

MESSRS.

SPECIFICATION FOR APPROVAL**承 認 书**

Product	动态式扬声器 DYNAMIC SPEAKER
Part No.	HDK-151106ZA-5W20 (RoHS)
Customer	
Customer Part No.	X4

Approved By	Checked By	Made By
王台平 MAY-09-2020	曹丽萍 MAY-09-2020	LILY MAY-09-2020

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1. Specification

HDK-151106ZA-5W20(RoHS)

ITEM		SPECIFICATIONS
01	Type 属性	Dynamic speaker 动态式扬声器
02	Dimension 尺寸	External diameter 15*11 mm 外径 15*11mm
03	Rated Input Power 额定输入功率	1.0W In 1cc Box 1.0W 在 1CC 腔体内
04	Max. Input Power 最大输入功率	1.2W In 1cc Box For 1 Minute 1.2W 在 1CC 腔体内 1 分钟
05	Nominal Impedance 阻抗	6 ohm $\pm$ 15% at 2KHz.
06	Resonance Frequency (Fo) 谐振频率	1100Hz $\pm$ 20% (in 1cc box) (在 1CC 腔体内)
07	Sensitivity (S.P.L.) 灵敏度	92 $\pm$ 3 dB /1.0W/0.1m at (0.8,1.0,1.2,1.5)KHz
08	Frequency Range 频率范围	Fo – 20KHz
09	Dustproof and Waterproof 防水	IP67
10	Total Harmonics Distortion 谐波失真	Max 10% at 1 KHz,1.0W.
11	Weight 重量	4.5g $\pm$ 5%g
12	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
13	Operation Test 工作测试	Must be normal at program source – 1.0W 测试的工作功率為 1.0W
14	Buzz, Rattle, etc. 异音测试	Must be normal at sine wave 2.45Vrms(in 1.0cc box) from 300~5KHz 加電壓 2.45V 頻頻 300 to 5KHz 的正旋波時不會聽到任何雜音
15	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
16	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
17	Temperature 温度	Operating temperature: -20℃ to +70℃ 工作溫度: -20℃ to +70℃ Storage temperature: -20℃ to +70℃ 儲存溫度: -20℃ to +70℃

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 标准测试设置

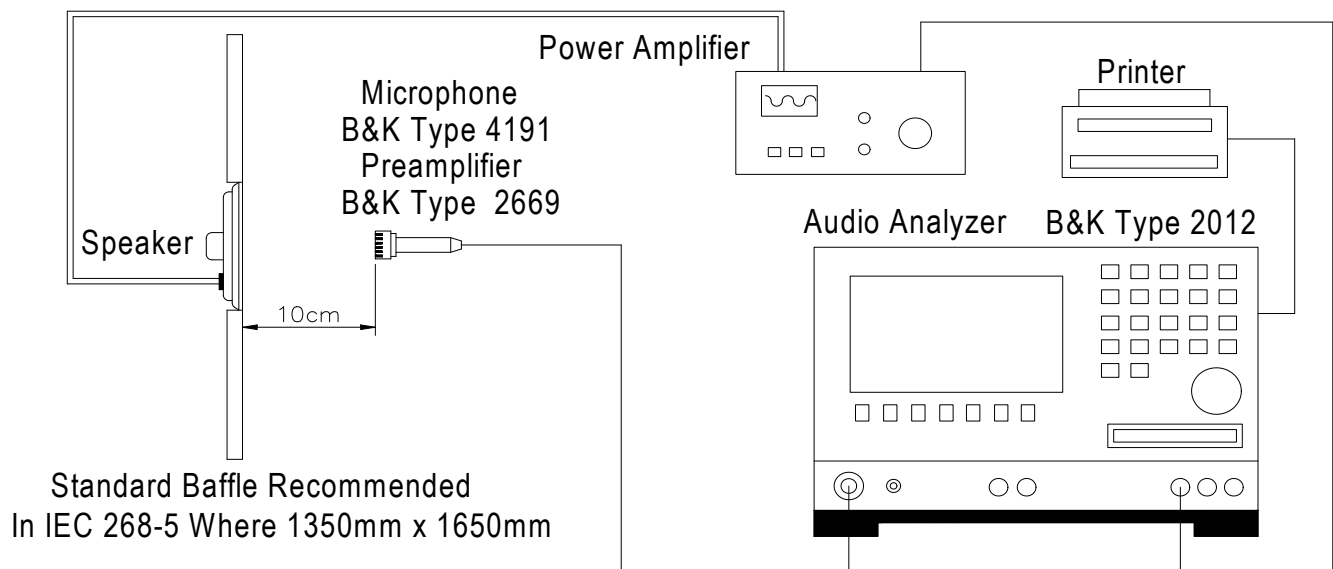
1.Input Power 输入功率: 1.0W (2.45V)

2.Zero Level : -dB

3.Mode 模式 : SPEAKER 喇叭

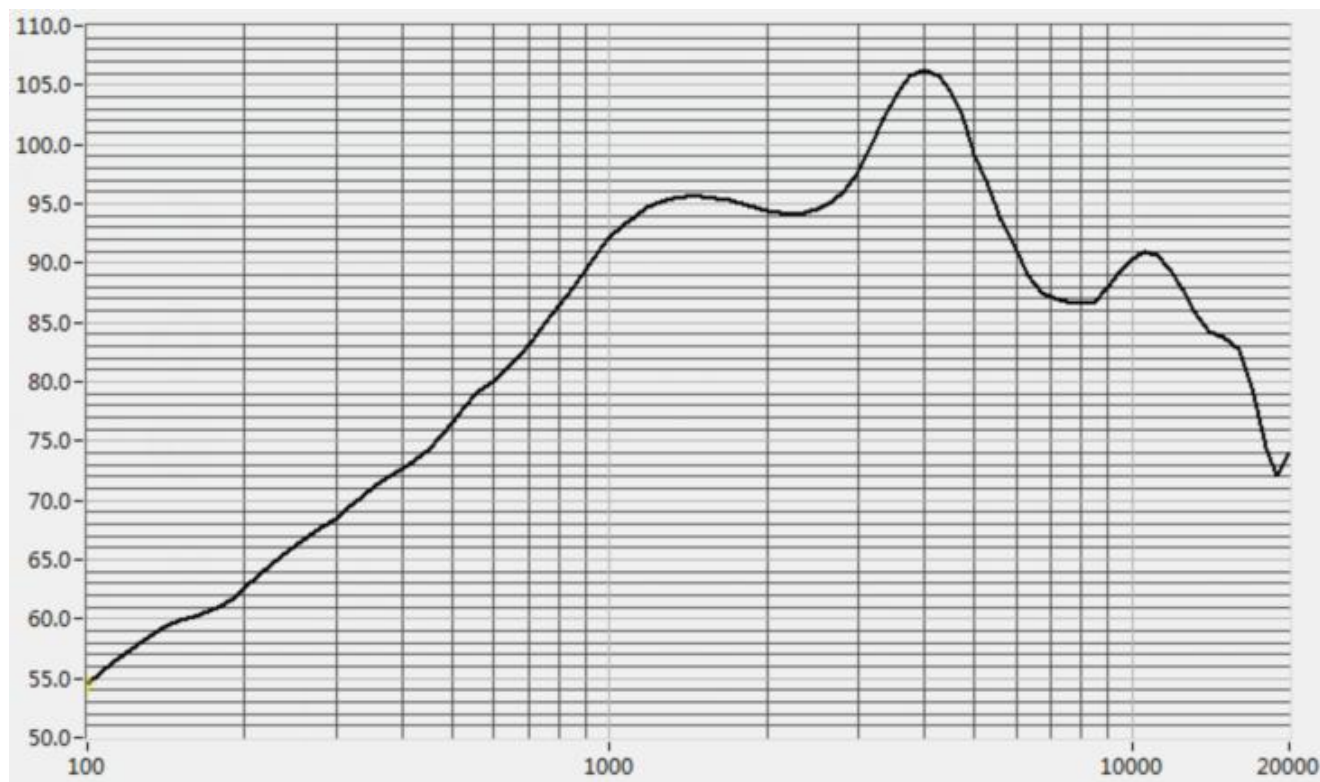
4.potentiometer Range : 50dB

5.Sweep Time 扫描时间 : 0.5sec

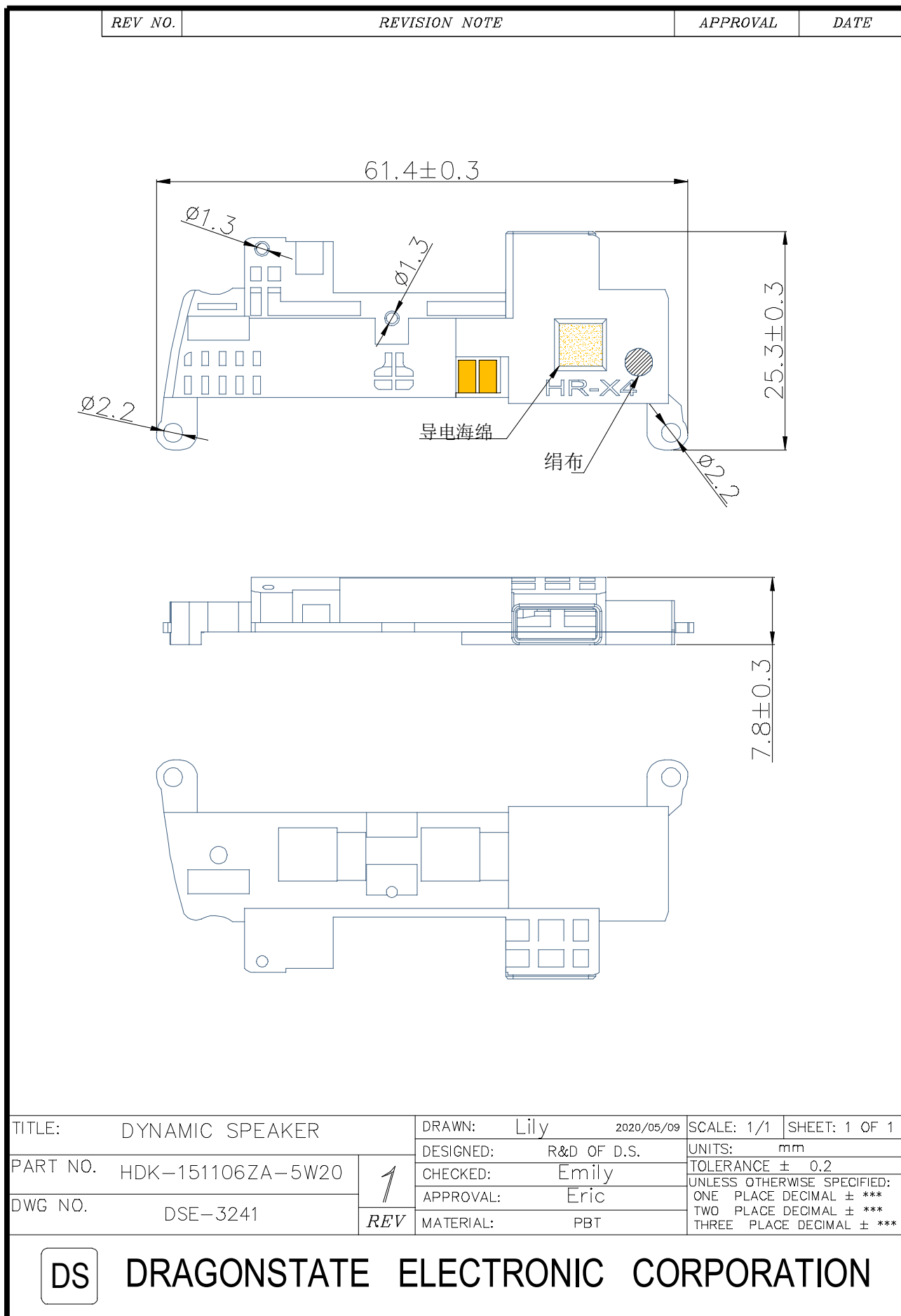


2-3.Frequency Response Curve 频响曲线

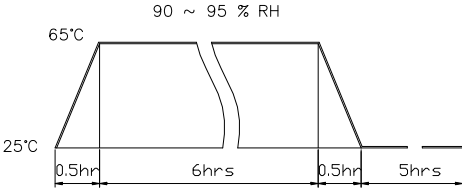
FR 1.0W /10cm(2.45V)



3.Dimension 尺寸



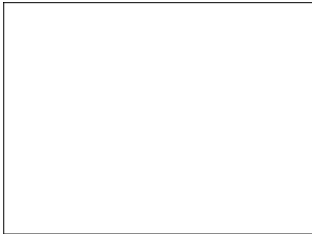
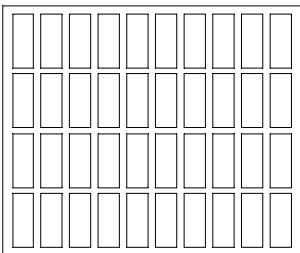
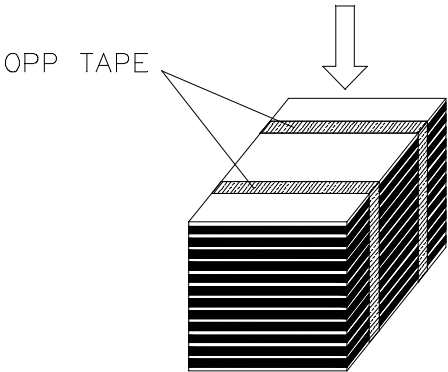
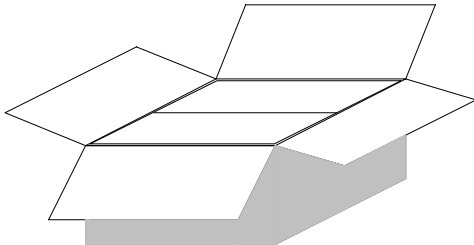
4. Reliability Test 可靠度测试

Items.		Specifications
01	High temp. Test 高温测试	Keep 96 hours at $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and leave 3 hours in normal temperature and then check $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 $+40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ relative humidity 95% and leave 3 hours in normal temperature and then checked. $+40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 温湿度循环测试	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. 热循环测试	Low temperature: $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$, temperature: $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$, cycle: 1 hour/cycle each, and then keep 5 cycles in a room. 低温 $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 高温 $+70^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 Pinknoise is applied for 96 hours 额定功率粉噪声持续 96 hours
10	Max Power test 最大功率测试	Max power 1 min on – 2 min off 10 cycles. 最大功率 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 $\pm 3\text{ dB}$. 所有试验后, 音压都在 $\pm 3\text{ dB}$ 之内		

Soldering Condition 焊接条件

Recommend using constant branding iron in 15 ~ 30W, and in temperature range $350 \pm 10^{\circ}\text{C}$. Soldering time not over 3 seconds. 推荐使用恒温烙铁 15~30W, 在温度范围 $350 \pm 10^{\circ}\text{C}$. 焊接时间 2 秒。

5.Packing 包装

REV NO.	REVISION NOTE	APPROVAL	DATE
	 Cover(290*225*3mm) Material: Paper		
	 Box(290*225*10mm) 40pcs Material: Paper+Epe		
	 Middle(290*225*135mm) 400pcs(10*40pcs) Material: Paper+Epe		
	 Outer Box(515*320*280mm) 1600pcs(4*400pcs) Material: Paper		
单位: mm			
TITLE: Packing		DRAWN: Lily 2020/05/09	
PART NO.		DESIGNED: R&D OF D.S.	
DWG NO.		CHECKED: Emily	
1 REV		APPROVAL: Eric	
		MATERIAL:	
		SCALE: 2:1	SHEET: 1 of 1
		UNITS: mm	
		TOLERANCE	
		20~11	± 0.3
		10~5	± 0.2
		<4	± 0.1
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