

Product/Process Change Notification

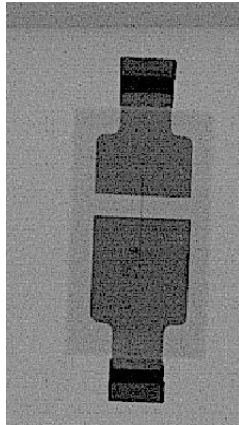
| | | |
|--|------------------------|------------|
| PCN# | Effective Date | Issue Date |
| 2015-04-01C-01 | 2015/10/01 | 2015/04/01 |
| PCN Classification | Product Category | |
| Major | Small Signal Switching | |
| Subject | | |
| Changing lead frame | | |
| Affected Product(s) | | |
| 1N4148W | | |
| Description of Change(s) | | |
| In order to enhance the effectiveness of the product, to achieve the better electrical conductivity of the copper lead frame | | |
| Content of Change(s) | | |
| Changing lead frame from Iron-nickel to copper | | |
| Impact(s) | | |
| N/A | | |
| Attachment(s) | | |
| Reliability Teat Report. SGS Report. MSDS Report. | | |

| Approval | | |
|----------------------|--|-----------------------------|
| Issue by | Alice Lai | e-mail: alice@secosgmbh.com |
| Development Engineer |  | Alice Lai |
| QA Manager |  | Peter Yang |
| General Manger |  | Mathew Liu |

For more information, please contact us directly or visit our website <http://www.secosgmbh.com>

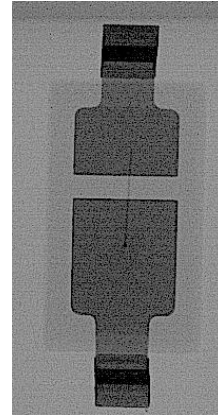
Exterior comparison Chart

Original (Iron-Nickel)



Top View

New (Copper)



Top View

Material comparison Chart

Original (Iron-Nickel)

| Material Composition | Iron-Nickel |
|----------------------|-------------|
| Cu | |
| Fe | Balance |
| Si | ≤0.30 |
| Mn | ≤0.8 |
| Ni | 40.5~42.5 |
| S | ≤0.025 |
| P | ≤0.025 |
| Zn | |
| Al | ≤0.1 |
| Cr | ≤0.1 |
| Pb | |
| C | ≤0.05 |

New (Copper)

| Material Composition | Copper |
|----------------------|-----------|
| Cu | Balance |
| Fe | |
| Si | |
| Mn | |
| Ni | 0.7~0.9 |
| S | |
| P | |
| Zn | 1.0~2.0 |
| Al | 0.02-0.09 |
| Cr | |
| Pb | |
| C | |



Reliability Testing Summary Report

Date: 2015/03/31

Document No.: SI15 -03- 11

| Test Item | P/N | Test Condition | (LTPD) | Sample Numbers | Allow Fall Numbers | Fall Numbers | Result |
|--|---------|--|--------|----------------|--------------------|--------------|--------|
| HTRB High Temp Reverse Bias | 1N4148W | 150 ± 5°C, 80% VR, T = 1000hrs | | 77 | 0 | 0 | ACC |
| HTSL High Temperature Storage Life | 1N4148W | 150°C, T = 1000 hrs | | 77 | 0 | 0 | ACC |
| PCT Pressure Cooker Test | 1N4148W | 121°C, 29.7PSIG, 168 hrs | | 77 | 0 | 0 | ACC |
| TCT Temperature Cycle Test | 1N4148W | -55°C/30min, 150°C/30min, For 1000 Cycle | | 77 | 0 | 0 | ACC |
| THT High Temperature High Humidity Test | 1N4148W | 85 ± 2°C, RH=85±5%, 1000 hrs | | 77 | 0 | 0 | ACC |
| H3TRB High Temper High Humidity Reverse Bies Test | 1N4148W | 85 ± 2°C, RH=85±5%, 1000 hrs | | 77 | 0 | 0 | ACC |
| Solderability | 1N4148W | 245 ± 5°C, 5Sec the inspected area of each lead must have 95% solder coverage minimum | | 10 | 0 | 0 | ACC |
| | | | | | | | |

Judgment:

qualified unqualified

Testing Start Date: 2015.02.02 Testing End Date: 2015.03.31

Tester: King Huang Approval: Peter Yang



Electrical Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 25°C

Test Date: 2015.02.02

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

| No | VF (mV) | VB (V) | IR (uA) |
|----|---------|--------|---------|
| 1 | 944mV | 155.8V | 0.010uA |
| 2 | 938mV | 145.3V | 0.010uA |
| 3 | 935mV | 139.7V | 0.014uA |
| 4 | 937mV | 149.0V | 0.012uA |
| 5 | 933mV | 143.7V | 0.014uA |
| 6 | 935mV | 143.9V | 0.011uA |
| 7 | 935mV | 148.0V | 0.017uA |
| 8 | 935mV | 147.1V | 0.015uA |
| 9 | 946mV | 159.7V | 0.012uA |
| 10 | 941mV | 156.3V | 0.014uA |
| 11 | 936mV | 150.2V | 0.014uA |
| 12 | 932mV | 142.2V | 0.016uA |
| 13 | 936mV | 148.2V | 0.014uA |
| 14 | 935mV | 150.2V | 0.010uA |
| 15 | 938mV | 152.1V | 0.014uA |
| 16 | 931mV | 144.4V | 0.010uA |
| 17 | 945mV | 158.8V | 0.013uA |
| 18 | 944mV | 157.8V | 0.010uA |
| 19 | 932mV | 141.7V | 0.013uA |
| 20 | 934mV | 147.7V | 0.012uA |
| 21 | 936mV | 148.0V | 0.012uA |
| 22 | 943mV | 155.3V | 0.008uA |
| 23 | 932mV | 145.1V | 0.012uA |
| 24 | 935mV | 146.5V | 0.013uA |
| 25 | 936mV | 150.5V | 0.014uA |
| 26 | 945mV | 158.3V | 0.012uA |
| 27 | 938mV | 150.6V | 0.009uA |
| 28 | 947mV | 158.4V | 0.012uA |
| 29 | 946mV | 160.5V | 0.012uA |
| 30 | 945mV | 155.5V | 0.014uA |
| 31 | 946mV | 161.0V | 0.010uA |



Electrical Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 25°C

Test Date: 2015.02.02

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

| No | VF (mV) | VB (V) | IR (uA) |
|----|---------|--------|---------|
| 32 | 934mV | 142.6V | 0.010uA |
| 33 | 937mV | 150.8V | 0.015uA |
| 34 | 945mV | 157.2V | 0.012uA |
| 35 | 933mV | 143.0V | 0.013uA |
| 36 | 935mV | 150.1V | 0.014uA |
| 37 | 945mV | 155.8V | 0.015uA |
| 38 | 943mV | 150.3V | 0.015uA |
| 39 | 933mV | 143.0V | 0.016uA |
| 40 | 938mV | 152.2V | 0.010uA |
| 41 | 943mV | 155.8V | 0.010uA |
| 42 | 938mV | 150.9V | 0.010uA |
| 43 | 945mV | 156.0V | 0.015uA |
| 44 | 944mV | 150.1V | 0.015uA |
| 45 | 935mV | 146.5V | 0.015uA |
| 46 | 934mV | 143.3V | 0.011uA |
| 47 | 936mV | 148.3V | 0.013uA |
| 48 | 937mV | 151.2V | 0.016uA |
| 49 | 945mV | 153.3V | 0.015uA |
| 50 | 934mV | 142.2V | 0.014uA |
| 51 | 945mV | 157.2V | 0.016uA |
| 52 | 939mV | 144.5V | 0.010uA |
| 53 | 947mV | 156.9V | 0.016uA |
| 54 | 933mV | 142.3V | 0.011uA |
| 55 | 944mV | 152.8V | 0.014uA |
| 56 | 935mV | 147.9V | 0.014uA |
| 57 | 943mV | 149.0V | 0.015uA |
| 58 | 944mV | 159.0V | 0.015uA |
| 59 | 944mV | 154.0V | 0.012uA |
| 60 | 934mV | 144.0V | 0.013uA |
| 61 | 936mV | 149.8V | 0.009uA |
| 62 | 945mV | 158.2V | 0.011uA |



Electrical Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 25°C

Test Date: 2015.02.02

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

| No | VF (mV) | VB (V) | IR (uA) |
|----|---------|--------|---------|
| 63 | 933mV | 142.4V | 0.010uA |
| 64 | 946mV | 156.4V | 0.012uA |
| 65 | 937mV | 146.2V | 0.011uA |
| 66 | 937mV | 149.9V | 0.011uA |
| 67 | 937mV | 150.7V | 0.014uA |
| 68 | 937mV | 150.8V | 0.016uA |
| 69 | 945mV | 160.1V | 0.009uA |
| 70 | 932mV | 143.6V | 0.013uA |
| 71 | 936mV | 150.1V | 0.010uA |
| 72 | 948mV | 154.4V | 0.014uA |
| 73 | 944mV | 156.0V | 0.014uA |
| 74 | 945mV | 150.6V | 0.013uA |
| 75 | 946mV | 159.3V | 0.016uA |
| 76 | 936mV | 150.4V | 0.014uA |
| 77 | 936mV | 150.1V | 0.010uA |

Made By: King Huang

Approval: Peter Yang



High Temperature Reverse Bias Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 150 ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2015.02.02 ~ 2015.03.16

Test Standard : JESD22 STANDARD Method-A108

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 1 | 936.8mV | 130.9V | 0.013uA | 945.4mV | 157.1V | 0.010uA |
| 2 | 937.4mV | 150.5V | 0.013uA | 931.7mV | 153.9V | 0.007uA |
| 3 | 934.0mV | 143.1V | 0.013uA | 941.1mV | 148.1V | 0.016uA |
| 4 | 933.8mV | 135.1V | 0.019uA | 947.7mV | 133.2V | 0.010uA |
| 5 | 943.3mV | 151.4V | 0.015uA | 937.0mV | 142.2V | 0.013uA |
| 6 | 930.9mV | 151.2V | 0.018uA | 945.8mV | 147.9V | 0.019uA |
| 7 | 934.8mV | 160.7V | 0.009uA | 937.1mV | 147.4V | 0.012uA |
| 8 | 942.8mV | 147.4V | 0.011uA | 943.4mV | 143.9V | 0.016uA |
| 9 | 940.6mV | 133.9V | 0.015uA | 934.1mV | 152.5V | 0.012uA |
| 10 | 934.7mV | 148.6V | 0.018uA | 943.6mV | 149.7V | 0.013uA |
| 11 | 939.5mV | 149.9V | 0.014uA | 936.1mV | 153.9V | 0.015uA |
| 12 | 934.7mV | 160.5V | 0.015uA | 948.8mV | 151.2V | 0.017uA |
| 13 | 937.4mV | 133.3V | 0.012uA | 936.7mV | 158.4V | 0.007uA |
| 14 | 937.6mV | 152.6V | 0.015uA | 945.5mV | 155.3V | 0.016uA |
| 15 | 937.9mV | 137.3V | 0.019uA | 932.8mV | 135.3V | 0.011uA |
| 16 | 945.6mV | 158.4V | 0.017uA | 940.2mV | 161.4V | 0.018uA |
| 17 | 934.9mV | 161.3V | 0.016uA | 939.1mV | 131.5V | 0.016uA |
| 18 | 936.5mV | 136.1V | 0.012uA | 941.4mV | 133.7V | 0.009uA |
| 19 | 937.2mV | 141.5V | 0.019uA | 932.4mV | 142.4V | 0.016uA |
| 20 | 930.9mV | 145.7V | 0.012uA | 939.4mV | 147.7V | 0.015uA |
| 21 | 932.5mV | 146.5V | 0.008uA | 944.5mV | 152.3V | 0.012uA |
| 22 | 946.8mV | 158.6V | 0.017uA | 944.5mV | 150.0V | 0.014uA |
| 23 | 932.9mV | 149.4V | 0.017uA | 931.5mV | 131.2V | 0.015uA |
| 24 | 932.5mV | 139.1V | 0.012uA | 936.3mV | 135.9V | 0.009uA |
| 25 | 948.8mV | 130.9V | 0.007uA | 938.4mV | 160.1V | 0.012uA |
| 26 | 942.6mV | 155.7V | 0.018uA | 945.8mV | 140.8V | 0.011uA |
| 27 | 939.7mV | 131.0V | 0.011uA | 943.4mV | 136.3V | 0.019uA |
| 28 | 933.6mV | 156.3V | 0.009uA | 938.9mV | 153.6V | 0.015uA |
| 29 | 942.3mV | 157.1V | 0.016uA | 944.5mV | 158.9V | 0.013uA |
| 30 | 933.7mV | 136.1V | 0.011uA | 942.0mV | 138.6V | 0.009uA |



High Temperature Reverse Bias Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 150 ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2015.02.02 ~ 2015.03.16

Test Standard : JESD22 STANDARD Method-A108

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 31 | 947.8mV | 132.9V | 0.007uA | 939.7mV | 144.1V | 0.013uA |
| 32 | 930.7mV | 150.4V | 0.008uA | 931.6mV | 157.5V | 0.014uA |
| 33 | 947.1mV | 153.3V | 0.015uA | 942.1mV | 155.3V | 0.014uA |
| 34 | 932.8mV | 145.8V | 0.014uA | 944.8mV | 130.7V | 0.010uA |
| 35 | 930.7mV | 143.4V | 0.012uA | 935.1mV | 146.6V | 0.015uA |
| 36 | 930.5mV | 148.0V | 0.011uA | 935.2mV | 148.5V | 0.008uA |
| 37 | 938.9mV | 152.8V | 0.012uA | 938.6mV | 146.7V | 0.008uA |
| 38 | 935.9mV | 149.7V | 0.017uA | 936.8mV | 132.4V | 0.011uA |
| 39 | 936.3mV | 152.5V | 0.010uA | 930.9mV | 134.0V | 0.011uA |
| 40 | 941.3mV | 150.1V | 0.009uA | 943.6mV | 152.4V | 0.007uA |
| 41 | 947.3mV | 154.8V | 0.009uA | 933.8mV | 131.0V | 0.011uA |
| 42 | 939.4mV | 134.7V | 0.016uA | 943.5mV | 138.2V | 0.008uA |
| 43 | 944.2mV | 140.1V | 0.018uA | 939.2mV | 138.7V | 0.012uA |
| 44 | 931.1mV | 146.5V | 0.013uA | 940.5mV | 148.1V | 0.012uA |
| 45 | 940.5mV | 153.9V | 0.017uA | 939.1mV | 149.7V | 0.014uA |
| 46 | 948.6mV | 134.5V | 0.011uA | 942.9mV | 159.5V | 0.017uA |
| 47 | 931.3mV | 141.2V | 0.012uA | 939.8mV | 133.4V | 0.014uA |
| 48 | 940.8mV | 153.9V | 0.014uA | 937.4mV | 140.6V | 0.008uA |
| 49 | 943.4mV | 146.2V | 0.013uA | 934.6mV | 148.3V | 0.011uA |
| 50 | 935.0mV | 149.6V | 0.011uA | 944.9mV | 149.5V | 0.016uA |
| 51 | 936.2mV | 134.2V | 0.014uA | 938.4mV | 140.4V | 0.009uA |
| 52 | 941.5mV | 130.9V | 0.013uA | 940.1mV | 160.0V | 0.013uA |
| 53 | 944.1mV | 157.9V | 0.013uA | 938.2mV | 130.1V | 0.016uA |
| 54 | 937.6mV | 137.3V | 0.018uA | 931.7mV | 135.3V | 0.011uA |
| 55 | 931.7mV | 153.2V | 0.015uA | 948.7mV | 154.2V | 0.008uA |
| 56 | 942.6mV | 132.1V | 0.019uA | 948.8mV | 134.5V | 0.018uA |
| 57 | 934.4mV | 155.3V | 0.014uA | 948.5mV | 153.3V | 0.016uA |
| 58 | 944.3mV | 149.4V | 0.011uA | 946.1mV | 141.9V | 0.012uA |
| 59 | 947.8mV | 137.4V | 0.010uA | 943.3mV | 150.5V | 0.013uA |
| 60 | 941.9mV | 146.9V | 0.010uA | 948.6mV | 160.0V | 0.008uA |



High Temperature Reverse Bias Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 150 ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2015.02.02 ~ 2015.03.16

Test Standard : JESD22 STANDARD Method-A108

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 61 | 937.0mV | 137.1V | 0.010uA | 939.0mV | 156.7V | 0.016uA |
| 62 | 948.3mV | 150.4V | 0.009uA | 948.8mV | 151.0V | 0.010uA |
| 63 | 930.4mV | 161.2V | 0.014uA | 943.4mV | 144.7V | 0.014uA |
| 64 | 940.3mV | 156.0V | 0.016uA | 934.3mV | 144.2V | 0.011uA |
| 65 | 939.7mV | 143.3V | 0.011uA | 938.7mV | 156.1V | 0.018uA |
| 66 | 947.4mV | 142.8V | 0.016uA | 942.2mV | 137.6V | 0.013uA |
| 67 | 935.1mV | 141.3V | 0.014uA | 931.3mV | 159.4V | 0.009uA |
| 68 | 931.1mV | 148.9V | 0.009uA | 933.3mV | 140.7V | 0.010uA |
| 69 | 941.3mV | 156.9V | 0.013uA | 948.1mV | 130.4V | 0.010uA |
| 70 | 946.7mV | 148.3V | 0.017uA | 935.5mV | 140.0V | 0.017uA |
| 71 | 945.7mV | 152.2V | 0.012uA | 940.1mV | 156.0V | 0.015uA |
| 72 | 939.9mV | 132.6V | 0.008uA | 932.4mV | 132.9V | 0.014uA |
| 73 | 942.8mV | 154.4V | 0.007uA | 944.6mV | 155.1V | 0.014uA |
| 74 | 943.5mV | 149.0V | 0.010uA | 933.7mV | 143.8V | 0.019uA |
| 75 | 941.5mV | 156.3V | 0.015uA | 941.2mV | 158.1V | 0.008uA |
| 76 | 933.1mV | 141.5V | 0.019uA | 933.7mV | 146.3V | 0.012uA |
| 77 | 945.1mV | 147.4V | 0.013uA | 933.1mV | 155.0V | 0.017uA |

Made By: King Huang

Approval: Peter Yang



High Temperature Storage Life Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 150°C, 1000Hrs

Test Date: 2015.02.02 ~ 2015.03.16

Test Standard : JESD22 STANDARD Method-A103

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 1 | 939.7mV | 155.3V | 0.011uA | 933.8mV | 155.0V | 0.018uA |
| 2 | 930.8mV | 130.0V | 0.012uA | 939.1mV | 151.5V | 0.014uA |
| 3 | 934.4mV | 159.1V | 0.019uA | 936.2mV | 159.4V | 0.013uA |
| 4 | 930.2mV | 140.2V | 0.013uA | 934.3mV | 142.7V | 0.019uA |
| 5 | 946.8mV | 150.4V | 0.016uA | 930.4mV | 138.6V | 0.018uA |
| 6 | 943.1mV | 141.0V | 0.008uA | 948.4mV | 132.3V | 0.009uA |
| 7 | 948.3mV | 141.6V | 0.019uA | 930.0mV | 131.6V | 0.017uA |
| 8 | 942.3mV | 151.2V | 0.007uA | 933.0mV | 147.7V | 0.009uA |
| 9 | 930.3mV | 145.6V | 0.008uA | 940.5mV | 157.8V | 0.011uA |
| 10 | 931.4mV | 138.2V | 0.011uA | 933.4mV | 148.2V | 0.008uA |
| 11 | 939.5mV | 139.6V | 0.008uA | 948.9mV | 154.6V | 0.018uA |
| 12 | 947.1mV | 132.5V | 0.013uA | 941.2mV | 129.8V | 0.014uA |
| 13 | 947.6mV | 138.5V | 0.009uA | 944.0mV | 155.1V | 0.019uA |
| 14 | 945.0mV | 135.3V | 0.016uA | 931.9mV | 137.3V | 0.008uA |
| 15 | 931.5mV | 155.2V | 0.010uA | 940.4mV | 159.9V | 0.010uA |
| 16 | 948.1mV | 152.6V | 0.017uA | 948.7mV | 140.8V | 0.009uA |
| 17 | 940.7mV | 132.6V | 0.008uA | 931.2mV | 132.4V | 0.011uA |
| 18 | 944.7mV | 139.1V | 0.012uA | 943.4mV | 132.2V | 0.011uA |
| 19 | 943.3mV | 154.0V | 0.016uA | 933.8mV | 138.3V | 0.015uA |
| 20 | 942.7mV | 135.8V | 0.013uA | 934.9mV | 131.7V | 0.015uA |
| 21 | 948.3mV | 154.0V | 0.013uA | 938.1mV | 130.7V | 0.019uA |
| 22 | 936.6mV | 137.3V | 0.008uA | 941.2mV | 160.5V | 0.016uA |
| 23 | 933.3mV | 149.7V | 0.014uA | 938.3mV | 146.0V | 0.018uA |
| 24 | 939.9mV | 136.4V | 0.012uA | 942.0mV | 143.8V | 0.013uA |
| 25 | 932.6mV | 136.8V | 0.016uA | 948.3mV | 155.2V | 0.014uA |
| 26 | 941.2mV | 155.9V | 0.016uA | 945.0mV | 134.5V | 0.013uA |
| 27 | 938.8mV | 157.0V | 0.016uA | 946.0mV | 159.9V | 0.014uA |
| 28 | 939.2mV | 136.1V | 0.010uA | 936.3mV | 147.9V | 0.010uA |
| 29 | 933.6mV | 154.6V | 0.016uA | 931.7mV | 138.5V | 0.014uA |
| 30 | 943.9mV | 150.3V | 0.013uA | 930.8mV | 151.8V | 0.008uA |



High Temperature Storage Life Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 150°C, 1000Hrs

Test Date: 2015.02.02 ~ 2015.03.16

Test Standard : JESD22 STANDARD Method-A103

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 31 | 936.6mV | 149.3V | 0.014uA | 933.7mV | 145.7V | 0.011uA |
| 32 | 935.7mV | 138.0V | 0.008uA | 935.8mV | 135.2V | 0.016uA |
| 33 | 933.3mV | 134.9V | 0.016uA | 937.4mV | 154.0V | 0.014uA |
| 34 | 938.2mV | 137.3V | 0.013uA | 932.1mV | 144.9V | 0.016uA |
| 35 | 948.6mV | 131.3V | 0.018uA | 936.2mV | 130.8V | 0.018uA |
| 36 | 932.2mV | 157.5V | 0.014uA | 933.8mV | 157.5V | 0.011uA |
| 37 | 944.4mV | 160.6V | 0.011uA | 933.0mV | 144.0V | 0.016uA |
| 38 | 943.7mV | 135.7V | 0.018uA | 937.5mV | 143.9V | 0.017uA |
| 39 | 947.0mV | 139.5V | 0.013uA | 946.5mV | 140.2V | 0.017uA |
| 40 | 931.8mV | 153.1V | 0.018uA | 942.1mV | 154.1V | 0.008uA |
| 41 | 946.1mV | 139.3V | 0.012uA | 944.1mV | 155.1V | 0.015uA |
| 42 | 935.1mV | 136.3V | 0.009uA | 935.3mV | 130.8V | 0.018uA |
| 43 | 934.2mV | 139.8V | 0.015uA | 931.8mV | 154.6V | 0.012uA |
| 44 | 934.8mV | 159.2V | 0.016uA | 933.9mV | 141.2V | 0.007uA |
| 45 | 947.7mV | 146.6V | 0.011uA | 944.7mV | 140.2V | 0.012uA |
| 46 | 935.6mV | 156.1V | 0.008uA | 937.5mV | 154.6V | 0.012uA |
| 47 | 936.9mV | 138.2V | 0.018uA | 945.5mV | 154.0V | 0.007uA |
| 48 | 940.4mV | 155.1V | 0.012uA | 942.6mV | 148.8V | 0.012uA |
| 49 | 945.8mV | 140.3V | 0.007uA | 941.2mV | 151.6V | 0.016uA |
| 50 | 931.1mV | 145.5V | 0.017uA | 942.2mV | 159.2V | 0.013uA |
| 51 | 933.9mV | 159.5V | 0.016uA | 933.5mV | 150.9V | 0.013uA |
| 52 | 939.6mV | 151.0V | 0.014uA | 933.2mV | 141.9V | 0.014uA |
| 53 | 947.0mV | 151.3V | 0.019uA | 948.1mV | 130.1V | 0.018uA |
| 54 | 938.4mV | 152.3V | 0.016uA | 945.1mV | 145.2V | 0.017uA |
| 55 | 936.9mV | 141.7V | 0.014uA | 938.5mV | 141.6V | 0.018uA |
| 56 | 941.5mV | 135.9V | 0.016uA | 935.1mV | 150.2V | 0.007uA |
| 57 | 935.6mV | 137.8V | 0.017uA | 944.2mV | 148.1V | 0.009uA |
| 58 | 936.2mV | 156.2V | 0.014uA | 931.2mV | 145.8V | 0.011uA |
| 59 | 938.8mV | 133.2V | 0.014uA | 933.8mV | 160.2V | 0.016uA |
| 60 | 935.6mV | 132.3V | 0.012uA | 937.9mV | 145.2V | 0.014uA |



High Temperature Storage Life Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 150°C, 1000Hrs

Test Date: 2015.02.02 ~ 2015.03.16

Test Standard : JESD22 STANDARD Method-A103

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 61 | 946.7mV | 160.4V | 0.010uA | 939.3mV | 155.4V | 0.011uA |
| 62 | 947.6mV | 144.1V | 0.011uA | 935.8mV | 144.6V | 0.011uA |
| 63 | 931.7mV | 161.1V | 0.018uA | 948.0mV | 160.4V | 0.012uA |
| 64 | 946.2mV | 161.0V | 0.011uA | 948.4mV | 139.7V | 0.007uA |
| 65 | 931.4mV | 153.7V | 0.016uA | 933.9mV | 150.3V | 0.013uA |
| 66 | 944.7mV | 156.8V | 0.013uA | 948.9mV | 151.4V | 0.015uA |
| 67 | 938.0mV | 149.8V | 0.014uA | 940.4mV | 133.3V | 0.010uA |
| 68 | 941.8mV | 159.6V | 0.015uA | 936.9mV | 161.6V | 0.018uA |
| 69 | 934.9mV | 152.8V | 0.017uA | 932.3mV | 160.3V | 0.010uA |
| 70 | 942.9mV | 159.3V | 0.010uA | 935.4mV | 149.6V | 0.018uA |
| 71 | 935.8mV | 154.2V | 0.013uA | 943.9mV | 157.7V | 0.015uA |
| 72 | 934.0mV | 134.4V | 0.012uA | 932.9mV | 146.0V | 0.015uA |
| 73 | 934.8mV | 158.0V | 0.012uA | 933.1mV | 141.9V | 0.012uA |
| 74 | 933.6mV | 148.1V | 0.017uA | 931.7mV | 156.0V | 0.011uA |
| 75 | 943.0mV | 149.8V | 0.008uA | 933.5mV | 146.1V | 0.016uA |
| 76 | 932.4mV | 135.8V | 0.013uA | 931.5mV | 159.3V | 0.018uA |
| 77 | 944.2mV | 157.4V | 0.012uA | 947.7mV | 140.5V | 0.011uA |

Made By: King Huang

Approval: Peter Yang



SeCoS Corporation

Pressure Cooker Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 121°C, 100%RH, 29.7PSIG, 168Hrs

Test Date: 2015.02.02 ~ 2015.02.10

Test Standard : JESD22 STANDARD Method-A102

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 1 | 933.9mV | 150.5V | 0.018uA | 937.1mV | 161.2V | 0.010uA |
| 2 | 942.6mV | 146.4V | 0.012uA | 948.1mV | 145.2V | 0.008uA |
| 3 | 943.2mV | 138.2V | 0.012uA | 947.8mV | 138.0V | 0.011uA |
| 4 | 946.8mV | 160.3V | 0.018uA | 934.1mV | 134.7V | 0.015uA |
| 5 | 948.1mV | 142.9V | 0.013uA | 947.2mV | 135.8V | 0.009uA |
| 6 | 946.3mV | 154.6V | 0.017uA | 934.5mV | 158.5V | 0.010uA |
| 7 | 939.8mV | 137.8V | 0.015uA | 939.4mV | 155.3V | 0.014uA |
| 8 | 944.8mV | 158.6V | 0.010uA | 945.6mV | 134.4V | 0.017uA |
| 9 | 934.7mV | 131.0V | 0.016uA | 943.7mV | 159.6V | 0.017uA |
| 10 | 939.4mV | 135.7V | 0.014uA | 947.6mV | 157.7V | 0.015uA |
| 11 | 940.8mV | 132.6V | 0.017uA | 934.3mV | 132.3V | 0.017uA |
| 12 | 931.7mV | 136.3V | 0.010uA | 939.4mV | 156.7V | 0.015uA |
| 13 | 944.1mV | 151.8V | 0.013uA | 940.6mV | 151.6V | 0.015uA |
| 14 | 948.0mV | 138.8V | 0.014uA | 946.1mV | 158.3V | 0.009uA |
| 15 | 940.3mV | 159.1V | 0.010uA | 933.3mV | 140.7V | 0.015uA |
| 16 | 939.0mV | 139.3V | 0.013uA | 930.7mV | 137.0V | 0.013uA |
| 17 | 942.8mV | 141.3V | 0.011uA | 945.9mV | 131.7V | 0.012uA |
| 18 | 931.0mV | 137.4V | 0.017uA | 943.6mV | 158.9V | 0.017uA |
| 19 | 933.6mV | 145.4V | 0.008uA | 936.6mV | 144.7V | 0.010uA |
| 20 | 938.1mV | 143.5V | 0.014uA | 945.3mV | 134.4V | 0.012uA |
| 21 | 938.1mV | 143.8V | 0.015uA | 944.4mV | 160.1V | 0.012uA |
| 22 | 931.5mV | 139.1V | 0.016uA | 938.5mV | 130.3V | 0.015uA |
| 23 | 947.4mV | 160.0V | 0.017uA | 930.3mV | 148.3V | 0.014uA |
| 24 | 941.1mV | 150.2V | 0.015uA | 944.8mV | 156.9V | 0.017uA |
| 25 | 943.9mV | 139.7V | 0.018uA | 946.3mV | 156.9V | 0.018uA |
| 26 | 944.6mV | 158.8V | 0.012uA | 945.1mV | 136.0V | 0.014uA |
| 27 | 945.1mV | 137.9V | 0.008uA | 946.8mV | 130.0V | 0.017uA |
| 28 | 948.9mV | 147.0V | 0.013uA | 939.8mV | 154.6V | 0.012uA |
| 29 | 947.2mV | 138.3V | 0.010uA | 945.4mV | 138.4V | 0.008uA |
| 30 | 939.1mV | 139.2V | 0.015uA | 931.4mV | 153.8V | 0.019uA |



SeCoS Corporation

Pressure Cooker Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 121°C, 100%RH, 29.7PSIG, 168Hrs

Test Date: 2015.02.02 ~ 2015.02.10

Test Standard : JESD22 STANDARD Method-A102

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 31 | 931.8mV | 131.7V | 0.009uA | 946.0mV | 130.9V | 0.013uA |
| 32 | 935.3mV | 138.6V | 0.008uA | 936.1mV | 132.0V | 0.015uA |
| 33 | 934.8mV | 148.4V | 0.016uA | 937.1mV | 158.7V | 0.014uA |
| 34 | 942.8mV | 155.3V | 0.007uA | 947.9mV | 131.3V | 0.008uA |
| 35 | 948.4mV | 144.8V | 0.019uA | 942.8mV | 150.2V | 0.017uA |
| 36 | 934.4mV | 155.8V | 0.018uA | 931.6mV | 160.1V | 0.012uA |
| 37 | 931.5mV | 148.9V | 0.014uA | 931.6mV | 155.3V | 0.017uA |
| 38 | 935.6mV | 136.6V | 0.019uA | 946.1mV | 148.8V | 0.009uA |
| 39 | 947.4mV | 130.0V | 0.013uA | 939.6mV | 134.3V | 0.019uA |
| 40 | 947.7mV | 138.4V | 0.008uA | 933.5mV | 142.7V | 0.017uA |
| 41 | 932.5mV | 140.4V | 0.012uA | 933.8mV | 150.9V | 0.012uA |
| 42 | 934.3mV | 138.0V | 0.018uA | 931.7mV | 158.3V | 0.014uA |
| 43 | 945.3mV | 133.7V | 0.008uA | 939.7mV | 131.5V | 0.010uA |
| 44 | 935.2mV | 154.1V | 0.010uA | 937.4mV | 146.6V | 0.009uA |
| 45 | 933.9mV | 157.5V | 0.016uA | 941.3mV | 139.9V | 0.009uA |
| 46 | 930.6mV | 145.2V | 0.014uA | 941.2mV | 134.7V | 0.019uA |
| 47 | 938.7mV | 161.6V | 0.016uA | 936.8mV | 138.8V | 0.009uA |
| 48 | 933.5mV | 159.4V | 0.012uA | 940.6mV | 130.1V | 0.018uA |
| 49 | 932.0mV | 141.4V | 0.012uA | 947.0mV | 145.5V | 0.019uA |
| 50 | 937.6mV | 159.1V | 0.017uA | 945.1mV | 146.3V | 0.008uA |
| 51 | 937.6mV | 152.3V | 0.016uA | 935.8mV | 147.4V | 0.019uA |
| 52 | 936.9mV | 157.4V | 0.014uA | 946.7mV | 151.0V | 0.016uA |
| 53 | 941.1mV | 152.6V | 0.011uA | 939.6mV | 130.8V | 0.008uA |
| 54 | 936.6mV | 148.7V | 0.012uA | 940.3mV | 136.5V | 0.012uA |
| 55 | 930.3mV | 134.5V | 0.011uA | 948.2mV | 132.3V | 0.016uA |
| 56 | 936.4mV | 147.5V | 0.018uA | 948.8mV | 144.8V | 0.017uA |
| 57 | 946.1mV | 139.3V | 0.013uA | 942.4mV | 143.1V | 0.015uA |
| 58 | 948.8mV | 151.7V | 0.008uA | 940.3mV | 153.3V | 0.018uA |
| 59 | 937.2mV | 156.0V | 0.013uA | 947.0mV | 156.1V | 0.015uA |
| 60 | 941.8mV | 153.6V | 0.014uA | 943.0mV | 133.3V | 0.011uA |



SeCoS Corporation

Pressure Cooker Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 121°C, 100%RH, 29.7PSIG, 168Hrs

Test Date: 2015.02.02 ~ 2015.02.10

Test Standard : JESD22 STANDARD Method-A102

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 61 | 932.8mV | 151.4V | 0.013uA | 945.4mV | 130.0V | 0.009uA |
| 62 | 940.5mV | 157.6V | 0.014uA | 931.0mV | 130.4V | 0.008uA |
| 63 | 933.5mV | 160.2V | 0.011uA | 932.0mV | 160.6V | 0.017uA |
| 64 | 947.1mV | 146.4V | 0.019uA | 932.1mV | 151.0V | 0.009uA |
| 65 | 933.8mV | 154.0V | 0.016uA | 944.4mV | 150.6V | 0.018uA |
| 66 | 946.0mV | 147.7V | 0.017uA | 935.2mV | 143.9V | 0.008uA |
| 67 | 932.1mV | 137.7V | 0.011uA | 933.0mV | 142.9V | 0.015uA |
| 68 | 944.1mV | 146.5V | 0.011uA | 943.7mV | 155.6V | 0.013uA |
| 69 | 930.0mV | 158.6V | 0.011uA | 930.5mV | 141.4V | 0.014uA |
| 70 | 940.4mV | 151.2V | 0.012uA | 935.3mV | 156.7V | 0.015uA |
| 71 | 947.8mV | 149.1V | 0.010uA | 932.1mV | 134.4V | 0.014uA |
| 72 | 946.9mV | 156.6V | 0.013uA | 934.8mV | 139.9V | 0.013uA |
| 73 | 932.1mV | 136.9V | 0.019uA | 930.1mV | 141.9V | 0.011uA |
| 74 | 935.4mV | 155.0V | 0.014uA | 933.9mV | 148.2V | 0.008uA |
| 75 | 948.3mV | 141.0V | 0.019uA | 935.4mV | 152.7V | 0.013uA |
| 76 | 936.2mV | 148.0V | 0.009uA | 948.6mV | 149.7V | 0.009uA |
| 77 | 937.6mV | 138.1V | 0.011uA | 943.6mV | 159.2V | 0.010uA |

Made By: King Huang

Approval: Peter Yang



SeCoS Corporation

Temperature Cycle Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: -55°C/30min, 150°C/30min, for1000 Cycle

Test Date: 2015.02.02 ~ 2015.03.30

Test Standard : JESD22 STANDARD Method-A104

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 1 | 944.3mV | 154.5V | 0.011uA | 930.5mV | 141.5V | 0.016uA |
| 2 | 938.6mV | 156.5V | 0.010uA | 946.3mV | 132.5V | 0.017uA |
| 3 | 935.2mV | 143.1V | 0.007uA | 935.9mV | 130.2V | 0.010uA |
| 4 | 932.8mV | 132.7V | 0.008uA | 943.8mV | 161.4V | 0.019uA |
| 5 | 933.3mV | 137.4V | 0.014uA | 945.2mV | 143.9V | 0.015uA |
| 6 | 934.1mV | 131.1V | 0.014uA | 943.7mV | 133.1V | 0.015uA |
| 7 | 931.1mV | 142.7V | 0.010uA | 933.4mV | 156.3V | 0.016uA |
| 8 | 942.8mV | 143.7V | 0.015uA | 934.4mV | 149.2V | 0.012uA |
| 9 | 941.8mV | 150.5V | 0.014uA | 944.6mV | 154.6V | 0.011uA |
| 10 | 937.0mV | 134.5V | 0.015uA | 940.5mV | 152.4V | 0.008uA |
| 11 | 939.3mV | 131.1V | 0.015uA | 937.9mV | 147.5V | 0.008uA |
| 12 | 946.1mV | 146.3V | 0.008uA | 944.7mV | 140.1V | 0.013uA |
| 13 | 931.3mV | 153.7V | 0.015uA | 940.7mV | 146.3V | 0.013uA |
| 14 | 941.5mV | 154.9V | 0.010uA | 945.0mV | 139.5V | 0.016uA |
| 15 | 943.1mV | 139.2V | 0.009uA | 943.2mV | 155.2V | 0.014uA |
| 16 | 930.8mV | 140.6V | 0.009uA | 945.4mV | 154.9V | 0.013uA |
| 17 | 934.6mV | 150.6V | 0.013uA | 932.9mV | 136.9V | 0.009uA |
| 18 | 940.7mV | 156.6V | 0.010uA | 945.0mV | 152.2V | 0.014uA |
| 19 | 942.3mV | 142.7V | 0.014uA | 936.2mV | 153.2V | 0.012uA |
| 20 | 930.2mV | 151.4V | 0.009uA | 930.8mV | 154.6V | 0.012uA |
| 21 | 935.9mV | 131.8V | 0.016uA | 931.4mV | 141.5V | 0.008uA |
| 22 | 934.4mV | 130.1V | 0.015uA | 944.1mV | 138.7V | 0.010uA |
| 23 | 938.0mV | 148.6V | 0.014uA | 939.3mV | 140.6V | 0.008uA |
| 24 | 942.0mV | 145.9V | 0.010uA | 934.4mV | 132.9V | 0.007uA |
| 25 | 945.4mV | 138.1V | 0.016uA | 931.7mV | 140.4V | 0.013uA |
| 26 | 945.7mV | 145.9V | 0.011uA | 942.6mV | 133.4V | 0.012uA |
| 27 | 935.7mV | 147.5V | 0.018uA | 948.5mV | 139.6V | 0.012uA |
| 28 | 945.0mV | 159.7V | 0.012uA | 932.4mV | 130.8V | 0.014uA |
| 29 | 933.9mV | 140.8V | 0.013uA | 936.0mV | 139.1V | 0.015uA |
| 30 | 947.8mV | 147.5V | 0.018uA | 944.9mV | 140.2V | 0.009uA |



SeCoS Corporation

Temperature Cycle Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: -55°C/30min, 150°C/30min, for1000 Cycle

Test Date: 2015.02.02 ~ 2015.03.30

Test Standard : JESD22 STANDARD Method-A104

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 31 | 940.6mV | 154.5V | 0.017uA | 945.4mV | 139.7V | 0.008uA |
| 32 | 939.1mV | 146.8V | 0.010uA | 945.7mV | 134.9V | 0.018uA |
| 33 | 935.7mV | 134.3V | 0.015uA | 940.3mV | 150.7V | 0.012uA |
| 34 | 946.1mV | 133.4V | 0.019uA | 943.5mV | 159.1V | 0.012uA |
| 35 | 931.2mV | 144.5V | 0.009uA | 931.5mV | 146.9V | 0.011uA |
| 36 | 933.7mV | 133.8V | 0.016uA | 933.0mV | 150.2V | 0.018uA |
| 37 | 939.3mV | 151.5V | 0.009uA | 937.5mV | 151.8V | 0.017uA |
| 38 | 945.1mV | 135.7V | 0.009uA | 936.2mV | 140.2V | 0.018uA |
| 39 | 942.5mV | 150.8V | 0.012uA | 936.8mV | 134.2V | 0.016uA |
| 40 | 945.4mV | 141.1V | 0.018uA | 930.9mV | 159.8V | 0.013uA |
| 41 | 941.9mV | 146.2V | 0.018uA | 939.7mV | 161.3V | 0.008uA |
| 42 | 938.3mV | 158.6V | 0.008uA | 930.4mV | 137.9V | 0.018uA |
| 43 | 948.0mV | 145.5V | 0.016uA | 944.4mV | 136.3V | 0.016uA |
| 44 | 932.3mV | 137.8V | 0.012uA | 931.6mV | 143.2V | 0.017uA |
| 45 | 935.0mV | 145.3V | 0.012uA | 939.5mV | 149.3V | 0.008uA |
| 46 | 939.1mV | 132.5V | 0.012uA | 947.0mV | 152.7V | 0.011uA |
| 47 | 939.0mV | 149.4V | 0.015uA | 943.0mV | 140.0V | 0.017uA |
| 48 | 944.6mV | 159.0V | 0.018uA | 943.4mV | 148.0V | 0.007uA |
| 49 | 942.7mV | 148.8V | 0.011uA | 936.5mV | 135.7V | 0.012uA |
| 50 | 948.0mV | 160.5V | 0.014uA | 936.8mV | 148.3V | 0.011uA |
| 51 | 936.1mV | 160.7V | 0.012uA | 937.1mV | 131.1V | 0.014uA |
| 52 | 937.3mV | 141.2V | 0.015uA | 940.9mV | 151.6V | 0.009uA |
| 53 | 943.1mV | 157.6V | 0.015uA | 948.3mV | 131.7V | 0.019uA |
| 54 | 941.0mV | 151.8V | 0.009uA | 947.7mV | 148.7V | 0.011uA |
| 55 | 942.1mV | 142.7V | 0.011uA | 930.3mV | 144.5V | 0.008uA |
| 56 | 948.6mV | 133.4V | 0.014uA | 944.5mV | 155.5V | 0.018uA |
| 57 | 932.0mV | 130.4V | 0.008uA | 938.8mV | 154.6V | 0.010uA |
| 58 | 946.6mV | 133.5V | 0.010uA | 933.9mV | 150.2V | 0.014uA |
| 59 | 941.8mV | 157.5V | 0.007uA | 939.1mV | 146.4V | 0.016uA |
| 60 | 948.2mV | 137.1V | 0.010uA | 943.9mV | 156.9V | 0.015uA |



SeCoS Corporation

Temperature Cycle Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: -55°C/30min, 150°C/30min, for1000 Cycle

Test Date: 2015.02.02 ~ 2015.03.30

Test Standard : JESD22 STANDARD Method-A104

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 61 | 940.5mV | 134.0V | 0.019uA | 934.7mV | 141.9V | 0.009uA |
| 62 | 932.8mV | 139.5V | 0.011uA | 941.9mV | 135.0V | 0.014uA |
| 63 | 946.0mV | 155.8V | 0.013uA | 937.5mV | 144.3V | 0.014uA |
| 64 | 934.4mV | 155.2V | 0.010uA | 930.1mV | 139.6V | 0.013uA |
| 65 | 941.6mV | 139.1V | 0.008uA | 930.7mV | 159.6V | 0.013uA |
| 66 | 939.6mV | 154.7V | 0.016uA | 935.4mV | 150.4V | 0.011uA |
| 67 | 936.0mV | 138.2V | 0.018uA | 930.5mV | 130.5V | 0.008uA |
| 68 | 941.9mV | 136.9V | 0.012uA | 935.8mV | 143.4V | 0.010uA |
| 69 | 937.3mV | 158.7V | 0.018uA | 940.9mV | 155.9V | 0.014uA |
| 70 | 947.1mV | 140.9V | 0.014uA | 940.9mV | 156.2V | 0.010uA |
| 71 | 932.5mV | 148.0V | 0.010uA | 948.9mV | 136.2V | 0.016uA |
| 72 | 931.5mV | 158.6V | 0.019uA | 939.5mV | 153.5V | 0.017uA |
| 73 | 935.5mV | 130.8V | 0.017uA | 932.3mV | 147.8V | 0.008uA |
| 74 | 936.2mV | 152.7V | 0.011uA | 942.8mV | 143.6V | 0.011uA |
| 75 | 934.7mV | 157.5V | 0.012uA | 938.7mV | 133.8V | 0.014uA |
| 76 | 934.9mV | 146.2V | 0.012uA | 930.6mV | 135.7V | 0.009uA |
| 77 | 935.9mV | 144.7V | 0.012uA | 941.0mV | 158.9V | 0.012uA |

Made By: King Huang

Approval: Peter Yang



SeCoS Corporation

High Temperature High Humidity Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 85±2°C, 85±5%RH, 1000Hrs

Test Date: 2015.02.09 ~ 2015.03.23

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 1 | 940.5mV | 150.3V | 0.013uA | 930.2mV | 138.7V | 0.019uA |
| 2 | 936.9mV | 160.6V | 0.019uA | 943.6mV | 159.8V | 0.008uA |
| 3 | 938.1mV | 131.7V | 0.009uA | 931.9mV | 155.4V | 0.011uA |
| 4 | 946.5mV | 155.2V | 0.013uA | 934.1mV | 146.6V | 0.015uA |
| 5 | 946.5mV | 142.2V | 0.012uA | 942.9mV | 137.5V | 0.012uA |
| 6 | 935.9mV | 148.8V | 0.009uA | 930.4mV | 134.5V | 0.016uA |
| 7 | 942.1mV | 134.9V | 0.010uA | 935.6mV | 159.8V | 0.014uA |
| 8 | 941.5mV | 154.5V | 0.018uA | 930.3mV | 139.9V | 0.013uA |
| 9 | 940.2mV | 149.3V | 0.009uA | 943.4mV | 154.0V | 0.014uA |
| 10 | 945.6mV | 144.5V | 0.012uA | 941.1mV | 132.8V | 0.008uA |
| 11 | 941.1mV | 136.2V | 0.017uA | 940.0mV | 140.7V | 0.009uA |
| 12 | 934.1mV | 148.1V | 0.010uA | 936.2mV | 160.8V | 0.008uA |
| 13 | 938.1mV | 154.9V | 0.007uA | 930.7mV | 136.0V | 0.009uA |
| 14 | 942.4mV | 151.4V | 0.007uA | 948.2mV | 132.0V | 0.008uA |
| 15 | 933.9mV | 141.5V | 0.010uA | 947.5mV | 132.1V | 0.018uA |
| 16 | 934.2mV | 154.0V | 0.009uA | 946.7mV | 151.0V | 0.011uA |
| 17 | 939.1mV | 154.0V | 0.011uA | 939.4mV | 152.0V | 0.017uA |
| 18 | 939.5mV | 136.8V | 0.008uA | 936.3mV | 137.0V | 0.016uA |
| 19 | 933.1mV | 148.0V | 0.013uA | 945.3mV | 154.5V | 0.015uA |
| 20 | 934.2mV | 141.0V | 0.013uA | 936.7mV | 154.7V | 0.011uA |
| 21 | 944.0mV | 142.3V | 0.010uA | 933.7mV | 161.4V | 0.018uA |
| 22 | 935.1mV | 158.7V | 0.014uA | 934.8mV | 158.2V | 0.016uA |
| 23 | 933.8mV | 148.6V | 0.011uA | 942.2mV | 146.4V | 0.013uA |
| 24 | 947.3mV | 138.8V | 0.011uA | 940.1mV | 152.4V | 0.016uA |
| 25 | 942.9mV | 141.5V | 0.015uA | 940.4mV | 153.1V | 0.009uA |
| 26 | 940.7mV | 159.2V | 0.015uA | 934.7mV | 160.4V | 0.009uA |
| 27 | 933.2mV | 135.8V | 0.007uA | 943.1mV | 151.8V | 0.018uA |
| 28 | 934.9mV | 144.7V | 0.014uA | 947.7mV | 144.6V | 0.009uA |
| 29 | 945.0mV | 156.0V | 0.011uA | 947.1mV | 159.1V | 0.011uA |
| 30 | 931.5mV | 131.6V | 0.011uA | 941.1mV | 143.0V | 0.015uA |



High Temperature High Humidity Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 85±2°C, 85±5%RH, 1000Hrs

Test Date: 2015.02.09 ~ 2015.03.23

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 31 | 933.1mV | 142.2V | 0.015uA | 935.9mV | 143.7V | 0.008uA |
| 32 | 933.0mV | 151.4V | 0.009uA | 936.5mV | 143.1V | 0.014uA |
| 33 | 936.1mV | 139.9V | 0.014uA | 937.4mV | 150.0V | 0.008uA |
| 34 | 938.8mV | 154.1V | 0.008uA | 932.0mV | 151.4V | 0.011uA |
| 35 | 938.5mV | 132.2V | 0.014uA | 935.4mV | 139.3V | 0.018uA |
| 36 | 937.4mV | 155.3V | 0.016uA | 937.1mV | 134.2V | 0.009uA |
| 37 | 944.6mV | 158.2V | 0.014uA | 938.3mV | 138.3V | 0.012uA |
| 38 | 938.9mV | 134.1V | 0.011uA | 943.6mV | 137.5V | 0.011uA |
| 39 | 947.9mV | 140.4V | 0.016uA | 939.6mV | 153.2V | 0.007uA |
| 40 | 946.0mV | 132.6V | 0.010uA | 939.7mV | 157.6V | 0.011uA |
| 41 | 937.7mV | 145.4V | 0.007uA | 938.0mV | 148.1V | 0.014uA |
| 42 | 947.5mV | 144.5V | 0.014uA | 937.0mV | 151.0V | 0.008uA |
| 43 | 930.8mV | 153.4V | 0.013uA | 932.0mV | 148.5V | 0.017uA |
| 44 | 945.6mV | 156.5V | 0.010uA | 935.7mV | 149.7V | 0.014uA |
| 45 | 941.0mV | 150.9V | 0.010uA | 941.1mV | 131.9V | 0.011uA |
| 46 | 938.8mV | 130.4V | 0.011uA | 947.6mV | 142.9V | 0.015uA |
| 47 | 936.9mV | 140.0V | 0.013uA | 934.9mV | 151.2V | 0.013uA |
| 48 | 945.0mV | 159.6V | 0.010uA | 946.9mV | 131.1V | 0.009uA |
| 49 | 938.3mV | 154.3V | 0.019uA | 946.9mV | 136.8V | 0.015uA |
| 50 | 939.5mV | 132.0V | 0.017uA | 930.3mV | 130.5V | 0.007uA |
| 51 | 947.5mV | 150.7V | 0.010uA | 934.8mV | 155.5V | 0.010uA |
| 52 | 947.7mV | 159.9V | 0.010uA | 931.6mV | 142.8V | 0.014uA |
| 53 | 940.4mV | 158.9V | 0.011uA | 933.5mV | 134.9V | 0.008uA |
| 54 | 945.7mV | 148.6V | 0.017uA | 931.4mV | 142.8V | 0.016uA |
| 55 | 933.4mV | 149.6V | 0.012uA | 945.0mV | 161.4V | 0.008uA |
| 56 | 947.6mV | 139.2V | 0.012uA | 941.6mV | 148.3V | 0.009uA |
| 57 | 934.3mV | 159.2V | 0.015uA | 942.6mV | 131.5V | 0.018uA |
| 58 | 936.9mV | 132.2V | 0.013uA | 931.7mV | 156.7V | 0.013uA |
| 59 | 947.2mV | 157.8V | 0.017uA | 936.4mV | 132.0V | 0.011uA |
| 60 | 933.3mV | 158.8V | 0.009uA | 940.5mV | 147.2V | 0.010uA |



High Temperature High Humidity Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 85±2°C, 85±5%RH, 1000Hrs

Test Date: 2015.02.09 ~ 2015.03.23

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 61 | 941.3mV | 134.2V | 0.018uA | 940.3mV | 145.9V | 0.009uA |
| 62 | 947.2mV | 136.7V | 0.017uA | 938.8mV | 147.2V | 0.017uA |
| 63 | 934.8mV | 137.7V | 0.016uA | 935.0mV | 158.6V | 0.016uA |
| 64 | 938.0mV | 149.3V | 0.014uA | 937.1mV | 151.1V | 0.019uA |
| 65 | 947.6mV | 150.6V | 0.011uA | 945.6mV | 146.8V | 0.008uA |
| 66 | 932.2mV | 153.7V | 0.015uA | 939.9mV | 160.3V | 0.014uA |
| 67 | 930.5mV | 149.9V | 0.019uA | 944.6mV | 144.6V | 0.019uA |
| 68 | 936.6mV | 158.3V | 0.009uA | 941.9mV | 138.6V | 0.010uA |
| 69 | 940.9mV | 155.1V | 0.008uA | 938.3mV | 131.0V | 0.010uA |
| 70 | 936.8mV | 157.4V | 0.011uA | 947.2mV | 132.1V | 0.008uA |
| 71 | 943.8mV | 160.7V | 0.010uA | 939.8mV | 160.9V | 0.013uA |
| 72 | 940.1mV | 146.4V | 0.013uA | 937.8mV | 131.7V | 0.010uA |
| 73 | 943.2mV | 145.2V | 0.017uA | 933.8mV | 143.2V | 0.010uA |
| 74 | 937.5mV | 139.2V | 0.018uA | 938.7mV | 129.8V | 0.012uA |
| 75 | 935.3mV | 138.0V | 0.009uA | 937.7mV | 147.9V | 0.010uA |
| 76 | 932.9mV | 160.2V | 0.019uA | 947.6mV | 141.1V | 0.009uA |
| 77 | 932.8mV | 137.2V | 0.014uA | 942.8mV | 152.2V | 0.014uA |

Made By: King Huang

Approval: Peter Yang



High Temper High Humidity Reverse Bies Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 85±2°C, 85±5%RH, 1000Hrs

Test Date: 2015.02.09 ~ 2015.03.23

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 1 | 936.1mV | 145.1V | 0.015uA | 943.7mV | 143.2V | 0.015uA |
| 2 | 933.8mV | 136.3V | 0.016uA | 933.1mV | 141.7V | 0.016uA |
| 3 | 931.3mV | 147.1V | 0.008uA | 941.5mV | 156.3V | 0.009uA |
| 4 | 937.9mV | 136.7V | 0.009uA | 932.3mV | 153.4V | 0.019uA |
| 5 | 941.4mV | 160.2V | 0.013uA | 932.6mV | 132.8V | 0.009uA |
| 6 | 931.6mV | 139.6V | 0.016uA | 941.5mV | 143.8V | 0.015uA |
| 7 | 947.5mV | 142.5V | 0.007uA | 931.4mV | 155.5V | 0.015uA |
| 8 | 932.4mV | 147.2V | 0.012uA | 945.9mV | 144.1V | 0.010uA |
| 9 | 934.7mV | 160.7V | 0.011uA | 938.7mV | 153.3V | 0.018uA |
| 10 | 939.2mV | 150.7V | 0.009uA | 948.5mV | 155.5V | 0.016uA |
| 11 | 944.1mV | 156.1V | 0.015uA | 937.2mV | 157.3V | 0.014uA |
| 12 | 936.5mV | 143.3V | 0.016uA | 936.9mV | 138.3V | 0.018uA |
| 13 | 932.7mV | 138.6V | 0.010uA | 939.7mV | 130.9V | 0.017uA |
| 14 | 942.4mV | 149.2V | 0.008uA | 935.0mV | 158.0V | 0.010uA |
| 15 | 931.9mV | 144.3V | 0.011uA | 933.6mV | 148.0V | 0.019uA |
| 16 | 948.1mV | 159.7V | 0.015uA | 939.8mV | 133.4V | 0.007uA |
| 17 | 939.3mV | 146.5V | 0.012uA | 941.4mV | 156.6V | 0.013uA |
| 18 | 939.6mV | 152.8V | 0.012uA | 932.9mV | 155.3V | 0.016uA |
| 19 | 942.3mV | 154.5V | 0.008uA | 937.9mV | 150.5V | 0.010uA |
| 20 | 944.5mV | 148.3V | 0.015uA | 941.5mV | 136.4V | 0.013uA |
| 21 | 934.0mV | 138.9V | 0.008uA | 932.0mV | 141.6V | 0.014uA |
| 22 | 937.7mV | 150.0V | 0.015uA | 943.7mV | 158.4V | 0.008uA |
| 23 | 942.1mV | 132.6V | 0.008uA | 947.9mV | 155.7V | 0.014uA |
| 24 | 948.2mV | 151.0V | 0.011uA | 933.2mV | 153.5V | 0.013uA |
| 25 | 935.5mV | 132.9V | 0.018uA | 933.5mV | 150.7V | 0.010uA |
| 26 | 946.4mV | 159.4V | 0.012uA | 933.2mV | 160.6V | 0.013uA |
| 27 | 947.5mV | 153.4V | 0.017uA | 945.8mV | 142.2V | 0.013uA |
| 28 | 933.1mV | 161.2V | 0.016uA | 947.9mV | 131.8V | 0.007uA |
| 29 | 935.4mV | 154.0V | 0.016uA | 947.7mV | 155.4V | 0.017uA |
| 30 | 934.8mV | 147.2V | 0.012uA | 934.1mV | 130.6V | 0.012uA |



High Temper High Humidity Reverse Bies Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 85±2°C, 85±5%RH, 1000Hrs

Test Date: 2015.02.09 ~ 2015.03.23

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 31 | 930.5mV | 141.6V | 0.011uA | 943.1mV | 157.7V | 0.016uA |
| 32 | 943.5mV | 140.5V | 0.012uA | 933.5mV | 131.7V | 0.013uA |
| 33 | 944.7mV | 147.2V | 0.017uA | 945.1mV | 138.2V | 0.008uA |
| 34 | 934.0mV | 142.8V | 0.013uA | 930.8mV | 159.8V | 0.015uA |
| 35 | 937.9mV | 141.6V | 0.017uA | 935.0mV | 147.4V | 0.011uA |
| 36 | 943.8mV | 160.6V | 0.009uA | 942.3mV | 137.9V | 0.016uA |
| 37 | 944.9mV | 148.8V | 0.012uA | 935.6mV | 148.4V | 0.011uA |
| 38 | 943.8mV | 157.9V | 0.008uA | 940.0mV | 132.5V | 0.014uA |
| 39 | 944.9mV | 143.9V | 0.016uA | 934.6mV | 139.1V | 0.008uA |
| 40 | 930.4mV | 153.3V | 0.008uA | 940.8mV | 151.7V | 0.011uA |
| 41 | 943.6mV | 150.6V | 0.013uA | 946.8mV | 141.9V | 0.008uA |
| 42 | 947.9mV | 158.2V | 0.017uA | 932.0mV | 131.4V | 0.009uA |
| 43 | 948.6mV | 145.5V | 0.014uA | 936.0mV | 160.6V | 0.015uA |
| 44 | 941.1mV | 154.2V | 0.010uA | 940.0mV | 136.8V | 0.018uA |
| 45 | 940.7mV | 136.1V | 0.017uA | 932.4mV | 160.5V | 0.014uA |
| 46 | 932.5mV | 130.3V | 0.013uA | 940.9mV | 133.4V | 0.011uA |
| 47 | 946.1mV | 144.2V | 0.009uA | 936.4mV | 143.3V | 0.011uA |
| 48 | 945.9mV | 137.1V | 0.015uA | 933.9mV | 138.3V | 0.009uA |
| 49 | 941.5mV | 155.4V | 0.014uA | 943.0mV | 159.5V | 0.009uA |
| 50 | 946.9mV | 140.8V | 0.008uA | 940.4mV | 156.4V | 0.016uA |
| 51 | 945.8mV | 149.4V | 0.014uA | 940.9mV | 139.8V | 0.014uA |
| 52 | 935.6mV | 158.9V | 0.014uA | 942.6mV | 139.8V | 0.015uA |
| 53 | 943.2mV | 131.2V | 0.011uA | 946.3mV | 133.3V | 0.018uA |
| 54 | 931.9mV | 160.8V | 0.008uA | 943.3mV | 130.9V | 0.017uA |
| 55 | 937.2mV | 144.8V | 0.009uA | 942.5mV | 133.8V | 0.007uA |
| 56 | 933.6mV | 152.9V | 0.010uA | 935.0mV | 132.3V | 0.013uA |
| 57 | 945.5mV | 152.3V | 0.014uA | 943.4mV | 159.6V | 0.008uA |
| 58 | 943.4mV | 148.2V | 0.017uA | 947.6mV | 135.4V | 0.009uA |
| 59 | 938.5mV | 137.8V | 0.019uA | 943.6mV | 159.9V | 0.018uA |
| 60 | 943.2mV | 136.2V | 0.016uA | 940.4mV | 149.4V | 0.015uA |



High Temper High Humidity Reverse Bies Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 85±2°C, 85±5%RH, 1000Hrs

Test Date: 2015.02.09 ~ 2015.03.23

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 61 | 937.9mV | 136.5V | 0.016uA | 947.4mV | 151.7V | 0.017uA |
| 62 | 943.9mV | 156.0V | 0.016uA | 940.2mV | 141.5V | 0.013uA |
| 63 | 932.8mV | 131.1V | 0.013uA | 940.8mV | 150.8V | 0.018uA |
| 64 | 942.3mV | 146.0V | 0.013uA | 935.8mV | 133.2V | 0.016uA |
| 65 | 939.3mV | 147.3V | 0.010uA | 937.6mV | 153.6V | 0.013uA |
| 66 | 937.2mV | 157.9V | 0.014uA | 938.4mV | 155.7V | 0.016uA |
| 67 | 942.1mV | 144.6V | 0.016uA | 943.6mV | 151.3V | 0.019uA |
| 68 | 936.3mV | 160.1V | 0.019uA | 941.8mV | 143.0V | 0.014uA |
| 69 | 932.3mV | 133.3V | 0.017uA | 933.4mV | 155.8V | 0.012uA |
| 70 | 933.7mV | 139.4V | 0.017uA | 939.4mV | 158.4V | 0.016uA |
| 71 | 931.9mV | 137.0V | 0.009uA | 931.8mV | 130.0V | 0.012uA |
| 72 | 943.7mV | 161.2V | 0.017uA | 939.6mV | 132.7V | 0.011uA |
| 73 | 940.2mV | 144.8V | 0.011uA | 931.8mV | 144.2V | 0.012uA |
| 74 | 930.0mV | 139.8V | 0.013uA | 941.2mV | 140.2V | 0.009uA |
| 75 | 941.5mV | 149.8V | 0.009uA | 941.7mV | 138.9V | 0.017uA |
| 76 | 930.7mV | 134.7V | 0.016uA | 944.4mV | 138.5V | 0.008uA |
| 77 | 930.3mV | 137.5V | 0.012uA | 930.9mV | 135.6V | 0.009uA |

Made By: King Huang

Approval: Peter Yang



SeCoS Corporation

Solderability Test Data

Report No : T150331-011

Part No : 1N4148W

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1250mV@IF=150mA, VB>100V@IR=1mA, IR<2.5uA@VR=75V

Test Condition: 245°C ± 5°C, 5Sec

Test Date: 2015.03.30

Test Standard : JESD22 STANDER Method-B102

Operator: Leo Hsia

Test Result: PASS

| No | Before | | | After | | |
|----|---------|--------|---------|---------|--------|---------|
| | VF (mV) | VB (V) | IR (uA) | VF (mV) | VB (V) | IR (uA) |
| 1 | 933.9mV | 141.7V | 0.015uA | 942.3mV | 159.0V | 0.010uA |
| 2 | 942.8mV | 157.2V | 0.014uA | 938.1mV | 144.7V | 0.011uA |
| 3 | 946.2mV | 155.5V | 0.008uA | 931.3mV | 146.1V | 0.008uA |
| 4 | 936.4mV | 145.4V | 0.012uA | 942.4mV | 156.6V | 0.012uA |
| 5 | 946.5mV | 152.0V | 0.018uA | 943.4mV | 154.9V | 0.014uA |
| 6 | 948.1mV | 140.3V | 0.009uA | 939.7mV | 151.9V | 0.009uA |
| 7 | 933.1mV | 142.8V | 0.018uA | 932.8mV | 155.7V | 0.017uA |
| 8 | 941.0mV | 160.4V | 0.017uA | 931.7mV | 143.4V | 0.018uA |
| 9 | 933.8mV | 150.2V | 0.007uA | 930.7mV | 133.4V | 0.007uA |
| 10 | 948.2mV | 160.5V | 0.007uA | 930.6mV | 153.2V | 0.017uA |

Made By: King Huang

Approval: Peter Yang



MSDS/ Material Safety Data Sheet

1、 Product and manufacturer information

| |
|---|
| Product name: Leadframe |
| Product number: |
| Manufacturer: Jiangyin KangQiang Electronic Co.,Ltd |
| Address: No.3 Dongding Road, Jiangyin Economic Development Zone |
| Telephone.: 0510-68970900 |
| Emergency telephone: 0510-68970900 |
| Fax: 0510-68970902 |

2、 Element material

This part is made up of several metal materials, the percentage of chemical composition is shown as follows:

| composition material | KFC | A194 C19400 | C19210 | Ni42 YEF42 | BYP27 | CAS NO. |
|----------------------|---|----------------|------------|---------------|-----------|-----------|
| Cu | 99.76-99.875 | >97 | Balance | | | 7440-50-8 |
| Fe | 0.05-0.15 | 2.1-2.6 | 0.05-0.15 | Balance | Balance | 7439-89-6 |
| Si | | | | ≤0.30 | ≤0.30 | 7440-21-3 |
| Mn | | | | ≤0.8 | ≤0.80 | 7439-96-5 |
| Ni | | | | 40.5~42.5 | 40.0-42.5 | 7440-02-0 |
| S | | | | ≤0.025 | ≤0.020 | 7704-34-9 |
| P | 0.025-0.04 | 0.015-0.15 | 0.015-0.04 | ≤0.025 | ≤0.020 | 7723-14-0 |
| Zn | | 0.05-0.20 | | | | 7440-66-6 |
| Al | | | | ≤0.1 | ≤0.10 | 7429-90-5 |
| Cr | | | | ≤0.1 | | 7440-47-3 |
| Pb | | <0.01 | | | | 7439-92-1 |
| C | | | | ≤0.05 | <0.02 | 7440-44-0 |
| Remark | Due to different demands of the products, a layer of metal coating is needed on the surface area of products, the material content of metal coating is about: | | | | | |
| | Coating category | | Content | | CAS NO. | |
| | Silver coating products | | 0.01-0.08% | | 7440-22-4 | |
| | Nickel coating products | | 0.01-0.08% | | 7440-02-0 | |

| composition material | XYK-1 | CAC5 | XYK-4 | 42%Ni-Fe -1/ 2H-LS | K55 | K75 | CAS NO. |
|----------------------|---------|---------|-------|--------------------------|---------|---------|-----------|
| Cu | Balance | Balance | | | Balance | Balance | 7440-50-8 |

| | | | | | | | |
|--------|---|-----------|------------|---------|-----------|-------|-----------|
| Fe | 0.05-0.15 | | 2.1-2.6 | Balance | ≤2.4 | | 7439-89-6 |
| Si | | | | ≤0.30 | | ≤0.02 | 7440-21-3 |
| Mn | | | | ≤0.80 | | | 7439-95-4 |
| Ni | | 0.7~0.9 | | 40-42 | | | 7440-02-0 |
| S | | | | ≤0.025 | | | 7704-34-9 |
| Pb | ≤0.015 | | ≤0.03 | | | | 7439-92-1 |
| Sn | | 1.0~2.0 | | | | ≤0.1 | 7440-31-5 |
| P | 0.025-0.04 | 0.02-0.09 | 0.015-0.15 | ≤0.025 | ≤0.03 | | 7723-14-0 |
| Al | | | | ≤0.100 | | | 7429-90-5 |
| Cr | | | | ≤0.10 | | 0.3 | 7440-47-3 |
| C | | | | ≤0.05 | | | 7440-44-0 |
| Zn | | | 0.05-0.2 | | ≤0.12 | | 7440-66-6 |
| Remark | Due to different demands of the products, a layer of metal coating is needed on the surface area of products, the material content of metal coating is about: | | | | | | |
| | Coating category | | Content | | CAS NO. | | |
| | Silver coating products | | 0.01-0.08% | | 7440-22-4 | | |
| | Nickel coating products | | 0.01-0.08% | | 7440-02-0 | | |

| | | | | | | |
|-------------------------|---|-----------|------------|---|-----------|-----------|
| composition material | KLF194 | GFC | C7025 | / | / | CAS NO. |
| Cu | ≥97 | Balance | 余量 | | | 7440-50-8 |
| Fe | 2.1-2.6 | 0.05-0.15 | ≤0.2 | | | 7439-89-6 |
| Si | | | 0.25-1.2 | | | 7440-21-3 |
| Mn | | | | | | 7439-96-5 |
| Ni | | | 2.2-4.2 | | | 7440-02-0 |
| S | | | | | | 7704-34-9 |
| P | 0.015-0.15 | 0.02-0.04 | | | | 7723-14-0 |
| Zn | 0.05-0.2 | | ≤1.0 | | | 7440-66-6 |
| Al | | | | | | 7429-90-5 |
| Cr | | | | | | 7440-47-3 |
| Pb | ≤0.03 | | ≤0.05 | | | 7439-92-1 |
| C | | | | | | 7440-44-0 |
| Remark | Due to different demands of the products, a layer of metal coating is needed on the surface area of products, the material content of metal coating is about: | | | | | |
| | Coating category | | Content | | CAS NO. | |
| | Silver coating products | | 0.01-0.08% | | 7440-22-4 | |
| | Nickel coating products | | 0.01-0.08% | | 7440-02-0 | |

3、Physical and chemical properties

| | |
|--|--|
| Condition: Solid | Shape: Strip |
| Color: Silver coating is silvery, Nickel coating is shiny grey | Smell: No |
| Flammability: Nonflammable | Melting points: 1083 °C (Cu) 960 °C (Ag) 1430 °C (Fe/Ni) |
| Specific gravity: 8.92g/cm ³ (Cu) 10.5 g/cm ³ (Ag) 8.1 g/cm ³ (Fe/Ni) | (Solubility(to water): Insoluble |
| Ignition temperature: No | Explosibility: No |

4、Damage discrimination material

| |
|---|
| Poisonousness: There is no data showing that using such metal will have any damage under normal circumstances. |
| Environmental pollution: There is no data showing that the material will cause any environmental pollution under normal circumstances. |
| health risk: eye: NO swallow: NO inhalation: NO skin: Touching these metals may cause skin allergy, so please avoid scratching the skin by product burr. |
| harmful material code: health: NO Inflammability: NO Physical damage: NO Individual protection: NO |

5、Emergency measures

| |
|--|
| If having the skin allergy, please wash around 15 minutes in clean water; if serious, please go to hospital at once. |
|--|

6、Extinguishing measures

| |
|--|
| Extinguishing measures: These are inflammable materials, so it will not cause damage to human health as well as environment. |
| Dangerous combustion product: NO |
| Applicable extinguishing agent: No special requirements. |

7、Spillage management

| |
|--|
| Precautionary measure and equipment: No spillage |
| Clean method: NO |
| Individual protective measures: NO |

8、Stability

Stability: Leadframe is very stable in chemical characteristics. It will not break down the harmful materials to human health and environment with the change of environment.

Condition should avoided: NO

Material should be avoided: NO

Hazardous Decomposition Products: NO

9、Safety management and storage method

Safety management: It can be taken by hand directly, but to ensure the performance of products, it is highly suggested taking with clean cotton gloves.

Storage: It must be stored in a dry, well-ventilated and out of direct sunlight place, keeping a way from chemical and sulfur-containing materials.

10、Poisonousness

Acute toxicity: NO

Carcinogenicity: NO

Anaphylaxis: It may cause allergic phenomenon when touching the products.

Slow toxicity: NO.

11、Exposure control and individule protection

Eye: If touching the eye, please go to hospital at once.

Swallow and inhalation: NO

Skin: It may cause allergic phenomenon when the skin touches the products.

12、Ecology material

Potential environmental influence: It will not cause the environmental pollution in normal use, but if abandoned in natural environment, after corrosion, the released harmful Copper ion and Silver ion will do the pollution.

Mobility: NO

Ecological toxicity: NO

13、Abandon management

Abandon management: Metal recycle

14、Transportation

International transport rules: No

U.N. number: No

Domestic transport rules: No

Special transportation and announcements: No

15、Laws and regulations

| |
|----------------------------|
| Applicable regulations: No |
|----------------------------|

16、Other information

| | | |
|---------------|---|-----------------|
| Tabulation | Company name: Jiangyin KangQiang Electronic Co.,Ltd | |
| | Address: No.3 Dongding Road, Jiangyin Economic Development Zone | |
| Tabulator: 王莉 | Check by: 刘娜 | Date: 2014.1.10 |

Test Report

No. SHAEC1408168201

Date: 14 May 2014

Page 1 of 6

JIANGYIN KANGQIANG ELECTRONICS CO.,LTD

NO.3 DONGDING ROAD,JIANGYIN ECONOMIC DEVELOPMENT ZONE

The following sample(s) was/were submitted and identified on behalf of the clients as : Lead frame

SGS Job No. : SP14-012762 - SH

Model No. : Ag Plating Layer

Date of Sample Received : 09 May 2014

Testing Period : 09 May 2014 - 13 May 2014

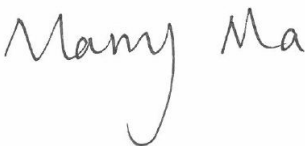
Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.



Marry Ma
Approved Signatory



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SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Testing Center

3rd Building, No. 889 Yishan Road Xuhui District, Shanghai China 200233
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233

t E&E (86-21) 61402553 f E&E (86-21) 64953679 www.sgsgroup.com.cn
HL: (86-21) 61402594 HL: (86-21) 54500353 e sgs.china@sgs.com

Test Report

No. SHAEC1408168201

Date: 14 May 2014

Page 2 of 6

Test Results :

Test Part Description :

| Specimen No. | SGS Sample ID | Description |
|--------------|------------------|---|
| SN1 | SHA14-081682.001 | Copper metal sheet with silvery plating |

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method : (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
 (2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
 (3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
 (4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.

| Test Item(s) | Limit | Unit | MDL | 001 |
|------------------------------|-------|-------|-----|----------|
| Cadmium (Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1000 | mg/kg | 2 | ND |
| Mercury (Hg) | 1000 | mg/kg | 2 | ND |
| Hexavalent Chromium (Cr(VI)) | - | - | ◇ | Negative |

Notes :

- (1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II
- (2) ◇Spot-test:
 Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;
 (The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)
 ◇Boiling-water-extraction:
 Negative = Absence of Cr(VI) coating
 Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.
 Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



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Element(s)

Test Method : With reference to US EPA Method 3050B:1996, analysis was performed by ICP-OES.

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>001</u> |
|---------------------|-------------|------------|------------|
| Antimony (Sb) | mg/kg | 10 | ND |



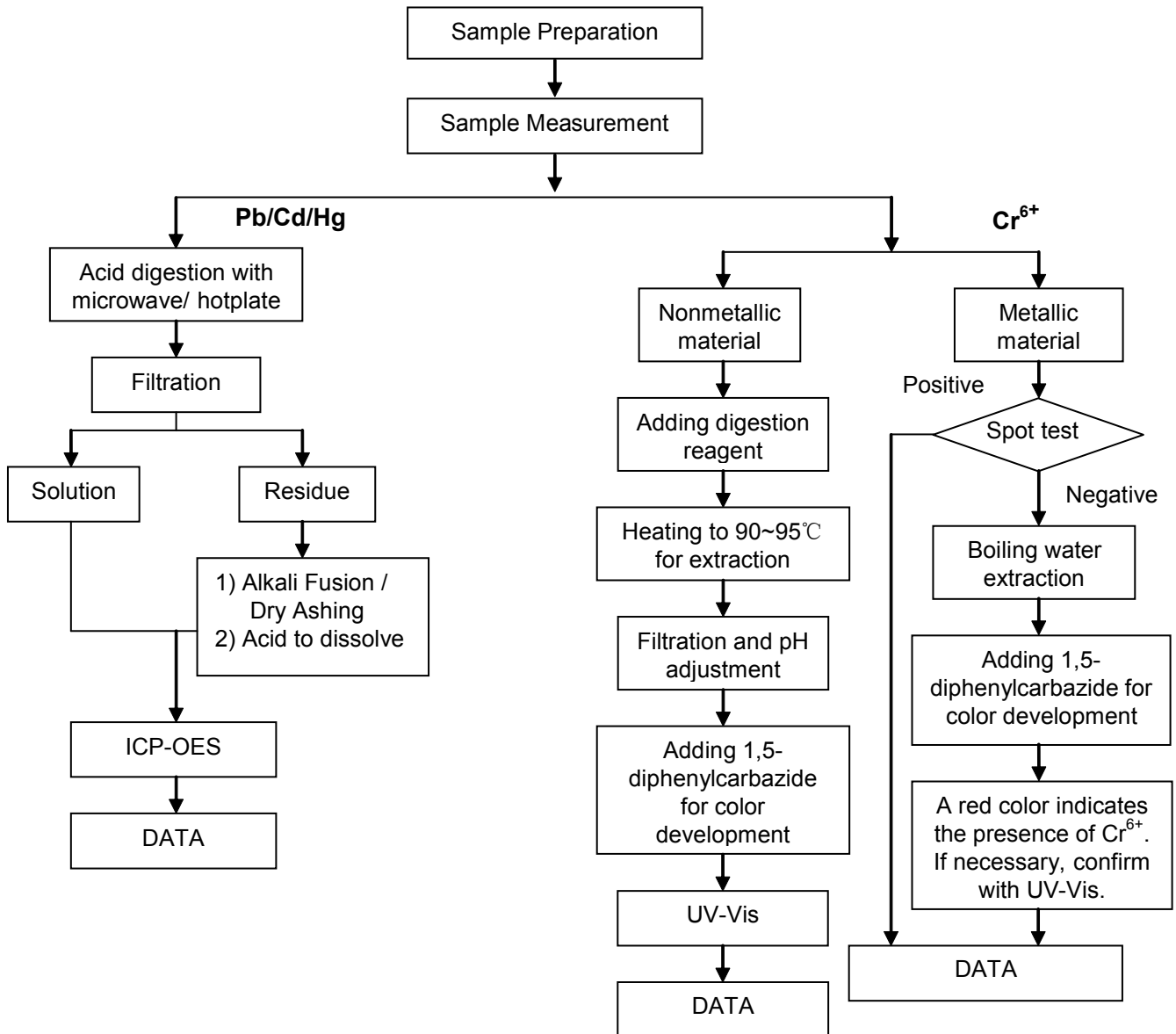
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RoHS Testing Flow Chart

- 1) Name of the person who made testing: Jan Shi/Star Wang / Shara Wang
- 2) Name of the person in charge of testing: Jeff Zhang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)



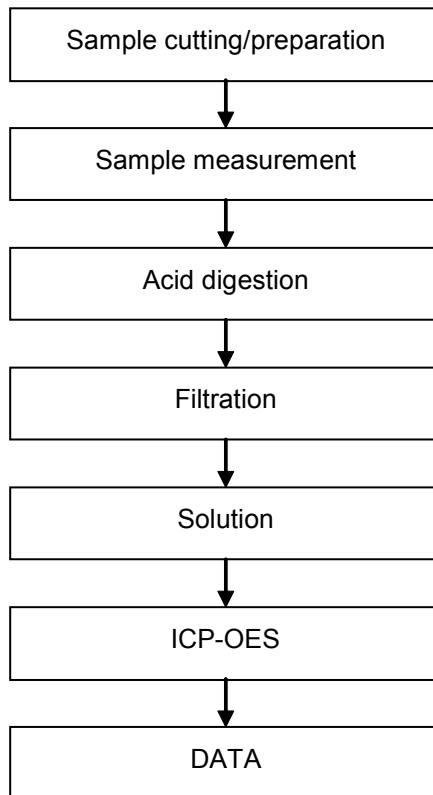
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Elements Testing Flow Chart

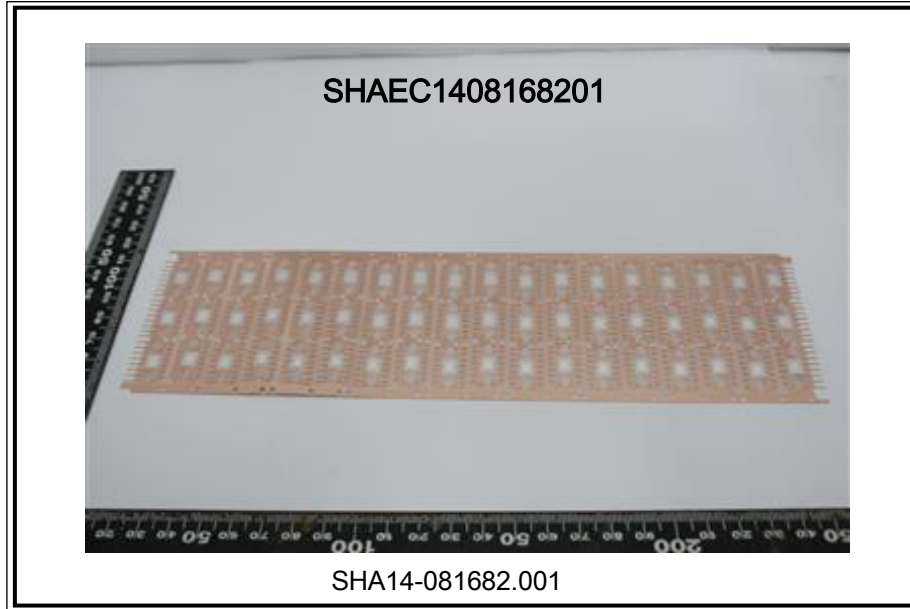
- 1) Name of the person who made testing: Star Wang/ Jan Shi
- 2) Name of the person in charge of testing: Jeff Zhang



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Sample photo:



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Test Report

No. SHAEC1500359101

Date: 10 Jan 2015

Page 1 of 5

JIANGYIN KANGQIANG ELECTRONICS CO.,LTD
NO.3 DONGDING ROAD,JIANGYIN ECONOMIC DEVELOPMENT ZONE

The following sample(s) was/were submitted and identified on behalf of the clients as : Lead frame CAC5

SGS Job No. : SP15-000285 - SH

Model No. : SOT,SOD Lead frame

Date of Sample Received : 08 Jan 2015

Testing Period : 08 Jan 2015 - 10 Jan 2015

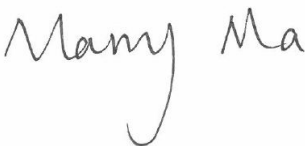
Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.



Marry Ma
Approved Signatory



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Test Results :

Test Part Description :

| Specimen No. | SGS Sample ID | Description |
|--------------|------------------|---------------------------|
| SN1 | SHA15-003591.001 | Copper/silver metal sheet |

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive 2011/65/EU

- Test Method :
- (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
 - (2) With reference to IEC 62321-5:2013, determination of Lead by AAS.
 - (3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
 - (4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.
 - (5) With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

| Test Item(s) | Limit | Unit | MDL | 001 |
|------------------------------|-------|-------|-----|----------|
| Cadmium (Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1000 | mg/kg | 2 | ND |
| Mercury (Hg) | 1000 | mg/kg | 2 | ND |
| Hexavalent Chromium (Cr(VI)) | - | - | ◇ | Negative |
| Sum of PBBs | 1000 | mg/kg | - | ND |
| Monobromobiphenyl | - | mg/kg | 5 | ND |
| Dibromobiphenyl | - | mg/kg | 5 | ND |
| Tribromobiphenyl | - | mg/kg | 5 | ND |
| Tetrabromobiphenyl | - | mg/kg | 5 | ND |
| Pentabromobiphenyl | - | mg/kg | 5 | ND |
| Hexabromobiphenyl | - | mg/kg | 5 | ND |
| Heptabromobiphenyl | - | mg/kg | 5 | ND |
| Octabromobiphenyl | - | mg/kg | 5 | ND |
| Nonabromobiphenyl | - | mg/kg | 5 | ND |
| Decabromobiphenyl | - | mg/kg | 5 | ND |
| Sum of PBDEs | 1000 | mg/kg | - | ND |
| Monobromodiphenyl ether | - | mg/kg | 5 | ND |

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Test Report

No. SHAEC1500359101

Date: 10 Jan 2015

Page 3 of 5

| <u>Test Item(s)</u> | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> | <u>001</u> |
|--------------------------|--------------|-------------|------------|------------|
| Dibromodiphenyl ether | - | mg/kg | 5 | ND |
| Tribromodiphenyl ether | - | mg/kg | 5 | ND |
| Tetrabromodiphenyl ether | - | mg/kg | 5 | ND |
| Pentabromodiphenyl ether | - | mg/kg | 5 | ND |
| Hexabromodiphenyl ether | - | mg/kg | 5 | ND |
| Heptabromodiphenyl ether | - | mg/kg | 5 | ND |
| Octabromodiphenyl ether | - | mg/kg | 5 | ND |
| Nonabromodiphenyl ether | - | mg/kg | 5 | ND |
| Decabromodiphenyl ether | - | mg/kg | 5 | ND |

Notes :

(1) The maximum permissible limit is quoted from directive 2011/65/EU, Annex II

(2) ◇Spot-test:

Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

◇Boiling-water-extraction:

Negative = Absence of Cr(VI) coating

Positive = Presence of Cr(VI) coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



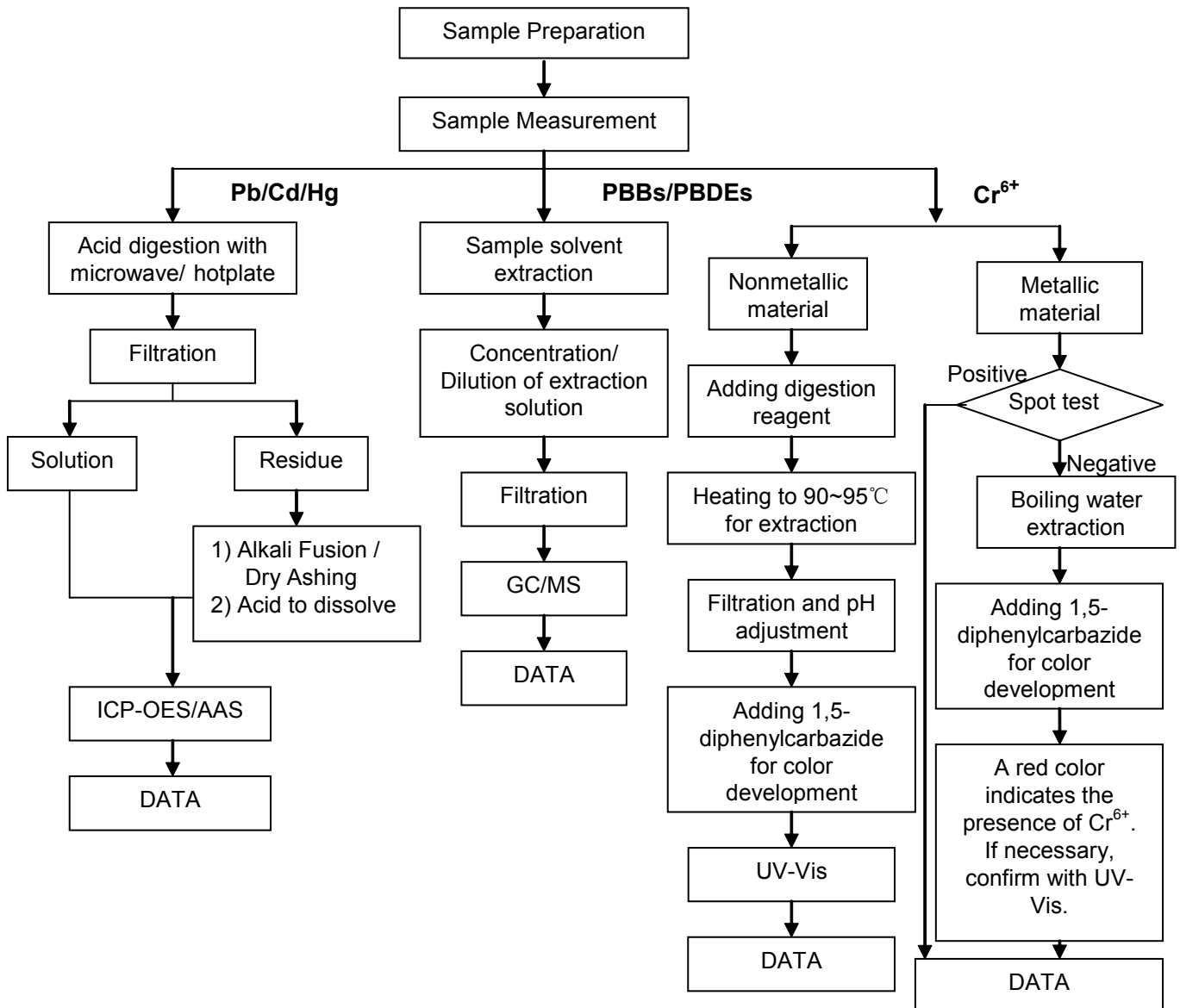
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ATTACHMENTS

RoHS Testing Flow Chart

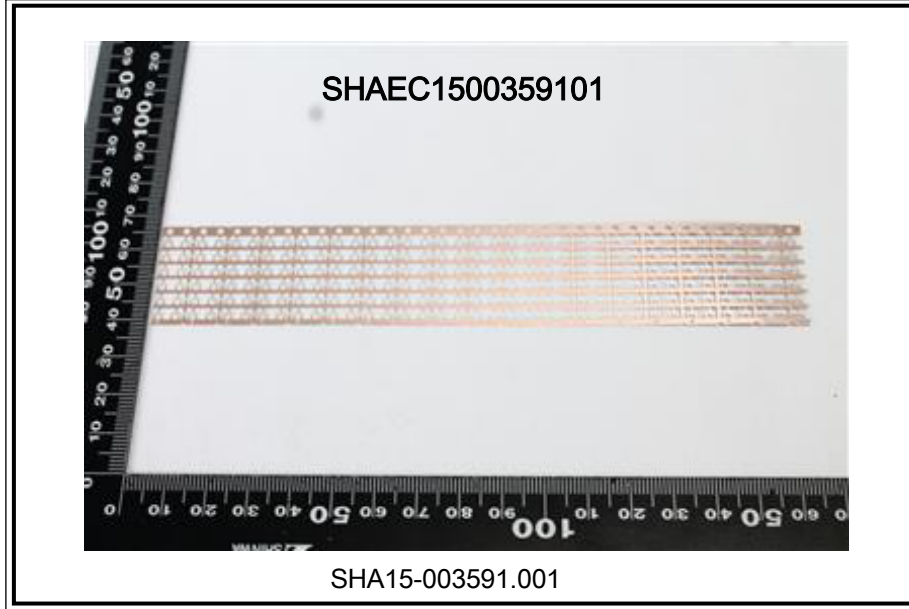
- 1) Name of the person who made testing: Bob Zhang/Gary Xu/Stone Chen/Sunny Qin
- 2) Name of the person in charge of testing: Jan Shi/Summer Jin/Jessy Huang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded)



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