

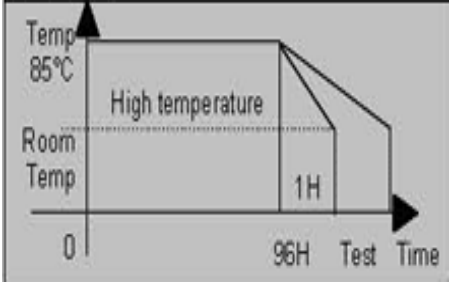
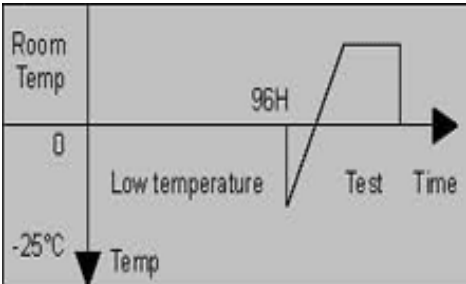
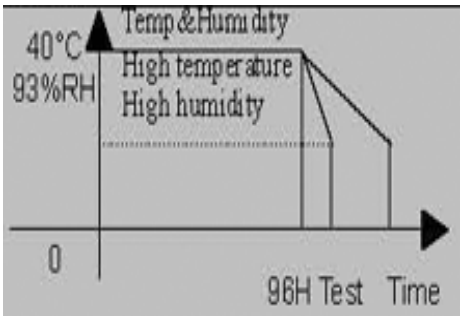
Shenzhen Highstartech Co.,Ltd

RELIABILITY AND TEST CONDITIONS

ITEM 项目	PERFORMANCE 标准	TEST CONDITION 测试条件
Flexture strength 弯折强度	The terminal electrode and chip body must not be damaged by the forces applied 端电极在右列测试条件下，不得与产品本体分离	Solder a chip on a test substrate bend the substrate by 2mm(0.079in) and return
Heat resistance (High temperature load) 高温放置测试	Appearance: on damage. Impedance: within $\pm 20\%$ of initial value. Inductance: within $\pm 20\%$ of initial value. Q: within $\pm 30\%$ of initial value 外观：不能破损 阻抗值：变异性初始值20%以内。 电感值：变异性在初始值15%以内。 Q 值：变异性在初始值30%以内。	Applied current: max rated current Temperature: $85 \pm 5^\circ\text{C}$ Test time: 1008 ± 12 hrs Measure at room temperature after Placing for 24hrs 须加电流：最大额定电流 温度： $85 \pm 5^\circ\text{C}$ 放置时间： 1008 ± 12 hrs 测试结束后于室内放置24hrs,始可测试电气特性
Humidity resistance 高湿放置测试	Appearance: on damage. Impedance: within $\pm 20\%$ of initial value. Inductance: within $\pm 20\%$ of initial value. Q: within $\pm 30\%$ of initial value 外观：不能破损 阻抗值：变异性初始值20%以内。 电感值：变异性在初始值15%以内。 Q 值：变异性在初始值30%以内。	Humidity: 90-95% RH Temperature: $40 \pm 5^\circ\text{C}$ Applied current: max rated current Test time: 1008 ± 12 hrs Measure at room temperature after Placing for 24hrs 湿度：90-95% 温度： $40 \pm 5^\circ\text{C}$ 须加电流：最大额定电流 放置时间： 1008 ± 12 hrs 测试结束后于室内放置24hrs,始可测试电气特性
热冲击试验 (温度周期)	Appearance: on damage. Impedance: within $\pm 20\%$ of initial value. Inductance: within $\pm 20\%$ of initial value. Q: within $\pm 30\%$ of initial value 外观：不能破损 阻抗值：变异性初始值20%以内。 电感值：变异性在初始值15%以内。 Q 值：变异性在初始值30%以内。	Temperature: $-40 \pm 5^\circ\text{C}$ to $85 \pm 5^\circ\text{C}$ and keep 30 times. Cycle: 5 cycles Measure at room temperature after Placing for 24hrs 温度： $-40 \pm 5^\circ\text{C}$ to $85 \pm 5^\circ\text{C}$ 须各放置30分钟达5周期 测试结束后于室内放置24hrs,始可测试电气特性
Low temperature storage test 低温放置测试	Appearance: on damage. Impedance: within $\pm 20\%$ of initial value. Inductance: within $\pm 20\%$ of initial value. Q: within $\pm 30\%$ of initial value 外观：不能破损 阻抗值：变异性初始值20%以内。 电感值：变异性在初始值15%以内。 Q 值：变异性在初始值30%以内。	Temperature: $-40 \pm 5^\circ\text{C}$ Test time: 1008 ± 12 hrs Measure at room temperature after Placing for 24hrs 温度： $-40 \pm 5^\circ\text{C}$ 放置时间： 1008 ± 12 hrs 测试结束后于室内放置24hrs,始可测试电气特性

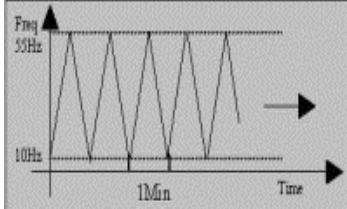
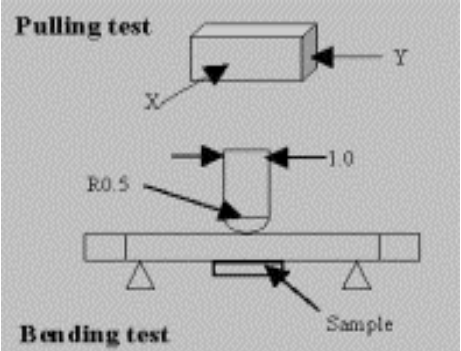
Shenzhen Highstartech Co.,Ltd

RELIABILITY TEST CONDITIONS

Item(項目)	Required Characteristics (要求)	Test Method/Condition (測試方法)
<p>High temperature Storage test Reference documents: MIL-STD-202G Method 108A 高溫儲存試驗</p>	<p>1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化不超過10% 3.品質因數變化不超過30% 4.直流電阻變化不超過10%</p>	<p>Temperature: $85 \pm 2^\circ\text{C}$ Time : 96 ± 2 hours Tested not less than 1 hour, nor more than 2 hours at room temperature. 溫度: $85 \pm 2^\circ\text{C}$,時間:$96 \pm 2\text{H}$,小時樣品在室溫下放置1小時,不超2小時時間必須測試。</p> 
<p>Low temperature Storage test Referencedocuments: IEC 68-2-1A 6.1 6.2 低溫儲存試驗</p>	<p>1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化不超過10% 3.品質因數變化不超過30% 4.直流電阻變化不超過10%</p>	<p>Temperature: $-40 \pm 3^\circ\text{C}$ Time : 500 ± 12 hours Tested not less than 1 hour, nor more than 2 hours at room temperature. 溫度: $-40 \pm 3^\circ\text{C}$,時間:500 ± 12,小時樣品在室溫下放置1小時,不超2小時時間必須測試。</p> 
<p>Humidity test Reference documents: MIL-STD-202G Method 103B 濕度測試</p>	<p>1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化不超過10% 3.品質因數變化不超過30% 4.直流電阻變化不超過10%</p>	<p>1.Dry oven at a temperature of $40^\circ \pm 5^\circ\text{C}$ for 24 hours. 2. Measurements At the end of this period 3. Exposure:Temperature: $40 \pm 2^\circ\text{C}$, Humidity: $93 \pm 3\% \text{RH}$ Time : 96 ± 2 hours 4. Tested while the specimens are still in the chamber 5. Tested not less than 1 hour, nor more than 2 hours at room temperature. 1.樣品必須先在$40^\circ \pm 5^\circ$條件下乾燥24小時 2.乾燥後測試 3.暴露: 溫度:$40 \pm 2^\circ\text{C}$, 濕度: $93 \pm 3\% \text{RH}$ 時間 :96 ± 2 hours 4.暴露結束後,在試驗箱中進行測試。 5.樣品在室溫下放置1小時,不超2小時時間必須測試。</p> 

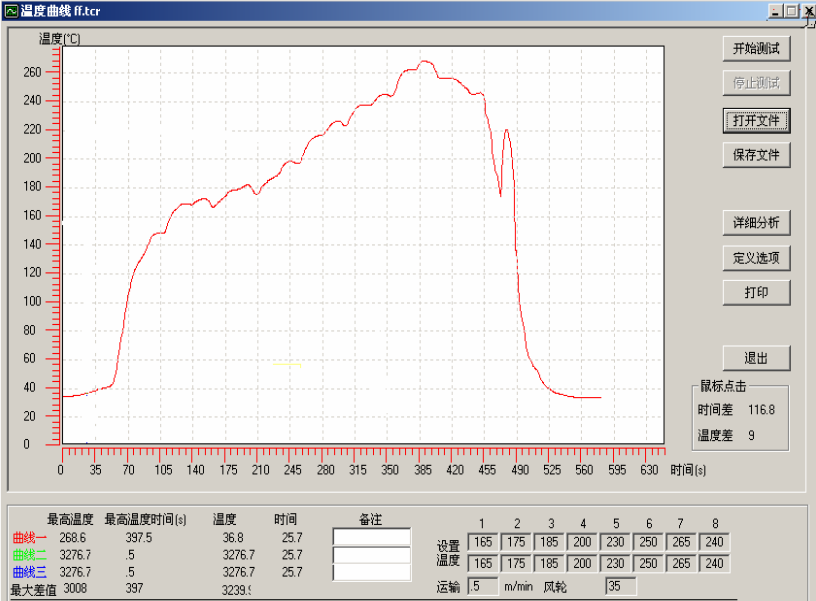
Shenzhen Highstartech Co.,Ltd

RELIABILITY TEST CONDITIONS

Item(項目)	Required Characteristics (要求)	Test Method/Condition (測試方法)
<p>Solderability test Reference documents: MIL-STD-202G Method 208H IPC J-STD-002B 可焊性測試</p>	<p>Terminals area must have 95% min. Solder coverage 端子必須有95%以上著錫</p>	<p>Dip pads in flux then dip in solder pot at 245±5°C for 5 second. Flux: rosin flux 端子浸入助焊劑，然後浸入245±5°C 錫爐中5秒 焊料：Green Products 助焊劑: 松香助焊劑</p>
<p>Vibration test Reference documents: MIL-STD-202G Method 201A 振動測試</p>	<p>1.No case deformation or change in appearance. 2.ΔL/L ≤ 10% 3.ΔQ/Q ≤ 30% 4.ΔDCR/DCR ≤ 10% 無明顯的外觀缺陷 感值變化不超過10% 品質因數變化不超過30% 直流電阻變化不超過10%</p>	<p>Apply frequency 10~55~10Hz. 1.5mm amplitude in each of perpendicular direction for 2 hours.(total 6 hours) 用10~55~10Hz 振動頻率1.5mm振幅沿X,Y,Z方向各振動2小時.(共4小時)</p> 
<p>Drop test Reference documents: MIL-STD-202G Method 203C 落下試驗</p>	<p>1.No case deformation or change in appearance. 2.ΔL/L ≤ 10% 3.ΔQ/Q ≤ 30% 4.ΔDCR/DCR ≤ 10% 1.無明顯的外觀缺陷 2.感值變化小於10% 3.品質因數變化小於30% 4.直流電阻變化小於10%</p>	<p>Packaged & Drop down from 1m with 981m/s²(100G) a titude ln 1 angle 1 ridges & 2 surfaces orientations. 將產品包裝後從1米高度自然落下至試驗板上,將按照一角三稜六面的順序執行。一角為包裝底部與包裝的折合處相交的點.三稜為一點相交的三條稜.六面為外包裝的六面.共計10次。</p>
<p>Terminal strength push test Reference documents: JIS C 5321:1997 端子強度試驗</p>	<p>Pulling test: DEFINE: A: sectional area of terminal A ≤ 8 (Sq M) force ≥ 5N time:30sec 8(Sq M) <A ≤ 20(Sq M) force ≥ 10N time : 10sec 20(Sq M) <A force ≥ 20 N time: 10sec Bending test: Soldering the products on PCB,after the pulling testand bending test ,terminal should not pull off 定義: A: 焊接端子截面積 A ≤ 8(Sq M) 推力 ≥ 5牛頓時間: 30秒 8(Sq M) <A ≤ 20(Sq M) 推力 ≥ 10牛頓 時間: 10秒 彎折測試: 將產品焊於PCB上,分別經過推力測試和彎折測試後,端子不會發生松脫</p>	<p>Bend the testing PCB at middle point, the deflection shall be 2mm 將PCB對中彎折, 到達撓度2mm</p> 

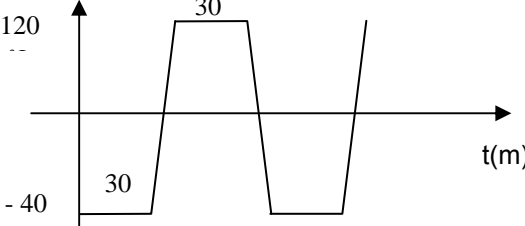
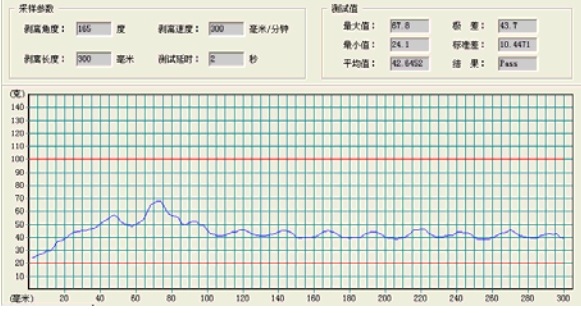
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RELIABILITY TEST CONDITIONS

Item(项目)	Required Characteristics (要求)	Test Method/Condition (测试方法)																									
Heat endurance of reflowSolderingReference documents:IPC-J-STD-020B 回流焊测试	1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化小於(小於等於)10% 3.品質因數變化小於(小於等於)30% 4.直流電阻變化小於(小於等於)10%	Refer to the next page reflow curve Gothrough 3 times The peak temperature : $260 \pm 5^\circ\text{C}$ 參照下图回流焊曲線過三次 峰值溫度為: $260 \pm 5^\circ\text{C}$																									
surface temperature of coil  <table border="1" data-bbox="384 1249 1203 1339"> <thead> <tr> <th>最高溫度</th> <th>最高溫度時間(s)</th> <th>溫度</th> <th>時間</th> <th>備註</th> </tr> </thead> <tbody> <tr> <td>曲線一 268.6</td> <td>397.5</td> <td>36.8</td> <td>25.7</td> <td></td> </tr> <tr> <td>曲線二 3276.7</td> <td>.5</td> <td>3276.7</td> <td>25.7</td> <td></td> </tr> <tr> <td>曲線三 3276.7</td> <td>.5</td> <td>3276.7</td> <td>25.7</td> <td></td> </tr> <tr> <td>最大差值 3008</td> <td>397</td> <td>3239.1</td> <td></td> <td></td> </tr> </tbody> </table>			最高溫度	最高溫度時間(s)	溫度	時間	備註	曲線一 268.6	397.5	36.8	25.7		曲線二 3276.7	.5	3276.7	25.7		曲線三 3276.7	.5	3276.7	25.7		最大差值 3008	397	3239.1		
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Electronic characteristic test of major products 主要产品电气特性测试。	Refer to catalogue of specificProducts 参照具体的产品目录页	Refer to catalogue of specificProducts 参照具体的产品目录页																									
Overload test reference documents: JIS C5311-6.13 过负荷试验	1.During the test no smoke,no peculiar,smell,no fire 2.the characteristic is normal after test 1.试验过程中无冒烟,异味,着火等。 2.试验后产品特性正常。	Apply twice as rated current for 5 minutes. 通过两倍额定电流5分钟。																									
Voltage resistance testReferncedocuments: MIL-STD-202G Method301 绝缘耐压测试。	1. During the test no breakdown. 2. the characteristic(characteristics) is normal after test. 1. 试验过程中无击穿。 2. 试验后产品特性正常。	For parts with two coils DC1000V,current:1mA,time:1Min. 只针对SMT二绕组以上电压DC1000V,电流1mA,时间1分钟。																									

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RELIABILITY TEST CONDITIONS

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warm and cool impact test 冷热冲击试验	1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化小於10% 3.品質因數變化小於30% 4.直流電阻變化小於10%	change the temperature from 120 °C to -20 °C . It is five minutes .it is 30 minutes of high temperature . it is 30minutes of low temperature . one hour is a circle . it is total 20circles . 温度120°C与-20°C转换,转换时间5M.高温30分钟,低温30分钟.一个小时一个循环, 20个循环。 																																																	
test the steam if it is ageing 蒸气老化试验	1.No case deformation or change in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta Q/Q \leq 30\%$ 4. $\Delta DCR/DCR \leq 10\%$ 1.無明顯的外觀缺陷 2.感值變化小於10% 3.品質因數變化小於30% 4.直流電阻變化小於10%	80 °C ,95RH, 4小时。 4 hours																																																	
test viscous force of carrier by the picture on the right 推拉力测试载带粘力测试 (要求如图)	拉力范围在20~100g范围. pull (20—100g)																																																		
ROHS harmful material test	符合ROHS要求,客户有要求时按客户要求 执行:1. Pb \leq 1000ppm 2. Cd \leq 100ppm 3. Hg \leq 1000ppm 4. Cr+6 \leq 1000ppm 5. PBB \leq 1000ppm 6. PBDE \leq 1000ppm	按IEC62321方法中化学方法测试. (Use chemical methods of IEC62321) <table border="1" data-bbox="885 1691 1468 2038"> <thead> <tr> <th>项目</th> <th>铅</th> <th>镉</th> <th>汞</th> <th>六价铬</th> <th>PBBs</th> <th>PBDEs</th> </tr> </thead> <tbody> <tr> <td>玻璃&陶瓷</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>金属</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>墨水&颜料 &染料</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>塑胶</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>包材</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>其它材料</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> </tbody> </table>	项目	铅	镉	汞	六价铬	PBBs	PBDEs	玻璃&陶瓷	✓	✓	✓	✓			金属	✓	✓	✓	✓			墨水&颜料 &染料	✓	✓	✓	✓			塑胶	✓	✓	✓	✓	✓	✓	包材	✓	✓	✓	✓	✓	✓	其它材料	✓	✓	✓	✓	✓	✓
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包材	✓	✓	✓	✓	✓	✓																																													
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