MESSRS.

SPECIFICATION FOR APPROVAL
承 认 书

Product	**动态式扬声器 DYNAMIC SPEAKER**
Part No.	**HDK-241508EA-13C2 (RoHS)**
Customer	
Customer Part No.	

Approved By	Checked By	Made By
王台平 EDC-21-2018	曹丽萍 EDC-21-2018	LILY EDC-21-2018

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EDITION:1.1

1.Specification

HDK-241508EA-13C2(RoHS)

ITEM		SPECIFICATIONS	
01	Type 属性	Dynamic speaker 动态式扬声器	
02	Dimension 尺寸	External diameter 24*15mm 外径 24*15mm	
03	Rated Input Power 额定输入功率	1.5W	
04	Max. Input Power 最大输入功率	1.7W for 1 minute 1.0W 在内 1 分钟	
05	Impedance 阻抗	8 ohm ± 15% at 2000Hz 1.0V	
06	Resonance Frequency (Fo) 谐振频率	950Hz ± 20% at Fo 1V	
07	Sensitivity (S.P.L.)灵敏度	100dB (1.5W / 0.1m) ± 3 dB	at AVE 0.8K,1.0K,1.2K,1.5KHz
	Cavity Volume 测试腔体体积	前腔体积：0.5±0.1cc 后腔体积：6.0±0.5cc	
08	Frequency Range 频率范围	Fo – 20KHz	
09	Total Harmonics Distortion 谐波失真	Max 8 % at 1 KHz,1.0W.	
10	Voice Coil 音圈	Diameter 8.9 mm	
11	Magnet 磁铁	Rare earth permanent (Nd-Fe-B) magnet Φ8.4*1.2mm 钕铁硼材质外径Φ8.4*1.2mm	
12	Weight 重量	2.8g ± 0.2g	
13	Appearance 外观	Should not exist any obstacle to be harmful to normal operation; damages, cracks, rusts and distortions, etc. 沒有會影響功能的:損壞,裂痕,鏽跡,變型等	
14	Operation Test 工作测试	Must be normal at program source – 1.5W 测试的工作功率為 1.5W	
15	Buzz, Rattle, etc.异音测试	Should not be audible at 3.46V sine Wave between Fo to 20KHz 加電壓 3.46V 频率 Fo 到 20KHz 的正旋波時不會聽到任何杂音	
16	Polarity 极性	When positive voltage is applied to the terminal marked (+), diaphragm should move to the front. 正電壓接至(+)極時,音膜振動是朝向喇叭前方	
17	Terminal Strength 端子强度	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection. 能夠承受 1kg 負載達 30 秒不會造成任何損壞	
18	Temperature 温度	Operating temperature: -20℃ to +70℃ 工作温度：-20℃ to +70℃ Storage temperature: -30℃ to +80℃ 储存温度：-30℃ to +80℃	

2-1.Test Condition 测试条件

Standard 标准测试

Temperature 温度 : 15 ~ 35℃

Relative humidity 相对湿度 : 25% ~ 85%,

Atmospheric pressure 大气压力 : 860mbar to 1060mbar.

Basic 基本测试

Temperature **温度**: 20±3℃

Relative humidity **相对湿度**: 60% ~ 70%,

Atmospheric pressure **大气压力**: 860mbar to 1060mbar

2-2. Standard Test Fixture 标准测试设备

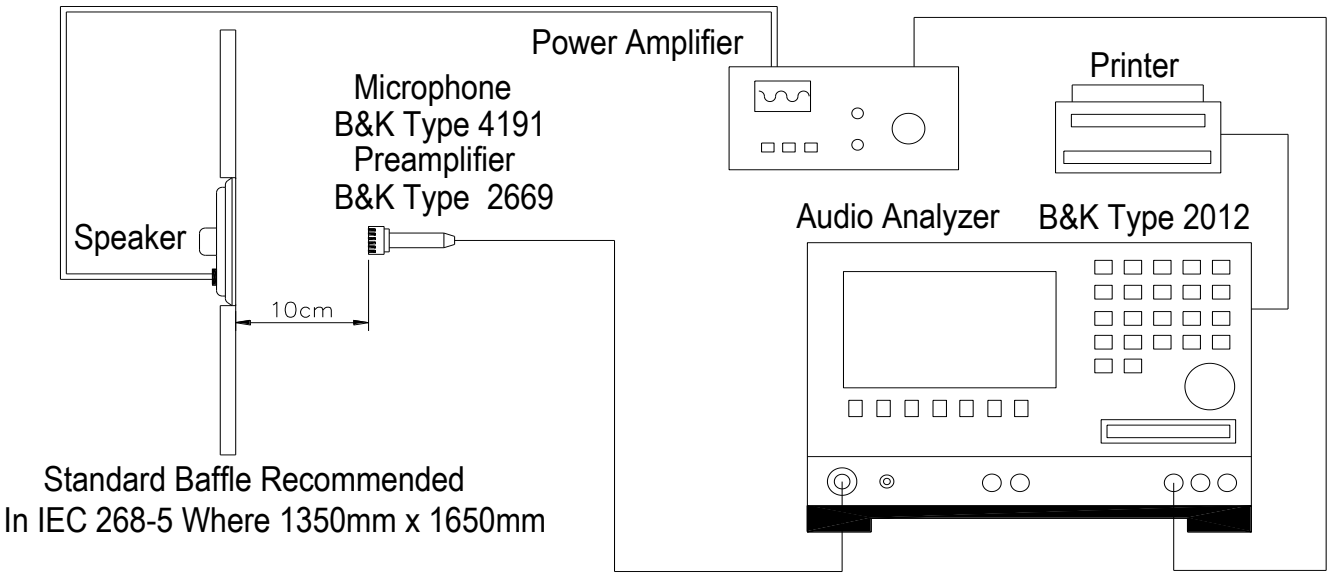
1.Input Power 输入功率: 1.5W (3.46V)

2.Zero Level : -dB

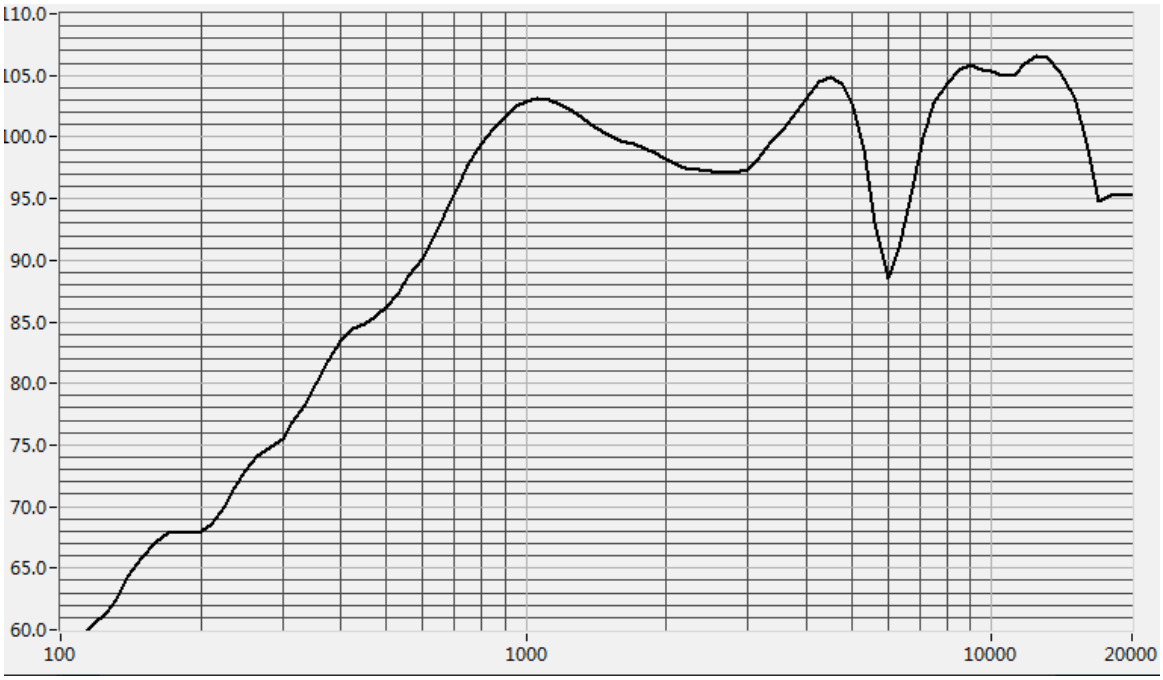
3.Mode 模式: SPEAKER 喇叭

4.potentiometer Range : 50dB

5.Sweep Time 扫描时间: 0.5sec

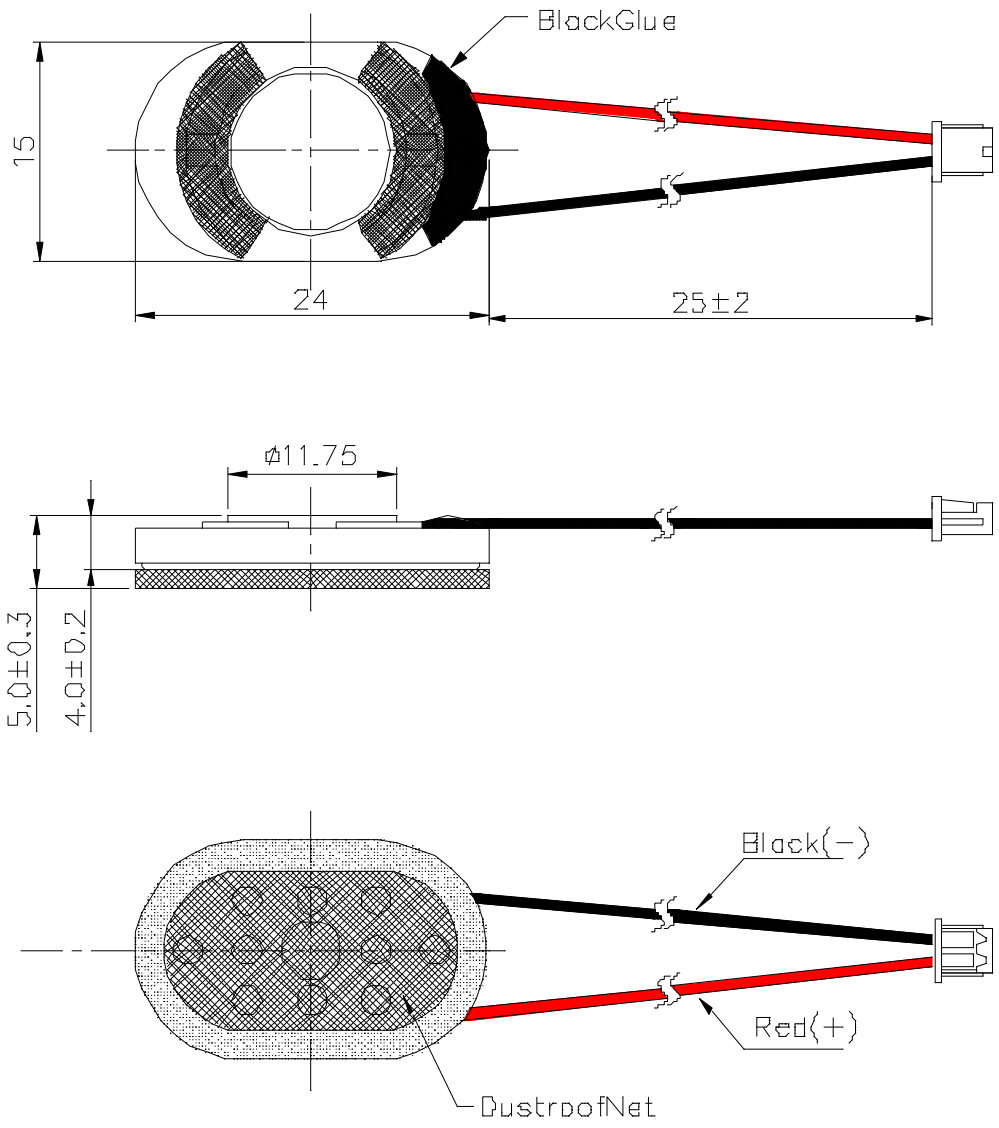


2.3 Frequency Response Curve　频响曲线



3.Dimension 尺寸

REV NO.	REVISION NOTE	APPROVAL	DATE

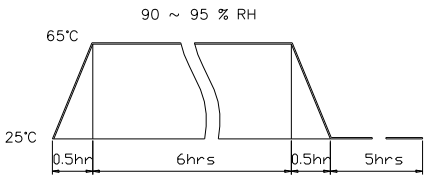


Terminal: MOLEX-51021-0200 Capable
Wire: UL1571 AWG30
Diaphragm: mylar
Case: PBT

TITLE: DYNAMIC SPEAKER		DRAWN: Lily 2016/12/21	SCALE: 2/1	SHEET:1 OF 1
		DESIGNED: R&D OF DS	UNITS: mm	
PART NO. HDK-24150BEA-15CX	1	CHECKED: Emily	TOLERANCE ± 0.2	
		APPROVAL: Eric	UNLESS OTHERWISE SPECIFIED: ONE PLACE DECIMAL ± *** TWO PLACE DECIMAL ± ** THREE PLACE DECIMAL ± *	
DWG NO. DSE-3077	REV	MATERIAL: PBT		

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4.Reliablity Test 可靠性测试

Items.		Specifications
01	**High temp. Test** **高温测试**	Keep 96 hours at +70℃±3℃ and leave 3 hours in normal temperature and then check **+70℃±3℃持续 96 小时, 在常温下存放 3 小时后测试**
02	**Low temp. Test** **低温测试**	Keep 96 hours at -20℃±3℃ and leave 3 hours in normal temperature and then check **-30℃±3℃持续 96 小时, 在常温下存放 3 小时后测试**
03	**Humidity test** **湿度测试**	Keep 96 hours at + 40℃±3℃ relative humidity 95% and leave 3 hours in normal temperature and then checked. **+40℃±3℃相对湿度 95%持续 96 小时,在常温下存放 3 小时后测试**
04	**Temp./Humidity cycle** **温湿度循環测试**	The part shall be subjected 5 cycles. One cycle shall be 12 hours and consist of; **在以下条件 5 次循环，每次 12 小时，在常温下存放 3 小时后测试** 
05	**Thermal cycle test.** **热循環测试**	Low temperature: -30℃±3℃, temperature:+70℃±3℃, cycle: 1 hour/cycle each, and then keep 5 cycles in a room. **低温-30℃±3℃高温+70℃±3℃一小时一个周期，同一个试验箱 5 个周期**
06	**Vibration** **振动测试**	10~200~10Hz sin-wave sweep 15min. 5G(constant) X,Y, Z 3 direction. 2 hours each, total 6 hours. **10~200~10Hz 正弦波振动 15 分钟，X,Y, Z 三个面，2 小时一次，共 6 小时**
07	**Fix drop test** **固定跌落测试**	Fix on jig. Then drop from 152cm height to the concrete floor X, y, z 6 direction. 5 times each, total 30 times. **固定夹具中，152cm 跌落水泥地，X,Y, Z 六个面，每面 5 次，共 30 次**
08	**Free drop test** **自由跌落测试**	Free drop from 100cm height to the concrete floor X, y, z 6 direction. 1 times each, total 6 times. **100cm 跌落水泥地，X,Y, Z 六个面,，每面 1 次，共 6 次**
09	**Rated Power test** **额定功率测试**	Rated Power white noise is applied for 96 hours **额定功率白噪声持续 96 hours**
10	**Max Power test** **最大功率测试**	Max power 1 min on – 2 min off 10 cycles. **最大动率 1 分钟通，停 2 分钟，10 次循环**
11	**Terminal strength test** **拉力测试**	Capable of withstand 1kg load for 30 seconds without resulting in any damage or rejection **1kg 拉力 30 秒，没有导致产品损坏**
Criterion: After these test , the change of S.P.L shall be within ±3 dB . 所有试验后，音压都在 ±3 dB 之内		

Soldering Condition 焊接条件

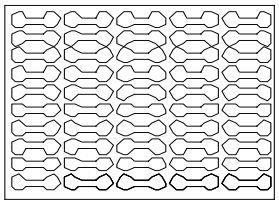
Recommend using constant branding iron in **15 ~ 30W**, and in temperature range **350±10°C**.Soldering time not over **3** seconds.

5.Packing 包装

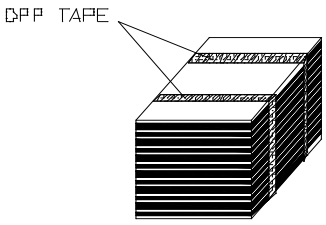
REV NO.	REVISION NOTE	APPROVAL	DATE



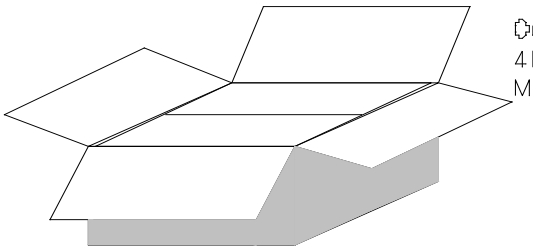
Cover(325*245*5mm)
Material:Paper



Box(325*245*13mm)
100pcs
Material:Paper+Epe



Middle(325*245*155mm)
1000pcs(10*100pcs)
Material:Paper+Epe



Outer Box(490*360*350mm)
4000pcs(4*1000pcs)
Material:Paper

单位：mm

TITLE: packing	DRAWN: Lily 2015/09/25	SCALE: 2:1	SHEET: 1 of 1
PART NO.	DESIGNED: R&D OF D.S.	UNITS: mm	
	CHECKED: Emily	TOLERANCE	
DWG NO. 1	APPROVAL: Eric	20~11	± 0.3
REV	MATERIAL: ***	10~5	± 0.2
		<4	± 0.1

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6.History change record 变更记录

Change Items	Date	Note	Drawn by	Checked by
	2018-12-21	First Issue	Lily	王台平 2018-12-21