



維盟科技有限公司
Evowave Technology Co., Ltd.

規格書 / Specification

Description:	Linear Vibration Motor
Part No.:	LG103615WXX
Date:	2015/04/22

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1. 적용범위 /Scope

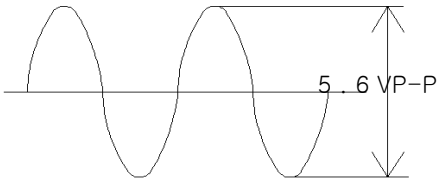
These specification are applied to LG103615WXX Linear vibrator to be used for cellular and PDA phone.

이 사양서는 고도전자가 핸드폰 및 PDA 등 이동통신 단말기용으로 생산 및 납품하는 리니어 진동자에 적용된다.

2. 표준 사용 상태 - Standard Operating Condition -

NO 번호	ITEM 항목	SPECIFICATION 규격
2-1	Working temperature range 동작온도범위	-25℃ ~ +70℃
2-2	Storage temperature range 보존온도범위	-40℃ ~ +85℃

3. 측정환경조건 - Measurement Environment Conditions

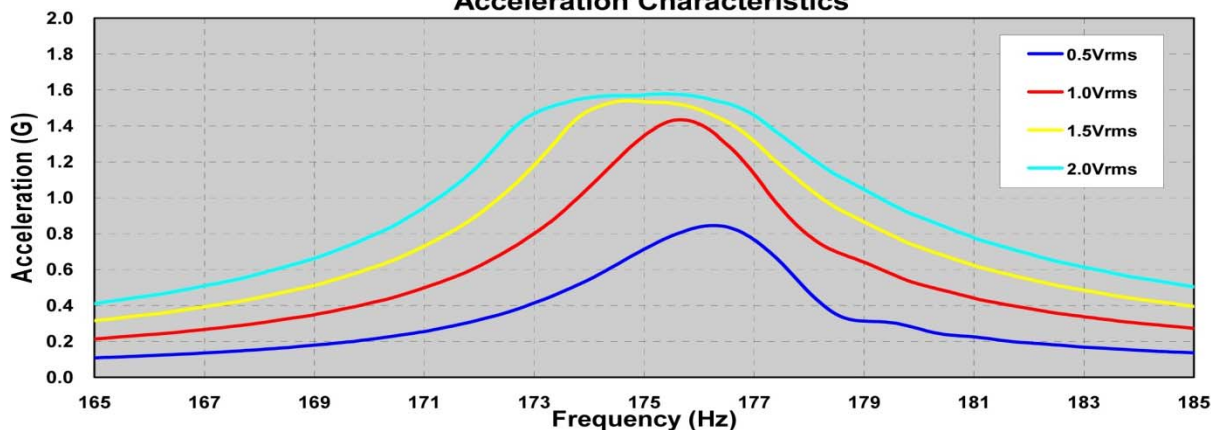
NO 번호	ITEM 항목	SPECIFICATION 규격
3-1	Temperature 온도	20℃ ± 3℃
3-2	Humidity 습도	65%RH ± 20%RH
3-3	Rated voltage 정격전압	2.0 Vrms AC(Sine wave) 
3-4	Operating Voltage Range 동작전압범위	0 ~ 2.05Vrms
3-5	Rated Frequency 기준주파수	175 Hz

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4. 제품 특성 / Product Characteristics

No. 번호	ITEM 항목	Specification 규격	Measuring condition 측정 조건
4-1	Resistance 저 항	27 Ohm +/- 5	Standard Test Condition
4-2	Rated current 정격 전류	90 mArms Max	Input source : 2.0Vrms AC, Sinewave, 175HZ
4-3	Acceleration 진동가속도	1.5 +/- 0.3 Grms	Input source : 2.0Vrms AC, Sinewave, 175Hz
4-4	Frequency Characteristics 주 파수 특징	Refer to the frequency spectrum	Standard Test Condition
4-5	Dimension 치 수	Refer to outline drawing	Standard Test Condition
4-6	Weight 무 게	2.0 +/- 0.1 gram	Standard Test Condition
4-7	Noise 소 음	Max 50dBA	10cm distance from microphone, Input Voltage : 2.0Vrms AC, Sinewave
4-7-1	Noise by mechanical touch 기계적 터치 소음	Max 35dBA	Test : LVIT-201H (2.0Vrms AC, Sinewave)
4-8	Ringing 잔 진 동	Max 0.4 Grms	0.2Vrms AC, Sinewave (Frequency sweep)
4-9	Insulation resistance 절 연 지 항	Min 10M Ohm	100V DC input, between Case ~ Terminal
4-10	Rising Time 상승 시간	Max 55mS	Input source : 2.0Vrms AC, Sinewave, 175HZ
4-11	Falling Time 하강 시간	Max 200mS	Input source : 2.0Vrms AC, Sinewave, 175HZ

Acceleration Characteristics



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5. 측정방법

/Acceleration Testing Methods

Figure 2.0

Linear Vibrator Method of Measurement

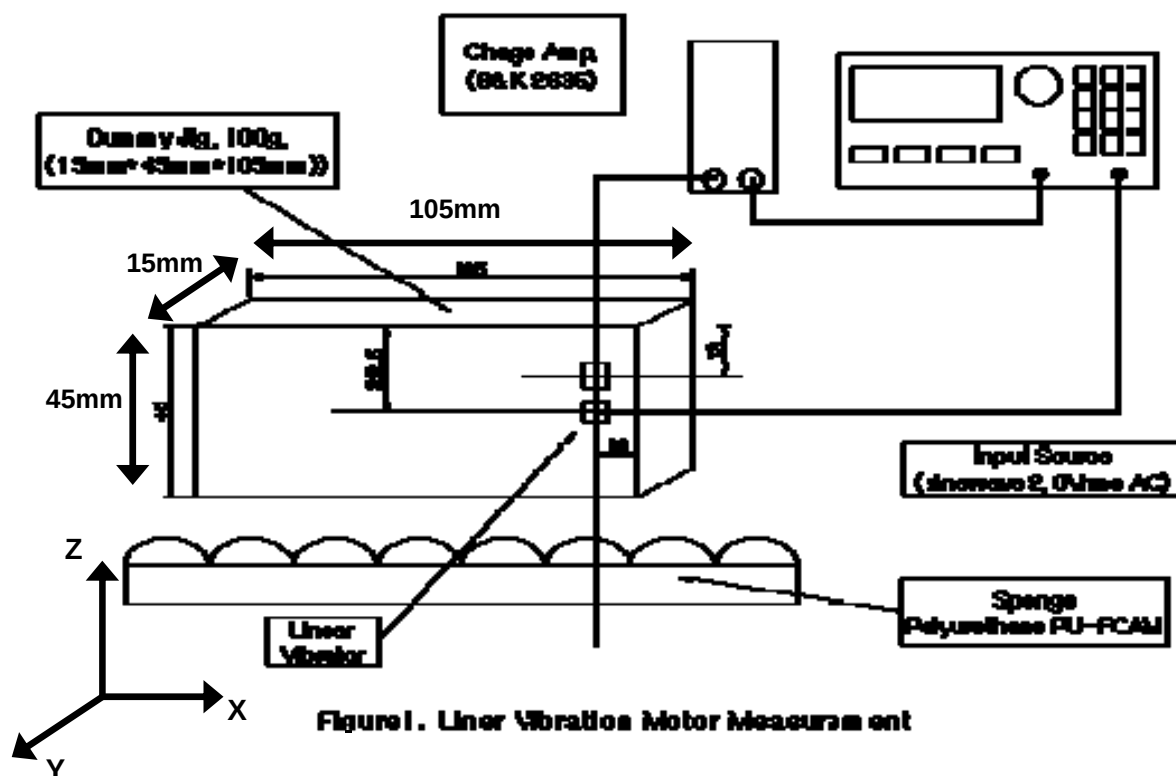


Figure 1. Linear Vibration Motor Measurement

5.1) 리니어진동자/진동가속기 실장 위치(그림1.0참조)

Linear Vibrator / Accelerometer mounting position (Refer the Figure 1.0)

리니어진동자는 더미지그의 15mm(Y방향면)방향면에 위치하여 함.

- Linear Vibrator should be mounted to position of 15mm direction (Y-direction) on Dummy Fixture
- Also, Accelerometer should be mounted to measure Y-direction vibration on Dummy Fixture

5.2) 더미지그 위치 Dummy fixture position

더미지그의 15mm*105mm 면이 스펀지 위에 위치하여야 함. 진동가속기 측정시, 지그는 안정적이어야 함.

- 15mm*105mm plane of Dummy fixture should be located on sponge
- At measurement of acceleration, Dummy fixture should be stabilized

5.3) 진동가속기 측정 Measurement of Acceleration

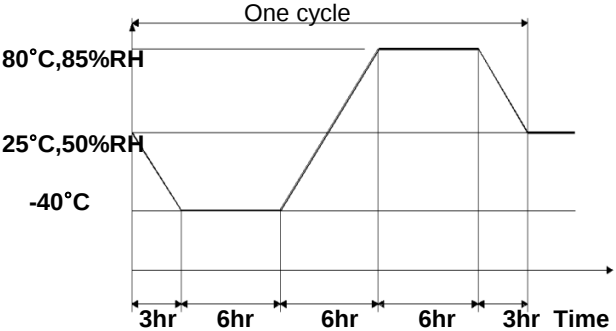
리니어 진동자의 진동가속기는 2.0Vrms AC, Sinewave 입력 시 2~3초 후 측정되어야 함.

- Acceleration of Linear Vibrator should be measured 2~3 second later when source inputted (2.0Vrms AC, sinewave)
- 정확한 측정을 위하여 3번을 반복하여 측정 후 평균값으로 계산함.
- For the precise measurement, Acceleration of Linear vibrator should take average data from 3 times repeating.

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6. Reliability test conditions

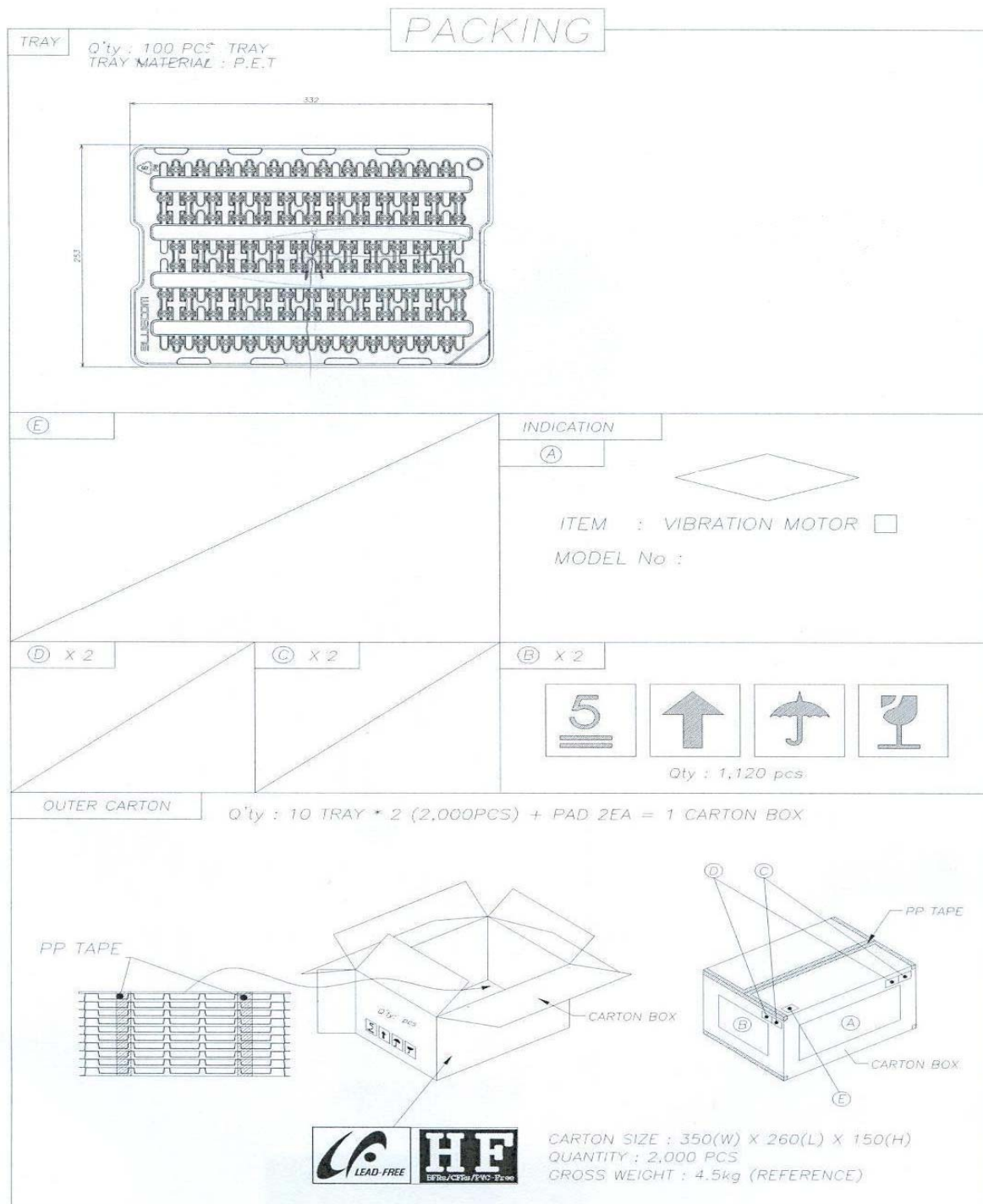
신뢰성 시험 조건

No	Items	규격 / Specification	판정기준 /Judgement
6-1	고온보존시험 High temperature Storage test	+70°C, 168, After test, the Vibrator should be measured after room-temperature storage for 4Hrs. Sample quantity : 4 pcs	Acceleration variation : ±30% Rated current : 90mA Max
6-2	저온보존시험 Low temperature Storage test	-30°C, 168, After test, the vibrator should be measured after room-temperature storage for 4hrs. Sample quantity : 4 pcs	Acceleration variation : ±30% Rated current : 90mA Max
6-3	고/저온, 습도 보관 시험 조건 High/Low Temperature Humidity cycle storage test	-40°C ~ 80°C / 85% humidity, Total 6cycles Sample quantity : 4 pcs 	Acceleration variation : ±30% Rated current : 90mA Max
6-4	열충격 저항 시험 Thermal shock Resistance test	-40°C ~ 80°C in each of 30Min(1cycle), Total 50cycles. Transition is 5minutes max. After the test, the vibrator should be measured after room-temperature storage for 4Hrs. Sample quantity : 4pcs	Acceleration variation : ±30% Rated current : 90mA Max

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6. Reliability test conditions 신뢰성 시험 조건																		
No	Items	규 격 / Specification		판정기준 /Judgement														
6-5	상온수명시험 Room Temperature life test	Operation at rated Input voltage(2.0Vrms AC,Sinewave), Input Frequency(175Hz) for 1,000,000cycle,On(2sec)/Off(1sec)		Acceleration variation : ±30% Rated current : 90mA Max														
6-6	저온수명시험 Low Temperature Life test	-20℃, Operation at rated Input voltage(2.0Vrms AC,Sinewave), Input Frequency(175Hz) for 53,000cycles, 2.5sec On/Off. Check cycle : 20,000cycles, Continue test to 300,000 cycles, Sample Quantity : 10pcs		Acceleration variation : ±30% Rated current : 90mA Max														
6-7	고온 고습 수명 시험 High Temperature Humidity life test	+60℃, 95% humidity, Operation at rated Input voltage (2.0Vrms AC, Sinewave), Input Frequency(175Hz) for 53,000cycles, 2.5sec on/off. Check cycle : 20,000cycles, Continue test to 300,000 cycles, Sample Quantity : 4pcs		Acceleration variation : ±30% Rated current : 90mA Max														
6-8	부식내구성시험 H2S Corrosion Resistance	+40±2℃, 80% humidity, Concentration : 3 ± 1ppm Test Duration time : 24hours Sample Quantity : 4pcs		Acceleration variation : ±30% Rated current : 90mA Max														
6-9	무진동 무작위 진동 시험 Non operating Random Vibration test	<table><tr><th colspan="2">Non-operating Random Vibration</th></tr><tr><td colspan="2">3 axes, 10 minutes per axis, 6.06Grms</td></tr><tr><th>Frequency(Hz)</th><th>A.S.D.(G2/Hz)</th></tr><tr><td>20</td><td>0.0098</td></tr><tr><td>80</td><td>0.04</td></tr><tr><td>350</td><td>0.04</td></tr><tr><td>2000</td><td>0.0069</td></tr></table> Sample Quantity : 4pcs		Non-operating Random Vibration		3 axes, 10 minutes per axis, 6.06Grms		Frequency(Hz)	A.S.D.(G2/Hz)	20	0.0098	80	0.04	350	0.04	2000	0.0069	Acceleration variation : ±30% Rated current : 90mA Max
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6-10	자유낙하 Free fall drop test	The Vibration that is attached to a 100gram dummy fixture is dropped to a steel floor from 150cm in height, Direction ±X, ±Y, ±Z(Total 6 faces) Each face 3 times, Sample Quantity : 4pcs		Acceleration variation : ±30% Rated current : 90mA Max														
6-11	진동력 시험 Vibration Grms Force test	Fixture Material : ABS(D=1.17~1.23 g/cm3), Fixture Weight : 100±5% g Fixture Dimension : 44mm length Cubic Sample Quantity : 4pcs																

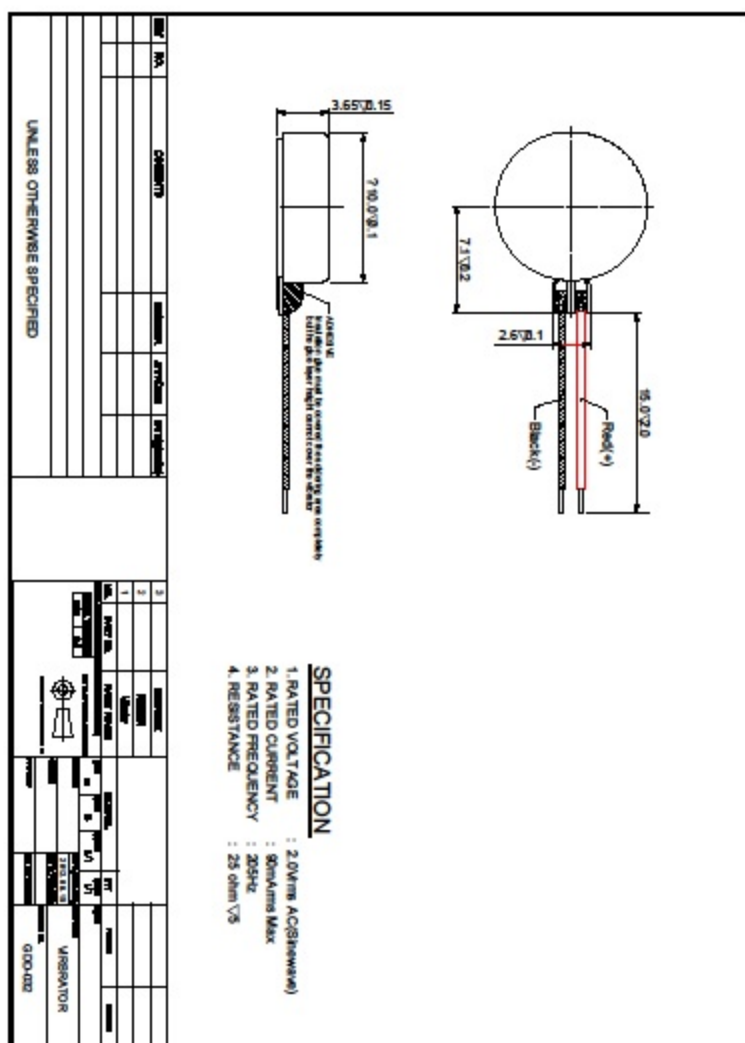
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7. 주의 사항 /Cautions (1) 사용 범위 관련 Allowable range for use 규격과 다르게 사용한 경우, 성능 및 수명에 문제가 발생할 수 있습니다. 전압등의 사용 범위에 주의하여 주십시오. Unless it is used in accordance with the specifications, the performance and life may be considerably reduced. Due attention should be paid to voltage and current ranges for use. (2) 보 관 Storage 유해한 gas 및 고온 다습한 장소의 보관은 모터에 저해요인이 되므로 주의하여 주시기 바랍니다. Avoid storing in high temperature, high humidity or corrosive gas environment. (3) 모터 취급 Handling of motor - 모터 취급시 가능한 한 케이스 부분을 가볍게 잡아 주십시오. To handle the motor, hold the motor case softly. - 모터에 자기를 띠는 물질(magnet)등을 근접 시키거나 접촉시키면 성능이 저하될 우려가 있기 때문에 피해 주십시오. Do not bring a magnetized object near or into contact with the surface because there is a fear of performance being deteriorated. - 자기에 흡착되는 물질(철,분말) 및 먼지 등이 모터에 혼입상태가 되면 회전불량,이상 음 발생으로 특성저하 및 신뢰성에 영향을 미치므로 취급 및 작업환경에 주의하여 주십시오. Due attention must be paid to the handling and working environments because such objects.			

8. 포장사양
/Packing



9. 도 면
/Drawing

9-1. Vibrator Outline Drawing



9. 도면
/Drawing

9-2. Mechanical Layout for Vibrator with Tape

