



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/1
品名描述 Product Description	扁平振动马达 Coin type vibration motor		
型号Part No.	VC1020B229F		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
陳满	陈满	陈满	
2020.07.01	2020.07.01	2020.07.01	

Vybronic

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规格书内容/ Contents

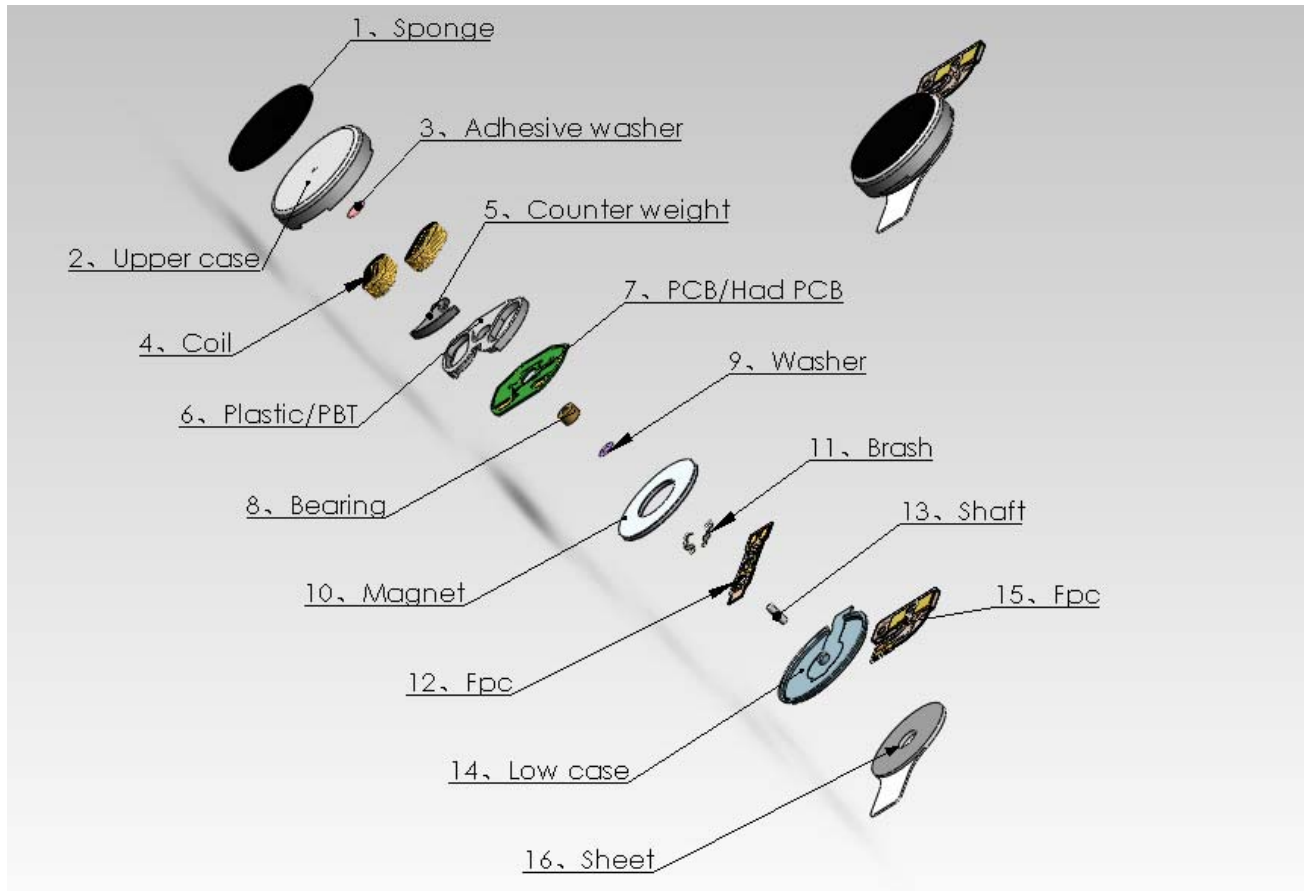
1. 重要提示/Importance notes	1/12
2. 更改记录/Revised record	1/12
3. 马达爆炸图/Motor break up drawing	2/12
4. 马达材料明细表/Coin type Motor BOM	2/12
5. 适用范围/General Scope of Application	3/12
6. 使用条件/Operating Conditions	3/12
7. 测定条件/Conditions of Measurement	3/12
8. 电气性能/Electrical Characteristics	3/12
9. 机械性能/Mechanical Characteristics	4/12
10. 耐久性能/Reliability Test	5/12
11. 判定基准/ Judgments after Reliability Tests	6/12
12. 使用注意事项/Cautions for Use	7/12
13. 外观要求/ Appearance	7/12
14. 包装/Packaging Description	8/12
15. 外形图/Outline Drawings	11/12
16. 形变曲线图/ DEFORMATION CURVE	12/12

1. 重要提示 /Importance notes

- 1) 如对电机的性能和/或寿命有任何争议，仅基于此规格书作出判断。
If there is any argument on motor performance and/or life, judgment is to be made base on this specification only.
- 2) 客户方有责任确认该电机能满足您的使用要求。
Customer has the responsibility to ensure that the motor can satisfy the requirement of your application.
- 3) 如果贵公司未提供技术规格，该文件将详细叙述与贵公司商定的技术规格。
In the event that an official specification is not present by customer; this document will specify the agreed technical specification .
- 4) 在满足规格的条件下，我司可以改变零件材料、尺寸及形状来改善品质，和/或性能，和/或生产效率。
Within the limitation to satisfy this specification, Vybronic has the convenience to change the materials, sizes and shapes of components of the motor for the purpose of improving quality, and/or performance, and/or production efficiency.
- 5) 收到此规格书后，贵司应于下订单之前将规格书副本签回以示贵司已确认。如贵司未能在规定时间内签回副本，我司将认为贵司已收到并承认该规格书。
After the receipt of this specification, customer should send a signed copy to Vybronic before you issued purchase order for the confirmation on acknowledgement. Vybronic regard it as the receipt of this specification acknowledged if customer fails to return the confirmation to us within the described period.

2. 更改记录 Revised record

修改号 Rev. No.	日期 Rev. Date	页码 Page No.	修改项目 Revised Item	更改原因 Reason
A/0	2013.03.19	/	产品颁布/ Release for Production	
A/1	2020.07.01	/	changed company name from JINLONG MACHINERY to VYBRONICS, changed part # from C1020B229F to VC1020B229F	Rebranding

3. 马达爆炸图: / Coin type motor break up drawing

4. 马达原材料明细表: Coin type motor BOM

	名称/Name	材料/Material
1	Sponge	Conductive Foam
2	Upper case	SPCC-SD
3	Adhesive washer	PET FILM
4	Coil	VT TYPE
5	Counter weight	W-ALLOY
6	Plastic/PBT	PBT
7	PCB/HPCB	EPOXY(FP-4)
8	Bearing	FCS-50
9	washer	Polyester film
10	Magnet	ND-FE-B/N42H
11	brush	MX215
12	Fpc	POL YIMIDE
13	Shaft	SUS420J/DSR7B
14	Low case	SPCC-SD
15	Fpc	POL YIMIDE
16	Sheet	3M 467

5. 适用范围/General Scope of Application

本说明书适用于扁平式永磁直流电机 VC1020B229F 系列。

This specification applies to coin type permanent-magnetic motors DC model VC1020B229F.

6. 使用条件/Operating Conditions

项目/Item	规格/Specifications
6-1 额定电压 Rated voltage	3.0V DC
6-2 使用电压范围 Operating voltage	2.4~3.2V DC
6-3 旋转方向 Rotation	CW (clockwise) or CCW (counter clockwise)
6-4 使用环境 Operating environment	-20~70℃,常湿/Ordinary Humidity:65±20%RH
6-5 保存环境 Storage environment	-40~85℃,常湿/Ordinary Humidity:65±20%RH

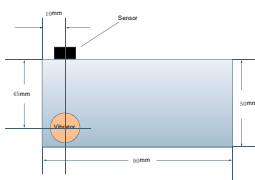
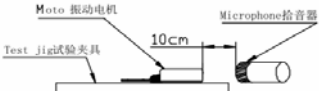
7. 测定条件/Conditions of Measurement

项目/Item	规格/Specification
7-1 温度/Temperature	25±3℃
7-2 湿度/Humidity	65±20% RH
7-3 电源电压/Power supply	稳压直流电源 3.0V。 Constant Power supply 3.0V DC.

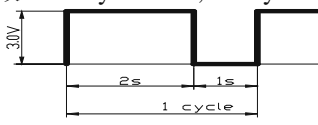
8. 电气性能/Electrical Characteristics

项目/Item	规格/Specification	条件/Condition
8-1 额定转速 Rated speed	13000±2500	额定电压下。 At rated voltage.
8-2 额定电流 Rated current	80mA Max	
8-3 起动电流 Starting current	120mA Max	在最小起动电压下起动。 Motor is rotating at minimum starting voltage.
8-4 起动电压 Starting voltage	2.3V DC Max	
8-5 绝缘电阻 Insulation resistance	10MΩ Min	在 100V 直流下，导线和机壳间。 At DC 100V between lead wire and case.
8-6 线圈电阻 Coil resistance	32Ω±15%	在 25±3℃ 下。 At 25℃
8-7 响应时间 /The response time	180 Ms Max	振动量从0上升至90%的时间/Vibration volume increased from 0 to 90% of the time.
8-8 停止时间 /Fall time	180 Ms Max	振动量从 100% 下降至 10% 的时间 /Vibration is decreased from 100% to 10% of the time.

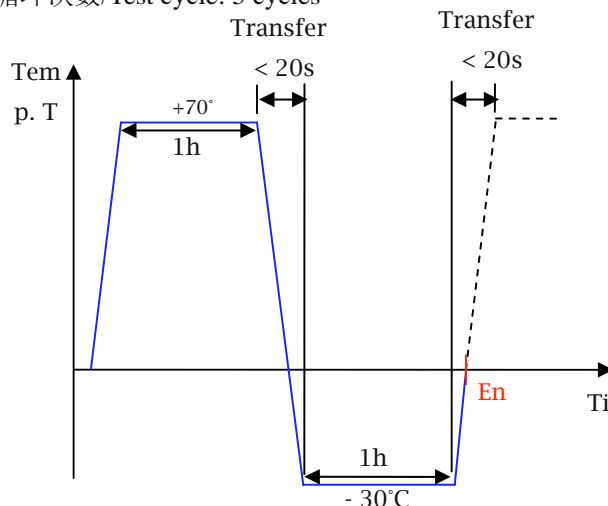
9.机械性能/Mechanical Characteristics

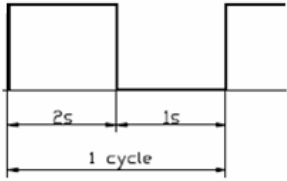
项目/Item	规格/Specification
9-1 底盖偏转强度/Bracket Deflection strength	9.8N 以上 9.8N or more.
9-2 正向受力/Positive stress	马达工作高极限点受力: 工作高度2.4mm 时,施加压力 $\geq 0.5N$, 工作高度2.35mm 时, 施加压力 $\leq 50N$,马达可承受最大压力 $>50N$. When work height 2.4 mm, pressure ≥ 0.5 N, pressure on the working height 2.35mm, the ≤ 50 N the motor can withstand the maximum pressure $>50N$
9-3 导电泡棉导通阻抗	导电泡棉与马达本体金属阻抗不超过0.5ohm
9-4 测量模具/using dummy set(100g) 设备/equipment:PV-90B 感测器/sensor:VM-83 输入电压: 3.0V input voltage : 3.0V 振动量/Vibrations: 1.3G(RMS)	
9-5 机械噪音/Mechanical noise	小于 45 分贝. A 计权/45dB (A) Max.
	在额定电压下。At rated voltage.背景噪音: 不大于 28dB. A. Back ground noise 28dB (A) Max.
	

10. 耐久性能/ Reliability Tests

项目/Item	规格/Specification	判定标准/Judgment	样本数
10-1 寿命 Lifetime	额定电压/ Rated voltage: 3.0V DC 试验模式/ Test mode: 2s On, 1s Off, as one cycle. 循环次数/ Test cycle: 100,000 cycles 	试验后, 马达应符合项 11-1 的要求。After the test, motors shall be approved as specified in item 11-1.	20
10-2 触摸寿命 Haptic Life	常温下, 额定工作电压, 幅度, 100ms On, 400mS Off,循环次数/ Test cycle: 800,000 cycles	试验后, 马达应符合项 11-1 的要求。After the test, motors shall be approved as specified in item 11-1.	10
10-3 低温放置 Low temperature exposure	温度/Temperature: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 时间/Time: 96h	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。After 2 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item 11-2.	10
10-4 高温放置 High temperature Exposure	温度/Temperature: $+80^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 湿度/Humidity: 20~25%RH 时间/Time: 96h	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。After 2 hours exposure in ordinary temperature and humidity, motors shall be approved as specified in item 11-2.	10

项目/Item		规格/Specification	判定标准/Judgment	
10-5	湿度放置 High Humidity exposure	温度/Temperature: $+55^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 湿度/Humidity: 90~95%RH 放置时间/ Exposure time: 96h 无水气凝结/ No condensation of moisture	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。 After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 11-2.	10
10-6	振动 Vibration	全振幅/Displacement: 1.5mm (p-p) 频率/Frequency: 10~55Hz 加速度/Acceleration: 22m/s^2 周期/Period: 1 分钟范围内 (10~55~10Hz)/ 1 Minutes log sweep (10~55~10Hz) 条件/Condition: 在样机中, 在 3 个垂直的轴方向每个方向做 2 小时的测试。 Samples shall be applied for a period of 2 hour in three axial directions.	测试结果应符合项 11-2 的要求。 After the test motors shall be approved as specified in item 11-2.	10
10-7	自然跌落 Free fall	试验状态/Test mode: 将马达固定在约 180 克 (包括马达本身) 的物体上, 落向水泥地面。 Set the motor to a fixture of approx. 180g (include the motor) and drop it onto the concrete floor. 高度/Height: 1.5m 方向/Direction: $\pm x, \pm y, \pm z$ 次数/Number of times: 每个方向 3 次/ Each 3 times	测试结果应符合项 11-2 的要求。 After the test motors shall be approved as specified in item 11-2.	10
10-8	滚筒试验 Tumbling box TEST	将马达固定在 180g 的物体上, 进行 200 次 1m 滚筒测试。 / Put Motor fixed on the objects of 180 g, 200 1 m roller test.	常温常湿下放置 2h 后, 马达应符合项 11-1 的要求。 After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 11-1.	20
10-9	热冲击 Thermal shock	测试模式/ Test mode: 1 hour at -30°C , 1 hour at $+70^{\circ}\text{C}$, as one cycle. Transfer time between extreme temperatures: < 20 秒/20s 循环次数/Test cycle: 5 cycles	常温常湿下放置 2h 后, 马达应符合项 11-2 的要求。 After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 11-2.	10



项目/Item	规格/Specification	判定标准/Judgment	
10-10 高低温工作 High and low temperature work	-10°C工作 12 小时, 55°C工作 12 小时 	常温常湿下放置 2h 后, 马达应符合项 11-1 的要求。After 2 hours exposure in ordinary temperature and humidity, Motors shall be approved as specified in item 11-1.	10

11.判定基准/ Judgments after Reliability Tests

项目/Item	判定基准 / Requirements
11-1 表 A Table A	1)额定转速/Rated speed: 不低于初始值-30%; 不高于初始值+30%/ No lower than -30% of initial data; No more than +30% of initial data. 2)额定电流/Rated current: 不低于初始值-30%; 不高于初始值+30% No lower than -30% of initial data; No more than +30% of initial data. 3)端阻/Terminal resistance: 不大于初始值±15% No more than +15% of initial data; No less than -15% of initial data. 4)起动电压/Starting voltage: 不大于 2.5V 直流电压 2.5V DC Max 5)绝缘电阻/Insulation resistance: 大于 10MΩ 10MΩ Min 6)噪音/noise 增加小于 3dB The increase is less than 3dB
11-2 表 B Table B	1)额定转速/Rated speed: 不大于初始值±20% No more than +20% of initial data; No less than -20% of initial data. 2)额定电流/Rated current: 不大于初始值±20% No more than +20% of initial data; No less than -20% of initial data. 3)起动电压/Starting voltage: 不大于 2.5V 直流电压 2.5V DC Max 4)端阻/Terminal resistance: 不大于初始值±15% No more than +15% of initial data; No less than -15% of initial data 5)噪音/noise 增加小于 3dB The increase is less than 3dB

12. 使用时注意事项/ Cautions for Use

12-1 必须按照规格书标准使用, 否则性能和寿命都将受到相当地减少, 必须注意电压的使用范围。
Unless it is used in accordance with the specifications, the performance and life may be considerably reduced. Due attention should be paid to voltage and range for use.

12-2 建议马达在六个月内使用, 不要在以下环境中使用及保存:

1. 高温和高湿的场所;
2. 腐蚀性气体, 如: H_2S 、 SO_2 、 NO_2 、 Cl_2 ;
3. 生锈场所。

Advice uses this motor within 6 months as avoiding as possible.

Avoid use or save the motor in the following environment.

1. High temperature and high humidity area
2. Corrosive gas such as H_2S , SO_2 , NO_2 , Cl_2 .
3. Dusty area.

12-3 注意处理马达的工作环境, 避免含铁质等物体被马达吸住, 否则马达将会产生噪声, 性能会降低, 从而减少产品可靠性。

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

12-4 应确信本产品不会与相关标准、法律、政令相背。

Please confirm enough no problems of standards and laws and ordinances on your cellular phone.

12-5 拿马达时, 要轻拿轻放。

To handle the motor, hold the motor case softly.

12-6 钢板面或边缘有少许锈斑是允许的。

Rust of plate (steel) and similar edge should be OK.

12-7 我司遵循持续发展的策略, 在不预先通知的情况下, 有对产品(部品)进行修改和改进的权利, 当然这些都不会影响马达的特性及使用功能。

Our company follows the sustainable developing strategy, and have the right to make changes and improvements to our product without giving notice in advance. Of course, these changes and improvements will not affect the characteristics and function of the motor.

13 外观要求/ Appearance

13-1 目测法进外观检查, 距离30cm, 角度45度, 光照度300 lm/m²或 lx(勒克斯)。标志清晰, 外观整洁, 表面没有明显的凹迹、划迹、镀涂层剥落、塑料件起泡、开裂、变形、霉斑等现象。

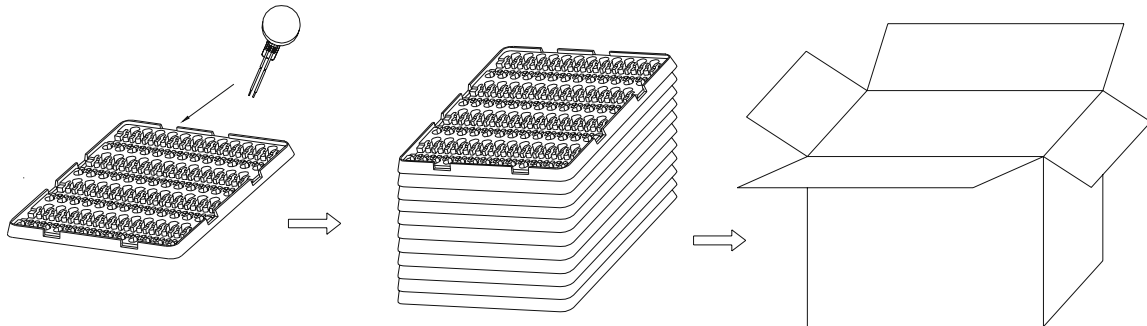
Visual method into the visual inspection, 30cm distance, angle of 45 degrees, light intensity 300 lm/m² or LX (Lux). The sign is clear, neat appearance, no surface notch, obvious strokes, plating coating peeling, blistering, cracking, plastic deformation, Meiban phenomenon.

13-2 点胶形状良好, FPC 焊点处要被胶体包裹良好, 不得露锡导致短路风险; 同时胶体高度必须低于马达本体。

Dispensing good shape, FPC solder joints to be colloidal package is good, not dew tin lead to short-circuit risk; at the same time, colloidal height must be less than the motor body

14. 包装/PACKING

扁平系列马达包装
Pack drawing of coin type



100PCS (1 tray) × 10

1000PCS (1 bundle)

1 box × 2

Remarks:

4000PCS/CTN: 45cm × 28cm × 20cm

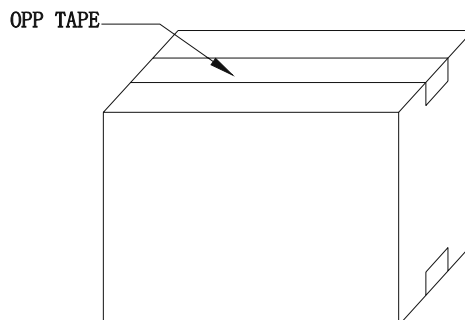
6000PCS/CTN: 45cm × 28cm × 30cm

包装试验要求:

沿外包装箱±x, ±y和±z方向, 距水泥地面1.5m高度, 各自由跌落2次, 马达应无机械损伤, 电气性能仍符合标准要求。

Drop Test with carton:

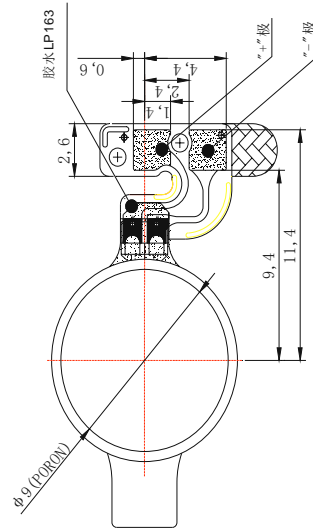
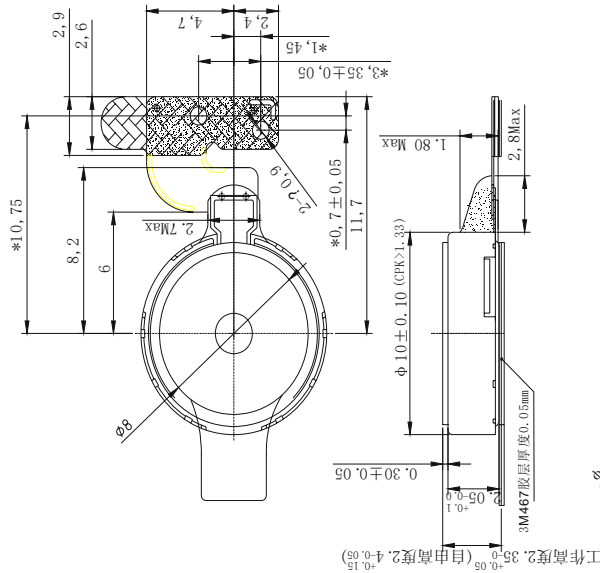
Drop the carton in the axial directions of ±x, ±y, ±z onto the concrete floor from 1.5m height, drop twice each direction. After drop test, no mechanical damage to motors, and the electrical performances remain unchanged.



15. 外形图/ OUTLINE DRAWINGS

技术要求/Technic requirement

1. 额定电压/Rate voltage:3.0V
2. 额定电流/Rate current:80mA Max
3. 额定转速/Rate speed:13000±2500rpm
4. 启动电压/Starting voltage:2.3V Max
5. 端子阻抗/Terminal resistance:
32Ω ±15%(单相/Single phase)
57Ω ±15%(双相/Double phase)
6. 在100V直流下, 导线和机壳间绝缘电阻/At DC 100V, that lead wire and case thin out the insulation resistance:≥10MΩ
7. 未注公差/Unmark tolerance:±0.1
8. 外观上要无有害缺陷。(毛刺, 划伤, 划痕等)。
9. F-PCB线路上要无断线, 短路, 翘起。
10. 未注尺寸公差±0.1mm
11. 材料需符合ROHS及无卤要求。
12. 说明: 导电泡棉与马达本体金属电阻不超过0.5ohm.

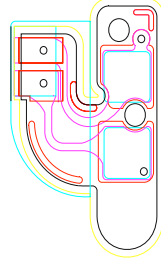
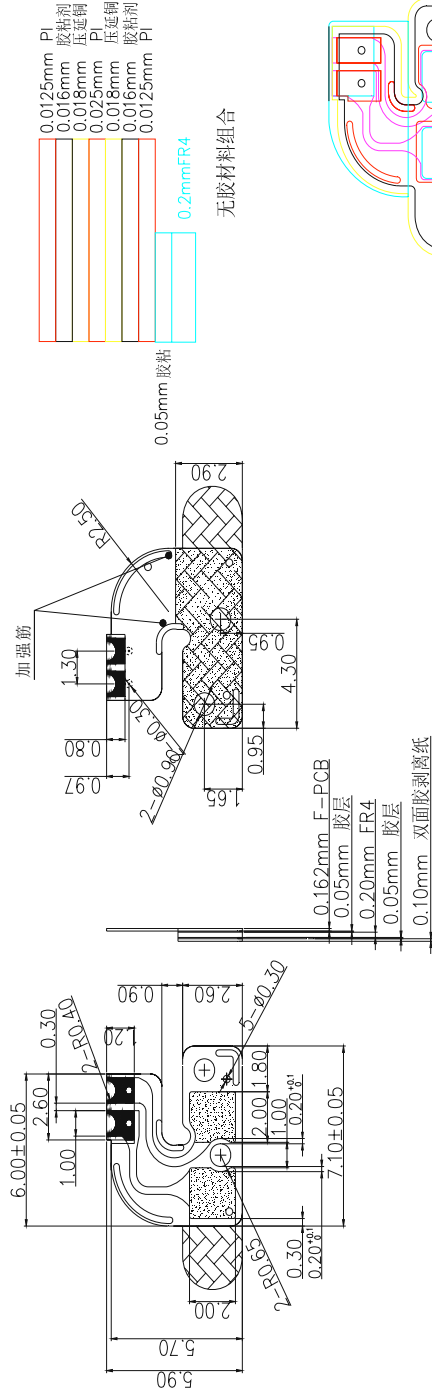


借(通) 用件登记
底图总号
签字
日期

Vybronic		外形图		VC1020B229F	
设计	WZX	阶段标记	重量	比例	5:1
校对	FMZ		A/0		
审核					
工艺					
标记处数	分区	更改文件号	签名	日期	
		08.10.16	标准化		
		08.10.16			
			批准	SJS	08.10.16
			共	页	第

版本: A/1

01.02.RB015



AW1代表第一层线路
AW2代表第二层线路
oL代表外形
TCC代表焊盘开口

- 技术要求:
1. 外观上要无有害缺陷。(毛刺, 划伤, 划痕等)。
 2. 无标注者为 RO.1 以下。
 3. F-PCB 线路上要无断线, 短路, 翘起。
 4. 焊盘表面处理, 电镀薄金, 金层厚度 $0.05 \sim 0.15 \mu\text{m}$
 5. 镀镍厚度 $2.5 \sim 5 \mu\text{m}$
 6. 未注尺寸公差 $\pm 0.1 \text{mm}$
- 材料需符合 ROHS 及无卤要求。

设计	王范	更改文件号	日期
校对	刘琪敏	批 准	日期
审核	黄剑辉	图样标记	比例
工艺	14.11.20	重量	1:1
共 1 页		第 1 页	

VybronicS

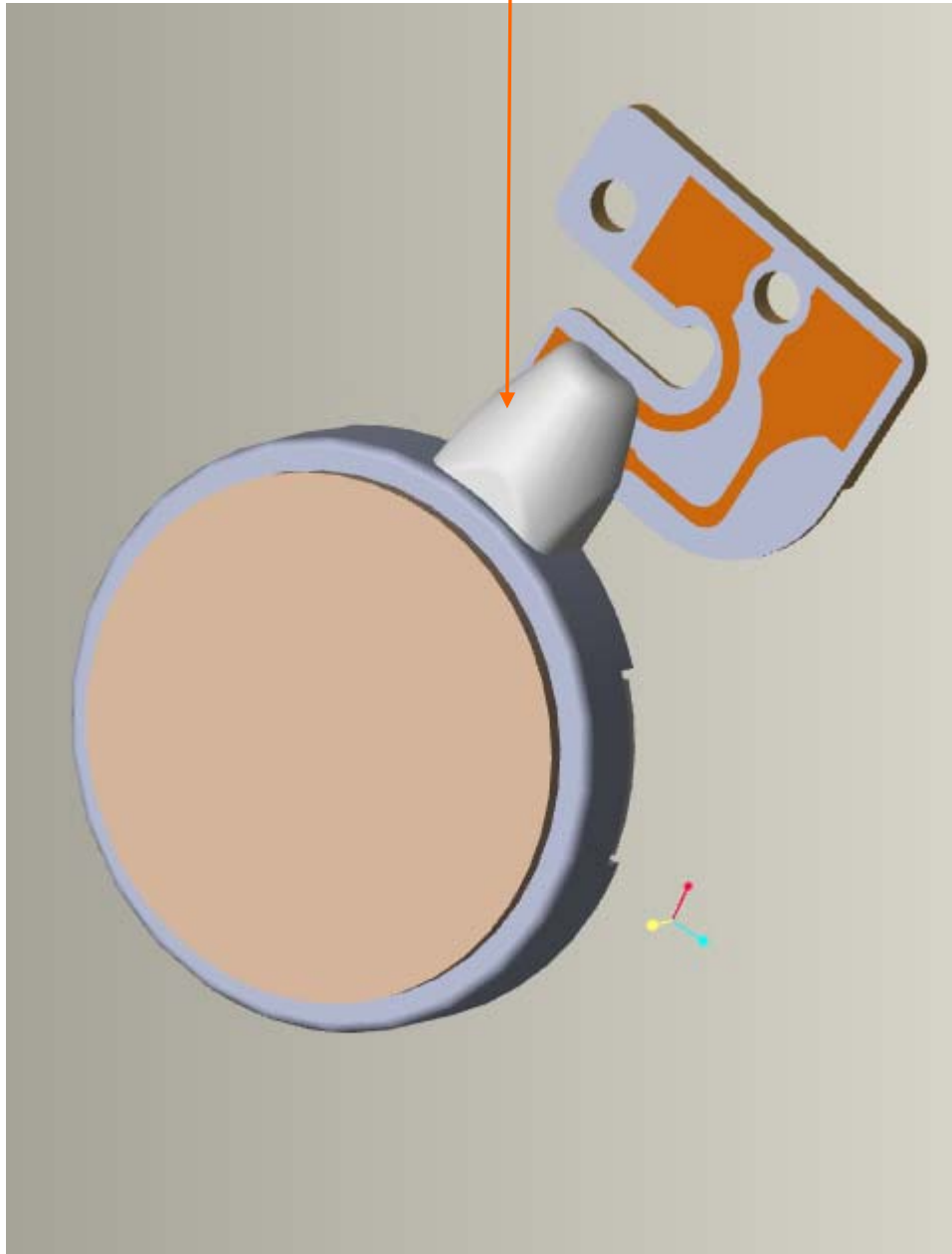
F-PCB

01.02.RB015

借(通)用件登记
描 图
描 校
底图总号
签 字
日 期

3D 图示

注：3D 图点
胶尺寸，具
MAX值，具
请依3D图
为准。



16. 形变曲线图/ DEFORMATION CURVE

