

MESSRS.**SPECIFICATION FOR APPROVAL****承 认 书**

Product	ELECTRET CONDENSER MICROPHONE
Part No.	HMB-O60F32-CWH15
Customer Part No.	
Customer Approval	

Approved By	Checked By	Made By
王台平 APR-18-2024	曹丽萍 APR-18-2024	LILY APR-18-2024

常 州 华 龙 电 子 有 限 公 司***Chang zhou Dragon State Electronic Co., Ltd***

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1. 变更记录（History change record）

Change Items	Date	Note	Drawn by	Checked by
	2023-12-21	First Issue	Lily 2023-12-21	王台平 2023-12-21
管芯改 5123FTK	2024-04-18	Second Issue	Lily 2024-04-18	王台平 2024-04-18

2. 储藏与判断条件（Storage And Judgement Conditions）

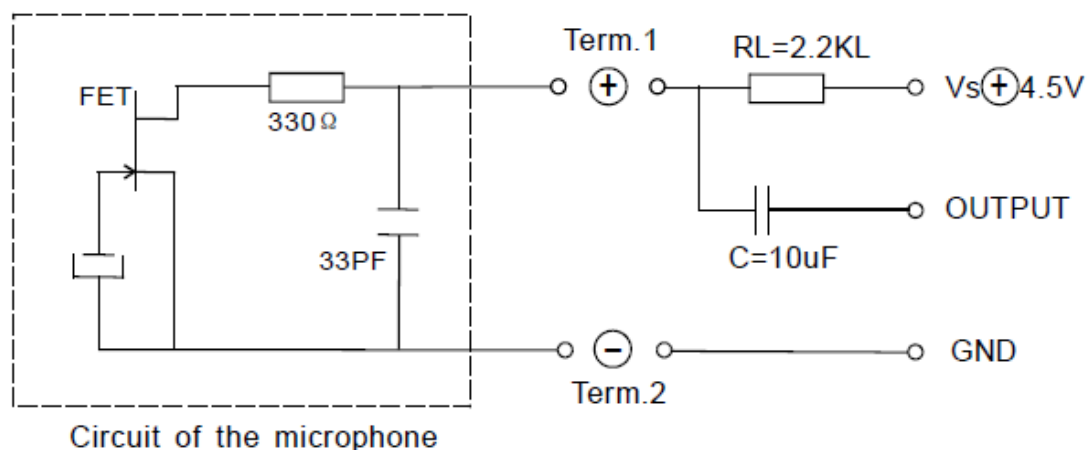
	Temperature Range(°C)	Rel. Humidity(%)	Static Pressure(kPa)
Judgement	15~35	63~67	86~106
Storage	-20~60		
Operating	-40~70		

3. 规格 (Specifications)

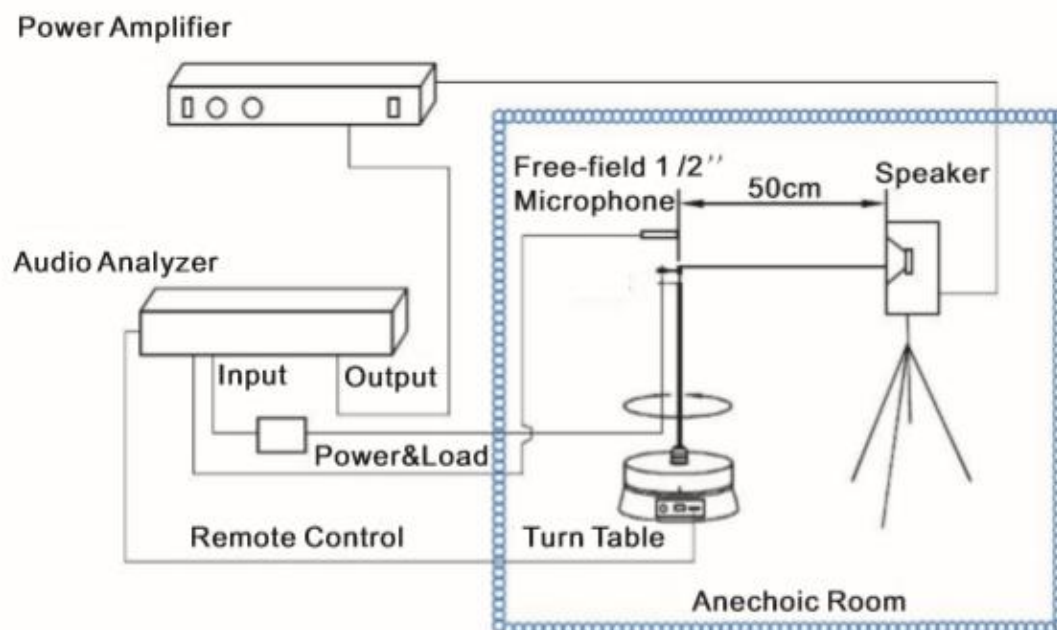
 Test conditions($V_S=2.0V$ $R_L=2.2k\Omega$ $Temp=20\pm 2^\circ C$ $R.H=60\pm 5\%$)

Item	Symbol	Test Conditions	Min	Standard	Max	Unit
灵敏度 Sensitivity	S	$f=1kHz, P_{in}=1Pa$	-35	-32	-29	dB ($0dB=1V/Pa$)
阻抗 Impedance	Z	$f=1kHz, P_{in}=1Pa$			2.2	$k\Omega$
指向性 Directivity	Omni-directional					
消耗电流 Current Consumption	I				500	μA
工作电压 Operation Voltage Range	U		1.0	2.0	10	V
信噪比 S/N Ratio	S/N(A)	$f=1kHz, P_{in}=1Pa$ A Curve		70		dB
降压特性 Decreasing Voltage Characteristic	ΔS	$f=1kHz, P_{in}=1Pa$ $V_S=2.0-1.5V$			-3	dB
最大输入声压级 Max.Input Sound Level	MISPL	$f=1kHz$ Distortion<3%			115	dB
失真 Distortion	THD	94dB SPL@1kHz			1	%
		115dB SPL@1kHz			3	%
防尘和防水 Dustproof and Waterproof			IP65			

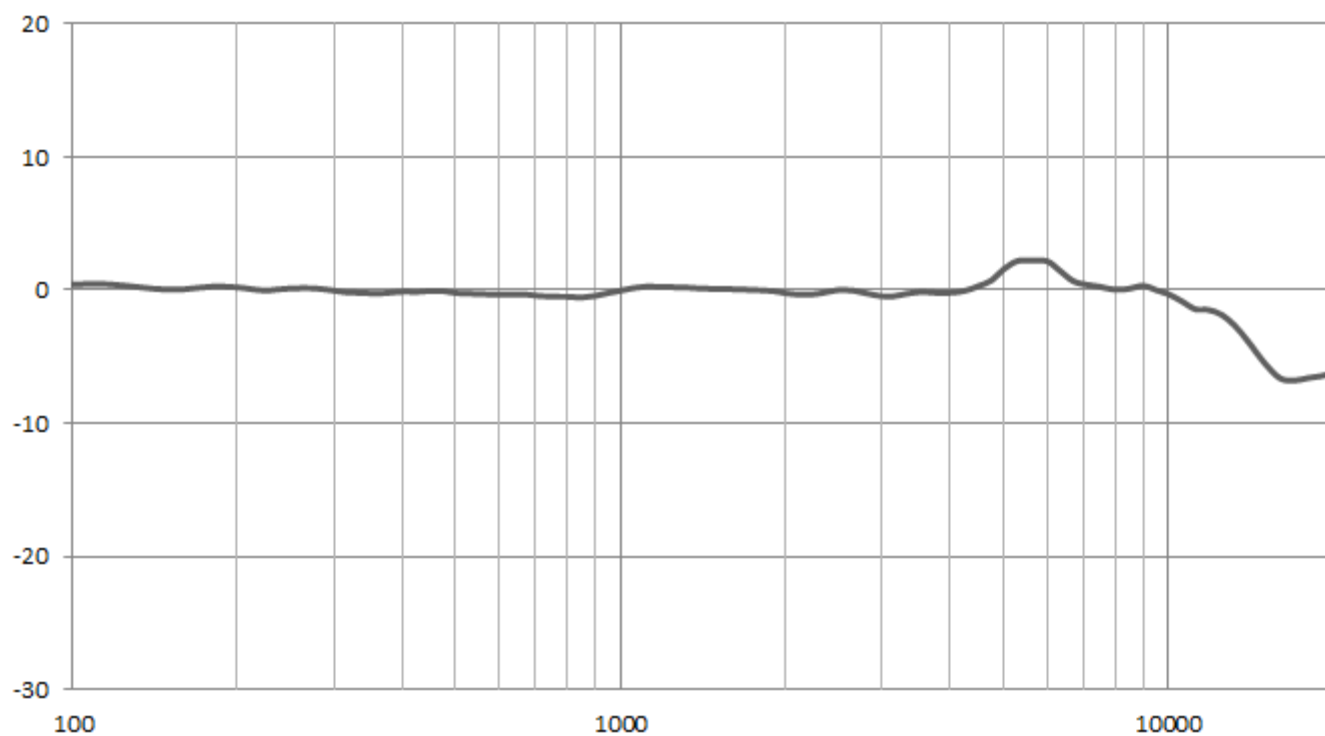
4. 测试电路 (Standard Test Circuit)

 $V_S=2.0V$ $R_L=2.2k\Omega$ $T_e=20^\circ C$ $R.H.=60\%$


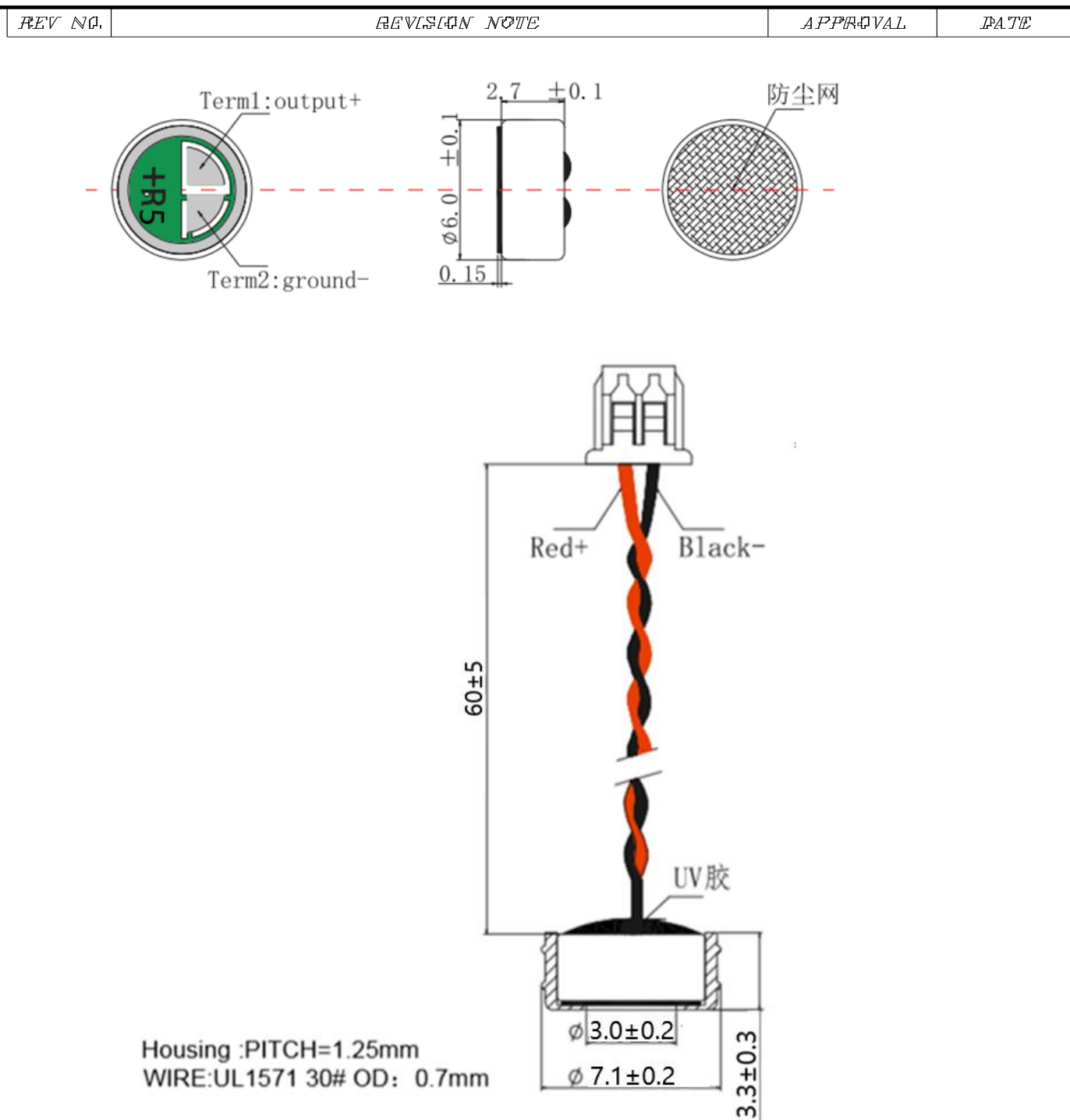
5. 测试装备图 (Standard Test Fixture)



6 频响曲线 (Frequency Response Curve)



7. 外观图 (Appearance Drawing)



TITLE: MICROPHONE		DRAWN: 	2024/04/19	SCALE: 4/1	SHEET: 1 : 1
PART NO. HMB-060F32-CWH15	1	DESIGNED: R & D OF D.S.		UNITS: mm	
DWG NO. DTM-7836		CHECKED: 		TOLERANCE ± 0.2	
		APPROVAL: 		UNLESS OTHERWISE SPECIFIED: ONE PLACE DECIMAL ± 0.1 TWO PLACE DECIMAL ± 0.05 THREE PLACE DECIMAL ± 0.02	
	REV	MATERIAL: 			

8.可靠性试验 (Reliability Test)

在下列试验完成后,在温度为 20°C,相对湿度为 65%的条件下恢复 3 小时后进行测试,灵敏度与初始灵敏度相差在 $\pm 3\text{dB}$ 以内.

(All tests should be done after 3 hours of conditioning at 20°C, R.H65%, while the sensitivity is to be within $\pm 3\text{dB}$, from the initial sensitivity after the following experiments.)

8.1 高温试验 (HIGH TEMPERATURE TEST)

温度(High temperature):	+70°C
放置时间(Duration):	96hours

8.2 低温试验 (LOW TEMPERATURE TEST)

温度(Low temperature):	-40°C
放置时间(Duration):	96hours

8.3 温度循环试验 (TEMPERATURE CYCLE TEST)

低温(Low temperature):	-40°C
高温(High temperature):	+70°C
转化时间(Changeover time):	30min
放置时间(Duration):	60min
次数(Cycle):	10

8.4 湿度 (STATIC HUMIDITY TEST)

温度(Temperature):	+40°C
相对湿度(Relative humidity):	90 ~ 95%
放置时间(Duration):	48hours

8.5 振动试验 (VIBRATION TEST)

振幅(Amplitude):	1.52mm
持续时间(Duration):	1 分钟/面(minutes/plane)
频度范围(Freq.range):	10 ~ 55Hz
试验时间(Total time):	2 小时(hour)

8.6 跌落试验 (DROP TEST)

不带包装的跌落到 20mm 厚的地板上(Drop a unit unpacked onto a board of 20mm thick)

高度(Height):	1 m
次数(Cycle):	6 (1 each plane)

9. 焊接要求 (Regarding the Soldering operation)

每个驻极体电容传声器在其麦克风上都有一个 FET,这种 FET 在过热和电流撞击时易损坏,所以对于焊接应遵循以下操作:

- 要求使用 25W-35W 烙铁,并保持 $350\pm 10^{\circ}\text{C}$ 的温度范围.
- 在每一个端的焊接应在 2 秒内完成,以防过热.
- 禁止单体麦克风焊接.(否则会影响驻极体电容传声器的灵敏度)
- 最理想的散热装置按以下设计.

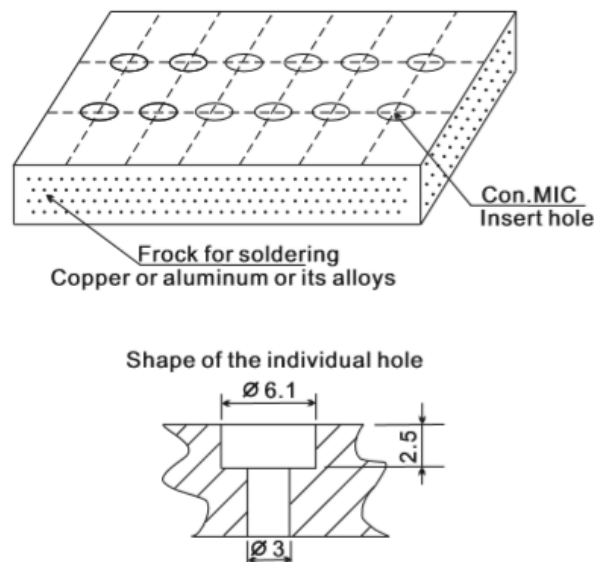
Every ECM contains a FET with microphone body.

This FET easy to damageable from excessive heat and electrical shock. Proper attention for the soldering work is required same as followings.

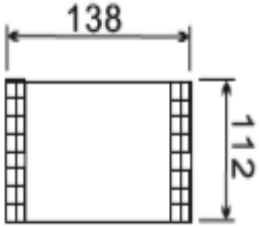
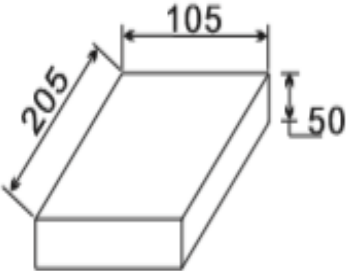
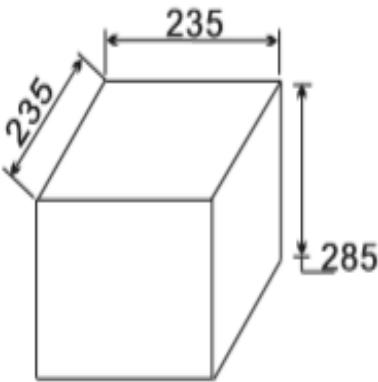
- Recommend to use 25W-35W ceramic soldering iron and apply $300\pm 10^{\circ}\text{C}$ temperature range
- Soldering should be accomplished within 2 seconds at each terminal so as not to be overheated.
- Do not make a cavity at the surface of lead lump on the PCB. wiring board.

(Opened cavity will influence to the sensitivity of ECM)

- Optimal design for heat sink pad is same as below.



10. 包装规格 (Packing Specifications)

	Drawing(Unit:mm)	Qty(pcs.)	Material	Marking
Packing		100	ESD Bag	Particular for 10.2.1
Middle Box		1000	Paper	Particular for Customer s P.O
Outer Box		10000	Paper	Particular for Customer s P.O