

## 测试报告

No. NGBEC1805946402

日期: 2018年11月16日

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宁波松乐继电器有限公司 (宁波松乐电器有限公司)

浙江省余姚市远东工业城A区CW7

以下测试之样品是由申请者所提供及确认: 继电器 (1.骨架2.外壳3.铁芯4.衔铁5.簧片6.轭铁7.动触点8.静触点9.B脚10.A脚11.C脚12.漆包线13.油墨14.焊锡15.密封胶)

SGS工作编号: NP18-004035 - NB

型号: SRD

客户参考信息: SRS,SRSZ, SRC,SRB,SRE,SRA,SRI,SRG,SRU,SRSB,SRSC,SMK,SMI,SMIH,S LK,SRF,SLA,SLC,SLI,SLCH,SMBH,SMB,SLQ,SLE,SLB,SLG,SLH,SLJ,SLX,SLZ ,SLD,SLDH,SLM,SRIH,SLR,SLDA,SLDB,SLDE,SLDC

样品接收日期: 2018年11月12日

测试周期: 2018年11月12日 - 2018年11月16日

测试要求: 根据客户要求测试

测试方法: 请参见下一页

测试结果: 请参见下一页

结论: 基于所送样品001~002,013和015进行的测试, 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)、邻苯二甲酸丁苯酯(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))的测试结果符合欧盟RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863的限值要求。

基于所送样品003~012和014进行的测试, 镉、铅、汞、六价铬的测试结果符合欧盟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宁波分公司  
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测试结果:

测试样品描述:

样品编号	SGS样品ID	描述
SN1	NGB18-059464.001	白色塑料
SN2	NGB18-059464.002	蓝色塑料
SN3	NGB18-059464.003	银色金属
SN4	NGB18-059464.004	银色金属
SN5	NGB18-059464.005	铜色金属
SN6	NGB18-059464.006	银色金属
SN7	NGB18-059464.007	银色金属
SN8	NGB18-059464.008	铜色和银色金属
SN9	NGB18-059464.009	铜色金属
SN10	NGB18-059464.010	铜色金属
SN11	NGB18-059464.011	银色金属线
SN12	NGB18-059464.012	铜色金属线
SN13	NGB18-059464.013	白色油墨
SN14	NGB18-059464.014	银色金属
SN15	NGB18-059464.015	黑色胶体

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

测试方法: 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.

测试项目	限值	单位	MDL	001	002	013
镉(Cd)	100	mg/kg	2	ND	ND	ND
铅(Pb)	1000	mg/kg	2	ND	6	ND
汞(Hg)	1000	mg/kg	2	ND	ND	ND
六价铬 (Cr(VI))	1000	mg/kg	8	ND	ND	ND
多溴联苯(PBBs)之和	1000	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



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测试项目	限值	单位	MDL	001	002	013
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)	1000	mg/kg	-	ND	58	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	58	ND
邻苯二甲酸二丁酯 (DBP)	1000	mg/kg	50	ND	ND	ND
邻苯二甲酸丁苄酯(BBP)	1000	mg/kg	50	ND	ND	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1000	mg/kg	50	ND	ND	ND
邻苯二甲酸二异丁酯(DIBP)	1000	mg/kg	50	ND	ND	ND

测试项目	限值	单位	MDL	015
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	ND
汞(Hg)	1000	mg/kg	2	ND
六价铬 (Cr(VI))	1000	mg/kg	8	ND
多溴联苯(PBBs)之和	1000	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



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测试项目	限值	单位	MDL	015
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1000	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)	1000	mg/kg	50	ND
邻苯二甲酸丁苯酯(BBP)	1000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1000	mg/kg	50	ND
邻苯二甲酸二异丁酯(DIBP)	1000	mg/kg	50	ND

备注:

(1) 最大允许限值引用自RoHS指令(EU) 2015/863。

IEC 62321系列等同于 EN 62321系列

[http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)

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

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

测试项目	限值	单位	MDL	003	004	005
镉 (Cd)	100	mg/kg	2	ND	ND	ND
铅(Pb)	1000	mg/kg	2	ND	ND	ND
汞 (Hg)	1000	mg/kg	2	ND	ND	ND
六价铬(Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND	ND	ND

测试项目	限值	单位	MDL	006	007	008
镉 (Cd)	100	mg/kg	2	ND	ND	ND
铅(Pb)	1000	mg/kg	2	ND	ND	ND
汞 (Hg)	1000	mg/kg	2	ND	ND	ND
六价铬(Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND	ND	ND





测试项目	限值	单位	MDL	009	010	011
镉 (Cd)	100	mg/kg	2	ND	ND	ND
铅(Pb)	1000	mg/kg	2	80	74	ND
汞 (Hg)	1000	mg/kg	2	ND	ND	ND
六价铬(Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND	ND	ND

测试项目	限值	单位	MDL	012	014
镉 (Cd)	100	mg/kg	2	ND	ND
铅(Pb)	1000	mg/kg	2	ND	64
汞 (Hg)	1000	mg/kg	2	ND	ND
六价铬(Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND	ND

备注:

- (1) 最大允许限值引用自RoHS指令(EU) 2015/863。  
IEC 62321系列等同于 EN 62321系列

[http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)

- (2) ▼ = a. 当六价铬的浓度高于0.13 µg/cm<sup>2</sup>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/cm<sup>2</sup>)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/cm<sup>2</sup>与0.13 µg/cm<sup>2</sup>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, 样品的六价铬测试结果仅能代表测试时样品含六价铬的状态。

备注:

- (1) 此报告数据来源于NGBEC1805946401的报告, 日期: 2018/11/16  
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。



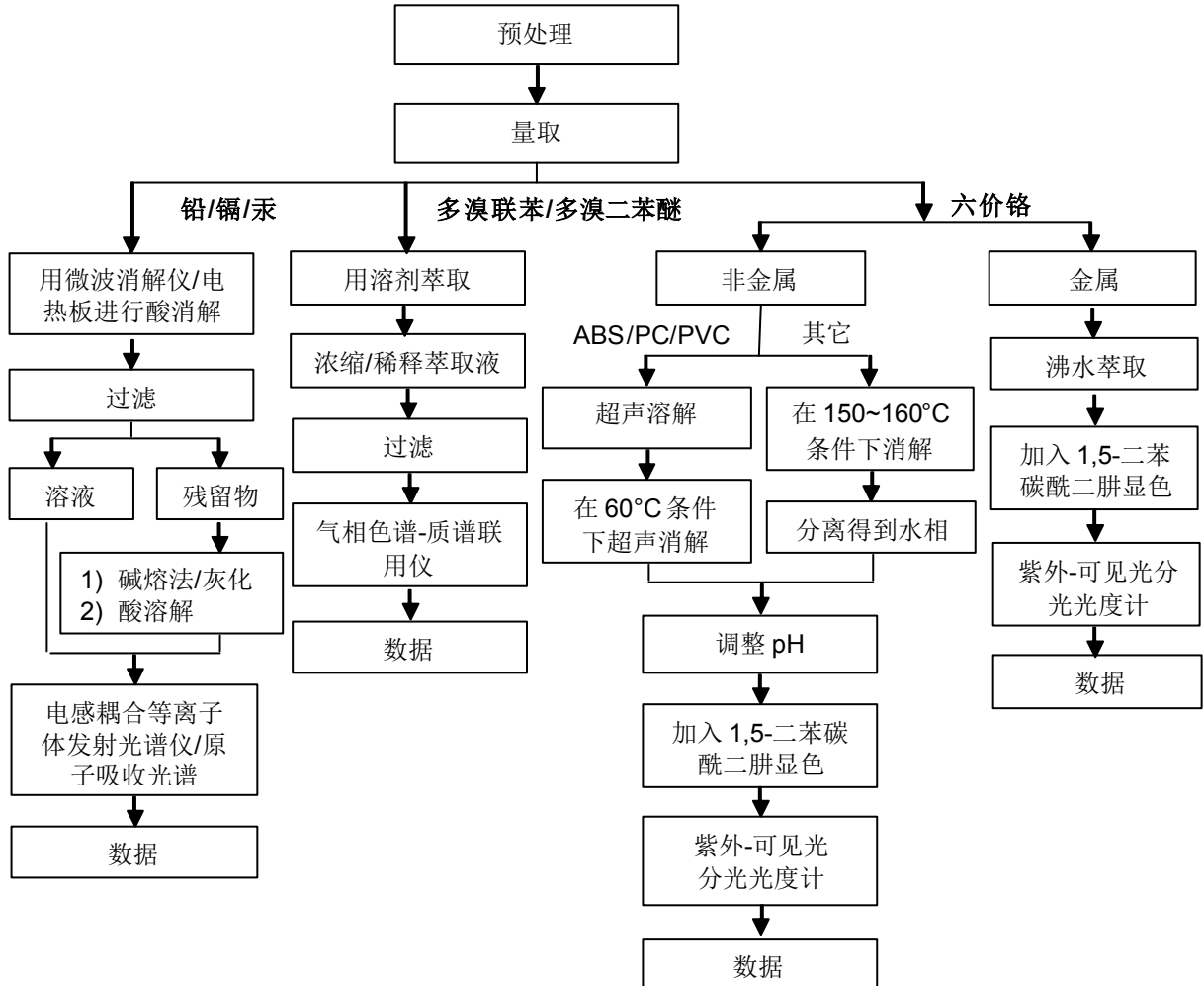
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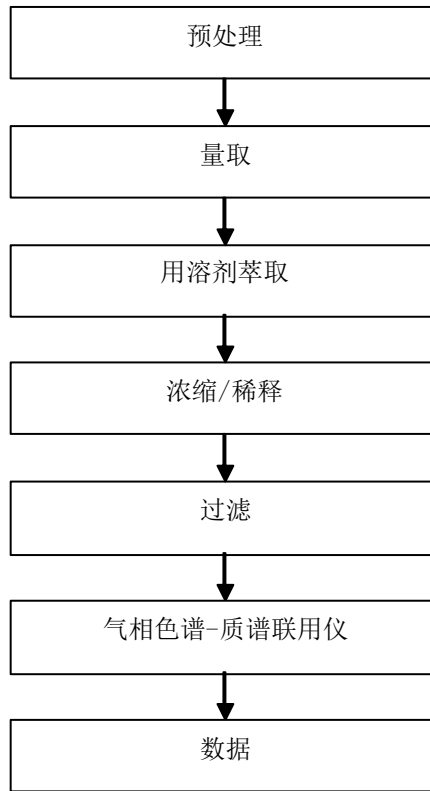
附件

## Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs 测试流程图

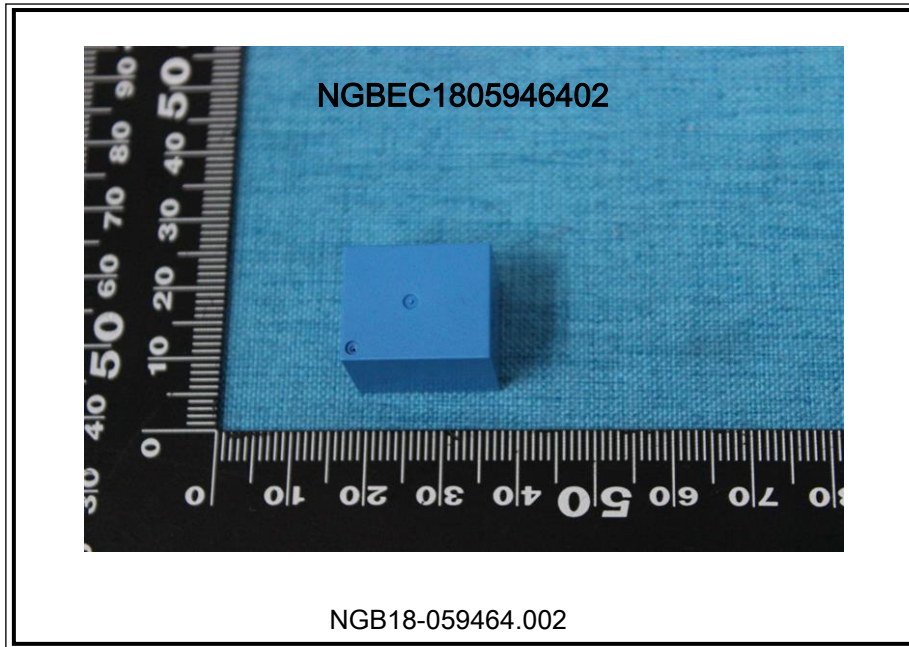
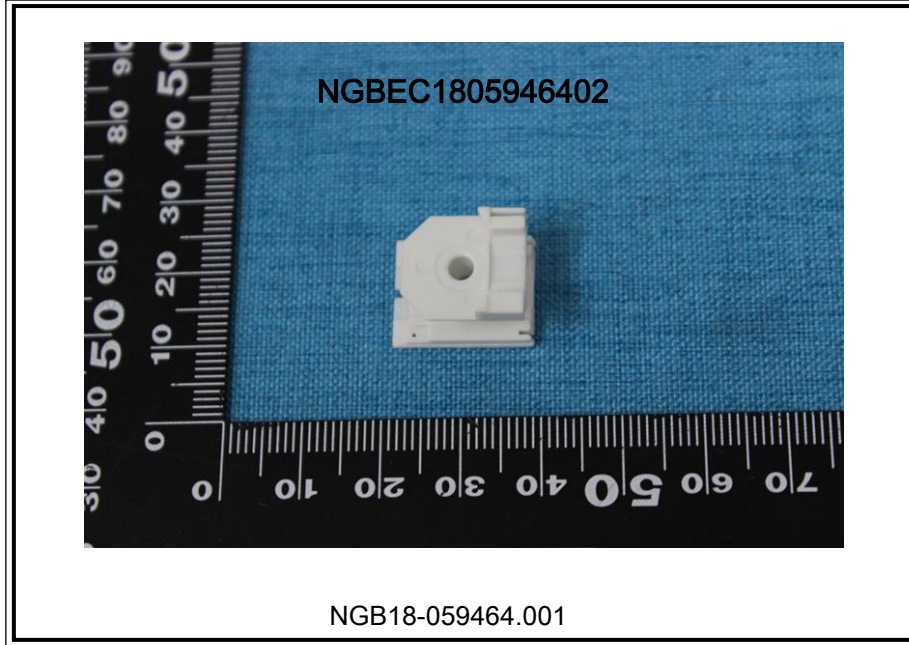
1) 样品按照下述流程被完全消解（六价铬和多溴联苯/多溴二苯醚测试除外）。



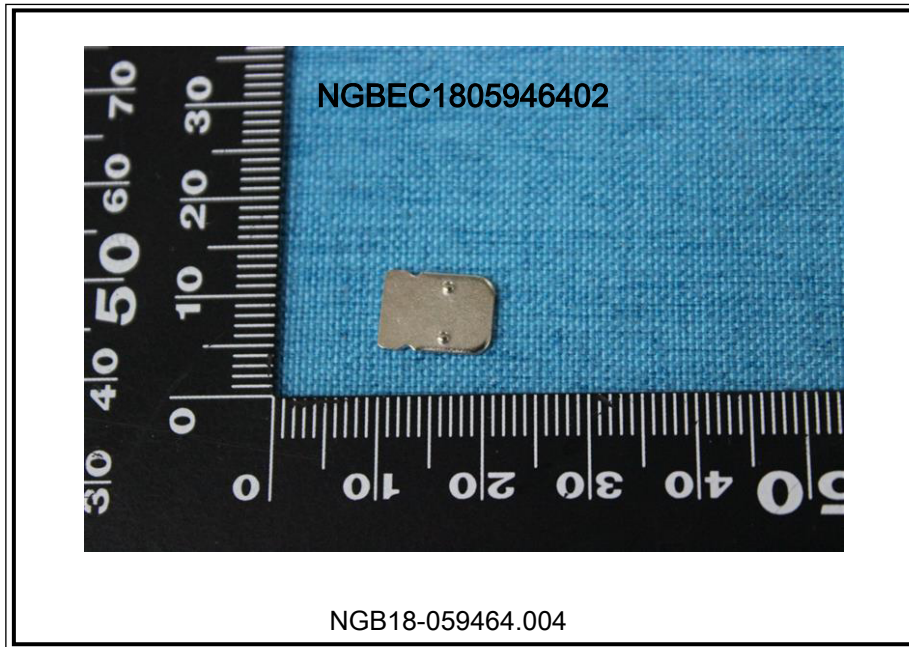
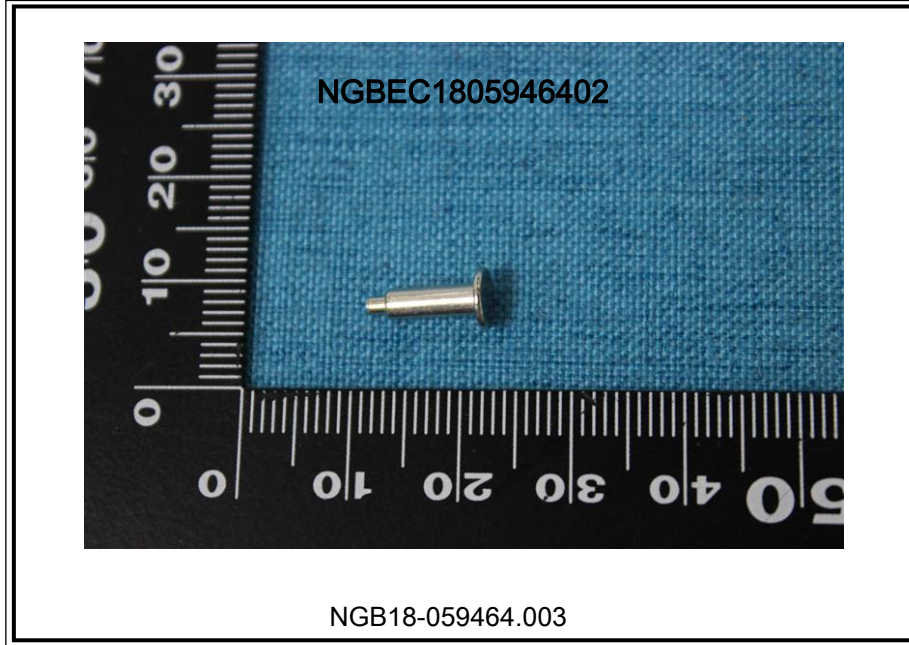
## 邻苯测试流程图

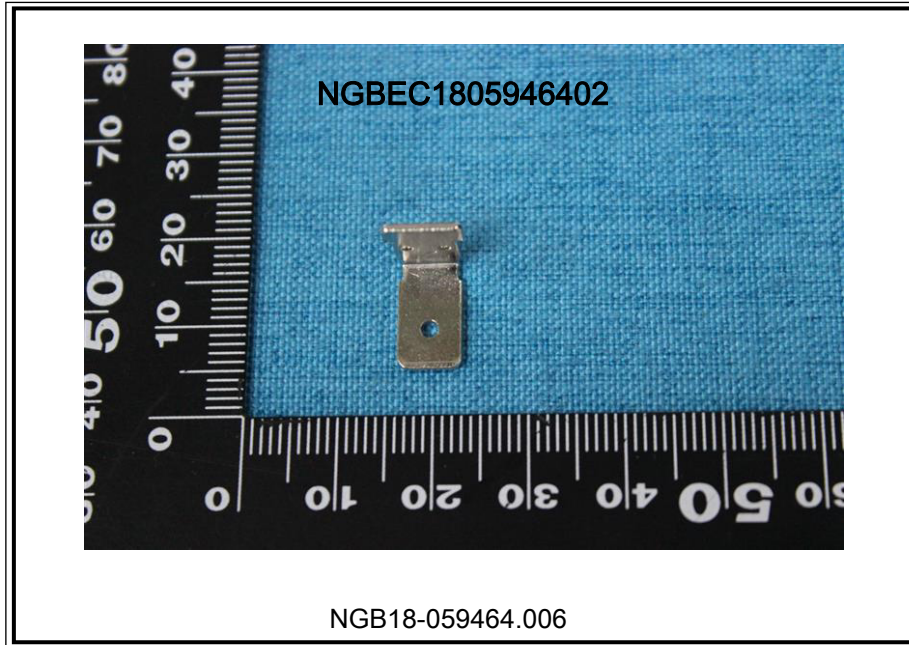
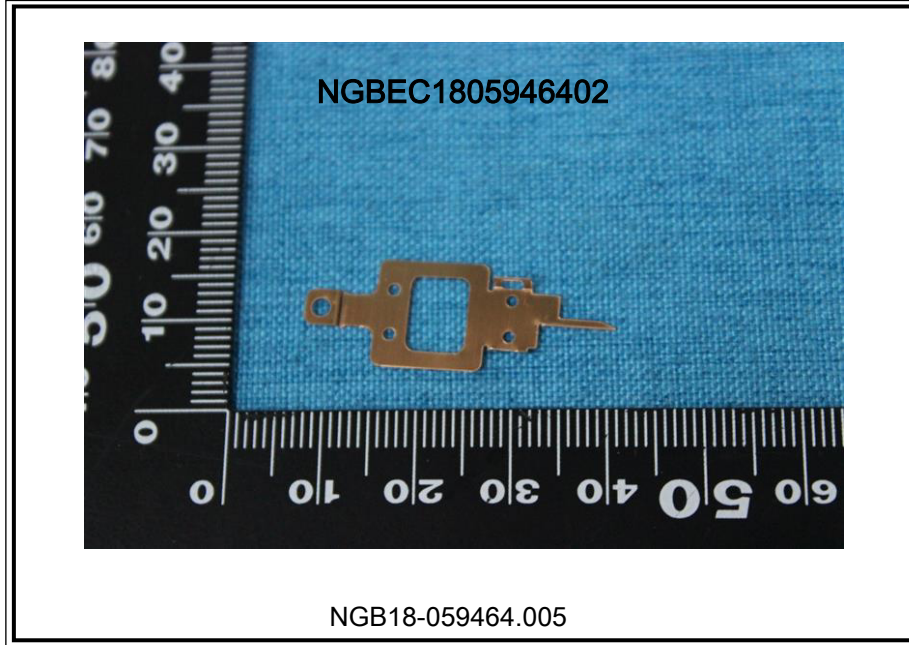


样品照片:



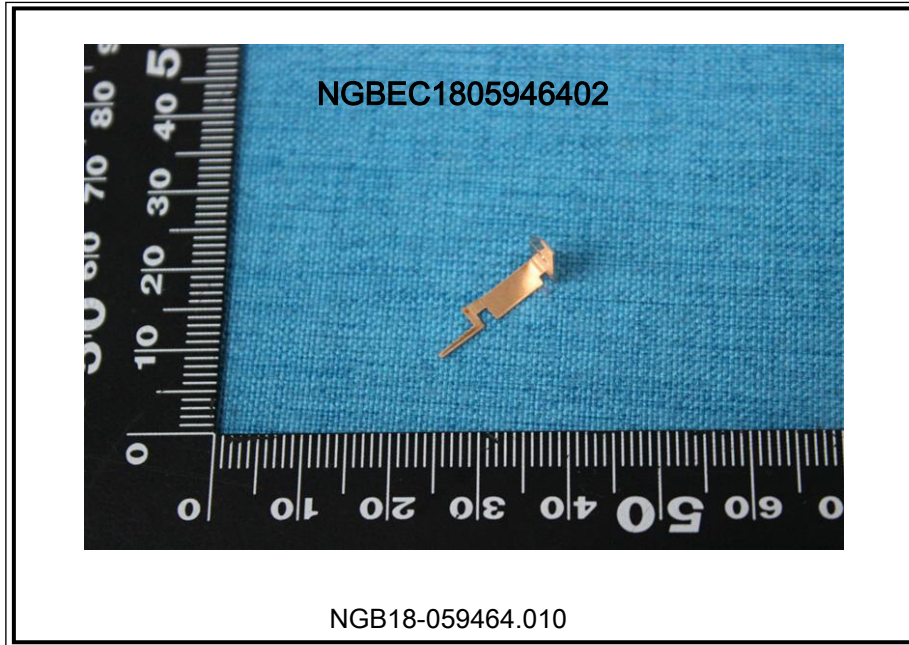






















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