

UMCC RF CONNECTOR

1. INTRODUCTION

1.1 Purpose

This is a product qualification test. The purpose of this test is to evaluate the performance of UMCC RF Connector. Testing was performed on below products to determine it compliance with the requirements of product design objective 108-112005 Rev A.

1.2 Scope

This test report covers the electrical and mechanical performance of UMCC RF Connector 1909763-1.

1.3 Conclusion

All results meet the requirement according to Tyco Electronics Design Objectives 108-112005.

1.4 Product Part Number

1909763-1 MINI. RF HEADER



1.5 Test plan and results:

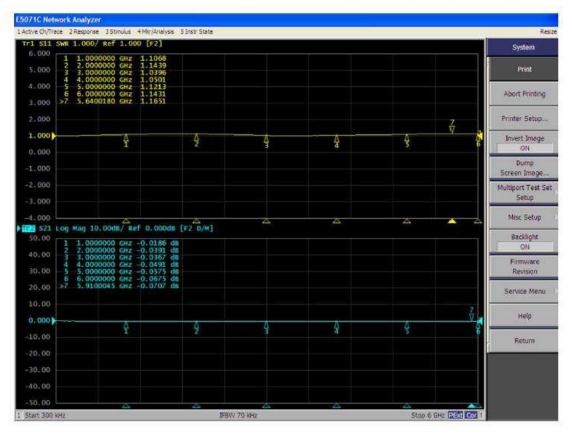
Test Item				Group	o(测i	式分组))			
(测试项目)	А	В	с	D	Е	F	G	Н	Ι	J
Examination of										
product (外观检测)	1	1,15	1	1,9	1,9	1,10	1,9	1,9	1,9	1
Contact Resistance (接触电阻)		2,12		2,6	2,6	2,7	2,6	2,6	2,6	
Insulation Resistance (绝缘电阻)		3,13		3,7	3,7	3,8	3,7	3,7	3,7	
Dielectric Withstanding Voltage (耐电压)		4,14		4,8	4,8	4,9	4,8	4,8	4,8	
V.S.W.R (电压驻波比)	2									
mating Force (插入力)		5,10								
Un-mating Force (拔出力)		6,11								
Center conductor Un- mating Force (中心针拔出力)		7,9								
Board adhesion test (焊接保持力)			2							
Durability (机械寿命)		8								
Vibration (振动)				5						
Shock (冲击)					5					
High Temperature Life (高温测试)						5				
Cold resistance (耐寒测试)						6				
Humidity (湿度试验)							5			
Thermal Shock (冷热冲击)								5		
Salt Spray (盐雾测试)									5	
solder-ability (可焊试验)										2
每组样品数量 Sample Qty of each group	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs
试验结果 Test Result	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS



2. Test content

<u>A</u> 组 Group 项目	<u>A</u> 室温Room Temp.: 判定标准			试验结果 Test result										
Items	Criteria Spec.	1#	2#	3#	4#	5#	max.	min.	aver.					
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化; There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	1	7	/					
	1.00GHz 1.2max	1.107	1.112	1.111	1.112	1.106	1,112	1.106	1.110					
	2.00GHz 1.2max	1.147	1.149	1.154	1,155	1.143	1.155	1.143	1,150					
the IT all Add Up	3.00GHz 1.2max	1.040	1.039	1.058	1.059	1.039	1.059	1.039	1.047					
电压驻波比 V.S.W.R	4.00GHz 1.3max	1,048	1.038	1.031	1.031	1.050	1.050	1.031	1.040					
V. S. W. K	5.00GHz 1.3max	1.125	1.107	1.122	1.121	1.121	1.125	1.107	1.119					
	6.00GHz 1.3max	1.152	1.149	1.131	1.132	1.143	1,152	1.131	1.141					
	0-6GHz 1.3max	1.174	1.169	1.160	1,162	1.165	1.174	1.160	1,166					
A 组判定 Criteria for group A	在以上标准范围内 In the spec.	ОК	ок	ОК	ок	ok	OK	OK	OK					

备注 Remark:



	判定标准			试	验结果 1	lest res	ılt		
项目 Items	Criteria Spec.	6#	7#	8#	9#	10#	1	- in	
Items		6#	7#	8#	9#	10#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	OK	ок	OK	1	1	
接触电阻 Contact	Inner contact res. 20 mΩ max	9.34	6. 22	7.86	8.35	<mark>9.</mark> 02	9.34	6.22	8.16
Resistance	Ourer contact res. 10 mΩ max	4. <mark>4</mark> 7	4. <mark>3</mark> 4	4. 86	4.59	5.02	5.02	4. 34	4.66
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	ок	OK	ок	1	7	/
耐压 Withstanding Voltage	200V AC <mark>,</mark> 1min	OK	OK	OK	OK	OK	1	/	/
插入力Mating Force	Insertion Force: 40N max.	13.28	12.35	12.35	12.42	12.22	13.28	12.22	12.524
拔出力 Jnmating force	5N min	14.06	13. 59	13.50	13. 35	13. 43	1 <mark>4. 0</mark> 6	13. 35	13. 59
中心针拔出力 Center conductor Un- mating Force	0.15N min	1.05	1. <mark>6</mark> 5	1.69	0.86	1. 42	1.69	0, 86	1. 33
Fixture the sa	于测试板上,以25mm/s的速度 mples to the test board, t	hen	ζ.				Cable Assembly	3	
Fixture the sa mating & Un-ma 插入力Mating		hen	11.57	11.52	11.50			11.50	11.534
Fixture the sa mating & Un-ma	mples to the test board, t ting 30 times at speed 25m	chen mm∕s;		11.52	11.50		Assembly	11.50 16. 27	11.534 16.50
Fixture the sa mating & Un-ma 插入力Mating Force 拔出力	mples to the test board, t ting 30 times at speed 25m Insertion Force:40N max.	:hen m∕s; 11.52	11.57			11.56	Assembly 11.57		
Fixture the sa mating & Un-ma 插入力Mating Force 拔出力 Unmating force 中心针拔出力 Center conductor Un- mating Force 接触电阻	mples to the test board, t ting 30 times at speed 25m Insertion Force: 40N max. 3N min	hen mm/s; 11.52 16.27	11.57 16.45	16.53	16. 52	11.56	11.57 16. 73	16. 27	16.50
Fixture the sa mating & Un-ma 插入力Mating Force 拔出力 Unmating force 中心针拔出力 Center conductor Un- mating Force	mples to the test board, t ting 30 times at speed 25m Insertion Force: 40N max. 3N min 0.1N min Inner contact res.	hen m/s; 11.52 16.27 1.62	11.57 16.45 1.76	16.53 1.56	16.52 1.26	11.56 16.73 1.68	Assembly 11.57 16. 73 1. 76	16.27 1.26	16.50 1.58
Fixture the sa mating & Un-ma 插入力Mating Force 拔出力 Unmating force 中心针拔出力 Center conductor Un- mating Force 接触电阻 Contact	mples to the test board, t ting 30 times at speed 25m Insertion Force: 40N max. 3N min 0.1N min Inner contact res. 25 mΩ max Ourer contact res.	hen m/s; 11.52 16.27 1.62 9.26	11.57 16.45 1.76 9.53	16.53 1.56 9.23	16. 52 1. 26 8. 53	11.56 16.73 1.68 9.78	Assembly 11.57 16.73 1.76 9.78	16. 27 1. 26 8. 53	16.50 1.58 9.27
Fixture the sa sating & Un-ma 插入力Mating Force 拔出力 Unmating force 中心针拔出力 Center conductor Un- mating Force 接触电阻 Contact Resistance 绝缘电阻 Insulation	mples to the test board, t ting 30 times at speed 25m Insertion Force: 40N max. 3N min 0.1N min Inner contact res. 25 mΩ max Ourer contact res. 15 mΩ max	hen m/s; 11.52 16.27 1.62 9.26 4.86	11.57 16.45 1.76 9.53 4.56	16.53 1.56 9.23 5.23	16.52 1.26 8.53 5.46	11.56 16.73 1.68 9.78 6.53	Assembly 11.57 16.73 1.76 9.78 6.53	16.27 1.26 8.53 4.56	16.50 1.58 9.27 5.33
Fixture the sa mating & Un-ma 插入力Mating Force 拔出力 Unmating force 中心针拔出力 Center conductor Un- mating Force 接触电阻 Contact Resistance 绝缘电阻 Insulation Resistance 耐压 Withstanding	mples to the test board, t ting 30 times at speed 25m Insertion Force: 40N max. 3N min 0.1N min Inner contact res. 25 mΩ max Ourer contact res. 15 mΩ max 100 MΩ min	chen m/s; 11.52 16.27 1.62 9.26 4.86 0K	11.57 16.45 1.76 9.53 4.56 0K	16.53 1.56 9.23 5.23 0K	16. 52 1. 26 8. 53 5. 46 0K	11.56 16.73 1.68 9.78 6.53 0K	Assembly 11.57 16.73 1.76 9.78 6.53 /	16. 27 1. 26 8. 53 4. 56 /	1.58 9.27 5.33 /

13

项目	判定标准			试	验结果:	lest res	ult		
Items	Criteria Spec.	11#	12#	13#	14#	15#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	OK	ок	ок	7	7	7
roduct can' t	ion test(焊接保持力) drop from PCB when the s 于20N时,产品未脱落:	htrength .	less than	i 20N.	2		K	Soldering	
test(焊接保持		<mark>52.</mark> 7	58. 26	53. 46	63. 05	62, 14	63. 05	52. 70	57.92
Board adhesion test (焊接保持 力) C组判定 Criteria for group C		52. 7 OK	58. 26 OK	53.46 OK	63. 05 OK	62, 14 OK	63. 05 OK	52. 70 OK	57.92
test (焊接保持 力) C组判定 Criteria for	20N min 在以上标准范围内 In the spec.		OK	OK		OK			- 200

-2



D 组 Group D	室温Room Temp.:	26°C	室内湿度Room	R. H. :	60%RH
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D MI OLOUD	E minoom remp.,	<u>20</u> 0	-E14	SEL CHOOL		00/0101			
项目	判定标准		-0-6	试	脸结果 T	est res	ult	15	
Items	Criteria Spec.	11#	12#	13#	14#	15#	max.	min.	aver.
<mark>外观检查</mark> Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	7	7	7
接触电阻 Contact	Inner contact res. 20 mΩ max	10.02	9.25	9. <mark>5</mark> 3	9.86	9. 89	10. 02	9.25	9. 71
Resistance	Ourer contact res. 10 mΩ max	4. 55	4.32	4. 56	4.83	4.62	4.83	4. 32	4. 58
绝缘电阻 Insulation Resistance	500 M 🛛 min	ОК	OK	OK	ок	ок	/	1	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	ок	OK	OK	7	1	/

振动Vibration

频率Frequency: 10-100-10Hz;

半振幅Half amplitude: 1.5mm (P-P);

最大加速度Peak value of acceleration: (6g) 59m/s²;

方向和时间Direction & durability :5 times at each of X、Y、Z axis, 10-100-10Hz/15min

试验过程中电不连续时间不超过1us, 1次。

No discontinuities more than $1 \, \mu$ s, 1 times at the testing process

接触电阻 Contact	Inner contact res. 25 mΩ max	9, 22	8, 58	9.86	9.43	10.52	10, 52	8.58	9. 52
Resistance	Ourer contact res. 15 mΩ max	6.45	6.26	6.72	<mark>6. 0</mark> 8	<mark>6. 9</mark> 5	6. 95	6.08	6 <mark>.</mark> 49
绝缘电阻 Insulation Resistance	100 M Ω min	OK	OK	ок	ок	ок	7	7	7
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	1	1	1
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	ОК	OK	ок	OK	ок	1	1	/
D组判定 Criteria for group D	在以上标准范围内 In the spec.	OK	OK	ОК	OK	ок	OK	OK	ОК

备注 Remark:

在振动测试过程中没有发现电不连续现象。

There is no discovery of discontinuities at the testing process.

项目	判定标准		151	试验	脸结果 T	est res	ult	75	<i></i>
Items	Criteria Spec.	16#	17#	18#	19#	20#	max.	min.	aver
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	ок	OK	ок	ОК	7	X	7
接触电阻 Contact	Inner contact res. 20 mΩ max	8.12	8.44	8. <mark>5</mark> 6	8.34	<mark>8. 6</mark> 2	8. <mark>6</mark> 2	8.12	8 <mark>. 4</mark> 2
Resistance	Ourer contact res. 10 m Ω max	4.86	4. <mark>5</mark> 6	4. 53	4. 76	5. 24	5.24	4. 53	4. 7 <mark>9</mark>
绝缘电阻 Insulation Resistance	500 M Ω min	OK	OK	OK	OK	OK	7	7	/
耐压 Withstanding	200V AC, 1min	OK	OK	OK	OK	OK	7	1	/

机械冲击Mechanical Shock

Voltage

振幅峰值Peak value of acceleration: 735m/s2, 持续时间 Durability: 11ms 波型Wave type: Half sinusoldal 方向和循环次数: X、Y、Z三个轴向六个面各3次,总共18次; Shock direction & times :Each 3 times at six surfaces of X. Y. Z axis, total 18 times,

试验过程中电不连续时间不超过1us,1次。

No discontinuities more than 1 µs, 1times at the testing.

接触电阻 Contact	Inner contact res. 25 mΩ max	9.12	9.54	9.86	<mark>9. 4</mark> 8	9.27	9. <mark>8</mark> 6	9.12	9,45
Resistance	Ourer contact res. 15 mΩ max	5.01	6.86	7. 5 8	5.26	<mark>6.3</mark> 5	7.58	5. 01	6.21
绝缘电阻 Insulation Resistance	100 MΩ min	ОК	OK	OK	ОК	OK	1	1	1
前压 Withstanding Voltage	200V AC, 1min	ок	OK	OK	OK	OK	7	1	Z
<mark>外观检查</mark> Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	0K	OK	OK	1	1	7
E组判定 Criteria for group E	在以上标准范围内 In the spec.	ОК	OK	OK	ок	OK	OK	OK	OK

备注 Remark:

在冲击试验过程中没有发现电不连续现象。

There is no discovery of discontinuities at the testing process.

aver.

1

OK

1

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项目	判定标准			试	验结果 T	est res	ult		
Items	Criteria Spec.	26#	27#	28#	29#	30#	max.	min.	aver
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	T	7	1
接触电阻 Contact	Inner contact res. 20 mΩ max	10.00	9.12	9. 43	9. <mark>2</mark> 6	9.18	10.00	9.12	9.40
Resistance	Ourer contact res. 10 mΩ max	4. 22	4.36	4. 86	5. 15	5. 37	5. 37	4. 22	4. 79
绝缘电阻 Insulation Resistance	500 M Ω min	OK	OK	ОК	ок	OK	7	1	7
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	ОК	OK	ок	1	7	1
Temperature : Duration :	owing environment to the ma 90±2℃ 96 hours 配合的连接器进行测试. 时.	ating con		温度: -4	re: 9 : 9 条件对己盾	40±2℃ 6 hours 2合的连接	nt to the 器进行测i		mector
接触电阻	Inner contact res.	10.01	9.22	9.76	9,89	9.98	10.01	9.22	9.77
接触电阻 Contact Resistance	25 mΩ max Ourer contact res.	10.01 7.69	9.22 7.26	9. 76 6. 43	9,89 6,12	9. 98 6. 86	10.01 7.69	9.22 6.12	9.77 6.87
Contact	25 mΩ max		652.555	1000 2000 C		02,078			
Contact Resistance 绝缘电阻 Insulation	25 mΩ max Ourer contact res. 15 mΩ max	7.69	7.26	6. 43	6.12	6.86	7.69	6.12	6.87

OK

OK

OK

OK

OK

OK

OK

OK

应该尤毛辺、裂纹、破损、

crack, damage or

i dat

氧化; There should be no

在以上标准范围内

In the spec.

外观检查

Visual

examination

F 组判定

Criteria for

group F

= TE

G 组 Group	G 室温Room Temp.:	<u>26</u> °C	室内	内湿度Roo	om R. H. :	60%RH							
项目	判定标准			试	验结果 T	est res	ult	lt					
Items	Criteria Spec.	21#	22#	23#	24#	25#	max.	min.	aver.				
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	ок	ОК	ОК	1	7	7				
接触电阻 Contact	Inner contact res. 20 mΩ max	10.01	9.12	9.62	8. <mark>5</mark> 6	8.99	10.01	8.56	9.26				
Resistance	Ourer contact res. 10 mΩ max	4. 33	4.25	4. <mark>3</mark> 5	4. 15	<mark>4.</mark> 76	4.76	4. 15	4. 37				
绝缘电阻 Insulation Resistance	500 M Ω min	OK	OK	OK	ок	ок	7	1	7				
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	/	1	1				

湿度试验 Humidity test;

根据 MIL-STD-202 试验条件,对己配合的连接器施加下列条件测试. Apply the following environment to the mating connector in accordance with MIL-STD-202 Temperature : 40±2℃ Humidity : 90⁹95%R.H Duration: 96 hours

备注: 所有测试应在试验完成后静置于室温条件下1~2小时内完成; Remark: Measurements should be done within 1~2hours at the room conditions.

5 EV									
接触电阻 Contact	Inner contact res. 25 mΩ max	9.56	9.55	9.35	10. 34	10. 15	10. 34	9.35	9.79
Resistance	Ourer contact res. 15 mΩ max	4.82	4.95	4.86	5.16	5.63	5.63	4.82	5.08
绝缘电阻 Insulation Resistance	100 M Ω min	OK	OK	ОК	ОК	ОК	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	ОК	OK	OK	ОК	/	/	/
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	ОК	OK	OK	OK	/	/	/
G组判定 Criteria for group G	在以上标准范围内 In the spec.	ОК	ОК	ОК	ОК	ОК	ОК	ОК	OK

1 cycle

5min. max

20 25 30 35 40 45 50 55 60 65 70

Znin.

H 组 Group	H 室温Room Temp.:	<u>26</u> ℃	室内	内湿度Roo	om R. H. :	60%RH			
项目	判定标准			试	验结果 T	est res	ult		
Items	Criteria Spec.	26#	27#	28#	29#	30#	max.	min.	aver.
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	1	<i>k</i>	/
接触电阻 Contact	Inner contact res. 20 mΩ max	9. 22	9.15	9.36	9.46	9. 76	9.76	9.15	9 <mark>. 3</mark> 9
Resistance	Ourer contact res. 10 mΩ max	4.12	3. 98	4. 95	4.86	5. 02	5.02	3. <mark>9</mark> 8	4, 59
绝缘电阻 Insulation Resistance	500 MΩ min	OK	OK	OK	OK	OK	/	/	/
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	ÿ	ž	Ż

8570

25%

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-40% -55℃

> 5 10 15 0

冷热冲击Thermal Shock

根据 IEC 512-11-4(11d)方法,对已配合的连接器施加下列条件测试. Apply the following environment to the mating connector in accordance with IEC 512-11-4(11d)

Temperature : -55°90°C Transition time: : 5min MAX Cycles: 5 Cycles

备注:所有测试应在试验完成后静置于室温条件下1~2小时内完成: Remark: Measurements should be done within 1~2hours at the room conditions.

接触电阻 Contact	Inner contact res. 25 mΩ max	9.24	8.44	9. 95	9.86	10. 0 5	10.05	8. 44	9. 51
Resistance	Ourer contact res. 15 mΩ max	4. 05	4, 22	4 , 6 2	5.32	5. <mark>7</mark> 6	5. 76	4.05	4, 79
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	ок	1	1	1
耐压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	12	1	7
外观检查 Visual examination	应该无毛辺、裂釵、破损、 氧化: There should be no crack, damage or aridation	OK	OK	OK	OK	ОК	1	1	1
H 组判定 Criteria for group H	在以上标准范围内 In the spec.	OK	OK	OK	OK	ок	ОК	OK	OK

I 组 Group	I 室温Room Temp.:	<u>26</u> °C	室四	内湿度Ro	om R.H.	60%RH			
项目	判定标准			试	验结果 1	Cest res	ult		
Items	Criteria Spec.	36#	37#	38#	39#	40#	max.	min.	aver
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	1	7	/
接触电阻 Contact	Inner contact res. 20 mΩ max	9.56	8.48	8. 56	8.26	9. 32	9. 56	8.26	8. 84
Resistance	Ourer contact res. 10 mΩ max	4.12	5. 03	5. 16	4.62	4.86	5. 16	4.12	4.76
绝缘电阻 Insulation	500 MΩ min	OK	OK	OK	OK	OK	1	1	1
耐压 Withstanding	200V AC, 1min	OK	OK	OK	OK	OK	1	1	1

盐雾测试Salt Spray test

对已插合的连接器施加以下试验条件: Apply the following condition to the mated connectors: 试验箱温度chamber temperature: 35±2℃ 盐水浓度Salt water density: 5±1% 沉降速率Spray speed: 1[°]2ml/h/80cm2 时间Duration: 48 hours

注意: 试验后应在不高于38℃的清水中清洗, 然后置于室温环境下恢复1~2小时后进行检测。 Notes: after the salt spray test , the samples should be washed in the clean water (temperature should no more than 38℃), and then place in the room temperature for recovery 1~2 hours, final inspection.

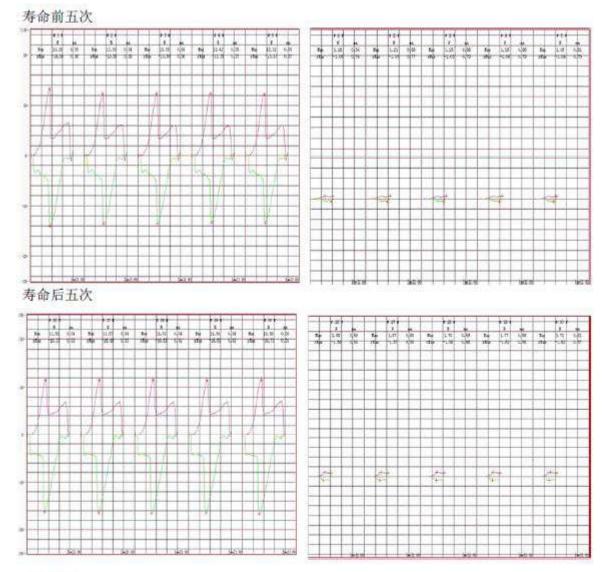
接触电阻	Inner contact res. 25 mΩ max	14. <mark>9</mark> 7	15 <mark>.</mark> 92	15.96	16. 34	14. 79	16. 34	14.79	15.60
Contact Resistance	Ourer contact res, 15 m Q max	10.22	9. 94	10.46	10. 35	10. 26	10.46	9. 94	10. 25
绝缘电阻 Insulation Resistance	100 MΩ min	OK	OK	OK	OK	OK	1	1	1
前压 Withstanding Voltage	200V AC, 1min	OK	OK	OK	OK	OK	7	1	1
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化: There should be no crack, damage or oxidation.	OK	OK	OK	OK	OK	7	1	1
I 组判定 Criteria for group I	在以上标准范围内 In the spec.	OK	OK	OK	OK	OK	OK	OK	OK

项目	判定标准			试验	脸结果 T	est res	ult		
Items	Criteria Spec.	41#	42#	43#	44#	45#	max.	min.	aver
外观检查 Visual examination	应该无毛边、裂纹、破损、 氧化、沾污: There should be no crack, damage, or oxidation.	OK	OK	OK	OK	OK	7	Z	7
可焊性 Solde	erability								





Appendix



盐雾图OK

