



TEST REPORT

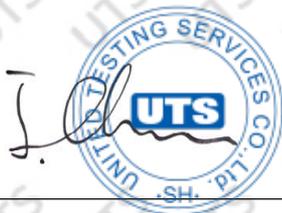
No. : SH170500501C03

Report Date: 2017/05/12

Applicant : Tongfu MICROELECTRONICS CO., LTD.
Address : No.288,Chongchuan Road,Nantong,Jiangsu, China

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

Sample Name : DIP8
Receiving Date : May.03, 2017
Testing Period : May.03, 2017 - May.12, 2017
Test Requested : Please refer to next page(s).
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).



Approved by Jeffery Chou

Reviewed by Tim Bian

Redact by Luciana Wang

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TEST RESULTS:

1. RoHS 6

Test Items	Methods	MDL (mg/kg)	Results (mg/kg)		Limited Value* (mg/kg)
			1#	2#	
Pb	M1	2	N.D	N.D.	1000
Cd		2	N.D.	N.D.	100
Hg	M2	2	N.D.	N.D.	1000
Cr (VI)	M3a	---	Negative	---	---(metal)
	M3	2	---	N.D.	1000(nonmetal)
Monobromobiphenyl (MonoBB)	M4	5	---	N.D.	---
Dibromobiphenyl (DiBB)		5	---	N.D.	---
Tribromobiphenyl (TriBB)		5	---	N.D.	---
Tetrabromobiphenyl (TetraBB)		5	---	N.D.	---
Pentabromobiphenyl (PentaBB)		5	---	N.D.	---
Hexabromobiphenyl (HexaBB)		5	---	N.D.	---
Heptabromobiphenyl (HeptaBB)		5	---	N.D.	---
Octabromobiphenyl (OctaBB)		5	---	N.D.	---
Nonabromobiphenyl (NonaBB)		5	---	N.D.	---
Decabromobiphenyl (DecaBB)		5	---	N.D.	---
Total PBBs / sum of above		---	---	N.D.	1000
Monobromodiphenyl ether (MonoBDE)		5	---	N.D.	---
Dibromodiphenyl ether (DiBDE)		5	---	N.D.	---
Tribromodiphenyl ether (TriBDE)		5	---	N.D.	---
Tetrabromodiphenyl ether (TetraBDE)		5	---	N.D.	---
Pentabromodiphenyl ether (PentaBDE)		5	---	N.D.	---
Hexabromodiphenyl ether (HexaBDE)		5	---	N.D.	---
Heptabromodiphenyl ether (HeptaBDE)		5	---	N.D.	---
Octabromodiphenyl ether (OctaBDE)		5	---	N.D.	---
Nonabromodiphenyl ether (NonaBDE)		5	---	N.D.	---
Decabromodiphenyl ether (DecaBDE)	5	---	N.D.	---	
Total PBDEs / sum of above	---	---	N.D.	1000	

Remark : *The Limited value is based on the RoHS directive 2011/65/EU.



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2. PFOS&PFOA

Test Method: With reference to EPA 3550C:2007 and EPA 8321B:2007 Detection of non-volatile material that can be solvent extraction by high-performance liquid chromatography with thermal ionization mass spectrometry.

Test Item	Unit	MDL	Test Result		Limited Value**
			1#	2#	
Perfluorooctane sulfonates(PFOS)	%	0.0001	N.D.	N.D.	0.1
Perfluorooctanoic Acid(PFOA)		0.0001	N.D.	N.D.	---

Remark : **The Limited value is based on Directive 2006/122/EC.

3. Sb

Test Method: With reference to EPA 3052-1996 & EPA 6010C-2007, analysis was performed by ICP-OES.

Test Item	Unit	MDL	Test Result	
			1#	2#
Sb	mg/kg	10	220	86

4. HBCDD

Test Method: With reference to EPA 3550C-2007&EPA 8270D-2007, analysis was performed by GC-MS.

Test Item	Unit	MDL	Test Result
			2#
Hexabromocyclododecane (HBCDD)	mg/kg	20	N.D.

5. Halogen

Test Method: With reference to EN 14582: 2007, analysis was performed by IC.

Test Item	Unit	MDL	Limit	Test Result
				2#
Fluorine (F)	mg/kg	30	---	149
Chlorine (Cl)	mg/kg	30	900	60
Bromine (Br)	mg/kg	30	900	N.D.
Iodine (I)	mg/kg	30	---	N.D.
Total (Cl+Br)	mg/kg	---	1500	60



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6. 15P

Test Method: With reference to EPA 3550C-2007&EPA 8270D-2007, analysis was performed by GC-MS.

Test Items	Unit	MDL	Test Results
			2#
Di-iso-nonyl phthalate (DINP)	mg/kg	50	N.D.
Di-n-octyl phthalate (DNOP)		10	N.D.
Di (2-ethyl hexyl)-phthalate (DEHP) (DOP)		10	N.D.
Diisodecyl phthalate (DIDP)		50	N.D.
Butylbenzyl phthalate (BBP)		10	N.D.
Diisobutyl phthalate (DIBP)		10	N.D.
Dibutyl phthalate (DBP)		10	N.D.
Di-n-hexyl phthalate (DNHP)		10	N.D.
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich		10	N.D.
1,2-Benzenedicarboxylic acid, ihexylester, branched and linear		10	N.D.
Bis(2-methoxyethyl) phthalate(DMEP)		10	N.D.
Diisopentylphthalate (DIPP)		10	N.D.
Dipentyl phthalate (DPP)		10	N.D.
N-pentyl-isopentylphthalate		10	N.D.
Dipentyl phthalate (DNPP)		10	N.D.

- Note :**
- 1) “---” = Not Regulated.
 - 2) MDL = Method Detection Limit.
 - 3) N.D. = Not detected, less than MDL.
 - 4) M1: With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.
 - 5) M2: With reference to IEC 62321-4: 2013, analysis was performed by ICP-OES.
 - 6) M3: With reference to IEC 62321-7-2: 2017, analysis was performed by UV-Vis.
M3a: With reference to IEC 62321-7-1: 2015, analysis was performed by UV-Vis Colorimetric Determination.
 - 7) M4: With reference to IEC 62321-6: 2015, analysis was performed by GC-MS.
 - 8) Boiling water extraction method:
Negative: The Cr(VI) concentration of plating detected is blow $0.1\mu\text{g}/\text{cm}^2$;



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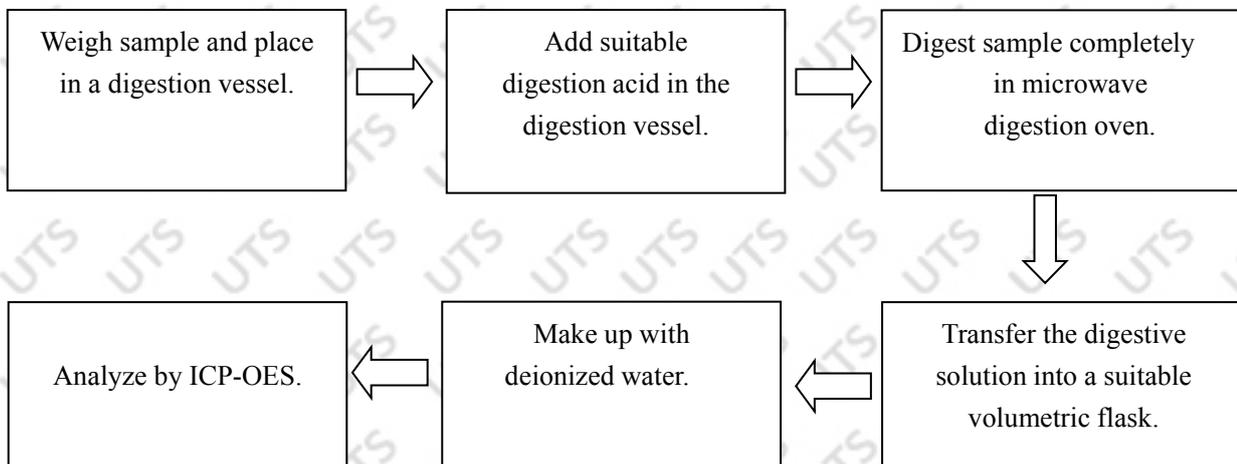
Positive: The Cr(VI) concentration of plating detected is above $0.13\mu\text{g}/\text{cm}^2$;

Inconclusive: The Cr(VI) concentration of plating detected is between $0.1\mu\text{g}/\text{cm}^2$ and $0.13\mu\text{g}/\text{cm}^2$.

TEST PART DESCRIPTION: 1# Metallic pin 2# Black main body

FLOW CHART

1. Test for Pb, Hg, Cd and Sb Content



Sample Material	Digestion Acid
Glass	HNO ₃ /HF
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion.

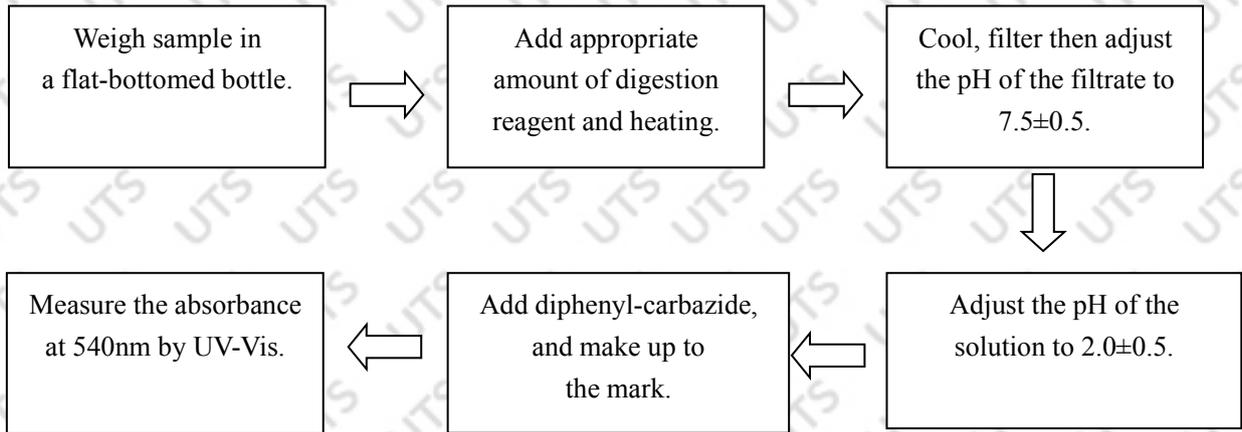
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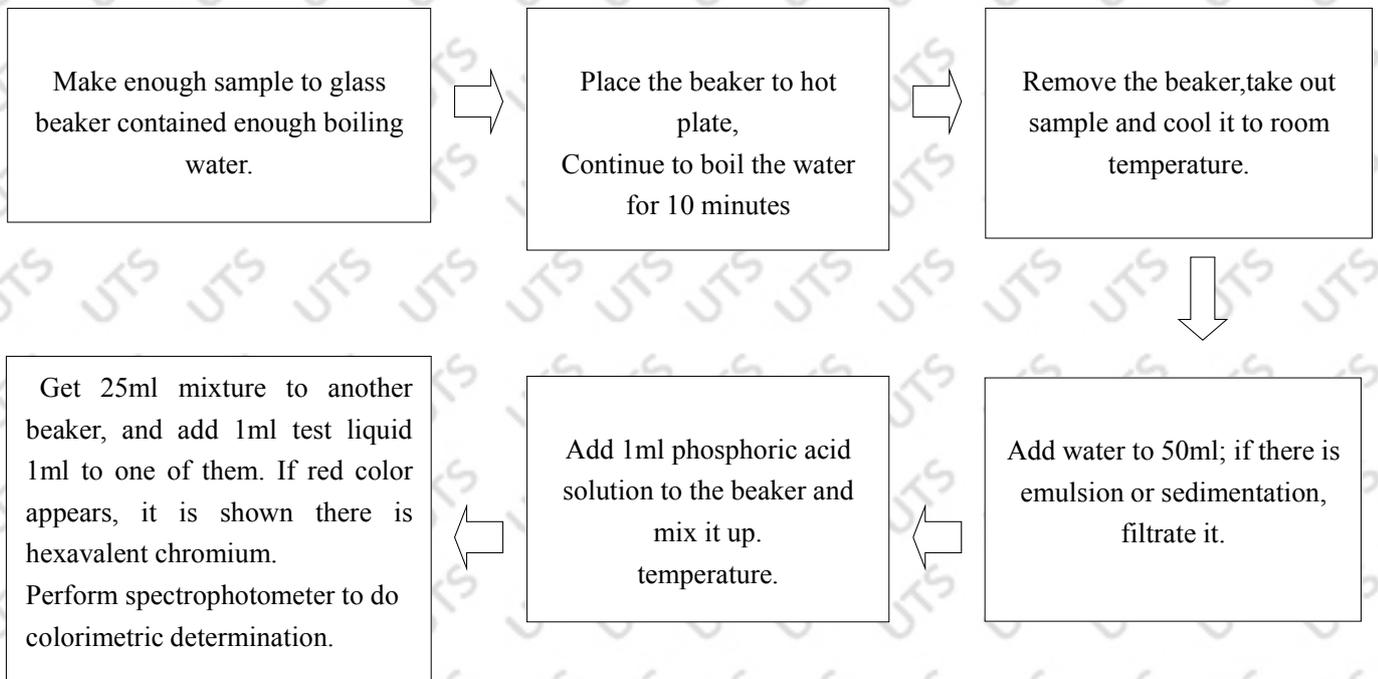
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2. Test for Chromium (VI) Content

Nonmetal



Metal

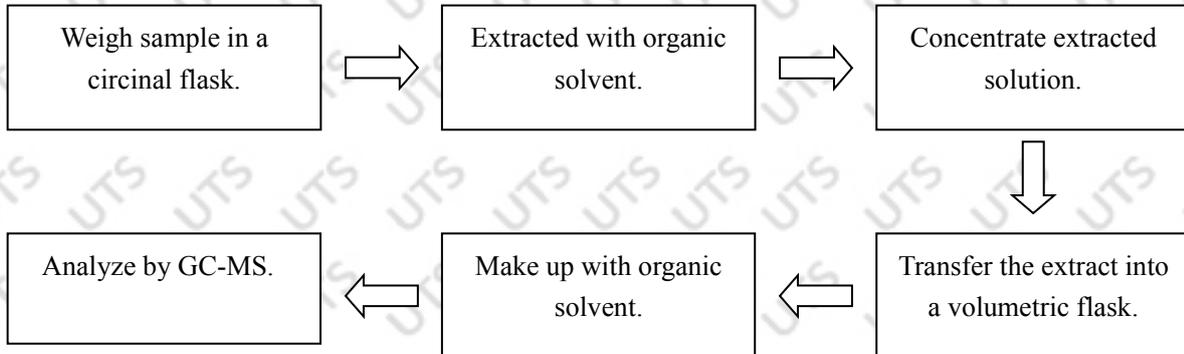


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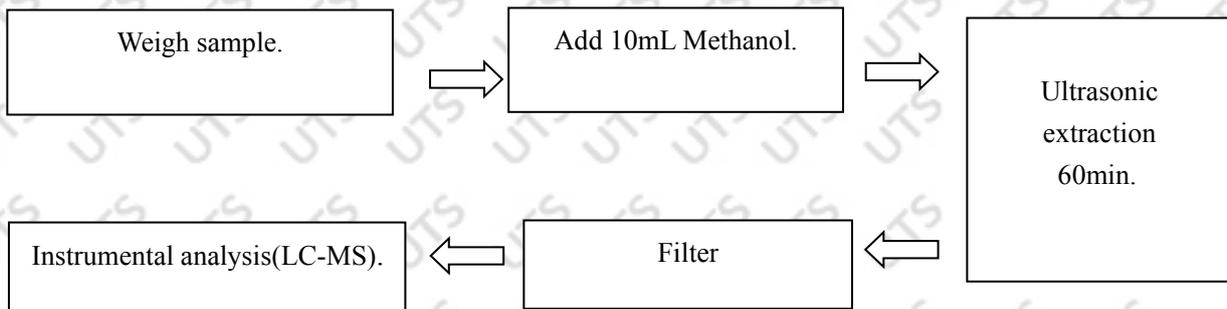
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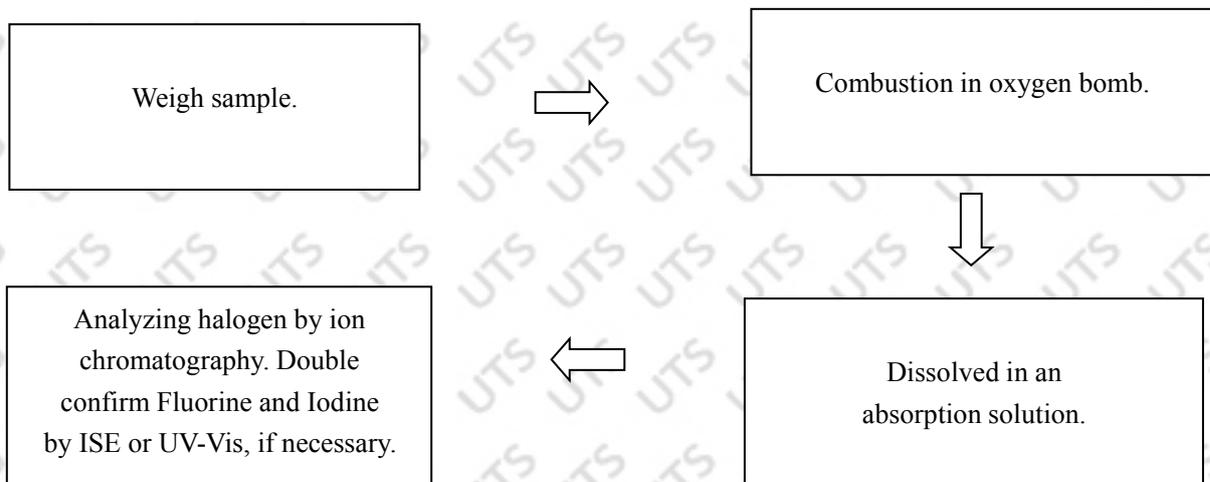
3. Test for PBBs&PBDEs & HBCDD & Phthalates Content



4. Test for PFOS & PFOA Content



5. Test for Halogen content

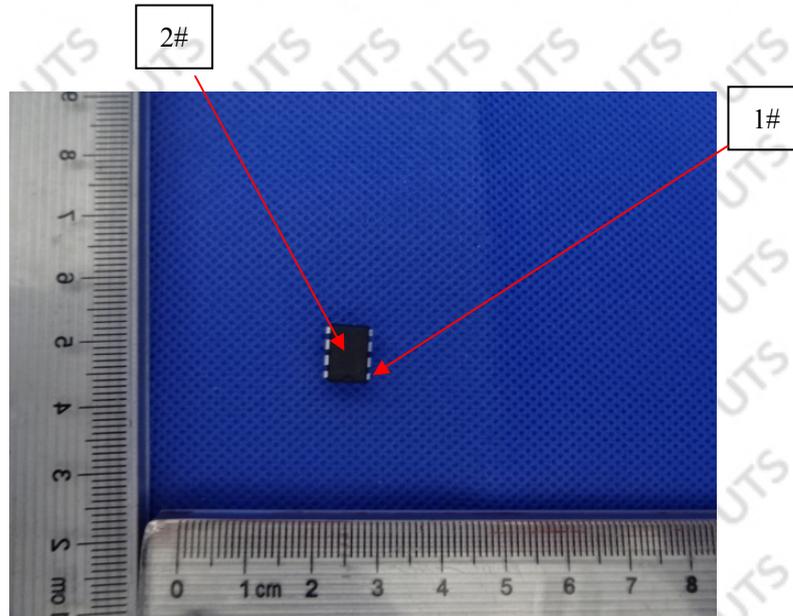


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SAMPLE PHOTO



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