

承 认 书

Approval Sheet

客户 (Customer): /

客户料号 (Cus .P/N): /

华联威料号 (HLW P/N): U141-0715-G61018

品名规格 (PronameSpec): MINI 5P/F 90 度四脚黑铜

送样日期 (Delivery Date): 2021/11/19

承认日期 (Acknowledge Date): 2021/11/19

Approved No:		客 户 Customer	
采 购 部 Purchasing Dept	品 质 部 QC Dept	工 程 部 Engineering Dept	确 认 Approved By
深 圳 市 华 联 威 电 子 科 技 有 限 公 司 SHEN ZHEN SHI HUA LIAN WEI ELECTRONICS TECHNOLOGY CO; LTD.			
业 务 部 Sales Dept	品 管 部 QC Dept	工 程 部 Engineering Dept	核 准 Checked By
江 梅	欠 必 锋	魏 红	唐 竹 君

地址: 深圳市龙华区观澜街道桂香社区观澜桂花路 307 号

TEL: 0755-28888886 28888866

hua@hlwconn.com

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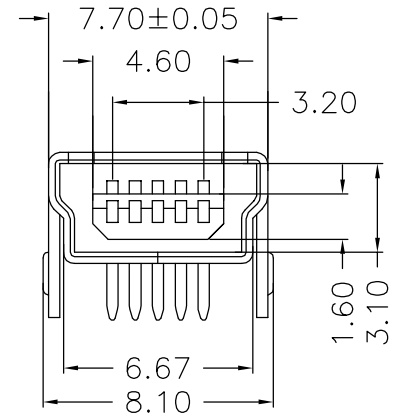
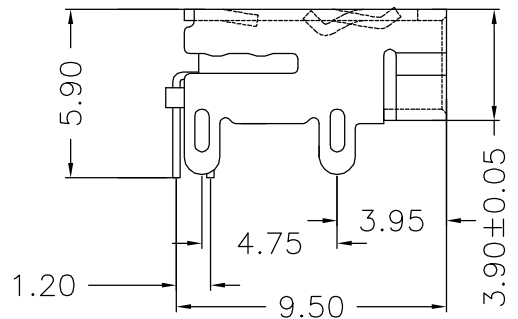
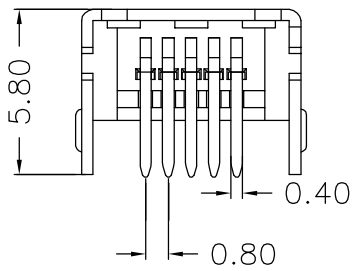
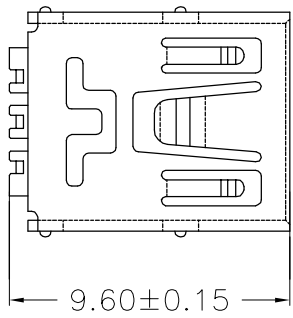


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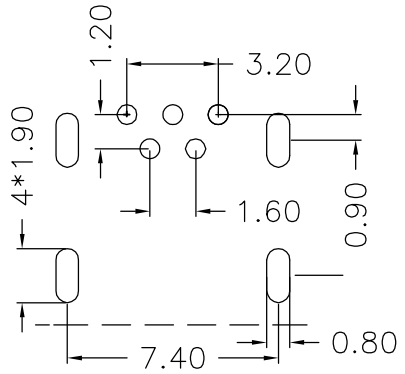
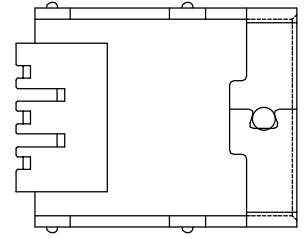
REV.	ECN.NO.	APPD.
A0	/	/



NOTES:

- MATERIAL:
 - Housing: thermoplastic plastics.
 - terminals: Copper Alloy
Gold plated in contact area:
Tin 40u"min plated in termination
Nickel Plated overall
 - Shell: Steel & Copper Alloy
Nickel/Tin Plated overall
- ELECTRICAL CHARACTERISTICS:
 - Rating Current : 1.5 Ampere
 - Rating Voltage : 30 V Max
 - Contact Resistance: 50 Milli ohms
 - Insulation Resistance: 100 Mega ohms Min.
- MECHANICAL CHARACTERISTICS:
 - Connector Mating force: 35N MAX
 - Connector Unmating force: 7N min
- ENVIRONMENT CHARACTERISTICS:
 - Operating temperature: -0°C to +50°C
 - Storage temperature: -20°C to +60°C

U141-0715-G61018
 5: 铜壳镀镍
 G: 半金G/Fu"
 6: LCP
 1: 吸塑盒
 1: 黑色



RECOMMENDED PCB LAYOUT

TOLERANCE UNLESS OTHERWISE SPECIFIED		FLW 深圳市华联威电子科技有限公司				
.XXX ±0.10		HUA LIAN WEI TECHNOLOGY ELECTRONICS CO;LTD.				
.XX ±0.20		.X' ±3'		PART NAME: MINI 5P/F 90度 四脚		
.X ±0.30		.XX' ±2'		PART No: U141-0715-G61018		
APPROVED		PROJECTION:	UNIT: mm	SCALE: 1:1	SHEET: 10F1	
CHECKED		DATE: 2023.04.19			REV: C	
DRAWN: chenying						



TEST ITEM		REQUIREMENT	PROCEDURE
1	Examination of Product	Meets requirements of product drawing. No physical damage.	Visual inspection.
2	Operating Temperature	0°C to 50 °C	
3	Storage Temperature	-20°C to 60 °C	
ELECTRICAL REQUIREMENT			
4	Rating Voltage	30VAC max	on any signal pin with respect to the shield
5	Rating Current	1.5 A per contact	55°C ,maximum ambient 85°C ,maximum temperature change (ANSI/EIA 364-70,TP-70)
6	Contact Resistance	30 mΩ maximum for Standard &MicroUSB (50 mΩ maximum for Mini Series) when measured at 20 mV maximum open circuit at 100 mA. Mated test contacts must be in a connector housing. Measurements to include Power, Ground, D+ and D- contacts of connector. 10 mΩ maximum change for post test LLCR	The object of this test is to detail a standard method to measure the electrical resistance across a pair of mated contacts such that the insulating films, if present, will not be broken or asperity melting will not occur. Measurement to use Kelvin 4-wire method. Measurements shall be taken form receptacle terminal to plug terminal.
7	Dielectric withstanding Voltage	The dielectric must withstand 500 VAC for one minute at sea level. 100 V AC for Mini/Micro Series.	The object of this test procedure is to detail a test method to prove that a USB connector can operate safely at its rated voltage and withstand momentary over potentials due to switching, surges and/or other similar phenomena. EIA 364-20
8	Insulation Resistance	Pre test Standard — 1,000 MΩ minimum. MicroUSB — 1,000 MΩ minimum Mini Series — 100 MΩ minimum. Post test 100 MΩ minimum final.	EIA 364-21 The object of this test procedure is to detail a standard method to assess the insulation resistance of USB connectors. This test procedure is used to determine the resistance offered by the insulation materials and the various seals of a connector to a DC potential tending to produce a leakage of current through or on the surface of these members.
9	Temperature Rising	30°C Max. Under loaded rating current	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.
Mechanical Requirement			



TEST ITEM		REQUIREMENT	PROCEDURE
10	Connector Mating Force	35 Newtons maximum at a maximum rate of 12.5 mm (0.492") per minute.	The object of this test is to detail a standard method for determining the mechanical forces that are required for inserting a USB connector. EIA 364-13
11	Connector Unmating Force	7 Newtons minimum at a maximum rate of 12.5 mm (0.492") per minute. 8~12Newtons after 10000cycles.	The object of this test is to detail a standard method for determining the mechanical forces that are required for extracting a USB connector. EIA 364-13
12	Durability	1500 cycles 5000 cycles for Mini "B" 10,000 cycles for Micro series 10,000 cycles for ruggedized Standard "A" Cycle rate of 500 cycles per hour if done automatically and 200 if manual cycle	The object of this test procedure is to detail a uniform test method for determining the effects caused by subjecting a USB connector to the conditioning action of insertion and extraction, simulating the expected life of the connectors. Durability cycling with a gauge is intended only to produce mechanical stress. Durability performed with mating components is intended to produce both mechanical and wear stress. EIA 364-09
13	Vibration	No discontinuities of 1 μ S or longer duration when mated USB connectors are subjected to 5.35 GRMS. 15 minutes in each of three mutually perpendicular planes.	Test Condition V Test Letter A This test procedure tests the ability of USB connectors to withstand conditions involving vibration. EIA 364-28
14	Mechanical Shock	No discontinuities of 1 μ S or longer duration when mated USB connectors are subjected to 11 ms duration 30 Gs halfsine shock pulses. Three shocks in each direction applied along three mutually perpendicular planes for 18 shocks.	Test Condition H The object of this test procedure is to detail a standard method to assess the ability of a USB connector to withstand specified severity of mechanical shock EIA 364-27
15	Solder ability	USB contact solder tails shall pass 95% coverage after 8-hour steam age. Note: If lead free solder is required, solder temperature is 245°C.	1)Temperature of fused solder: 245+5°C. 2)Dipping time:5+0.5s EIA 364-52
Environmental Requirements			
16	Resistance to Solder Heat	Forming resin shall not be distorted, and terminations shall not be separated.	1) Depth of dipping termination: the distance between the mounting surface and solder surface shall be 1 mm to 2mm. 2)Temperature:245±5°C. 3) Dipping time: 10±1s Socket EIA 364-56



深圳市华联威电子科技有限公司

MINI USB系列產品SPEC

TEST ITEM		REQUIREMENT	PROCEDURE
17	Thermal Shock	10 Cycles - 55OC and +85OC. The USB connectors under test must be mated. There shall be no evidence of damage.	Test Condition I The object of this test is to determine the resistance of a USB connector to exposure at extremes of high and low temperatures and to the shock of alternate exposures to these extremes, simulating the worst case conditions for storage, transportation and application. EIA 364-32
18	Steady State Humidity	168 Hours minimum (seven complete cycles). The USB connectors under test shall be tested in accordance with EIA 364-31.	Test Condition A Method III The object of this test procedure is to detail a standard test method for the evaluation of the properties of materials used in USB connectors as the effects of high humidity and heat influences them. EIA 364-31
19	Temperature Life (Heat Aging)	Must meet the minimum requirements specified by the most current version of Chapter 6 of the USB Specification and must be free of cosmetic and/or mechanical imperfections that will prevent normal use.	Test Condition 4 - Method A. The object of this test procedure is to detail a standard method to assess the ability of a USB connector to withstand +85° C± 2 temperatures without applied voltage for 500 hours EIA 364-17
20	Salt Spray	Visual Inspection-No physical damageLLCR-50 mΩ max per contact	Mated connector expose to 5% salt concentration for 12 hours at temperature 35+2 °C .After the test specimens shall be washed with running water and dried naturally EIA 364-26

Product Qualification and Requalification test

Test or Examination	Test Group									
	A	B	C	D	E	F	G	H	I	J
	Test Sequence (a)									
Examination of Product	1, 7	1, 9	1, 6	1, 5	1, 5	1, 5	1, 5	1, 3	1, 3	1, 3
Contact Resistance		2, 8	2, 5	2, 4	2, 4	2, 4	2, 4			
Dielectric withstanding	3, 6									
Insulation Resistance	2, 5									
Temperature Rising								2		
Mating Force		3, 7								
Unmating Force		4, 6								
Durability		5								
Vibration			3							
Mechanical Shock			4							
Solderability										2
Resistance to Soldering									2	
Thermal Shock				3						
Humidity Temperature	4				3					
Temperature Life						3				
Salt Spray							3			

備注

無客戶指定增加測試項目外，依照此標準進行產品可靠性評估。

審核：皮洪斌

制定：何星



深圳市华联威电子科技有限公司
SHENZHENHUALIANWEIELECTRONICS CO., LTD.

測試報告
TEST REPORT

產品名稱 Part Name	MINI USB 5PF 90度	測試日期 Date of Testing	2021.11.19	報告編號 Report NO.	MD2021111901
產品型號 Part Name	U141-0715- G61018	樣品數量 Quantity	5PCS	測試環境 Measuring Environment	濕度Temp:18~21°C 相對濕度R.H.:49%~57%

一.電性測試 ELECTRICAL TEST

序號 NO.	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment	規格 SPEC	測試記錄Testing Result					判定Judge	
					1	2	3	4	5	Pass	Fail
1	Contact resistance	Test current:100mA max	DIGITAL MICRO-OHMMETER	50 mΩ Max	16.85 mΩ	18.21 mΩ	18.36 mΩ	17.72 mΩ	19.02 mΩ	P	
2	Insulation resistance	Test voltage:500VDC Operation stated:1min	ULTRA HIGH RESISTANCE METER	100 MΩ Min	Pass	Pass	Pass	Pass	Pass	P	
3	Dielectric withstand voltage	Test voltage:100VAC Cut-off current:0.5mA Operation stated:1 min	BREAKDOWN TESTER	No discharge or flashover occur	Pass	Pass	Pass	Pass	Pass	P	

二.機械特性測試 MECHANICAL TEST

序號 NO.	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment	規格 SPEC	測試記錄Testing Result					判定Judge	
					1	2	3	4	5	Pass	Fail
1	Durability test	Rate:200cycles/hour Total: 5000 cycles	LIFE TESTER FOR CONNECTOR	No physical damage	Pass	Pass	Pass	Pass	Pass	P	
2	Mating Force	35 Newtons maximum at a maximum rare of 12.5mm(0.492") per minute	Insertion force testing machine	3.5kgf Max	Pass	Pass	Pass	Pass	Pass	P	
3	Un-Mating Force	7 Newtons minimum at a maximum rare of 12.5mm(0492") per minute	Insertion force testing machine	0.7kgf min	Pass	Pass	Pass	Pass	Pass	P	

三.環境特性測試 ENVIRONMENTAL TEST

序號 NO.	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment	規格 SPEC	測試記錄Testing Result					判定Judge	
					1	2	3	4	5	Pass	Fail

1	Humidity-Temperature cycle	Temperature: 40±2°C Humidity: 90~95% Duration:168H	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	P	
2	Heat test	Temperature: 70±2°C Duration:168H	OVEN	No physical damage	Pass	Pass	Pass	Pass	Pass	P	
3	Cold test	Temperature: -25±3°C Duration:168H	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	P	
4	Temperature cycling test	Temperature: 70~-25°C Duration:5 cycle	PROGRAM CONTROLLED TEMP. & HUMIDTY CHAMBER	No physical damage	Pass	Pass	Pass	Pass	Pass	P	

四.物理測試 PHYSICAL TEST

序號 NO.	測試項目 Testing Item	測試條件 Testing Conditions	測試設備 Testing Equipment	規格 SPEC	測試記錄 Testing Result					判定 Judge	
					1	2	3	4	5	Pass	Fail
1	Salt spray test	Temperature: 35±2°C Concentration:5±1 % Duration:12H	SALT SPRAY TESTER	No Oxidation	Pass	Pass	Pass	Pass	Pass	P	
2	Resistance to soldering heat test	Temperature: 245±5°C Duration:10±1sec	OVEN	No physical damage	Pass	Pass	Pass	Pass	Pass	P	
3	Solder ability test	Temperature: 245±5°C Duration:5±0.5 sec	CONTROLLED CONSTANT-TEMP SOLDER POT	Soldering area ≥95%	Pass	Pass	Pass	Pass	Pass	P	
判定 Result		<input checked="" type="checkbox"/> 合格 (ACCEPT) <input type="checkbox"/> 不合格 (REJECT)									

審核(Approver): 汪志根

測試(Tester): 但芬

FLW 深圳市华联威电子科技有限公司

檢驗報告

首件檢驗
 入庫檢驗
 出貨檢驗
 客退檢驗
 退料檢驗
 其他
 2021年11月19日 版次:A1

料號	U141-0715-G61018		制令單號	/		送檢單位	工程部		首件製作者	裝配			
品名	MINI 5P/F 90度四脚黑銅		客戶代號	/		批 量	/		送檢時間	/			
						數 量	5PCS		確認時間	/			
抽樣標準			<input checked="" type="checkbox"/> 單次 <input type="checkbox"/> 雙次			抽樣數	AQL	CRI:0	MAJ:0.4	MIN:0.65			
MIL-STD-105E(II)			<input checked="" type="checkbox"/> 正常 <input type="checkbox"/> 加嚴 <input type="checkbox"/> 減量			(5PCS)	ACC/REJ	0	/	/			
不良數:			CRI (/)		MAJ (/)		MIN (/)		不良率(%)		/		
NO.	檢驗項目 單位:MM/G	檢測 儀器	檢 驗 記 錄					品管判定		CRI	MAJ	MIN	備注
			1	2	3	4	5	AC	RE				
尺 寸 測 量	9.60±0.15	D	9.54	9.56	9.52	9.55	9.53	√					
	5.80±0.20	D	5.90	5.78	5.80	5.79	5.83	√					
	5.90±0.20	D	6.08	6.07	6.05	6.07	6.05	√					
	1.20±0.20	D	1.09	1.10	1.08	1.12	1.10	√					
	9.50±0.20	D	9.42	9.45	9.46	9.50	9.46	√					
	3.90±0.05	D	3.93	3.94	3.95	3.96	3.95	√					
	7.70±0.05	D	7.72	7.75	7.73	7.72	7.73	√					
	4.60±0.20	D	4.54	4.55	4.53	4.56	4.55	√					
	8.10±0.20	D	8.06	8.07	8.10	8.12	8.10	√					
	3.10±0.20	D	3.09	3.12	3.08	3.10	3.08	√					
檢驗依據: <input checked="" type="checkbox"/> 《工程圖紙》 <input type="checkbox"/> 《檢驗規範》 <input type="checkbox"/> 《承認書》 <input type="checkbox"/> 樣品 <input type="checkbox"/> 其它													
檢測儀器:A游標卡尺 B千分尺 C厚薄儀 D投影鏡 E放大鏡 F顯微鏡 G錫爐 H插拔力器 I間位尺 J其它													
品保判定:			<input checked="" type="checkbox"/> 合格Accept <input type="checkbox"/> 退貨Reject <input type="checkbox"/> 特采Waive <input type="checkbox"/> 挑選Sort										
核 准			汪志根		審 核		刘联英		檢驗員		但芬		

保存期限:三年

保存部門:品保部

QR-M-003



电镀报告表

品名:MINI 5P/F 90度四脚(端子)					
电镀规格:Ni40u", Sn40u"MIN, Au G/Fu"		日期:2021/08/23	页次:1/1		
厂商:同华					
测试设备:CMI X-射线膜厚测试仪					
1、底层电镀测试(Ni)					
数据	测试标准	实测值	判定	测试日期	测试时间
1	40u"MIN	58.2u"	OK	2021/8/23	13:50:12
2	40u"MIN	60.7u"	OK	2021/8/23	13:50:14
3	40u"MIN	55.4u"	OK	2021/8/23	13:50:16
4	40u"MIN	61.5u"	OK	2021/8/23	13:50:18
2、表层电镀测试(Sn)					
数据	测试标准	实测值	判定	测试日期	测试时间
1	40u"MIN	43.3u"	OK	2021/8/23	14:10:36
2	40u"MIN	42.4u"	OK	2021/8/23	14:10:38
3	40u"MIN	46.7u"	OK	2021/8/23	14:10:40
4	40u"MIN	43.1u"	OK	2021/8/23	14:10:42
3、表层电镀测试(Au)					
数据	测试标准	实测值	判定	测试日期	测试时间
1	0.5u"MIN	0.56u"	OK	2021/8/23	14:18:20
2	0.5u"MIN	0.58u"	OK	2021/8/23	14:18:22
3	0.5u"MIN	0.59u"	OK	2021/8/23	14:18:24
4	0.5u"MIN	0.57u"	OK	2021/8/23	14:18:26

核准:汪志根

审核:刘联英

检验员:但芬



电镀报告表

品名: MINI 5P/F 90度四脚外壳	版次:A.0
电镀规格:Cu:40u"Ni:50u"MIN	日期:2021/8/12
页次:1/1	

厂商:金和源
测试设备:CMI X-射线膜厚测试仪

1、底层电镀测试(Cu)

数据	测试标准	实测值	判定	测试日期	测试时间
1	40u"min	45.3u"	OK	2021/8/12	19:55:05
2	40u"min	48.5u"	OK	2021/8/12	19:55:57
3	40u"min	44.2u"	OK	2021/8/12	19:56:48
4	40u"min	45.6u"	OK	2021/8/12	19:57:31

2、表层电镀测试(Ni)

数据	测试标准	实测值	判定	测试日期	测试时间
1	50u"min	57.3u"	OK	2021/8/12	19:58:12
2	50u"min	55.6u"	OK	2021/8/12	19:59:04
3	50u"min	56.2u"	OK	2021/8/12	20:01:44
4	50u"min	58.3u"	OK	2021/8/12	20:02:36

核准:汪志根

审核:刘联英

检验员:但芬



深圳市华联威电子科技有限公司

盐水喷雾实验报告

试验方法	盐水喷雾腐蚀试验法	参考资料	MIL-STD-1216
METHOD	NEUTRL SALT SPRAY CORROSION TEST	REF	
客户	/	试验起始日期	2021年11月18日 20:00 时起
		DATE	2021年11月19日 08:00 时止
样品名称	MINI 5P/F 90度四脚黑铜	试验数量	5PCS
P/N	U141-0715-G61018	QTY	

试验条件 (TEST CONDITION)

- 1、盐水溶解 (SALT SOLUTION: 浓度 $50 \pm 10\text{g/L}$, PH值6.5-7.2).
- 2、试验室温度 (TEMP. IT THE SPRAY DHAMBR): $35 \pm 1^\circ\text{C}$.
- 3、盐水桶温度 (TEMP. OF SALE SOL' N TANK): $35 \pm 1^\circ\text{C}$.
- 4、压力桶温度 (TEMP. OF SAR SUPPLIERY): $47 \pm 1^\circ\text{C}$.
- 5、试验室相对湿度 (R. H IN THE CHAMBER) 85%.
- 6、压缩空气压力 (COMPRESSED AIR PRESSURE): $1.00 \pm 0.01\text{Kg/cm}^2$.
- 7、样品放置位置 (SPECIMEN SUPPORTED ANGLE): 尼龙绳吊挂 $70^\circ - 90^\circ$.
- 8、喷雾收集量 (COLLECT RATE OF SALT SOL' N) $1-2\text{mL}/(8 \text{ cm}^2\text{hr})$.
- 9、盐雾测试时间: 12小时 (H)

判定方法 (ADFUSGD METHOD)

试验后以20倍放大镜观察、无蓝、绿色腐蚀物之现象 (不包含折弯处), 即判定合格. (Inspext the ecimen at 20 xmagnification no blue or green corrosion products are acceptable)

样品序号	试验后现象	判定
	PHENOMENON AFTER TEST	COMMENT
1	无蓝、绿色腐蚀物之现象	OK
2	无蓝、绿色腐蚀物之现象	OK
3	无蓝、绿色腐蚀物之现象	OK
4	无蓝、绿色腐蚀物之现象	OK
5	无蓝、绿色腐蚀物之现象	OK

核准:汪志根

审核: 刘联英

试验员:但芬

Materials Information

PRODUCT NAME: LCP M-401 BK

COMPOSITION/INFORMATION OF LCP M-401 BK

SUBSTANCE/MIXTURE: Mixture

SYNONYM(S): Aromatic Liquid Crystal Polymer(LCP)

品名	比例	用途
德众泰 LCP 树脂	0.565	构成材料主要成分
抗氧化剂	0.002	抗氧化
科莱恩热稳定剂	0.003	增加高温稳定性
黑色母	0.01	着色
滑石粉	0.2	增强剂, 增加流动性
玻纤	0.22	增强

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鉅鼎銅材廠檢驗報告單

公司名稱 Customer	鉅鼎銅材廠檢驗報告單				重量 Weight(kg)	1078	出貨日期 Date	2021/11/23		
品名 Article	標準 Standard No				尺寸 Dimension		狀態 Tenper	銅卷編號 Coil No		
C2680	JISH3100:2017				0.18*400		EH	1021-C-08		
化學成分Chemical Compositions(%)										
元素 Element	Cu %	Zn%	Pb%	Fe%	\	\	\	\	化學成分	雜質
規範 Spec	64.0-68.0	餘量	<0.05	<0.05	\	\	\	\	合格	合格
實測 Actual	64.32	餘量	0.0036	0.0136	\	\	\	\	合格	合格
機械性質Mechanical Properties										
項目 Item	結晶粒度 Grain Size Mm	硬度 Hardness Hv	抗拉強度 TensionStrength Mpa	伸長度 Elongation %	導電率 Electrical Conduc %IACS	彎曲試驗 Bending Test 180	表面粗度 Surface Roughness Ra(u m)	彎曲度 Camber mm/n		
規範MAX Spec	\	170-190	490-610	\	\	\	\	\		
實測 Actual	\	178	574	5	\	\	\	\		

品質部

