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#### **Product/Process Change Notification**

PCN#	Effective Date		Issue Date			
2018-05-04C-03	2018/8/4		2018/5/4			
PCN Classification		Product Category				
Major		Low V <sub>F</sub> Schottky				
	Sı	ubject				
Production process change from	n lead free to	halogen free.				
	Affected	l Product(s)				
SOD-123 Package of Low V <sub>F</sub> S	chottky, Such	as attachments.				
	Description	of Change(s)				
To meet EU environment requir	ement, we imp	olement halogen	free to our products.			
	Content	of Change(s)				
Adding "-C" to each part number	er.					
	Im	oact(s)				
N/A						
Attachment(s)						
Reliability 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						

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



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#### Affected Product(s)

SCS0520LP	
SCS0540LP	
SCK140LP	



# **Reliability Testing Summary Report**

Date: 2018/04/30 Document No.: SL18 -04- 140LP

Test Item	P/N	Test Condition	(LTPD)	Sample Numbers	Allow Fall Numbers	Fall Numbers	Result
HTRB High Temp Reverse Bias	SCK140LP-C	$100 \pm 5^{\circ}$ C, $80\%$ VR, T = $1000$ hrs		77	0	0	ACC
HTSL High Temperature Storage Life	SCK140LP-C	150°C, T = 1000 hrs		77	0	0	ACC
PCT Pressure Cooker Test	SCK140LP-C	121°C , 29.7PSIG, 168 hrs	77		0	0	ACC
TCT Temperature Cycle Test	SCK140LP-C	-55°C/30min, 150°C/30min, For 1000 Cycle	min, 77		0	0	ACC
THT High Temperature High Humidity Test	SCK140LP-C	85 ± 2°C, RH=85±5%, 1000 hrs	77		0	0	ACC
H3TRB High Temper High Humidity Reverse Bies Test	SCK140LP-C	85 ± 2°C, RH=85±5%, 80% VR, 1000 hrs		77	0	0	ACC
Solderability	SCK140LP-C	245 ± 5°C, 5Sec the inspected area of each lead must have 95% solder coverage minimum		10	0	0	ACC
Judgment: ■ qualit	ied ☐ unqua	lified					
-	-	Testing End Date: 2018.0	4.30				
Tester: King Hua	ng Approval:	Peter Yang					



### **Electrical Test Data**

Report No: T180430-140LP Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition: 25°C Test Date: 2018.03.05

**Test Standard : Specifications** 

Operator: Leo Hsia

Test Pacult: DASS

No	VF	VB	IR
1	418.0mV	57.03V	111.7uA
2	410.1mV	55.46V	111.1uA
3	405.4mV	56.20V	109.1uA
4	422.9mV	56.69V	110.4uA
5	418.7mV	58.67V	112.8uA
6	409.8mV	58.15V	111.8uA
7	409.1mV	56.83V	113.2uA
8	424.1mV	55.56V	110.2uA
9	409.1mV	54.34V	111.3uA
10	405.8mV	56.19V	110.2uA
11	424.0mV	58.83V	109.0uA
12	407.3mV	58.60V	109.5uA
13	416.5mV	58.80V	108.8uA
14	416.8mV	56.76V	112.1uA
15	423.5mV	58.69V	107.9uA
16	415.0mV	54.62V	113.1uA
17	399.1mV	56.90V	110.6uA
18	421.6mV	58.09V	109.1uA
19	415.4mV	55.18V	110.5uA
20	416.6mV	57.70V	112.6uA
21	404.9mV	54.33V	109.2uA
22	413.9mV	57.27V	110.4uA
23	413.7mV	56.08V	110.0uA
24	415.4mV	56.46V	109.2uA
25	415.4mV	56.50V	109.9uA
26	404.5mV	58.23V	107.8uA
27	414.5mV	55.66V	112.0uA
28	402.5mV	58.30V	108.1uA
29	400.0mV	57.99V	109.2uA
30	423.9mV	57.68V	112.4uA
31	398.8mV	59.26V	110.6uA



### **Electrical Test Data**

Report No: T180430-140LP Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition: 25°C Test Date: 2018.03.05

**Test Standard : Specifications** 

Operator: Leo Hsia

Toot Docult: DACC

No	VF	VB	IR
32	419.7mV	57.66V	113.7uA
33	423.6mV	54.73V	111.3uA
34	402.6mV	55.90V	109.2uA
35	411.7mV	58.60V	108.3uA
36	401.8mV	58.39V	110.5uA
37	399.1mV	55.57V	109.5uA
38	405.3mV	58.25V	110.8uA
39	405.4mV	56.25V	112.1uA
40	412.0mV	58.88V	109.4uA
41	403.2mV	58.94V	110.1uA
42	421.7mV	58.80V	108.0uA
43	423.7mV	55.34V	108.2uA
44	422.6mV	59.09V	108.6uA
45	411.3mV	56.62V	113.4uA
46	408.1mV	57.34V	110.8uA
47	415.5mV	58.33V	109.8uA
48	411.7mV	56.67V	108.1uA
49	400.1mV	58.68V	109.2uA
50	416.3mV	56.02V	111.3uA
51	415.2mV	56.06V	110.3uA
52	406.2mV	56.28V	113.3uA
53	421.4mV	59.01V	113.5uA
54	407.8mV	57.44V	110.0uA
55	412.0mV	58.55V	108.0uA
56	409.3mV	57.20V	108.3uA
57	405.2mV	55.41V	109.0uA
58	415.5mV	58.72V	111.0uA
59	420.8mV	57.77V	111.5uA
60	411.2mV	55.74V	108.8uA
61	408.3mV	55.90V	109.4uA
62	410.1mV	56.67V	109.9uA



#### **Electrical Test Data**

Report No: T180430-140LP Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition: 25°C Test Date: 2018.03.05

**Test Standard : Specifications** 

Operator: Leo Hsia

Test Result: PASS

Test Result. P	ASS		
No	VF	VB	IR
63	424.7mV	56.36V	108.8uA
64	418.4mV	55.66V	108.0uA
65	402.3mV	55.84V	108.4uA
66	416.9mV	59.05V	111.2uA
67	421.0mV	58.57V	112.3uA
68	412.3mV	58.83V	112.9uA
69	400.4mV	54.92V	109.2uA
70	398.8mV	55.26V	111.5uA
71	404.8mV	56.41V	111.0uA
72	420.6mV	57.40V	111.0uA
73	409.2mV	55.83V	112.4uA
74	424.9mV	57.96V	109.9uA
75	408.1mV	57.26V	110.7uA
76	399.6mV	56.76V	112.9uA
77	400.0mV	56.68V	112.5uA

Made By: King Huang Approval: Peter Yang



## **High Temperature Reverse Bias Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition:  $100 \pm 5^{\circ}$ C, 80% VR, T = 1000 hrs

Test Date: 2018.03.06 ~ 2018.04.18

Test Standard: JESD22 STANDARD Method-A108

Operator: Leo Hsia

	Before			After		
No	VF	VB	IR	VF	VB	IR
1	401.7mV	55.69V	109.1uA	408.2mV	55.12V	113.1uA
2	422.1mV	55.94V	111.9uA	415.4mV	54.40V	110.6uA
3	408.7mV	57.24V	108.1uA	405.5mV	54.87V	110.1uA
4	423.0mV	56.93V	108.6uA	399.0mV	56.34V	110.1uA
5	409.0mV	59.02V	109.2uA	403.7mV	57.13V	113.4uA
6	402.1mV	55.81V	112.5uA	417.0mV	54.67V	110.1uA
7	402.4mV	54.94V	108.3uA	398.7mV	58.58V	108.2uA
8	413.6mV	55.44V	110.3uA	404.7mV	57.98V	109.6uA
9	423.0mV	54.96V	111.0uA	415.2mV	59.15V	108.9uA
10	422.7mV	57.75V	113.0uA	410.8mV	56.69V	108.5uA
11	405.2mV	57.43V	110.2uA	423.9mV	56.66V	110.7uA
12	400.6mV	55.79V	110.3uA	421.7mV	54.45V	108.1uA
13	419.3mV	58.15V	113.0uA	400.9mV	58.42V	112.6uA
14	398.2mV	57.08V	108.9uA	399.9mV	59.01V	111.2uA
15	421.1mV	58.80V	112.0uA	404.2mV	55.16V	110.1uA
16	406.9mV	56.71V	113.4uA	410.0mV	57.19V	110.6uA
17	402.7mV	57.07V	112.8uA	419.9mV	57.60V	113.3uA
18	421.1mV	57.38V	112.6uA	402.4mV	57.40V	112.8uA
19	404.8mV	55.82V	110.9uA	401.3mV	58.57V	111.8uA
20	419.5mV	54.53V	112.5uA	419.6mV	56.64V	110.9uA
21	408.8mV	59.24V	109.9uA	424.0mV	57.81V	113.3uA
22	406.6mV	56.81V	111.5uA	403.0mV	55.22V	110.5uA
23	424.8mV	56.64V	109.8uA	414.4mV	56.61V	108.4uA
24	423.1mV	54.63V	110.8uA	404.9mV	56.54V	109.9uA
25	423.9mV	56.40V	111.5uA	404.6mV	54.49V	113.0uA
26	406.1mV	58.50V	112.6uA	398.3mV	56.78V	111.4uA
27	417.9mV	56.40V	110.4uA	421.9mV	56.53V	109.2uA
28	407.7mV	57.81V	112.2uA	407.4mV	54.39V	108.8uA
29	409.1mV	59.00V	110.1uA	415.6mV	57.91V	110.8uA
30	398.2mV	57.11V	111.2uA	398.9mV	55.47V	113.2uA



## **High Temperature Reverse Bias Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition:  $100 \pm 5^{\circ}$ C, 80%VR, T = 1000 hrs

Test Date: 2018.03.06 ~ 2018.04.18

Test Standard: JESD22 STANDARD Method-A108

Operator: Leo Hsia

	Before				After	
No	VF	VB	IR	VF	VB	IR
31	425.0mV	56.03V	110.1uA	420.1mV	56.83V	113.0uA
32	420.8mV	58.85V	113.5uA	413.3mV	56.76V	111.2uA
33	413.9mV	58.73V	109.6uA	424.1mV	57.25V	112.8uA
34	409.6mV	56.12V	108.4uA	421.7mV	59.27V	111.8uA
35	401.5mV	56.75V	108.0uA	400.6mV	58.21V	108.9uA
36	421.2mV	56.24V	111.1uA	407.7mV	54.96V	111.6uA
37	423.9mV	55.89V	110.1uA	411.2mV	56.21V	110.1uA
38	413.4mV	55.85V	113.0uA	422.1mV	57.86V	111.8uA
39	419.4mV	56.81V	112.2uA	401.5mV	55.48V	113.2uA
40	399.0mV	55.92V	108.8uA	420.9mV	55.30V	109.2uA
41	402.8mV	58.32V	110.0uA	405.3mV	57.38V	113.2uA
42	405.4mV	56.92V	109.3uA	423.6mV	59.04V	109.9uA
43	399.6mV	56.23V	113.6uA	415.2mV	56.21V	111.6uA
44	404.5mV	58.88V	108.0uA	410.2mV	58.88V	110.4uA
45	417.3mV	54.36V	108.0uA	404.5mV	57.30V	108.1uA
46	423.9mV	58.89V	111.5uA	405.2mV	58.02V	108.6uA
47	407.2mV	58.76V	112.6uA	410.5mV	57.09V	112.0uA
48	403.6mV	55.94V	110.1uA	400.3mV	59.26V	111.9uA
49	406.2mV	55.66V	109.3uA	410.6mV	58.40V	110.5uA
50	401.0mV	58.90V	110.2uA	424.8mV	57.11V	108.8uA
51	418.3mV	57.59V	109.4uA	420.7mV	58.28V	108.8uA
52	413.0mV	56.71V	111.9uA	415.3mV	58.48V	113.1uA
53	402.5mV	57.77V	108.0uA	422.5mV	54.70V	108.6uA
54	413.9mV	58.94V	113.6uA	403.9mV	59.24V	112.3uA
55	422.5mV	55.46V	110.7uA	421.4mV	54.60V	109.9uA
56	416.4mV	54.58V	112.9uA	422.6mV	57.94V	109.1uA
57	405.6mV	55.71V	111.9uA	419.8mV	57.48V	112.8uA
58	415.9mV	54.92V	111.5uA	422.4mV	57.88V	108.6uA
59	409.2mV	55.55V	110.6uA	410.9mV	57.65V	109.7uA
60	414.7mV	57.18V	110.8uA	414.1mV	57.44V	108.9uA



## **High Temperature Reverse Bias Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition:  $100 \pm 5^{\circ}$ C, 80%VR, T = 1000 hrs

Test Date: 2018.03.06 ~ 2018.04.18

Test Standard: JESD22 STANDARD Method-A108

Operator: Leo Hsia

Test Result: PASS

Test Result.	17100					
	Before			After		
No	VF	VB	IR	VF	VB	IR
61	400.8mV	54.98V	111.3uA	420.2mV	55.72V	111.8uA
62	409.0mV	58.54V	108.9uA	398.1mV	57.55V	108.0uA
63	413.9mV	56.86V	113.3uA	408.1mV	54.65V	109.9uA
64	401.5mV	54.61V	109.0uA	398.4mV	56.48V	111.4uA
65	412.1mV	56.72V	108.1uA	419.5mV	54.39V	111.2uA
66	422.3mV	58.42V	112.2uA	400.4mV	55.44V	111.8uA
67	421.8mV	54.86V	111.9uA	418.7mV	58.35V	112.9uA
68	407.7mV	57.98V	113.4uA	417.2mV	56.35V	109.5uA
69	398.3mV	57.05V	112.2uA	414.3mV	54.92V	110.5uA
70	400.2mV	54.91V	110.0uA	421.9mV	57.87V	112.0uA
71	410.2mV	54.62V	108.2uA	404.1mV	55.74V	111.1uA
72	416.6mV	54.39V	110.5uA	418.3mV	54.91V	110.3uA
73	423.6mV	56.39V	112.3uA	412.7mV	56.47V	110.1uA
74	424.8mV	56.55V	108.2uA	413.2mV	56.19V	109.0uA
75	401.4mV	57.60V	107.9uA	410.4mV	56.71V	112.0uA
76	420.3mV	56.99V	111.0uA	404.2mV	57.82V	112.9uA
77	400.8mV	56.63V	107.9uA	413.0mV	56.49V	110.8uA

Made By: King Huang Approval: Peter Yang



## **High Temperature Storage Life Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition: 150°C, 1000Hrs Test Date: 2018.03.06 ~ 2018.04.18

Test Standard: JESD22 STANDARD Method-A103

Operator: Leo Hsia

	Before			After		
No	VF	VB	IR	VF	VB	IR
1	412.7mV	58.40V	112.7uA	408.4mV	55.34V	110.9uA
2	419.1mV	59.05V	111.2uA	402.0mV	57.07V	113.4uA
3	405.1mV	57.70V	113.7uA	411.5mV	56.80V	113.6uA
4	417.9mV	57.31V	108.0uA	421.2mV	57.29V	111.8uA
5	414.4mV	56.12V	110.2uA	407.6mV	57.27V	112.4uA
6	401.0mV	57.75V	113.6uA	418.2mV	59.00V	112.6uA
7	424.1mV	55.08V	111.0uA	417.3mV	58.46V	110.0uA
8	421.4mV	54.73V	113.6uA	420.4mV	58.14V	110.3uA
9	407.7mV	58.81V	109.9uA	420.9mV	54.94V	108.4uA
10	412.0mV	57.96V	110.6uA	408.8mV	56.15V	109.1uA
11	415.4mV	54.75V	111.0uA	423.5mV	57.82V	108.9uA
12	418.8mV	57.83V	109.0uA	400.1mV	56.07V	112.4uA
13	403.0mV	56.41V	109.1uA	413.5mV	55.67V	109.3uA
14	398.4mV	56.50V	113.3uA	402.0mV	57.35V	109.4uA
15	420.0mV	54.79V	109.8uA	408.2mV	56.08V	111.9uA
16	419.0mV	55.94V	108.7uA	405.8mV	57.83V	110.9uA
17	410.4mV	56.61V	112.2uA	411.0mV	56.39V	112.0uA
18	420.3mV	57.97V	110.5uA	424.3mV	56.64V	113.0uA
19	398.0mV	58.62V	108.7uA	412.4mV	58.18V	110.8uA
20	419.3mV	54.57V	112.6uA	408.3mV	58.62V	112.0uA
21	415.6mV	54.40V	108.1uA	399.6mV	54.55V	113.6uA
22	417.9mV	58.29V	108.1uA	409.4mV	55.09V	110.5uA
23	416.4mV	56.68V	111.0uA	405.3mV	57.02V	109.0uA
24	409.1mV	56.14V	112.8uA	410.0mV	57.50V	108.6uA
25	409.6mV	55.48V	108.4uA	400.1mV	58.84V	112.4uA
26	415.6mV	56.32V	109.3uA	403.1mV	55.21V	111.8uA
27	411.1mV	56.03V	109.3uA	413.8mV	56.75V	110.2uA
28	414.4mV	57.97V	111.2uA	410.7mV	58.73V	110.6uA
29	418.1mV	55.58V	107.9uA	423.0mV	55.94V	112.8uA
30	424.7mV	55.76V	112.1uA	419.5mV	58.52V	111.0uA



## **High Temperature Storage Life Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition: 150°C, 1000Hrs Test Date: 2018.03.06 ~ 2018.04.18

Test Standard: JESD22 STANDARD Method-A103

Operator: Leo Hsia

	Before				After		
No	VF	VB	IR	VF	VB	IR	
31	401.3mV	58.76V	110.2uA	422.8mV	56.49V	110.8uA	
32	419.0mV	54.45V	108.9uA	413.7mV	54.79V	110.5uA	
33	415.2mV	55.21V	113.7uA	403.7mV	57.78V	113.6uA	
34	420.2mV	57.84V	112.4uA	416.8mV	55.80V	109.2uA	
35	405.5mV	55.61V	113.0uA	411.3mV	54.59V	111.5uA	
36	418.9mV	56.76V	113.2uA	421.8mV	59.18V	109.7uA	
37	410.9mV	58.22V	111.3uA	410.5mV	56.52V	110.4uA	
38	409.3mV	57.70V	110.8uA	422.3mV	57.37V	112.3uA	
39	415.9mV	55.21V	110.6uA	403.8mV	58.64V	108.8uA	
40	402.2mV	54.54V	108.4uA	417.6mV	57.72V	113.6uA	
41	419.6mV	58.70V	107.9uA	412.1mV	55.50V	113.6uA	
42	402.0mV	54.50V	111.5uA	401.7mV	57.60V	112.7uA	
43	407.0mV	57.76V	110.5uA	399.2mV	58.03V	108.8uA	
44	399.0mV	55.87V	108.1uA	413.1mV	55.92V	107.9uA	
45	424.4mV	54.54V	110.1uA	417.9mV	56.13V	110.2uA	
46	420.2mV	55.86V	113.1uA	406.1mV	58.72V	108.7uA	
47	416.8mV	58.30V	112.0uA	410.6mV	55.33V	112.6uA	
48	420.2mV	58.74V	110.1uA	420.7mV	58.59V	111.7uA	
49	416.4mV	57.19V	112.7uA	401.4mV	57.27V	109.7uA	
50	414.5mV	56.73V	112.9uA	416.9mV	54.92V	108.9uA	
51	420.8mV	55.66V	110.0uA	408.6mV	55.35V	111.2uA	
52	401.1mV	55.23V	113.1uA	401.4mV	54.56V	111.9uA	
53	417.9mV	54.69V	109.3uA	418.1mV	54.55V	113.7uA	
54	408.9mV	58.99V	108.7uA	402.1mV	55.56V	110.4uA	
55	402.2mV	58.01V	111.3uA	403.4mV	55.71V	111.4uA	
56	400.6mV	58.83V	113.5uA	416.0mV	58.69V	110.3uA	
57	402.0mV	57.96V	111.8uA	409.4mV	57.08V	109.5uA	
58	405.9mV	58.12V	112.5uA	417.3mV	54.50V	107.9uA	
59	407.5mV	55.58V	111.8uA	405.8mV	56.94V	109.3uA	
60	409.1mV	57.38V	111.0uA	420.8mV	55.90V	108.6uA	



## **High Temperature Storage Life Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition: 150°C, 1000Hrs Test Date: 2018.03.06 ~ 2018.04.18

Test Standard: JESD22 STANDARD Method-A103

Operator: Leo Hsia

Test Result: PASS

Test Kesuit.	rass					
		Before			After	
No	VF	VB	IR	VF	VB	IR
61	418.4mV	56.00V	108.5uA	401.7mV	58.73V	111.8uA
62	422.9mV	57.16V	111.6uA	415.0mV	58.01V	108.3uA
63	399.0mV	54.36V	110.4uA	398.1mV	58.49V	111.9uA
64	424.9mV	56.71V	113.1uA	412.6mV	58.01V	109.6uA
65	403.2mV	55.49V	111.4uA	404.1mV	59.15V	108.1uA
66	417.1mV	56.23V	110.0uA	408.3mV	57.60V	113.2uA
67	417.9mV	55.93V	113.3uA	419.1mV	57.57V	108.9uA
68	408.4mV	57.35V	111.8uA	399.7mV	57.81V	113.5uA
69	407.8mV	55.85V	110.9uA	411.7mV	57.64V	109.4uA
70	402.6mV	58.27V	113.7uA	401.8mV	57.69V	108.7uA
71	415.4mV	55.71V	107.9uA	420.4mV	57.28V	113.4uA
72	420.4mV	55.19V	108.5uA	419.1mV	55.19V	111.8uA
73	402.2mV	57.31V	109.4uA	418.6mV	58.45V	110.8uA
74	409.5mV	54.56V	109.7uA	415.9mV	57.26V	112.6uA
75	416.9mV	57.60V	108.7uA	405.9mV	57.40V	112.3uA
76	424.2mV	55.30V	113.5uA	404.6mV	54.96V	109.4uA
77	409.6mV	54.98V	107.8uA	412.4mV	55.31V	113.3uA

Made By: King Huang Approval: Peter Yang



#### **Pressure Cooker Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.05 ~ 2018.03.13

Test Standard: JESD22 STANDARD Method-A102

Operator: Leo Hsia

		Before		After		
No	VF	VB	IR	VF	VB	IR
1	399.7mV	57.18V	113.4uA	403.7mV	59.21V	113.3u
2	400.0mV	58.56V	111.4uA	420.9mV	57.40V	108.1u
3	413.6mV	57.00V	113.5uA	404.2mV	59.14V	110.3u
4	398.5mV	56.28V	112.7uA	401.1mV	56.85V	110.3u
5	404.7mV	59.27V	108.4uA	410.3mV	55.94V	112.8u
6	399.0mV	56.15V	110.1uA	418.8mV	59.20V	112.7u
7	414.6mV	58.05V	109.2uA	420.7mV	54.59V	108.4u
8	421.3mV	57.64V	109.1uA	416.7mV	56.67V	110.1u
9	409.7mV	54.93V	108.7uA	409.6mV	54.86V	109.1u
10	417.7mV	56.90V	111.8uA	414.5mV	59.20V	109.0u
11	414.4mV	54.76V	112.6uA	417.6mV	55.68V	110.0u
12	415.1mV	58.14V	111.3uA	421.9mV	55.18V	109.9u
13	402.7mV	54.60V	112.6uA	412.3mV	56.11V	112.2u
14	413.8mV	55.09V	109.5uA	418.2mV	57.04V	110.8u
15	408.9mV	57.15V	108.0uA	401.1mV	58.61V	108.0u
16	409.3mV	58.98V	112.2uA	407.0mV	55.35V	111.5u
17	409.6mV	58.13V	112.1uA	421.5mV	57.71V	108.8u
18	404.2mV	54.95V	113.3uA	413.9mV	57.62V	108.2u
19	411.2mV	54.98V	108.4uA	418.4mV	57.81V	109.3u
20	410.6mV	57.45V	110.6uA	413.7mV	54.92V	112.0u
21	416.2mV	57.83V	109.1uA	411.3mV	54.59V	107.9u
22	420.7mV	57.85V	111.0uA	421.5mV	54.44V	113.3u
23	407.0mV	57.12V	109.2uA	402.4mV	58.57V	108.1u
24	408.7mV	56.85V	108.0uA	404.2mV	58.15V	113.6u
25	421.3mV	56.65V	108.9uA	423.6mV	57.23V	112.4u
26	419.9mV	56.18V	111.3uA	422.7mV	58.34V	113.2u
27	421.6mV	59.20V	112.1uA	411.5mV	55.35V	110.9u
28	415.4mV	54.36V	108.4uA	411.6mV	57.85V	109.6u
29	424.7mV	55.14V	109.8uA	415.3mV	57.28V	113.7u
30	409.6mV	57.83V	112.0uA	414.8mV	57.41V	112.2u



#### **Pressure Cooker Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.05 ~ 2018.03.13

Test Standard: JESD22 STANDARD Method-A102

Operator: Leo Hsia

		Before		After		
No	VF	VB	IR	VF	VB	IR
31	403.7mV	56.73V	113.2uA	414.7mV	58.55V	113.3u
32	413.3mV	56.63V	111.1uA	424.7mV	57.64V	110.1u
33	424.1mV	57.91V	112.9uA	403.1mV	54.42V	112.5u.
34	422.1mV	57.43V	108.1uA	401.1mV	55.04V	113.2u
35	415.3mV	55.22V	110.5uA	401.3mV	55.51V	109.6u
36	412.0mV	57.87V	112.8uA	409.7mV	57.21V	111.3u
37	404.6mV	56.36V	111.2uA	411.8mV	55.43V	110.9u
38	398.7mV	56.69V	110.9uA	417.8mV	56.32V	108.3u
39	423.5mV	54.55V	109.2uA	415.8mV	54.69V	112.0u
40	420.3mV	58.23V	109.6uA	404.3mV	56.30V	109.9u
41	405.3mV	58.58V	111.6uA	417.3mV	57.53V	113.2u
42	413.7mV	56.20V	111.2uA	412.3mV	54.62V	111.8u
43	399.2mV	56.51V	112.8uA	402.1mV	55.97V	111.6u
44	406.2mV	56.58V	112.0uA	407.0mV	56.64V	111.5u
45	411.0mV	58.43V	111.3uA	410.0mV	58.03V	113.2u
46	403.2mV	54.46V	108.4uA	406.4mV	54.48V	113.4u
47	402.1mV	56.55V	108.5uA	410.9mV	56.67V	109.0u
48	409.3mV	58.01V	111.7uA	400.8mV	56.02V	111.9u
49	411.9mV	57.75V	108.7uA	402.7mV	57.37V	110.5u
50	401.6mV	58.72V	109.5uA	419.8mV	55.32V	109.3u
51	424.0mV	56.64V	110.6uA	415.4mV	58.43V	110.8u
52	417.7mV	58.46V	108.9uA	403.3mV	59.18V	112.1u
53	400.2mV	55.35V	112.4uA	416.3mV	57.94V	108.1u
54	405.8mV	58.56V	112.3uA	399.9mV	58.18V	108.9u
55	399.7mV	58.81V	111.8uA	399.5mV	54.84V	108.4u
56	401.2mV	57.79V	112.0uA	405.1mV	58.10V	112.0u
57	406.6mV	55.69V	108.2uA	417.6mV	58.16V	112.9u
58	404.3mV	59.15V	113.1uA	408.7mV	58.72V	108.9u
59	400.7mV	55.92V	110.1uA	416.5mV	55.80V	109.4u
60	404.2mV	58.65V	112.5uA	406.4mV	56.64V	109.9u



#### **Pressure Cooker Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.05 ~ 2018.03.13

Test Standard: JESD22 STANDARD Method-A102

Operator: Leo Hsia

Test Result: PASS

Test Kesuit.	rass					
		Before			After	
No	VF	VB	IR	VF	VB	IR
61	410.8mV	58.69V	110.7uA	398.7mV	54.63V	111.3uA
62	400.2mV	55.93V	110.2uA	423.9mV	54.63V	112.3uA
63	402.7mV	56.63V	110.3uA	407.3mV	58.40V	108.8uA
64	418.5mV	55.45V	111.5uA	411.6mV	55.94V	113.6uA
65	398.5mV	54.52V	110.1uA	404.9mV	56.97V	113.6uA
66	408.5mV	54.97V	113.3uA	424.0mV	58.88V	113.5uA
67	420.2mV	59.16V	112.8uA	411.9mV	58.86V	110.4uA
68	401.8mV	58.51V	108.1uA	401.7mV	58.66V	109.8uA
69	405.5mV	56.51V	110.1uA	409.4mV	57.53V	111.2uA
70	406.2mV	56.48V	108.3uA	422.7mV	56.19V	109.2uA
71	422.2mV	58.53V	109.3uA	422.4mV	57.27V	113.5uA
72	405.4mV	55.40V	108.0uA	400.6mV	58.24V	110.5uA
73	423.0mV	57.39V	110.1uA	424.6mV	59.00V	111.6uA
74	402.1mV	58.43V	108.5uA	398.3mV	55.31V	111.5uA
75	405.0mV	57.54V	109.7uA	399.3mV	55.54V	109.3uA
76	407.3mV	55.42V	112.7uA	409.4mV	58.82V	107.9uA
77	409.0mV	56.03V	109.6uA	420.1mV	55.30V	108.8uA

Made By: King Huang Approval: Peter Yang



# **Temperature Cycle Test Data**

Report No: T180430-140LP Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.06 ~ 2018.04.27

Test Standard: JESD22 STANDARD Method-A104

Operator: Leo Hsia

		Before			After			
No	VF	VB	IR	VF	VB	IR		
1	411.0mV	59.13V	112.7uA	424.1mV	55.77V	108.5uA		
2	398.3mV	56.11V	109.0uA	405.7mV	55.86V	110.7uA		
3	400.4mV	54.94V	108.2uA	400.9mV	58.56V	108.5uA		
4	405.1mV	59.24V	111.2uA	416.6mV	54.74V	112.9uA		
5	415.0mV	59.23V	110.6uA	419.0mV	58.94V	109.3uA		
6	402.4mV	57.24V	108.2uA	407.4mV	57.19V	109.7uA		
7	424.8mV	57.66V	108.7uA	418.8mV	57.59V	108.7uA		
8	416.0mV	55.43V	108.5uA	409.9mV	54.52V	109.7uA		
9	402.1mV	54.32V	111.3uA	414.0mV	55.03V	112.0uA		
10	403.3mV	54.45V	112.3uA	422.1mV	59.11V	113.4uA		
11	424.9mV	58.99V	111.9uA	412.9mV	57.52V	110.3uA		
12	404.4mV	56.75V	107.8uA	413.7mV	54.53V	109.5uA		
13	422.5mV	58.57V	113.0uA	403.6mV	58.73V	111.7uA		
14	416.2mV	58.28V	109.4uA	415.5mV	54.50V	108.2uA		
15	401.3mV	54.63V	108.6uA	408.4mV	54.97V	112.8uA		
16	408.5mV	57.53V	108.6uA	410.7mV	58.95V	110.7uA		
17	418.3mV	58.89V	111.1uA	401.4mV	58.96V	112.1uA		
18	415.3mV	56.44V	112.7uA	416.0mV	57.75V	111.2uA		
19	413.6mV	58.26V	108.0uA	411.6mV	57.00V	108.7uA		
20	413.1mV	55.92V	112.0uA	400.0mV	56.95V	110.3uA		
21	401.6mV	58.13V	107.8uA	403.3mV	58.29V	109.9uA		
22	410.5mV	54.54V	112.1uA	422.3mV	58.05V	108.4uA		
23	415.9mV	56.57V	109.4uA	417.6mV	56.59V	113.4uA		
24	413.1mV	57.56V	110.6uA	416.8mV	58.52V	110.9uA		
25	412.8mV	55.23V	109.6uA	414.2mV	54.32V	112.3uA		
26	421.8mV	57.44V	108.3uA	404.7mV	54.47V	112.9uA		
27	411.5mV	57.75V	111.0uA	414.1mV	57.08V	113.0uA		
28	408.2mV	57.07V	108.6uA	423.3mV	54.32V	111.2uA		
29	406.4mV	56.22V	108.2uA	414.2mV	54.59V	113.1uA		
30	406.6mV	55.35V	108.0uA	406.0mV	57.31V	111.1uA		



# **Temperature Cycle Test Data**

Report No: T180430-140LP Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.06 ~ 2018.04.27

Test Standard: JESD22 STANDARD Method-A104

Operator: Leo Hsia

	Before			After			
No	VF	VB	IR	VF	VB	IR	
31	412.7mV	54.66V	109.4uA	419.9mV	55.57V	113.4uA	
32	424.4mV	55.33V	110.2uA	407.3mV	57.03V	107.8uA	
33	404.2mV	57.79V	108.6uA	408.8mV	55.54V	109.7uA	
34	404.9mV	54.58V	109.1uA	424.1mV	55.56V	110.3uA	
35	408.8mV	57.24V	113.0uA	400.6mV	57.99V	113.1uA	
36	400.2mV	55.77V	108.9uA	404.7mV	58.32V	108.7uA	
37	408.6mV	56.68V	113.5uA	406.8mV	58.03V	113.0uA	
38	414.9mV	56.08V	109.7uA	423.1mV	58.63V	109.8uA	
39	400.6mV	57.58V	113.1uA	418.5mV	59.11V	109.1uA	
40	424.9mV	57.30V	110.8uA	420.6mV	59.26V	110.5uA	
41	404.4mV	57.03V	113.2uA	405.7mV	55.00V	109.5uA	
42	415.4mV	57.85V	110.8uA	409.3mV	56.08V	109.9uA	
43	420.0mV	55.82V	113.6uA	417.7mV	55.53V	113.2uA	
44	424.5mV	57.01V	110.5uA	419.9mV	57.10V	109.0uA	
45	411.3mV	54.68V	111.8uA	401.5mV	54.64V	110.7uA	
46	418.7mV	54.49V	111.6uA	410.0mV	56.10V	109.3uA	
47	403.2mV	55.52V	110.6uA	421.5mV	58.35V	108.9uA	
48	417.9mV	56.00V	109.6uA	410.8mV	57.54V	108.6uA	
49	402.4mV	55.32V	112.4uA	407.0mV	55.60V	111.7uA	
50	411.1mV	58.61V	109.6uA	424.5mV	57.97V	111.5uA	
51	400.3mV	59.10V	111.7uA	406.0mV	58.26V	108.1uA	
52	420.1mV	55.93V	111.3uA	403.5mV	58.38V	107.9uA	
53	421.8mV	55.87V	109.1uA	404.7mV	54.45V	108.6uA	
54	416.5mV	55.09V	108.7uA	419.2mV	58.61V	108.0uA	
55	401.6mV	54.63V	110.7uA	410.7mV	58.40V	109.1uA	
56	419.3mV	59.18V	111.6uA	421.0mV	54.83V	109.3uA	
57	399.3mV	54.69V	109.2uA	407.2mV	58.33V	110.1uA	
58	421.5mV	57.05V	108.3uA	420.6mV	59.11V	109.0uA	
59	405.5mV	58.36V	109.6uA	399.2mV	57.94V	111.2uA	
60	413.1mV	57.52V	111.4uA	409.0mV	55.78V	108.3uA	



# **SeCos** Corporation

# **Temperature Cycle Test Data**

Report No: T180430-140LP Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.06 ~ 2018.04.27

Test Standard: JESD22 STANDARD Method-A104

Operator: Leo Hsia

Test Result: PASS

Test Kesuit.	rass					
		Before			After	
No	VF	VB	IR	VF	VB	IR
61	400.0mV	58.96V	111.2uA	405.5mV	57.57V	110.6uA
62	404.4mV	56.69V	112.6uA	400.3mV	55.88V	107.8uA
63	411.8mV	55.86V	109.3uA	399.3mV	56.87V	107.9uA
64	417.6mV	58.96V	108.2uA	401.6mV	56.19V	109.7uA
65	423.7mV	57.93V	113.2uA	398.7mV	55.38V	111.9uA
66	408.6mV	57.42V	111.3uA	399.8mV	55.91V	112.3uA
67	411.9mV	57.09V	113.5uA	398.2mV	58.77V	110.9uA
68	421.7mV	58.48V	108.5uA	416.0mV	58.54V	111.4uA
69	425.0mV	57.75V	112.1uA	412.5mV	56.58V	108.2uA
70	418.8mV	56.01V	113.6uA	412.9mV	57.16V	108.0uA
71	417.2mV	55.08V	109.8uA	410.6mV	56.31V	111.5uA
72	403.9mV	56.08V	113.1uA	402.8mV	56.92V	109.7uA
73	415.7mV	56.28V	109.8uA	402.7mV	58.79V	108.3uA
74	407.7mV	55.10V	110.9uA	403.4mV	57.65V	111.5uA
75	415.5mV	57.03V	112.3uA	416.6mV	56.58V	110.3uA
76	421.3mV	56.34V	112.1uA	407.9mV	55.25V	113.4uA
77	414.2mV	55.78V	113.0uA	403.9mV	58.24V	108.5uA

Made By: King Huang Approval: Peter Yang



## **High Temperature High Humidity Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.13 ~ 2018.04.25

Test Standard: JESD22 STANDARD Method-A101

Operator: Leo Hsia

		Before		After		
No	VF	VB	IR	VF	VB	IR
1	421.7mV	58.62V	109.6uA	404.2mV	57.87V	110.2uA
2	424.2mV	57.66V	107.9uA	402.0mV	55.71V	110.9u <i>A</i>
3	409.3mV	57.04V	108.6uA	402.6mV	54.59V	107.9u <i>A</i>
4	416.4mV	56.46V	111.1uA	406.1mV	57.11V	111.8u <i>A</i>
5	405.6mV	57.78V	108.7uA	410.2mV	59.18V	108.3u <i>A</i>
6	413.8mV	58.73V	109.2uA	400.7mV	57.36V	112.7u <i>A</i>
7	420.4mV	57.42V	112.0uA	401.4mV	54.57V	108.6u <i>A</i>
8	400.4mV	56.12V	110.4uA	412.9mV	56.11V	111.8u <i>A</i>
9	416.3mV	55.01V	113.6uA	413.1mV	54.57V	110.8u <i>A</i>
10	398.1mV	54.59V	110.9uA	423.3mV	55.68V	113.4u <i>A</i>
11	406.9mV	56.10V	108.6uA	418.7mV	55.79V	109.8u <i>A</i>
12	421.5mV	55.37V	111.5uA	406.4mV	58.32V	111.6u <i>A</i>
13	409.1mV	58.61V	113.3uA	398.4mV	59.20V	112.5u <i>A</i>
14	402.0mV	57.95V	112.9uA	401.2mV	54.35V	111.7u <i>A</i>
15	423.8mV	54.77V	112.5uA	415.7mV	56.99V	108.9u <i>A</i>
16	404.2mV	54.42V	109.8uA	400.4mV	59.04V	109.4u <i>A</i>
17	417.8mV	56.45V	110.5uA	400.5mV	56.91V	111.3u
18	418.1mV	58.29V	113.5uA	414.4mV	54.76V	110.3u
19	424.3mV	54.86V	108.4uA	422.1mV	54.35V	108.7u
20	421.5mV	58.50V	109.6uA	404.1mV	56.37V	108.8u <i>A</i>
21	413.4mV	58.18V	112.4uA	416.9mV	59.19V	112.5u <i>A</i>
22	419.4mV	58.88V	111.5uA	404.4mV	58.87V	112.4u <i>A</i>
23	419.6mV	58.28V	109.8uA	405.2mV	56.05V	109.0u <i>A</i>
24	407.8mV	55.99V	108.8uA	424.3mV	56.87V	109.0u <i>A</i>
25	413.7mV	58.03V	112.8uA	424.9mV	57.00V	110.4u
26	424.9mV	55.76V	112.1uA	424.4mV	55.89V	112.8u
27	421.9mV	57.49V	110.1uA	409.3mV	55.96V	109.7u
28	406.8mV	55.27V	111.1uA	422.8mV	56.65V	109.6u <i>A</i>
29	400.0mV	57.39V	108.1uA	412.9mV	58.53V	110.8u <i>A</i>
30	420.2mV	56.07V	110.4uA	398.5mV	54.33V	108.2u <i>A</i>



## **High Temperature High Humidity Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.13 ~ 2018.04.25

Test Standard: JESD22 STANDARD Method-A101

Operator: Leo Hsia

		Before		After		
No	VF	VB	IR	VF	VB	IR
31	415.8mV	58.39V	108.9uA	412.1mV	54.67V	111.4uA
32	409.5mV	55.91V	109.8uA	402.0mV	57.80V	109.9uA
33	400.4mV	58.22V	108.8uA	418.5mV	57.28V	112.1uA
34	399.8mV	57.47V	108.8uA	417.3mV	56.66V	113.4uA
35	417.4mV	55.96V	111.2uA	411.4mV	55.58V	111.6uA
36	420.9mV	58.07V	109.2uA	419.1mV	57.19V	109.5uA
37	424.4mV	56.43V	109.6uA	420.8mV	55.59V	111.3uA
38	413.4mV	56.01V	109.7uA	424.0mV	57.75V	109.7uA
39	423.8mV	57.41V	107.9uA	419.5mV	55.63V	112.0uA
40	401.9mV	57.01V	108.6uA	398.2mV	58.32V	111.7uA
41	405.5mV	56.47V	112.6uA	414.8mV	59.02V	113.6uA
42	407.0mV	57.75V	113.1uA	423.1mV	54.81V	113.0uA
43	411.4mV	59.24V	111.2uA	412.1mV	56.25V	109.7uA
44	399.9mV	55.61V	110.2uA	408.7mV	57.80V	110.0uA
45	420.3mV	57.73V	110.8uA	419.8mV	56.46V	111.3uA
46	407.2mV	56.00V	113.6uA	401.1mV	58.34V	111.0uA
47	410.1mV	58.31V	109.1uA	409.5mV	58.97V	112.8uA
48	414.9mV	58.16V	109.4uA	413.2mV	55.86V	112.3uA
49	407.6mV	57.18V	110.2uA	401.2mV	58.13V	113.6uA
50	403.7mV	58.32V	112.5uA	404.8mV	55.28V	108.5uA
51	400.6mV	56.23V	112.3uA	398.1mV	57.17V	112.1uA
52	416.4mV	59.08V	109.3uA	402.7mV	56.95V	110.1uA
53	421.1mV	55.43V	111.0uA	405.9mV	58.35V	112.3uA
54	405.9mV	57.11V	110.7uA	401.4mV	57.22V	109.8uA
55	411.5mV	55.52V	111.3uA	398.2mV	58.00V	112.7uA
56	404.8mV	54.92V	112.7uA	400.2mV	58.00V	109.7uA
57	425.0mV	56.44V	108.4uA	404.7mV	57.67V	111.9uA
58	409.3mV	54.79V	109.6uA	412.7mV	56.15V	111.8uA
59	412.9mV	59.04V	111.3uA	401.7mV	57.17V	111.5uA
60	402.8mV	57.45V	110.0uA	412.1mV	55.51V	111.5uA



## **High Temperature High Humidity Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.13 ~ 2018.04.25

Test Standard: JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

Test Result:		Before		After			
No	VF	VB	IR	VF	VB	IR	
61	410.6mV	55.41V	112.9uA	418.3mV	59.25V	109.1uA	
62	410.0mV	54.60V	113.1uA	399.0mV	55.18V	109.9uA	
63	408.3mV	58.77V	111.1uA	415.9mV	59.18V	112.6uA	
64	401.7mV	58.63V	108.7uA	407.6mV	58.55V	113.6uA	
65	419.0mV	59.04V	112.0uA	407.5mV	58.77V	111.2uA	
66	423.9mV	56.41V	112.8uA	419.4mV	55.03V	113.1uA	
67	414.9mV	56.14V	108.2uA	414.8mV	56.07V	111.3uA	
68	409.8mV	57.71V	112.8uA	422.2mV	55.26V	109.5uA	
69	417.7mV	57.19V	108.0uA	412.8mV	55.01V	108.9uA	
70	421.9mV	54.81V	110.6uA	413.4mV	54.81V	108.6uA	
71	417.3mV	58.81V	112.4uA	424.6mV	55.40V	111.8uA	
72	406.2mV	58.69V	113.2uA	404.2mV	55.50V	113.3uA	
73	414.8mV	57.25V	109.7uA	398.3mV	55.29V	108.3uA	
74	408.4mV	59.21V	109.4uA	406.1mV	55.07V	113.0uA	
75	403.2mV	56.13V	111.3uA	415.8mV	57.14V	110.3uA	
76	401.2mV	57.03V	111.2uA	419.9mV	56.71V	111.8uA	
77	408.1mV	57.67V	112.6uA	409.3mV	55.16V	108.0uA	

Made By: King Huang Approval: Peter Yang



# **High Temper High Humidity Reverse Bies Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.13 ~ 2018.04.25

Test Standard: JESD22 STANDARD Method-A101

Operator: Leo Hsia

		Before		After		
No	VF	VB	IR	VF	VB	IR
1	419.1mV	55.12V	111.5uA	420.4mV	58.24V	112.9uA
2	415.9mV	59.17V	110.0uA	403.8mV	56.82V	111.1uA
3	418.7mV	57.22V	110.7uA	421.5mV	58.24V	110.1uA
4	413.0mV	56.53V	108.2uA	412.4mV	57.44V	111.3uA
5	415.2mV	55.32V	112.6uA	399.6mV	55.86V	108.4uA
6	411.1mV	55.02V	111.0uA	410.5mV	56.57V	112.9uA
7	422.0mV	57.27V	108.0uA	410.7mV	56.88V	110.6uA
8	401.1mV	54.53V	108.3uA	407.0mV	55.28V	109.0uA
9	407.1mV	56.10V	111.1uA	407.3mV	56.75V	112.6uA
10	417.3mV	57.49V	110.0uA	418.6mV	56.07V	109.9uA
11	423.0mV	55.64V	107.9uA	409.2mV	55.52V	111.7uA
12	420.3mV	57.23V	108.8uA	407.6mV	56.08V	108.1uA
13	413.9mV	58.30V	113.3uA	419.1mV	54.77V	108.5uA
14	412.1mV	54.36V	108.1uA	413.8mV	58.20V	113.5uA
15	411.1mV	55.48V	111.7uA	419.4mV	57.77V	108.2uA
16	406.1mV	58.22V	111.1uA	424.2mV	54.37V	110.8uA
17	400.6mV	54.58V	112.7uA	421.0mV	54.73V	112.3uA
18	412.5mV	57.62V	110.3uA	400.9mV	58.16V	108.7uA
19	400.1mV	54.63V	112.4uA	398.3mV	57.09V	111.1uA
20	398.6mV	54.73V	113.2uA	412.1mV	58.96V	109.9uA
21	399.4mV	56.95V	107.9uA	399.3mV	56.75V	109.6uA
22	402.2mV	58.11V	113.5uA	408.5mV	56.60V	109.2uA
23	420.1mV	55.00V	111.5uA	408.6mV	54.92V	109.9uA
24	415.5mV	56.53V	113.3uA	403.7mV	59.02V	110.0uA
25	403.3mV	56.72V	108.3uA	399.5mV	56.02V	110.8uA
26	418.7mV	57.93V	111.9uA	403.1mV	57.94V	112.0uA
27	422.5mV	56.10V	110.7uA	410.1mV	54.35V	113.2uA
28	403.6mV	57.78V	109.5uA	405.9mV	58.21V	110.5uA
29	408.9mV	58.56V	112.6uA	401.1mV	55.21V	112.3uA
30	417.0mV	57.45V	112.8uA	420.5mV	58.41V	109.9uA



## **High Temper High Humidity Reverse Bies Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.13 ~ 2018.04.25

Test Standard: JESD22 STANDARD Method-A101

Operator: Leo Hsia

		Before		After		
No	VF	VB	IR	VF	VB	IR
31	422.1mV	54.87V	110.6uA	404.2mV	56.49V	111.2uA
32	413.2mV	58.43V	108.7uA	409.3mV	56.37V	108.6uA
33	417.5mV	54.43V	109.0uA	410.5mV	54.52V	110.1uA
34	399.4mV	59.19V	111.0uA	407.7mV	55.53V	111.4uA
35	423.0mV	56.76V	111.8uA	424.8mV	57.77V	113.4uA
36	424.0mV	56.97V	111.4uA	419.7mV	57.83V	109.9uA
37	402.7mV	55.85V	112.1uA	399.5mV	57.61V	112.1uA
38	401.4mV	56.98V	109.8uA	398.6mV	57.24V	108.9uA
39	413.4mV	56.47V	109.0uA	418.1mV	57.98V	110.6uA
40	411.8mV	55.71V	108.4uA	421.0mV	57.98V	109.6uA
41	408.3mV	55.17V	111.2uA	414.5mV	58.10V	112.0uA
42	422.3mV	55.99V	110.0uA	421.1mV	58.88V	110.3uA
43	424.2mV	56.30V	113.0uA	406.9mV	56.58V	113.5uA
44	408.7mV	56.98V	108.7uA	400.3mV	57.95V	109.2uA
45	407.6mV	56.94V	110.3uA	407.6mV	58.08V	110.9uA
46	405.2mV	59.17V	110.7uA	398.4mV	56.96V	109.4uA
47	424.2mV	57.81V	107.9uA	417.7mV	57.35V	111.4uA
48	415.3mV	56.81V	111.8uA	400.9mV	59.19V	109.7uA
49	402.4mV	54.49V	111.2uA	406.5mV	58.79V	110.7uA
50	411.1mV	57.72V	110.2uA	411.1mV	58.01V	111.4uA
51	403.3mV	57.35V	110.7uA	423.2mV	59.26V	109.3uA
52	410.3mV	56.08V	108.5uA	409.9mV	57.32V	110.8uA
53	403.7mV	57.09V	108.7uA	401.9mV	55.41V	108.3uA
54	415.9mV	57.49V	108.2uA	410.4mV	55.94V	111.6uA
55	423.7mV	55.27V	110.5uA	404.6mV	58.28V	108.1uA
56	408.8mV	54.72V	109.8uA	401.1mV	58.48V	112.3uA
57	410.7mV	57.87V	113.3uA	424.1mV	56.18V	112.3uA
58	414.1mV	57.55V	110.9uA	405.2mV	59.25V	108.4uA
59	420.8mV	54.52V	113.5uA	420.6mV	58.44V	109.5uA
60	424.2mV	54.51V	109.1uA	416.4mV	55.57V	109.4uA



## **High Temper High Humidity Reverse Bies Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

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

Test Date: 2018.03.13 ~ 2018.04.25

Test Standard: JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

Test Result:	PASS			ı		
		Before			After	
No	VF	VB	IR	VF	VB	IR
61	403.3mV	57.06V	107.8uA	402.5mV	57.65V	108.0uA
62	400.2mV	56.95V	111.4uA	405.6mV	56.44V	112.3uA
63	412.4mV	56.22V	113.1uA	422.4mV	58.74V	112.2uA
64	409.1mV	55.73V	110.6uA	413.4mV	57.84V	108.3uA
65	403.9mV	57.31V	109.7uA	408.2mV	56.38V	112.3uA
66	402.0mV	59.10V	110.9uA	420.3mV	57.95V	113.4uA
67	412.9mV	56.94V	108.9uA	412.5mV	56.56V	111.3uA
68	420.0mV	54.63V	109.6uA	417.9mV	56.69V	113.4uA
69	403.5mV	58.08V	113.7uA	407.7mV	58.78V	109.1uA
70	410.0mV	54.89V	110.7uA	399.5mV	57.05V	109.8uA
71	405.5mV	57.28V	108.6uA	418.8mV	56.45V	108.9uA
72	414.4mV	58.99V	108.1uA	409.0mV	57.26V	112.0uA
73	414.8mV	56.98V	109.2uA	417.1mV	58.96V	109.2uA
74	413.8mV	57.50V	111.6uA	409.4mV	58.50V	112.6uA
75	411.1mV	58.19V	108.4uA	402.1mV	59.21V	110.8uA
76	416.7mV	56.56V	110.0uA	416.2mV	55.94V	110.6uA
77	411.3mV	57.20V	111.7uA	409.0mV	58.02V	109.0uA

Made By: King Huang Approval: Peter Yang



# **Solderability Test Data**

Report No: T180430-140LP

Part No: SCK140LP-C

Test Equipment: JUNO Test System DTS-1000

Test Condition: VF<450mV@IF=1A, VB>40V@IR=1mA, IR<500uA@VR=40V

Test Condition:  $245^{\circ}$ C  $\pm 5^{\circ}$ C, 5Sec

Test Date: 2018.04.28

Test Standard: JESD22 STANDER Method-B102

Operator: Leo Hsia

Test Result: PASS

		Before			After		
No	VF	VB	IR	VF	VB	IR	
1	406.7mV	57.12V	110.6uA	413.4mV	58.29V	113.5uA	
2	412.9mV	54.76V	108.4uA	424.6mV	56.41V	109.0uA	
3	407.9mV	54.52V	111.3uA	406.6mV	57.86V	113.3uA	
4	424.9mV	54.73V	112.6uA	409.3mV	59.09V	109.9uA	
5	401.3mV	58.22V	108.7uA	399.3mV	56.37V	111.0uA	
6	424.8mV	57.39V	109.7uA	402.2mV	56.87V	112.3uA	
7	404.4mV	57.09V	112.0uA	420.7mV	56.96V	109.7uA	
8	410.2mV	58.91V	110.0uA	410.6mV	54.73V	108.4uA	
9	420.9mV	59.16V	112.5uA	414.5mV	55.62V	112.8uA	
10	398.5mV	58.64V	113.1uA	414.4mV	58.77V	113.6uA	

Made By: King Huang Approval: Peter Yang



## 試驗報告

號碼(No.): KA/2017/61160 日期(Date): 2017/06/15

頁數 (Page): 1 of 21

#### Test Report

義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

72242 台南市佳里區六安里六安130號/江蘇省無錫市錫山區東港鎮錫港東路35號

NO. 130, LIOUAN, LIOUAN LI, JIALI DIST., TAINAN CITY, TAIWAN

NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as):

樣品名稱(Sample Description) : EPOXY MOLDING COMPOUND

樣品型號(Style/Item No.) ELER-8-SERIES 收件日期(Sample Receiving Date) : 2017/06/13

測試期間(Testing Period) 2017/06/13 TO 2017/06/15

送樣廠商(Sample Submitted By) : 義典科技股份有限公司 (E'DALE TECHNOLOGY CO., LTD.)

\_\_\_\_\_\_

#### 測試需求(Test Requested)

- (1) 依據客户指定,參考RoHS2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP. (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted
- (2) 其他測試項目請見下一頁 . (Please refer to next pages for the other item(s).)

測試結果(Test Results)

: 請見下一頁 (Please refer to next pages).

絟 論(Conclusion)

(1) 根據客户所提供的樣品,其鎬、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP的測試結果符合RoHS指令暨(EU) 2015/863之限值要求. (Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS and amending Directive (EU) 2015/863.)

報告簽署人/Ray Chan Signed for and on behalf of

SGS Taiwan Limited

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### 試驗報告

號碼(No.): KA/2017/61160 日期(Date): 2017/06/15

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## Test Report

義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

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NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

#### 測試結果(Test Results)

測試部位(PART NAME)No.1

: 黑色 EPOXY MOLDING COMPOUND (BLACK EPOXY MOLDING COMPOUND)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値 (MDL)	結果 (Result) No.1	限値 (Limit)
鎬 / Cadmium (Cd)	mg/kg	參考IEC 62321-5:2013方法, 以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321-5:2013 and performed by ICP-AES.	2	n.d.	100
鉛 / Lead (Pb)	mg/kg	參考IEC 62321-5:2013方法,以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321-5:2013 and performed by ICP-AES.	2	n.d.	1000
汞 / Mercury (Hg)	mg/kg	參考IEC 62321-4:2013方法, 以感應耦合 電漿原子發射光譜儀檢測. / With reference to IEC 62321-4:2013 and performed by ICP-AES.	2	n.d.	1000
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	参考IEC 62321-7-2:2017,以UV-VIS檢測. / With reference to IEC 62321-7-2:2017 and performed by UV-VIS.	8	n.d.	1000

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### 試驗報告

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## Test Report

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値	結果 (Result)	限値 (Limit)
(lest liems)	(Unit)	(Method)	(MDL)	No.1	(Limit)
多溴聯苯總和 / Sum of PBBs	mg/kg		-	n.d.	1000
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n.d.	-
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n.d.	-
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n.d.	-
四溴聯苯 / Tetrabromobiphenyl	mg/kg	參考IEC 62321-6: 2015方法,以氣相層	5	n.d.	-
五溴聯苯 / Pentabromobiphenyl	mg/kg	析/質譜儀檢測. / With reference to	5	n.d.	-
六溴聯苯 / Hexabromobiphenyl	mg/kg	IEC 62321-6: 2015 and performed by GC/MS.	5	n.d.	-
七溴聯苯 / Heptabromobiphenyl	mg/kg	967 Mg.	5	n.d.	-
八溴聯苯 / Octabromobiphenyl	mg/kg		5	n.d.	-
九溴聯苯 / Nonabromobiphenyl	mg/kg		5	n.d.	-
十溴聯苯 / Decabromobiphenyl	mg/kg		5	n.d.	-
多溴聯苯醚總和 / Sum of PBDEs	mg/kg		-	n.d.	1000
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg		5	n.d.	-
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg		5	n.d.	-
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n.d.	-
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg	參考IEC 62321-6: 2015方法,以氣相層	5	n.d.	-
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg	析/質譜儀檢測. / With reference to	5	n.d.	-
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg	IEC 62321-6: 2015 and performed by GC/MS.	5	n.d.	-
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg		5	n.d.	-
八溴聯苯醚 / Octabromodiphenyl ether	mg/kg		5	n.d.	-
九溴聯苯醚 / Nonabromodiphenyl ether	mg/kg		5	n.d.	-
十溴聯苯醚 / Decabromodiphenyl ether	mg/kg		5	n.d.	-

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# Test Report

義典科技股份有限公司

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値 (MDL)	結果 (Result)	限值 (Limit)
	/1		, ,	No.1	1000
州本一下改一共 1 晌 / DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg		50	n.d.	1000
鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg		50	n.d.	1000
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg		50	n.d.	1000
鄰苯二甲酸二 (2-乙基己基)酯 / DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg		50	n.d.	1000
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0, 68515-49-1)	mg/kg	参考IEC 62321-8:2017, 以氣相層析儀/ 質譜儀檢測. / With reference to IEC	50	n.d.	-
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0, 68515-48-0)	mg/kg	62321-8:2017. Analysis was performed by GC/MS.	50	n.d.	-
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	mg/kg		50	n.d.	-
鄰苯二甲酸二(2-甲氧基乙基)酯 / DMEP (Bis (2-methoxyethyl) phthalate) (CAS No.: 117-82-8)	mg/kg		50	n.d.	-
鄰苯二甲酸二正戊酯/ DNPP(Di-n-pentyl phthalate) (CAS No.: 131-18-0)	mg/kg		50	n.d.	-
鄰苯二甲酸二己酯 / DNHP (Di-n-hexyl phthalate) (CAS No.: 84-75-3)	mg/kg		50	n.d.	-

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# Test Report

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値	結果 (Result)	限値 (Limit)
(lest Items)	(Unit)	(Method)	(MDL)	No.1	· (Dimit)
绨 / Antimony (Sb)	mg/kg	参考US EPA 3052方法,用感應藕合電漿原子發射光譜儀檢測錦含量. / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	2	n.d.	-
皱 / Beryllium (Be)	mg/kg	参考US EPA 3052方法,用感應藕合電漿原子發射光譜儀檢測鈹含量. / With reference to US EPA Method 3052 for Beryllium Content. Analysis was performed by ICP-AES.	2	n.d.	-
あ中 / Arsenic (As)	mg/kg	参考US EPA 3052方法,用感應藕合電漿原子發射光譜儀檢測砷含量. / With reference to US EPA Method 3052 for Arsenic Content. Analysis was performed by ICP-AES.	2	n.d.	-
磷 / Phosphorus (P)	mg/kg	参考US EPA 3052方法,用感應藕合電漿原子發射光譜儀檢測磷含量. / With reference to US EPA Method 3052 for Phosphorus Content. Analysis was performed by ICP-AES.	10	115	-
六溴環十二烷及所有主要被蔣列出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ -HBCDD, $\beta$ -HBCDD, $\gamma$ -HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	参考IEC 62321: 2008方法,以氣相層析/質譜儀檢測. / With reference to IEC 62321: 2008 method. Analysis was performed by GC/MS.	5	n.d.	-
四溴雙酚-A / Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	mg/kg	参考RSTS-E&E-121方法,以液相層析/質 譜儀分析. / With reference to RSTS- E&E-121. Analysis was performed by LC/MS.	10	n.d.	-

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値	結果 (Result)	限値 (Limit)
(1000 100mb)	(610)	(	(MDL)	No.1	
紅磷 / Red phosphorus	**	本測試以熱裂解-氣相層析/質譜儀分析. / Analysis was performed by Pyrolyzer-GC/MS.	-	Negative	-
聚氣乙烯 / PVC	**	以紅外光譜分析及焰色法檢測. / Analysis was performed by FTIR and FLAME Test.	-	Negative	=
全氟辛酸(銨) / PFOA (CAS No.: 335-67-1)	mg/kg	参考US EPA 3550C: 2007方法,以液相層析/質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS)	mg/kg	参考US EPA 3550C: 2007方法,以液相層析/質譜儀檢測. / With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
鹵素 / Halogen					
鹵素(氟)/ Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg		50	n.d.	-
鹵素 (氣) / Halogen-Chlorine (C1) (CAS No.: 022537-15-1)	mg/kg	参考BS EN 14582:2016,以離子層析儀分析./ With reference to BS EN	50	104	-
鹵素(溴)/ Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/kg	14582:2016. Analysis was performed by IC.	50	n.d.	-
鹵素(碘)/ Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/kg		50	n.d.	-

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限値	結果 (Result)	限値 (Limit)
<b>,</b>	<b>, ,</b>	,	(MDL)	No.1	
多環芳香烴 / Polynuclear Aromatic Hydrocarbons (PAHs)					
苊 / Acenaphthene (CAS No.: 83-32-9)	mg/kg		0.2	n.d.	-
苊烯 / Acenaphthylene (CAS No.: 208-96-8)	mg/kg		0.2	n.d.	-
蒽 / Anthracene (CAS No.: 120-12-7)	mg/kg		0.2	n.d.	-
苯駢蒽 / Benzo(a)anthracene (CAS No.: 56-55-3)	mg/kg		0.2	n.d.	-
苯駢(a)芘 / Benzo[a]pyrene (CAS No.: 50-32-8)	mg/kg		0.2	n.d.	-
苯(b)苯駢芴 / Benzo[b]fluoranthene (CAS No.: 205-99-2)	mg/kg		0.2	n.d.	-
苯駢菲 / Benzo[g,h,i]perylene (CAS No.: 191-24-2)	mg/kg		0.2	n.d.	=
苯(k)苯駢芴 / Benzo[k]fluoranthene (CAS No.: 207-08-9)	mg/kg	   参考AfPS GS 2014:01 PAK方法,以氣相	0.2	n.d.	=
Chrysene (CAS No.: 218-01-9)	mg/kg	層析/質譜儀檢測. / With reference to	0.2	n.d.	-
二苯騈蒽 / Dibenzo[a,h]anthracene (CAS No.: 53-70-3)	mg/kg	AfPS GS 2014:01 PAK method. Analysis was performed by GC/MS.	0.2	n.d.	-
苯駢芴 / Fluoranthene (CAS No.: 206-44-0)	mg/kg	and politorimou by obj.mbv	0.2	n.d.	-
芴 / Fluorene (CAS No.: 86-73-7)	mg/kg		0.2	n.d.	-
茚酮芘 / Indeno[1,2,3-c,d] pyrene (CAS No.: 193-39-5)	mg/kg		0.2	n.d.	-
禁 / Naphthalene (CAS No.: 91-20-3)	mg/kg		0.2	n.d.	-
菲 / Phenanthrene (CAS No.: 85-01-8)	mg/kg		0.2	n.d.	-
芘 / Pyrene (CAS No.: 129-00-0)	mg/kg		0.2	n.d.	-
苯(j)苯駢芴 / Benzo[j]fluoranthene (CAS No.: 205-82-3)	mg/kg		0.2	n.d.	-
苯駢(e)芘 / Benzo[e]pyrene (CAS No.: 192- 97-2)	mg/kg		0.2	n.d.	-
多環芳香烴18項總和 / Sum of 18 PAHs	mg/kg		-	n.d.	-

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#### 試驗報告

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# Test Report

義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

72242 台南市佳里區六安里六安130號/江蘇省無錫市錫山區東港鎮錫港東路35號

NO. 130, LIOUAN, LIOUAN LI, JIALI DIST., TAINAN CITY, TAIWAN

NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

#### 備註(Note):

- 1. mg/kg = ppm ; 0.1wt% = 1000ppm
- 2. n.d. = Not Detected (未檢出)
- 3. MDL = Method Detection Limit (方法偵測極限值)
- 4. "-" = Not Regulated (無規格值)
- 5. \*\*= Qualitative analysis (No Unit) 定性分析(無單位)
- 6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
- 7. 聚氯乙烯測試由SGS其他實驗室執行 (The PVC test was subcontracted to other SGS Laboratory. )
- 8. 紅磷定性分析測試由SGS其他實驗室執行

(The Red Phosphorus test was subcontracted to other SGS Laboratory.)

#### PFOS参考資訊(Reference Information): 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm),在半成品、成品或零部件中不得超過0.1%(1000ppm),在紡織品或塗層材料中不得 超過1µg/m²。(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%(1000 ppm), in textiles or other coated materials above  $1 \mu g/m^2$ .)

全氟辛烷磺酸指全氟辛烷磺酸和它的衍生物包括全氟辛烷磺酸,全氟辛基磺醯胺,N-甲基全氟辛烷磺酰胺,N-乙基全氟辛烷磺酰胺, N-甲基全氟辛基磺酰基氨基乙醇, N-乙基全氟辛基磺酰基氨基乙醇。(PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluoroctanesulfonic acid, Perfluoroctane sulfonamide, N-Methylperfluoroctane sulfonamide, N- $Ethyl perfluoroctane \ sulfonamide, \ N-Methyl perfluoroctane \ sulfonamidoethanol \ and \ N-Ethyl perfluoroctane \ sulfonamidoethanol \ sulfon$ sulfonamidoethanol.)

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#### Test Report

義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

72242 台南市佳里區六安里六安130號/江蘇省無錫市錫山區東港鎮錫港東路35號

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NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

#### 德國產品安全委員會(AfPS) GS PAHs 要求 /

AfPS (German commission for Product Safety): GS PAHs requirements

項目 (Parameter)	第1類 (Category 1)	第2類 (C	ategory 2)	第3類 (Category 3)		
	意圖放入嘴内的材料 或玩具會與皮膚有所 接觸(超過30秒). (Material indented to be put in the mouth or toys with intended skin	不屬於第1類的材料並可預見與皮膚接 觸逾30秒(長期或經常與皮膚接觸). (Materials not falling under category 1 with foreseeable contact to skin for longer than 30 seconds (long-term skin or frequent contact).)		可預見與皮膚接觸短於30秒(短期與皮膚接觸),以及不屬於第1類或第2類的材料. (Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 seconds (short-term skin contact).)		
	contact (longer than 30 s).)		列於德國產品安全 法之其他產品 (Other products under ProdSG)	列於2009/48/EC之 玩具 (Toy under 2009/48/EC)	列於德國產品安全 法之其他產品 (Other products under ProdSG)	
Naphthalene	< 1	<	2	<	10	
Acenaphthylene						
Acenaphthene						
Fluorene	< 1 Sum	< 5 Sum				
Phenanthrene			< 10 Sum	< 20 Sum	< 50 Sum	
Anthracene						
Fluoranthene						
Pyrene						
Benzo[a]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Benzo[b]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Benzo[j]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Benzo[k]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Benzo[a]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Benzo[e]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Indeno[1,2,3-c,d] pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Dibenzo[a,h]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
Benzo[g,h,i]perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1	
18項PAH總濃度 (Sum of 18 PAH)	< 1	< 5	< 10	< 20	< 50	

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#### 試驗報告

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### Test Report

義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

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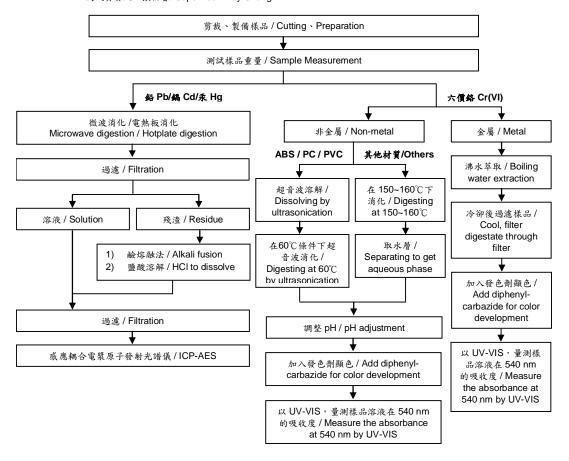
NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

#### 重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件,樣品已完全溶解。(六價鉻測試方法除外)

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr6+ test method excluded)

- 測試人員:劉俊宏/ Technician: Jony Liu
- 測試負責人:張伯睿/ Supervisor: Ray Chang



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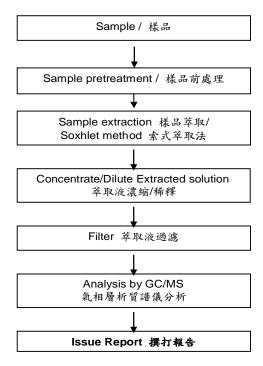
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#### 多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

1)測試人員:陳威錚 / Name of the person who made measurement: Dorothy Chen 2)測試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang



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### Test Report

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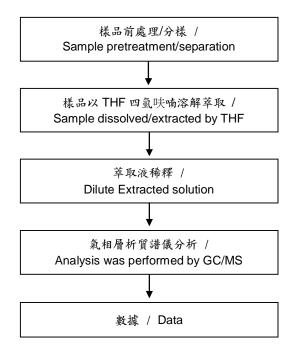
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#### 可塑劑分析流程圖 / Analytical flow chart of phthalate content

- 測試人員:陳威錚 / Name of the person who made measurement: Dorothy Chen
- 測試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang

#### 【測試方法/Test method: IEC 62321-8】



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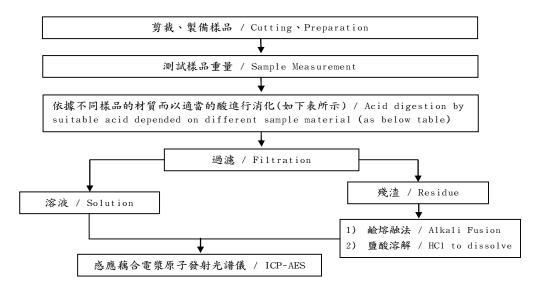
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- 1) 根據以下的流程圖之條件,樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) 測試人員:劉俊宏 / Name of the person who made measurement: Jony Liu
- 3) 測試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang

#### 元素以 ICP-AES 分析的消化流程圖

(Flow Chart of digestion for the elements analysis performed by ICP-AES)



鋼,銅,鋁,焊錫 / Steel, copper, aluminum, solder	王水,硝酸,鹽酸,氫氟酸,雙氧水 /
	Aqua regia, HNO3, HCl, HF, H2O2
玻璃 / Glass	硝酸,氫氟酸 / HNO3/HF
金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO3
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / HzSO4, HzOz, HNO3, HC1
其他 / Others	加入任何酸至完全溶解 / Any acid to total digestion

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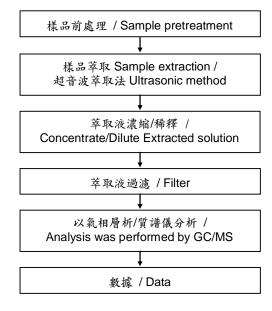
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#### 六溴環十二烷分析流程圖 / HBCDD analytical flow chart

- 1) 測試人員:陳威錚/ Name of the person who made measurement: Dorothy Chen
- 2) 測試負責人:張伯睿/ Name of the person in charge of measurement: Ray Chang



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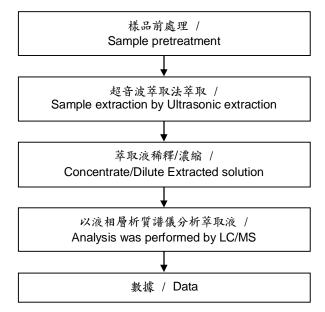
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#### 四溴雙酚-A分析流程圖 / TBBP-A analytical flow chart

- 測試人員: 黄璟瓔/ Name of the person who made measurement: Ginny Huang
- 測試負責人:張伯睿/ Name of the person in charge of measurement: Ray Chang



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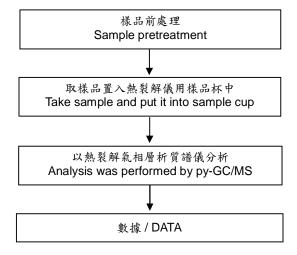
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E'DALE TECHNOLOGY CO., LTD.

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#### 紅磷分析流程 / Analytical flow chart of Red phosphorus

- 測試人員: 林建宇 / Name of the person who made measurement: Roy Lin
- 測試負責人:張啟興 / Name of the person in charge of measurement: Troy Chang



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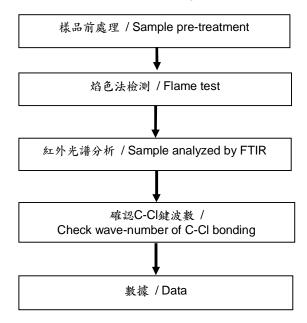
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#### 聚氯乙烯物質判定分析流程圖 /

#### Analysis flow chart for determination of PVC in material

1)測試人員: 戴秀純 / Name of the person who made measurement: Hannah Tai 2)测試負責人: 林立翔 / Name of the person in charge of measurement: Roger Lin



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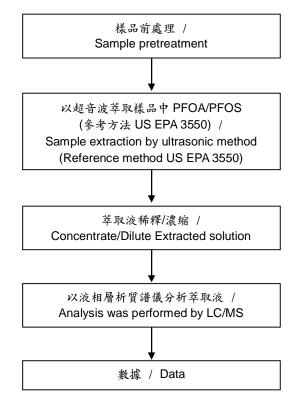
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#### 全氟辛酸(銨)/ 全氟辛烷磺酸分析流程圖 / Analytical flow chart of PFOA/PFOS content

1)测試人員: 黄璟瓔 / Name of the person who made measurement: Ginny Huang

2)測試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang



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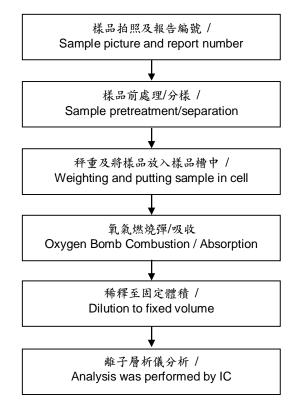
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#### 鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 測試人員: 洪秀眞/ Name of the person who made measurement: Jean Hung
- 2) 測試負責人:張伯睿/ Name of the person in charge of measurement: Ray Chang



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台灣檢驗科技股份有限公司 t + 886 (07)301 2121



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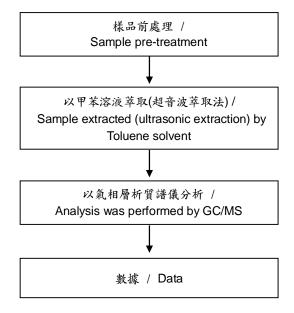
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#### 多苯環芳香族化合物分析流程圖 / PAHs (Poly Aromatic Hydrocarbons) analytical flow chart

1)測試人員: 陳威錚 / Name of the person who made measurement: Dorothy Chen

2)测試負責人:張伯睿 / Name of the person in charge of measurement: Ray Chang



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

# KA/2017/61160



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