

# Test Report

Report No. ECL01H067702001

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**Applicant** SHANGHAI SEEFULL ELECTRONIC CO., LTD  
LITE-ON SEMICONDUCTOR CORP.

**Address** 6 ZHENYE RD. DONGJING INDUSTRIAL AREA SONGJIANG DISTRICT,  
SHANGHAI, CHINA  
9F,NO.233-2 PAO-CHIAO ROAD, HSIN-TIEN DISTRICT, NEW TAIPEI CITY 23145,  
TAIWAN, R.O.C

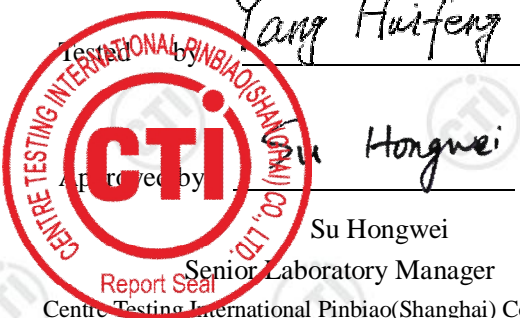
**Sample Received Date** Jan. 4, 2016

**Testing Period** Jan. 4, 2016 to Jan. 8, 2016

**Test Requested** As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg),  
Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyl(PBBs),  
Polybrominated Diphenyl Ethers(PBDEs), Fluorine(F), Chlorine(Cl),  
Bromine(Br), Iodine(I), Antimony(Sb), Hexabromocyclododecane (HBCDD),  
Phthalates in the submitted sample(s).

**Test Method** Please refer to the following page(s).

**Test Result(s)** Please refer to the following page(s).



Reviewed by Hu Hongmei

Date Jan.8,2016

Centre Testing International Pinbiao(Shanghai) Co., Ltd. No.1996,Xinjinjiao Road, Pudong New District,Shanghai,China  
No. R153066671

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The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

No.	Sample Name	The sample description
1	SMD SERIES:	MIXED ALL PARTS OF BODY
2	GREEN MOLDING	SILVER COLORED METAL PIN
3	COMPOUND	BLACK PLASTIC BODY WITHOUT SOLDER WAFER&DIE

Part No. SMA\_HF PACKAGE FAMILY (TAXXXXL\_HF, SMAJ4.0\_HF, SMAJXXA\_HF, SMAJXXXA\_HF, SMAXXXX\_HF, SMAXXX\_HF, B58XX\_HF, B1XX\_HF, B230LHA\_HF, BXXXA\_HF, BXXXXA\_HF, US1X\_HF, ES1X\_HF, FS1X\_HF, ES2XA\_HF, RS1X\_HF, S1X\_HF, S2XA\_HF ETC)

SMB\_HF PACKAGE FAMILY (B340LB\_HF, TBXXXXL\_HF, TBXXXXM\_HF, TBXXXXH\_HF, SMBJXXA\_HF, SMBJXXXA\_HF, BXXXB\_HF, B1100LB\_HF, B2XX\_HF, ES1XB\_HF, ES2X\_HF, FS2X\_HF, ES3XB\_HF, MURS1XX\_HF, RS1XB\_HF, RS2X\_HF, RS3XB\_HF, S2X\_HF, S2XH\_HF, S2KM\_HF, S3XB\_HF ETC)

SMC\_HF PACKAGE FAMILY ( SMCJXXA\_HF, SMCJXXXA\_HF, 3.0SMCJXX\_HF, 3.0SMCJXXA\_HF, 3.0SMCJXXX\_HF, 3.0SMCJXXXA\_HF, B3XX\_HF, B3100\_HF, BXXXX\_HF, ES3X\_HF, FS3X\_HF, MURSXXX\_HF, RS3X\_HF, S3X\_HF, S5XC\_HF, S8XC\_HF ETC) MITE\_HF PACKAGE FAMILY (LT2MXXA\_HF, MB120E\_HF, MBXXXL\_HF, MB140\_HF ETC) DO-222AA(F1) PACKAGE FAMILY (FBXXXM, FBXXXLM, FBXXXM, FBXXXA, FBXXXMF, LT2MF12A, LT2MFXX, FES1XXM, FRS1XXM, FS1XXM, ETC) DO221-AA(F2) PACKAGE FAMILY (FBXXXB, SMBTXXA, ETC) DO-221AC(F3) PACKAGE FAMILY (FBXXXA, FBXXXLA, FBXXXXA, FBXXXD, FBXXXD, FES1XD, FRSXXD, FS2MD, FUSXXD, ETC) DO-219AA PACKAGE FAMILY (FSx ME, FRSxME, FRSxJE, FSxxME, LT4MEXXA, LT4MEXXA, FESXDE, FESXJE, FESXGE, FUSXME, FUSXDE, FUSXJE, TC) F4 PACKAGE FAMILY (GXXXXXF4, BXXXXXF4, ETC)

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**Test Method**

Tested Item(s)	Test Method	Measured Equipment(s)
Lead (Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Mercury (Hg)	IEC 62321-4:2013 Ed.1.0	ICP-OES
Hexavalent Chromium (Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis
	IEC 62321:2008 Ed.1 Annex C	
Polybrominated Biphenyls (PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS
Phthalates	Refer to EN 14372:2004(E)	GC-MS
Hexabromocyclododecane (HBCDD)	Refer to US EPA 3550C:2007 & US EPA 8270D:2007	GC-MS
Antimony (Sb)	Refer to US EPA 3052:1996 & US EPA 6010C:2007	ICP-OES
Fluorine (F)	Refer to BS EN 14582:2007	IC
Chlorine (Cl)	Refer to BS EN 14582:2007	IC
Bromine (Br)	Refer to BS EN 14582:2007	IC
Iodine (I)	Refer to BS EN 14582:2007	IC

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**Test Result(s)**

Tested Item(s)	Result(Unit: mg/kg)			MDL
	1	2	3	
Lead (Pb)	24775	10	N.D.	2 mg/kg
Cadmium (Cd)	N.D.	N.D.	—	2 mg/kg
Mercury (Hg)	N.D.	N.D.	—	2 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.	—	—	2 mg/kg
	—	Negative	—	/
<b>Polybrominated Biphenyls(PBBs)</b>				
Monobromobiphenyl	N.D.	—	—	5 mg/kg
Dibromobiphenyl	N.D.	—	—	5 mg/kg
Tribromobiphenyl	N.D.	—	—	5 mg/kg
Tetrabromobiphenyl	N.D.	—	—	5 mg/kg
Pentabromobiphenyl	N.D.	—	—	5 mg/kg
Hexabromobiphenyl	N.D.	—	—	5 mg/kg
Heptabromobiphenyl	N.D.	—	—	5 mg/kg
Octabromobiphenyl	N.D.	—	—	5 mg/kg
Nonabromobiphenyl	N.D.	—	—	5 mg/kg
Decabromobiphenyl	N.D.	—	—	5 mg/kg
<b>Polybrominated Diphenyl Ethers(PBDEs)</b>				
Monobromodiphenyl ether	N.D.	—	—	5 mg/kg
Dibromodiphenyl ether	N.D.	—	—	5 mg/kg
Tribromodiphenyl ether	N.D.	—	—	5 mg/kg
Tetrabromodiphenyl ether	N.D.	—	—	5 mg/kg
Pentabromodiphenyl ether	N.D.	—	—	5 mg/kg
Hexabromodiphenyl ether	N.D.	—	—	5 mg/kg
Heptabromodiphenyl ether	N.D.	—	—	5 mg/kg
Octabromodiphenyl ether	N.D.	—	—	5 mg/kg
Nonabromodiphenyl ether	N.D.	—	—	5 mg/kg
Decabromodiphenyl ether	N.D.	—	—	5 mg/kg
<b>Tested Item(s)</b>				
	<b>Result(Unit: mg/kg)</b>			<b>MDL</b>
	<b>1</b>			
Hexabromocyclododecane (HBCDD)	N.D.			5 mg/kg
Antimony(Sb)	N.D.			5 mg/kg

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Tested Item(s)	Result(Unit: mg/kg)	MDL
	1	
<b>Halogen</b>		
Fluorine (F)	N.D.	10mg/kg
Chlorine (Cl)	N.D.	10mg/kg
Bromine (Br)	N.D.	10mg/kg
Iodine (I)	N.D.	10mg/kg

Tested Item(s)	Result(Unit: mg/kg)	MDL
	1	
<b>Phthalates</b>		
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50mg/kg
Dibutyl phthalate (DBP) CAS #:84-74-2	N.D.	50mg/kg
Benzylbutyl phthalate (BBP) CAS #:85-68-7	N.D.	50mg/kg
Bis(2-ethyl(hexyl)) phthalate (DEHP) CAS #:117-81-7	N.D.	50mg/kg
Di-n-octyl phthalate (DNOP) CAS#:117-84-0	N.D.	50mg/kg
Diisononyl phthalate (DINP) CAS#:28553-12-0,68515-48-0	N.D.	50mg/kg
Diisodecyl phthalate (DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50mg/kg
Di-n-hexyl phthalate (DNHP) CAS#:84-75-3	N.D.	50mg/kg

### Tested Sample/Part Description

1. Black body (Tested as a whole)
2. Silvery metal pin
3. Black body (Tested as a whole)

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**Remark:** The sample had been dissolved totally tested for Lead, Cadmium, Mercury, Antimony. The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.

-MDL= Method Detection Limit

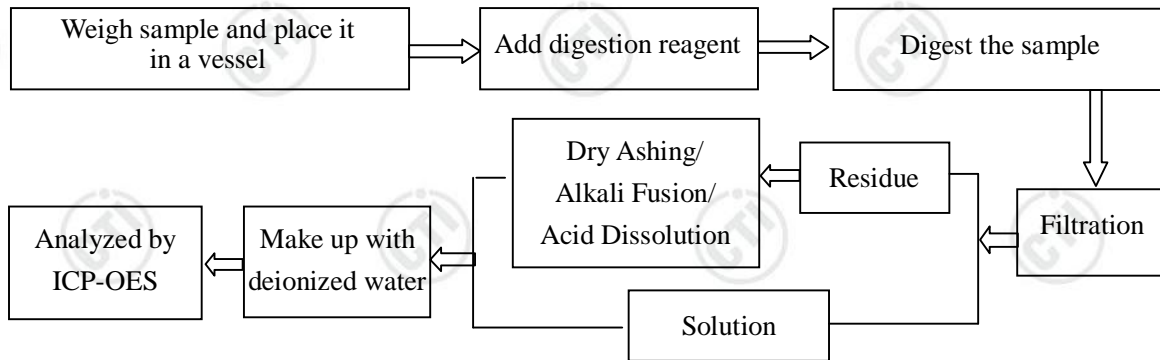
-N.D. = Not Detected (<MDL)

-mg/kg = ppm = parts per million

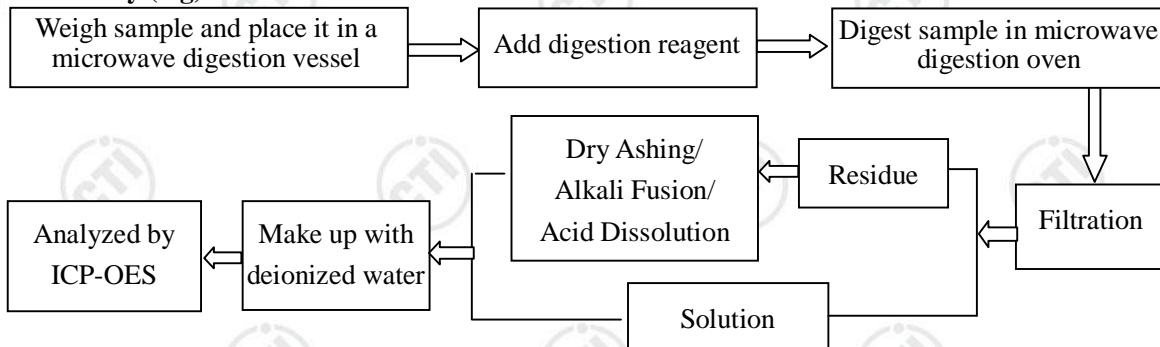
-Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm<sup>2</sup> sample surface area used.

## Test Process

### 1. Lead(Pb), Cadmium(Cd)

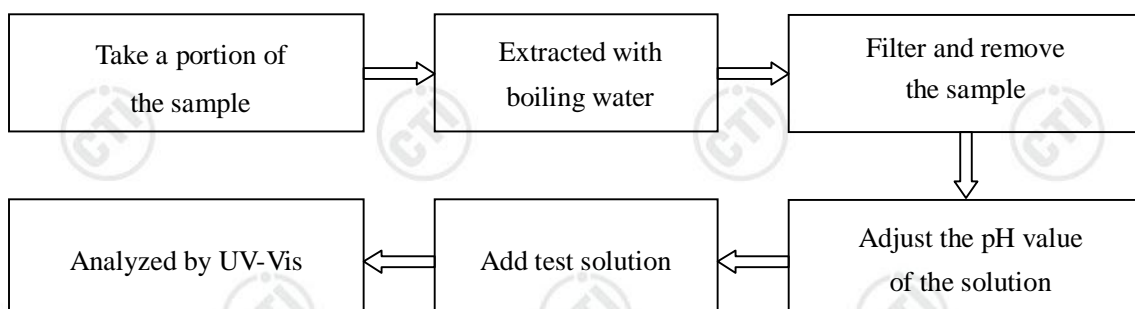


### 2. Mercury (Hg)



### 3. Hexavalent Chromium (Cr(VI))

(1) IEC 62321:2008 Ed.1 Annex B

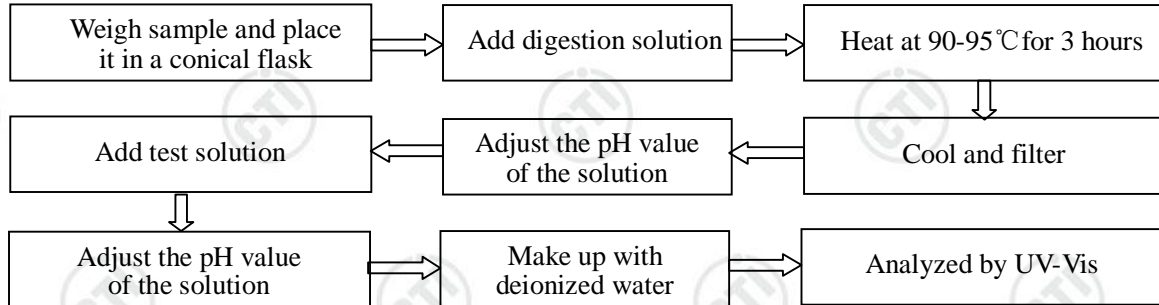


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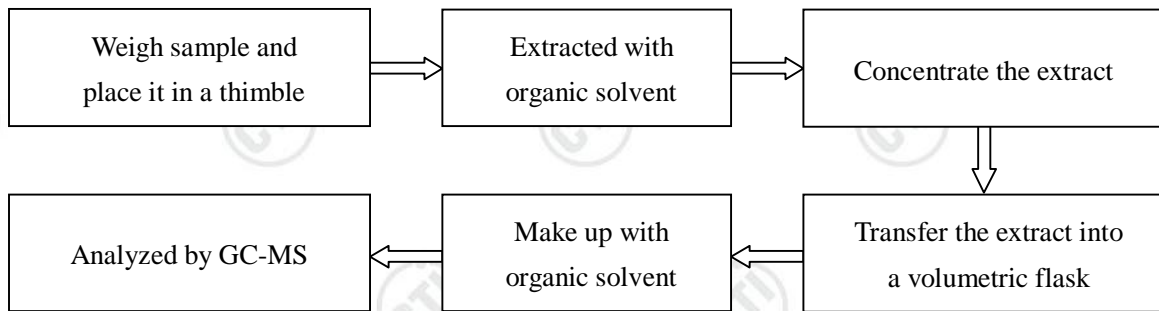
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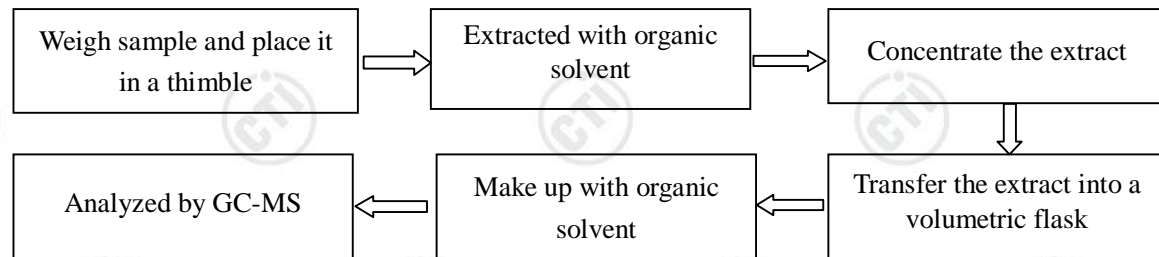
## (2)IEC 62321:2008 Ed.1 Annex C



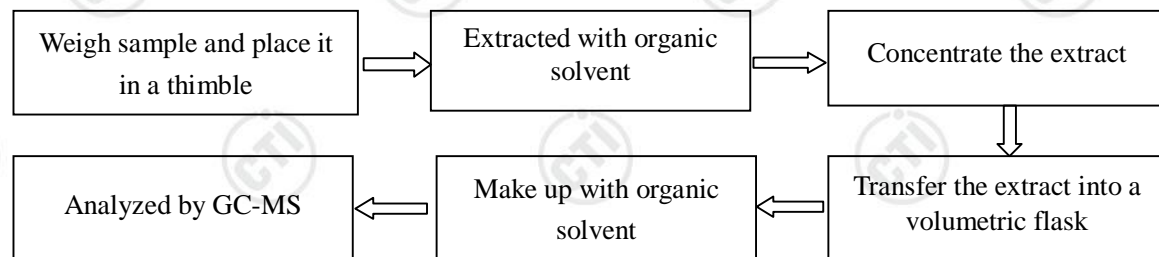
## 4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs)



## 5. Phthalates



## 6. Hexabromocyclododecane (HBCDD)

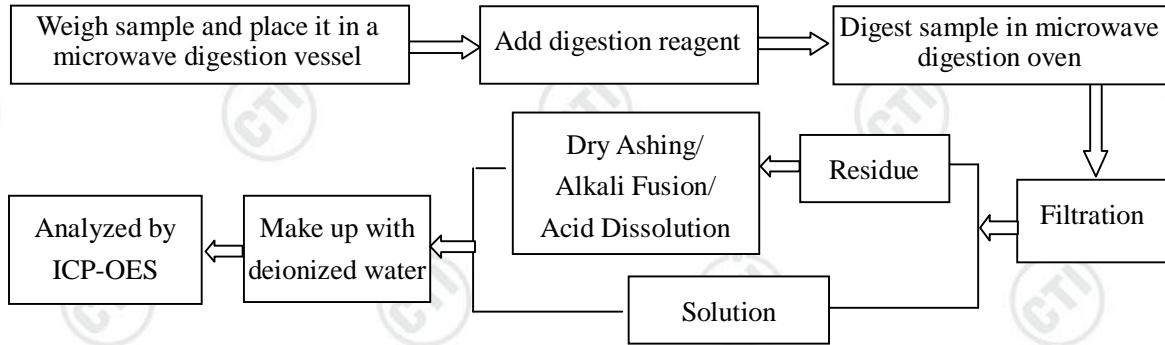


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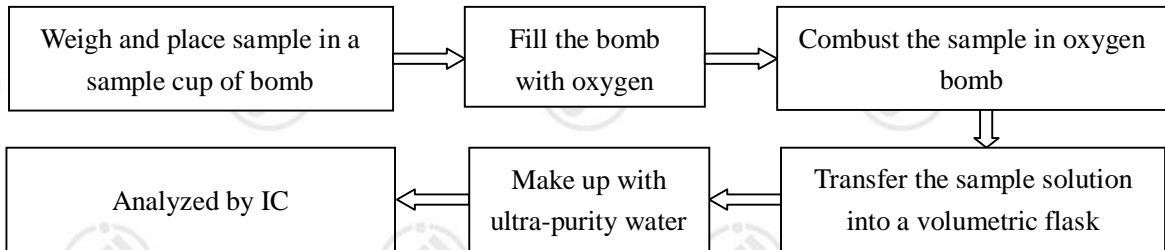
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## 7. Antimony(Sb)



## 8. Fluorine(F), Chlorine(Cl), Bromine(Br), Iodine(I)



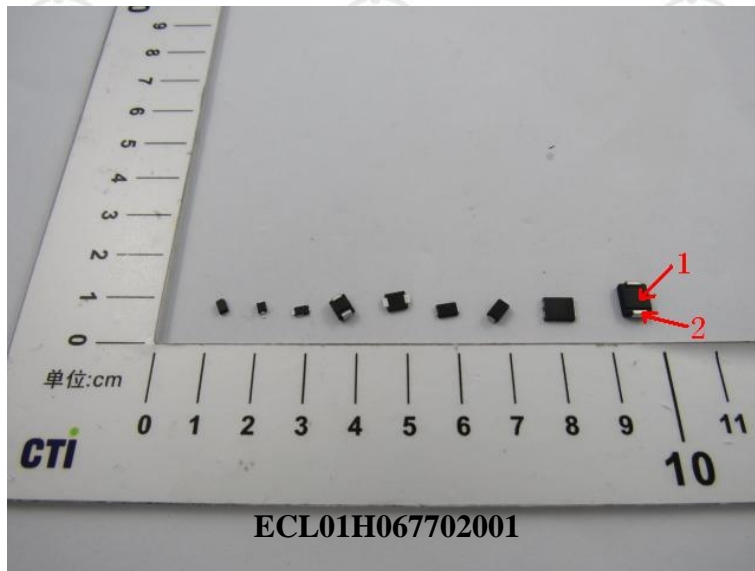


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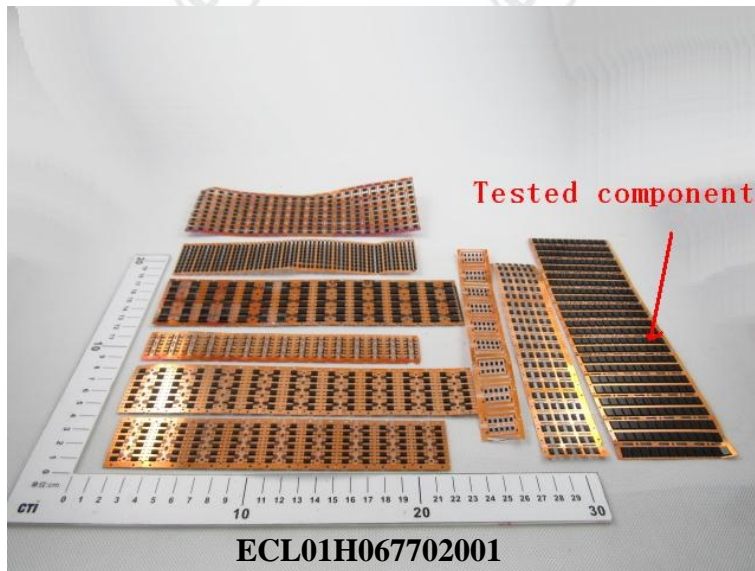
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## Photo(s) of the sample(s)



1,2



3

\*\*\* End of Report \*\*\*

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