

# Test Report

No.: CANEC23000566316

Date: May 19, 2023

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Client Name: FOSHAN BLUE ROCKET ELECTRONICS CO.,LTD.

Client Address: NO.45 GUXIN ROAD, CHANCHENG DISTRICT, FOSHAN, GUANGDONG, P.R.C CHINA

Sample Name: SMA Semiconductor Device (Solder Bonding)

Model No.: SMA

Client Ref. Information: SMB, MBS, SMBF, SMAF, MBF, ABS, GBJ, UMSB, GBU, KBP, TO-252, SMC, UMB, ABF

The above sample(s) and information were provided by the client.

SGS Job No.: CP23-008619

Sample Receiving Date: Mar 02, 2023

Testing Period: Mar 02, 2023 ~ Mar 20, 2023

Test Requested: Select 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).

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

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



Jany Zhong  
Approved Signatory

scan to see the report



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**Test Result(s):**

Test Part Description:

| SN ID | Sample No. | SGS Sample ID           | Description                    |
|-------|------------|-------------------------|--------------------------------|
| SN1   | A2         | CAN23-0005663-0001.C002 | Silvery metal pin              |
| SN2   | A5         | CAN23-0005663-0001.C005 | Black plastic w/ chip & solder |

**Remarks:**

- (1) 1 mg/kg = 1 ppm = 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- Cadmium, Lead, Mercury and Hexavalent chromium**

**Test Method:** With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 and IEC 62321-7-1:2015, analysis was performed by ICP-OES and UV-Vis.

| Test Item(s)                  | Limit | Unit(s)            | MDL  | A2 |
|-------------------------------|-------|--------------------|------|----|
| Cadmium(Cd)                   | 100   | mg/kg              | 2    | ND |
| Lead(Pb)                      | 1000  | mg/kg              | 2    | 22 |
| Mercury(Hg)                   | 1000  | mg/kg              | 2    | ND |
| Hexavalent Chromium (Cr(VI))▼ | -     | µg/cm <sup>2</sup> | 0.10 | 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 Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm<sup>2</sup>. The sample coating is considered to contain Cr(VI).  
 b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm<sup>2</sup>). The coating is considered a non-Cr(VI) based coating.  
 c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive - unavoidable coating variations may influence the determination.

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.

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

**Test Method:** With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES, UV-Vis and GC-MS.

| Test Item(s) | Limit | Unit(s) | MDL | A5 |
|--------------|-------|---------|-----|----|
| Cadmium(Cd)  | 100   | mg/kg   | 2   | ND |



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| Test Item(s)                        | Limit | Unit(s) | MDL | A5    |
|-------------------------------------|-------|---------|-----|-------|
| Lead(Pb)                            | 1000  | mg/kg   | 2   | 8023▲ |
| Mercury (Hg)                        | 1000  | mg/kg   | 2   | ND    |
| Hexavalent Chromium (Cr(VI))        | 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    |
| Pentabromodiphenyl                  | -     | mg/kg   | 5   | ND    |
| Hexabromodiphenyl                   | -     | mg/kg   | 5   | ND    |
| Heptabromobiphenyl                  | -     | mg/kg   | 5   | ND    |
| Octabromodiphenyl                   | -     | mg/kg   | 5   | ND    |
| Nonabromobiphenyl                   | -     | mg/kg   | 5   | ND    |
| Decabromodiphenyl                   | -     | mg/kg   | 5   | ND    |
| Sum of PBDEs                        | 1000  | mg/kg   | -   | ND    |
| Monobromodiphenyl ether             | -     | mg/kg   | 5   | ND    |
| Dibromodiphenyl ether               | -     | mg/kg   | 5   | ND    |
| 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    |
| Di-butyl Phthalate (DBP)            | 1000  | mg/kg   | 50  | ND    |
| Benzyl Butyl Phthalate (BBP)        | 1000  | mg/kg   | 50  | ND    |
| Diisobutyl Phthalates (DIBP)        | 1000  | mg/kg   | 50  | ND    |
| Bis (2-ethylhexyl) Phthalate (DEHP) | 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.

Remark 1: Results & photo(s) of this report refer to test report CANEC23000566315.

Remark 2: ▲ According to the declaration from the client, Lead (Pb) in No.A5 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).

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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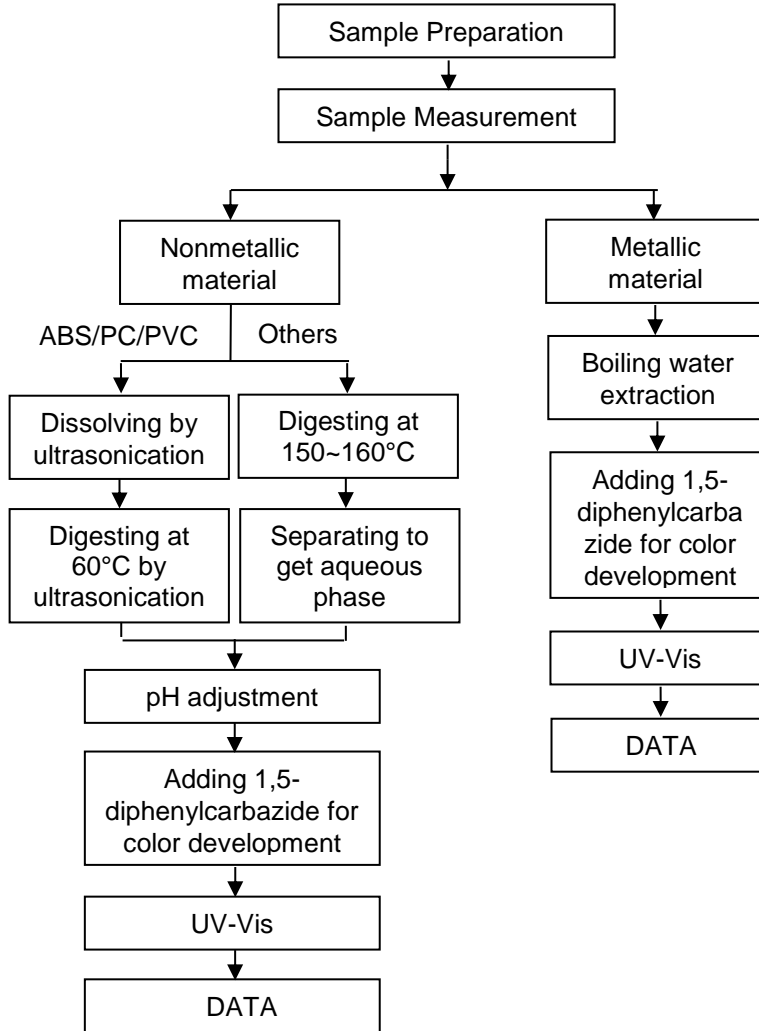
### Elements Testing Flow Chart

These samples were dissolved totally by pre-conditioning method according to below flow chart.



ATTACHMENTS

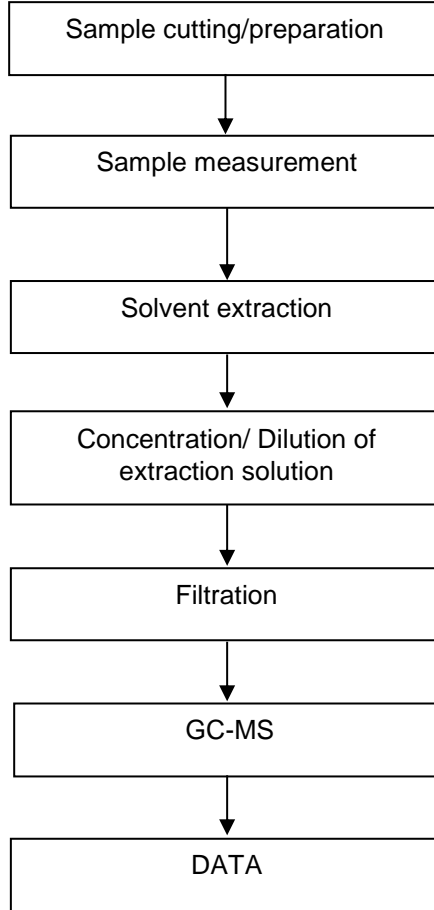
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



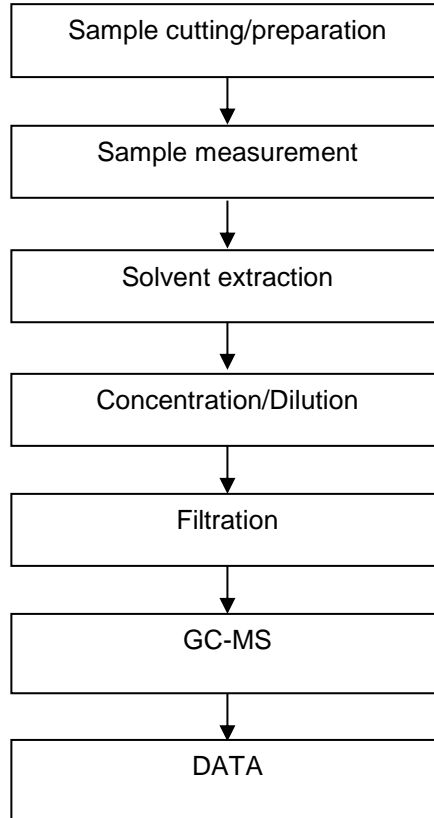
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**PBBs/PBDEs Testing Flow Chart**



### Phthalates Testing Flow Chart



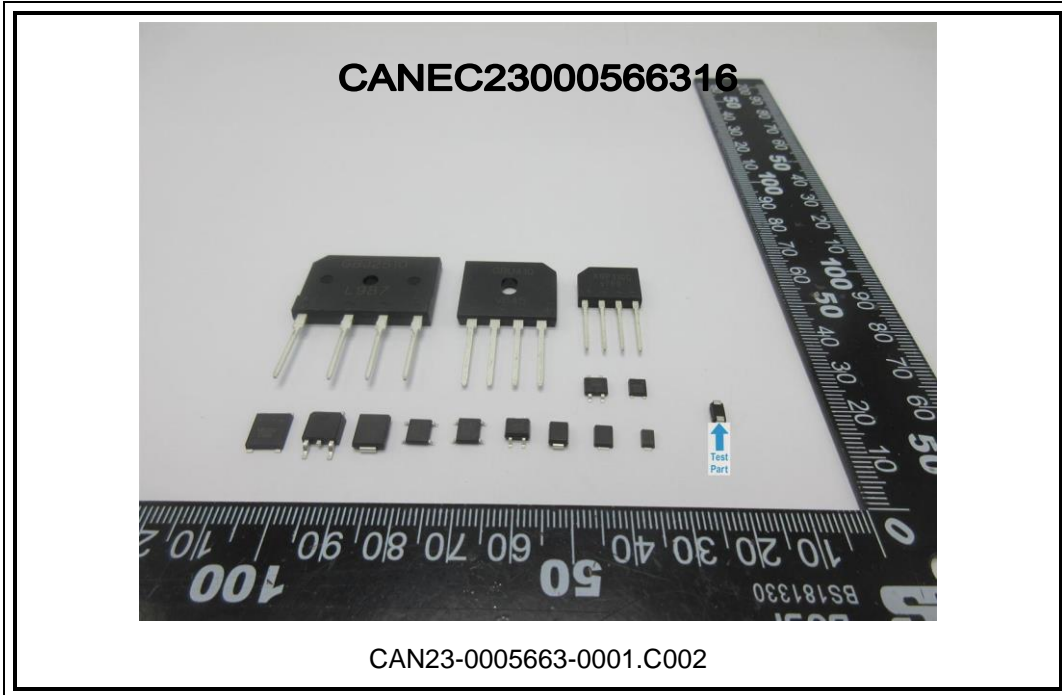
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Sample Photo:



SGS authenticate the photo on original report only  
 \*\*\* End of Report \*\*\*



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