

Test Report

No. CANEC2301128315

Date: 10 Feb 2023

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Client Name : LE SHAN SHARE ELECTRONIC CO, LTD

Client Address : NO.9 NANXIN ROAD,HIGH-TECH ZONE LESHAN CITY,SICHUANP.R CHINA

Sample Name : Insulate Gate Bipolar Transistor
 Model No. : LSH20N135F1 A
 Manufacturer : A. Chip 110mil Leshan Jiayang Technology Development Co., Ltd. b. Frame XYK-1 Ningbo Xingye Shengtai Group Co., Ltd. c. Solder Paste Pb90Sn8Ag2 Beijing Dabo Great Wall Tin Solder Co., Ltd. d. Epoxy resin EME-1250D3A Changchun Sealing Plastics (Changs

Client Ref. Info. : See remark
 The above sample(s) and information were provided by the client.

SGS Job No. : 10024537 - CQ
 Date of Sample Received : 01 Feb 2023
 Testing Period : 01 Feb 2023 - 09 Feb 2023
 Test Requested : Selected test(s) as requested by the client.
 Test Method(s) : Please refer to next page(s).
 Test Result(s) : Please refer to next page(s).

Result Summary :

Test Requested	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	PASS
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium	PASS



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Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Coral Qiu

Coral Qiu
Approved Signatory

scan to see the report



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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN23-011283.007	Silvery metal pin
SN2	CAN23-011283.008	Copper-colored w/ silvery metal w/ solder
SN3	CAN23-011283.009	Black plastic shell w/ chip & beige printing

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	009
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	180
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND



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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>009</u>
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series
- (3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium and Hexavalent chromium

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis .

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>007</u>	<u>008</u>
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1000	mg/kg	2	ND	8356▲
Mercury (Hg)	1000	mg/kg	2	ND	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series
- (3) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination



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Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

Remark 1▲:According to the declaration from the client, Lead (Pb) in specimen 008 is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 7(a)]: Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).

Remark 2: Results & photo(s) of this report refer to test report CANEC2301128313.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ($w=0$) stated in ILAC-G8:09/2019.



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Remark:

IGBT Model LS followed by H.W.U.S.G.V.I followed by 05.06 , 08.10.15.20.25.30.35.40.50.60.75.100.120.140.160.180.200.250 , 300.350 , 400 followed by N.A followed by 060.065.120.135.160.170.180.200, followed by F.S.L.UF.UL followed by 1.2.3.4.5 , maybe followed by A.B.C.E.F.G.H

IGBT Model LSM, followed by H, W followed by 03.04.05.06.07.08.10.15.20.25.30.35.40.50.60.75.100.150.200.300.400.500.600 followed by A.B.C4.D6.E7, followed by S ,F followed by 60.65.70.75.80.85.90.95.100.110, 120.135.160.170 followed by 1.2.3.4.5

LIB Model LIB followed by 05.10 , 15.20.25.30.35.40 followed by 60.80.120.135.160.180.200 followed by M1

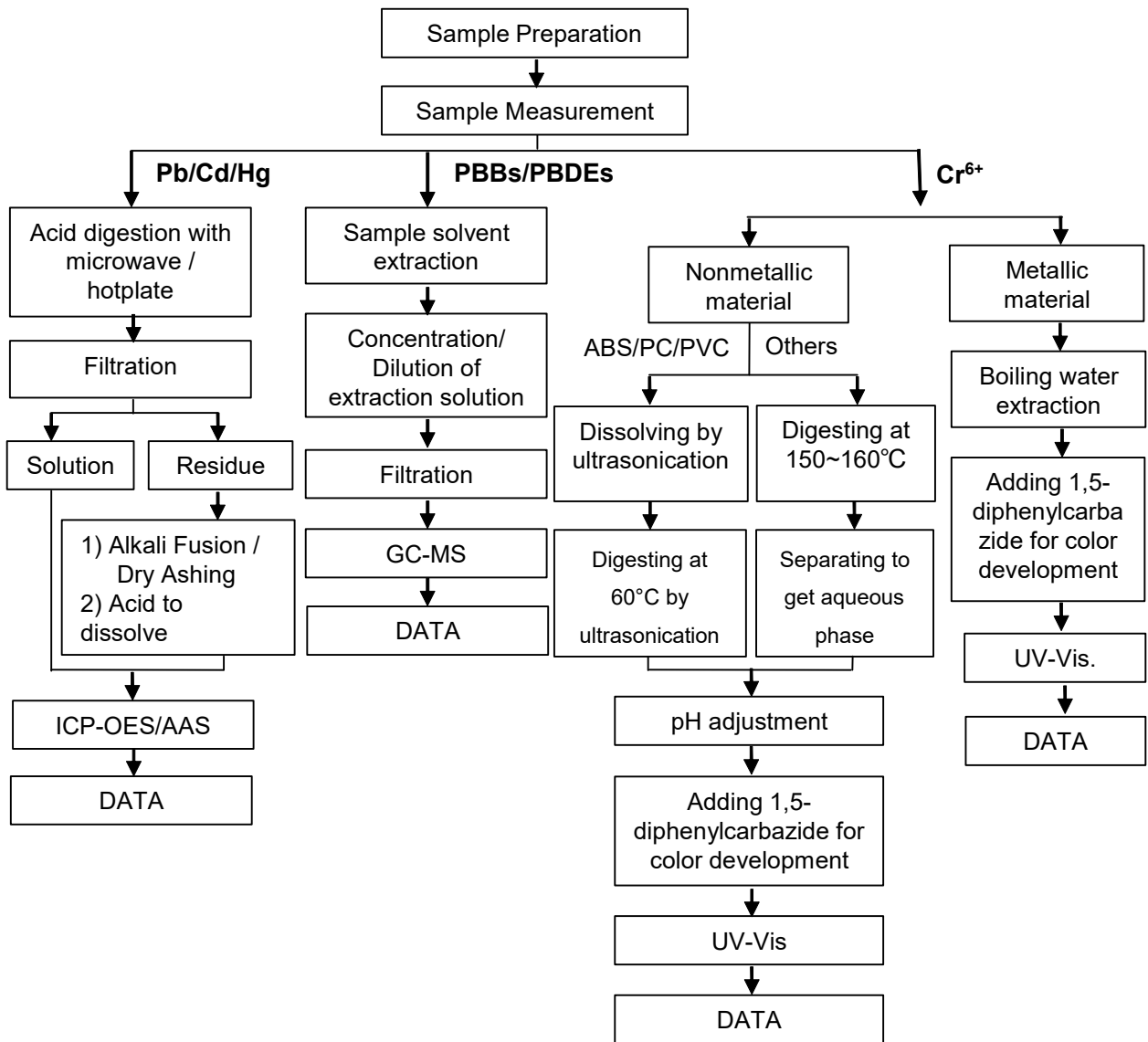


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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

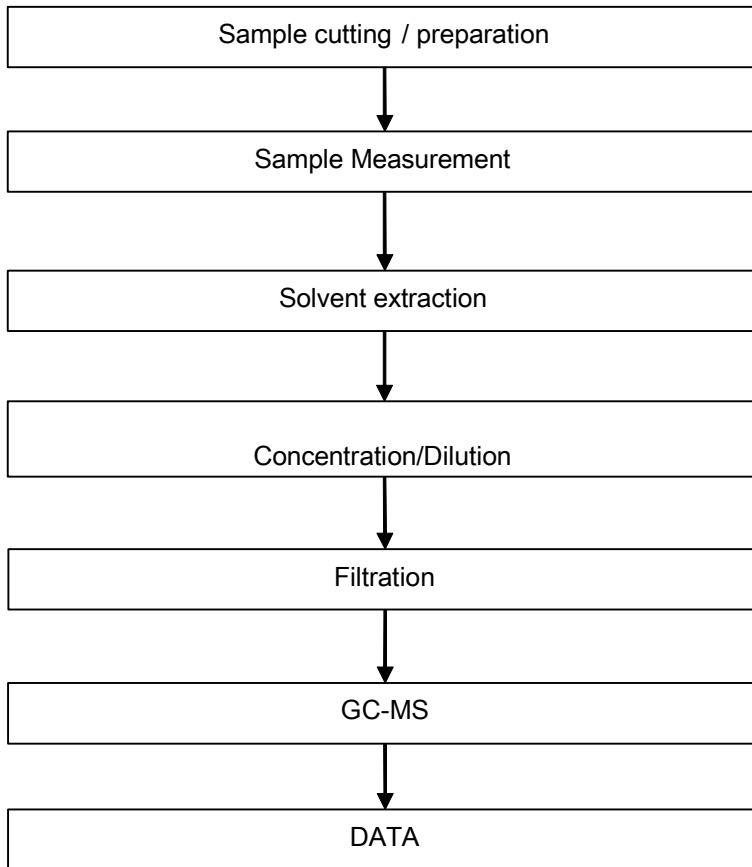
1) These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ and PBBs/PBDEs test method excluded).



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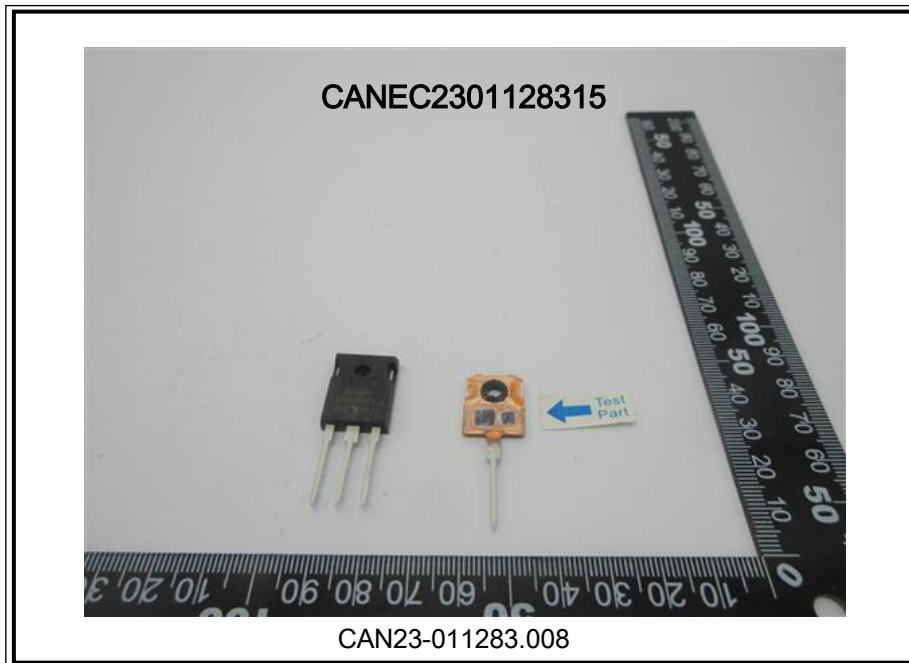
ATTACHMENTS

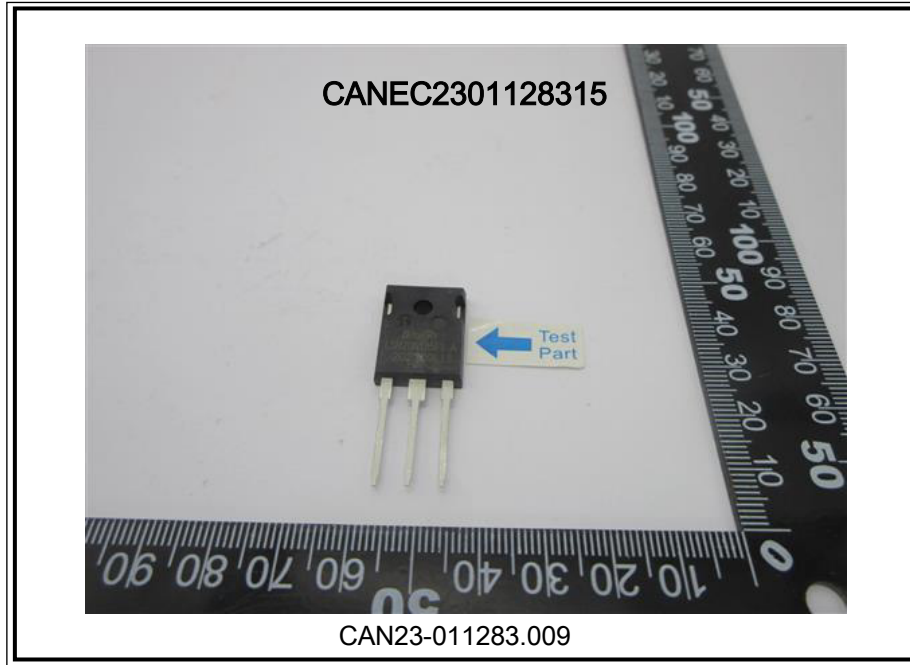
Phthalates Testing Flow Chart



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Sample photo:





SGS authenticate the photo on original report only

*** End of Report ***

