

# Test Report

No. CANEC2224208101

Date: 23 Nov 2022

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Client Name : UNIROYAL ELECTRONICS INDUSTRY CO., LTD

Client Address : 88 LONGTENG ROAD, ECONOMIC & TECHNICAL DEVELOPMENT ZONE, KUNSHAN CITY, JIANGSU, CHINA

Sample Name : Chip Resistors  
 Buyer : Uniroyal Electronics Industry Co., Ltd  
 Supplier : Uniroyal Electronics Industry Co., Ltd  
 Aeon Technology Corporation Co.,Ltd  
 Royal Electronic Factory (Thailand) Co.,Ltd  
 Royal Technology (Thailand) Co.,Ltd  
 UNUSTECHNOLOGY CORPORATION

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

SGS Job No. : 23140814 - XM  
 Date of Sample Received : 10 Nov 2022  
 Testing Period : 10 Nov 2022 - 21 Nov 2022  
 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 and client's requirement - 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
Alkanes C <sub>14</sub> ~C <sub>17</sub> , chloro (medium chain-chlorinated paraffins) (MCCPs)	See Results
Tetrabromobisphenol A (TBBP-A)	See Results
Halogen	See Results
Phthalate(s)	See Results



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

*Allie Chen*

Allie Chen  
Approved Signatory



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Test Result(s) :

## Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN22-242081.001	"Chip Resistors"

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 and client's requirement - 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	001
Cadmium (Cd)	60	mg/kg	2	ND
Lead (Pb)	600	mg/kg	2	1213▲
Mercury (Hg)	600	mg/kg	2	ND
Hexavalent Chromium (CrVI)	600	mg/kg	8	ND
Sum of PBBs	600	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	600	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



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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
Dibutyl phthalate (DBP)	600	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	600	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	600	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	600	mg/kg	50	ND

Notes :

- (1) The limit was submitted by client.
- (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.

### Alkanes C<sub>14</sub> ~ C<sub>17</sub>, chloro (medium chain-chlorinated paraffins) (MCCPs)

Test Method : With reference to ISO 22818:2021, analysis was performed by GC-NCI-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Alkanes C <sub>14</sub> ~ C <sub>17</sub> , chloro (medium chain-chlorinated paraffins) (MCCPs)	85535-85-9 and others	mg/kg	50	ND

### Tetrabromobisphenol A (TBBP-A)

Test Method : SGS In-house method (GZTC CHEM-TOP-065, With reference to EPA 3540C:1996 & EPA 8270E:2017), analysis was performed by LC-MS/MS.

Test Item(s)	Unit	MDL	001
Tetrabromobisphenol A (TBBP-A)	mg/kg	10	ND

### Halogen



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Test Method : With reference to EN 14582:2016, analysis was performed by IC.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

### Phthalate(s)

Test Method : With reference to IEC 62321-8:2017, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Diisooctyl Phthalate (DIOP)	27554-26-3	%(w/w)	0.005	ND
Dimethyl Phthalate (DMP)	131-11-3	%(w/w)	0.005	ND
Diethyl Phthalate (DEP)	84-66-2	%(w/w)	0.005	ND
Diphenyl Phthalate (DPhP)	84-62-8	%(w/w)	0.005	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%(w/w)	0.005	ND
Dipentyl Phthalates (DPENP/DnPP)	131-18-0	%(w/w)	0.005	ND
Bis(2-methoxyethyl) Phthalate (DMEP)	117-82-8	%(w/w)	0.005	ND
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.005	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.005	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.005	ND

Remark▲: According to the declaration from the client, Lead (Pb) in specimen is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 7(c)-I]: Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

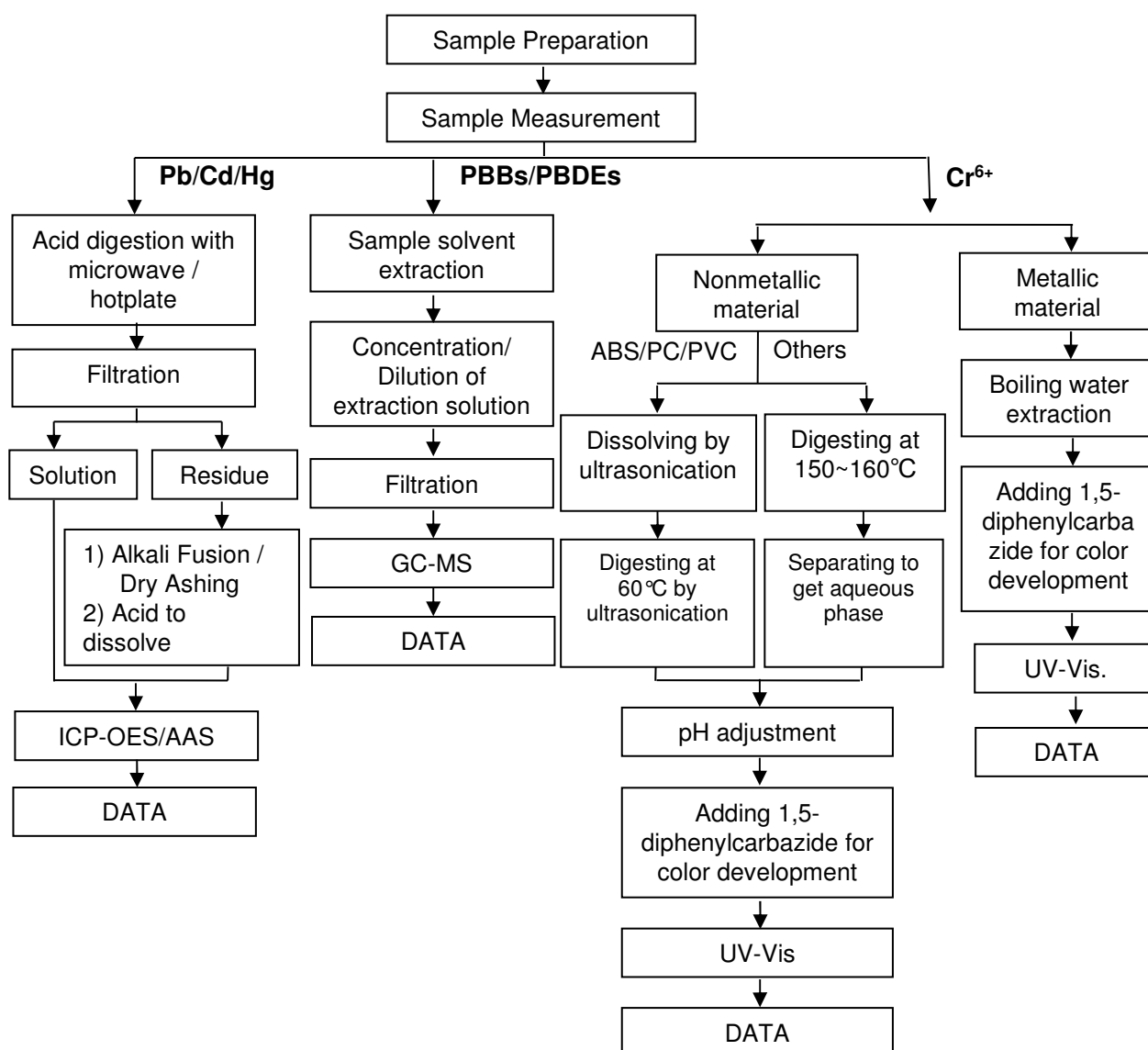
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ( $w=0$ ) stated in ILAC-G8:09/2019.



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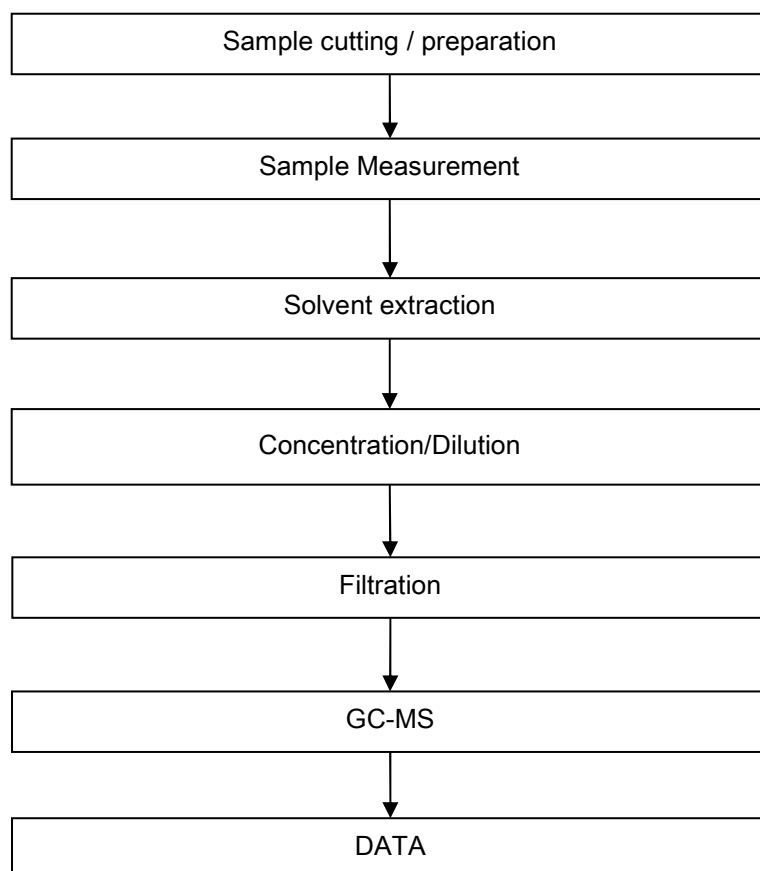
#### Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



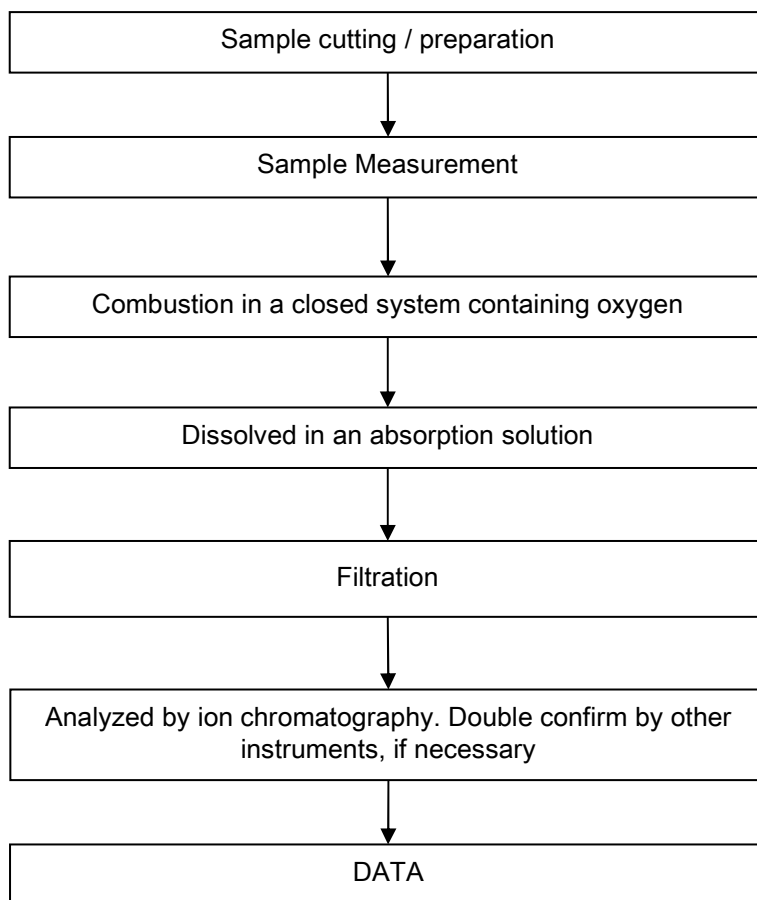
### ATTACHMENTS

#### Phthalates Testing Flow Chart



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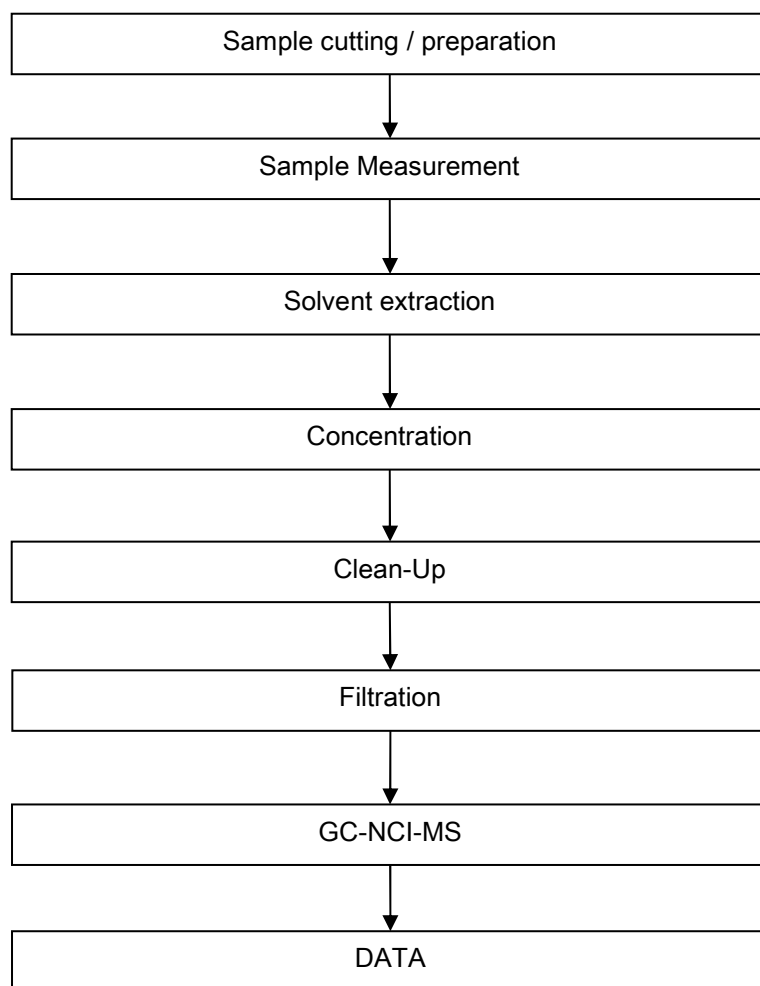
#### Halogen Testing Flow Chart





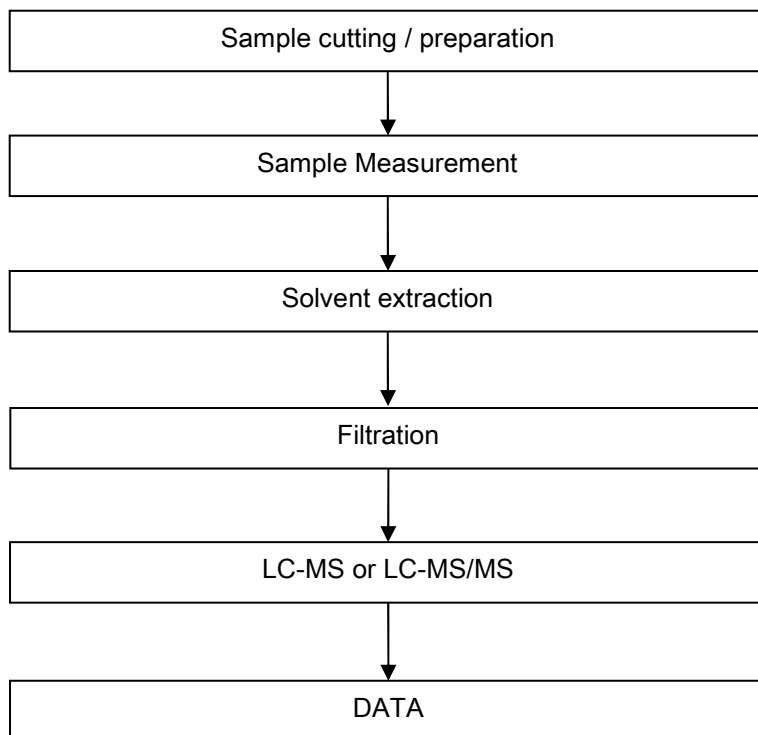
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#### SCCP/MCCP/LCCP Testing Flow Chart



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#### TBBP-A Testing Flow Chart



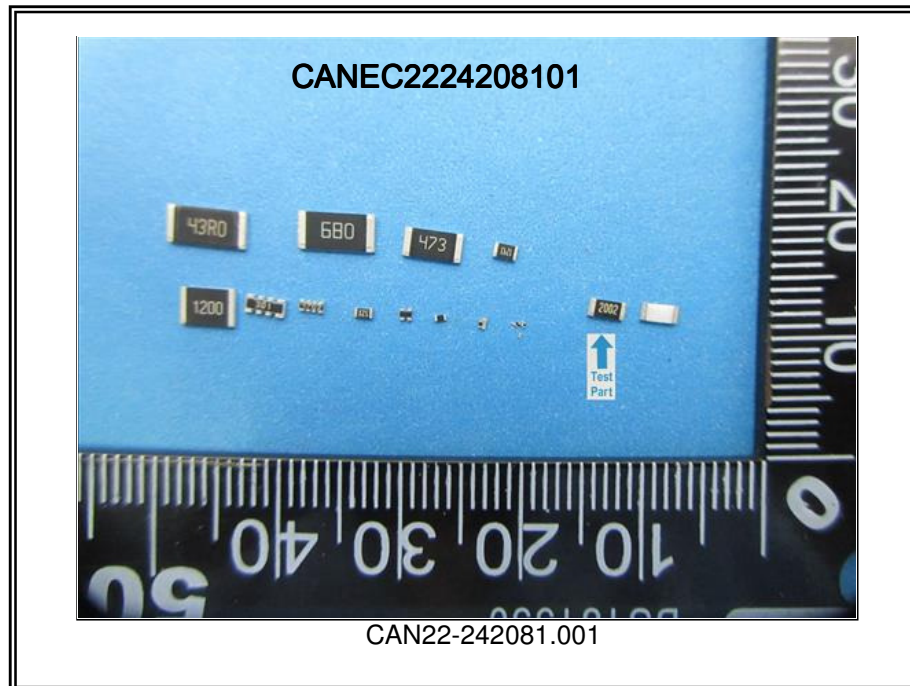
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Sample photo :



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



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