

# 产品规格书

## PRODUCT SPECIFICATION

|                                        |  |
|----------------------------------------|--|
| 客户名称Buyer Name                         |  |
| 客户料号Buyer Part No.                     |  |
| 客户承认签章<br>Buyers Approval & Signatures |  |

|                             |                      |                                                                                       |     |
|-----------------------------|----------------------|---------------------------------------------------------------------------------------|-----|
| 文件编号Spec No.                | S-325313             | 版本                                                                                    | A/0 |
| 品名描述<br>Product Description | Coin Vibration Motor |                                                                                       |     |
| 型号Part No.                  | C0824K001L           |                                                                                       |     |
| 送样日期Date                    |                      |                                                                                       |     |
| 设计Designed by               | 审核Checked by         | 批准Approved by                                                                         |     |
| 陳满                          | 陈北叶                  |  |     |
| 2019.2.12                   | 2019.2.12            | 2019.2.12                                                                             |     |

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|                                                    |                     |
|----------------------------------------------------|---------------------|
| 产品规格书/Specifications                               | 日期/Date : 2019-2-12 |
| 振动马达/Vibration motor: C0824K001L                   | 页码/Page : 1/13      |
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| 文件版本/File colophon |                  |                |                                                                   |            |
|--------------------|------------------|----------------|-------------------------------------------------------------------|------------|
| 版本<br>Issue        | 编制<br>originator | 批准<br>approval | 更改详情<br>Detail spec changes                                       | 日期<br>Date |
| Ver1               |                  |                | 初始规格/Preliminary spec                                             | 2019-2-12  |
| Ver2               |                  |                | ① 马达外径由 $\Phi 8 \pm 0.1$ 改为 $\Phi 8.05 \pm 0.05$ ;<br>② 增加马达字码规则。 | 2019-2-13  |
| Ver3               |                  |                |                                                                   |            |
| Ver4               |                  |                |                                                                   |            |
| Ver5               |                  |                |                                                                   |            |
| Ver6               |                  |                |                                                                   |            |
| Ver7               |                  |                |                                                                   |            |
| Ver8               |                  |                |                                                                   |            |
| Ver9               |                  |                |                                                                   |            |
| Ver10              |                  |                |                                                                   |            |

|                                  |                  |
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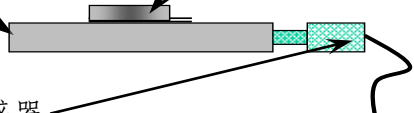
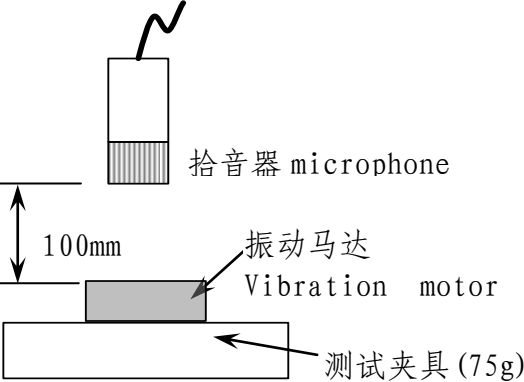
## 1. 适用范围/Scope of application

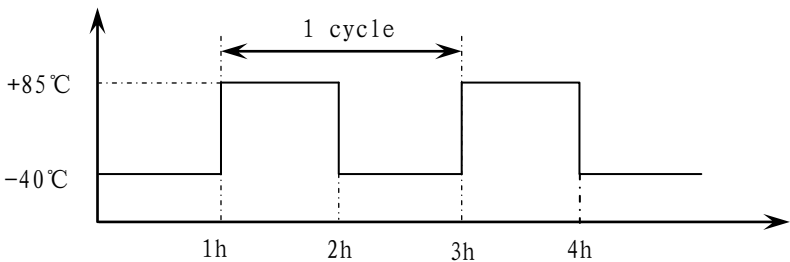
This specification sheet is stipulated for vibration motor, which is for mobile phone.

## 2. 使用条件/Standard operating condition

| NO. | 项目/Item                               | 规格/Specifications |
|-----|---------------------------------------|-------------------|
| 2-1 | 额定电压<br>Rated voltage                 | DC3.0V            |
| 2-2 | 使用电压范围<br>Operating voltage range     | DC 2.5~3.5V       |
| 2-3 | 旋转方向<br>Rotating direction            | CW / CCW          |
| 2-4 | 使用温度范围<br>Operating temperature range | -30℃~+70℃         |
| 2-5 | 保存环境范围<br>Storage temperature range   | -40℃~+80℃         |

|                                   |                                      |             |                                                 |                                                                                        |
|-----------------------------------|--------------------------------------|-------------|-------------------------------------------------|----------------------------------------------------------------------------------------|
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| 振动马达/Vibration motor: C0824K001L  |                                      |             | Page：4/13                                       |                                                                                        |
| 3. 测试条件/Testing condition         |                                      |             |                                                 |                                                                                        |
| N0.                               | 项目/Item                              |             | 规格/Specifications                               |                                                                                        |
| 3-1                               | 温度<br>Temperature                    |             | 25℃ ± 3                                         |                                                                                        |
| 3-2                               | 湿度<br>Humidity                       |             | 45% ~85%RH                                      |                                                                                        |
| 3-3                               | 电源电压<br>Power supply, voltage source |             | 直流电源或电池 3.0V<br>DC power supply or battery 3.0V |                                                                                        |
| 3-4                               | 马达安放状态<br>Posture of motor           |             | 标准测量方式<br>State of standard measurement         |                                                                                        |
| 4. 电气特性/Electrical characteristic |                                      |             |                                                 |                                                                                        |
| N0.                               | 项目/Item                              | 单位<br>/Unit | 规格/SPEC.                                        | 条件/Condition                                                                           |
| 4-1                               | 额定转速<br>Rated speed                  | rpm         | 10000Min                                        | 额定电压:DC 3.0V<br>Rated voltage:DC 3.0V                                                  |
| 4-2                               | 额定电流<br>Rated current                | mA          | 85Max                                           | 额定电压:DC 3.0V<br>Rated voltage:DC 3.0V                                                  |
| 4-3                               | 启动电压<br>Starting voltage             | V           | 2.3Max                                          | DC2.3V电压下，开/关为1个循环，共3个循环<br>On/off-1cycle, total 3cycles under DC2.3V                  |
| 4-4                               | 端子阻抗<br>Terminal resistance          | Ω           | 单相<br>1phase: 30 ± 20%                          | 正极和负极之间<br>Between positive and negative                                               |
|                                   |                                      |             | 双相<br>2phase: 60 ± 20%                          |                                                                                        |
| 4-5                               | 启动电流<br>Starting current             | mA          | 120Max                                          | 启动电压:DC 2.3Max<br>Starting voltage:DC 2.3Max                                           |
| 4-6                               | 绝缘电阻<br>Insulationresistance         | MΩ          | 10Min                                           | 测量机壳和引线之间。<br>测试电压直流100V。<br>Measuring between case and lead wire.Test voltage DC 100V |

| 产品规格书/Specifications               |                                    |         |            | Date : 2019-2-12                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------|------------------------------------|---------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 振动马达/Vibration motor: C0824K001L   |                                    |         |            | Page : 5/13                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5. 机械特性/Mechanical characteristics |                                    |         |            |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| NO                                 | 项目/Item                            | 单位/Unit | 规格/SPEC.   | 条件/Condition                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5-1                                | 振动量<br>Vibration Strength          | G       | 0.6 MIN    | <p>测试夹具 (100g)<br/>Testing Jig (100g)</p> <p>振动马达<br/>Vibration motor</p>  <p>加速度传感器<br/>Acceleration sensor</p> <p>振动测试仪<br/>Vibration meter</p> <p>马达: 被固定。<br/>Motor : be fixed.<br/>额定电压:DC 3.0V<br/>Rated voltage : DC 3.0V .</p>                                                                                        |
| 5-2                                | 机械噪音<br>Mechanical Noise           | dB      | 50 MAX     |  <p>拾音器 microphone</p> <p>100mm</p> <p>振动马达<br/>Vibration motor</p> <p>测试夹具 (75g)<br/>Testing Jig (75g)</p> <p>马达: 被固定。<br/>Motor : be fixed<br/>额定电压:DC 3.0V<br/>Rated voltage : DC 3.0 V<br/>背景噪音: 25dB MAX.<br/>Back ground noise: 25dB MAX.<br/>拾音器沿轴向正对电机平面<br/>Microphone faces the plane of motor along the shaft</p> |
| 5-3                                | 底盖偏转强度 Bracket Deflection Strength | gf      | 1000 MIN   | 通过推拉计进行破坏测试<br>Demolition test by push-pull gauge.                                                                                                                                                                                                                                                                                                                                                              |
| 5-4                                | 重量 Weight                          | g       | 0.55 ± 0.1 | 用天平测量 Use scale                                                                                                                                                                                                                                                                                                                                                                                                 |

| 产品规格书/Specifications              |                                         | Date : 2019-2-12                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <b>6. 环境试验/Environmental test</b> |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| N0                                | 项目/Item                                 | 条件/Condition                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6-1                               | 低温贮存试验<br>Low temperature Storage test  | 在-40℃的环境下放置96小时, 然后在常温常湿下恢复2小时后测试。<br>Exposed at -40℃ for 96hours, then return to normal temperature and humidity for 2 hours before test.                                                                                                                                                                                                                                                                                 |
| 6-2                               | 高温贮存试验<br>High temperature Storage test | 在+80℃的环境下放置96小时, 然后在常温常湿下恢复2小时后测试。<br>Exposed at +80℃ for 96hours, then return to normal temperature and humidity for 2 hours before test.                                                                                                                                                                                                                                                                                 |
| 6-3                               | 高湿贮存试验<br>High humidity Storage test    | 在+40℃, 90%RH的环境下放置96小时, 然后在常温常湿下恢复2h后测试。<br>Exposed at +40℃ 90%RH for 96hours, then return to normal temperature and humidity for 2 hours before test.                                                                                                                                                                                                                                                                     |
| 6-4                               | 温冲试验<br>Thermal shock test              | <p>马达按照以下试验条件放置 15 个周期, 然后在常温常湿下放置 2 小时后测试。<br/>Confirmed to operating of motor during 15 cycles as following test condition, then return to normal temperature and humidity for 2 hours before test.</p> <p>试验条件:<br/>Test condition:</p>  <p>高低温转换时间: ≤5分钟<br/>Transfer time between high temperature and low temperature: ≤5min</p> |
| 6-5                               | 跌落<br>Drop test                         | 将马达固定在100g的塑料夹具上, 从1.5米的高度跌落到水泥地面上, 六个面的每个面都跌落2次。<br>The motor that is attached to a 100g jig (plastic housing) and drop it onto the concrete floor from 1.5m height. Drop twice in each of the six planes.                                                                                                                                                                                                                |

|                                  |                  |
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|     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6-6 | 振动试验<br>Vibration test | <p>将马达固定在100g的塑料夹具上，按以下要求进行试验：</p> <p>1) 振频范围: 10~55Hz<br/>         2) 全振幅1.5mm<br/>         3) 振频变化10~55~10 约10分钟<br/>         4) 振动方向: 三个垂直方向<br/>         5) 持续时间: 每个方向10分钟（共30分钟）</p> <p>The motor that is attached to a 100g jig (plastic housing) and test according following condition:</p> <p>1) Vibration frequency range: 10~55Hz<br/>         2) Total amplitude: 1.5mm<br/>         3) Sweep ratio: 10~55~10Hz approximate 10min<br/>         4) Direction of vibration: Three perpendicular directions<br/>         5) Duration: 10min(30min in total)</p> |
|-----|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

► 判定标准/Judgment standard

⑤ 试验后，测试数据必须符合以下规格：

After test, measured data must be satisfied as following specifications;

- 启动电压: DC2.3V MAX.
- Starting voltage: DC2.3V MAX.
- 额定转速: 变化率在初始值的-30%~+50%以内。
- Rated speed: changing rate must be within -30%~+50% of initial value.
- 额定电流: 变化率在初始值的-30%~+50%以内。
- Rated current: changing rate must be within -30%~+50% of initial value.
- 端子阻抗: 变化率在初始值的±15%以内。
- Terminal resistance: changing rate must be within ±15% of initial value.

⑥ 外形结构无异常。

There should be no abnormalities in appearance and structure.

## 7. 寿命试验/Life test

### ▶试验条件/Test condition:

1 秒转, 1 秒停为 1 个周期, 共 10 万次。

( DC3.0V, 常温常湿)

1 SEC ON, 1SEC OFF 1CYCLE , 100,000 CYCLES.

( DC3.0V, at normal temperature and humidity )

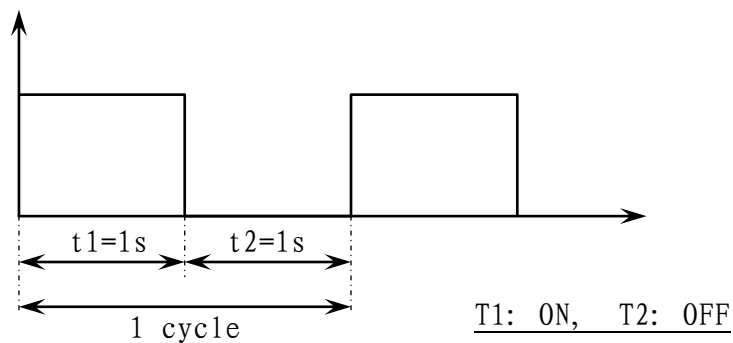
### ▶判定条件/Judgment standard:

试验后, 测试数据必须符合以下规格:

After test, measured data must be satisfied as following specifications;

- 启动电压: DC2.3V MAX.
- Starting voltage: DC2.3V MAX.
- 额定转速: 变化率在初始值的-30%~+50%以内。
- Rated speed: changing rate must be within -30%~+50% of initial value.
- 额定电流: 变化率在初始值的-30%~+50%以内。
- Rated current: changing rate must be within -30%~+50%of initial value.

电压 DC3.0V  
VOLTAGE DC3.0V



|                                  |                  |
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## 8. 注意事项/CAUTION FOR USE

- (1) 该马达是微型精密产品，在运输过程中不要承受超过0.5 kgf的力，否则会引起外形或性能的变化。

As this motor is small and precise, do not press it over 0.5kgf force or while transportation, it can cause the transformation of performance or external appearance.

- (2) 请注意马达不要接触到液体性物质（比如：水，酒精等）  
please be careful, not to be contacted fluid substances  
(such as: water, alcohol etc.)

- (3) 不要在高温下长时间放置，否则有可能导致电机的性能下降。  
Do not expose the motor to high temperature for a long periods of time, it may cause a decline in performance.

- (4) 马达不要在以下环境中使用：  
- 高温和高湿的场所  
- 腐蚀性气体如H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub>等  
Avoid using the motor in the following environment.  
- High temperature and high humidity area.  
- Corrosive gas such as H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub> etc.

- (5) 请不要在靠近磁铁或带有磁场的仪器旁边使用或存放马达。  
Please do not operate or store the motor adjacent to magnet or apparatus That has a magnetic field.

- (6) 请注意底盖的表面存在漏磁通量。  
Please be careful that there exists a leaking magnetic flux on the surface of bracket.

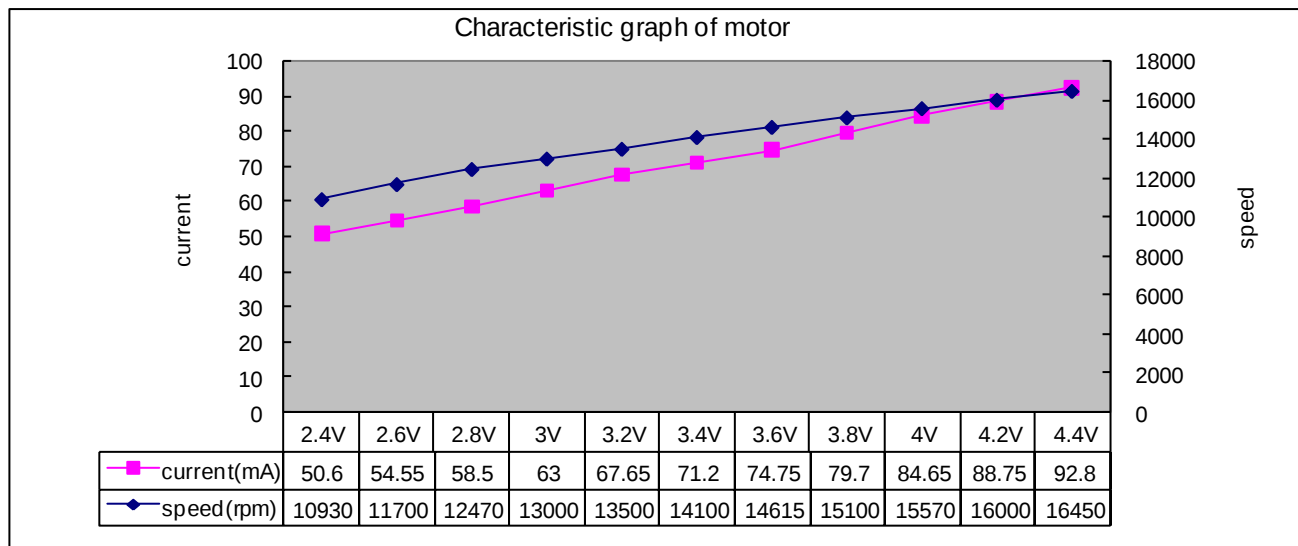
- (7) 电刷和换向器的相互作用，有可能产生轻微的电噪音。  
Due to interaction between brush and commutator, there is a possibility to occur electrical noise slightly.

- (8) 因测试设备有误差，允许有±5%偏差。  
Beacause there is error of the measurement equipment ,permit the standard of the rotational frequency to ± 5%

- (9) 马达通过ROHS认证  
This motor pass the system of ROHS certification

## 9. 附/Attached

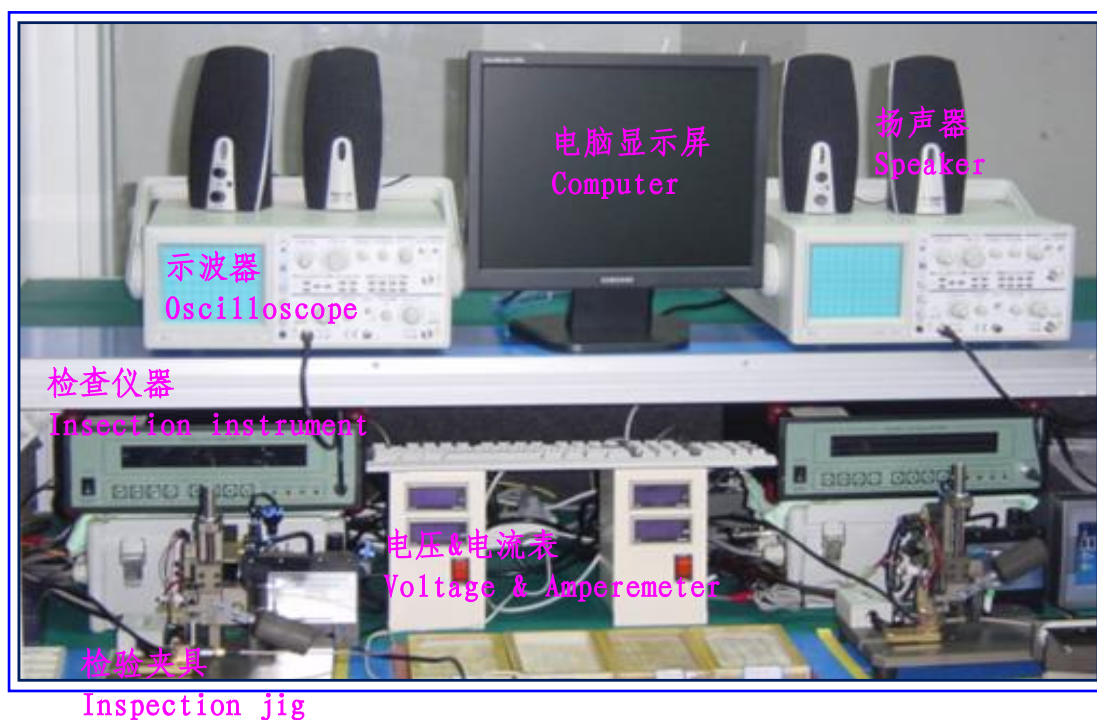
## 9-1马达特性图/characteristic graph of motor



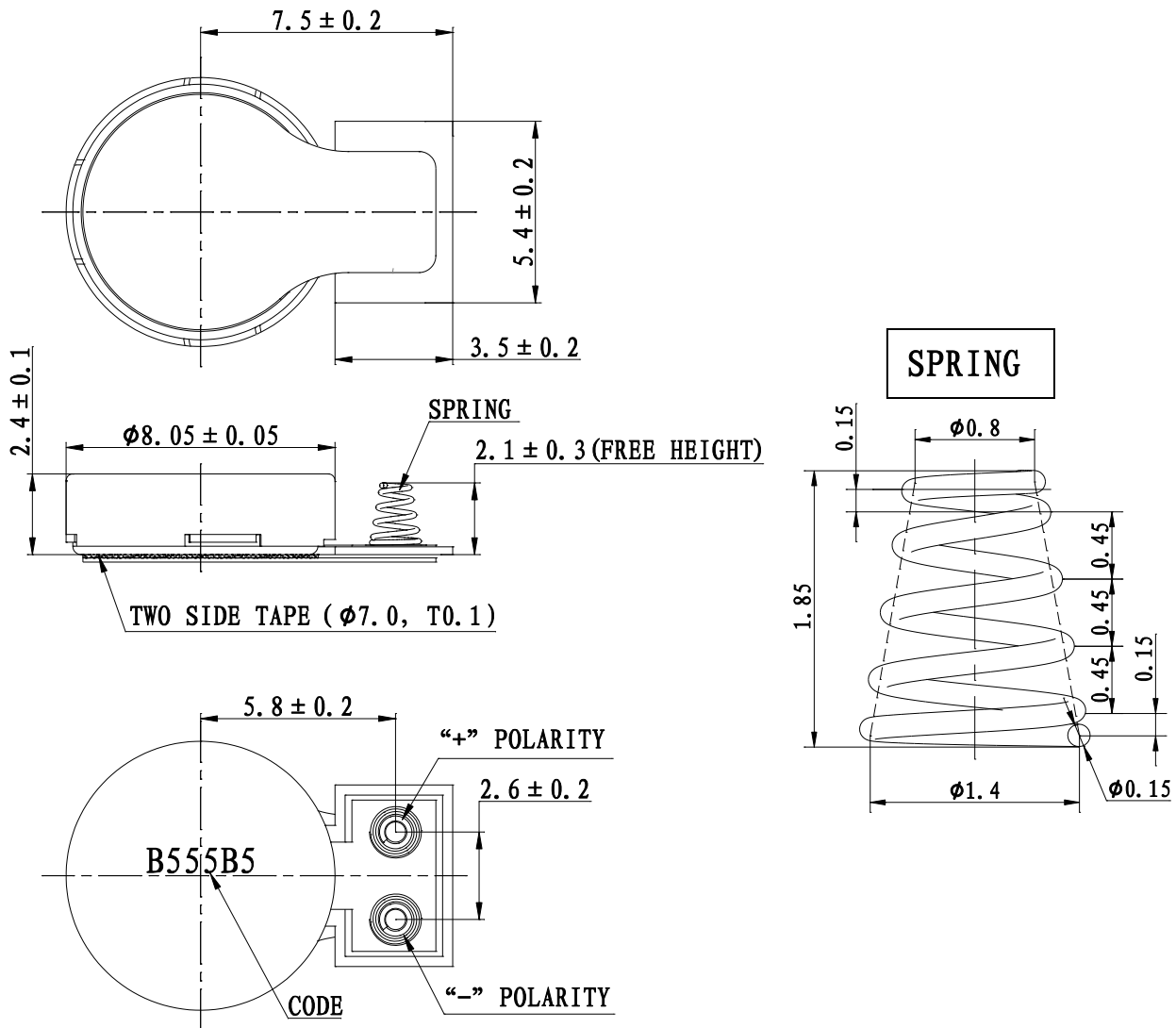
## 9-2标准测量方式/state of standard measurement

测试项目: 启动电压, 额定电压下的电流, 额定电压下的转速, 绝缘电阻。

Measure item: starting voltage, current at rated voltage, speed at rated voltage, insulation resistance.



## 10. 外形图/Outside view

**B555B5**

测试人员：按生产日期表中的代码编制。

生产组别：按A、B、C等26个字母分别表示组别，以此类推。

生产日期：

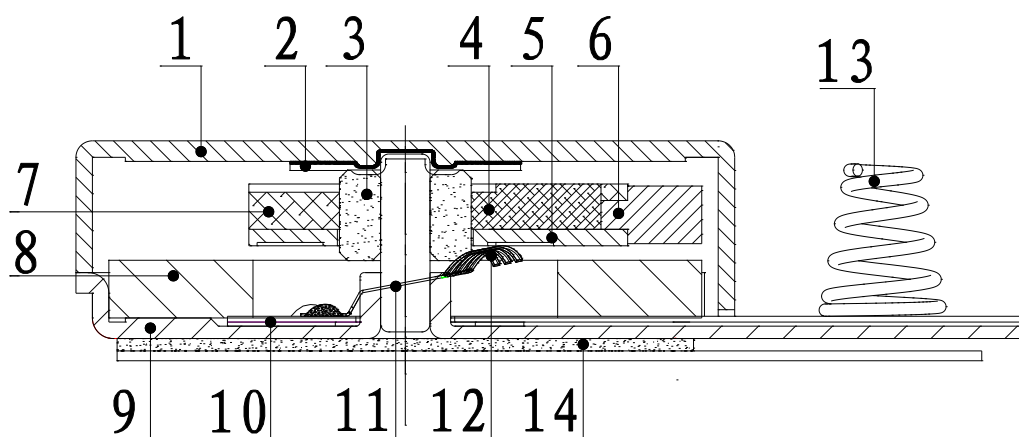
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 代码 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | A  | B  | C  | D  | E  | F  | G  |
| 日期 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 代码 | H  | I  | J  | K  | L  | M  | N  | O  | P  | Q  | R  | S  | T  | U  | V  |    |
| 日期 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |    |

生产月份：用数字“1, 2, 3, 4, 5, 6, 7, 8, 9,”加字母“A, B, C”共12个字母码，分别表示1~12月，1表示1月，A表示10月，B表示11月，C表示12月。

生产年份：用0~9表示，例：5表示2015年，6表示2016年。

厂家：宝龙代码为“B”。

## 11. 结构图及物料清单/Structure drawing &amp; BOM



| NO. | 物料名称/Part name    | 材料/Material                            | 规格/specification |
|-----|-------------------|----------------------------------------|------------------|
| 1   | 上机壳 Upper case    | SPC-E                                  | T =0.23mm        |
| 2   | 滑片 Slide          | PE+ACRYLIC                             | T =0.1mm         |
| 3   | 轴承 Bearing        | FCS                                    |                  |
| 4   | 线圈 Coil           | Copper+PU                              |                  |
| 5   | 硬基板 HPCB          | EPOXY                                  | T =0.2mm         |
| 6   | 振子 Weight         | Tungsten alloy                         | 0.07g Min        |
| 7   | 塑料 Resin          | PBT                                    | G30              |
| 8   | 磁钢 Magnet         | NdFeB                                  | N42H             |
| 9   | 下机壳 Lower case    | SPC-E                                  | T =0.25mm        |
| 10  | 软基板 FPCB          | PI+AD+Copper+Glue                      | T =0.07mm        |
| 11  | 钢轴 Shaft          | DSR7B                                  | φ 0.6            |
| 12  | 电刷 Brush          | MX215                                  | T =0.03mm        |
| 13  | 弹簧 Spring         | SWP-B                                  |                  |
| 14  | 双面胶 Two side tape | Non-woven fabrics+<br>Acrylic adhesive | T=0.1mm          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 产品规格书/Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Date : 2019-2-12 |
| 振动马达/Vibration motor: C0824K001L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Page :13/13      |
| 12. 包装/Packaging <div data-bbox="146 409 667 806" data-label="Image"> </div> <div data-bbox="683 499 1449 723" data-label="Text"> <p>吸塑盒尺寸 (长: 250mm 宽: 210mm 高: 11mm)<br/> Tray dimension (L: 250mm W: 210mm H: 11mm)<br/> 每个吸塑盒放 100 只<br/> 100 Pcs per tray</p> </div> <div data-bbox="158 922 667 1265" data-label="Image"> </div> <div data-bbox="699 913 1433 1272" data-label="Text"> <p>内箱尺寸 (260mm 宽: 215mm 高: 80mm)<br/> Inner-box dimension (L: 260mm W: 215mm H: 80mm)<br/> 每 11 个吸塑盒捆在一起, 数量为 1000 只,<br/> 装入内箱<br/> Put into inner-box 11 tray together<br/> with tape 1000 Pcs per 11 tray .</p> </div> <div data-bbox="699 1456 1433 1780" data-label="Text"> <p>4 个内箱装入外箱, 数量共 4000 只;<br/> Put 4 inner-box into outer-box, total<br/> 4000 Pcs.<br/> 外箱尺寸: (450mm 宽: 280mm 高: 180mm)<br/> Outer-box dimension:<br/> (L: 450mm W: 280mm H: 180mm)</p> </div> |                  |