

# **Test Report**

美麗微半導體股份有限公司 FORMOSA MICROSEMI CO., LTD. 新北市土城區中央路三段208號5樓 5F., NO. 208, SEC. 3, ZHONGYANG RD., TUCHENG DIST., NEW TAIPEI CITY 23680, TAIWAN

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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):

號碼(No.): CE/2015/A2471 日期(Date): 2015/10/21

送樣廠商(Sample Submitted Bv) : 美麗微半導體股份有限公司 (FORMOSA MICROSEMI CO., LTD.) 樣品名稱(Sample Description) : GLASS SEALED ENVELOPED PRODUCTS (各項玻璃封裝產品)

樣品型號(Style/Item No.) DO-34G / DO-35G / GLASS MICRO-MELF / GLASS QUADRO-MELF / GLASS MINI-MELF

(SOD-80/LL-34G) / GLASS MELF (DL-41G) / DO-41G

收件日期(Sample Receiving Date) : 2015/10/14

測試期間(Testing Period) : 2015/10/14 TO 2015/10/21

請見下一頁 (Please refer to next pages). 測試結果(Test Results) :





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5F., NO. 208, SEC. 3, ZHONGYANG RD., TUCHENG DIST., NEW TAIPEI CITY 23680,

TAIWAN

### 測試結果(Test Results)

測試部位(PART NAME)No.1 : 銀色金屬鍍層 (PLATING LAYER OF SILVER COLORED METAL) : 銀色金屬底材 (BASE MATERIAL OF SILVER COLORED METAL) 測試部位(PART NAME)No. 2

測試部位(PART NAME)No.3 : 本體混測 (MIXED ALL PARTS OF BODY)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果(Result)		
				No. 1	No. 2	No. 3
鎘 / Cadmium (Cd)	mg/kg	酸洗脫鍍層,參考IEC 62321-5: 2013方法,以感應耦合電 漿原子發射光譜儀檢測./ IEC 62321-5: 2013 application of modified digestion by surface etching and performed by ICP-AES.	2	n. d.		
	mg/kg	参考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.	n. d.
鉛 / Lead (Pb)	mg/kg	酸洗脫鍍層,參考IEC 62321-5: 2013方法,以感應耦合電 漿原子發射光譜儀檢測./ IEC 62321-5: 2013 application of modified digestion by surface etching and performed by ICP-AES.	2	160		



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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)		
				No. 1	No. 2	No. 3
鉛 / Lead (Pb)	mg/kg	参考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.	322000
汞 / Mercury (Hg)	mg/kg	酸洗脫鍍層,參考IEC 62321-4: 2013方法,以感應耦合電 漿原子發射光譜儀檢測. / IEC 62321-4: 2013 application of modified digestion by surface etching and performed by ICP-AES.	2	n. d.		
	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.	n. d.
六價鉻 / Hexavalent Chromium Cr(VI)	**	參考IEC 62321: 2008方法, 以沸水萃取法檢測. / With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.#	#	Negative	Negative	
	mg/kg	參考IEC 62321: 2008方法, 以UV-VIS檢測. / With reference to IEC 62321: 2008 and performed by UV- VIS.	2			n. d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值	結果(Result)		
(Test Items)	(UIII L)	(Method)	(MDL)	No. 1	No. 2	No. 3
六溴環十二烷及所有主要被辨別出的異構物 / 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	參考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.
鄰苯二甲酸二異丁酯 / DIBP (Di- isobutyl phthalate) (CAS No.: 84- 69-5)	mg/kg		50			n. d.
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg	參考IEC 62321-8 (111/321/CD),以氣相層析儀 /質譜儀檢測之. / With reference to IEC 62321-8 (111/321/CD). Analysis was performed by GC/MS.	50			n. d.
鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68- 7)	mg/kg		50			n. d.
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.
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	mg/kg		50			n. d.
鄰苯二甲酸二異壬酯 / DINP (Di- isononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0)	mg/kg		50			n. d.
鄰苯二甲酸二異癸酯 / DIDP (Di- isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	mg/kg		50			n. d.



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測試項目 (Test Items)	單位 (Unit)	單位 測試方法 (Unit) (Method)	方法偵測 極限値 (MDL)	結果 (Result)		
	(Unit)			No. 1	No. 2	No. 3
多溴聯苯總和 / Sum of PBBs	mg/kg		_			n. d.
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		5			n. d.
五溴聯苯 / Pentabromobiphenyl	mg/kg		5			n. d.
六溴聯苯 / Hexabromobiphenyl	mg/kg		5			n. d.
七溴聯苯 / Heptabromobiphenyl	mg/kg		5			n. d.
八溴聯苯 / Octabromobiphenyl	mg/kg		5			n. d.
九溴聯苯 / Nonabromobiphenyl	mg/kg	參考IEC 62321-6: 2015方法,	5			n. d.
十溴聯苯 / Decabromobiphenyl	mg/kg	以氣相層析/質譜儀檢測./	5			n. d.
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	With reference to IEC 62321-6: 2015 and	_			n. d.
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg	performed by GC/MS.	5			n. d.
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg	per formed by GC/MS.	5			n. d.
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5			n. d.
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg		5			n. d.
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg		5			n. d.
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg		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.
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	參考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	10			n. d.
		performed by LC/MS.				

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5F., NO. 208, SEC. 3, ZHONGYANG RD., TUCHENG DIST., NEW TAIPEI CITY 23680,

TAIWAN

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)		
(Test Trems)				No. 1	No. 2	No. 3
全氟辛酸 / 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.
鹵素 / Halogen						
鹵素(氟)/ Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	参考BS EN 14582:2007,以離子層析儀分析./ With reference to BS EN 14582:2007.Analysis was performed by IC.	50			n. d.
鹵素 (氣) / Halogen-Chlorine (C1) (CAS No.: 22537-15-1)	mg/kg		50			n. d.
鹵素(溴)/ Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50			n. d.
鹵素(碘)/ Halogen-Iodine(I)(CAS No.: 14362-44-8)	mg/kg		50			n. d.

#### 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. "---" = Not Conducted (未測項目)
- 6. \*\*= Qualitative analysis (No Unit) 定性分析(無單位)
- 7. # = a. Positive means the presence of CrVI on the tested areas (Positive表示測試區域偵測到六價鉻)
  - b. Negative means the absence of CrVI on the tested areas (Negative表示測試區域未偵測到六價鉻)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas. / 該溶液濃度≧0.02 mg/kg with 50 cm² (tested areas)

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8. For No. 3: 樣品的測試是基於申請人要求混合測試,報告中的混合測試結果不代表其中個別單一材質的含量. (The samples was/were analyzed on behalf of the applicant as mixing sample in one testing. The above results was/were only given as the informality value.)

### 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%(1000ppm), in textiles or other coated materials above  $1\mu g/m^2$ .)



# **Test Report**

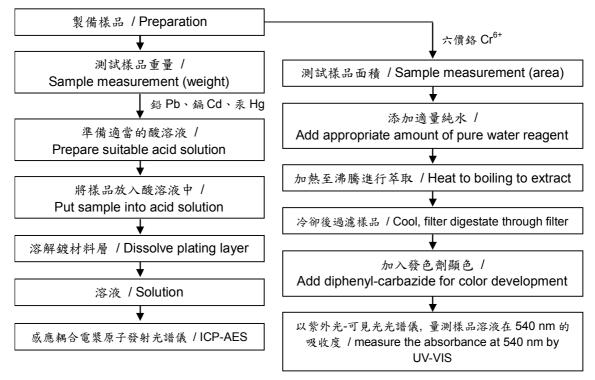
美麗微半導體股份有限公司 FORMOSA MICROSEMI CO., LTD. 新北市土城區中央路三段208號5樓 5F., NO. 208, SEC. 3, ZHONGYANG RD., TUCHENG DIST., NEW TAIPEI CITY 23680, TAIWAN No. 1

> 根據以下的流程圖之條件,樣品之外部鍍層已完全溶解。( 六價鉻測試方法除外) / The plating layer of samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)

號碼(No.): CE/2015/A2471 日期(Date): 2015/10/21

- 測試人員:楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 測試負責人:張啟興 / Name of the person in charge of measurement: Troy Chang

### 鍍層重金屬測試流程圖 / Flow Chart of Stripping method for metal analysis



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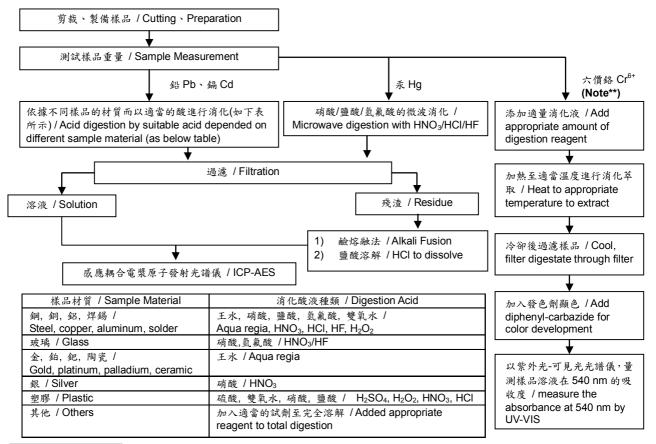
美麗微半導體股份有限公司 FORMOSA MICROSEMI CO., LTD.

新北市土城區中央路三段208號5樓

5F., NO. 208, SEC. 3, ZHONGYANG RD., TUCHENG DIST., NEW TAIPEI CITY 23680, TAIWAN

No. 2

- 1) 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. (  $Cr^{6^+}$  test method excluded )
- 測試人員:楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 測試負責人: 張啟興 / Name of the person in charge of measurement: Troy Chang



### Note\*\* (For IEC 62321)

- (1) 針對非金屬材料加入鹼性消化液,加熱至 90~95℃萃取. / For non-metallic material, add alkaline digestion reagent and heat to 90~95℃
- (2) 針對金屬材料加入純水,加熱至沸騰萃取. / For metallic material, add pure water and heat to boiling.



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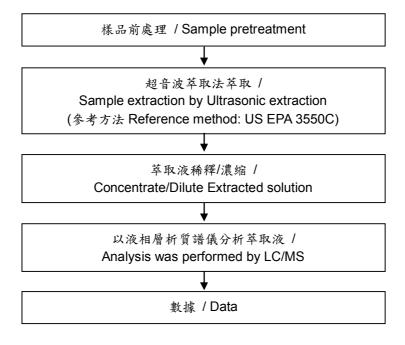
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### 全氟辛酸/全氟辛烷磺酸分析流程圖 / PFOA/PFOS analytical flow chart

日期(Date): 2015/10/21

- 測試人員: 翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人:張啟興 / Name of the person in charge of measurement: Troy Chang





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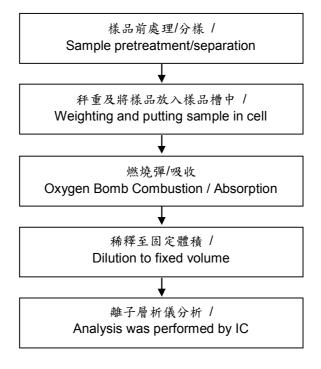
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# 鹵素分析流程圖 / Analytical flow chart of halogen content

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- 測試人員: 陳恩臻 / Name of the person who made measurement: Rita Chen
- 測試負責人: 張啟興 / Name of the person in charge of measurement: Troy Chang





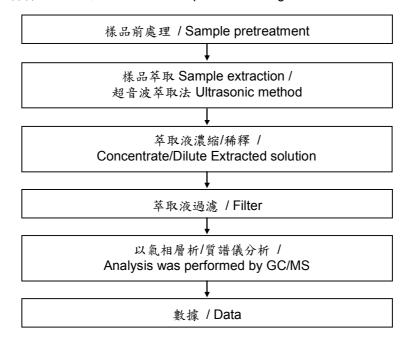
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### 六溴環十二烷分析流程圖 / HBCDD analytical flow chart

- 測試人員: 翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人:張啟興 / Name of the person in charge of measurement: Troy Chang





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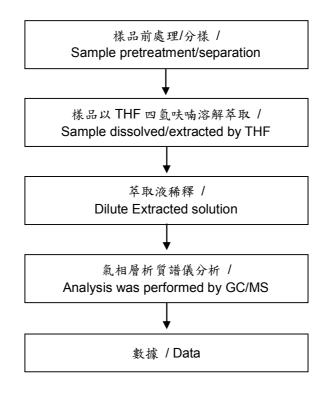
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#### 可塑劑分析流程圖 / Analytical flow chart of phthalate content

日期(Date): 2015/10/21

- 測試人員:徐毓明 / Name of the person who made measurement: Andy Shu
- 測試負責人: 張啟興 / Name of the person in charge of measurement: Troy Chang

### 【測試方法/Test method: IEC 62321-8】





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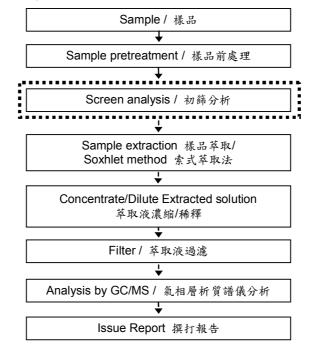
### 多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

日期(Date): 2015/10/21

- 測試人員: 翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人:張啟興 / Name of the person in charge of measurement: Troy Chang

初次測試程序 / First testing process — 選擇性篩檢程序 / Optional screen process • •

確認程序 / Confirmation process - - - - →





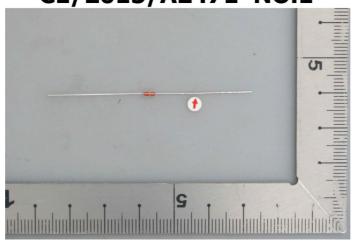
**Test Report** 

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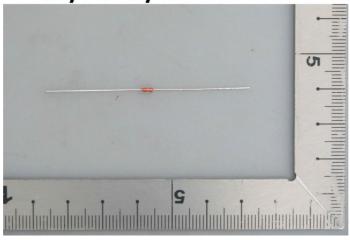
美麗微半導體股份有限公司 FORMOSA MICROSEMI CO., LTD. 新北市土城區中央路三段208號5樓 5F., NO. 208, SEC. 3, ZHONGYANG RD., TUCHENG DIST., NEW TAIPEI CITY 23680, TAIWAN

> \* 照片中如有箭頭標示,則表示為實際檢測之樣品/部位. \* (The tested sample / part is marked by an arrow if it's shown on the photo.)

> > CE/2015/A2471 NO.1



CE/2015/A2471 NO.2





# **Test Report**

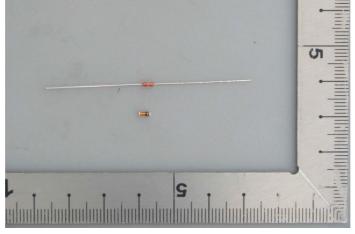
美麗微半導體股份有限公司 FORMOSA MICROSEMI CO., LTD. 新北市土城區中央路三段208號5樓 5F., NO. 208, SEC. 3, ZHONGYANG RD., TUCHENG DIST., NEW TAIPEI CITY 23680, TAIWAN

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日期(Date): 2015/10/21



\*\* 報告結尾 (End of Report) \*\*