

# 承认书

## SPECIFICATION FOR APPROVAL

**[ TO: ]**  
**NO.:**

产品型号 (MODEL NO) : **YZ4015P-403-G**

指向性 (DIRECTINITY) : 全指向性 (Omni-directional)

CUSTOMER	接收 Prepared	复核 Checked	批准 Approved
XINGLONG	编制 Prepared	复核 Checked	批准 Approved
	忻兴志	张建国	张建国

# SPECIFICATION HISTORY

## 规格确认历程

History Change 更改记录	Date 日期	Item 项目	Contents 内容	Grounds 范围
ISSUE 确认  From 开始  To 到	2012 .03 .25			
ISSUE 确认  From 开始  To 到	201 , ,			
ISSUE 确认  From 开始  To 到	201 , ,			
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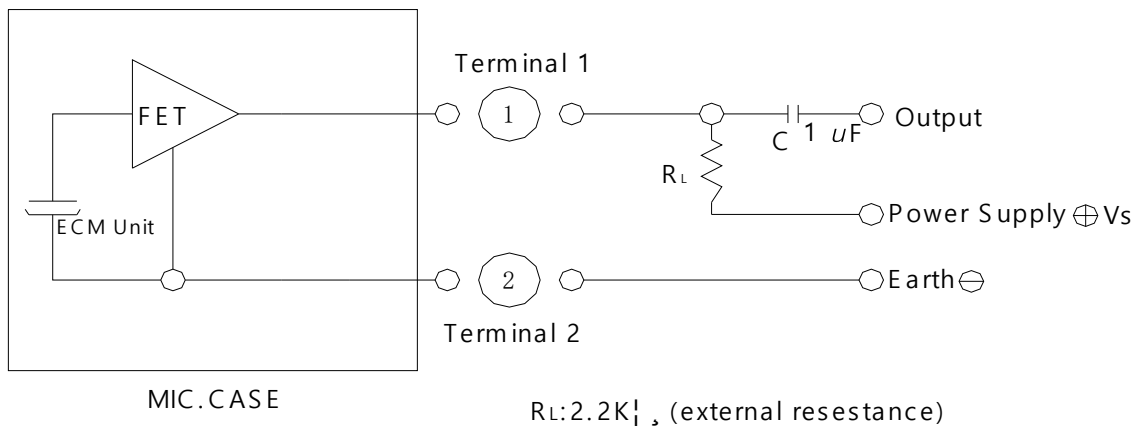
1. SCOPE 范围	This specification shall be applied to electret condenser microphone(ECM) 本规格说明书适用于驻极体传声器
2. MODEL NO. 产品型号	HM4015P-383-G

3 ELECTRICAL CHARACTERISTICS 电气特性

Temp. 环境温度	20 ± 2°C
Room Humidity 相对湿度	65 ± 5%

NO. 序号	Parameter 参数	Symbol 符号	Condition 测试条件	Limits 范围			Unit (单位)
				Min. 最小值	Center 中心值	Max. 最大值	
1	Sensitivity 灵敏度	S	f=1kHz, S.P.L=1Pa, 0dB=1V/Pa	-38	-37	-36	dB
2	Output impedance 输出阻抗	Z <sub>OUT</sub>	f= 1kHz			2.2	KΩ
3	Current Consumption 消耗电流	I <sub>DD5</sub>	V <sub>CC</sub> =2.0V, R <sub>L</sub> =2.2KΩ	150		500	μA
4	Signal to Noise Ratio 信噪比	S/N	f=1kHz, S.P.L=1Pa	60			dB
5	Decreasing Voltage 减电压灵敏度	ΔS-VS	V <sub>CC</sub> =2.0V to 1.5V			-3	dB
6	Operating Voltage 工作电压			1		10	V
7	Maximum input S.P.L 最大输入声压					110	dB

4.MEASUREMENT CIRCUIT 测试电路



5. TYPICAL FREQUENCY RESPONSE CURVE (FAR FIELD) 频响曲线

Far Field Measurement Condition 自由场测试条件

Temperature 温度 : 20 ± 2 °C

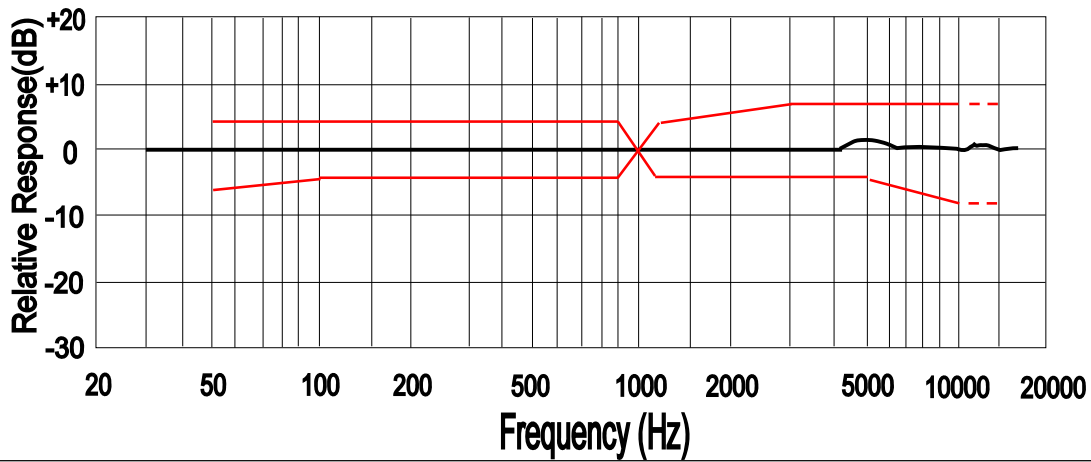
Bias Voltage 基准电压: 2.0V (with 2.2KΩ series resistor 2.2KΩ 电阻)

Acoustic stimulus :1Pa (94Db SPL at 1 KHZ) at 50cm from the loud-speaker.

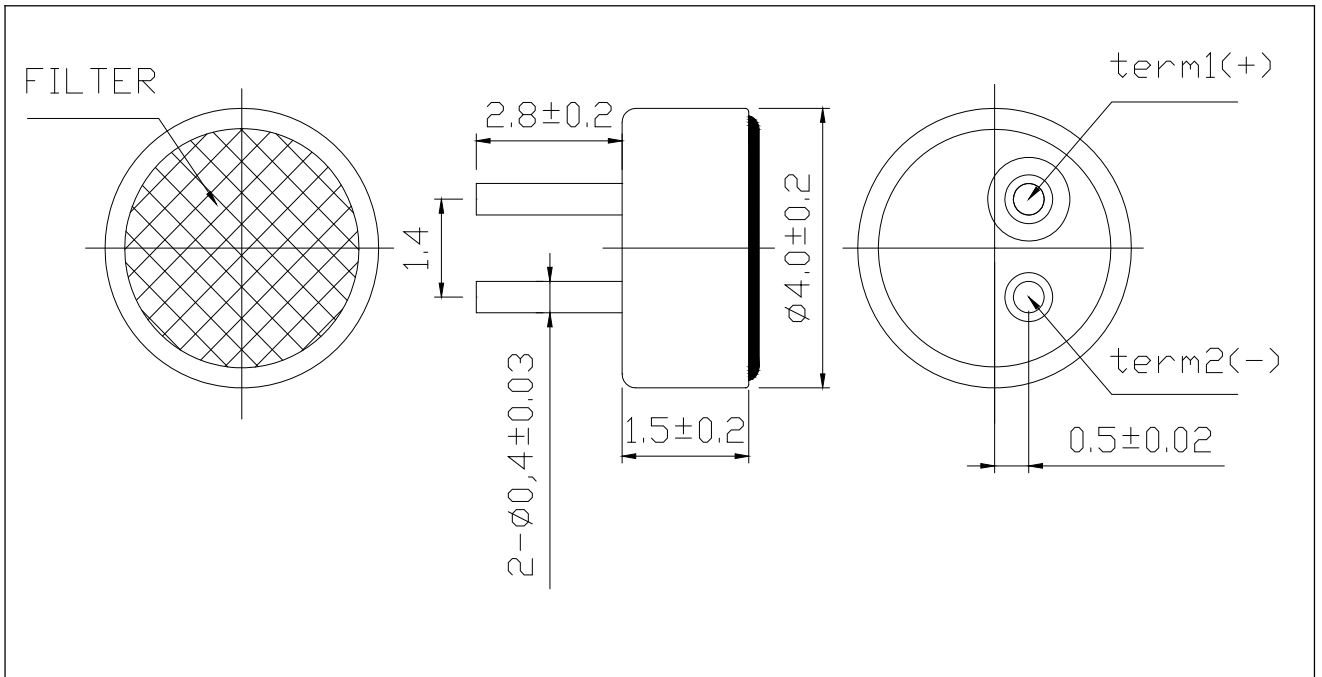
声音条件: The loud-speaker must be calibrated to make a flat frequency response input signal  
距离扬声器 50cm 出产生 1Pa 声压。 扬声器必须先用标准输入信号事先校准。

Position: The frequency response of microphone unit measured at 50cm from the loud-speaker

位置 : 扬声器距离待测话筒 50cm.



6. DIMENSIONAL DRAWING 外形图



7. RELIABILITY TEST 可靠性测试	
7.1 VIBRATION TEST 振动测试	<p>1 minute frequency from 10Hz to 55Hz, amplitude 1.52mm, the vibration in three directions test 2 hours, the sensitivity deviation range of <math>\pm 3\text{dB}</math></p> <p>1 分钟频率变化从 10Hz 到 55Hz, 振幅在 1.52mm, 在三个方向测试振动 2 小时, 灵敏度偏离范围在 <math>\pm 3\text{dB}</math></p>
7.2 DROP TEST 跌落测试	<p>Three directions with the regular packaging of free fall from 1 meter at the concrete floor, the sensitivity range of <math>\pm 3\text{dB}</math> deviation from the</p> <p>以正规包装的三个方向从 1 米高处自由落到混凝土地面时, 灵敏度偏离范围在 <math>\pm 3\text{dB}</math></p>
7.3 TEMPERATURE TEST 温度测试	<p>-After exposure at <math>70^{\circ}\text{C}</math> for 72 hours, sensitivity to be within <math>\pm 3\text{dB}</math> from initial sensitivity</p> <p>在 <math>70^{\circ}\text{C}</math> 环境中维持 72 小时, 灵敏度偏离范围在 <math>\pm 3\text{dB}</math>.</p> <p>(The measurement to be done after 3 hours of conditioning at room temperature 测试在室内温度下放 3 小时后进行)</p> <p>-After exposure at <math>-20^{\circ}\text{C}</math> for 72hours, sensitivity to be within <math>\pm 3\text{dB}</math> from initial sensitivity</p> <p>在 <math>-20^{\circ}\text{C}</math> 环境中维持 72 小时, 灵敏度偏离范围在 <math>\pm 3\text{dB}</math>.</p> <p>(The measurement to be done after 3 hours of conditioning at room temperature 测试在室内温度下放 3 小时后进行)</p>

<p>7.4 HUMIDITY TEST 湿度测试</p>	<p>After exposure at 40°C and 90% relative humidity for 72 hours ,sensitivity to be within <math>\pm 3\text{dB}</math> from initial sensitivity 在 40°C 温度和 90% 相对湿度的环境下持续 72 小时，灵敏度偏离范围在 <math>\pm 3\text{dB}</math>。 (The measurement to be done after 3 hours of conditioning at room temperature 测试在室内温度下放 3 小时后进行)</p>
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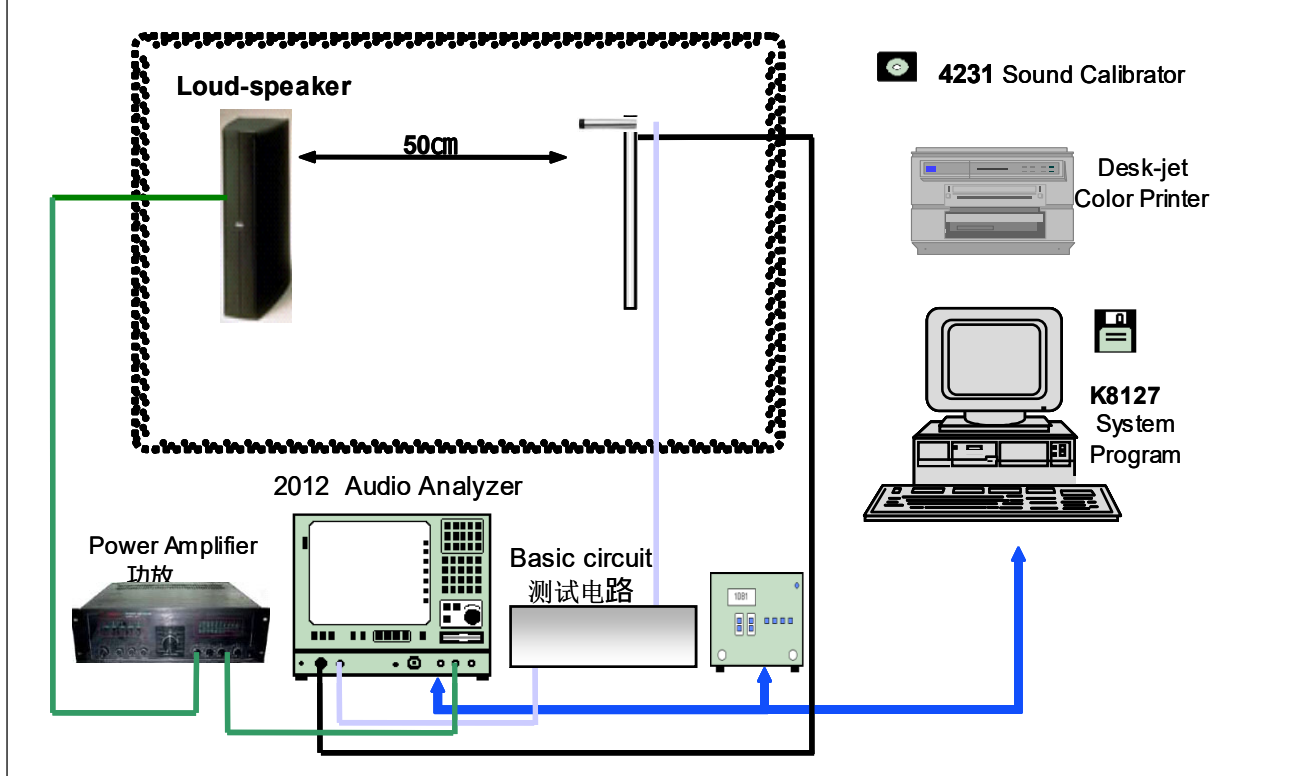
<p>7.5 TESTCONDITION 测试条件</p>	<p>Standard Test Condition: a) Temperature: <math>+15^{\circ}\text{C} \sim +35^{\circ}\text{C}</math> b) Humidity: 45%-75% c) Pressure: 86 kPa -106kPa 标准测试条件: a) 环境温度: <math>+15^{\circ}\text{C} \sim +35^{\circ}\text{C}</math> b) 相对湿度: 45%-75% c) 大气压力: 86 kPa -106kPa Judgement Test Condition: a) Temperature: <math>(20 \pm 2)^{\circ}\text{C}</math> b) Humidity: 60%-70% c) Pressure: 86 kPa -106kPa 判定测试条件 : a) 环境温度: <math>(20 \pm 2)^{\circ}\text{C}</math> b) 相对湿度: 60%-70% c) 大气压力: 86 kPa -106kPa</p>
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8 TEMPERATURE CONDITIONS 温度条件

<p>8.1 STORAGE TEMPERATURE 贮存温度:</p>	<p><math>-20^{\circ}\text{C} \sim +70^{\circ}\text{C}</math></p>
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<p>8.2 OPERATING TEMPERATURE 操作温度:</p>	<p><math>-20^{\circ}\text{C} \sim +70^{\circ}\text{C}</math></p>
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9. MEASUREMENT SYSTEM 测量系统



## 10. REGARDING THE SOLDERING OPERATION 焊接注意事项

Every ECM contains a FET with microphone bobby. This FET is easy to damageable from excessive heat and electrical shock. Proper attention for the soldering work is required same as followings.

每个 ECM 都包含有个 FET. FET 在过热和电流冲击下容易损坏。应遵循以下焊接操作规程：

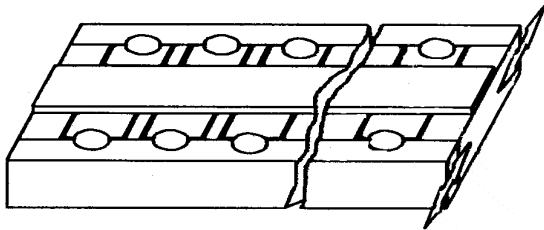
1 -Recommend to use 15W ~ 17W ceramic soldering iron and apply  $270 \pm 10^\circ\text{C}$  temperature range  
推荐使用功率在 15W-17W，温度变化范围在  $270 \pm 10^\circ\text{C}$  的陶瓷电烙铁。

2 -Soldering should be accomplished within 2 seconds at each terminal so as not to be overheated.  
为防止过热，焊接应在 2 秒内完成。

3 -ECM shall be soldered fixed on the metal block (heat sink) which has the higher radiation effects. Heat sink shall contact with each of ECM.  
应把驻极体传声器固定在散热良好的金属装置（散热板）上进行焊接。

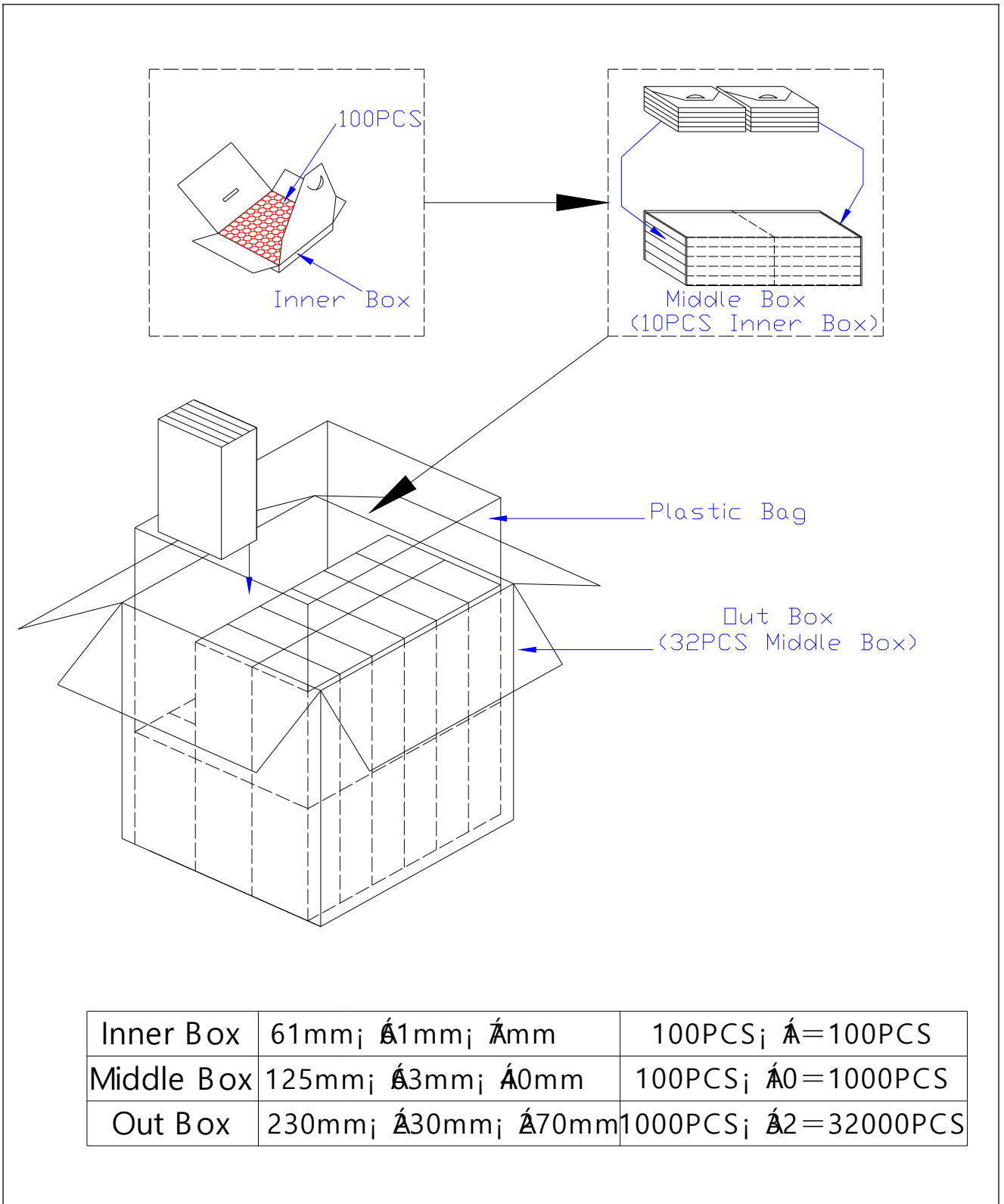
4 -The pin hole soldering shall be avoided.  
焊接后，各焊点不应出现砂眼（焊锡小孔）现象。

5 -E.C.M may easily destroyed by the static electricity, and the countermeasure for eliminating the static electricity (the ground for soldering copper, for worktable and for human body) shall be executed.  
驻极体传声器容易受静电破坏，应采取防静电措施（焊接器具，工作台，操作人员人体应接地）

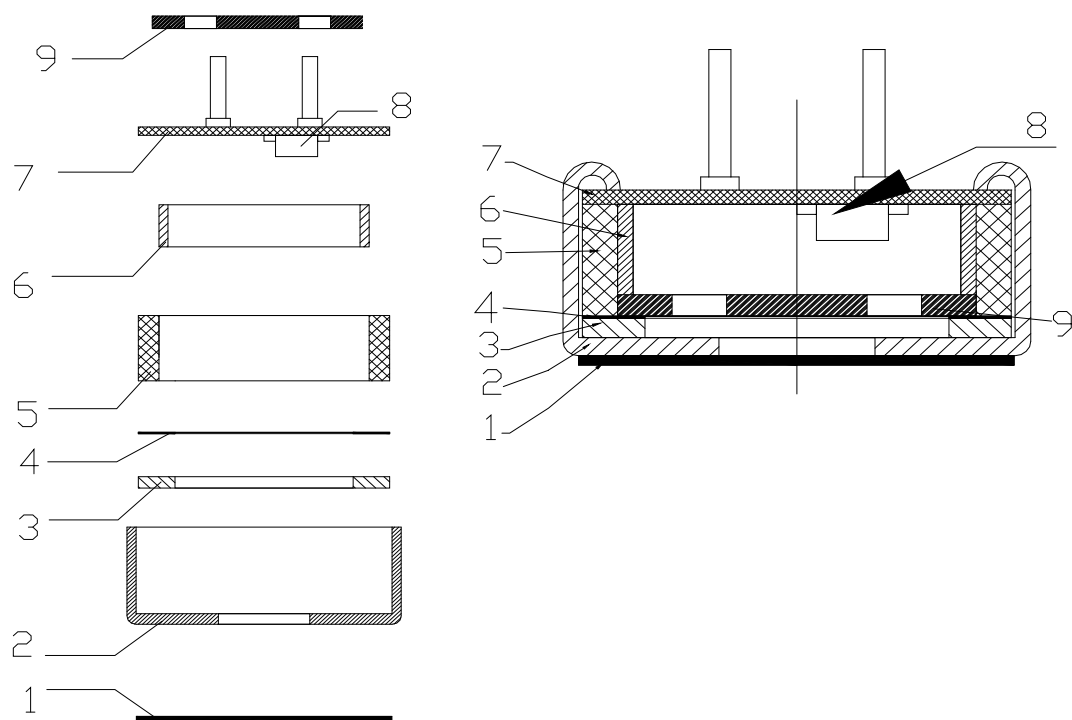


## 11. PACKAGE 包装图





12. LIST AND STRUCTURE OF MATERIALS 材料及结构清单



No. 序号	Part name 部件名称
1	防尘网 FELT
2	外壳 Case
3	振膜 Diaphragm
4	垫片 Spacer
5	塑环 Housing Chamber
6	铜环 Copper ring
7	线路板 P.C.B
8	管芯 FET
9	极板 Back plate