



soberton inc.

EM ELECTRET CONDENSER MICROPHONE

Acoustic Product Specification

Product Number: EM-6022S



Release | Revision: B/2018

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Electrical Characteristics

Sensitivity

Symbol: S Unit: dB

Condition: 0dB= 1V/Pa at 1kHz

Limits: Min: -45 **Center: -42** Max: -39

Output impedance

Symbol: Z out Unit: K Ω

Condition: f= 1kHz

Limits: Max: 2.2

Current Consumption

Symbol: IDSS Unit: μ A

Condition: VCC = 2.0V, RL=2.2K Ω

Limits: Max: 300

Signal to Noise Ratio

Symbol: S/N Unit: dB

Condition: at 1kHz S.P.L=1Pa (A-Weighted Curve)

Limits: Min: 58

Decreasing Voltage

Symbol: Δ S Unit: dB

Condition: VCC= 3.0V to 2.0V

Limits: Max: -3

Operating Voltage

Unit: V

Limits: Min: 1.4 Max: 5.0

Maximum input S.P.L

Unit: dB

Condition: THD<3%, at 1kHz

Limits: Max: 110

Testing condition

Temperature: 20 \pm 2 $^{\circ}$ C

Humidity: 65 \pm 5%

Air Pressure: 86 ~ 106KPa

Dimension

\varnothing 6.0 x 2.2mm

IP Level

IP50



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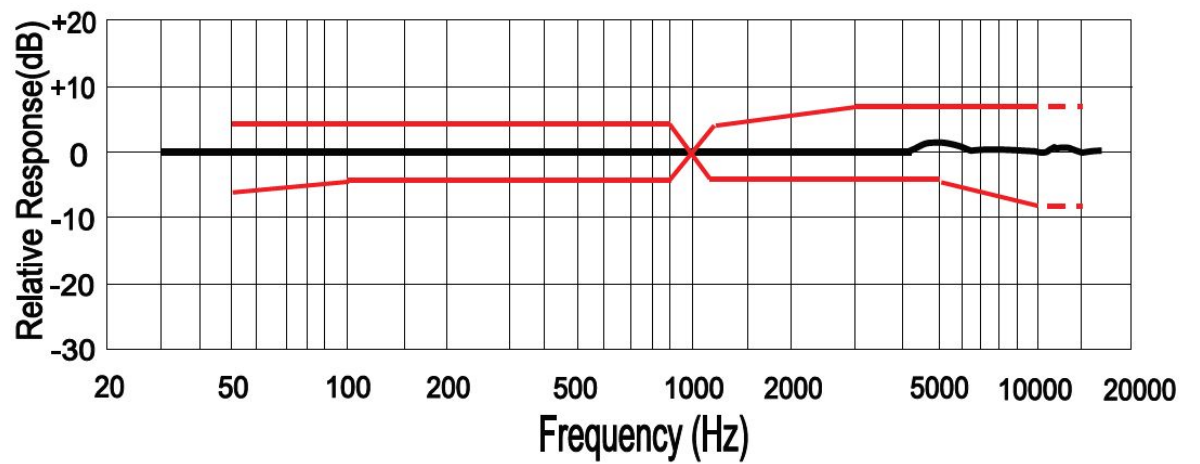
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Typical Frequency Response Curve

Frequency Response

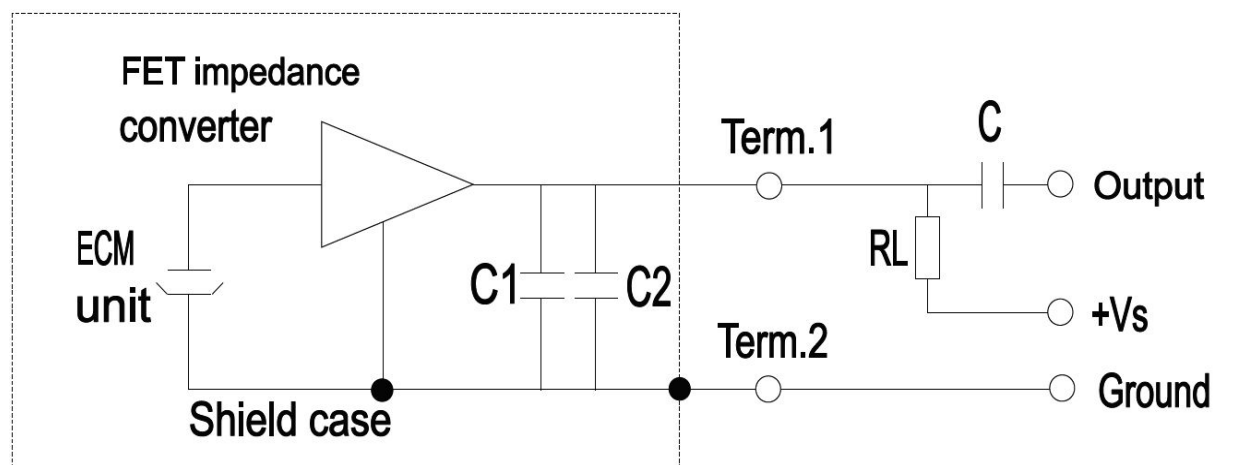


Standard Test Fixture

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

Measurement Circuit

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





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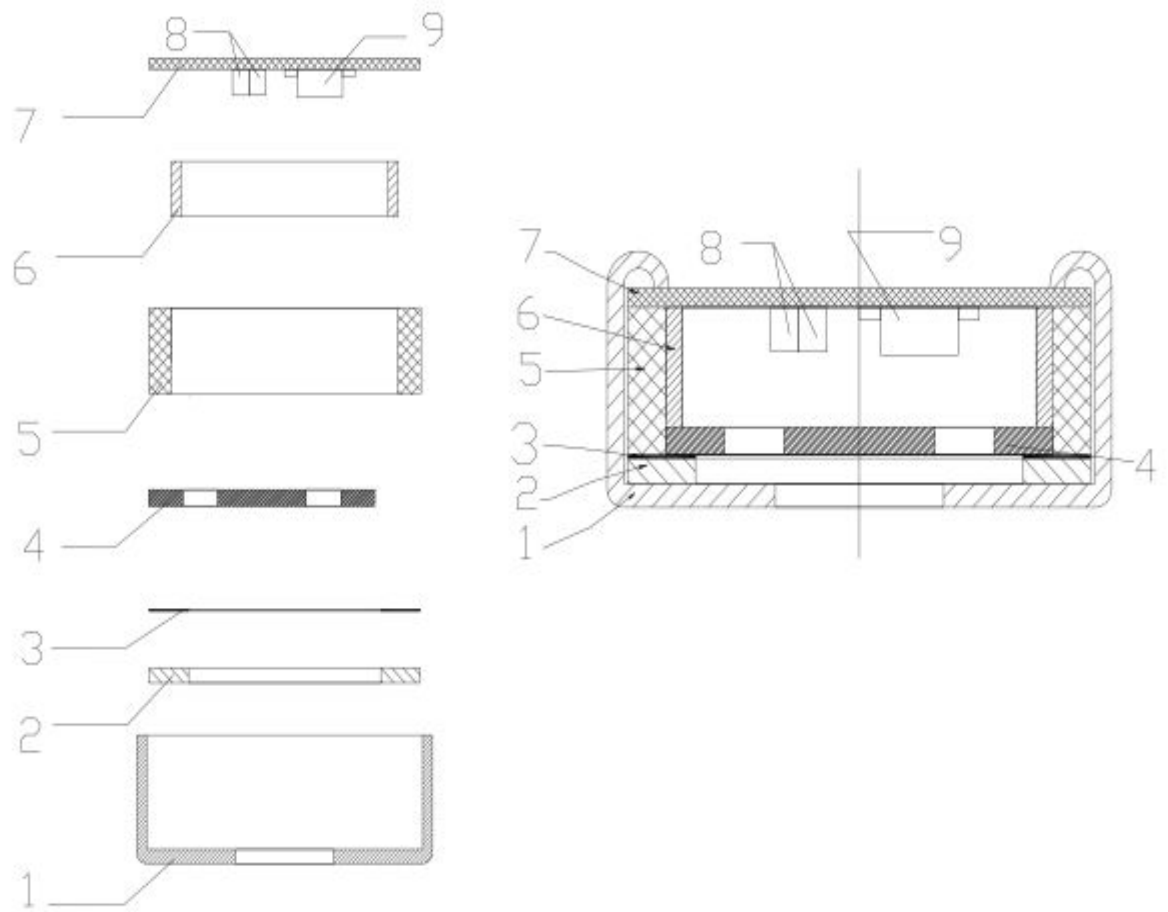
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Exploded Drawing and Material Table



No.	Part Name	Material	Quantity	Remark
1	Case		1	
2	Polarized Diaphragm		1	
3	Spacer		1	
4	Electret Back		1	
5	Housing Chamber		1	
6	Copper Ring		1	
7	PCB	FR-4	1	
8	Chip Capacitor		2	10pF + 33pF
9	FET		1	



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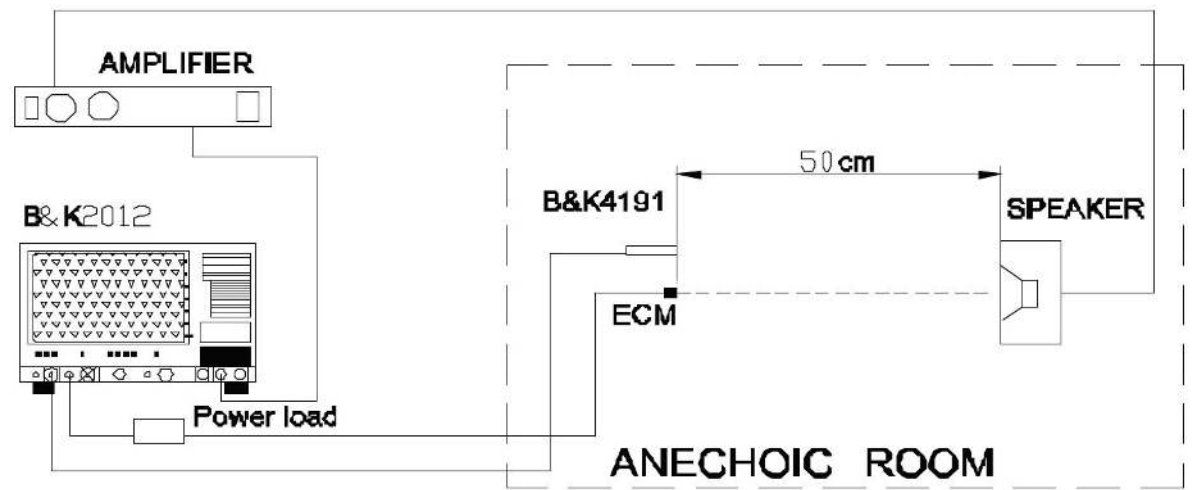
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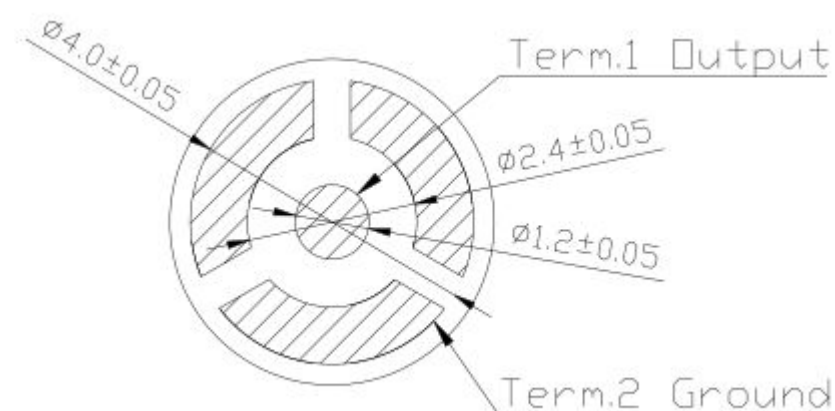
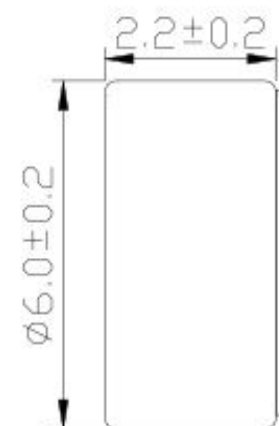
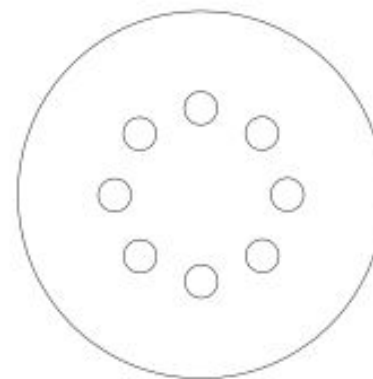
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Measurement Setup Drawing



Product External and Dimension

Unit: mm





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Temperature Conditions

Operating Temperature Range -40°C~+75°C

Storage Temperature Range -20°C~+60°C
Note: Store in Electronic Warehouse

Reliability Test

After each of the following tests, the sensitivity of the microphone should be within $\pm 3\text{dB}$ of initial sensitivity after 3 hours of conditioning at 20°C.

Vibration Test

Frequency: 10Hz~55Hz

Amplitude: 1.52mm

Change of Frequency: 1 octave/min

2 hours in each of axis

Dry Heat/Cold

+75°C for 72 hours.

Low Temperature Test

-40°C for 72 hours.

Humidity Test

85%~90%RH, +40°C for 240 hours.

Temperature Cycles

-40°C \leftrightarrow +25°C \leftrightarrow +75°C \leftrightarrow +25°C \leftrightarrow -40°C
(2h) (0.5h) (2h) (0.5h) (2h) (0.5h) (2h) (0.5h) (2h) for 10 cycles.

Packing Drop Test

Height: 1.0 m

Procedure: 5 times from each of axis

Electrostatic Discharge

Tested to IEC61000-4-2 Level 3:

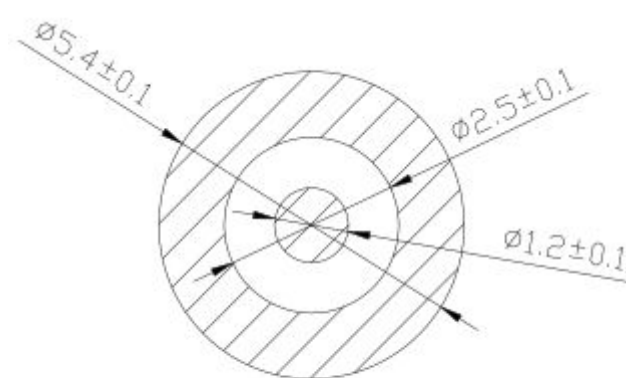
a)Contact Discharge

The microphone shall operate normally after 10 discharges to is 6KV DC and the discharge network is 150pF and 330Ω.

b)Air Discharge

The microphone shall operate normally after 10 discharges to is 8KV DC and the discharge network is 150pF and 330Ω.

Recommended Assembly Weld Plate



P.C.B Layout



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Reflow Process Condition

The soldering profile depends on various parameters necessitating a set up for each application. The data here is given only for guidance on solder reflow. There are four zones:

Preheat Zone

This zone brings the temperature at a controlled rate, typically 1~2.5°C/s.

Equilibrium Zone

This zone brings the board to be a uniform temperature and also activates the flux. The duration in this zone (typically 2~3 minutes) will need to be adjusted to optimize the outgassing of the flux.

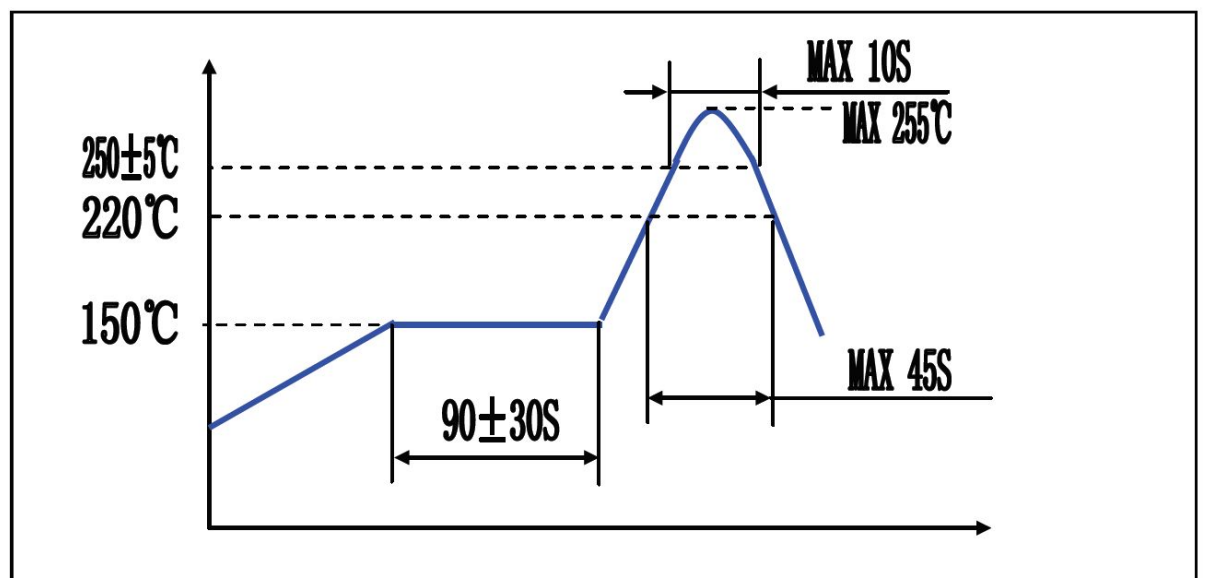
Reflow Zone

The peak temperature should be high enough to achieve good wetting but not so high as to cause component discoloration or damage (255°C for maximum 10 seconds). Excessive soldering time can lead to inter-metallic growth which can result in a brittle joint.

Cooling Zone

The cooling rate should be fast, to keep the solder grains small which will give a longer lasting joint. Typically will be 2~5°C/s.

Sensitivity change should be within ±3dB after reflow process and at room temperature for 30 minutes at least.





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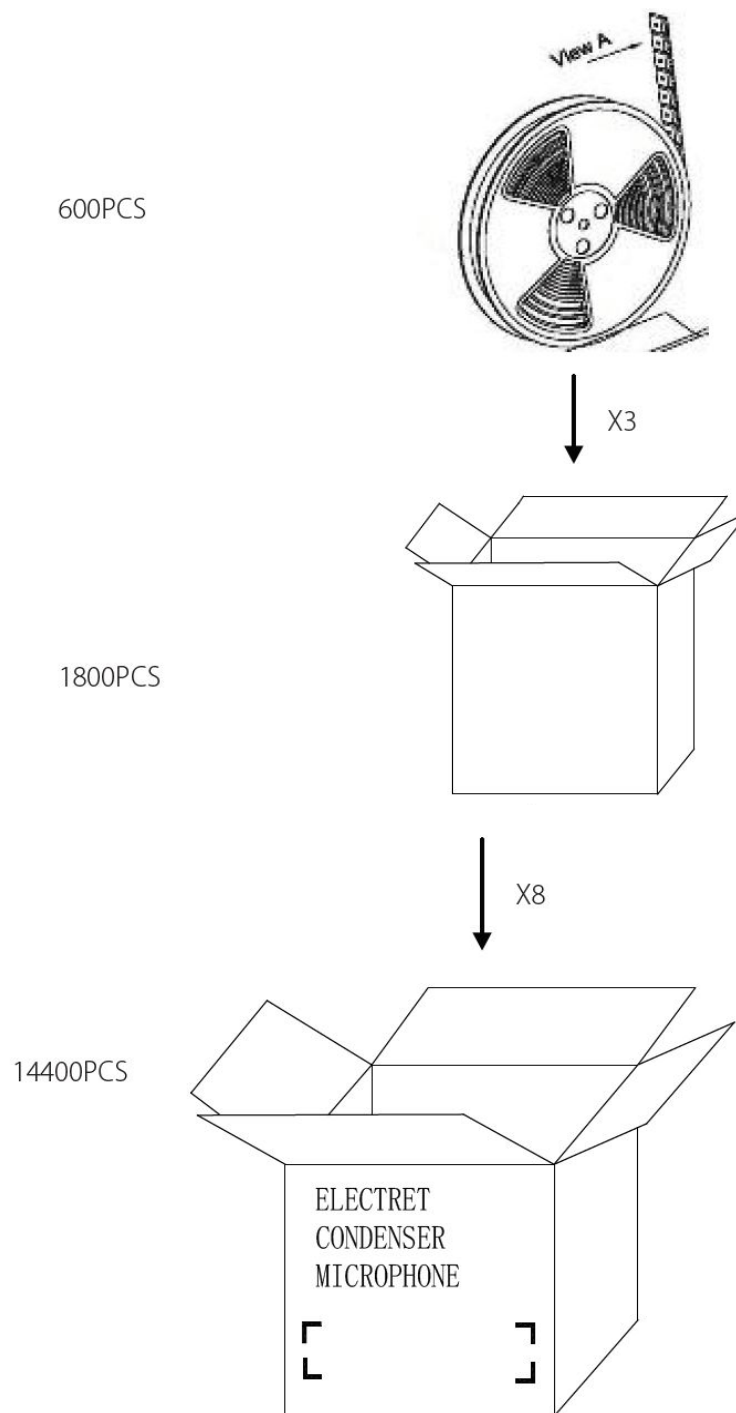
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Details

Quantity and Weight

Delivery Plate: 600 pcs
Mid Packet: 1,800 pcs
Paper Case: 14,400 pcs
1PC: 0.25g
Net Weight: 6.6kg
Gross Weight: 7.5kg