



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	线性振动马达 LINEAR VIBRATION MOTOR		
型号Part No.	VLV231372-180H		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
2024.07.26	2024.07.26	2024.07.26	

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1. Operating scope 适用范围

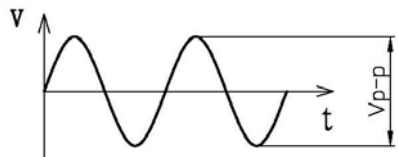
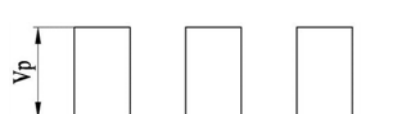
This specifications apply to Vybronic linear vibrator model

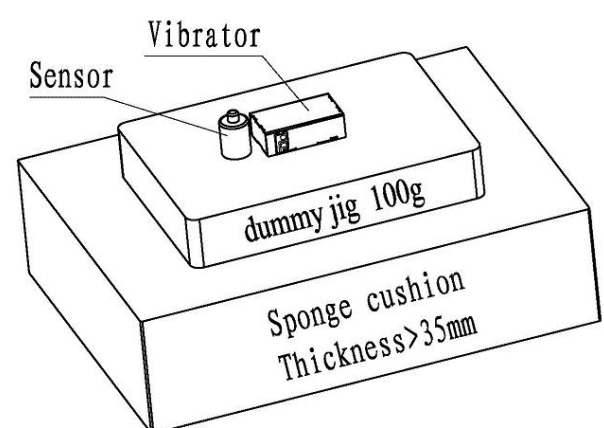
VLV231372-180H .本规格书适用于Vybronic VLV231372-180H 线性振动器。

2. Storage,Operating temperature /Humidity conditions (储存、使用温度/湿度条件)

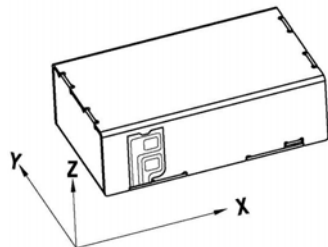
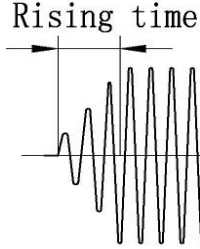
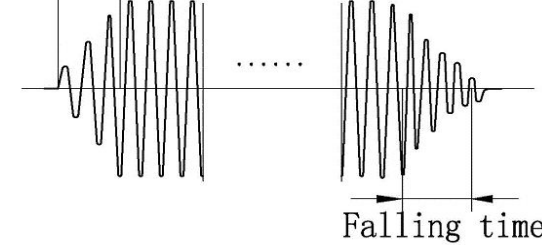
No	Items (项目)	Conditions (条件)
2-1	Operating Environmental 使用环境	Temperature / 温度: $-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$ Humidity / 湿度: $5 \sim 95\% \text{RH}$
2-2	Storage Environmental 储存环境	Temperature / 温度: $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ Humidity / 湿度: $5 \sim 95\% \text{RH}$

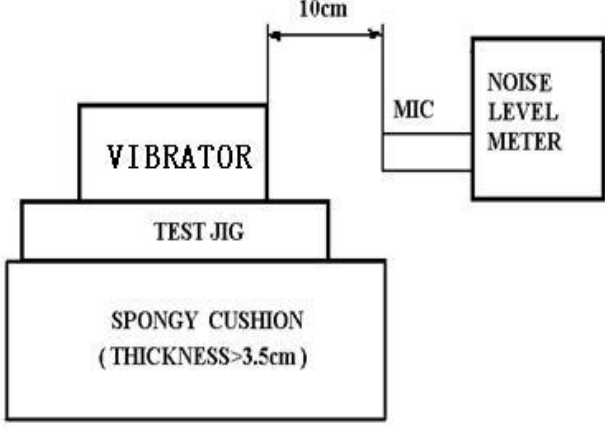
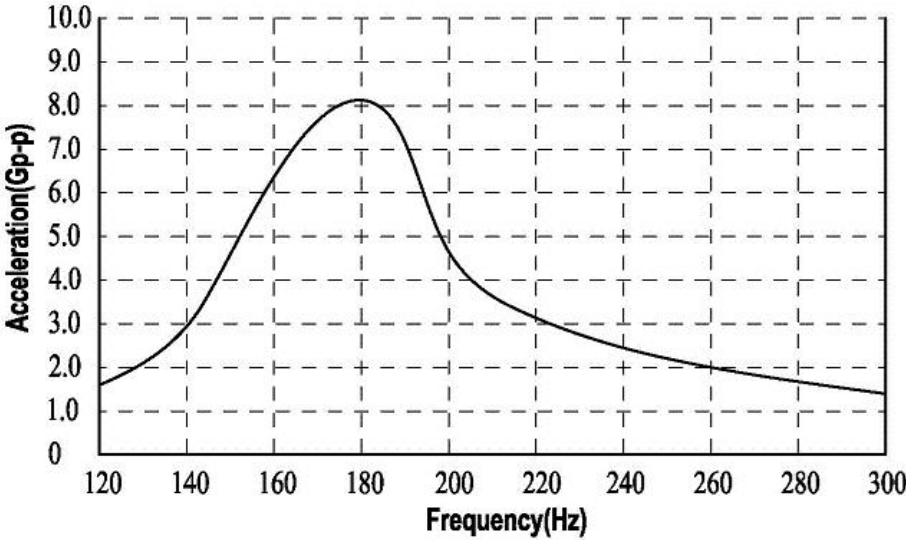
3. Standard measurement conditions (标准测试条件)

NO	ITEM 项目	SPECIFICATION/规定		
3-1	Temperature/温度	$20 \pm 5^{\circ}\text{C}$		
3-2	Humidity/湿度	$(65 \pm 20\%) \text{RH}$		
3-3	Rated voltage 额定电压	AC Mode AC 模式	$2.0 \pm 0.05 \text{Vrms}$ ($V_{p-p}=5.66\text{V}$)	
		PWM Mode PWM 模式	$4 \pm 0.05 \text{Vp}$ Duty=50%	
3-4	Operating Frequency 工作频率	@F0 ($F0 \in 180 \pm 10 \text{Hz}$)		
3-5	Measuring method 测量方法	Place Vibrator horizontally (Lock the Vibrator on a 100g dummy jig) 振动器水平放置 (固定在 100 克的测试夹具上) The direction of the sensor as same as the direction of Vibrator vibration(As item 4-2) 传感器检测方向和振动器振动方向保持一致。(参见项目 4-2)		



4. Product performance (制品性能)

NO	Items(项目)	Requirements (要求)	Conditions Or Remark (条件/备注)
4-1	Shape size 外形尺寸	L22.6 W13H7.2(mm) not included Welding lead position 不包含引线焊接部位	 Details refer to page 8
4-2	Vibration direction 振动方向	Z axis	
4-3	Weight/重量	8.0±0.5g	/
4-4	Resonant Frequency 谐振频率	F0 ∈ (180±10)Hz	/
4-5	Operating voltage 工作电压	Maximum 2.0Vrms	Sine wave,Continuous Vibrate Mode/连续振动模式
		Maximum 8.0Vp_p	Sine wave, Boost Impulse Mode,Duration less than 30ms and interval time is greater than 70ms/升压冲击模式,脉冲 持续时间小于 30ms,间隔时间大于 70ms
4-6	Acceleration 振动加速度	≥ 8Gpp@F0	AC,sine 2.0Vrms
4-7	Rise time 启动时间	≤50ms	Rise to 70% of the nominal acceleration 加速度上升到典型值的 70%  Rising time
4-8	Falling time 断开时间	≤80ms	 Falling time Down to 30% of the nominal acceleration 加速度下降到典型值的 30%
4-9	Terminal resistance 端子电阻	8.5±1Ω	AT 20°C
4-10	Rated current 额定电流	≤160mArms	@F0 Sinewave 2.0Vrms
		≤240mArms	@other frequency Sinewave 2.0Vrms
4-11	Insulation resistance 绝缘电阻	10MΩ(Min)	100V DC, Between the vibrator terminal and case.测试电 压 DC100V,端子和外壳间。

4-12	Operating Attitude 工作姿态	All direction 全方向																							
4-13	Mechanical Noise 机械噪音	50dB-A (MAX)	At rated voltage and load; F0 , Background noise 30dB-A (MAX)/在额定电压, 额定负载下测试, 背景噪音不超过 35dB. 																						
4-14	Frequency - Acceleration Characteristics 频率—加速度特性曲线	@Sine 2.0Vrms	 <table border="1"> <caption>Approximate data points from the Frequency-Acceleration graph</caption> <thead> <tr> <th>Frequency (Hz)</th> <th>Acceleration (Gp-p)</th> </tr> </thead> <tbody> <tr><td>120</td><td>1.5</td></tr> <tr><td>140</td><td>3.0</td></tr> <tr><td>160</td><td>6.0</td></tr> <tr><td>180</td><td>8.0</td></tr> <tr><td>200</td><td>4.5</td></tr> <tr><td>220</td><td>3.0</td></tr> <tr><td>240</td><td>2.2</td></tr> <tr><td>260</td><td>1.8</td></tr> <tr><td>280</td><td>1.5</td></tr> <tr><td>300</td><td>1.3</td></tr> </tbody> </table>	Frequency (Hz)	Acceleration (Gp-p)	120	1.5	140	3.0	160	6.0	180	8.0	200	4.5	220	3.0	240	2.2	260	1.8	280	1.5	300	1.3
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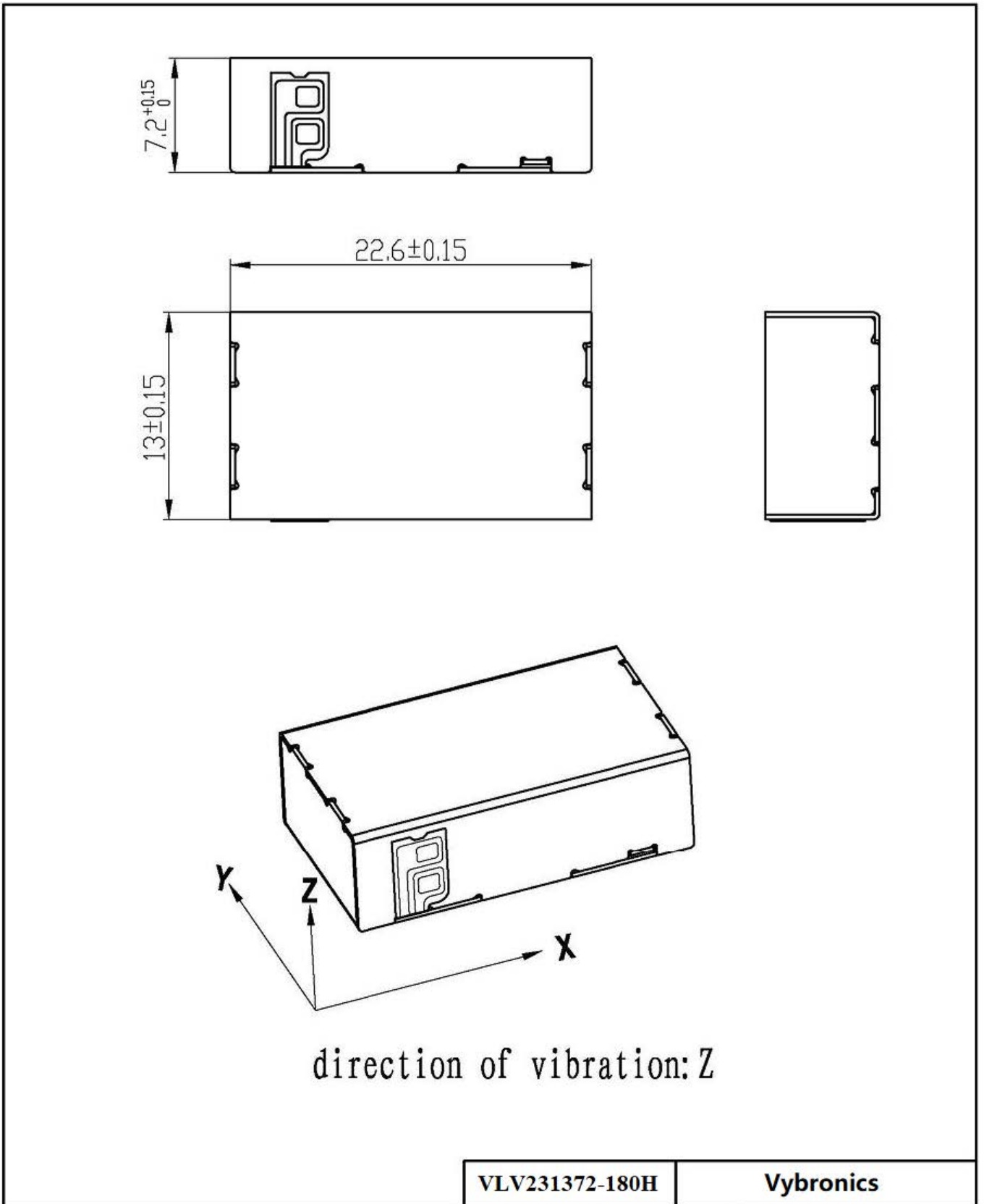
5. External performance (外观性能)

it should not remarkable wound and deleterious defect, No distortion、rust、stain, etc.
 不应有明显的划伤、有害缺陷, 无变形、锈蚀、污迹等。

6. Reliability test 可靠性试验

NO	Items(项目)	Standard test conditions(标准试验条件)	Judgment (判定)
6-1	Life test 寿命试验	Lock the vibrator on a test fixture (100g JIG) 振动器固定在 100g 的测试夹具上。 Temperature/温度: 25°C±2°C Humidity/湿度: 65±20%RH AC2.0Vrms sine wave, f=180Hz AC2.0Vrms 正弦交流电, 频率 180Hz Test model/试验形式: 0.5S ON 0.5S OFF Total times:1000,000 times(100 万次/11.6Days)	After the test, vibrator shall be satisfy with specified in item 6-8 试验结束后, 振动器应满足 6-8 中规定的要求。
6-2	Low temp Storage 低温存放试验	Temperature (温度): -40°C±2°C Test time (试验时间): 168 hours	After the test, After 2 hours placed in ordinary temperature and humidity, vibrator shall be satisfy with specified in item 6-8 试验结束后, 在常温常湿中放置 2 小时后, 振动器应满足 6-8 中规定的要求
6-3	High temp storage 高温存放试验	Temperature (温度): 85°C±2°C Test time (试验时间): 168 hours	
6-4	Heat shock 温度冲击	-40°C/+85°C 2hours/cycle,15cycles. 低温-40°C, 高温+85°C, 2 小时切换, 15 个循环	
6-5	Humidity storage 湿热存放试验	Temperature (温度): 65°C±2°C Humidity (湿度): 95%RH Test time (试验时间): 120hours	
6-6	Drop test 跌落试验	Dummy JIG 150g , drop to the granite floor. 治具 150g, 自由落下到花岗岩板上 Height/高度: 1.0m Direction/方向: 6 faces . Times/次数:Each face 3 times, totaling 18 times. 每面跌落 3 次, 共计 18 次	
6-7	Repetitive Drop Test 微跌试验	JIG/治具: 150g Height/高度: 7cm impact surface/冲击面: steel floor Times/次数: Front and back each 2500 drops	After the test, vibrator shall be satisfy with specified in item 6-8 试验结束后, 振动器应满足 6-8 中规定的要求。
AFTER TEST REQUIREMENTS/试验后特性判定			
6-8	1、 Acceleration within ±30% from initial./加速度变化在初始值的±30%内;		
	2、 Insulation resistance within±20% from initial./绝缘电阻变化在初始值的±20%内;		
	3、 Terminal resistance within±20% from initial./ 端子电阻变化在初始值的±20%内;		
	4、 No signs of corrosion/无明显腐蚀迹象		

7. Outline drawing (外形图)



8. Encoding rules 编码规则

To be determined according to customer's requirements
依据客户需求确定

9. Packaging requirements 包装要求

To be determined according to customer's requirements
依据客户需求确定

10. Caution for Use 使用注意事项

10-1. Please use vibrator in the specification of this specification. Otherwise the service life and performance of the vibrator will be affected. 请在本规格书规范内使用振动器，否则会影响振动器的使用寿命和性能。

10-2. please do not push the load of 15N or more on the surface of the vibrator ,when exceeding 30N,it causes the trouble.
振动器表面承载压力不得超过 30 牛顿，否则可能会导致功能故障。

10-3. Vibrators should be firmly fixed in the direction of vibration (Recommended Installation Force 5-8N), Otherwise it will be prone to noise. 振动器应牢牢固定在振动方向上(推荐安装力 5-8N)，否则容易产生噪声。

10-4. when soldering FPCB,The soldering iron temperature does not exceed 350 degrees and the soldering time per spot does not exceed 3 seconds. 焊接 FPCB 时，电烙铁温度不超过 350°，每个点焊接时间不超过 3 秒。

10-5. Vibrators can't be used in high temperature, High humidity and corrosive gas environment.
振动器不能在高温、高湿度和有腐蚀性气体环境中使用。

10-6. The vibrator has a strong magnet, So please be aware that it has a magnetic force on the surface of the bracket.
振动器有一个强的磁铁，因此请注意，它的支架表面有磁力。

10-7. Under the conditions of meeting this specification, our company can change the material、size and shape of parts to improve quality、performance or production efficiency. 在满足本规范的前提下，我司可以改变零件材料、尺寸及形状来改善品质、性能或生产效率。

10-8. If there is any argument on vibrator performance and/or life, judgment is to be made base on this specification only.
如对振动器的性能和（或）寿命有任何争议，仅基于此规格书作出判断。