佛山鉉利電子有限公司
Vanson Electronics (NanHai) Co., Ltd.
HTTP:// www.veco.com.cn
Luocun Industrial zone Nanhai District Foshan city
Guangdong Province China Eail: fsveco@veco.com.cn
廣東省佛山市南海區羅村工業區 郵編:528226
TEL:+86-757-8126 6388 FAX:+86-757-8126 6389

Specification

規 格 書

品名 (Product Name)	揚聲器 (Speaker)
料號 (Model No.)	P3411KFG04T-040-1

Revision History			
Version	**Date**	**Description**	**Author**
00	2015/02/02	Preliminary	LHN
01	2015/10/22	更新規格	LHN
02	2018/05/16	修正測試條件	LHN

核準 (Approval)	高紅華	2018/05/16
審查 (Check)	曾憲財	2018/05/16
制作 (Author)	劉紅妮	2018/05/16

VECO *Vanson Electronics(Nanhai) Co., Ltd.*

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1.	**MODEL:**	**P3411KFG04T-040-1**
2	type:	Composite
3	Dimension & Weight &Type	Outer Diameter **34* 11** mm
		Baffle Opening
		Height **Refer to drawing** Weight **4.1** Grams
4	Magnet	Materials **NdFeB** Size **10.5*6.5*1.5** mm
5.	Impedance	**4** Ω ± 15 %,
6.	Power Rating	Normal **2.0** Watts Maximum **3.0** Watts Sine Wave in 3cc box
7.	Resonant Frequency	**320** ± 20 % Hz in free air
		650 ± 20 % Hz in 3cc box
8.	Output Sound Pressure Level (S.P.L.)	**80** ± 3 db 1.0 Watt・0.5 Meter in 3cc box on the baffle
		Average at 600Hz, 800Hz, 1KHz, 2KHz, 4KHz, 8KHz
9.	Frequency Range	Fo ~ 20K Hz. Average SPL – 10 db. in 3cc box on the baffle
10.	Distortion	**5** % Maximum At 1000 Hz. in 3cc box on the baffle
11	Abnormal Sound test	Must be Normal Tested By 2.83 Volts. Sine Wave in 3cc box
12	Load Test	Pink noise with HPF 2.83 Volts. (RMS.) **96** Hours. in 3cc box
13	Polarity	Diaphragm shall move Forward while Apply a Positive DC Signal to the " + " or " Marked " Terminal.
Above Measuring condition under temperature : 15~35℃ R.H. 25 ~75%. According to standard GB/T9396-1996		

Mechanical and vibration test

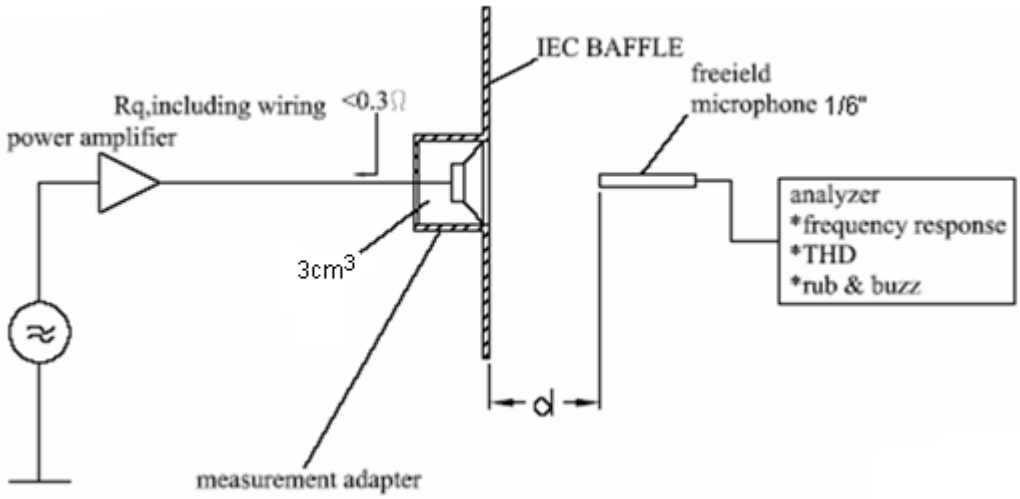
14	High Temperature	+ 60 ± 2 °C Humidity Random for 96 Hours. (GB2423.2-81)
15	Low Temperature	– 25 ± 2 °C Humidity Random for 96 Hours. (GB2423.1-81)
16	Humidity	+ 40 ± 2 °C Relative Humidity (RH) 90 ~ 95 % 96 Hours. (GB5170.18-87)
17	Vibration	Frequency 30 ± 15 Hz, Amplitude 1.5 mm for 3 Hours. (GB11606.8-89)
18	Drop test	75 CM free falling on Concrete floor, 10 times. (GB2423. 8-81)
After test leave speakers at room temperature for 1 hour, SPL shall not deviate by ± 3 db from pre-test Measurement, and meet above spec. item 6. 7. 8. 9. 10.		
19	Temperature Cycle test	– 25 ~ + 60 °C 4 Cycles Temperature test. (GB5170.18-87)
After test leave speakers at room temperature for 1 hour, SPL shall not deviate by ± 4 db from pre-test Measurement, and meet above spec. item 6. 7. 8. 9. 10.		

Please refer to next pages for more detailed testing method.

Test method and User precaution.

1. Characteristics measured according to standard GB/T 9396-1996
   1.1 Except other specified, measuring are under Temperature 15~35℃ R.H. 25 ~75%
   1.2. Judgement condition Temperature 20 ±2 R.H. 63~67%
   1.3 .Product shelf life is valid for 12 months only.

2. Output Sound Pressure Level (S.P.L.) and distortion testing setup



3. Environment & Mechanical test:

3.1 High Temperature: GB2423.2-81

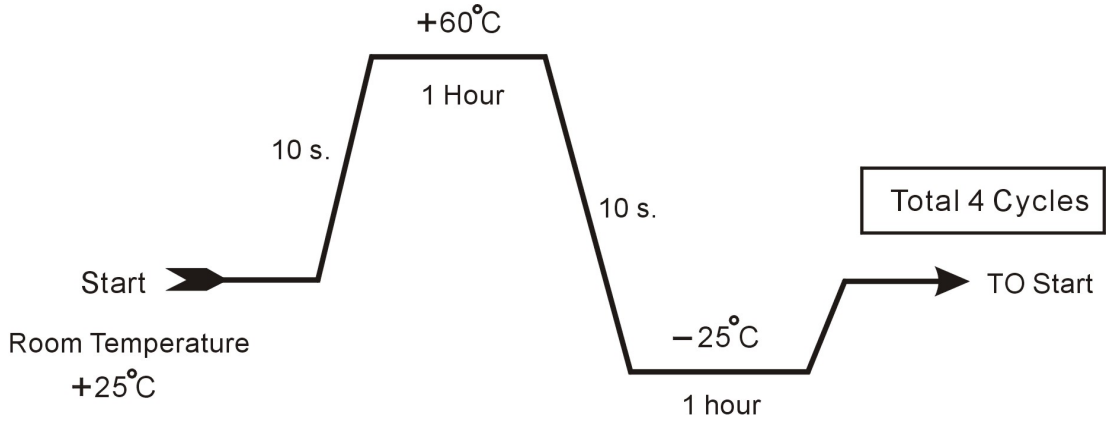
After exposure the speaker in the + 60 ± 2 °C chamber for 96 hours, then leave the speaker at room temperature for 1 hour, the SPL should not deviate by ± 3 db, and resonant frequency should not deviate by ± 50 Hz, compare with pre-test measurement.

3.2 Low Temperature: GB2423.1-81

After exposure the speaker in the –25 ± 2 °C chamber for 96 hours, then leave the speaker at room temperature for 1 hour, the SPL should not deviate by ± 3 db, and resonant frequency should not deviate by ± 50 Hz, compare with pre-test measurement.

3.3 Temperature cycle: GB5170.18-87

After exposure the speaker in the chamber, temperature cycle setting as below shows, SPL should not deviate by ± 4 db, and resonant frequency should not deviate by ± 80 Hz, compare with pre-test measurement.



3.4 Humidity: GB5170.18-87

After exposure the speaker in the + 40±2 °C, relative humidity 90% ~ 95% chamber for 96 hours, then leave the speaker at room temperature for 6 hours, the SPL should not deviate by ±3 db, and resonant frequency should not deviate by ±50 Hz, compare with pre-test measurement.

3.5 Vibration: GB11606.8-89

Frequency 30±15 Hz, Amplitude 1.5 mm for 3 Hours. After test, SPL shall not deviate by ±3 db from pre-test measurement,

3.6 Load test: GB/T 9396-1996

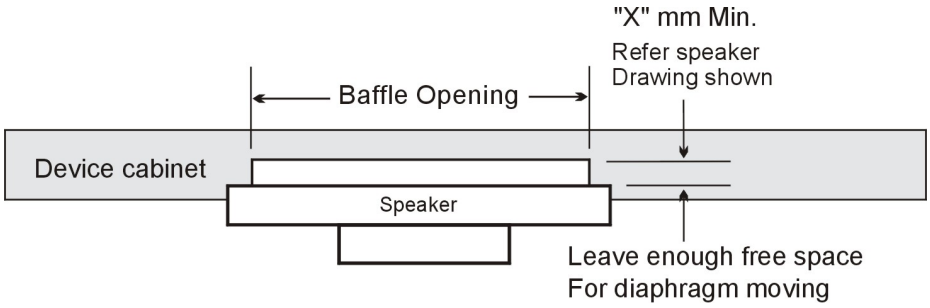
Speaker should not fail after apply 20 ~ 20K Hz Pink noise with HPF rated power input (RMS), 96 hours. After test, SPL shall not deviate by ±3 db from pre-test measurement,

3.7 Drop test: GB2423. 8-81

75 cm free falling on concrete floor, 10 times. After test, SPL shall not deviate by ±3 db from pre-test measurement,

4. Mounting precaution

In order to keep speaker work normally, there shall leave enough free space for diaphragm moving, minimum distance required is marked in speaker mechanical drawing.



5. Measuring & standard referenced

Abstract from GB/T 9396-1996 and IEC 268-5:1989 methods of measurement for main characteristics of loud speakers.

5.1 Rated sine voltage.

It is stipulated by manufacturer, sine signal voltage that make speaker work continuously in rated frequency range, but the speaker wouldn't be damaged heartily or mechanically. The persist time of the voltage is 1 hour.

5.2 The rated sine power.

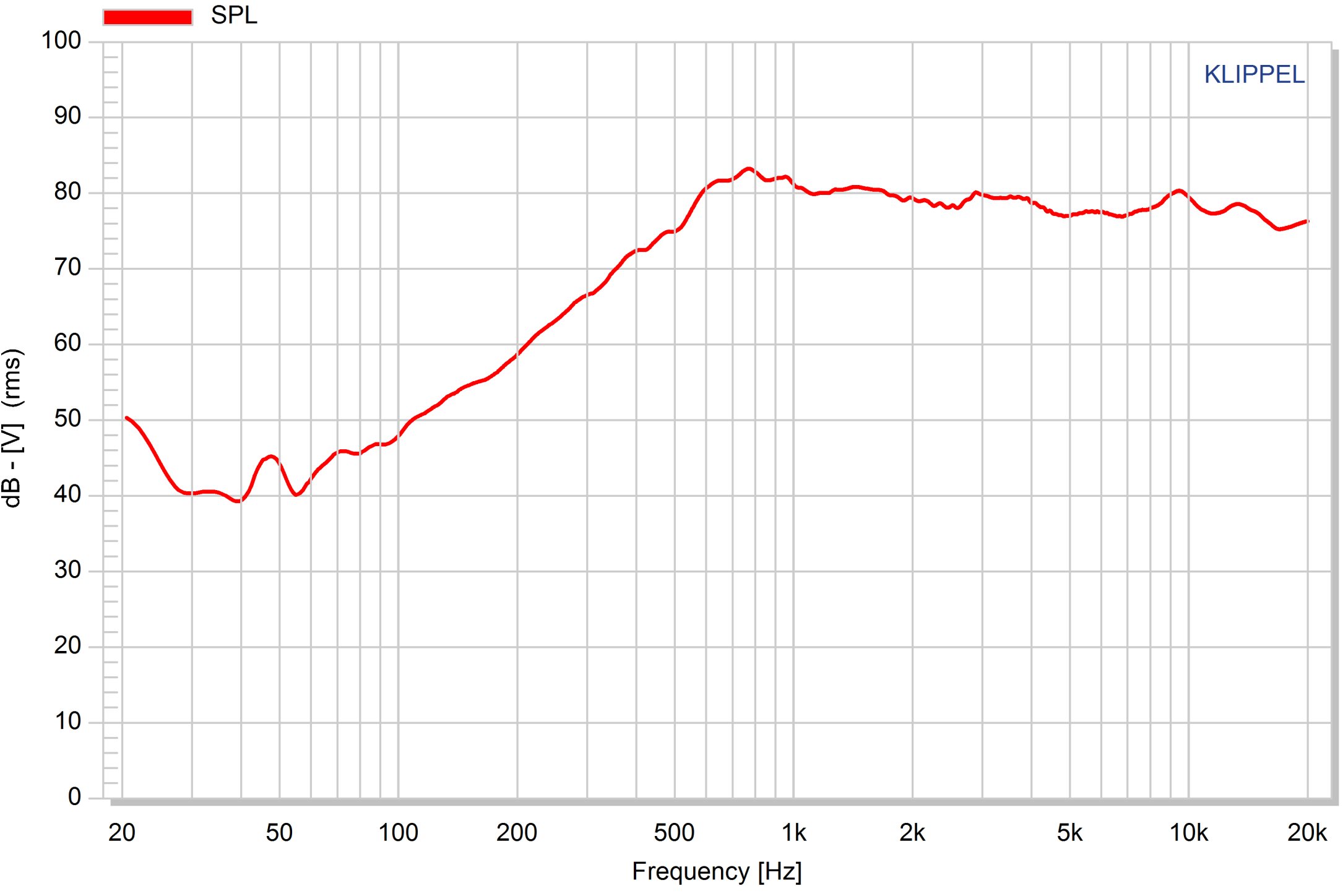
The rated sine power is corresponding with the rated sine voltage, its definition is U_s^2/R, Us indicates the rated sin voltage, R indicates the rated impedance.

5.3 The rated noise power.

The rated noise power is corresponding with the rated noise voltage, its definition is U_n^2/R, Un indicates the rated noise voltage, R indicates the rated impedance.

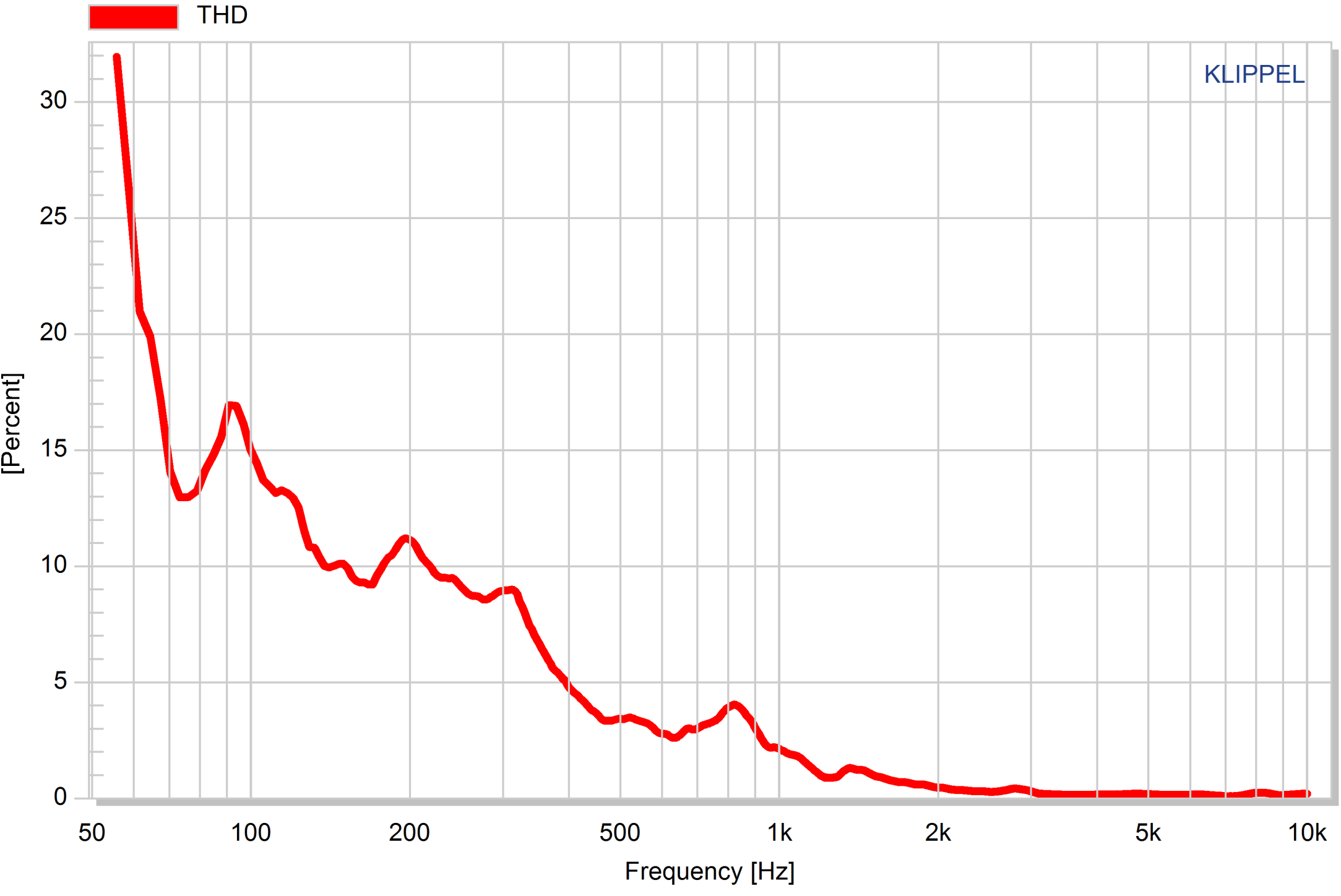
P3411KFG04T-040-1

1W / 0.5M in 3cc box on the baffle



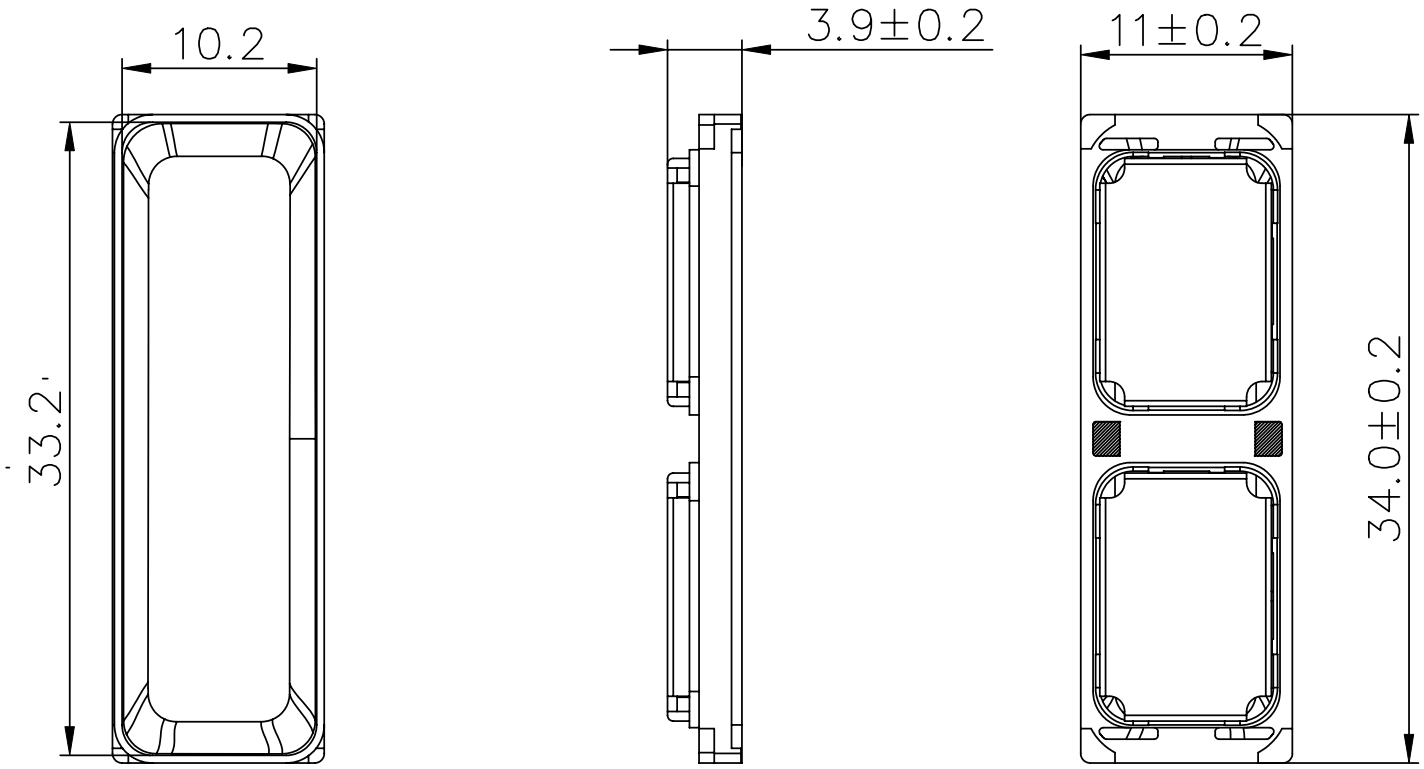
P3411KFG04T-040-1

1W / 0.5M in 3cc box on the baffle



NOTE:
1.加工要求：
2.表面處理：
3.制程重點：
4.檢驗重點：

不准使用鋶利
電子禁止使用的
環境管理物質



TOL / RANGE				√	
0–8	±0.05	±0.1	±0.15	±0.2	±1
8–16	±0.1	±0.15	±0.2	±0.2	±2
16–24	±0.15	±0.2	±0.3	±0.3	±2
24–50	±0.2	±0.25	±0.3	±0.4	±3
50–100	±0.25	±0.3	±0.5	±0.5	±3
>100	±0.3	±0.4	±0.4	±0.8	±5

Ⓚ CRITICAL DIMENSIONS | ENVIRONMENT REQUIREMENT:
COSTOMER PN: | VECO PN:
DATE: DD/MM/YYYY | MATERIAL: | COLOUR:

ITEM	Y/M/D	CONTENTS OF CHANGE	SPONSOR

Vanson Electronics (Nanhai) Co., Ltd.
鋶利電子
E-MAIL: foshan@veco.com.cn
TEL:+86-757-88536828 FAX:+86-757-88536826

Title: P3411KFG04T-040-1

Unit: mm | VER: 00 | Appr.:
Scale: 1:1 | CHK.: | Dwg.: 曾憲財

P3411KFG04T-040-1 T&S Parameters(using laser)

Item	VECO Parameters	units	definition
Electrical Parameters			
Re	3.87	Ohm	electrical voice coil resistance at DC
Le	0.026	mH	frequency independent part of voice coil inductance
L2	0	mH	para-inductance of voice coil
R2	0	Ohm	electrical resistance due to eddy current losses
Cmes	389.1	凍	electrical capacitance representing moving mass
Lces	0.78	mH	electrical inductance representing driver compliance
Res	2	Ohm	resistance due to mechanical losses
fs	318	Hz	driver resonance frequency
Mechanical Parameters			
(using laser)			
Mms	0.202	g	mechanical mass of driver diaphragm assembly including air load and voice coil
Mmd (Sd)	0.199	g	mechanical mass of voice coil and diaphragm without air load
Rms	0.259	kg/s	mechanical resistance of total-driver losses
Cms	1.513	mm/N	mechanical compliance of driver suspension
Kms	0.66	N/mm	mechanical stiffness of driver suspension
Bl	0.72	N/A	force factor (Bl product)
Lambda s	0.407		suspension creep factor
Loss factors			
Qtp	0.93		total Q-factor considering all losses
Qms	1.411		mechanical Q-factor of driver in free air considering Rms only
Qes	2.728		electrical Q-factor of driver in free air considering Re only
Qts	0.93		total Q-factor considering Re and Rms only
Vas	0.0153	l	equivalent air volume of suspension
n0	0.013	%	reference efficiency (2 pi-radiation using Re)
Lm	73.29	dB	characteristic sound pressure level (SPL at 1m for 1W @ Re)
Lnom	73.43	dB	nominal sensitivity (SPL at 1m for 1W @ Zn)
rmse Z	3.48	%	root-mean-square fitting error of driver impedance Z(f)
rmse Hx	9.17	%	root-mean-square fitting error of transfer function Hx (f)
Series resistor	0	Ohm	resistance of series resistor
Sd	2.67	cm	diaphragm area