



# 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.	VL32158H-L25		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
2023.01.25	2023.01.25	2023.01.25	

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## Revised Record 修订记录

Rev. No.	Rev. Date	Page No.	Revised Item	Reason
A/0	2022.06.01	/	Preliminary Spec/初始规格	

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**1. Operating scope 适用范围**

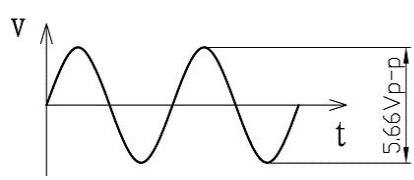
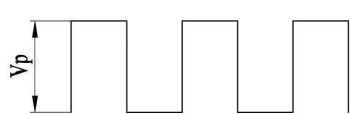
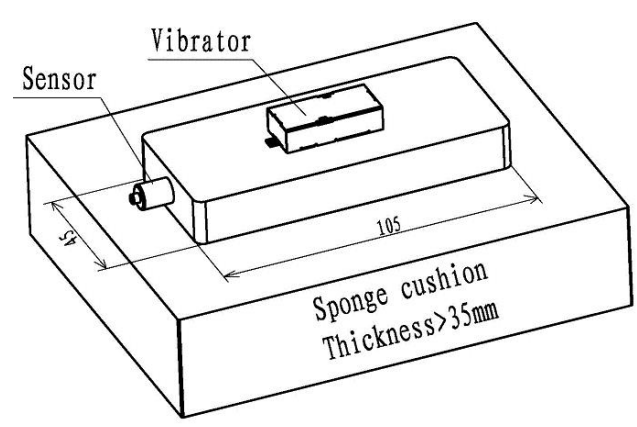
This specifications apply to linear vibrator model VL32158H-L25.

本规格书适用于VL32158H-L25线性振动器。

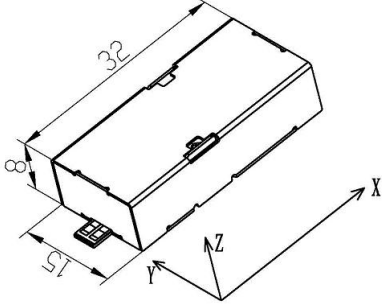
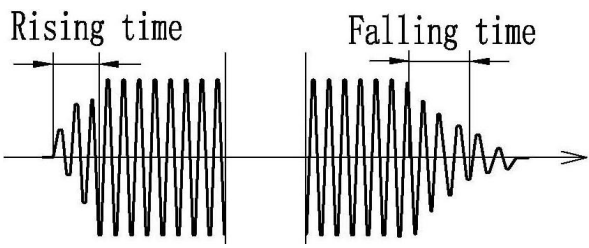
**2. Storage, Operating temperature / Humidity conditions (储存、使用温度/湿度条件)**

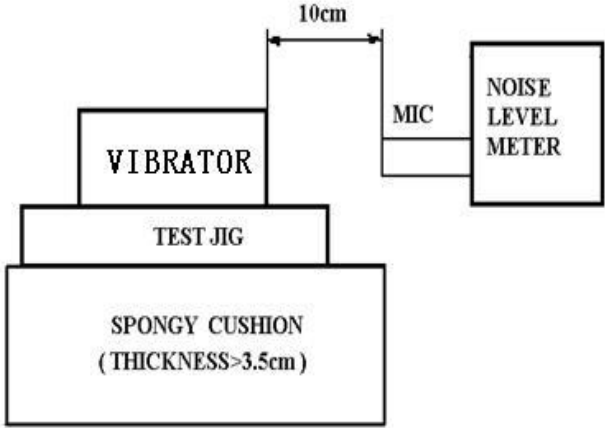
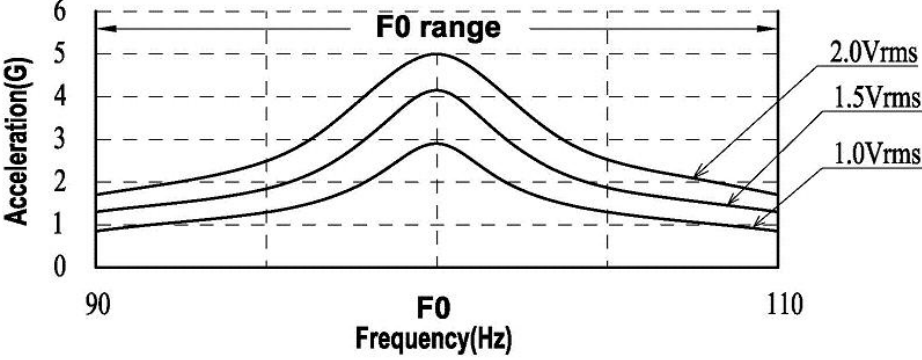
No	Items (项目)	Conditions (条件)
2-5	Operating Environmental 使用环境	Temperature / 温度: $-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$ Humidity / 湿度: $5 \sim 95\% \text{RH}$
2-6	Storage Environmental 储存环境	Temperature / 温度: $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ Humidity / 湿度: $5 \sim 95\% \text{RH}$

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

NO	ITEMS/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	$2.0 \pm 0.05 \text{V}_{\text{rms}}$ $(V_{\text{p-p}} = 5.66 \text{V})$	
		PWM Mode PWM 模式	$4.0 \pm 0.05 \text{V}_{\text{p}}$ Duty=50%	
3-4	Operating Frequency 工作频率	@F0 ( $F0 \in 100 \pm 8 \text{Hz}$ )		
3-5	Measuring method	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	L32*W15*H8.0( 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	X axis	
4-3	Weight/重量	13.6±1g	/
4-4	Resonant Frequency 谐振频率	100±8Hz	/
4-5	Acceleration 振动加速度	5±1.5G@F0	Sine wave 2.0Vrms
			PWM 4.0V (Vp) (Duty=50%)
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% 
4-8	Falling time 断开时间	≤120ms	Down to 30% of the nominal acceleration 加速度下降到典型值的 30%
4-9	Rated current 额定电流	≤300mArms	@ Sine wave 2.0Vrms
4-10	Terminal resistance 端子电阻	6.5±1Ω	AT 20 °C
4-11	Insulation resistance 绝缘电阻	10MΩ(Min)	100VDC, 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)	

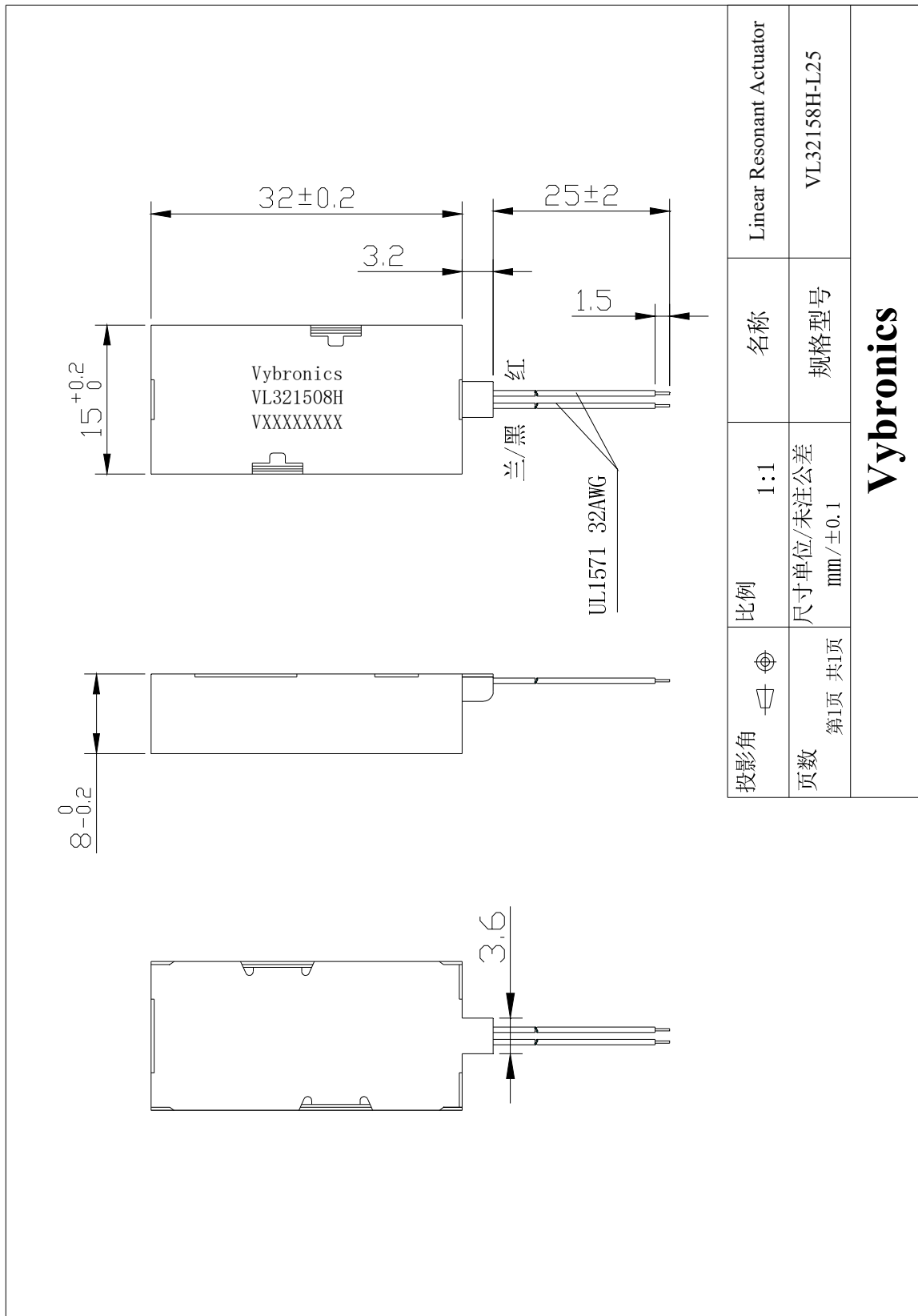
<p>4-13</p>	<p>Mechanical Noise 机械噪音</p>	<p>45dB-A (MAX)</p>	<p>At rated voltage and load; F0 , Background noise 30dB-A (MAX)/在额定电压, 额定负载下测试, 背景噪音不超过 35dB.</p> 
<p>4-14</p>	<p>Voltage- Acceleration Characteristics 输入电压—加速度特性曲线</p>		

**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±2°C Humidity/湿度: 65±20%RH 2.0Vrms sine wave, f=100Hz 2.0Vrms 正弦交流电, 频率 100Hz Test model/试验形式: 1S ON 1S OFF Total times:500,000 times(50 万次/17.5Days)	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): -30±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): 70±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±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: 1.5m 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 在初始值的±20%内		
	4、No signs of corrosion/无明显腐蚀迹象		

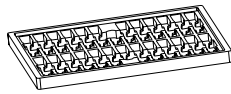
**7. Outline drawing (外形图)**




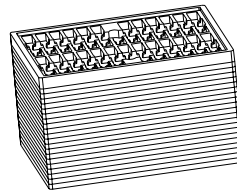
**8. Encoding rules 编码规则**

To be determined according to customer's requirements

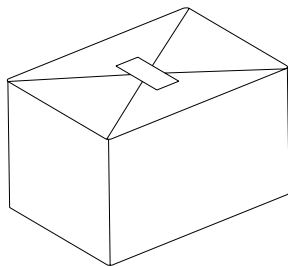
**9. Packaging requirements 包装要求**



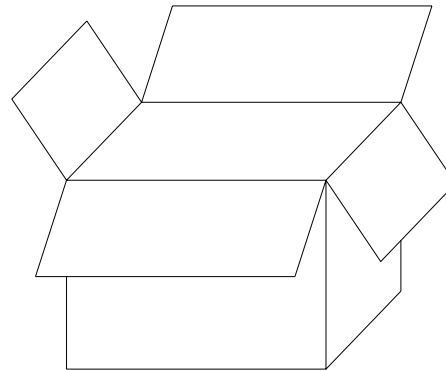
50pcs (1 tray)



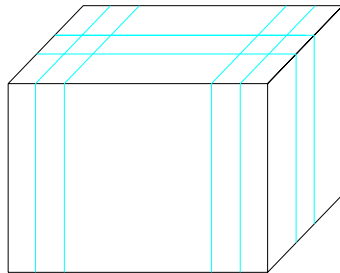
500-1000 pcs (1 bundle)  
上部加盖一个空托盘，  
然后用胶带打捆。



将打捆好的马达装入塑料袋，  
然后用胶带封口。



1000-4000pcs/box  
马达装入纸箱



用胶带封外箱

## 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. Make arrangement to limit the storage period to 6 months or less. 请在 6 个月内使用。
- 10-3. please do not push the load of 15N or more on the surface of the vibrator ,when exceeding 20N,it causes the trouble. 振动器表面承载压力不得超过 20 牛顿，否则可能会导致功能故障。
- 10-4. 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。
- 10-5. Please lay the vibrators carefully in transportation to avoid any serious damage to the vibrator body or its electric function because of collision. 在运输过程中应小心轻放，避免振动器碰撞受损
- 10-6. 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。
- 10-7. 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。
- 10-8. 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。
- 10-9. 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. 在满足本规范的情况下，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。
- 10-10. 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。