

检测报告

编号: CANEC2211169002

日期: 2022年06月08日 第1页,共14页

客户名称: 乐鑫信息科技(上海)股份有限公司
客户地址: 中国上海张江高科微电子港碧波路690号2号楼204

样品名称: ESP8266 模组
型号: ESP-WROOM-02D
客户参考信息: ESP-WROOM-02, ESP-WROOM-S2, ESP-WROOM-02D, ESP-WROOM-02U,
ESP-WROOM-02DC, ESP-WROOM-02UC, ESP-WROOM-5V2L,
ESP-WROOM-5C, ESP8089M16, ESP-WROOM-03

以上样品及信息由客户提供。

SGS工作编号: CP22-029349 - GZ
内部编号: 15955737
样品接收日期: 2022年05月27日
检测周期: 2022年05月27日 - 2022年06月07日
检测要求: 根据客户要求检测
检测方法: 请参见下一页
检测结果: 请参见下一页

结论: 基于所送样品进行的检测, 镉、铅、汞、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs)、邻苯二甲酸酯(如邻苯二甲酸二丁酯(DBP)、邻苯二甲酸丁苄酯(BBP)、邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP))的检测结果显示符合欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863的限值要求。

通标标准技术服务有限公司广州分公司
授权签名

鄧莎莎

Sasa Zhi 鄧莎莎
批准签署人

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SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Testing Center Chemical Laboratory

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检测报告

编号: CANEC2211169002

日期: 2022年06月08日 第2页,共14页

检测结果:

检测样品描述:

样品编号	SGS样品ID	描述
SN1	CAN22-111690.001	蓝色 "PCB"
SN2	CAN22-111690.005	"晶振"
SN3	CAN22-111690.006	"电感"
SN4	CAN22-111690.007	"电容"
SN5	CAN22-111690.008	"二极管"
SN6	CAN22-111690.009	"电阻"
SN7	CAN22-111690.010	"RF connector/lpex"
SN8	CAN22-111690.011	银色金属
SN9	CAN22-111690.012	"XMC"
SN10	CAN22-111690.013	"芯片"
SN11	CAN22-111690.014	"ESP8266EX"

备注:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = 方法检测限
- (3) ND = 未检出 (< MDL)
- (4) "-" = 未规定

RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863

检测方法: 参考IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 和 IEC 62321-8:2017, 采用 ICP-OES, UV-Vis 和 GC-MS 进行分析.

检测项目	限值	单位	MDL	001	005	006
镉 (Cd)	100	mg/kg	2	ND	ND	ND
铅 (Pb)	1,000	mg/kg	2	9	7	8
汞 (Hg)	1,000	mg/kg	2	ND	ND	ND
六价铬(Cr(VI))	1,000	mg/kg	8	ND	ND	ND
多溴联苯之和(PBBs)	1,000	mg/kg	-	ND	ND	ND
一溴联苯	-	mg/kg	5	ND	ND	ND
二溴联苯	-	mg/kg	5	ND	ND	ND
三溴联苯	-	mg/kg	5	ND	ND	ND
四溴联苯	-	mg/kg	5	ND	ND	ND
五溴联苯	-	mg/kg	5	ND	ND	ND



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检测报告

编号: CANEC2211169002

日期: 2022年06月08日 第3页,共14页

检测项目	限值	单位	MDL	001	005	006
六溴联苯	-	mg/kg	5	ND	ND	ND
七溴联苯	-	mg/kg	5	ND	ND	ND
八溴联苯	-	mg/kg	5	ND	ND	ND
九溴联苯	-	mg/kg	5	ND	ND	ND
十溴联苯	-	mg/kg	5	ND	ND	ND
多溴二苯醚之和(PBDEs)	1,000	mg/kg	-	ND	ND	ND
一溴二苯醚	-	mg/kg	5	ND	ND	ND
二溴二苯醚	-	mg/kg	5	ND	ND	ND
三溴二苯醚	-	mg/kg	5	ND	ND	ND
四溴二苯醚	-	mg/kg	5	ND	ND	ND
五溴二苯醚	-	mg/kg	5	ND	ND	ND
六溴二苯醚	-	mg/kg	5	ND	ND	ND
七溴二苯醚	-	mg/kg	5	ND	ND	ND
八溴二苯醚	-	mg/kg	5	ND	ND	ND
九溴二苯醚	-	mg/kg	5	ND	ND	ND
十溴二苯醚	-	mg/kg	5	ND	ND	ND
邻苯二甲酸二丁酯 (DBP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸丁苄酯(BBP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸二异丁酯(DIBP)	1,000	mg/kg	50	ND	ND	ND

检测项目	限值	单位	MDL	007	008	009
镉 (Cd)	100	mg/kg	2	ND	ND	ND
铅 (Pb)	1,000	mg/kg	2	ND	ND	ND
汞 (Hg)	1,000	mg/kg	2	ND	ND	ND
六价铬(Cr(VI))	1,000	mg/kg	8	ND	ND	ND
多溴联苯之和(PBBs)	1,000	mg/kg	-	ND	ND	ND
一溴联苯	-	mg/kg	5	ND	ND	ND
二溴联苯	-	mg/kg	5	ND	ND	ND
三溴联苯	-	mg/kg	5	ND	ND	ND
四溴联苯	-	mg/kg	5	ND	ND	ND
五溴联苯	-	mg/kg	5	ND	ND	ND
六溴联苯	-	mg/kg	5	ND	ND	ND
七溴联苯	-	mg/kg	5	ND	ND	ND
八溴联苯	-	mg/kg	5	ND	ND	ND
九溴联苯	-	mg/kg	5	ND	ND	ND
十溴联苯	-	mg/kg	5	ND	ND	ND
多溴二苯醚之和(PBDEs)	1,000	mg/kg	-	ND	ND	ND
一溴二苯醚	-	mg/kg	5	ND	ND	ND



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检测报告

编号: CANEC2211169002

日期: 2022年06月08日 第4页,共14页

检测项目	限值	单位	MDL	007	008	009
二溴二苯醚	-	mg/kg	5	ND	ND	ND
三溴二苯醚	-	mg/kg	5	ND	ND	ND
四溴二苯醚	-	mg/kg	5	ND	ND	ND
五溴二苯醚	-	mg/kg	5	ND	ND	ND
六溴二苯醚	-	mg/kg	5	ND	ND	ND
七溴二苯醚	-	mg/kg	5	ND	ND	ND
八溴二苯醚	-	mg/kg	5	ND	ND	ND
九溴二苯醚	-	mg/kg	5	ND	ND	ND
十溴二苯醚	-	mg/kg	5	ND	ND	ND
邻苯二甲酸二丁酯 (DBP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸丁苄酯(BBP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸二异丁酯(DIBP)	1,000	mg/kg	50	ND	ND	ND

检测项目	限值	单位	MDL	010	012	013
镉 (Cd)	100	mg/kg	2	ND	ND	ND
铅 (Pb)	1,000	mg/kg	2	12	ND	ND
汞 (Hg)	1,000	mg/kg	2	ND	ND	ND
六价铬(Cr(VI))	1,000	mg/kg	8	ND	ND	ND
多溴联苯之和(PBBs)	1,000	mg/kg	-	ND	ND	ND
一溴联苯	-	mg/kg	5	ND	ND	ND
二溴联苯	-	mg/kg	5	ND	ND	ND
三溴联苯	-	mg/kg	5	ND	ND	ND
四溴联苯	-	mg/kg	5	ND	ND	ND
五溴联苯	-	mg/kg	5	ND	ND	ND
六溴联苯	-	mg/kg	5	ND	ND	ND
七溴联苯	-	mg/kg	5	ND	ND	ND
八溴联苯	-	mg/kg	5	ND	ND	ND
九溴联苯	-	mg/kg	5	ND	ND	ND
十溴联苯	-	mg/kg	5	ND	ND	ND
多溴二苯醚之和(PBDEs)	1,000	mg/kg	-	ND	ND	ND
一溴二苯醚	-	mg/kg	5	ND	ND	ND
二溴二苯醚	-	mg/kg	5	ND	ND	ND
三溴二苯醚	-	mg/kg	5	ND	ND	ND
四溴二苯醚	-	mg/kg	5	ND	ND	ND
五溴二苯醚	-	mg/kg	5	ND	ND	ND
六溴二苯醚	-	mg/kg	5	ND	ND	ND
七溴二苯醚	-	mg/kg	5	ND	ND	ND
八溴二苯醚	-	mg/kg	5	ND	ND	ND



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检测报告

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日期: 2022年06月08日 第5页,共14页

检测项目	限值	单位	MDL	010	012	013
九溴二苯醚	-	mg/kg	5	ND	ND	ND
十溴二苯醚	-	mg/kg	5	ND	ND	ND
邻苯二甲酸二丁酯 (DBP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸丁苄酯(BBP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1,000	mg/kg	50	ND	ND	ND
邻苯二甲酸二异丁酯(DIBP)	1,000	mg/kg	50	ND	ND	ND

检测项目	限值	单位	MDL	014
镉 (Cd)	100	mg/kg	2	ND
铅 (Pb)	1,000	mg/kg	2	ND
汞 (Hg)	1,000	mg/kg	2	ND
六价铬(Cr(VI))	1,000	mg/kg	8	ND
多溴联苯之和(PBBs)	1,000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1,000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND
二溴二苯醚	-	mg/kg	5	ND
三溴二苯醚	-	mg/kg	5	ND
四溴二苯醚	-	mg/kg	5	ND
五溴二苯醚	-	mg/kg	5	ND
六溴二苯醚	-	mg/kg	5	ND
七溴二苯醚	-	mg/kg	5	ND
八溴二苯醚	-	mg/kg	5	ND
九溴二苯醚	-	mg/kg	5	ND
十溴二苯醚	-	mg/kg	5	ND
邻苯二甲酸二丁酯 (DBP)	1,000	mg/kg	50	ND
邻苯二甲酸丁苄酯(BBP)	1,000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1,000	mg/kg	50	ND
邻苯二甲酸二异丁酯(DIBP)	1,000	mg/kg	50	ND



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检测报告

编号: CANEC2211169002

日期: 2022年06月08日 第6页,共14页

备注:

- (1)最大允许极限值引用自RoHS指令(EU) 2015/863 。
- (2) IEC 62321 系列等同于 EN 62321 系列
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (3) 2021年7月22号开始, DEHP, BBP, DBP 和 DIBP的限制适用于医疗器械, 包括体外医疗器械, 监控仪表, 包括工业监测和控制仪器。

RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863

检测方法: 参考IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, 采用 ICP-OES 和 UV-Vis 进行分析.

检测项目	限值	单位	MDL	011
镉 (Cd)	100	mg/kg	2	ND
铅 (Pb)	1,000	mg/kg	2	33
汞 (Hg)	1,000	mg/kg	2	ND
六价铬(Cr(VI))▼	-	µg/cm ²	0.10	ND

备注:

- (1) 最大允许极限值引用自RoHS指令(EU) 2015/863 。
- (2) IEC 62321 系列等同于 EN 62321 系列
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (3) ▼=a. 当六价铬的浓度高于0.13 µg/cm²时, 样品为阳性, 即含有六价铬;
 b. 当六价铬的浓度为ND(低于0.10 µg/cm²)时, 样品为阴性, 即未检测到六价铬;
 c. 当六价铬的浓度介于0.10 µg/cm²与0.13 µg/cm²之间时, 无法直接判定是否检测到六价铬, 因不同个体的样品表面差异可能会影响测定结果;
 由于未获知样品的存储条件和生产日期, 样品的六价铬检测结果仅能代表检测时样品含六价铬的状态。

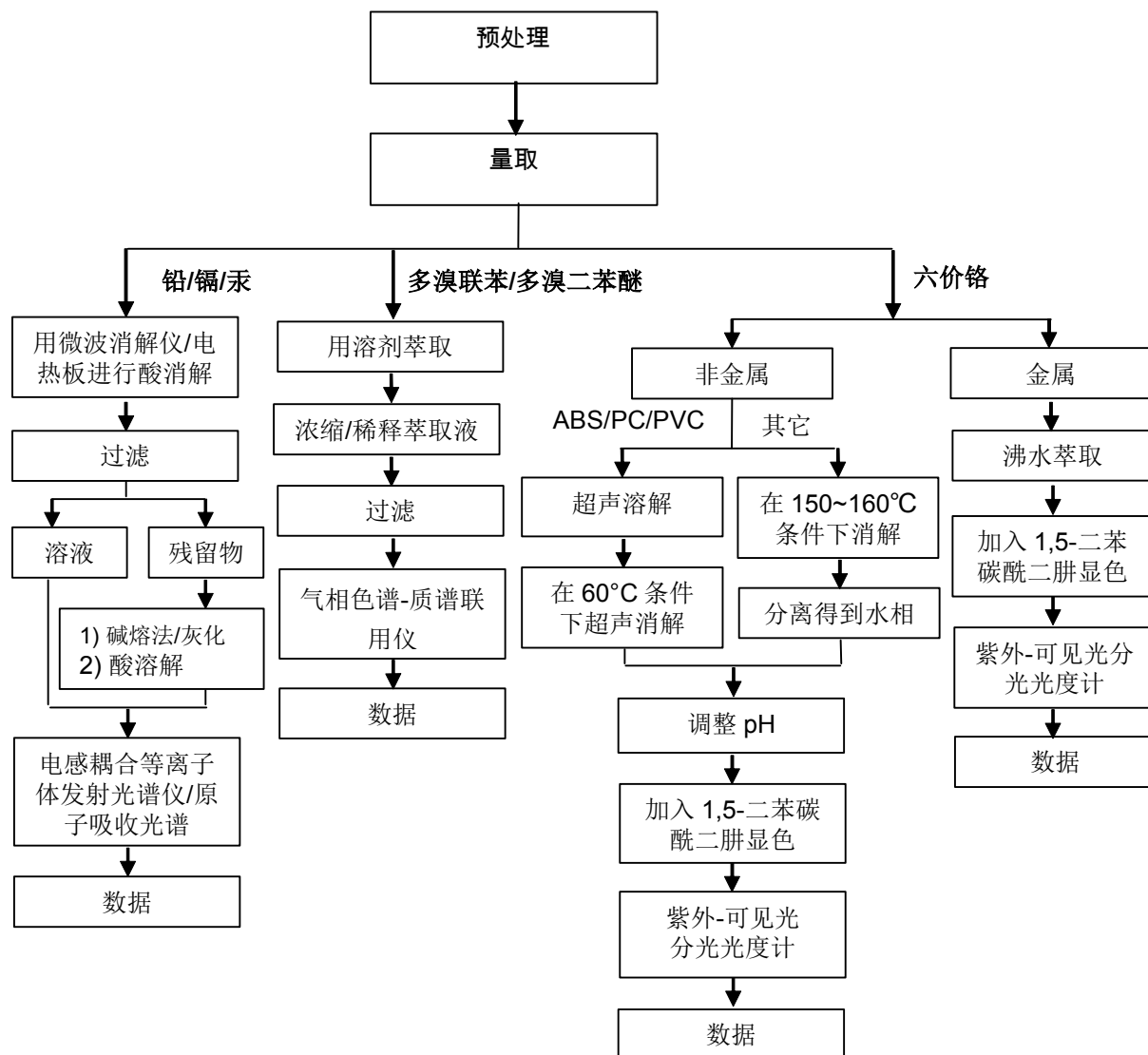
除非另有说明, 参照ILAC-G8:09/2019, 使用简单接受 (w=0) 的二元判定规则进行符合性判定。
 除非另有说明, 此报告结果仅对检测的样品负责。本报告未经本公司书面许可, 不可部分复制。
 检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的, 仅供内部参考。



附件

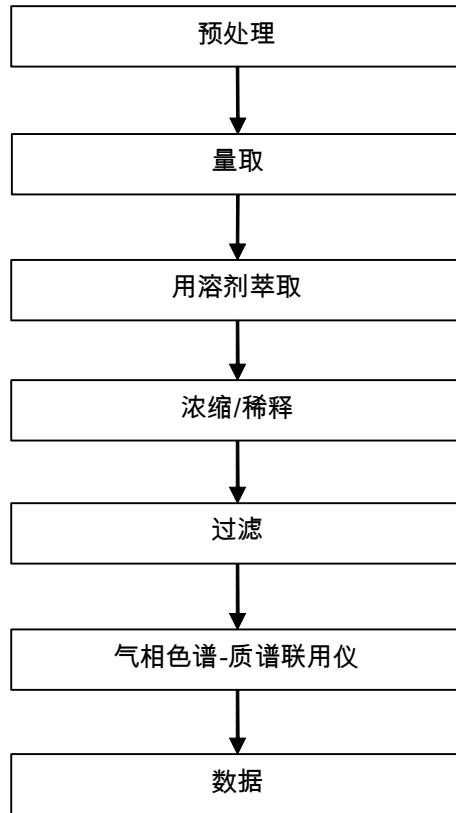
Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs 检测流程图

1) 样品按照下述流程被完全消解（六价铬和多溴联苯/多溴二苯醚检测除外）。



附件

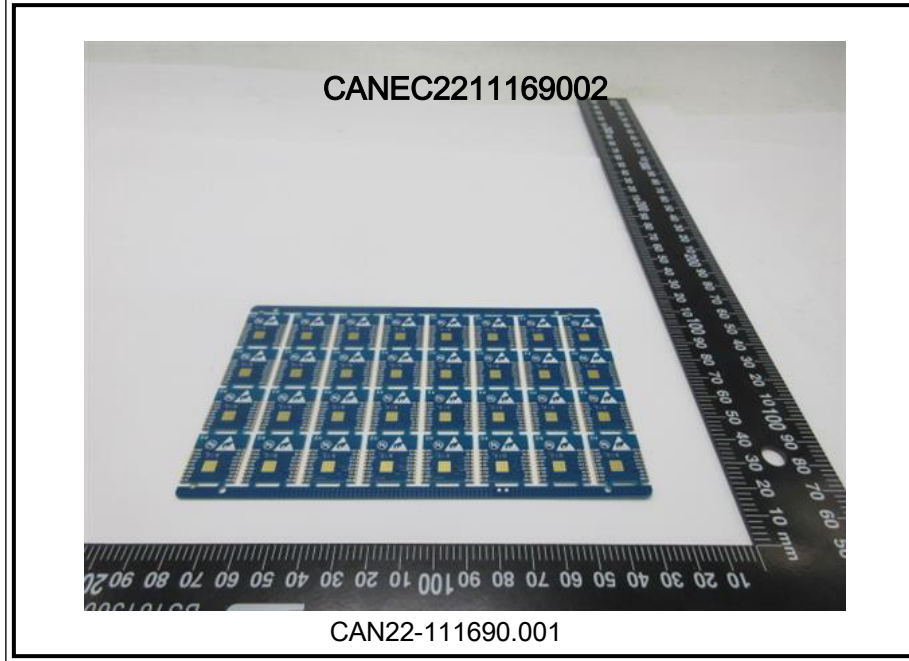
Phthalates 检测流程图



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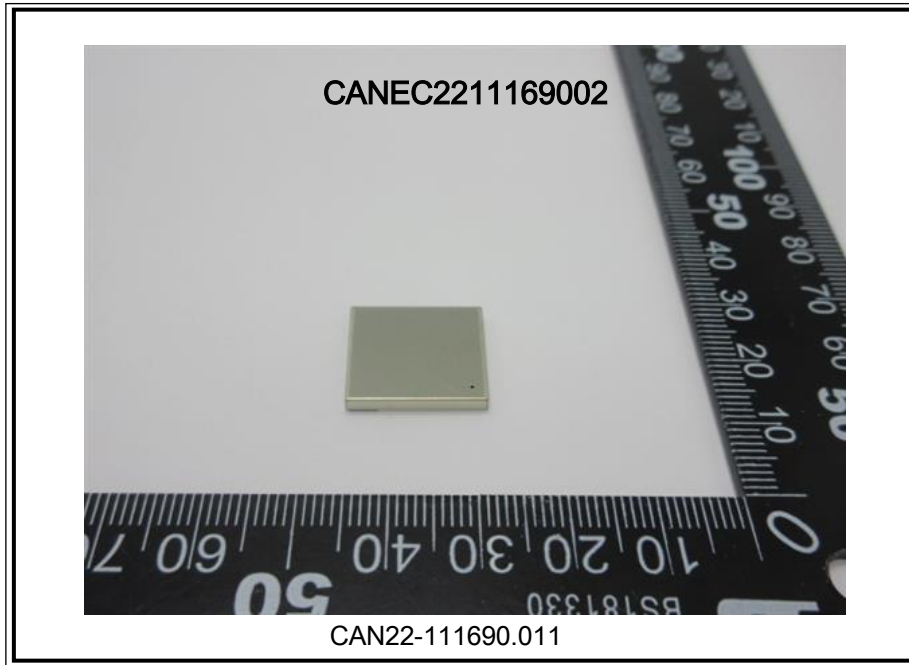
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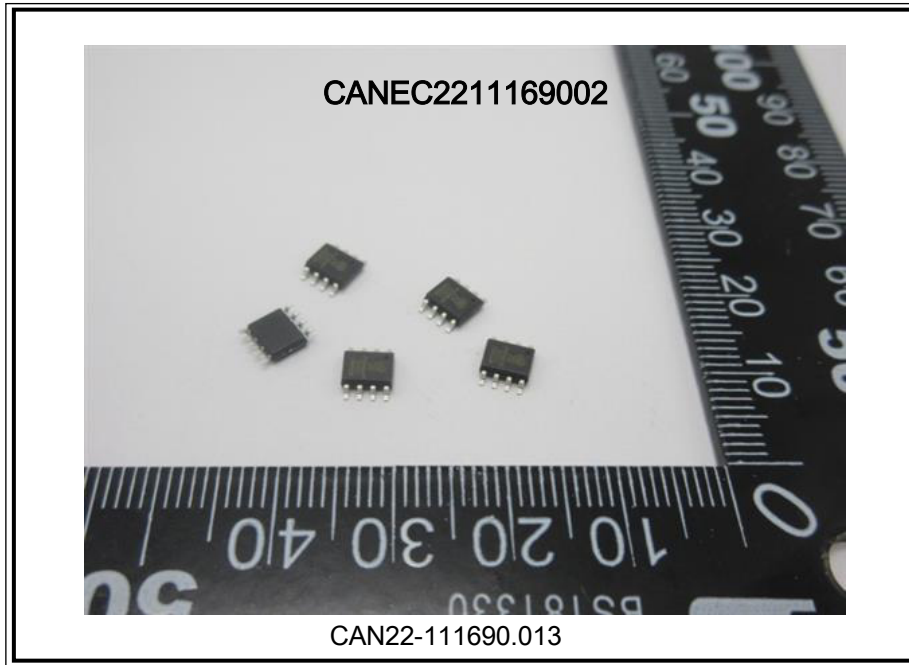
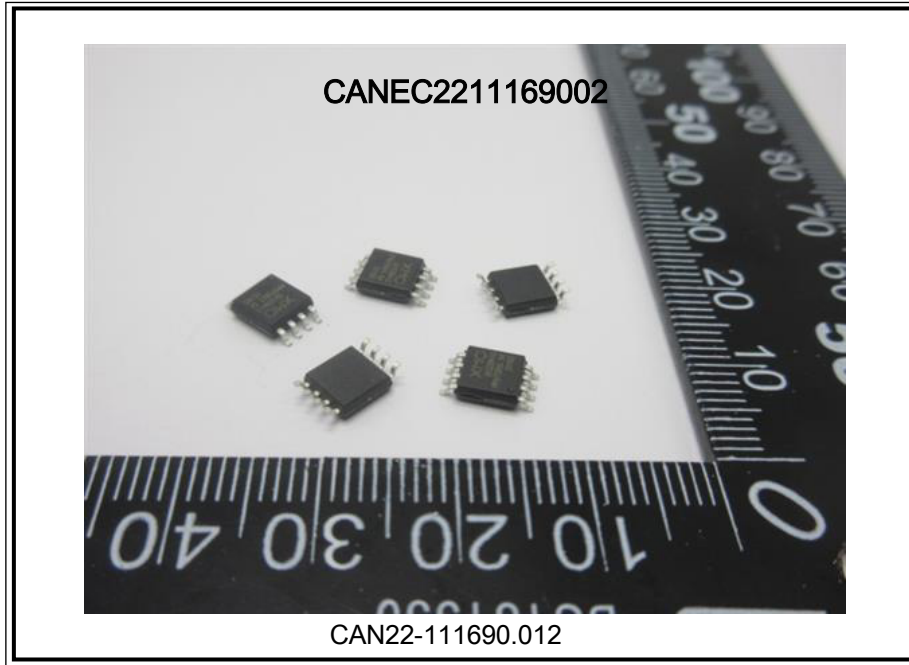
样品照片:





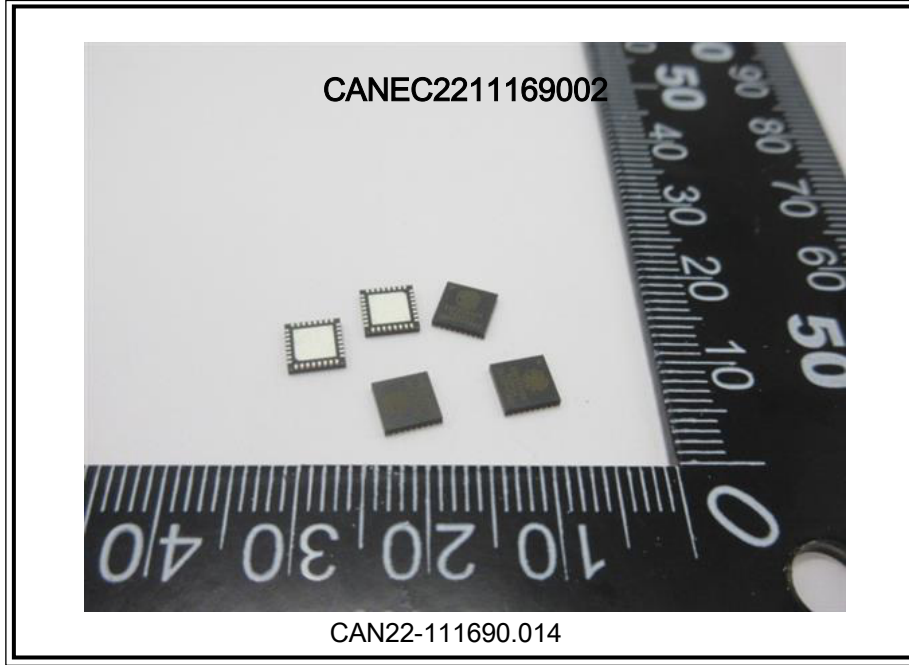






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