿命		EIA-364-17 Subject mated samples to temperature life at 105°C for 72 hours 线端和板端对插后置于温度105°C 达72 h



11	Insertion Force 插入力												
12	Extraction Force 拔出力				5,7								
13	Durability 耐久测试				6								
14	Vibration 震动测试			3									
15	Mechanical Shock					3							
16	<b>Wrenching Strength</b>						2						
17	Solderability Testing 焊锡测试							2					
18	Temperature Life 温度 寿命 (preconditioning)								3				
19	Thermal Shock 温度冲击									3			
20	Cyclic Temperature and Humidity 温湿度循环										3		
21	Mixed flowing gas test 混合气体测试											3	
22	Salt Spray 盐雾测试												2
	Number of sample Total:60pcs	5	5	5	5	5	5	5	5	5	5	5	5

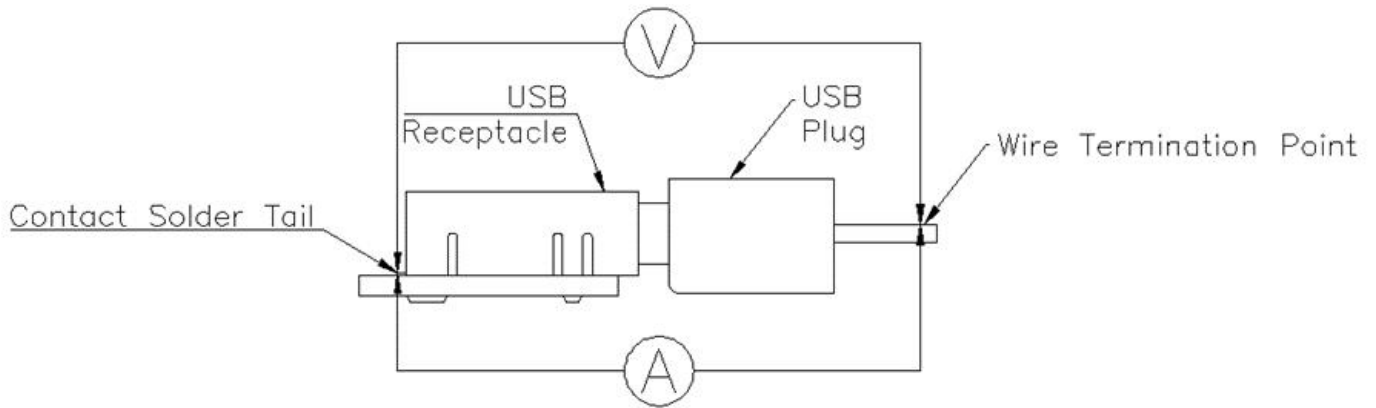


Figure 2 LLCR Measurement Diagram

#### 4. PACKGING

Parts shall be packaged to protect against damage during handling, transit and storage. For details refer to packaging spec.

为了防止在装卸，运输和储存的损害，产品应进行包装。详细请参阅包装规格。