

REVISIONS					
REV.	ECN NO.	LOCATION	DESCRIPTION	DATE	DESIGN
X6	ECN-P-202203001	(X6)	UPDATE DRAWING ACCORDING TO CUSTOMER'S REQUEST	2022.03.30	libby
X7	ECN-P-202204005	(X7)	UPDATE DRAWING ACCORDING TO CUSTOMER'S REQUEST	2022.04.20	libby

Note:

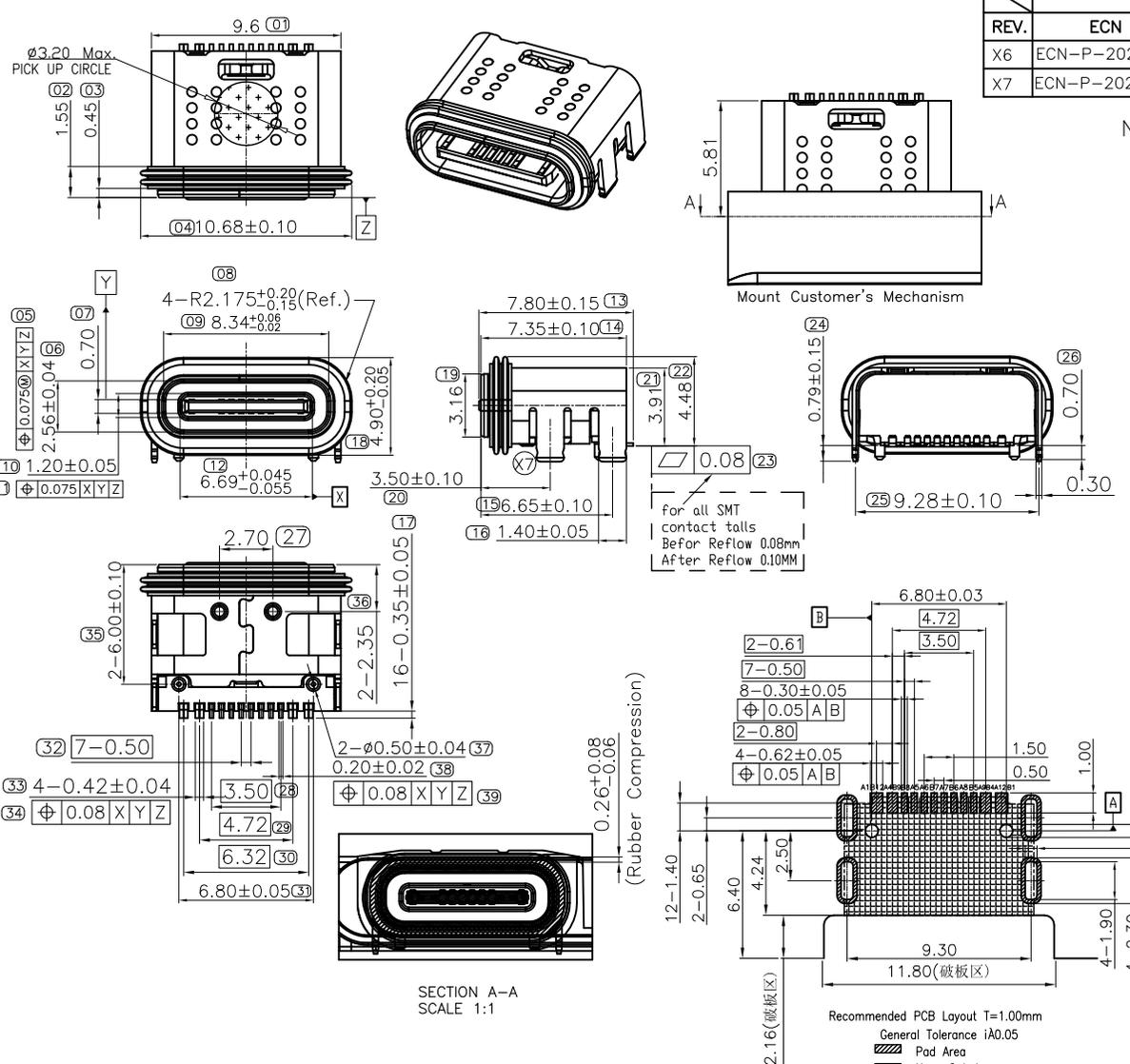
- Material:
 - 1-1.Housing: Thermoplastic,UL94-V0; Colour: Black.
 - 1-2.Terminal: Copper alloy,Contact:See table A.
 - 1-3.Shell & Solder :SUS, Plating:Ni.
- Electrical Characteristics:
 - 2-1.Rating:GND:5A,VBUS Total: 5A;
 - 2-2.Contact resistance:40mΩMax.;After test add 10 m次Max.
 - 2-3.Electric Strength test:500VAC,0.1S,0.5mA;
 - 2-4.Insulation test:500VDC,0.1S,100MΩ;
- Mechanical properties:
 - 3-1.Mating force:5~20N;
 - 3-2.Unmating force:8~20N(Initial),6~20N(After Durability);
 - 3-3.Testing Speed:200±50 Times/H,Test:10000 times;
- Environmental Characteristics: Oper.Temp.: -55℃~ +85℃;
- Waterproof Rate: IPX4
- Restriction of Hazardous Substances: Components be RoHS and HF compliant.

Table A

料号	电镀	材质
UTC-0006S20-163-1D2	Au:3u"	PA46
UTC-0006S20-16C-1D2	Au:30u"	
UTC-0006S20-163-1A2H	Au:3u"	PA10T
UTC-0006S20-16C-1A2H	Au:30u"	
UTC-0006S20-163-142	Au:3u"	LCP
UTC-0006S20-16C-142	Au:30u"	

PIN DEFINE:

Pin	Signal Name	Description	Mating Sequence	Pin	Signal Name	Description	Mating Sequence
A1	GND	Ground return	First	A12	GND	Ground return	First
A4	Vbus	Bus Power	First	B9	Vbus	Bus Power	First
A5	CA1	Configuration Channel	Second	B8	SBU2	Sideband Use(SBU)	Second
A6	Dp1	Positive half of the USB 2.0 differential pair-Position 1	Second	B7	Dn2	Negative half of the USB 2.0 differential pair-Position 2	Second
A7	Dn1	Negative half of the USB 2.0 differential pair-Position 1	Second	B6	Dp2	Positive half of the USB 2.0 differential pair-Position 2	Second
A8	SBU1	Sideband Use(SBU)	Second	B5	CC2	Configuration Channel	Second
A9	Vbus	Bus Power	First	B4	Vbus	Bus Power	First
A12	GND	Ground return	First	A1	GND	Ground return	First



SECTION A-A SCALE 1:1

Recommended PCB Layout T=1.00mm
 General Tolerance iA0.05
 ▨ Pad Area
 ▩ Keep Out Area
 Top View



MEASURE POINT: (39)
 QUADRANT POINT (QP)
 TANGENCY POINT (TP)
 INTERSECTION POINT (IP)

UNLESS OTHERWISE SPECIFIED, TOLERANCE:
 X. ±0.20
 X.x ±0.15
 X.xx ±0.10
 X.xxx ±0.05
 ANGLES ±2°

厦门宏端电子科技有限公司

DESIGN: libby.li	DATE: 2022.04.20	TITLE: On-board USB Type-C 16Pin Customer drawing(Shell:DIP Type)	
CHECKED:	DATE:	PART NO.: UTC-0006S20-16X-1XXX	REV.: X7
APPROVED:	DATE:	DRAWING NO.: C-UTC0006S20-01	SCALE: 5:1
		SIZE: A4	SHEET: 1/1

ITEM	PART NAME	MATERIAL	REMARK
10	GLUE	MT785	WHITE
9	Silicone rubber	RBB	RED
8	Silicone rubber	RBB	BLACK
7	Outer-shell	SUS304	Underplated:Ni 30u"Min.
6	Inner-shell	SUS304	Underplated:Ni 30u"Min.
5	2M	PA Black	UL94V-0
4	1M	PA Black	UL94V-0
3	Mid-plate	SUS301	Cleaned
2	Low contact	Copper Alloy	Underplated:Ni 50u"Min. Contact area:Au3u"Min. Solder tall:Au1Min.
1	Upper contact	Copper Alloy	

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REVISIONS					
REV.	ECN NO.	LOCATION	DESCRIPTION	DATE	DESIGN
X2	N/A	(X2)	ADD NEW PART NO.	2021.06.23	libby
X3	ECN-P-202109011	(X3)	UPDATE PACKING QUANTITY	2021.09.24	libby

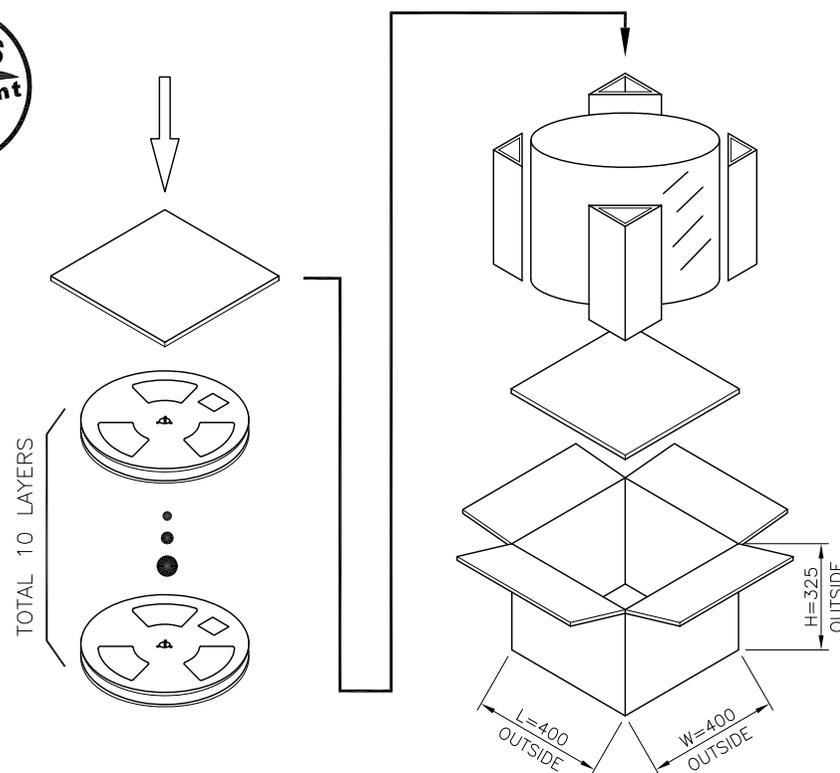
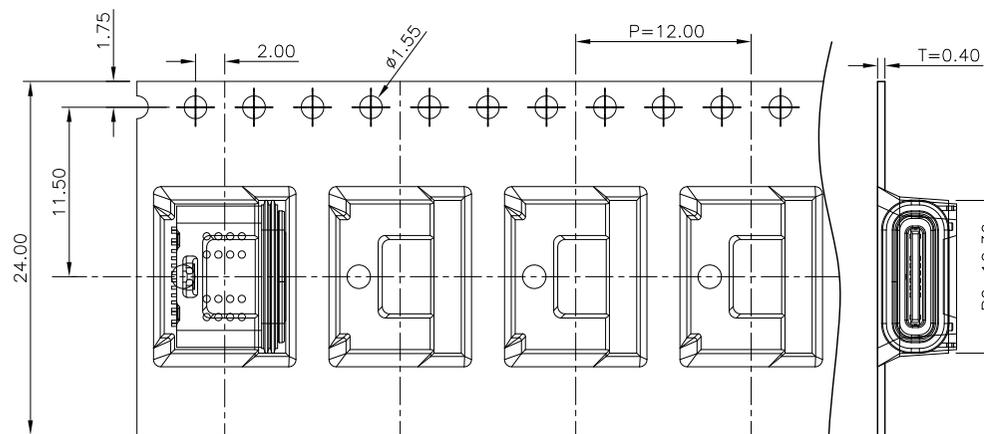
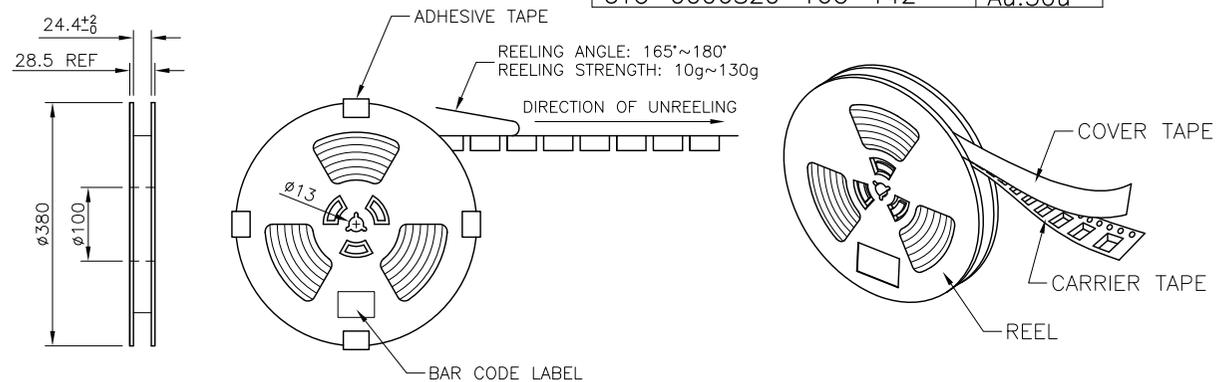


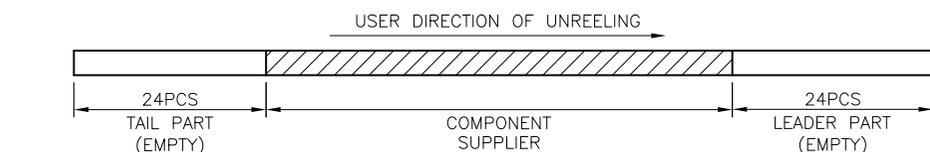
Table A

PART NO.	PLATE
UTC-0006S20-163-1A2H	Au:3u"
UTC-0006S20-16C-1A2H	Au:30u"
UTC-0006S20-163-1D2	Au:3u"
UTC-0006S20-16C-1D2	Au:30u"
UTC-0006S20-163-142	Au:3u"
UTC-0006S20-16C-142	Au:30u"



NOTES:

1. PRIMARY PACKING: 1200 PCS/REEL; (X3)
2. SECONDARY PACKING: 10 REELS/CARTON (12,000 PCS/CARTON);
3. PRODUCT MEET THE REQUEST OF THE RoHS.



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Unless Otherwise specified, Tolerance:
 X. ±0.35
 X.x ±0.25
 X.xx ±0.15
 X.xxx ±0.10
 ANGLES ±3°

DESIGN: Libby.li DATE: 2021.09.24
 CHECKED: DATE:
 APPROVED: DATE:
 PART NO.: UTC-0006S20-16X-1XXX
 DRAWING NO.: CP-UTC0006S20-01

TITLE:
 ON-BOARD USB TYPE-C
 CUSTOMER PACKING DRAWING
 REV.: X3 SCALE: 2:1 UNIT: mm
 SIZE: A4 SHEET: 1/1

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产品规范

PRODUCT SPECIFICATION

文件编号 DOC NO.:	版本 VERSION:	编写日期 DATE:	编写 WRTN:	审核 CHKD.:	批准 APPE.:
GWS-142	X3	2022.02.24			
MODEL TYPE: 产品类型:	板上 Type-C 16pin		黎 斌	李华萍	杨文斌
PART NO.:	UTC-0006S20-163-1D2				
产品编号:					

1. SCOPE 范围

This product specification defines the product performance, tests and quality requirements for “USB 2.0 Type-C Receptacle” series products.

本产品规范阐述了“USB 2.0 Type-C插座”系列产品的性能、测试和品质要求。

2. APPLICABLE DOCUMENTS 适用文件

In the event of conflict between the requirements of the specification and product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of the specification and the referenced documents, the specification shall take precedence.

如果产品规范和产品图发生冲突时，以产品图为准；如果产品规范和相关参考文件发生冲突时，以产品规范为准。

3. REQUIREMENTS 要求

3.1 Design And Construction 设计和结构

Product shall be conformed the design, construction and physical dimensions specified on the applicable product drawing.
产品需符合产品图面规定的设计，结构和尺寸要求。

3.2 Material and Plating 材料和电镀

Refer to respective Getwell product drawings for information on materials, plating and marking; Solder component shall be met lead-free soldering requirements and the connectors shall be RoHS compliant.

相关的材料、电镀及标记等信息请参照泰威的产品图面；焊接件需满足无铅焊接要求，产品需符合RoHS标准。

4. PRODUCT DESCRIPTION 产品描述

4.1 Rating: 工作能力

Rated Voltage 额定电压: **Maximum 30V AC.**

Rated Current 额定电流:

4对Vbus和GND并联同时工作时，要求2.5A/Pin，单对Vbus和GND回路单独工作时，5A/Pin，信号Pin 0.25A/Pin

Operating Temperature Range 工作温度范围: **-40°C~+85°C.**

Operating Relative Humidity 工作相对湿度: **95% Maximum (non-condensing).**

4.2 Test Condition: 测试条件

All tests shall be performed as bellow conditions unless otherwise specified.

除非另有要求，所有测试需在以下条件下进行。

Temperature range 温度范围: **25°C ±10°C.**

Relative Humidity range 相对湿度范围: **25% to 65%.**

Atmospheric pressure 大气压强: **86kPa~106kPa(650mm ~ 800mmHg).**

5. TEST REQUIREMENTS AND PROCEDURES SUMMARY 测试要求和程序概要

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified as belows. 产品的设计应满足如下电气，机械，及环境特性需求。

NO.	Test items 测试项目	Requirments 规格要求	Condition and Test method 条件和测试方法
5.1 Examination of product 产品检查			
5-1-1	Visual Examination 目视检查 (EIA-364-18)	Appearance shall no physical damage. 外观无损伤。	Visual examination shall be performed by the unaided eye, corrected to normal vision. 目视检查应通过肉眼在正常视力下进行。

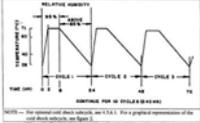
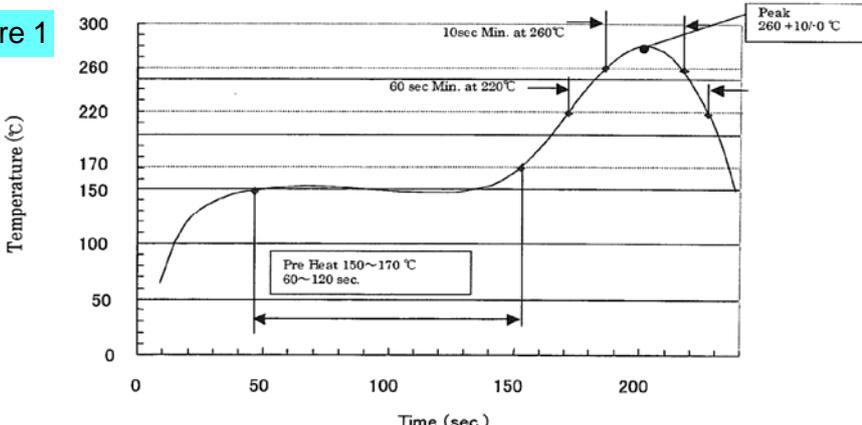
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NO.	Test items 测试项目	Requirments 规格要求	Condition and Test method 条件和测试方法
5.2 Electronical characteristic 电气性能			
5-2-1	Low Level Contact Resistance 低电平接触电阻 (EIA 364-23)	Pre test: 40mΩ Max. 测试前: 40mΩ以下; Post test: 50mΩ Max. 测试后: 50mΩ以下。	Measured from receptacle terminal to plug terminal of mated connectors at 20mV Max. open circuit at 100mA Max., by Kelvin 4-wire method. 从配对的插座引脚到插头引脚, 在最大20mV开路电压和最大100mA电流下通过开尔文四线法测量。
5-2-2	Dielectric Withstanding Voltage 耐电压 (EIA 364-20)	(1)No flashover or insulation breakdown 无跳火或绝缘体击穿现象; (2)Leakage current: 0.5mA Maximum. 漏电电流不超过0.5mA.	Between adjacent contacts of unmated and mated connectors, apply 500V AC(RMS) for 1 minute. 单独及配对的连接器, 在相邻端子之间施加交流 500V(RMS)电压, 并持续1分钟。
5-2-3	Insulation Resistance 绝缘阻抗 (EIA 364-21)	100MΩ Min. 100MΩ以上。	Between adjacent contacts of unmated and mated connectors, apply 500V DC for 2 minutes. 单独及配对的连接器, 在相邻端子之间施加直流500V的电压, 并持续2分钟。
5-2-4	Contact Current Rating 电流温升 (EIA 364-70)	Temperature rise shall not exceed 30°C. 温度升高不超过30°C.	Applied 1.5A to collective Vbus pins and 1.25A to Vconn pin through the corresponding GND pins. Applied individually 0.25A Min. to all the other contacts. 全体Vbus端子共加载1.5A电流, GND pins各加载1.25A电流, 其他端子各加载最少0.25A电流。
5.3 Mechanical characteristic 机械性能			
5-3-1	Insertion & extraction force 插入&拔出力 (EIA 364-13)	Insertion force 插入力: 5N-20N Extraction force 拔出力: Initial 初始值: 8N-20N After Durability 耐久后: 6N-20N	Measured at a maximum speed of 12.5 mm per minute. 测试速度最大为12.5mm/分钟。
5-3-2	Durability 插拔耐久 (EIA 364-09)	No evidence of physical damage. 无明显损伤。	Measured up to 10,000 cycles repeatedly at the rated of 500±50 cycles per hour.Reverse 180 degree to insert and extract after each 5,000 cycles . 每小时插拨500±50次, 重复插拨10,000次以上。每插拨 5,000次翻转180度正反插。
5-3-3	Vibration Test 振动测试 (EIA-364-28) Condition VII-D	(1)No evidence of physical damage; 无明显损伤; (2)No discontinuity greater than 1μs. 瞬断不超过1μs.	Mated connectors are subjected to 10g rms for 15 minutes in each of three mutually perpendicular planes. 对已配对的连接器分别沿着三个相互垂直的方向施加10个G的加速度, 且各持续15分钟。
5-3-4	Solderability 可焊性 (EIA 364-52)	Solder shall cover a minimum of 95% of the surface being immersed. 粘锡面积占浸锡表面的95%以上。	Dip solder-tails immerse in bath at 245±5°C for 5± 0.5 seconds. 将焊脚浸到245±5°C的熔炉焊剂中, 并持续5± 0.5 秒。
5-3-5	4-Axis Continuity Test 四轴向测试	Electric function is OK.No mechanism damage.The housing of connector cannot be damage or scratched, no crack on soldering tail after cross-section 电气性能ok.无机械损伤.连接器的塑胶不能被损坏或擦坏.切片后端子焊脚无裂	A plug when inserted at a distance of 15mm from the edge of the receptacle. Apply 20N force(left, right direction) and 8N force(up, down direction) at least 10 seconds each direction. 在距离母座15mm处的公头上施加力,上下8N,左右20N 4个方向, 每个方向10秒。
5-3-6	Wrenching Strength 扭力测试	The plug can be damaged, but in such a way that the receptacle does not sustain damage: 公头可损坏, 母座不能损坏	A plug when inserted at a distance of 15mm from the edge of the receptacle. Apply 50N force(left, right,up, down direction) at least 10 seconds each direction.A new plug is required for each of the four test directions. 在距离母座15mm处的公头上,上下左右4个方向施加50N的力, 每个方向需用新的公头10秒。
5-3-7	Physical shock 物理冲击 (EIA-364-27B)	No discontinuities of 1μs or longer duration . Contcat Resistance: 10 mΩMax change for post test Appearance:No breakdown 没有超过1微秒的断电,接触阻抗:测试完成后改变最10 毫欧姆;外观 :无损伤.	50G Acceleration,11ms duration shock is applied to 6 surfaces, for 3 times respectively (total:18 times) 按工作状态接好连接器, 分别在±X, ±Y, ±Z6 个方向施加加速度为50G (脉宽 11ms) 每个面垂直3次的冲击, 共18次

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NO.	Test items 测试项目	Requirments 规格要求	Condition and Test method 条件和测试方法
5.4 Enviromental characteristic 环境性能			
5-4-1	Temperature Life 高温寿命 (EIA-364-17) Method A	Appearance shall no physical damage. 外观无损伤。绝缘电阻>100MΩ	Mated connectors without electrical load are subjected to 85°C for 250 hours. 无电力加载的已配对连接器，在85°C环境中放置250小时。
5-4-2	Humidity Test 耐湿测试 (EIA 364-31B) Method II	Appearance shall no physical damage. 外观无损伤。绝缘电阻>100MΩ 	测试标准: EIA-364-31B, Method IV, 25°C~65°C; 80~95% RH, 交替变更, 持续240小时 S1:25°C升至65°C, 90~98%RH, 2Hr S2:65°C,90~98%RH,6Hr S3:65°C降至25°C, 85%RH, 16Hr 1CYCLE 24Hr 共10 cycle (240Hr)
5-4-3	Thermal Shock 热冲击 (EIA-364-32) Method A-1	Appearance shall no physical damage. 外观无损伤。绝缘电阻>100MΩ	温度冲击测试条件周期及要求/ Define Thermal shock condition and criteria -55°C~85°C, 交替循环10次, 常温下恢复1-2小时进行测试-55°C+0/-3°C: 30分钟,25°C+/-10°C: 5分钟Max+85°C+3/-0°C: 30分钟25°C+/-10°C: 5分钟Max
5-4-4	Salt Spray 盐水喷雾 (EIA-364-26)	No noticeable rust and physical damage. 无明显锈迹及外观损伤。 (外观依电镀规范盐雾测试要求)	NaCl solution 氯化钠溶液 Concentration 浓度: 5±1% Temperature 温度: 35±2°C PH=6.5~7.2 Test time 喷雾时间: 48H
5-4-5	Resistance to Reflow Soldering Heat 耐回流焊热 (EIA-364-56)	No evidence deformation or fusion of housing. 无明显变形或塑胶熔化。	Pre-Heat 预热150~170°C: 60~120sec Heat加热220+/-10°C: 60sec. Min. Heat Peak 峰值260+/-5°C: 30sec. Max. (See Figure 1)
5-4-6	Mixed flowing gas 混合气体测试 (EIA-364-65,Class IIA)	No corrosion point in the gold-plated area of the terminal, and the contact resistance meets the requirements端子镀金区域无腐蚀点, 接触电阻满足要求	混合气体测试的条件/ Define the test condition and criteria.Refer to EIA-364- 65B CKASS IIA. 10 days Cl2 0.01ppm NO2 0.2ppm H2S 0.01ppm SO2 0.1ppm At temp. 30±1°C . R/H 70 ±2 %.After test return to ambient temp for 2 hours Min
<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <p>Figure 1</p> </div>  </div>			

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Test Sequence 测试顺序																
NO.	Test items 测试项目	Test Group 测试群组														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	
5-1-1	Visual Examination 目视检查	1, 8	1, 7	1, 5	1, 9	1, 9	1, 9	1, 5	1, 3	1, 3	1, 5	1, 5	1, 3	1, 9	1, 3	
5-2-1	Low Level Contact Resistance 低电平接触电阻	2, 5	2, 6	2, 4	2, 6	2, 6	2, 6	2, 4			2, 4	2, 4		2, 6		
5-2-2	Dielectric Withstanding Voltage 耐电压	4, 7			4, 8	4, 8	4, 8							4, 8		
5-2-3	Insulation Resistance 绝缘阻抗	3, 6			3, 7	3, 7	3, 7							3, 7		
5-2-4	Contact Current Rating 电流温升												2			
5-3-1	Insertion & extraction force 插入&拔出力		3, 5													
5-3-2	Durability 插拔耐久		4													
5-3-3	Vibration Test 振动测试			3												
5-3-4	Solderability 可焊性								2							
5-3-5	4-Axis Continuity Test 四轴向测试													5		
5-3-6	Wrenching Strength 扭力测试														2	
5-3-7	Physical shock 物理冲击										3					
5-4-1	Temperature Life 高温寿命						5									
5-4-2	Humidity Test 耐湿测试					5										
5-4-3	Thermal Shock 热冲击				5											
5-4-4	Salt Spray 盐水喷雾							3								
5-4-5	Resistance to Reflow Soldering Heat 耐回流焊热									2						
5-4-6	Mixed flowing gas 混合气体测试											3				
/	Sample Quantity 样品数量	5	3	5	5	5	5	5	5	5	5	5	5	3	3	3