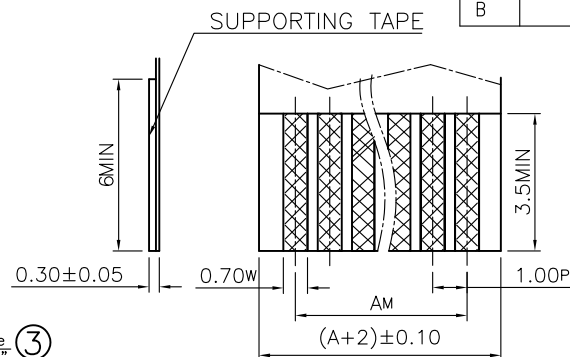
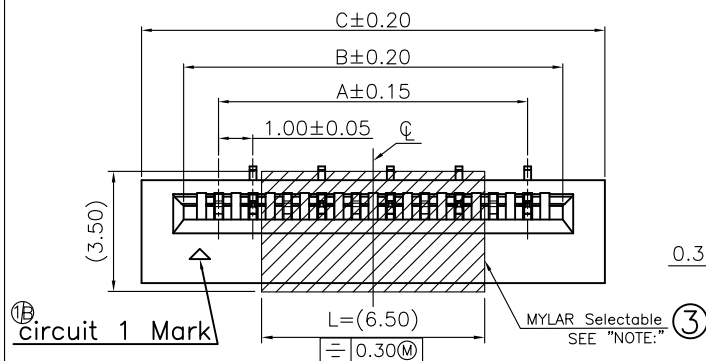


REV.	ECR/ECN No.	DESCRIPTION	DRAWN/DATE	CHECKED/DATE	APPROVED/DATE
A	/	New Version	May 2017-09-07	Rain 2017-09-07	Hongkui.liu 2017-09-07
B		Update the CPK No.1	May 2018-07-17	Rain 2018-07-17	Hongkui.liu 2018-07-17



KIND	TOLERANCE		
	P	W	M
FPC	±0.02	±0.05	±0.05
FFC	±0.05	±0.03	±0.10

NO.	COMPONENTS	MATERIALS	SPECIFICATION:FINISH/COLOR	QTY.
1	HOUSING	GLASS FILLED LCP, UL94V-0	NATURAL	1
2	TERMINALS	PHOSPHOR BRONZE, T=0.20mm	SURFACE PLATING:SEE "NOTE" UNDER PLATING:1~3 um Ni	N
3	MYLAR	T=0.10mm THERMOSTABLE	yellow	1

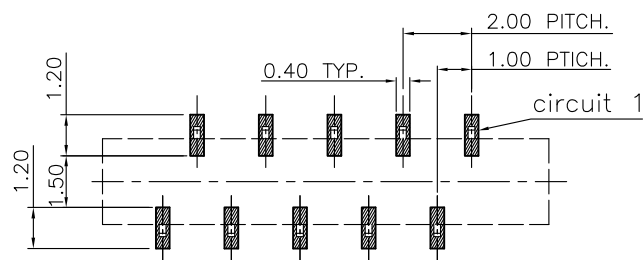
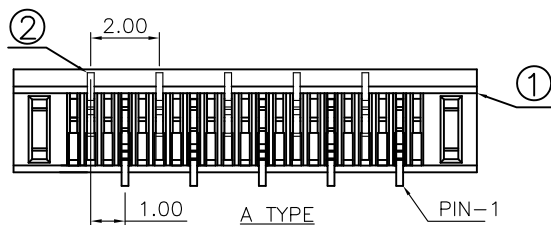
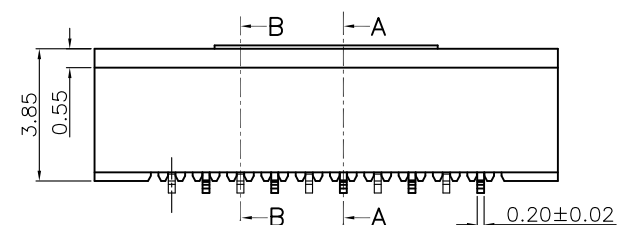
NOTE:
1.ALL MATERIAL MUST BE COMPLY WITH SS-00259 OR RoHS.
2.PART NO. LEGEND:

HRS-F51H-1A**1-110**-B*00

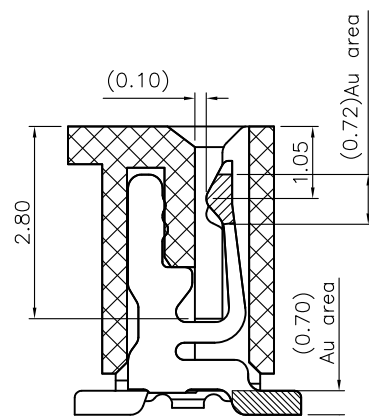
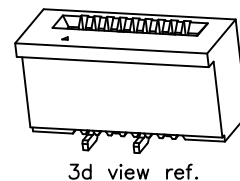
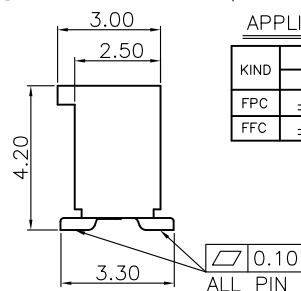
1H:A TYPE
7A:PHOSPHOR BRONZE
MATTER TIN
7H:PHOSPHOR BRONZE
0.05um MIN Au(Au Area)
NO. OF POSITIONS
1: WITH MYLAR
2: WITHOUT MYLAR

DIMENSION LIST:

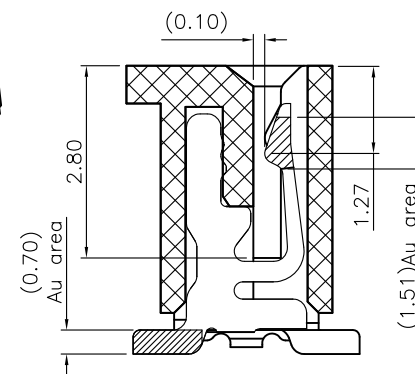
NO. OF POS.	A	B	C
4	3.00	5.05	7.50
5	4.00	6.05	8.50
6	5.00	7.05	9.50
7	6.00	8.05	10.50
8	7.00	9.05	11.50
9	8.00	10.05	12.50
10	9.00	11.05	13.50
11	10.00	12.05	14.50
12	11.00	13.05	15.50
13	12.00	14.05	16.50
14	13.00	15.05	17.50
15	14.00	16.05	18.50
16	15.00	17.05	19.50
17	16.00	18.05	20.50
18	17.00	19.05	21.50
19	18.00	20.05	22.50
20	19.00	21.05	23.50
21	20.00	22.05	24.50
22	21.00	23.05	25.50
23	22.00	24.05	26.50
24	23.00	25.05	27.50



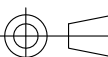
P.C.B LAYOUT A TYPE (REFERENCE) TOL:±0.05



Section A-A
Scale 2:1



Section B-B
Scale 2:1

UNLESS OTHERWISE SPECIFIED TOLERANCES				ANGLE OF PROJECTION		 Horus Int. Electronics. Co., LTD. HorusTech Electronics. Co., LTD.	
X.	±0.50	X. °	± 1°				
X.X	±0.30	X.X °	± 0.5°	DOC TYP Customer Drw		TITLE: FPC NON-ZIF P1.0 VERTICAL SMT TYPE	
X.XX	±0.20	X.XX °	± 0.5°	DRAWN DATE May 2018-07-17			
X.XXX	±0.10	X.XXX °	± 1°	DESIGN DATE May 2018-07-17		SIZE DWG NO. A4 A-S0458	
LINEAR DIMS	ANGLES DIMS		CHECKED DATE Rain 2018-07-17				
P/N:HRS-F51H-1A**1-110**-B*00				APPROVED DATE Hongkui.liu 2018-07-17		REV. B	
MATERIAL	SEE NOTES						
FINISHED	SEE NOTES			SCALE 1:1		UNIT : mm	SHEET 1 OF 1

1. Scope of application 适用范围:

This job specification is applicable to: FPC pitch 1.0mm NON-ZIF VERTICAL SMT TYPE

此作业规范适用于: FPC pin 距 1.0 立式 NON-ZIF SMT 系列

FPC is suitable for thickness: $0.30 \pm 0.03\text{MM}$

FPC 适用厚度: $0.30 \pm 0.03\text{MM}$

2. The related specifications: 关联规格:

EIA - 364: electronic connectors and connector test procedure.

EIA-364 : 电子连接器及接插件测试程序.

UL STD - 94: about plastic material equipment spare parts and equipment fire retardant test specification.

UL STD-94 : 关于塑材设备零配件及器材阻燃性测试规范.

3. The structure, size, material

构造, 尺寸, 材料

3.1 See the chart. 参见结构图.

No	Parts 部 位	Raw material suppliers 原材料供应商	Material name/Type name 材料名/品名	FLAME CLASS 防火等级	FILE NO. 文件编号
1	主体 (HOUSING)	宝理 POLYPLASTICS CO., LTD	LCP Liquid crystal polymer	V-0	E106764

4. 标准状态:

1) Rate Voltage: 50 V AC/ DC

额定电压: AC/DC 50V

2) Rate Current: 0.5 A

额定电流: 0.5A

3) Temperature and humidity range: 温湿度范围:

a. Operating temperature: $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$

操作温度: $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$

b. Storage temperature: $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$

储存温度: $-40^{\circ}\text{C} \sim +105^{\circ}\text{C}$

c. Keep humidity range: relative humidity 45~80%RH

保持湿度范围: 相对湿度 45~80%RH

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Product specification 制 品 仕 样 书		Part name 制品名称	FPC CONNECTOR PH1.0 NON-ZIF VERTICAL SMT TYPE		
Horus Int. Electronics. Co., LTD. HorusTech Electronics. Co., LTD.		PART NUMBER 料 号	HRS-F51H-1A7*1-110**-B*00		1/7
File number 文件编号 IS.EQC.135	DATE 日期: 2017-09-07	REV 版本: A	REVISED BY: 制作: May	CHECKED BY: 审核: Rain	APPROVED BY: 核准: xiaohong.zhu

5. Performance 性能:

5.1 structure 构造

No.	Test Description 测试描述	Test Procedures & Condition 测试程序和条件	Requirements 规格要求
1	Appearance 外观	Visual, method of measurement 目视, 寸法量测	Conform to the requirements of the drawings 符合图面要求

5.2 Electrical Performance 电气性能

No.	Test Description 项 目	Test Procedures & Condition 测试程序和条件	Requirements 规格要求
1	Contact Resistance 接触阻抗	The same terminal testing , current: 10mA (DC), Voltage: below 20mV , the use of wires: adapting FFC standard line 同一根端子测试, 电流: 10mA (DC), 电压: 20mV 以下, 使用电线: 适配 FFC 标准线	30mΩ max.
2	Insulation Resistance 绝缘阻抗	Insulation resistance between adjacent terminals DC 500V, 1 minutes. 相邻端子间 DC 500V, 1 分钟	500MΩ Min.
3	Pressure 耐压测试	Adjacent terminals AC 500V, Current sensitivity in 2mA, 1minutes 相邻端子间 DC 500V, 感度电流 2mA, 1 分钟	NO breakdown, No short circuit 无击穿, 无短路
4	Temperature rise 温度上升	measuring terminal temperature rise terminal at rated voltage, current at 端子在额定电压、电流下工作时测量端子上升的温度。	30℃ Max.

5.3 Mechanical Performance 机械性能

No.	Test Description 项 目	Test Procedures & Condition 测试程序和条件	Requirements 规格要求
1	FFC/FPC Withdrawal force FFC/FPC 皮线保持力	FFC (T=0.30mm) into the FPC bond, 25~100mm/points to uniform vertical pull out. FFC(标配厚度为 0.30MM)插入 FPC 连接器后, 以 25~100mm/分匀速垂直拔出。	SEE THE "Withdrawal Force List"
2	FFC/FPC insertion force FFC/FPC 插入力	FFC to 25~100mm/uniform vertically inserted into FPC FFC 以 25~100/分匀速垂直插入 FPC	SEE THE "Insertion Force List"
3	Terminal retention force 端子保持力	The terminal 25.4±3mm/uniform the vertically from the rubber core tank 将端子以 25.4/分匀速垂直从胶芯槽内拔出	300gf/terminal Min.

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Horus Int. Electronics. Co., LTD. HorusTech Electronics. Co., LTD.	PART NUMBER 料 号	HRS-F51H-1A7*1-110**-B*00			2/7
File number 文件编号 IS.EQC.135	DATE 日期: 2017-09-07	REV 版本: A	REVISED BY: 制作: May	CHECKED BY: 审核: Rain	APPROVED BY: 核准: xiaohong.zhu

4	Stator retention force 固定片保持力	The stator 25.4±3mm/uniform the vertically from the rubber core tank 将固定片以 25.4/分匀速垂直从胶芯槽内拔出	400gf/terminal Min.
5	Durability 插拔耐久性	The following actions are repeat 20 times: FPC insert, FPC pull out. Periodic rate:10times/min max 以下动作进行 20 次巡回:FPC 插入, FPC 拔出 周期速率: 10 次/分钟 MAX	1. Appearance: no abnormal 2. Contact impedance: 50 mΩ Max 3. FFC/FPC retention force: See the withdrawal force list 1. 外观无异常 2. 接触阻抗 50 mΩ 最大 3. FFC/FPC 拔出: 见拔出力明细

5.3 耐久性能

No.	Test Description 项 目	Test Procedures & Condition 测试程序和条件	Requirements 规格要求
1	Vibration 耐振性	Amplitude:1.5mm, pp Scan time;10~55~10Hz 1 minutes Duration:2 hours in each of the x y z -axis 振幅: 1.5 mm, pp 扫描时间: 10~55~10 赫兹 1 分钟 持续时间: 2 小时在每个 x y z 轴	1. Appearance: no abnormal 2. Contact impedance: 50 mΩ Max 3. discontinuous conduction within 1s
2	Shock 耐冲击性	Terminal to current of 0.1 A, DC series conduction, acceleration of 490 m/s ² , X, Y, Z direction of the 11 ms, all three times, A total of 18 rounds 端子以电流 0.1A D.C 串联导通, 加速度 490m/s ² , X, Y, Z 方向各 11ms, 各 3 回, 共 18 回	1. 外观无异常 2. 接触阻抗 50 mΩ 最大 3. 不连续导通 1μs 以内
3	Cold resistance 耐寒性	Placing time after 96H in temperature-40±3℃, placed in room temperature for 1~2 hours, then the measurement. 温度-40±3℃中放置时间 96H 后放置在室温环境下 1~2 小时再进行测量	1. Appearance: no abnormal 2. Contact impedance: 50 mΩ Max
4	Heat resistance 耐热性	Placing time after 96H in temperature105±2℃, placed in room temperature for 1~2 hours, then the measurement. 温度 105±2℃中放置时间 96H 后放置在室温环境下 1~2 小时再进行测量	1. 外观无异常 2. 接触阻抗 50 mΩ 最大

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File number 文件编号 IS.EQC.135	DATE 日期: 2017-09-07	REV 版本: A
	REVISED BY: 制作: May	CHECKED BY: 审核: Rain
		APPROVED BY: 核准: xiaohong.zhu

5.4 耐久性能

No.	Test Description 项 目	Test Procedures & Condition 测试程序和条件	Requirements 规格要求
1	Moisture resistance 耐湿性	Standing time after 96H in temperature $60\pm 2^{\circ}\text{C}$; Moisture 90~95%RH placed in the room temperature 1~2H again then the measurement. 温度 $60\pm 2^{\circ}\text{C}$; 湿度 90~95%RH 中放置时间 96 小时后在室温 环境下 1~2 小时再进行测量	1. Appearance: no abnormal 2. Contact impedance: 50 m Ω Max
2	Salt Spray 盐雾试验	Temperature $35\pm 2^{\circ}\text{C}$; Saline specific gravity of $5\pm 1\%$ spray test for 48H 镀金: 温度 $35\pm 2^{\circ}\text{C}$; 盐水比重 $5\pm 1\%$ 喷雾试验 48H 单 PIN 端子: 温度 $35\pm 2^{\circ}\text{C}$; 盐水比重 $5\pm 1\%$ 喷雾试验 48H	
3	The impact of hot and cold 冷热冲击	Placed in the temperature $-55\pm 3^{\circ}\text{C}$; $85\pm 2^{\circ}\text{C}$ each 30 minutes, totally 5 cycles, then left at room temperature for 1~2hours, then the measurement. $-55\pm 3^{\circ}\text{C}$; $85\pm 2^{\circ}\text{C}$ 的温度下各放置 30 分钟, 共进行 5 次循 环, 之后在室温下放置 1~2 小时再进行测量.	1. Appearance: no abnormal 2. Contact impedance: 50 m Ω Max 1. 外观无异常 2. 接触阻抗 50 m Ω 最大
4	Sulfidation resistance 耐硫化性	Concentration conditions: $50\pm 5\text{ppm}$ sulfur dioxide gas Environmental temperature: $40\pm 2^{\circ}\text{C}$ Placing time: 24Hrs 浓度条件: $50\pm 5\text{ppm}$ 二氧化硫气体 环境温度: $40\pm 2^{\circ}\text{C}$ 放置时间: 24 小时	1. Appearance: no abnormal 2. Contact impedance: 50 m Ω Max 1. 外观无异常 2. 接触阻抗 50 m Ω 最大
5	High ammonia 耐氨气	Placing conditions: 10CM conditions, the surface of 28% ammonia solution. Placing time: 40 minutes 放置条件: 10CM 条件, 表面 28% 的氨水溶液中 放置时间: 40 分钟	1. Appearance: no abnormal 2. Contact impedance: 50 m Ω Max 1. 外观无异常 2. 接触阻抗 50 m Ω 最大
6	Solderability 沾锡性	Soldering Temperature: $245\pm 5^{\circ}\text{C}$ (Sn: lead Free) Time: 3 ± 0.5 seconds 沾锡温度 $245\pm 5^{\circ}\text{C}$ (Sn: lead Free) 时间 $3\pm 0.5\text{S}$	Continuous solder coating with a min. 95% coverage 吃锡饱满, 在 95% 以上

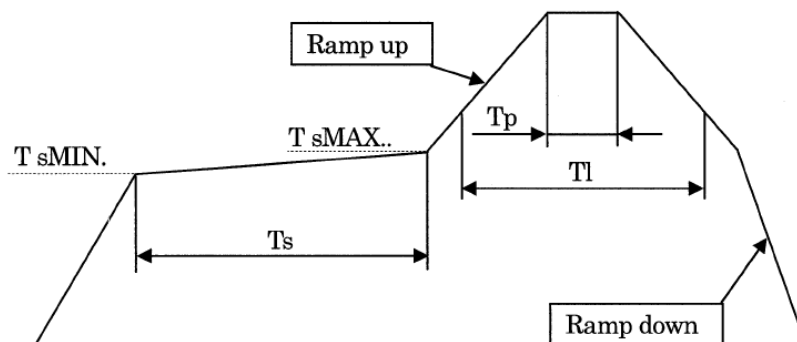
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File number 文件编号 IS.EQC.135	DATE 日期: 2017-09-07	REV 版本: A	REVISED BY: 制作: May	CHECKED BY: 审核: Rain	APPROVED BY: 核准: xiaohong.zhu

7	The heat resistance of Reflow Reflow 耐热性	预备加热时间 Pre-heating time: 170℃~190℃ 60~180s. 焊锡温度时间 Soldering Temperature Time: 260℃ 10sMAX.	No deformation on the housing, the pin leg and the ground plate flatness is 0.10mm Max. 产品主体无变形起泡, 产品的锡脚与接地片平整度 0.10mm Max.
8	WHISKER (Tin Plated) WHISKER 镀锡品	Insert the FPC after Reflow, then place 500H, Then observation of WHISKER length. 过 Reflow 后插入 FPC, 放置 500H, 观察 WHISKER 的长度	100um Max

5.5 Reflux conditions 回流条件:

Profile Feature	Lead-free Eutectic Assembly
温度上升 Ramp up Rate(Tsmax to Tp)	:1~4℃/S
. Pre-heat Ts MIN. Ts MAX. Time(Ts MIN. TO Ts MAX.)	:170℃ MIN :190℃ MAX :60~180S
T l 温度 (temperature) 时间 (time)	:225℃ MIN :60~150S
T p(Peak) 温度 (temperature) 时间 (time)	:260℃ MAX(255℃ MIN.) :10S MAX



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7. FFC/FPC Insertion force & Withdrawal force list:(Unit: kgf)

No of Ckt.	Insertion force(MAX)			Withdrawal force(MIN)		
	1cycle	6cycles	20cycles	1cycle	6cycles	20cycles
4PIN	2.45	1.90	1.90	0.24	0.23	0.23
5PIN	2.60	2.05	2.05	0.25	0.24	0.24
6PIN	2.75	2.20	2.20	0.26	0.25	0.25
7PIN	2.90	2.35	2.35	0.27	0.26	0.26
8PIN	3.05	2.50	2.50	0.28	0.27	0.27
9PIN	3.20	2.65	2.65	0.29	0.28	0.28
10PIN	3.35	2.80	2.80	0.34	0.33	0.33
11PIN	3.50	2.95	2.95	0.35	0.34	0.34
12PIN	3.65	3.10	3.10	0.36	0.35	0.35
13PIN	3.80	3.25	3.25	0.37	0.36	0.36
14PIN	3.95	3.40	3.40	0.38	0.37	0.37
15PIN	4.10	3.55	3.55	0.39	0.38	0.38
16PIN	4.25	3.70	3.70	0.40	0.39	0.39
17PIN	4.40	3.85	3.85	0.41	0.40	0.40
18PIN	4.55	4.00	4.00	0.42	0.41	0.41
19PIN	4.70	4.15	4.15	0.43	0.42	0.42
20PIN	4.85	4.30	4.30	0.44	0.43	0.43
21PIN	5.00	4.45	4.45	0.45	0.44	0.44
22PIN	5.15	4.60	4.60	0.46	0.45	0.45
23PIN	5.30	4.75	4.75	0.47	0.46	0.46
24PIN	5.45	4.90	4.90	0.48	0.47	0.47
25PIN	5.60	5.05	5.05	0.49	0.48	0.48
26PIN	5.75	5.20	5.20	0.50	0.49	0.49
27PIN	5.90	5.35	5.35	0.51	0.50	0.50
28PIN	6.05	5.50	5.50	0.52	0.51	0.51
29PIN	6.20	5.65	5.65	0.53	0.52	0.52
30PIN	6.35	5.80	5.80	0.54	0.53	0.53

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File number 文件编号 IS.EQC.135	DATE 日期: 2017-09-07	REV 版本: A	REVISED BY: 制作: May	CHECKED BY: 审核: Rain	APPROVED BY: 核准: xiaohong.zhu

8. packaging 包装

See figure packaging 参见包装图



9.Alter Content 修改内容。

No.	Date 日期	Modify content 修改内容	Revised by 编 制	Checked by 审 核	Approved by: 核 准
1	2017/09/07	New content 新版发行	王梅芳	Rain	Xiaohong. zhu
2					

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