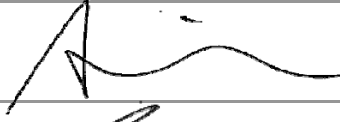


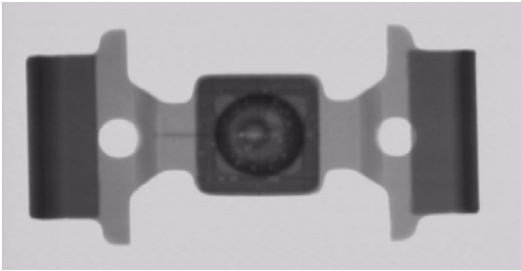
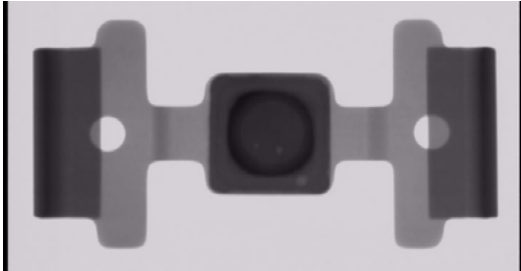
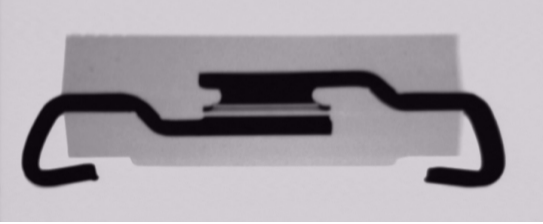
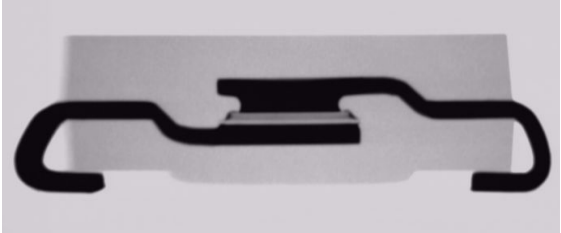






Product/Process Change Notification

PCN#	Effective Date	Issue Date
2014-01-01C-03	2014/1/1	2014/1/1
PCN Classification	Product Category	
Major	SMC Package	
Subject		
Add lead frame vendor		
Affected Product(s)		
SMC Package		
Description of Change(s)		
In order to avoid shortage of material, and enhance the speed of delivery, thus, we add a new vendor.		
Content of Change(s)		
add a new lead frame vendor		
Impact(s)		
None		
Attachment(s)		
Reliability test report. SGS report.		

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

Exterior comparison Chart	
SMC Package	
Original	News
 <p>Top View</p>	 <p>Top View</p>
 <p>Lateral View</p>	 <p>Lateral View</p>
 <p>Top View</p>	 <p>Top View</p>
 <p>Lateral View</p>	 <p>Lateral View</p>



Reliability Testing Summary Report

Date: 2013/11/30

Document No.: SG13 -11- 15

Test Item	P/N	Test Condition	(LTPD)	Sample Numbers	Allow Fall Numbers	Fall Numbers	Result
HTRB High Temp Reverse Bias	QG507C	100 ± 5°C, 80%VR, T = 1000hrs		77	0	0	ACC
HTSL High Temperature Storage Life	QG507C	150°C, T = 1000hrs		77	0	0	ACC
PCT Pressure Cooker Test	QG507C	121°C, 29.7PSIG, RH = 100%, T = 168 hrs		77	0	0	ACC
TCT Temperature Cycle Test	QG507C	-55°C/30min, 150°C/30min, For 1000 Cycle		77	0	0	ACC
THT High Temperature High Humidity Test	QG507C	85 ± 2°C, RH = 85 ± 5%, 1000 hrs		77	0	0	ACC
H3TRB High Temper High Humidity Reverse Bies Test	QG507C	85 ± 2°C, RH = 85 ± 5%, 80%VR, T = 1000 hrs		77	0	0	ACC
Solderability	QG507C	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: 2013.10.01 Testing End Date: 2013.11.30

Tester: Leo Hsia Approval: Peter Yang



Electrical Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 25°C

Test Date: 2013.10.01 ~ 2013.10.01

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

No	VF (mV)	IR (uA)
1	959mV	0.077uA
2	968mV	0.119uA
3	971mV	0.089uA
4	970mV	0.092uA
5	949mV	0.066uA
6	959mV	0.075uA
7	960mV	0.053uA
8	968mV	0.058uA
9	950mV	0.053uA
10	971mV	0.046uA
11	966mV	0.118uA
12	966mV	0.062uA
13	959mV	0.094uA
14	963mV	0.112uA
15	967mV	0.077uA
16	962mV	0.114uA
17	948mV	0.064uA
18	966mV	0.123uA
19	968mV	0.072uA
20	965mV	0.111uA
21	966mV	0.101uA
22	975mV	0.056uA
23	975mV	0.130uA
24	968mV	0.053uA
25	976mV	0.051uA
26	959mV	0.126uA
27	960mV	0.093uA
28	968mV	0.113uA
29	958mV	0.121uA
30	976mV	0.057uA
31	947mV	0.101uA



Electrical Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 25°C

Test Date: 2013.10.01 ~ 2013.10.01

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

No	VF (mV)	IR (uA)
32	953mV	0.078uA
33	952mV	0.099uA
34	949mV	0.101uA
35	963mV	0.065uA
36	960mV	0.112uA
37	969mV	0.110uA
38	966mV	0.082uA
39	971mV	0.065uA
40	962mV	0.083uA
41	957mV	0.130uA
42	972mV	0.091uA
43	974mV	0.086uA
44	974mV	0.047uA
45	972mV	0.063uA
46	969mV	0.100uA
47	970mV	0.048uA
48	978mV	0.062uA
49	977mV	0.131uA
50	976mV	0.124uA
51	963mV	0.106uA
52	947mV	0.073uA
53	955mV	0.085uA
54	954mV	0.102uA
55	966mV	0.122uA
56	977mV	0.090uA
57	971mV	0.115uA
58	963mV	0.066uA
59	971mV	0.099uA
60	954mV	0.131uA
61	957mV	0.078uA
62	979mV	0.047uA



Electrical Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 25°C

Test Date: 2013.10.01 ~ 2013.10.01

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

No	VF (mV)	IR (uA)
63	977mV	0.098uA
64	976mV	0.117uA
65	963mV	0.084uA
66	975mV	0.125uA
67	958mV	0.124uA
68	968mV	0.076uA
69	947mV	0.094uA
70	978mV	0.114uA
71	964mV	0.119uA
72	963mV	0.068uA
73	962mV	0.074uA
74	962mV	0.076uA
75	968mV	0.073uA
76	953mV	0.094uA
77	978mV	0.076uA

Made By: Leo Hsia

Approval: Peter Yang



High Temperature Reverse Bias Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 100 ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2013.10.02 ~ 2013.11.13

Test Standard : JESD22 STANDER Method-A108

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
1	967mV	0.077uA	952mV	0.105uA
2	970mV	0.089uA	957mV	0.064uA
3	974mV	0.085uA	970mV	0.119uA
4	963mV	0.055uA	965mV	0.127uA
5	962mV	0.075uA	973mV	0.109uA
6	948mV	0.105uA	969mV	0.095uA
7	965mV	0.060uA	966mV	0.084uA
8	972mV	0.119uA	969mV	0.081uA
9	963mV	0.073uA	956mV	0.111uA
10	952mV	0.058uA	958mV	0.053uA
11	974mV	0.105uA	977mV	0.066uA
12	954mV	0.054uA	969mV	0.054uA
13	950mV	0.113uA	967mV	0.054uA
14	959mV	0.064uA	978mV	0.065uA
15	962mV	0.089uA	961mV	0.129uA
16	952mV	0.056uA	955mV	0.124uA
17	971mV	0.057uA	954mV	0.081uA
18	954mV	0.071uA	959mV	0.096uA
19	967mV	0.070uA	968mV	0.070uA
20	972mV	0.062uA	960mV	0.088uA
21	950mV	0.130uA	966mV	0.062uA
22	965mV	0.109uA	959mV	0.090uA
23	948mV	0.092uA	975mV	0.055uA
24	979mV	0.098uA	977mV	0.080uA
25	952mV	0.054uA	978mV	0.056uA
26	972mV	0.081uA	951mV	0.068uA
27	977mV	0.078uA	971mV	0.124uA
28	969mV	0.102uA	950mV	0.083uA
29	968mV	0.122uA	956mV	0.118uA
30	962mV	0.069uA	965mV	0.128uA



High Temperature Reverse Bias Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 100 ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2013.10.02 ~ 2013.11.13

Test Standard : JESD22 STANDER Method-A108

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
31	951mV	0.098uA	978mV	0.057uA
32	954mV	0.081uA	971mV	0.106uA
33	956mV	0.116uA	957mV	0.075uA
34	962mV	0.115uA	974mV	0.076uA
35	967mV	0.049uA	968mV	0.110uA
36	957mV	0.091uA	966mV	0.077uA
37	952mV	0.101uA	974mV	0.118uA
38	961mV	0.131uA	952mV	0.051uA
39	976mV	0.118uA	963mV	0.084uA
40	951mV	0.063uA	977mV	0.080uA
41	966mV	0.048uA	960mV	0.106uA
42	975mV	0.087uA	962mV	0.097uA
43	961mV	0.125uA	948mV	0.122uA
44	948mV	0.107uA	957mV	0.087uA
45	954mV	0.104uA	956mV	0.070uA
46	956mV	0.082uA	964mV	0.077uA
47	966mV	0.074uA	977mV	0.090uA
48	975mV	0.065uA	959mV	0.071uA
49	959mV	0.070uA	957mV	0.073uA
50	949mV	0.086uA	963mV	0.122uA
51	971mV	0.054uA	957mV	0.066uA
52	957mV	0.088uA	956mV	0.089uA
53	959mV	0.055uA	957mV	0.076uA
54	973mV	0.100uA	960mV	0.081uA
55	952mV	0.054uA	972mV	0.097uA
56	949mV	0.110uA	960mV	0.080uA
57	961mV	0.056uA	960mV	0.057uA
58	953mV	0.082uA	968mV	0.092uA
59	959mV	0.118uA	965mV	0.062uA
60	976mV	0.109uA	953mV	0.110uA



High Temperature Reverse Bias Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 100 ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2013.10.02 ~ 2013.11.13

Test Standard : JESD22 STANDER Method-A108

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
61	973mV	0.075uA	964mV	0.097uA
62	959mV	0.048uA	961mV	0.108uA
63	948mV	0.070uA	965mV	0.063uA
64	959mV	0.100uA	968mV	0.100uA
65	977mV	0.056uA	978mV	0.107uA
66	965mV	0.050uA	948mV	0.047uA
67	969mV	0.083uA	957mV	0.088uA
68	950mV	0.059uA	979mV	0.067uA
69	955mV	0.111uA	956mV	0.101uA
70	963mV	0.129uA	963mV	0.056uA
71	952mV	0.104uA	950mV	0.050uA
72	978mV	0.097uA	960mV	0.109uA
73	977mV	0.129uA	959mV	0.122uA
74	954mV	0.066uA	977mV	0.114uA
75	969mV	0.091uA	967mV	0.051uA
76	957mV	0.081uA	972mV	0.056uA
77	960mV	0.052uA	967mV	0.111uA

Made By: Leo Hsia

Approval: Peter Yang



High Temperature Storage Life Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 150°C, 1000Hrs

Test Date: 2013.10.09 ~ 2013.11.20

Test Standard : JESD22 STANDER Method-A103

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
1	977mV	0.107uA	968mV	0.052uA
2	976mV	0.079uA	949mV	0.061uA
3	965mV	0.060uA	956mV	0.063uA
4	950mV	0.118uA	973mV	0.088uA
5	974mV	0.105uA	979mV	0.050uA
6	968mV	0.127uA	972mV	0.059uA
7	966mV	0.102uA	962mV	0.123uA
8	963mV	0.046uA	978mV	0.087uA
9	972mV	0.093uA	954mV	0.053uA
10	951mV	0.109uA	965mV	0.048uA
11	972mV	0.112uA	962mV	0.072uA
12	973mV	0.050uA	979mV	0.096uA
13	971mV	0.121uA	960mV	0.057uA
14	966mV	0.112uA	960mV	0.095uA
15	968mV	0.089uA	952mV	0.109uA
16	950mV	0.127uA	949mV	0.120uA
17	970mV	0.094uA	970mV	0.103uA
18	965mV	0.103uA	956mV	0.124uA
19	971mV	0.069uA	973mV	0.118uA
20	955mV	0.086uA	970mV	0.058uA
21	971mV	0.123uA	976mV	0.088uA
22	955mV	0.121uA	954mV	0.105uA
23	948mV	0.076uA	970mV	0.078uA
24	966mV	0.054uA	948mV	0.115uA
25	972mV	0.110uA	975mV	0.050uA
26	954mV	0.096uA	957mV	0.063uA
27	975mV	0.051uA	970mV	0.079uA
28	972mV	0.060uA	978mV	0.102uA
29	952mV	0.049uA	949mV	0.106uA
30	961mV	0.091uA	969mV	0.114uA



High Temperature Storage Life Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 150°C, 1000Hrs

Test Date: 2013.10.09 ~ 2013.11.20

Test Standard : JESD22 STANDER Method-A103

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
31	956mV	0.078uA	961mV	0.069uA
32	975mV	0.080uA	951mV	0.092uA
33	950mV	0.129uA	949mV	0.117uA
34	979mV	0.129uA	975mV	0.086uA
35	961mV	0.057uA	979mV	0.112uA
36	957mV	0.094uA	957mV	0.102uA
37	968mV	0.122uA	952mV	0.087uA
38	954mV	0.111uA	963mV	0.104uA
39	978mV	0.117uA	969mV	0.082uA
40	960mV	0.123uA	950mV	0.089uA
41	960mV	0.063uA	960mV	0.128uA
42	979mV	0.092uA	959mV	0.070uA
43	977mV	0.077uA	971mV	0.091uA
44	967mV	0.106uA	967mV	0.051uA
45	976mV	0.090uA	972mV	0.075uA
46	974mV	0.073uA	976mV	0.115uA
47	971mV	0.052uA	970mV	0.074uA
48	955mV	0.095uA	966mV	0.106uA
49	968mV	0.080uA	960mV	0.052uA
50	976mV	0.072uA	972mV	0.068uA
51	976mV	0.084uA	972mV	0.110uA
52	973mV	0.113uA	948mV	0.122uA
53	955mV	0.052uA	968mV	0.119uA
54	962mV	0.076uA	969mV	0.116uA
55	970mV	0.123uA	968mV	0.069uA
56	953mV	0.107uA	965mV	0.083uA
57	971mV	0.055uA	947mV	0.110uA
58	973mV	0.049uA	977mV	0.067uA
59	968mV	0.075uA	960mV	0.122uA
60	972mV	0.077uA	975mV	0.089uA



High Temperature Storage Life Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 150°C, 1000Hrs

Test Date: 2013.10.09 ~ 2013.11.20

Test Standard : JESD22 STANDER Method-A103

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
61	973mV	0.067uA	957mV	0.120uA
62	948mV	0.127uA	963mV	0.090uA
63	968mV	0.055uA	977mV	0.106uA
64	976mV	0.094uA	962mV	0.055uA
65	968mV	0.131uA	968mV	0.056uA
66	964mV	0.121uA	960mV	0.057uA
67	972mV	0.064uA	973mV	0.113uA
68	963mV	0.094uA	976mV	0.094uA
69	954mV	0.105uA	961mV	0.046uA
70	951mV	0.088uA	971mV	0.109uA
71	948mV	0.095uA	978mV	0.051uA
72	978mV	0.079uA	976mV	0.110uA
73	966mV	0.085uA	952mV	0.099uA
74	958mV	0.104uA	970mV	0.048uA
75	967mV	0.046uA	957mV	0.116uA
76	976mV	0.087uA	957mV	0.087uA
77	957mV	0.089uA	956mV	0.090uA

Made By: Leo Hsia

Approval: Peter Yang



SeCoS Corporation

Pressure Cooker Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.21 ~ 2013.10.29

Test Standard : JESD22 STANDER Method-A102

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
1	978mV	0.092uA	959mV	0.096uA
2	950mV	0.046uA	977mV	0.077uA
3	969mV	0.104uA	963mV	0.131uA
4	978mV	0.073uA	975mV	0.082uA
5	954mV	0.101uA	956mV	0.051uA
6	954mV	0.084uA	953mV	0.105uA
7	974mV	0.107uA	971mV	0.069uA
8	976mV	0.070uA	974mV	0.123uA
9	977mV	0.054uA	965mV	0.128uA
10	973mV	0.054uA	968mV	0.096uA
11	959mV	0.092uA	964mV	0.093uA
12	953mV	0.061uA	966mV	0.056uA
13	951mV	0.060uA	972mV	0.086uA
14	970mV	0.113uA	952mV	0.108uA
15	961mV	0.125uA	957mV	0.109uA
16	949mV	0.064uA	960mV	0.071uA
17	965mV	0.075uA	976mV	0.056uA
18	975mV	0.105uA	978mV	0.050uA
19	960mV	0.106uA	972mV	0.078uA
20	974mV	0.095uA	976mV	0.121uA
21	974mV	0.076uA	973mV	0.066uA
22	964mV	0.061uA	979mV	0.108uA
23	974mV	0.102uA	958mV	0.098uA
24	966mV	0.129uA	960mV	0.098uA
25	972mV	0.064uA	971mV	0.059uA
26	977mV	0.061uA	959mV	0.099uA
27	949mV	0.080uA	960mV	0.114uA
28	973mV	0.075uA	970mV	0.048uA
29	969mV	0.105uA	950mV	0.131uA
30	974mV	0.082uA	967mV	0.067uA



SeCoS Corporation

Pressure Cooker Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.21 ~ 2013.10.29

Test Standard : JESD22 STANDER Method-A102

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
31	950mV	0.099uA	950mV	0.099uA
32	974mV	0.085uA	948mV	0.085uA
33	947mV	0.098uA	964mV	0.069uA
34	979mV	0.120uA	951mV	0.109uA
35	951mV	0.096uA	964mV	0.052uA
36	976mV	0.106uA	949mV	0.088uA
37	963mV	0.102uA	950mV	0.073uA
38	957mV	0.094uA	964mV	0.053uA
39	971mV	0.066uA	963mV	0.084uA
40	956mV	0.104uA	948mV	0.046uA
41	969mV	0.128uA	958mV	0.080uA
42	963mV	0.113uA	962mV	0.091uA
43	958mV	0.131uA	961mV	0.099uA
44	971mV	0.104uA	964mV	0.121uA
45	961mV	0.087uA	960mV	0.099uA
46	954mV	0.087uA	957mV	0.092uA
47	972mV	0.106uA	948mV	0.100uA
48	954mV	0.054uA	954mV	0.129uA
49	975mV	0.054uA	966mV	0.070uA
50	963mV	0.049uA	972mV	0.073uA
51	969mV	0.048uA	952mV	0.129uA
52	971mV	0.130uA	978mV	0.090uA
53	965mV	0.073uA	972mV	0.056uA
54	955mV	0.075uA	957mV	0.081uA
55	963mV	0.077uA	977mV	0.120uA
56	968mV	0.048uA	962mV	0.057uA
57	951mV	0.099uA	952mV	0.070uA
58	973mV	0.105uA	958mV	0.074uA
59	965mV	0.087uA	970mV	0.048uA
60	963mV	0.047uA	974mV	0.057uA



SeCoS Corporation

Pressure Cooker Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.21 ~ 2013.10.29

Test Standard : JESD22 STANDER Method-A102

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
61	969mV	0.089uA	963mV	0.073uA
62	956mV	0.111uA	960mV	0.065uA
63	957mV	0.075uA	968mV	0.081uA
64	968mV	0.055uA	952mV	0.064uA
65	975mV	0.050uA	953mV	0.117uA
66	950mV	0.052uA	977mV	0.049uA
67	973mV	0.107uA	961mV	0.112uA
68	966mV	0.108uA	976mV	0.085uA
69	974mV	0.050uA	966mV	0.104uA
70	958mV	0.061uA	951mV	0.076uA
71	949mV	0.049uA	969mV	0.089uA
72	970mV	0.083uA	952mV	0.052uA
73	971mV	0.084uA	968mV	0.072uA
74	978mV	0.076uA	976mV	0.099uA
75	961mV	0.081uA	955mV	0.066uA
76	965mV	0.115uA	953mV	0.104uA
77	971mV	0.104uA	975mV	0.060uA

Made By: Leo Hsia

Approval: Peter Yang



SeCoS Corporation

Temperature Cycle Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.02 ~ 2013.11.23

Test Standard : JESD22 STANDER Method-A104

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
1	963mV	0.080uA	954mV	0.095uA
2	972mV	0.065uA	970mV	0.114uA
3	965mV	0.082uA	949mV	0.112uA
4	951mV	0.055uA	959mV	0.117uA
5	955mV	0.047uA	952mV	0.123uA
6	962mV	0.089uA	951mV	0.132uA
7	957mV	0.107uA	978mV	0.093uA
8	954mV	0.096uA	960mV	0.116uA
9	957mV	0.128uA	956mV	0.086uA
10	978mV	0.122uA	969mV	0.116uA
11	977mV	0.061uA	953mV	0.107uA
12	973mV	0.094uA	956mV	0.055uA
13	948mV	0.055uA	967mV	0.124uA
14	960mV	0.123uA	974mV	0.054uA
15	951mV	0.058uA	979mV	0.120uA
16	969mV	0.094uA	961mV	0.131uA
17	960mV	0.058uA	958mV	0.057uA
18	974mV	0.093uA	950mV	0.105uA
19	964mV	0.097uA	948mV	0.122uA
20	978mV	0.047uA	979mV	0.081uA
21	952mV	0.060uA	948mV	0.106uA
22	971mV	0.104uA	965mV	0.103uA
23	959mV	0.091uA	973mV	0.100uA
24	951mV	0.114uA	972mV	0.105uA
25	965mV	0.093uA	964mV	0.061uA
26	977mV	0.055uA	950mV	0.050uA
27	965mV	0.074uA	977mV	0.091uA
28	957mV	0.053uA	959mV	0.089uA
29	957mV	0.121uA	976mV	0.067uA
30	948mV	0.124uA	963mV	0.063uA



SeCoS Corporation

Temperature Cycle Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.02 ~ 2013.11.23

Test Standard : JESD22 STANDER Method-A104

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
31	970mV	0.118uA	976mV	0.107uA
32	969mV	0.115uA	971mV	0.123uA
33	972mV	0.070uA	949mV	0.079uA
34	977mV	0.114uA	959mV	0.047uA
35	958mV	0.063uA	951mV	0.109uA
36	958mV	0.122uA	975mV	0.054uA
37	976mV	0.076uA	953mV	0.117uA
38	955mV	0.090uA	968mV	0.117uA
39	961mV	0.108uA	973mV	0.117uA
40	974mV	0.048uA	955mV	0.081uA
41	979mV	0.093uA	960mV	0.126uA
42	979mV	0.129uA	968mV	0.126uA
43	948mV	0.084uA	972mV	0.126uA
44	973mV	0.082uA	968mV	0.112uA
45	956mV	0.051uA	968mV	0.090uA
46	965mV	0.091uA	978mV	0.068uA
47	958mV	0.077uA	954mV	0.049uA
48	951mV	0.058uA	958mV	0.118uA
49	963mV	0.070uA	977mV	0.121uA
50	950mV	0.048uA	953mV	0.086uA
51	975mV	0.088uA	955mV	0.085uA
52	951mV	0.076uA	953mV	0.086uA
53	950mV	0.130uA	954mV	0.083uA
54	972mV	0.119uA	948mV	0.066uA
55	975mV	0.102uA	972mV	0.108uA
56	972mV	0.053uA	973mV	0.063uA
57	975mV	0.088uA	978mV	0.129uA
58	950mV	0.072uA	966mV	0.065uA
59	974mV	0.072uA	965mV	0.104uA
60	955mV	0.099uA	959mV	0.096uA



SeCoS Corporation

Temperature Cycle Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.02 ~ 2013.11.23

Test Standard : JESD22 STANDER Method-A104

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
61	959mV	0.047uA	970mV	0.072uA
62	949mV	0.093uA	967mV	0.125uA
63	970mV	0.065uA	965mV	0.077uA
64	949mV	0.071uA	969mV	0.104uA
65	952mV	0.061uA	951mV	0.074uA
66	973mV	0.117uA	968mV	0.111uA
67	972mV	0.119uA	956mV	0.068uA
68	975mV	0.125uA	962mV	0.105uA
69	956mV	0.054uA	973mV	0.115uA
70	976mV	0.078uA	975mV	0.092uA
71	972mV	0.130uA	965mV	0.101uA
72	952mV	0.065uA	963mV	0.102uA
73	954mV	0.060uA	970mV	0.106uA
74	954mV	0.092uA	949mV	0.123uA
75	970mV	0.054uA	963mV	0.073uA
76	964mV	0.092uA	976mV	0.061uA
77	975mV	0.122uA	961mV	0.082uA

Made By: Leo Hsia

Approval: Peter Yang



High Temperature High Humidity Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.17 ~ 2013.11.29

Test Standard : JESD22 STANDER Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
1	948mV	0.098uA	974mV	0.125uA
2	973mV	0.118uA	950mV	0.099uA
3	978mV	0.068uA	959mV	0.058uA
4	978mV	0.104uA	950mV	0.116uA
5	968mV	0.068uA	955mV	0.097uA
6	955mV	0.088uA	959mV	0.094uA
7	965mV	0.075uA	968mV	0.097uA
8	959mV	0.114uA	958mV	0.089uA
9	949mV	0.116uA	972mV	0.132uA
10	962mV	0.052uA	952mV	0.062uA
11	979mV	0.068uA	969mV	0.047uA
12	963mV	0.092uA	950mV	0.095uA
13	968mV	0.048uA	959mV	0.094uA
14	950mV	0.110uA	950mV	0.114uA
15	965mV	0.091uA	964mV	0.051uA
16	978mV	0.132uA	959mV	0.067uA
17	956mV	0.109uA	960mV	0.129uA
18	975mV	0.080uA	963mV	0.118uA
19	973mV	0.102uA	975mV	0.118uA
20	957mV	0.077uA	957mV	0.077uA
21	966mV	0.081uA	970mV	0.054uA
22	964mV	0.111uA	961mV	0.068uA
23	978mV	0.126uA	956mV	0.120uA
24	955mV	0.087uA	975mV	0.109uA
25	948mV	0.117uA	948mV	0.052uA
26	950mV	0.059uA	952mV	0.126uA
27	972mV	0.107uA	978mV	0.074uA
28	949mV	0.131uA	970mV	0.123uA
29	957mV	0.131uA	955mV	0.131uA
30	947mV	0.096uA	963mV	0.092uA



High Temperature High Humidity Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.17 ~ 2013.11.29

Test Standard : JESD22 STANDER Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
31	975mV	0.055uA	964mV	0.093uA
32	976mV	0.071uA	954mV	0.077uA
33	965mV	0.108uA	956mV	0.055uA
34	959mV	0.056uA	974mV	0.127uA
35	950mV	0.063uA	976mV	0.097uA
36	974mV	0.061uA	968mV	0.050uA
37	964mV	0.079uA	967mV	0.093uA
38	972mV	0.050uA	953mV	0.054uA
39	952mV	0.131uA	970mV	0.119uA
40	964mV	0.104uA	950mV	0.083uA
41	950mV	0.084uA	955mV	0.046uA
42	962mV	0.096uA	948mV	0.050uA
43	962mV	0.058uA	965mV	0.053uA
44	959mV	0.115uA	975mV	0.121uA
45	958mV	0.116uA	977mV	0.053uA
46	960mV	0.122uA	962mV	0.074uA
47	952mV	0.051uA	962mV	0.067uA
48	949mV	0.069uA	960mV	0.086uA
49	952mV	0.058uA	970mV	0.102uA
50	952mV	0.064uA	955mV	0.076uA
51	960mV	0.109uA	952mV	0.052uA
52	958mV	0.123uA	959mV	0.065uA
53	971mV	0.062uA	950mV	0.101uA
54	958mV	0.129uA	949mV	0.091uA
55	961mV	0.101uA	971mV	0.117uA
56	976mV	0.087uA	966mV	0.076uA
57	969mV	0.110uA	951mV	0.128uA
58	947mV	0.077uA	975mV	0.092uA
59	978mV	0.112uA	970mV	0.058uA
60	972mV	0.076uA	968mV	0.123uA



High Temperature High Humidity Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

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

Test Date: 2013.10.17 ~ 2013.11.29

Test Standard : JESD22 STANDER Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
61	962mV	0.098uA	963mV	0.081uA
62	948mV	0.103uA	947mV	0.073uA
63	975mV	0.102uA	953mV	0.105uA
64	950mV	0.049uA	960mV	0.047uA
65	969mV	0.070uA	973mV	0.122uA
66	973mV	0.073uA	979mV	0.048uA
67	973mV	0.066uA	978mV	0.094uA
68	962mV	0.062uA	978mV	0.051uA
69	959mV	0.085uA	967mV	0.067uA
70	976mV	0.071uA	967mV	0.046uA
71	965mV	0.047uA	974mV	0.119uA
72	964mV	0.050uA	979mV	0.066uA
73	948mV	0.114uA	948mV	0.087uA
74	971mV	0.068uA	950mV	0.083uA
75	964mV	0.104uA	961mV	0.089uA
76	957mV	0.070uA	966mV	0.101uA
77	970mV	0.064uA	957mV	0.128uA

Made By: Leo Hsia

Approval: Peter Yang



High Temperature High Hum Reverse Bias Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 85±2°C, 85±5%RH, 80% VR, 1000Hrs

Test Date: 2013.10.02 ~ 2013.11.13

Test Standard : JESD22 STANDER Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
1	978mV	0.079uA	967mV	0.127uA
2	948mV	0.055uA	955mV	0.130uA
3	956mV	0.130uA	961mV	0.049uA
4	973mV	0.113uA	958mV	0.118uA
5	956mV	0.129uA	962mV	0.122uA
6	956mV	0.072uA	951mV	0.048uA
7	976mV	0.102uA	964mV	0.125uA
8	969mV	0.129uA	952mV	0.096uA
9	962mV	0.080uA	977mV	0.052uA
10	955mV	0.100uA	968mV	0.102uA
11	959mV	0.102uA	952mV	0.071uA
12	948mV	0.115uA	960mV	0.048uA
13	977mV	0.054uA	974mV	0.084uA
14	959mV	0.050uA	975mV	0.079uA
15	972mV	0.052uA	956mV	0.091uA
16	975mV	0.114uA	975mV	0.111uA
17	979mV	0.104uA	975mV	0.082uA
18	966mV	0.062uA	977mV	0.088uA
19	954mV	0.056uA	963mV	0.124uA
20	954mV	0.059uA	978mV	0.057uA
21	972mV	0.110uA	951mV	0.088uA
22	962mV	0.060uA	979mV	0.106uA
23	961mV	0.055uA	965mV	0.115uA
24	953mV	0.103uA	978mV	0.105uA
25	972mV	0.053uA	977mV	0.066uA
26	971mV	0.053uA	968mV	0.127uA
27	975mV	0.073uA	972mV	0.123uA
28	954mV	0.048uA	976mV	0.048uA
29	970mV	0.071uA	975mV	0.129uA
30	978mV	0.067uA	974mV	0.120uA



High Temperature High Hum Reverse Bias Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 85±2°C, 85±5%RH, 80% VR, 1000Hrs

Test Date: 2013.10.02 ~ 2013.11.13

Test Standard : JESD22 STANDER Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
31	948mV	0.120uA	953mV	0.113uA
32	963mV	0.115uA	947mV	0.097uA
33	953mV	0.058uA	978mV	0.056uA
34	956mV	0.076uA	966mV	0.080uA
35	966mV	0.106uA	968mV	0.113uA
36	958mV	0.111uA	947mV	0.077uA
37	972mV	0.049uA	951mV	0.090uA
38	956mV	0.131uA	976mV	0.100uA
39	968mV	0.061uA	967mV	0.061uA
40	965mV	0.056uA	977mV	0.087uA
41	948mV	0.079uA	957mV	0.049uA
42	950mV	0.056uA	949mV	0.110uA
43	970mV	0.092uA	966mV	0.095uA
44	972mV	0.128uA	975mV	0.062uA
45	962mV	0.094uA	974mV	0.052uA
46	975mV	0.052uA	957mV	0.051uA
47	957mV	0.117uA	977mV	0.049uA
48	955mV	0.093uA	952mV	0.048uA
49	970mV	0.064uA	964mV	0.125uA
50	952mV	0.048uA	971mV	0.085uA
51	978mV	0.089uA	954mV	0.128uA
52	950mV	0.075uA	974mV	0.059uA
53	969mV	0.125uA	966mV	0.073uA
54	959mV	0.059uA	962mV	0.071uA
55	964mV	0.097uA	948mV	0.119uA
56	952mV	0.089uA	970mV	0.132uA
57	974mV	0.098uA	963mV	0.059uA
58	956mV	0.118uA	966mV	0.098uA
59	948mV	0.081uA	978mV	0.105uA
60	952mV	0.073uA	961mV	0.115uA



High Temperature High Hum Reverse Bias Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 85±2°C, 85±5%RH, 80% VR, 1000Hrs

Test Date: 2013.10.02 ~ 2013.11.13

Test Standard : JESD22 STANDER Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
61	974mV	0.131uA	976mV	0.058uA
62	974mV	0.109uA	955mV	0.072uA
63	963mV	0.048uA	954mV	0.052uA
64	956mV	0.116uA	950mV	0.113uA
65	959mV	0.122uA	970mV	0.112uA
66	971mV	0.070uA	955mV	0.060uA
67	970mV	0.093uA	968mV	0.113uA
68	961mV	0.076uA	968mV	0.052uA
69	974mV	0.053uA	973mV	0.089uA
70	960mV	0.086uA	964mV	0.059uA
71	958mV	0.091uA	964mV	0.111uA
72	979mV	0.070uA	956mV	0.080uA
73	962mV	0.109uA	978mV	0.115uA
74	958mV	0.116uA	960mV	0.111uA
75	953mV	0.129uA	948mV	0.071uA
76	952mV	0.109uA	956mV	0.064uA
77	964mV	0.093uA	964mV	0.047uA

Made By: Leo Hsia

Approval: Peter Yang



SeCoS Corporation

Solderability Test Data

Report No : T131130-015

Part No : QG507C

Test Equipment: JUNO Test System DTS-1000

Test Condition : VF<1.15V@IF=5A, IR<5uA@VR=1000V

Test Condition: 245°C ± 5°C, 5Sec

Test Date: 2013.11.30 ~ 2013.11.30

Test Standard : JESD22 STANDER Method-B102

Operator: Leo Hsia

Test Result: PASS

No	Before		After	
	VF (mV)	IR (uA)	VF (mV)	IR (uA)
1	976mV	0.048uA	951mV	0.119uA
2	967mV	0.100uA	966mV	0.063uA
3	964mV	0.072uA	966mV	0.100uA
4	967mV	0.086uA	968mV	0.105uA
5	966mV	0.102uA	965mV	0.055uA
6	966mV	0.096uA	969mV	0.118uA
7	949mV	0.083uA	966mV	0.108uA
8	973mV	0.084uA	974mV	0.092uA
9	948mV	0.105uA	961mV	0.062uA
10	973mV	0.118uA	965mV	0.114uA

Made By: Leo Hsia

Approval: Peter Yang



Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 1 of 11

EXCEL CELL ELECTRONIC CO., LTD.
NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



The following sample(s) was/were submitted and identified by/on behalf of the applicant as :

Sample Submitted By	: EXCEL CELL ELECTRONIC CO., LTD.
Sample Description	: C19210 COPPER
Sample Receiving Date	: 2013/10/02
Testing Period	: 2013/10/02 TO 2013/10/09

=====

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



Troy Chang / Manager-Tech
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 2 of 11

EXCEL CELL ELECTRONIC CO., LTD.
NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



Test Result(s)

PART NAME No.1 : COPPER COLORED METAL

Test Item(s)	Unit	Method	MDL	Result
				No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5: 2013 and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4: 2013 and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	**	With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	With reference to IEC 62321: 2008 method. Analysis was performed by GC/MS.	5	n.d.
BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	%	With reference to EN 14372. Analysis was performed by GC/MS.	0.003	n.d.
Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.
PFOA (CAS No.: 335-67-1)	mg/kg	With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.

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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 3 of 11

EXCEL CELL ELECTRONIC CO., LTD.

NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



Test Item(s)	Unit	Method	MDL	Result
				No.1
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs			-	n.d.
Monobromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether	5	n.d.		
Decabromodiphenyl ether	5	n.d.		
Halogen	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC.		
Halogen-Fluorine (F) (CAS No.: 14762-94-8)			50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)			50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)			50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)	50	n.d.		

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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 4 of 11

EXCEL CELL ELECTRONIC CO., LTD.
NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
 2. n.d. = Not Detected
 3. MDL = Method Detection Limit
 4. " - " = Not Regulated
 5. ** = Qualitative analysis (No Unit)
 6. # = a. Positive means the presence of CrVI on the tested areas
b. Negative means the absence of CrVI on the tested areas
- The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas.

PFOS Reference Information : POPs - (EU) 757/2010

Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m².

Test Report

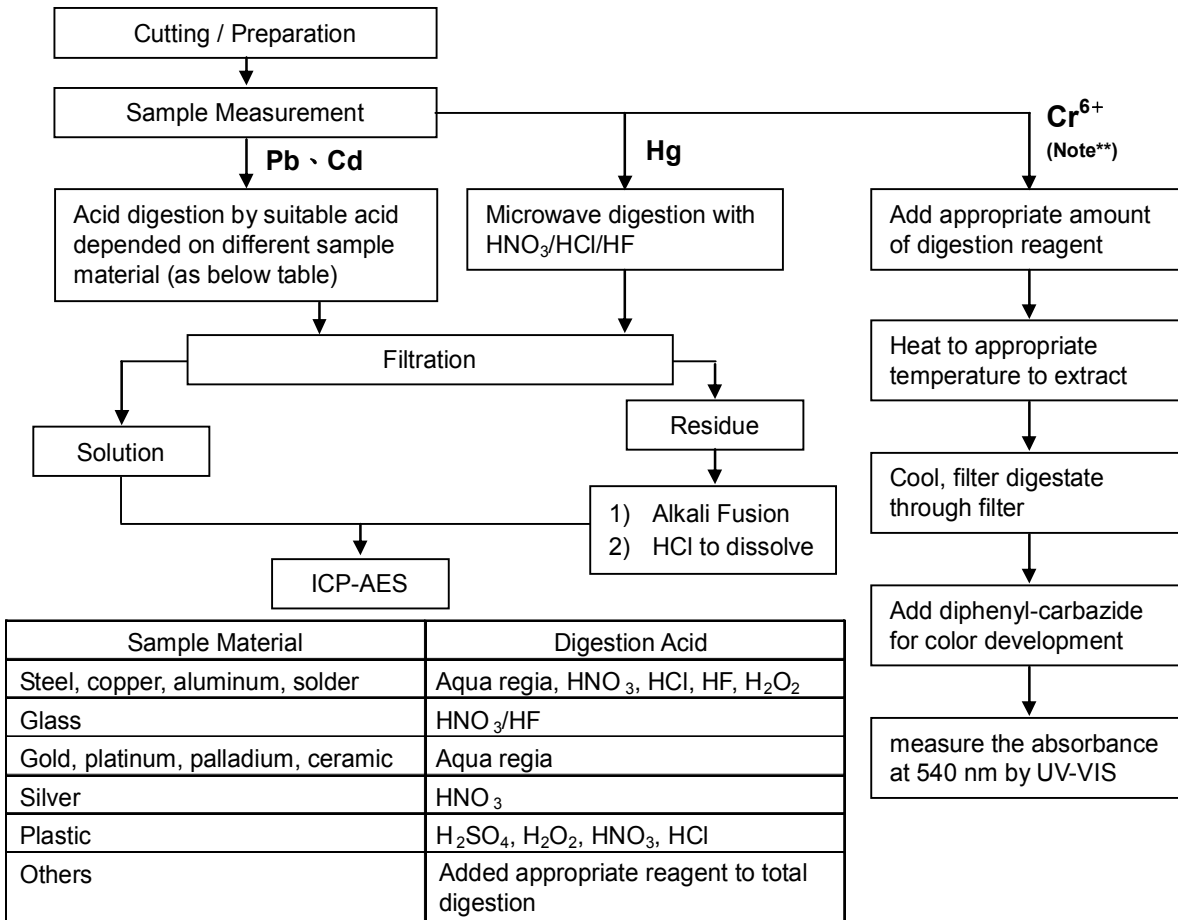
No. : CE/2013/A0292 Date : 2013/10/09 Page : 5 of 11

EXCEL CELL ELECTRONIC CO., LTD.

NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



Note :** (1) For non-metallic material, add alkaline digestion reagent and heat to 90~95 °C .
 (2) For metallic material, add pure water and heat to boiling .

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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 6 of 11

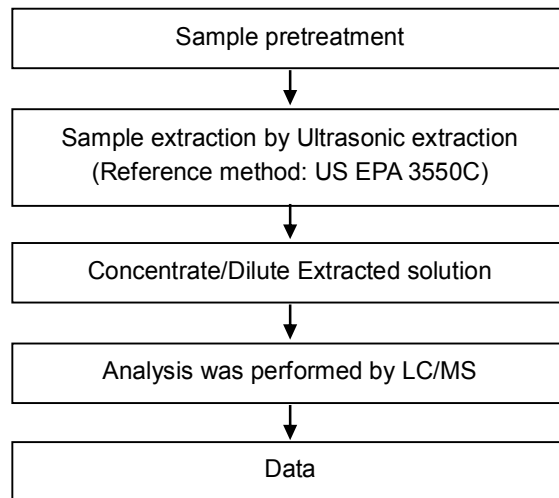
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PFOA/PFOS analytical flow chart of Ultrasonic extraction (LC/MS) procedure

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 7 of 11

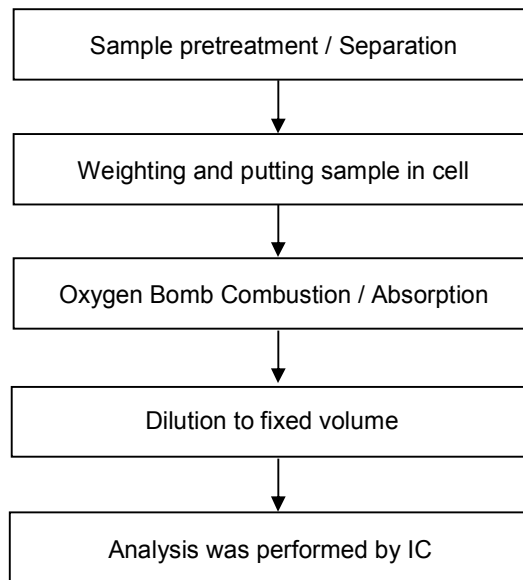
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Analytical flow chart of halogen content

- Name of the person who made measurement: Rita Chen
- Name of the person in charge of measurement: Troy Chang



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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 8 of 11

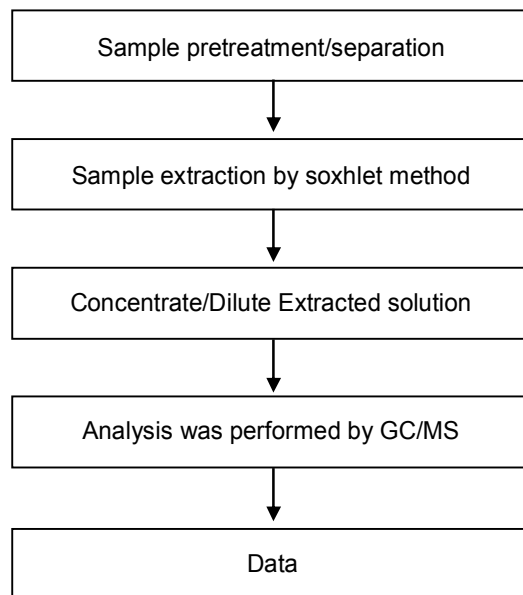
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Analytical flow chart of phthalate content

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 9 of 11

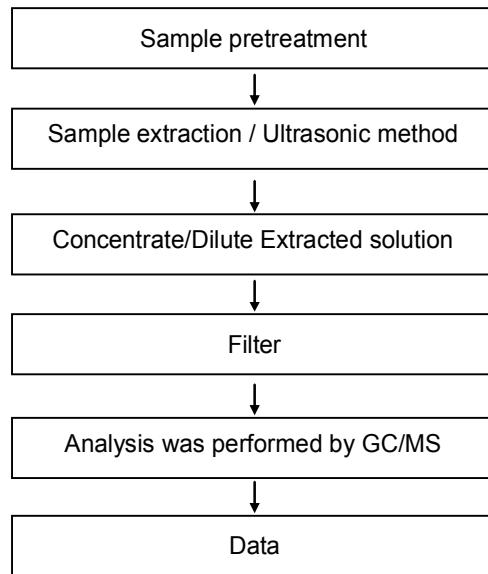
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NO. 23, 20 ROAD., TAICHUNG INDUSTRIAL PARK, TAICHUNG, TAIWAN 40850



HBCDD analytical flow chart

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



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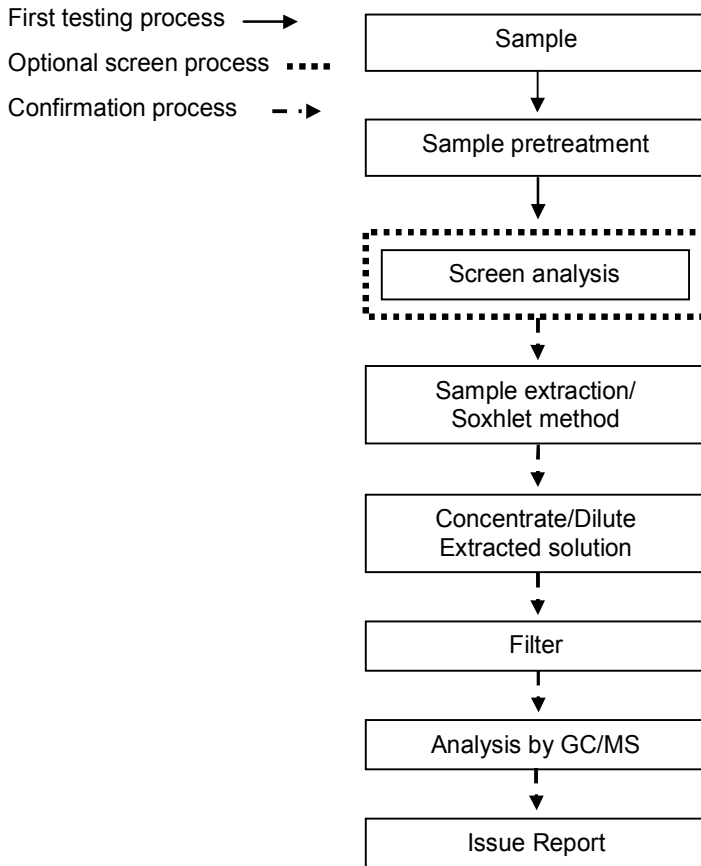
No. : CE/2013/A0292 Date : 2013/10/09 Page : 10 of 11

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PBB/PBDE analytical FLOW CHART

- Name of the person who made measurement: Roman Wong
- Name of the person in charge of measurement: Troy Chang



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Test Report

No. : CE/2013/A0292 Date : 2013/10/09 Page : 11 of 11

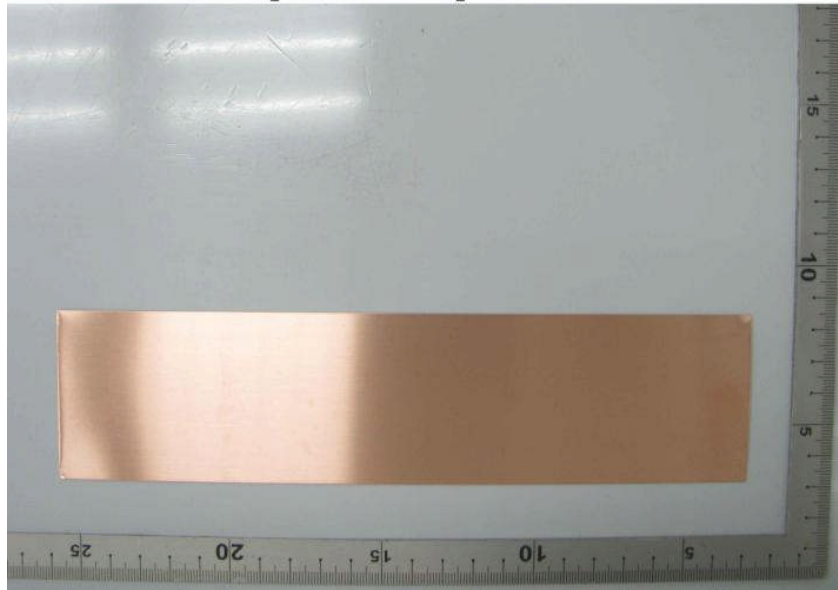
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* The tested sample / part is marked by an arrow if it's shown on the photo. *

CE/2013/A0292



** End of Report **

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