

检 测 报 告
TEST REPORT

报告编号 (No.) :UTS23060026R87 报告日期 (Report Date) : 2023/08/31

委托单位/Client : 浙江新富尔电子有限公司
Zhejiang Xinfuer Electron Co.,Ltd
地 址/Address : 浙江省乐清市虹桥镇溪西工业区标准厂区 9 号
No.9 Xixi industrial park,Hongqiao town,Yueqing,Zhejiang,China

以下样品信息由申请人提供及确认:

The sample(s) information below is/are provided and confirmed by client:

样品名称/Sample Name : PHC 系列连接器/PHC series connectors
料 号/Part No. : PHC-T-NK
接样日期/Receiving Date : 2023/06/20
检测项目/Test Item : TG15 电应力测试;
TG15 Electrical stress test;



签 发
Approved by 樊建红 授权签字人

审 核
Reviewed by 毛贯南

编 制
Prepared by 王彭

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江苏省优联检测技术服务有限公司

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1、测试标准/Test Standard

VW 75174 LV-214 2018 及客户要求; VW 75174 LV-214 2018 and customer requirements

2、测试日期/Test Date

2023/07/03-2023/08/30

3、测试仪器/Test Equipment

设备名称 Test Equipment	设备编号/型号 Equipment Number/Type	校准有效期 Calibration Period of Validity
影像测量仪 Image measuring instrument	CD-1-038	2024/02/21
高低温交变湿热试验箱 High and low temperature alternating humidity and heat test chamber	R-1-026	2023/11/24
宽视角恒温箱 Wide viewing angle constant temperature box	R-1-006	2023/11/24
快速温变试验箱 Rapid temperature change test box	R-1-073	2024/07/06
可编程电源 Programmable power supply	R-1-092	2024/02/21
直流稳压电源 Dc regulated power supply	R-1-032	2024/02/21
数据记录仪 Data Recorder	R-1-099	2023/11/29
数据记录仪 Data Recorder	R-1-098	2023/10/31

4、测试条件/Test Condition

P0.1 目检;

P0.1 Visual inspection;

L15.1 将被测器件插拔 2 次;

L15.1 The DUTs are inserted and extracted 2 times;

P5.1 端子开口尺寸;

P5.1 Contact opening dimension;

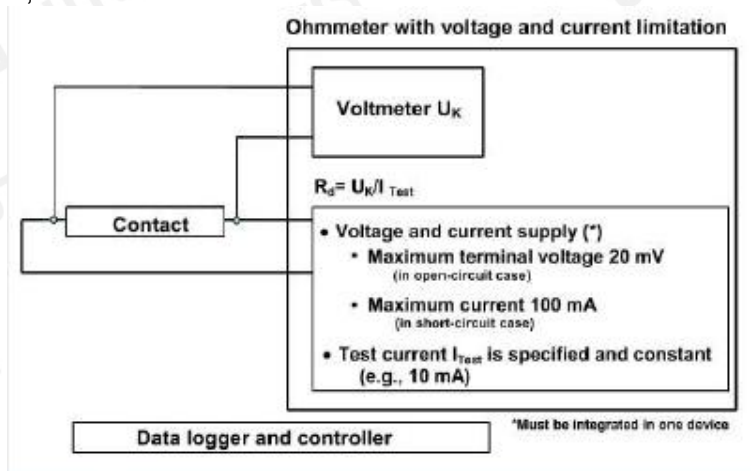
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P0.2 接触电阻;

P0.2 Volume resistance;



接触电阻测量图 Contact resistance test method

P12.2 降额;

P12.2 Derating as per;

将从先前 P0.2 得到最大接触电阻的 3 个被测器件施加试验电流, 对试样进行电压降监测, 记录试样电阻, 记录试验是否带护套进行;

3 DUTs with the largest volume resistance of the previous P0.2 Loading with test current monitoring of the voltage drop on the DUTs, documentation of the resistance on the DUTs .t must be documented whether the test is performed with or without contact housings;

P14.0 在 B15.2 期间用试验电流测量连续接触电阻测量频率:每 5 分钟测量 1 次持续记录试验电流、电压降和测得的端子温度;

P14.0 Continuous monitoring of volume resistance during L 15.2 at test current Measurement frequency. 1 measured value per 5 min The test current, the voltage drop, and the measured contact temperature are continuously recorded;

L15.2 温度循环耐久试验/电流循环耐久试验;

L15.2 Temperature cycle endurance test/current cycle endurance test;

循环次数:60; Number of cycles: 60

试验箱温度的确定(试验开始前);

Determination of the upper climate chamber temperature (before the start of the test);

 T_0 在试验开始时确定一次, 使热平衡建立后, 接触温度与极限温度相一致; T_0 is determined once at the start of the test such that after thermal equilibrium is established, the contact

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temperature corresponds to the limit temperature;

循环描述; Description of a test cycle;

气候室温度: $-40^{\circ}\text{C}/T_0$ (试验箱温度上限);Temperature in climate chamber: $-40^{\circ}\text{C}/T_0$ (upper temperature in the climate chamber).

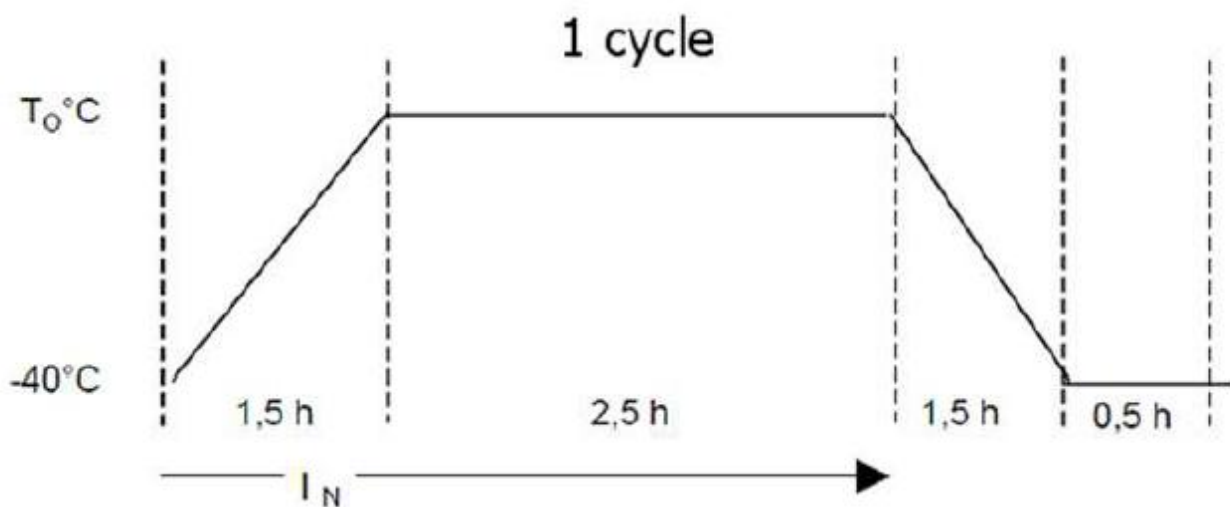
详见下图 See as following Figure for details;

测试电流测试: 从环境温度为 80°C 时的降额曲线中读出。测试电流是恒定的; Test current I_{test} is read from the derating curve at 80°C ambient temperature. The test Current is constant.

电流供应根据下图 Current supply according to following Fig.

接触温度: 在气室中用温度传感器测量接触温度, 使接触温度达到极限温度;

Contact temperature. The contact temperature is measured with temperature sensors at the contact in the climate chamber and is brought to the limit temperature by changing T_0 .

温度循环加热期间和保持 T_0 时通电流 $I_N=6.31\text{A}$;Temperature cycle with current supply at $I_N=6.31\text{A}$ during the heat-up phase and the holding time at T_0 ;

温度循环 Temperature cycle

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L15.3 湿热, 循环;
L15.3 Humid heat, cyclic;

循环次数: 21 (1 天= 1 循环); Number of cycles: 21 (1 day = 1 cycle);

相对湿度/relative humidity 95%, $T_U = 25^{\circ}\text{C}$, $T_O = 55^{\circ}\text{C}$;
 T_U =循环温度下限/lower cycle temperature , T_O =循环温度上限/upper cycle temperature;

P14.0 在 B15.2 期间通电流(6.31A)连续监控接触电, 测量频率:1 测量值/5min;
P14.0 Contact resistance continuous during B15.2 with test current (6.31A), Measurement frequency: 1 measured value per 5 min;

循环次数:60;Number of cycles: 60;

P0.2 接触电阻; P0.2 Volume resistance;

P12.2 降额:P12.2 Derating;

使用先前降额的 DUT, 必须记录是否有或没有外壳的情况下进行测试;
With the DUTs from previous derating. It must be documented whether the test is performed with or without housings.

P5.1 端子开口尺寸; P5.1 Contact opening dimension;

P0.1 目检;P0.1 Visual inspection;

备注:DUT 上限温度 $T_L=125^{\circ}\text{C}$ Note: Upper temperature of DUT: $T_L=125^{\circ}\text{C}$.

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5、测试结果/Test Result(s)

外观检查 (测试前) Visual inspection before test

样品编号 Sample No.	结果 Result
1#-10#	没有松动、裂纹、变形等缺陷。 No detrimental looseness, cracks, flaws, deformation, etc.

触点开口尺寸 Contact opening dimension

样品编号 Sample No.	结果 Result(mm)
1#	0.291
2#	0.288
3#	0.299
4#	0.282
5#	0.295
6#	0.295
7#	0.296
8#	0.299
9#	0.303
10#	0.311

检测报告

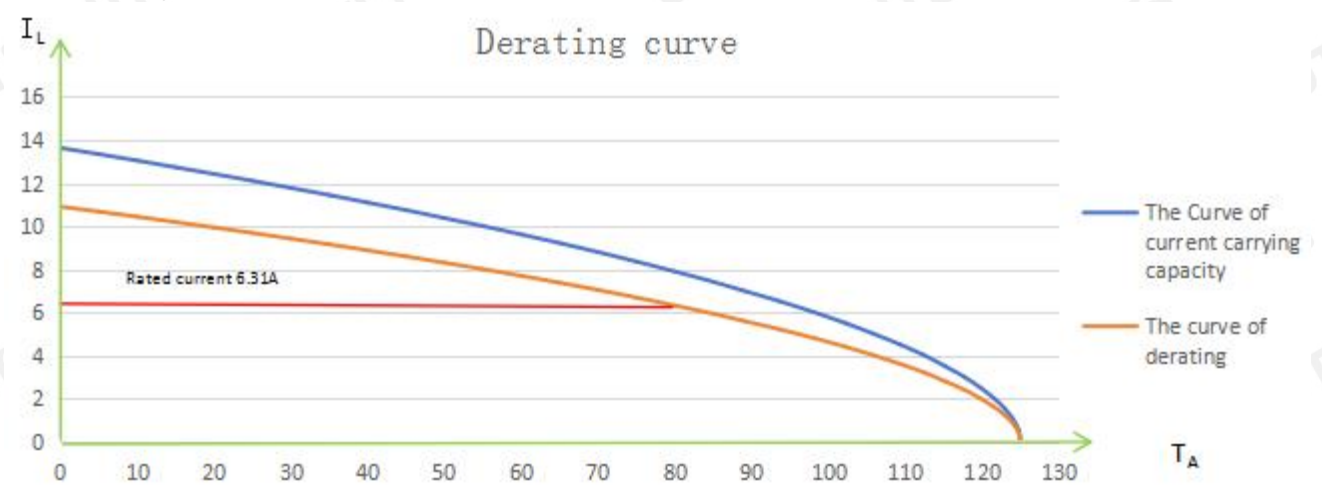
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接触电阻(测试前)Contact resistance before test

样品编号 Sample No.	结果 Result (mΩ)	判定依据 Judgment Basis	判定 Determine
1#	2.862	<30mΩ	符合 PASS
2#	3.017		符合 PASS
3#	2.558		符合 PASS
4#	2.792		符合 PASS
5#	2.354		符合 PASS
6#	2.762		符合 PASS
7#	2.606		符合 PASS
8#	2.447		符合 PASS
9#	2.868		符合 PASS
10#	2.511		符合 PASS

降额 Derating test



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接触电阻(温度循环试验中)Contact resistance during Temperature cycle

样品编号 Sample No.	接触电阻 Contact resistance(mΩ)			判定依据 Judgment Basis	判定 Determine
	最小值 Least value	最大值 Maximum value	平均值 Mean value		
1#	5.00	9.43	7.11	<30mΩ	符合 PASS
2#	5.30	7.69	6.25		符合 PASS
3#	4.97	7.98	6.49		符合 PASS
4#	4.06	6.15	5.28		符合 PASS
5#	1.96	7.44	5.58		符合 PASS
6#	4.62	6.77	5.89		符合 PASS
7#	3.76	7.33	5.91		符合 PASS
8#	5.12	7.33	6.37		符合 PASS
9#	4.60	6.66	5.81		符合 PASS
10#	2.30	8.96	6.80		符合 PASS

接触电阻(温度循环试验中)Contact resistance during Temperature cycle

样品编号 Sample No.	接触电阻 Contact resistance(mΩ)			判定依据 Judgment Basis	判定 Determine
	最小值 Least value	最大值 Maximum value	平均值 Mean value		
1#	4.98	7.65	6.60	<30mΩ	符合 PASS
2#	5.05	7.75	6.69		符合 PASS
3#	4.90	7.52	6.50		符合 PASS
4#	4.78	7.34	6.34		符合 PASS
5#	4.98	7.65	6.60		符合 PASS
6#	4.98	7.64	6.60		符合 PASS
7#	4.98	7.65	6.60		符合 PASS
8#	5.10	7.82	6.75		符合 PASS
9#	3.66	7.20	6.41		符合 PASS
10#	4.98	7.65	6.60		符合 PASS

检测报告

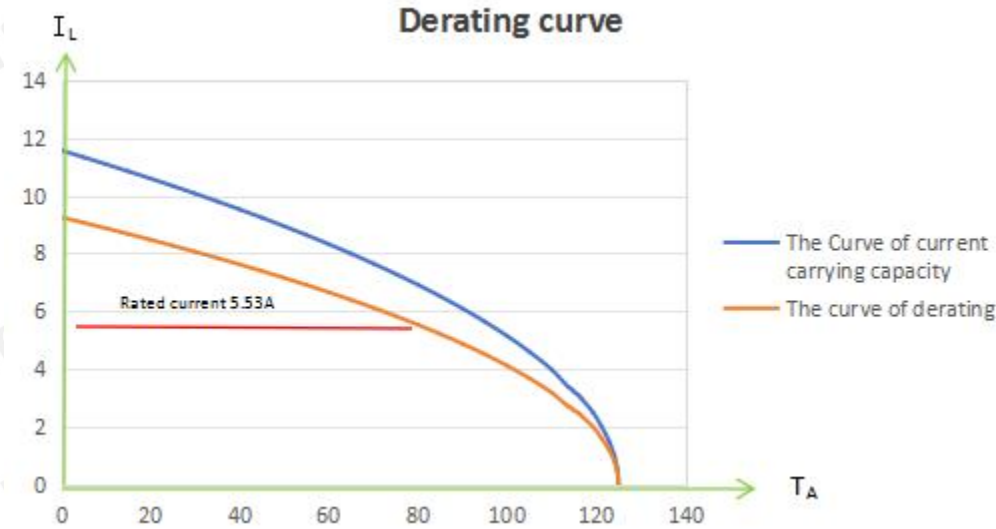
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接触电阻(测试后)Contact resistance after test

样品编号 Sample No.	结果 Result (mΩ)	判定依据 Judgment Basis	判定 Determine
1#	7.771	<30mΩ	符合 PASS
2#	6.881		符合 PASS
3#	7.381		符合 PASS
4#	3.883		符合 PASS
5#	5.026		符合 PASS
6#	6.686		符合 PASS
7#	5.169		符合 PASS
8#	7.856		符合 PASS
9#	5.332		符合 PASS
10#	5.198		符合 PASS

降额(测试后)Derating test after test



备注:试验前降额电流为 6.31A,与试验后 5.53A 变化 12.36%,符合 $\leq 20\%$ 要求。 Note: The derating current before the test is 6.31A, which is 12.36% change from 5.53A after the test, which meets the $\leq 20\%$ requirements.

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触点开口尺寸(测试后)Contact opening dimension after test

样品编号 Sample No.	结果 Result(mm)
1#	0.376
2#	0.382
3#	0.397
4#	0.383
5#	0.378
6#	0.380
7#	0.372
8#	0.392
9#	0.373
10#	0.374

外观检查 (测试后) Visual inspection after test

样品编号 Sample No.	结果 Result
1#-10#	没有松动、裂纹、变形等缺陷。 No detrimental looseness, cracks, flaws, deformation, etc.

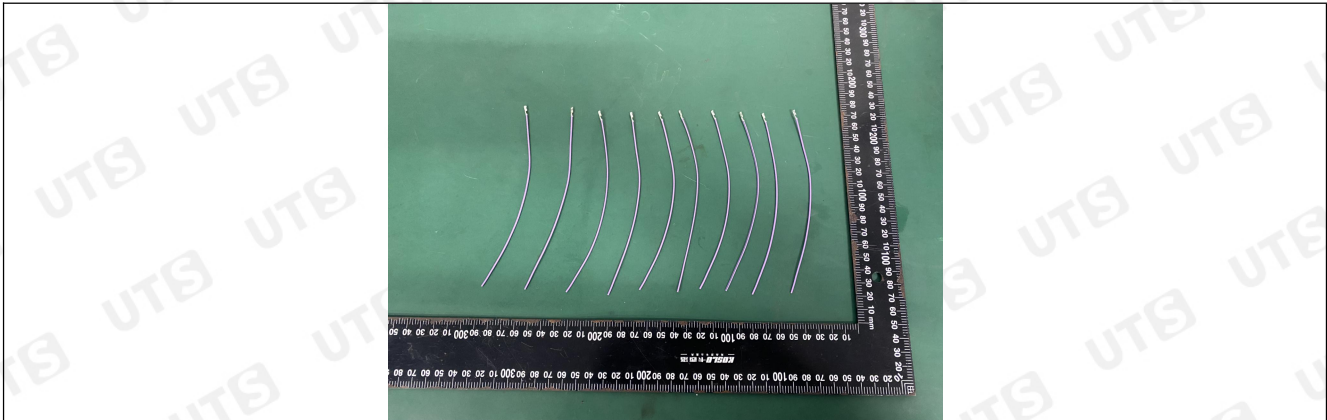
备注/Remark: 判定限值依 VW 75174 LV-214 2018。/The prescribed limit(s) is/are according to VW 75174 LV-214 2018.

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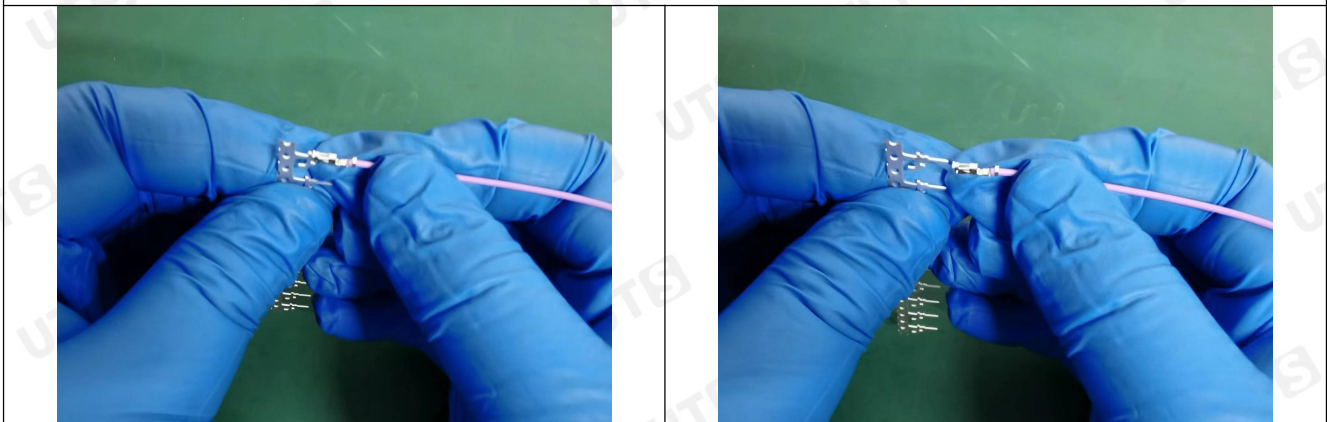
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6、测试照片/Test Photo(s)



测试前外观检查;Visual inspection before test



拔插测试;Insert and disconnect test

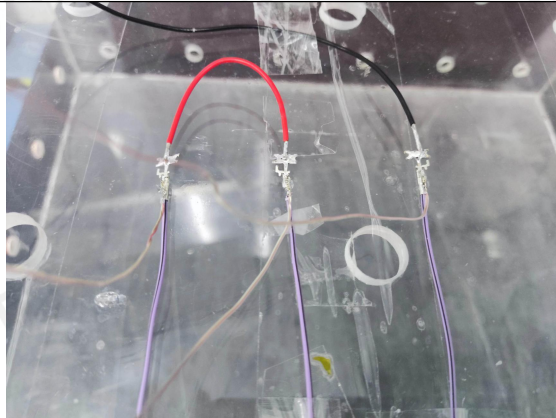
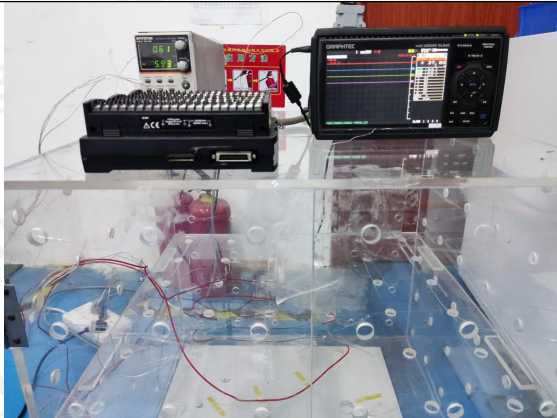


接触电阻试验(测试前);
Contact resistance before test

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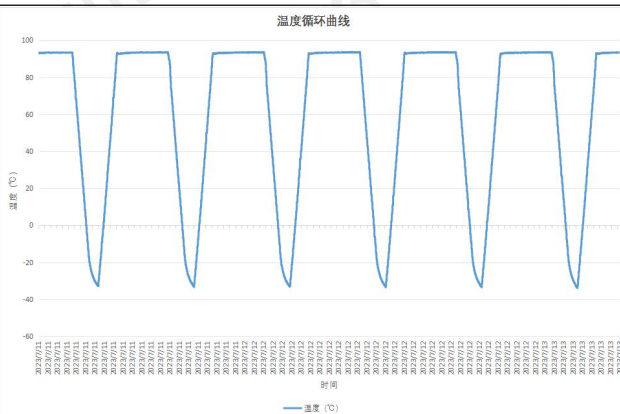
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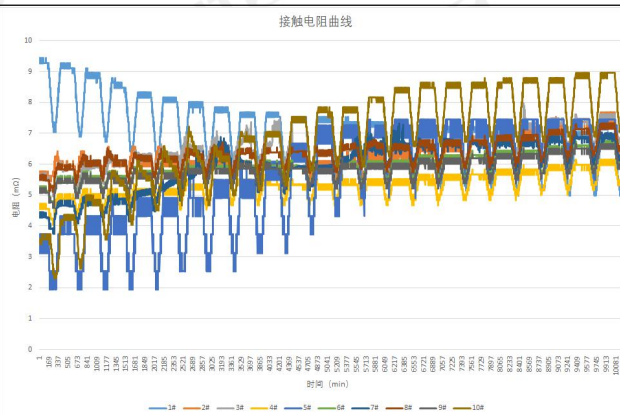
降额(测试前);Derating before test



温度循环架设;Test setup of temperature cycle



温度循环曲线;The curve of temperature cycle



B15.2 监控电阻曲线;
B15.2 The Curve of contact resistance

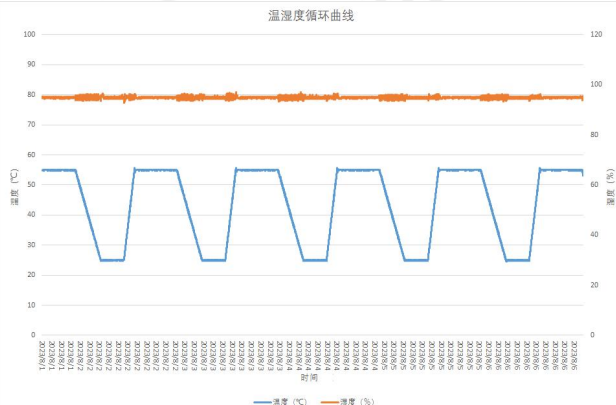
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湿热循环架设;Test setup of humid heat cycle



湿热循环曲线;The Curve of humid heat cycle

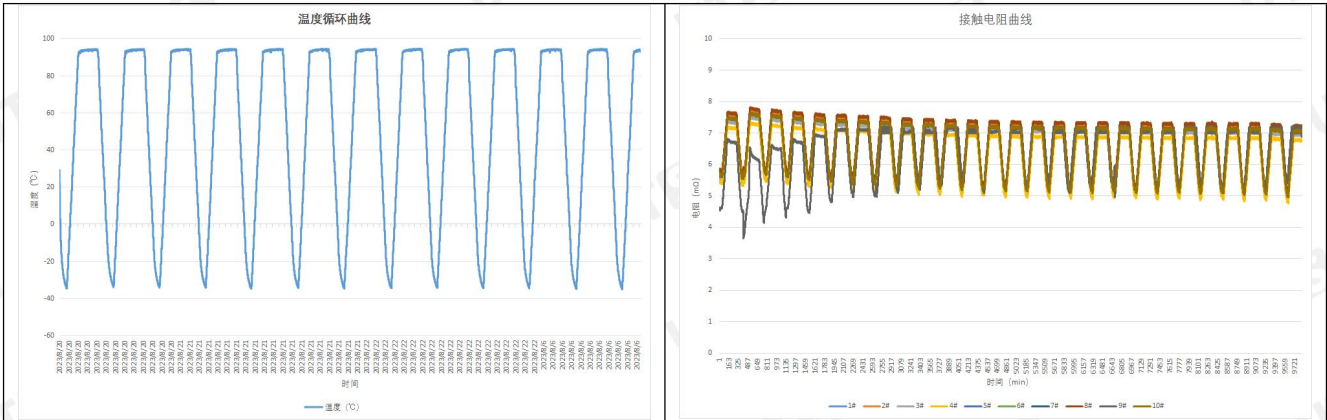


温度循环架设;Test setup of temperature cycle

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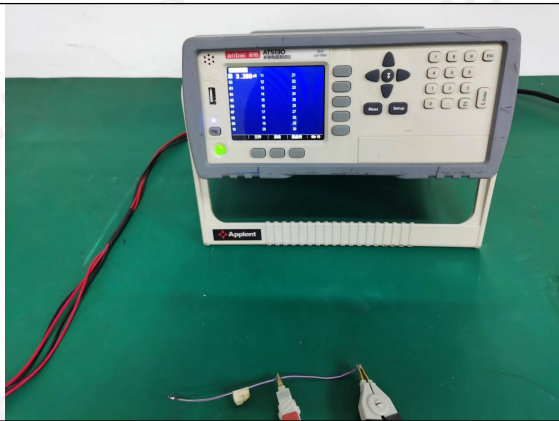
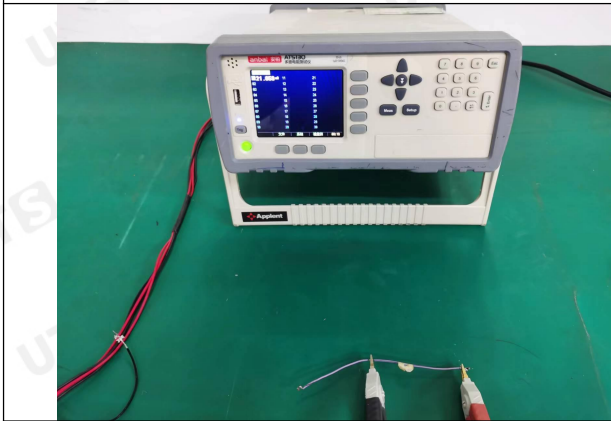
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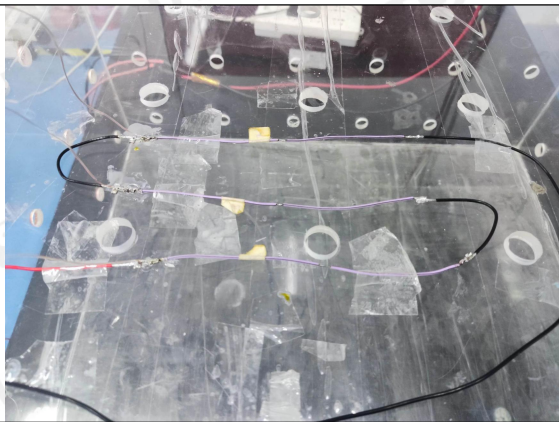


温度循环曲线;The curve of temperature cycle

B15.2 监控电阻曲线;
15.2 The Curve of contact resistance



接触电阻(测试后);Contact resistance after test



降额(测试后);Derating after test

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	/
测试后外观;Sample appearance after test	/

.....报告结束/End of Report.....

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Test results in this report are only used for scientific research, teaching and internal quality control.