

MESSRS.

SPECIFICATION FOR APPROVAL

承 認 书

Product	ELECTRET CONDENSER MICROPHONE
Part No.	HMF-O97A36-AA(RoHS)
Customer Part No.	
Customer Approval	

Approved By	Checked By	Made By
王台平 JUL-16-2014	曹丽萍 JUL-16-2014	LILY JUL-16-2014

常州华龙电子有限公司

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EDITION:1.1

1. 变更记录 (History change record)

Change Items	Date	Note	Drawn by	Checked by
	2014-07-16	First Issue	Lily	王台平 2014-07-16

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

	Temperature Range(°C)	Rel. Humidity(%)	Static Pressure(kPa)
Judgement	19~21	60~70	86~106
Storage	-30~70		
Operating	-30~70		

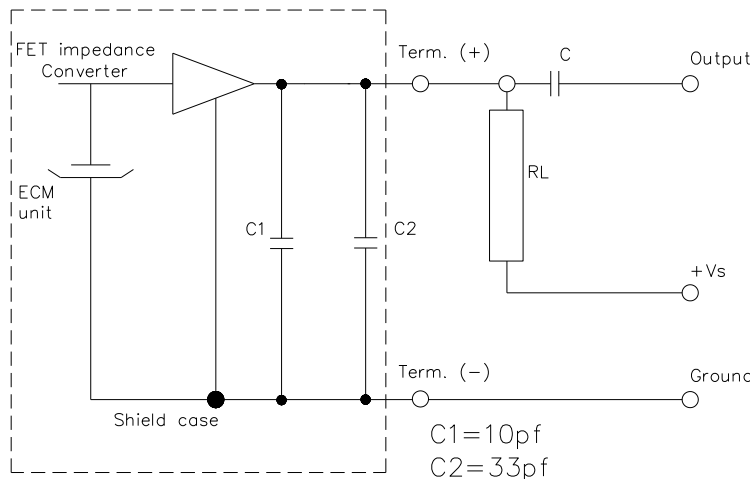
3. 规格 (Specifications)

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, Pin=1Pa	-39	-36	-33	dB (0dB=1V/Pa)
阻抗 Impedance	Z	f=1kHz, Pin=1Pa			2.2	k Ω
指向性 Directivity		Omni-directional				
消耗电流 Current Consumption	I				350	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, Pin=1Pa A Curve	60			dB
降压特性 Decreasing Voltage Characteristic	ΔS	f=1kHz, Pin=1Pa $V_S=3.0-2.0V$			-3	dB
最大输入声压级 Max.Input Sound Level	MISPL	f=1kHz Distortion<1%			110	dB

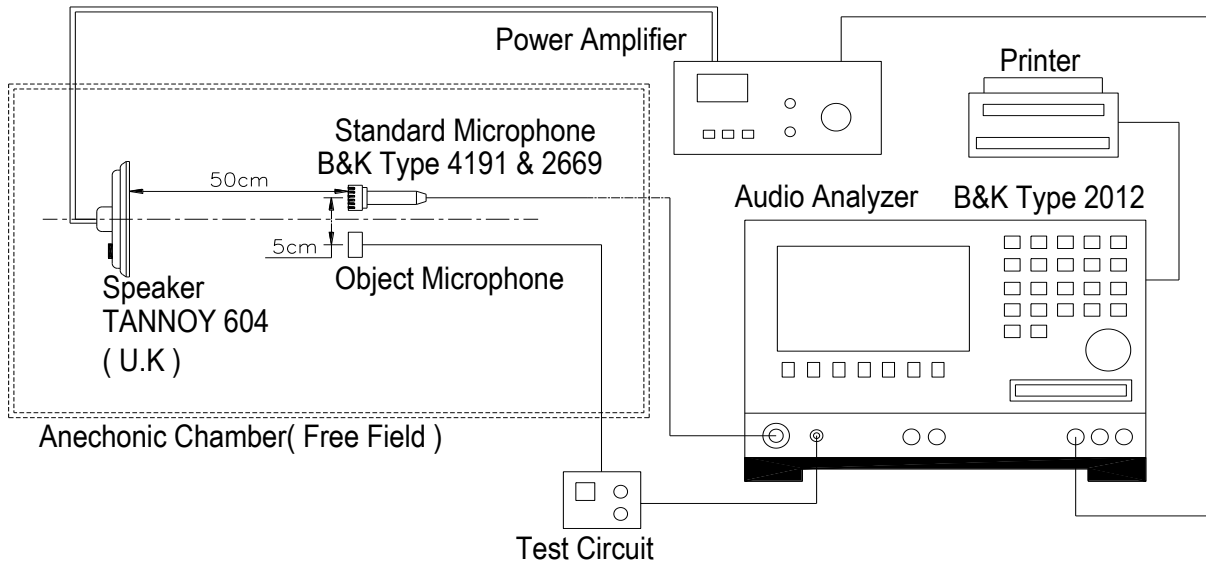
4. 测试电路 (Standard Test Circuit)

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

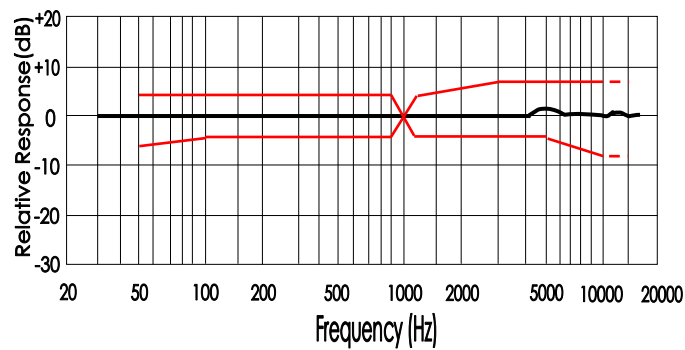


$R_L=2.2K\Omega$
$V_S=2.0V$
$C=1\mu F$
$C1=10pF$
$C2=33pF$

5. 测试装备图 (Standard Test Fixture)



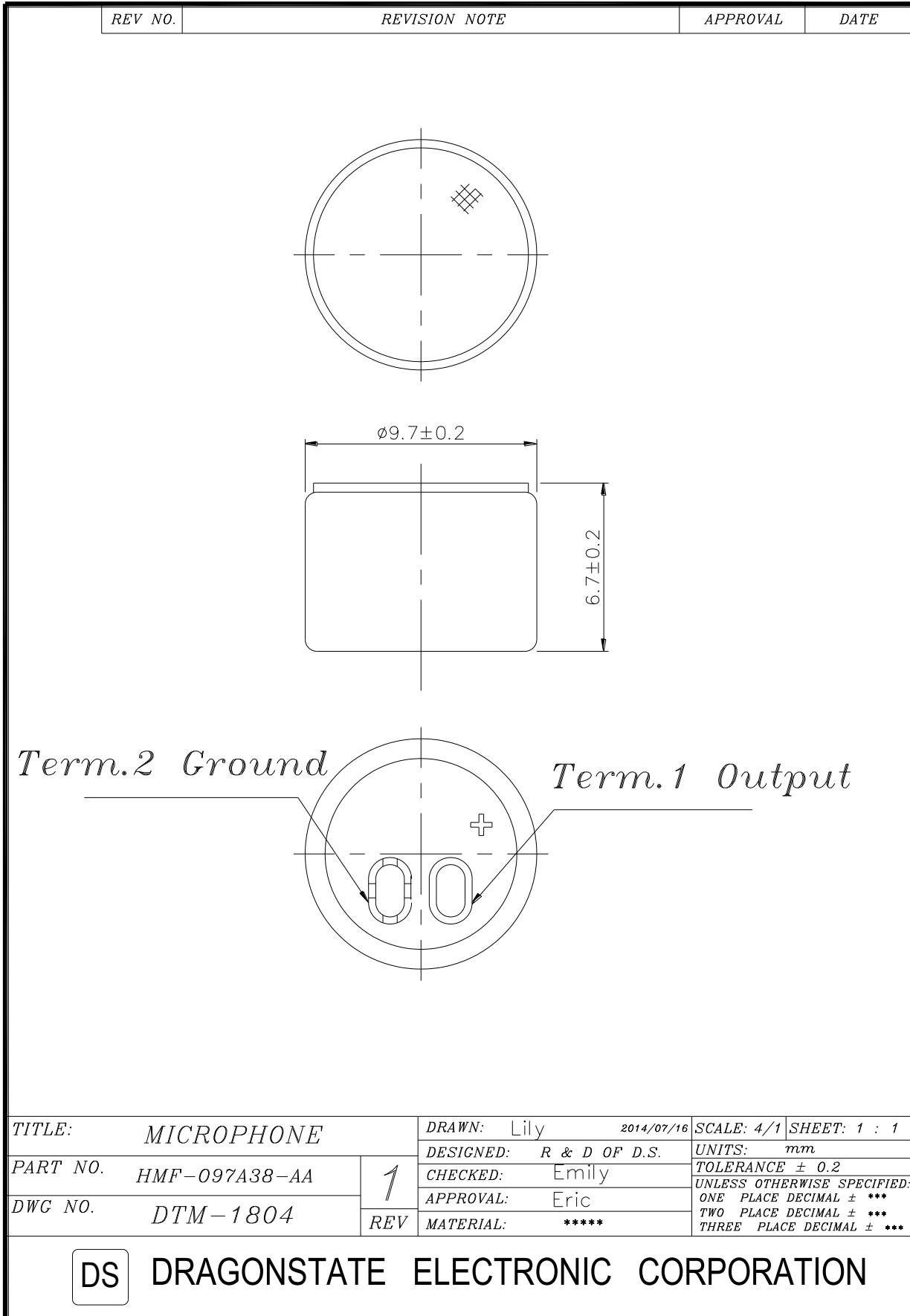
6 频响曲线 (Frequency Response Curve)



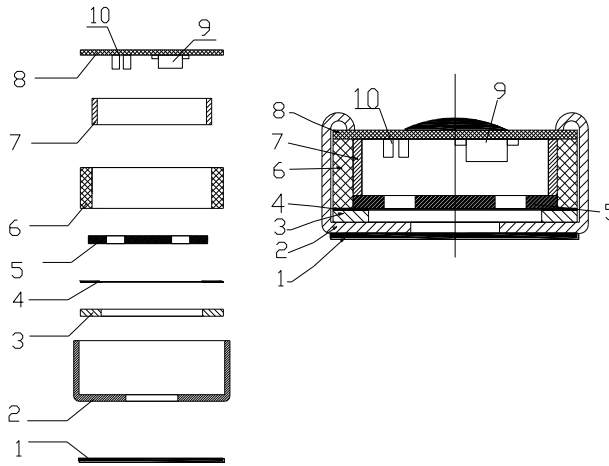
Microphone Response Tolerance Window

Frequency(Hz) ^{±3}	Lower Limit(dB) ^{±3}	Upper Limit(dB) ^{±3}
50 ^{±3}	-6 ^{±3}	+3 ^{±3}
100 ^{±3}	-3 ^{±3}	+3 ^{±3}
800 ^{±3}	-3 ^{±3}	+3 ^{±3}
1000 ^{±3}	0 ^{±3}	0 ^{±3}
1200 ^{±3}	-3 ^{±3}	+3 ^{±3}
3000 ^{±3}	-3 ^{±3}	+8 ^{±3}
5000 ^{±3}	-3 ^{±3}	+8 ^{±3}
10000 ^{±3}	-8 ^{±3}	+8 ^{±3}

7.外观图 (Appearance Drawing)



8. 结构图 (Appearance Drawing)



No. 序号	Part name 部件名称	Material Type 材料型号	Qty 数量	Origin 产地	Manufacture 协力厂商	Remarks 备注
1	PCB	Epoxy FR-4	1	Hongkong	Suzhou	
2	Cavity	POM	1	Japan	Suzhou	
3	Copper ring	Copper	1	China	Changzhou	
4	Back plate	H62 brass	1	China	Taicang	
5	Cushion plate	Mylar	1	China	Hebei	
6	Diaphragm	FEP 50A	1	USA	Dupont	
7	Case	Magal	1	China	Shanghai	
8	Cloth	non-woven fabrics	1	China	Guangzhou	
9	Capacitor	10pF 0402	1	Japan	Murata	
10	Capacitor	33pF 0402	1	Japan	Murata	
11	FET	RJN2123B	1	Korea	RFsemi	

9. 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.)

9.1 高温试验 (HIGH TEMPERATURE TEST)

温度(High temperature): +70°C

放置时间(Duration): 200hours

9.2 低温试验 (LOW TEMPERATURE TEST)

温度(Low temperature): -30°C

放置时间(Duration): 200 hours

9.3 温度循环试验(如图 1) (TEMPERATURE CYCLE TEST)(See in Fig.1)

低温(Low temperature): -30°C

高温(High temperature): +70°C

转化时间(Changeover time): 10min

放置时间(Duration): 30min

次数(Cycle): 5

9.4 湿度 (STATICAL HUMIDITY TEST)

温度(Temperature): +50 \pm 3°C

相对湿度(Relative humidity): 90 \pm 3%PH

放置时间(Duration): 200 hours

9.5 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)

9.6 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)

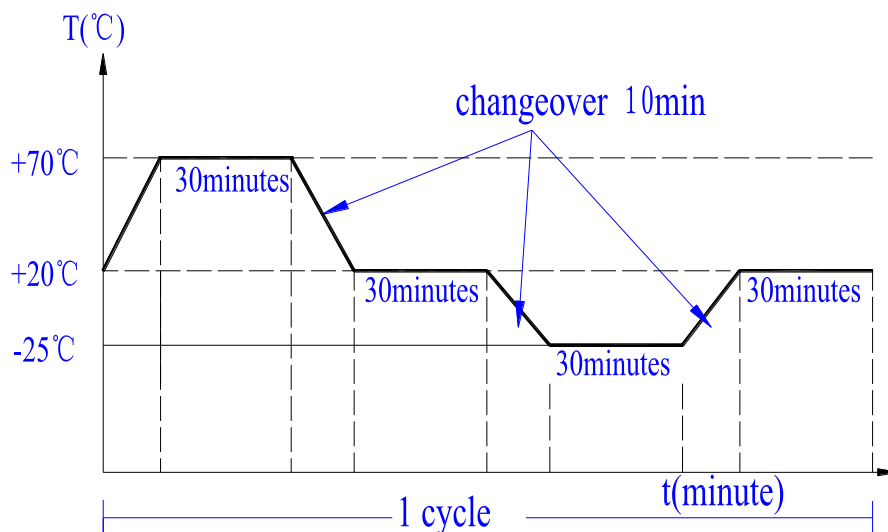
高度(Height):	1 m
次数(Cycle):	6 (1 each plane)

9.7 静电测试 (ESD TEST)

在两次无杂质的静电释放暴露中放电.(接触:±3kV,空气:±6 kV)麦克风在 10 次暴露后无干扰

The microphone under test must be discharged between each ESD exposure without ground.

(contact:±3 kV, air:±6kV)There is no interference in operation after 10 times exposure.



10. 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

循以下操作:

- 要求使用 25W-35W 烙铁,并保持 $300\pm 10^{\circ}\text{C}$ 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.

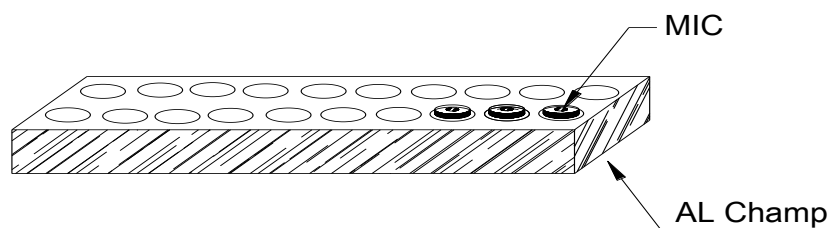
Every ECM contains a FET with microphone body.

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

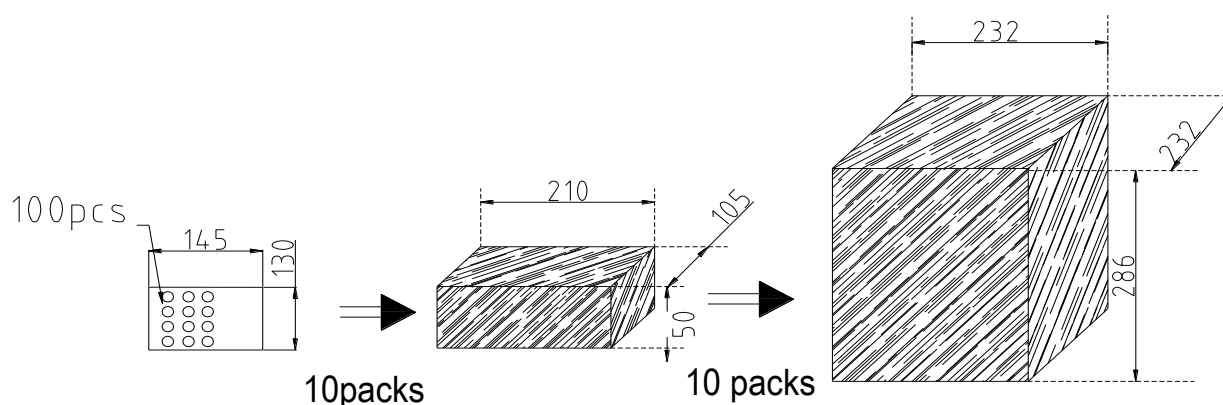
- Recommend to use 25W-35W ceramic soldering iron and apply $300\pm 10^{\circ}\text{C}$ temperature range
- Soldering should be accomplished within 2 seconds at each terminal so as not to be overheated.
- Do not make a cavity at the surface of lead lump on the PCB. wiring board.

(Opened cavity will influence to the sensitivity of ECM)

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



11. 包装规格 (Packing Specifications)

REV NO.	REVISION NOTE	APPROVAL	DATE
			
<p>100pcs per plastic bag N/W:60g G/W:65g MODEL: QTY:100PCS LOT NO:</p>		<p>1000pcs per plastic box N/W:600g G/W:700g MODEL: QTY:1000PCS LOT NO:</p>	
		<p>10000pcs per out bag N/W:6.0kG G/W:7.5kG MODEL: QTY:10000PCS LOT NO:</p>	
<p>TITLE: packing</p>		<p>DRAWN: <i>Lily</i> 2009/03/16</p>	<p>SCALE: 5/1 SHEET: 1 : 1</p>
<p>PART NO.</p>		<p>DESIGNED: R & D OF D.S.</p>	<p>UNITS: mm</p>
<p>DWG NO.</p>		<p>CHECKED: <i>Emily</i></p>	<p>TOLERANCE ± 0.2</p>
		<p>APPROVAL: <i>Eric</i></p>	<p>UNLESS OTHERWISE SPECIFIED: ONE PLACE DECIMAL ± *** TWO PLACE DECIMAL ± *** THREE PLACE DECIMAL ± ***</p>
<p>REV 1</p>		<p>MATERIAL: *****</p>	
<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">DS</div> <div style="font-size: 24px; font-weight: bold; letter-spacing: 5px;">DRAGONSTATE ELECTRONIC CORPORATION</div> </div>			

