



捷宜电子有限公司
JIE YI ELECTRONICS LIMITED

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 Buyers Approval & Signatures	

文件编号Spec No.		版本	A/0
品名描述 Product Description	贴片振动马达 SMT Vibration Motor		
型号Part No.	JYSMTB4411		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
		SAMPSON	
		2019/07/29	

JIE YI ELECTRONICS LIMITED
sales01@jyelectronics.com.cn
<https://jyelectronics.com.cn>

1. 实用范围 Application

本说明书适用于圆柱铁芯贴片马达JYSMTB4411.

This specification applies to Cylindrical core SMT Motor JYSMTB4411.

2. 结构形式 Construction-form

序号 NO.	项目 Item	内容 Contents
2-1	电机结构 Motor construction	4.1圆柱形铁芯直流电机 4.1DC Cored motor
2-2	磁极极数 Number of magnet poles	两极(外置磁极型式) 2-poles (Inner magnet type)
2-3	换向方式 Rectifying method	采用高精度电刷和换向器 Precious brush and commutator

3. 标准使用条件 Standard operating condition

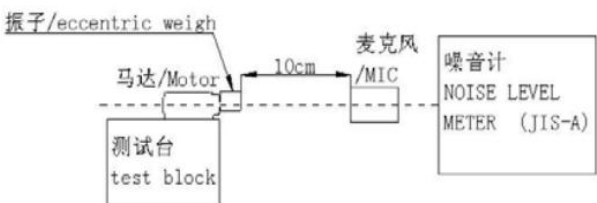
序号 NO.	项目 Item	规格 Specification	条件/备注 Condition / Remark
3-1	额定电压 Rated voltage	2.7V	加在端子两端的电压 Added to both ends of the terminal voltage
3-2	额定负荷 Rated load	振子 (R1.7 T=2.8) eccentric weight	振子重量约等于 0.24g eccentric weight is about equal to the weight of 0.24g.
3-3	旋转方向 Rotation direction	顺时针方向 CW	从输出端看, 并且电压正极接端子正极 When viewed from output side with +ve voltage applied to +ve terminal
3-4	摆放位置 Motor position	水平 Horizontal	
3-5	工作电压范围 Voltage range for use	DC 2.3V~3.2V	
3-6	使用温度范围 Operating temperature range	-30 ~+70 0%~95%RH	常规湿度/ordinary humidity 不凝露/no condensation of moisture
3-7	贮存环境 Storage conditions	-40℃~85℃ 0%~95%RH	常规湿度/ordinary humidity 不凝露/no condensation of moisture/

4. 产品测试环境条件 Environmental Test Conditions

序号 NO.	项目 Item	测试环境条件 Environmental condition
4-1	温度 Temperature	20±2℃
4-2	湿度 Humidity	45% ~85%RH
4-3	电机体位 Motor Position	轴伸水平 Shaft Horizontal
4-4	电源 Power Supply	直流稳压电源/DC Power Supply DC2.7V

5. 机械特性 Mechanical Characteristic

序号 NO.	项目 Item	测试环境条件 Environmental condition	规格 Specification
5-1	外观尺寸 Configuration	游标卡尺 Vernier caliper	参考外形图纸 As specified in outline drawing
5-2	外观 Appearance	目测 Visual examination	无明显机械划痕、裂缝、锈迹、污点 No obvious evidence of mechanical damage、crack、rust and stain
5-3	重量 Weight	架盘天平 精度 0.1g Plate balance 0.1g	0.6g (Approx) (左右)
5-4	轴向间隙 Shaft end play	游标卡尺或百分表 Vernier caliper or Dial indicator	(0.05- 0.3) mm
5-5	振子固定力 Holding strength Of eccentric weight	测力计/Pulling force testing machine	50N (5.6kgf) Min

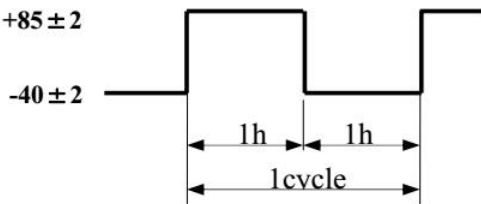
5-6	机械噪声 Mechanical Noise	 <p>测试场地：类半自由声场 额定电压，空载运行，背景噪声≤ 20 dB(A),电机固定在测试夹具上(轴伸水平)，拾音器沿轴向正对电机平面，距离 10 cm。 Test site: Class of semi-free field At rated voltage and free load, Back ground noise: 20 dB(A) Max, Fix the motor in a test jig (Shaft Horizontal). Microphone is faced to the flat of motor and recedes by 10cm</p>	≤ 50 dB(A)
-----	--------------------------	---	-----------------

6. 电气性能 Electrical characteristics

序号 NO.	项目 Item	测试环境条件 Environmental condition	规格 Specification
6-1	额定电流 Rated current	在额定电压及标准负荷（振子）下，5秒后读数。 Read the data at rated voltage and rated load(eccentric weight)after 5S.	75Max
6-2	额定转速 Rated speed		14000 \pm 2500 r. p. m
6-3	启动电流 Starting current	Measure current at locked counter weight (R1.7 \times 2.8) in rated voltage(2/3R R: 1 extreme resisting rate, Not in the position when the brushes contact the commutator at the two contact points)	90Max
6-4	起动电压 Starting voltage	DC2.3V电压下，开/关为1个循环，共3个循环 On/off-1cycle, total 3cycles under DC2.3V	2.3V DC Max
6-5	端子阻抗 Terminal resistance	正极和负极之间 Between positive and negative	单相 1phase: 33 \pm 6
6-6	绝缘电阻 Insulation resistance	Measuring between case and lead wire. Test voltage DC 100V	10Min

7. 信赖性试验 Reliability Test

序号 NO.	项目 Item	试验条件 Test condition	判定基准 Requirements
7-1	寿命测试 Life test	电压/Voltage: 2.7VDC 负荷/Load: 振子/ eccentric weight (R1.7 T=2.8 约 0.24g) 温度/Temperature/20±2℃ 相对湿度/Relative humidity: 60~70%RH 将马达固定在试验台上(轴向)/Lock the motor in a test fixture(Shaft horizontal) 试验方法 1/Test model: 连续运转至少 10 小时/10hrsnet running time 试验方法 2/Test mode2: 一个周期, 开 2.5 秒, 关 2.5 秒; 共 200000 个周期/1cycle, 2.5sec ON, 2.5sec OFF; 200000 cycles totally	在常温常湿下放置 4h 后, 马达应符合项 8-1、 8-2 的要求。 After 4 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 8-1、 8-2.
7-2	低温放置 Low temperature storage	温度/Temperature: -40±5℃; 时间/Time: 96h 湿度/Humidity: 常湿/ Ordinary Humidity	在常温常湿下放置 4h 后, 马达应符合项 8-1、 8-2 的要求。 After 4 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 8-1、 8-2.
7-3	高温放置 High temperature exposure	温度/Temperature: +85±5℃; 时间/Time: 96h 湿度/Humidity: 常湿/ Ordinary Humidity	
7-4	湿度测试 Humidity test	温度/Temperature: +40±5℃; 时间/Time: 96h 湿度/Humidity: 90±5%RH	
7-5	振动 Vibration	全振幅 /Displacement :1.5mm (p-p) 频率/Frequency:10 to 55Hz 周期/Period :20min范围内 (10~55~10Hz) /20 Minutes log sweep (10~55~10Hz) 方向/Direction:x、 y、 z 时间/Time:每 2h/Each 2 hours	测试结果应符合项 8-1、8-2、8-3 的要求。 After the test motors shall be approved as specified in item 8-1、 8-2、8-3.

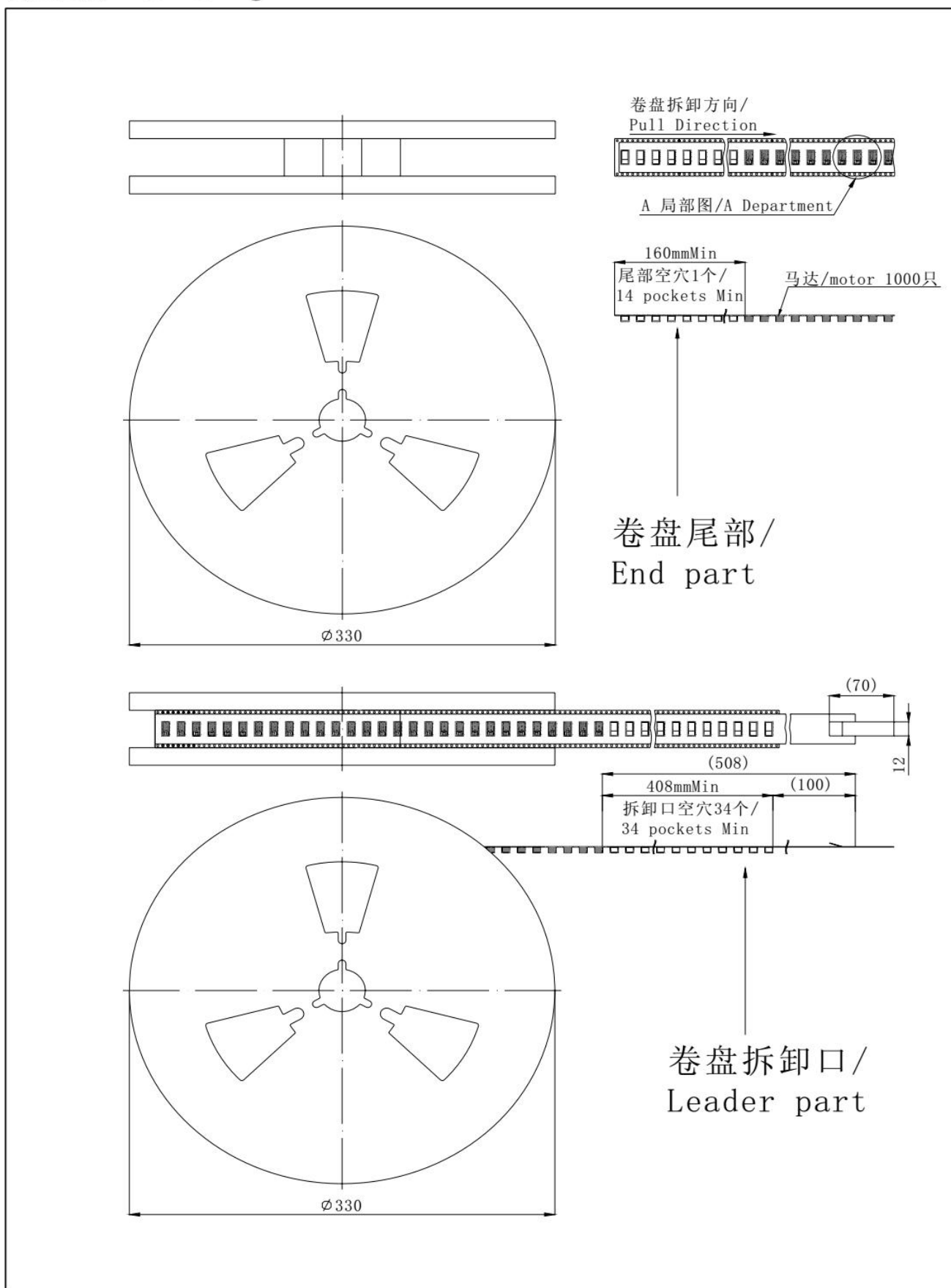
7-6	热冲击试验 Thermal Shock test	温度Temperature : $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ 时间Time: 2h 循环周期数Circle cycle: 30cycles 	测试结果应符合项 8-1、8-2 的要求。 After the test motors shall be approved as specified in item 8-1、8-2.
7-7	跌落试验 Drop test	方向Direction: x,y,z 高度High: 1.5m 跌落次数: 每个方向各 2 次 Times: 2 times each direction 试验状态: 将电机放在重约 100 克的刚性较好的塑料盒子里, 自由地跌落至混凝土地面上 Test state: The motor is set into a rigid cubic plastic housing approximately weight 100g and fall free on the concrete floor	试验结束后, 电机应满足 8-1、8-2、8-3 的规定 After having finished the test, the motor should conform to the requirements of the items 8-1、8-2、8-3.

8. 信赖性试验后的要求 Requirement After Reliable Test

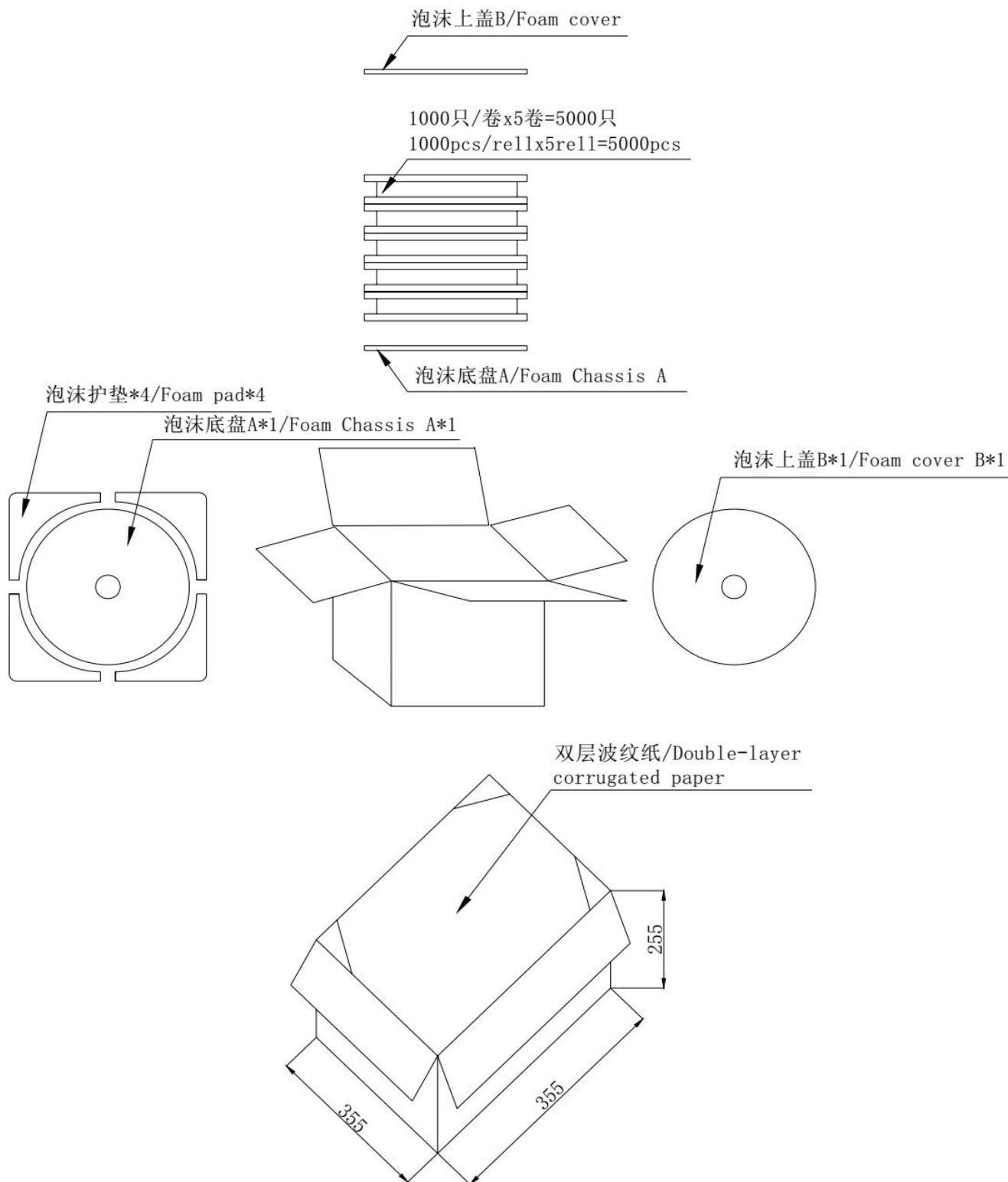
序号 NO.	项目 Item	规格 Specification
8-1	额定转速 Rated speed	初始值 $\pm 30\%$ Initial data $\pm 30\%$
8-2	额定电流 Rated Current	初始值 $\pm 35\%$ Initial data $\pm 35\%$
8-3	起动电压 Starting voltage	$\leq 2.3\text{V}$

9. 包装要求 Package Require

9-1 卷盘包装 Reel Packing



9-2 最终包装 Final Packaging



10. 注意事项 CAUTIONS

1) 使用容差 ALLOWABLE RANGE FOR USE

注意电压及电流的使用范围，并且在本标准规定情况下使用电机，否则将相应降低电机的使用寿命和性能。

Pay attention to voltage and current ranges for use ,and use the vibration motor in the condition accordance with this specifications ,or the life and performance should be considerably reduced.

2) 移动电机 MOVE YOUR MOTOR

拿电机时，应轻拿轻放，应尽可能地利用外壳部分

请勿将其跌落或加以超过 5 公斤的压力。否则会引起电机的外部形态和电气特性的改变

Please deal with the motors gently, you should make use of the outer case as possible as you can.

Do not press the product with more than 0.5 kgf or drop it. It can cause the transformation of performance or external appearance.

电机在运输过程中应小心轻放，避免严重碰撞敲击引起的电机机身和性能受损。

Please lay the motors carefully in transportation to avoid any serious damage to the motor body or its electric function because of collision.

3) 储存 STORAGE

储存温度：-40℃~85℃

储存湿度：0%RH~95%RH

避免放置在高温、潮湿的环境中。

Storage temperature: -40℃~85℃

Storage relative humidity: 0%RH~95%RH

Avoids storing in high temperature、high humidity

马达应适当的操作、储存和运转环境中均不可存在腐蚀性气体。例如：H₂S、SO₂、NO₂、CL₂等。另外存储环境中不可有诸如硅、氰、甲醛水和苯酚等能放射出腐蚀性气体的物质，在电机的机械构造或装置中，如果存在腐蚀性气体，那么这会引发马达不运转。

For proper operation. storage and operating environment must not contain corrosive gases. For example H₂S. SO₂. NO₂. CL₂. etc. In addition storage environment must not have materials that emit corrosive gases especially from silicon. cyanic. formalin and phenol group. In the mechanism or the set. existence of corrosive gases may cause no rotation in motor.

4) 使用电机 HANDLING OF MOTOR

小心拿取、使用。

避免放置在磁性物体附近或接触其表面，这将影响其功效。

注意操作环境，尤其注意若铁粉被磁铁吸附，将出现噪音问题，降低使用寿命

-to handle and hold the vibration motor case softly.

-do not bring magnetized object near or contact with the surface of motor to avoid of performance being deteriorated.

-pay attention to the handling and working environments of motor, because such objects as iron powder if attracted by motor magnet, will cause noise characteristic deterioration, thus reducing the reliability.

请勿靠近磁体或有磁场的装置存放或运行电机

Please do not operate or store the motor near magnet or magnetic devices.

请在 6 个月内使用，请不要在高温、低温、高湿环境下存储。在使用和打开马达外包装时请避免水气凝结。

Make arrangement to limit the storage period to 6 months or less. Please do not store motor in high temperature. Low temperature. high humidity environment. Condensation of atmosphere must be avoided in motor usage or opening the packaging of the motor.

5) 电机接线 CONNECTION YOUR MOTOR:

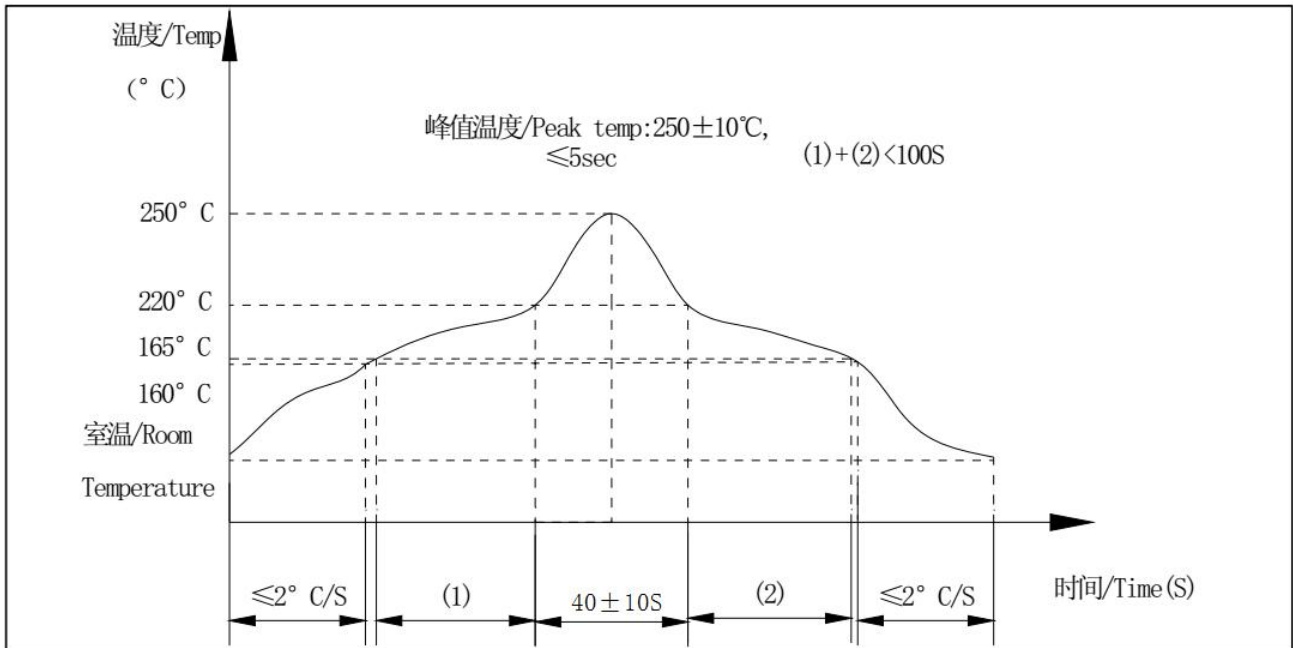
不论使用任何方式将您的电源连接到您的电机，请注意不能用过大的力或过高的温度，否则会造成电机内部零件变形。

Whatever means you are to use to connect your supply to your motor please take care not to use so much force or heat that you cause distortion to components inside the motor.

(1)电机端子接线： 焊锡温度： 350℃ 焊锡时间： 1 秒

Motor terminal: Soldering temperature: 350℃, Soldering time: 1sec.

(2)SMT温度时间示意图/Reflow temperature-time diagram



回流焊技术要求/Technical requirements for reflow

焊点最高峰值温度/Solder joint peak value of temperature: 260℃

液态线 (220℃) 以上时间/At the time of liquefaction temperature of more than: 40±10S 秒

均温区要求/Average temperature zone requirements: 165℃~217℃ <100 秒

预热温区要求/Preheat temperature zone requirements (<160℃): ≤2℃/秒

峰值温升要求/Peak temperature rise required: 1℃~3℃/秒

建议焊锡膏厚度/Suggest solder paste thickness 0.15mm

6) 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 while transportation, otherwise it will cause the transformation of performance or external appearance.

7) 请注意马达不要接触到液体性物质（比如：水，酒精等）
Please keep the motor away from liquid substance (such as water, alcohol, etc.)

8) 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 time, it may cause a decline in performance.

9) 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H₂S、SO₂、NO₂等
- Avoid using the motor in the following environment. - High temperature and high humidity area.
- Corrosive gas such as H₂S、SO₂、NO₂ etc.

10) 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 which has a magnetic field.

11) 请注意机壳的表面存在漏磁通量。

Please be careful that there exists a leaking magnetic flux on the surface of bracket.

12) 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.

13) 因测试设备有误差，允许有±5%偏差。

Due to the measurement equipment error, there is a ± 5 % difference tolerance.

14) 接电端子扭曲、折弯次数不可多于 2 次。

Current terminals should not be twisted or bent more than twice.

15) 被焊锡的端子局部受压不可多于2次。

The portion when lead wire and terminal are soldered should not be under stressed more than twice.

16) 在马达通电时，不宜长时间锁住不转。

Do not subject the motor under locked condition for long hours.

17) 不可向马达一侧强行挤压接电端子。

Do not exert pressure by pushing the current terminals towards the direction of the internal motor.

18) 请在 6 个月内使用，在使用时和打开包装时，请避免水汽凝结。

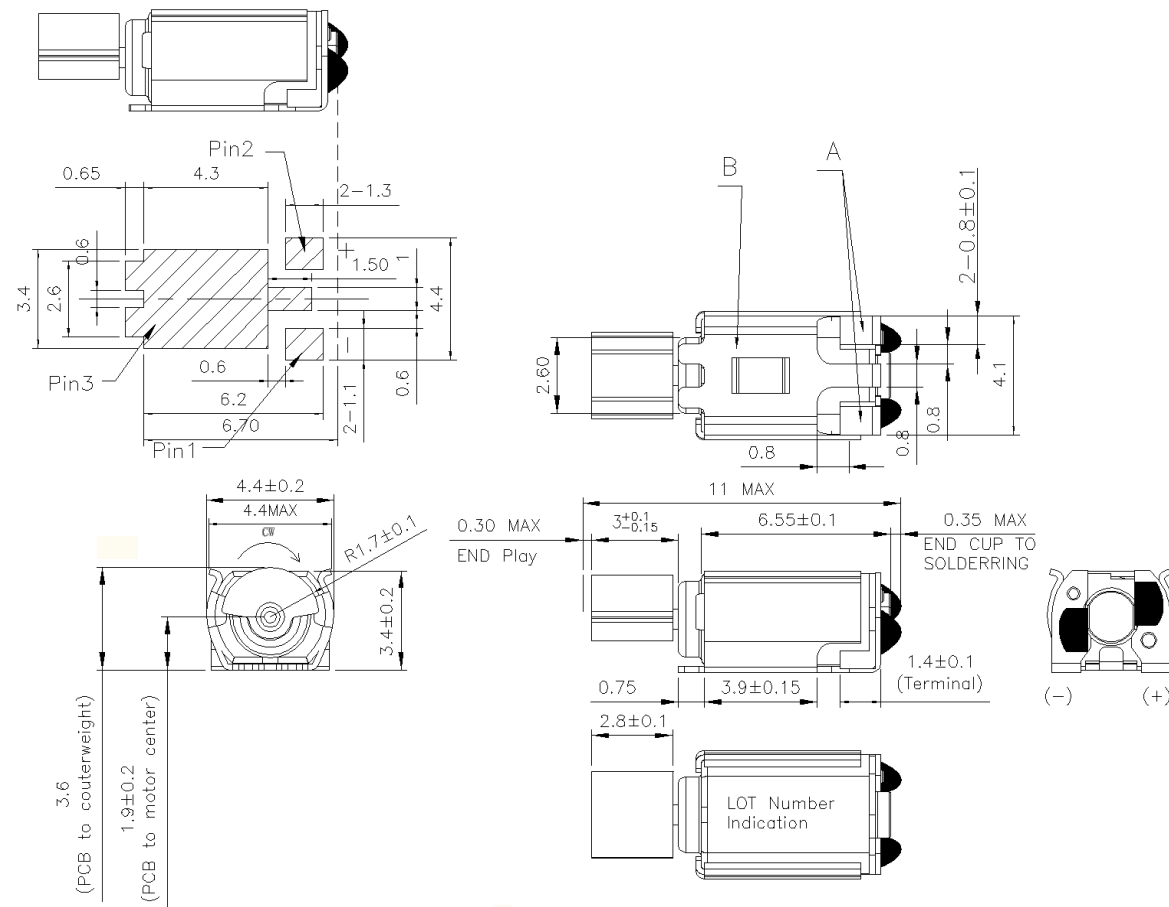
Please use the motors within six months and prevent them from coagulation of moisture when open the pockage and use them.

19) 马达通过ROHS认证

This motor pass the system of ROHS certification.

11. 附件 ATTACHMENT

1) 电机外形图 Motor Outline Drawing

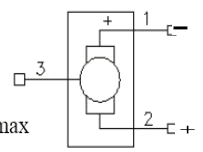


Technical requirements:

- Dimension(mm):1.7(Ecc.R) *4.4 (body width) *10.5(overall length).
- Rated Voltage (Vdc):2.7
- Operating Voltage (Vdc):2.3~3.2
- Rated Current MAX (mA):75
- Starting current: 90mA
- Rated Speed (rpm):14000± 2500
- Operating temperature range: -30℃~+70℃
- Terminal resistance: 1phase:33± 6
- Vibration Force (Grms):0.42 min

技术要求/Technique requests:

- 1.电机轴向间隙0.3mm Max/
Axial play of shaft is 0.3mm max when counterweight rotating;
- 2.A 面、B 面共面, A、B 面的高度差为-0.03~+0.1mm/
Coplanarity Plane A and B are coplanar, altitude tolerance of plane of A with B is -0.03~+0.1。



外形图/Outline Drawing JYSMTB4411