



# 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.	VLV041235L-L20-TG3		
送样日期Date			
设计Designed by	审核Checked by	批准Approved by	
2024.02.19	2024.02.19	2024.02.19	

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**1.适用范围/Scope Of Application**

本规格书适用于移动电话的振动马达。

This datasheet is applied for vibration motor, which is for mobile phone.

型号名称标准/Standard of model name:

VLV\_0412


**2.使用条件/Standard Operating Condition**

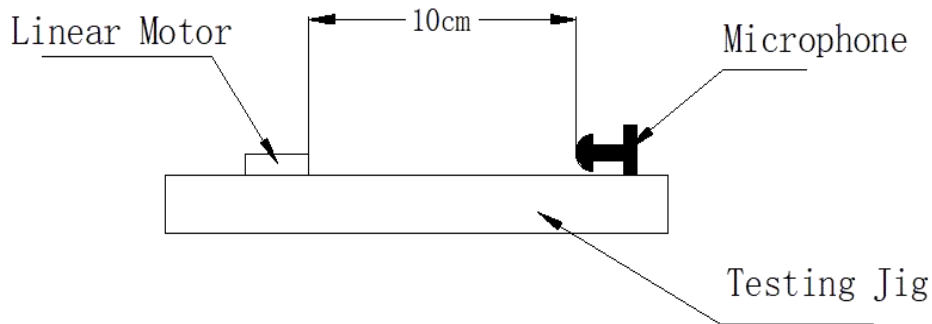
NO.	项目/Item	规格/Specifications
2-1	额定电压 Rated voltage	1.8Vrms AC, Sine wave
2-2	使用电压范围 Operating voltage range	0.1~1.85Vrms AC
2-3	振动方向 Direction of vibration	Z axis
2-4	额定工作频率 Rated operating Frequency	240Hz
2-5	使用温度范围 Operating temperature range	-40℃~+85℃, Ordinary Humidity:65±20%RH
2-6	保存环境范围 Storage temperature range	-40℃~+110℃, Ordinary Humidity:65±20%RH

**3.标准的测试条件/ Standard Testing Condition**

NO.	项目/Item	规格/Specifications
3-1	温度 Temperature	25°C±3
3-2	湿度 Humidity	45% ~85%RH
3-3	电源电压 Power Supply, Voltage Source	1.8±0.05Vrms AC, Sine wave
3-4	工作频率 Operational Frequency	240 ±10Hz

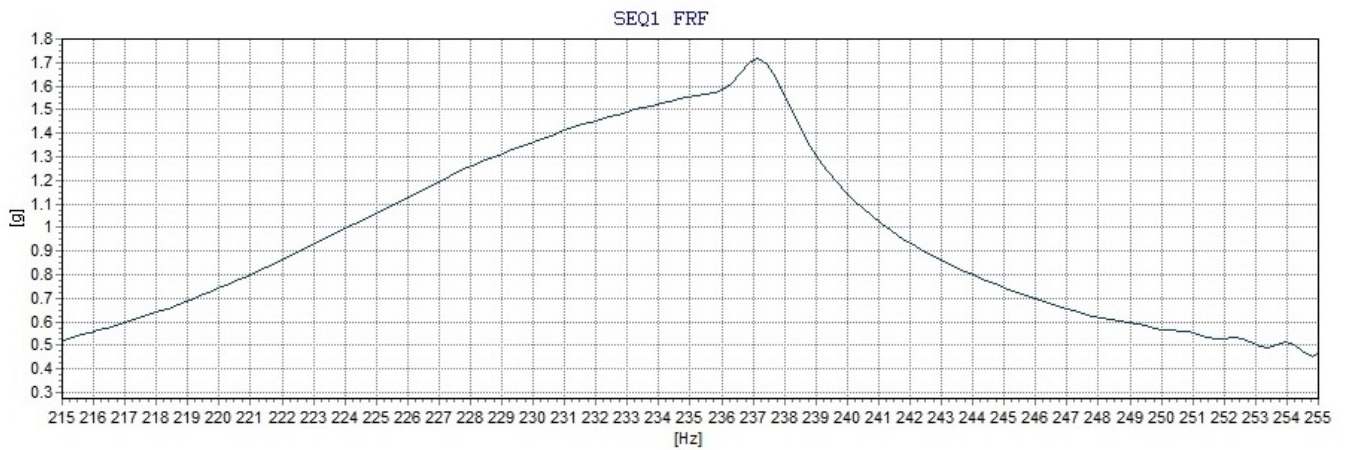
**4.特性/Electrical Characteristic**

NO.	项目/Item	规格/SPEC.	条件/Condition
4-1	额定电流/ Rated Current	MAX.60mArms	Standard Testing condition
4-2	F0 点的振动量/ Acceleration	1.6Grms Min	Standard Testing condition, 100g dummy JIG
4-3	阻抗/ Resistance	29±10%Ω	Standard Testing condition
4-4	频率特性/ Frequency Characteristics	240 ±10 HZ	Standard Testing condition
4-5	上升时间/ Rise Time	Max 40msec	Standard Testing condition 0-50% normal Acceleration
4-6	下降时间/ Filling Time	Max 60msec	Standard Testing condition 100%-50% normal Acceleration
4-7	重量/ Weight	1.1±0.1 gram	Standard Testing condition
4-8	马达声音/ Mechanical Noise	Max.45dB(A) Refer To Figure 2 (参考图形 1)	10cm distance from microphone, Standard Testing condition
4-9	绝缘电阻/ Insulation Resistance	Min.10 MΩ	100V DC input, between Case and Lead Wire or PCB



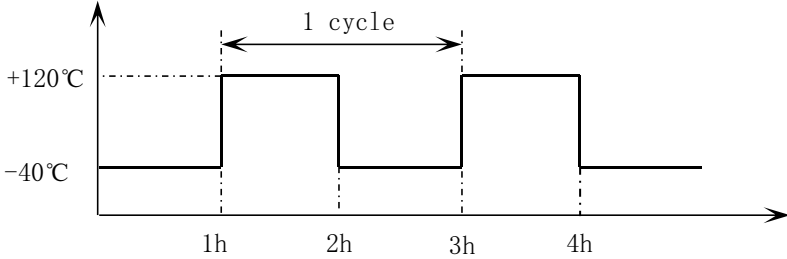
1. 马达被固定 / Motor: be fixed
2. 背景噪音: 28dB MAX.  
Back ground noise: 28dB MAX.
3. 拾音器沿轴向正对电机平面  
Microphone faces the plane of motor along the shaft

Figure 1: Noise measurement condition



Frequency VS. Acceleration  
Characteristics

**5. 可靠性试验/Reliability Test**

NO	项目/Item	条件/Condition
5-1	低温贮存试验 Low temperature Storage test	在-40℃的环境下放置168小时,然后在常温常湿下恢复4小时后测试。 Exposed at -40℃ for 168hours, then return to normal temperature and humidity for 4 hours before test.
5-2	高温贮存试验 High temperature Storage test	在+110℃的环境下放置168小时,然后在常温常湿下恢复4小时后测试。 Exposed at +110℃ for 168hours, then return to normal temperature and humidity for 4 hours before test.
5-3	高湿贮存试验 High humidity Storage test	在+55℃,95%RH的环境下放置120小时,然后在常温常湿下恢复4h后测试。 Exposed at +55℃ 95%RH for 120hours, then return to normal temperature and humidity for 4 hours before test.
5-4	温冲试验 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 4 小时后测试。 Confirmed to operating of motor during 15 cycles as following test condition, then return to normal temperature and humidity for 4 hours before test.</p> <p>试验条件/Test condition:</p>  <p>高低温转换时间: ≤5分钟 Transfer time between high temperature and low temperature: ≤5min</p>
5-5	跌落 Drop test	将马达固定在30g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3次。 The motor that is attached to a 30g jig (plastic housing) and drop it onto the concrete floor from 1.5m height. Drop thrice in each of the six planes.

5-6	<p style="text-align: center;">振动试验 Vibration test</p>	<p>将马达固定在150g的塑料夹具上，按以下要求进行试验：</p> <p>1)扫频范围:10-55Hz                  2)全振幅:1.5mm                  3)扫频变化: 10-55-10 约10分钟                  4)振动方向:三个垂直方向                  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 150g jig (plastic housing) and test according following condition:</p> <p>1)Vibration frequency range: 10~55Hz                  2)Total amplitude: 1.5mm                  3)Sweep ratio: 10~55~10Hz approximate 10min                  4)Direction of vibration: Three perpendicular directions                  5)Duration: 10min (30min in total)</p>
5-7	<p style="text-align: center;">寿命试验 Life test</p>	<p>1.试验循环/Test cycle:300,000 cycle                  (cycle:1sec on/2sec off)                  2.测试设备/Test equipment:寿命试验机/                  Life time test machine                  3.输入电压 (1.8VrmsAC,Sine wave) ,输入频率: 240Hz                  Input Source 240Hz,1.8Vrms AC, Sine wave</p>

▶ **判定标准/Judgment standard**

试验后，测试数据必须符合以下规格：

- 1.加速度、电阻、电流变化率：不得超过初始值的±30%
- 2.噪音：55dB Max
- 3.外形，结构方面无异常发生

After test, following specifications must be satisfied

- 1.The fluctuation of Acceleration, Resistance, Rated Current: initial Value±30%
- 2.Noise:55dB Max
- 3.There should be no abnormalities to happen in structure



## 6. 注意事项/CAUTION

(1) 该马达是微型精密产品，在运输过程或使用时的力不要承受超过**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 or operation, it can cause the transformation of performance or external appearance.**

(2) 请注意马达不要浸入到液体性物质中（比如：水，酒精等）

**Please be careful, not to be drop into fluid substances (such as: water, alcohol etc.)**

(3) 不要将马达长时间放置在高温或高湿下，否则有可能导致电机的性能下降。

**Do not expose the motor to high temperature or high humidity for a long periods of time, it may cause a decline in performance.**

(4) 马达不要靠近腐蚀性气体如**H<sub>2</sub>S**、**SO<sub>2</sub>**、**NO<sub>2</sub>**等,否则会引起腐蚀。

**Do not use near Corrosive gases (such as: H<sub>2</sub>S、SO<sub>2</sub>、NO<sub>2</sub> etc.), while cause erosion**

(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，否则有可能导致电机的性能下降。

**Please do not operate or store the motor adjacent to magnet or apparatus that has a magnetic field, it may cause a decline in performance.**

(6) 为优化振动量,额定电压和频率可根据客户装配条件进行更改。

**To optimize the vibration force, rated voltage and frequency could be changed as to customer assemble condition.**

(7) 马达符合有关环境的法律和法规的要求（如**ROHS2.0**、**REACH**、**H/F**等）

**The motor complies with relevant environmental laws and regulations (such as: ROHS2.0, REACH, H/F etc.)**

## 7. 环保要求/Environmental protection Requirements

本产品所有零部件符合欧盟RoHS指令（2011/65/EU,(EU)2015/863）/无卤/REACH指令要求，具体环境有害物质管控限制如下/

This product conforms to the EU ROHS（2011/65/EU,(EU)2015/863），Halogen-Free and REACH certification, Specific contents as follows:

铅及其化合物最大允许含量为1000ppm/Lead and Lead compounds≤1000ppm

镉及其化合物最大允许含量为100ppm/Cadmium and cadmium compounds≤100ppm

汞及其化合物最大允许含量为1000ppm/Mercury and Mercury compounds≤1000ppm

六价铬化物最大允许含量为1000ppm/Hexavalent chromium compounds≤1000ppm

多溴联苯(PBB)最大允许含量为1000ppm/Polybrominated biphenylethers≤1000ppm

多溴联苯醚(PBDE)最大允许含量为1000ppm/Polybrominated diphenylethers≤1000ppm

邻苯二甲酸二异丁酯（DIBP）最大允许含量为1000ppm /DIBP≤1000ppm

邻苯二甲酸二丁酯(DBP)最大允许含量为1000ppm /DBP≤1000ppm

邻苯二甲酸苄基酯(BBP)最大允许含量为1000ppm/BBP≤1000ppm

邻苯二甲酸二（2-乙基己基）酯(DEHP)最大允许含量为1000ppm/DEHP≤1000ppm

六溴环十二烷(HBCDD)最大允许含量为1000ppm/HBCDD≤1000ppm

溴Br最大允许含量为900ppm/Br≤900ppm

氯Cl最大允许含量为900ppm/Cl≤900ppm

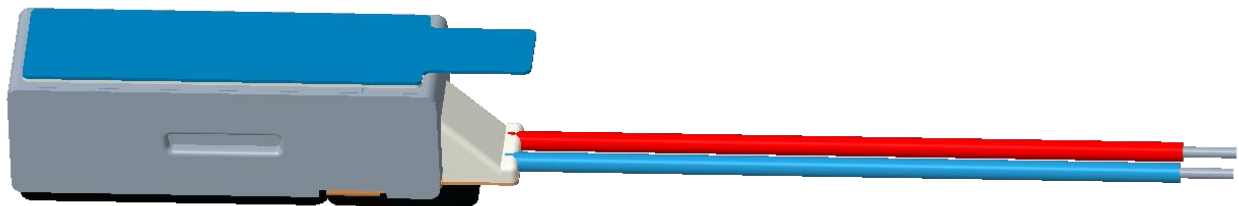
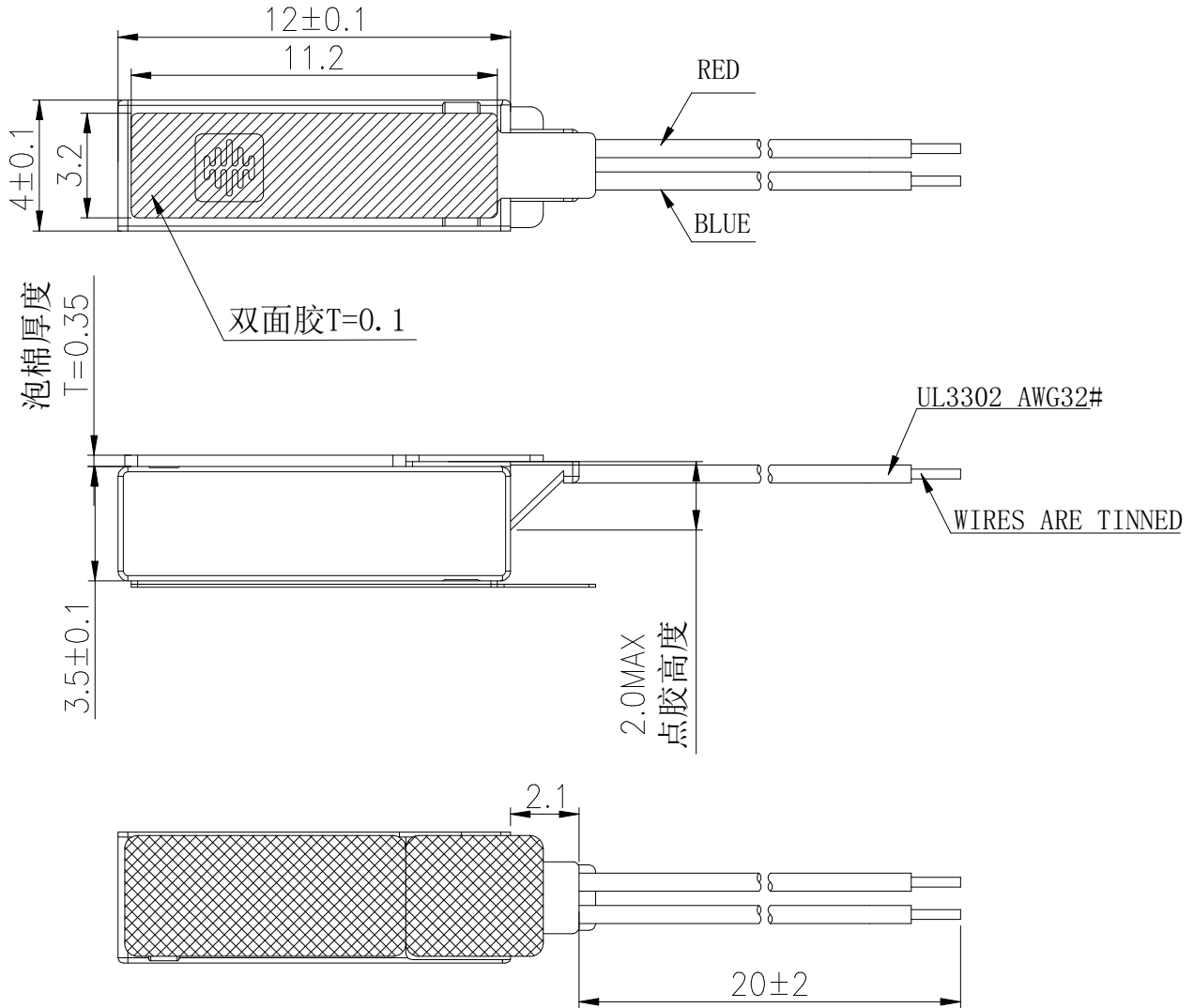
溴加氯之和最大允许含量为1500ppm/Br+Cl≤1500ppm

REACH 指令按最新法规内容管控执行/The instructions are subject to the latest regulations

包装材料环保管控要求/Environmental control requirements for packaging materials:

Pb+Cd+Hg+Cr6 < 100ppm (其中, Cd<50ppm)

8.外形图/Vibration Outside View



## 9. 包装/Packaging

吸塑盒尺寸(长:250mm 宽:210mm 高:11mm)

Tray dimension

(L:250mm W:210mm H:11mm)

每个吸塑盒放 50 只

50 Pcs per tray

内箱尺寸(长:260mm 宽:215mm 高:80mm)

Inner-box dimension (L:260mm W:215mm  
H:80mm)

每 11 个吸塑盒捆在一起,数量为 500 只,装  
入内箱

Put into inner-box 11 tray together  
with tape 1000 Pcs per 11 tray .

4 个内箱装入外箱, 数量共 4000 只;

Put 4 inner-box into outer-box, total 2000  
Pcs.

外箱尺寸: (长:440mm 宽:265mm 高:168mm)

Outer-box dimension:

(L:440mm W:265mm H:168mm)