



# Electret Condenser Microphone

$\phi 6.0 \times 2.2\text{mm}$

with solderpad

**MEO6022S423C1033**

Revision

Date	Version	Status	Changes	Approver
2018/11/01	V0.1	Draft	Initial release	AX

### 1. Scope

This document is the technical specification of electret condenser (ECM) Omni-Directional Microphone.

### 2. Product Type

MEO6022S423C1033

### 3. Electro-Acoustic Specifications

Table 3-1 Electrical Specifications

(Test Condition: +20°C ± 1,63%~67% RH, 86~106Kpa, Vs=2V, unless specified differently)

No.	Parameter	Symbol	Condition	Limits			Unit
				Min	Nom.	Max	
3.1	Sensitivity	S	f=1kHz, Pin=1Pa, 0dB=1V/Pa	-45	-42	-39	dB
3.2	Directivity			Omni-directional			
3.3	Output Impedance	ZOUT	f=1kHz			2.2	kΩ
3.4	Current Consumption	IDSS	RL=2.2kΩ, Vs=2.0V			500	μA
3.5	S/N Ratio	S/N	f=1kHz, Pin=1Pa, (A-Weighted)	58			dB
3.6	Operating Voltage			1.0	2.0	10	V
3.7	Sensitivity vs. Voltage	ΔS	Vs= 2.0V to 1.5V			3	dB
3.8	Total Harmonic Distortion	THD	94dB SPL at 1kHz			1	%
			115dB SPL at 1kHz			3	

### 4. Typical Frequency Response

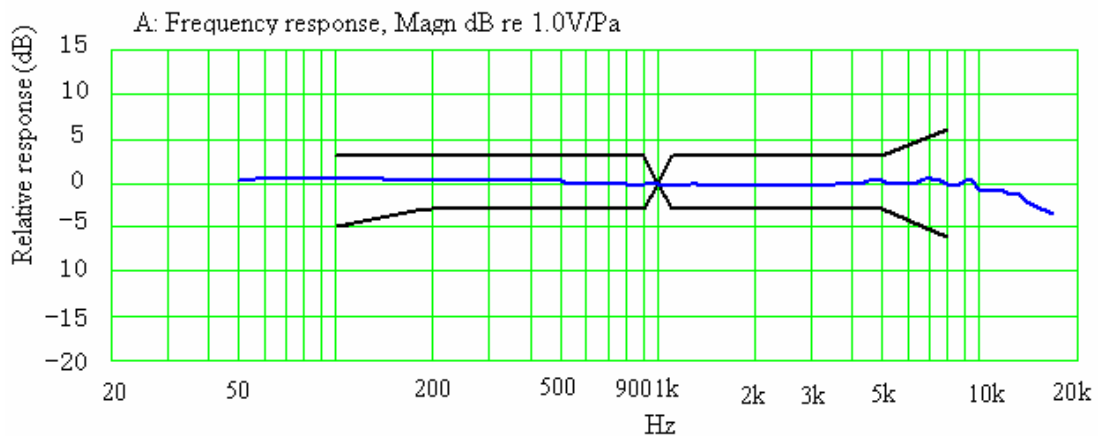


Fig. 4-1 Typical Frequency Response

Table 4-1 Frequency Response Limit Template

Frequency [Hz]	100	200	900	1K	1.1K	3K	4K	5K	8k	10K
Upper limit [dB]	3	3	3	0	3	3	3	3	6	—
Frequency [Hz]	100	200	900	1K	1.1K	3K	4K	5K	8k	10K
Lower limit [dB]	-5	-3	-3	0	-3	-3	—	-3	-6	—

### 5. Schematic Diagram

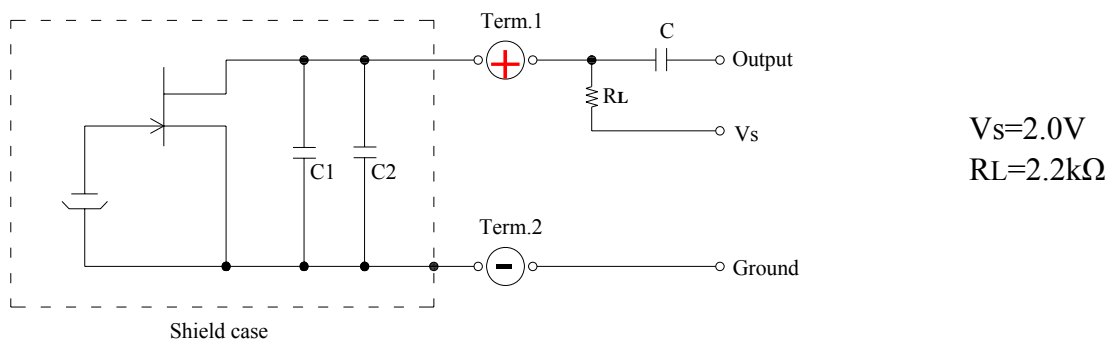


Fig. 5-1 Schematic Diagram

### 6. Measurement System Setup

Test signal: Sinusoid, Sweep,

Frequency Range: 50Hz-17KHz

Step: 1/12 octave

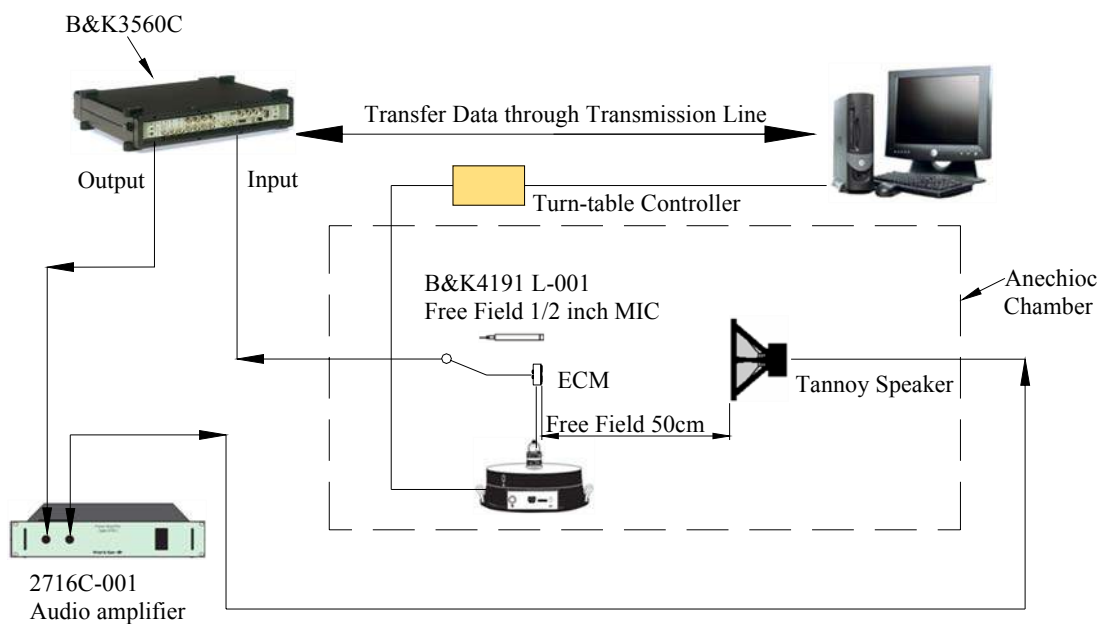
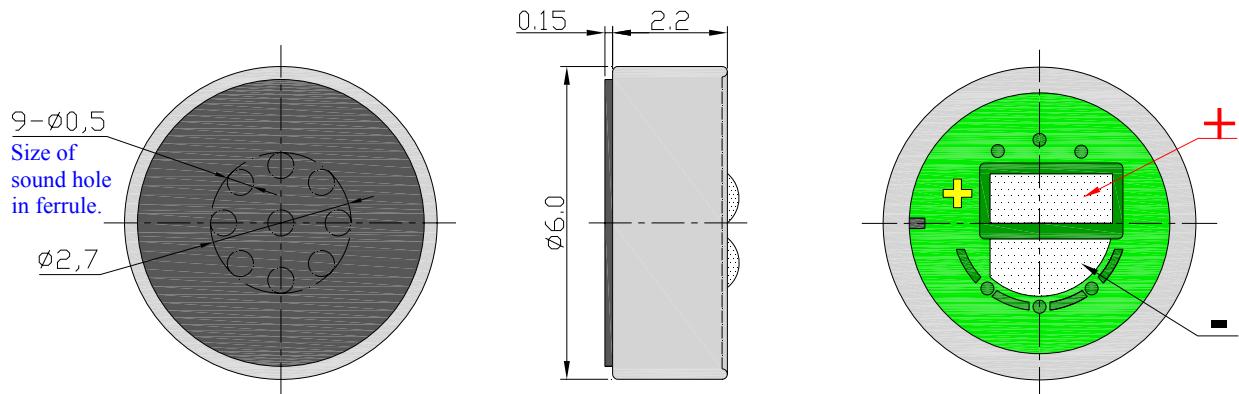


Fig. 6-1 Measurement System Setup

## 7. Mechanical Specification



Unmarked Tolerance:  $\pm 0.1$  (mm)

**Fig. 7-1 Microphone Capsule**

## 8. Reliability Tests

After conducting any of the following tests, the sensitivity change of DUT shall be less than  $\pm 3\text{dB}$  from its initial value and shall keep its initial operation and appearance.

The measurement to be done after 2 hours of conditioning at  $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$ , R.H 45%~75%

### 8.1 Hi-Temperature Test

Temperature:  $+85\text{ }^{\circ}\text{C}$   
Duration: 240 hours

### 8.2 Low-Temperature Test

Temperature:  $-40\text{ }^{\circ}\text{C}$   
Duration: 240 hours

### 8.3 Humidity & Heat Test

Temperature:  $+60\text{ }^{\circ}\text{C}$   
Humidity: 93% RH  
Duration: 240 hours

### 8.4 Thermal Shocking Test

Temperature & duration:  $-40\text{ }^{\circ}\text{C}$ , 30 minutes  
Temperature & duration:  $+80\text{ }^{\circ}\text{C}$ , 30 minutes,  
Cycles: 32 cycles

### 8.5 Vibration Test

Frequency: 10-55Hz  
Amplitude: 1.52mm  
Direction: 2 directions  
Duration: 2 hours

**8.6 Drop Test**

Drop the microphones to the floor

Height: 1.5m

Reference surface: slippery marble floor

Duration: 3 times

**8.7 Soldering Heat Test**

Place microphones in the metallic fixture.

Soldering Heat: 350°C

Duration: 5S

Recover: 1h

**8.8 ESD**

The tests are performed acc. to IEC61000-4-2 level 3

**a. Contact discharge**

Discharge position: Output of microphone

Charge voltage:  $\pm 6000\text{VDC}$

Discharge network: 150pF & 330 $\Omega$

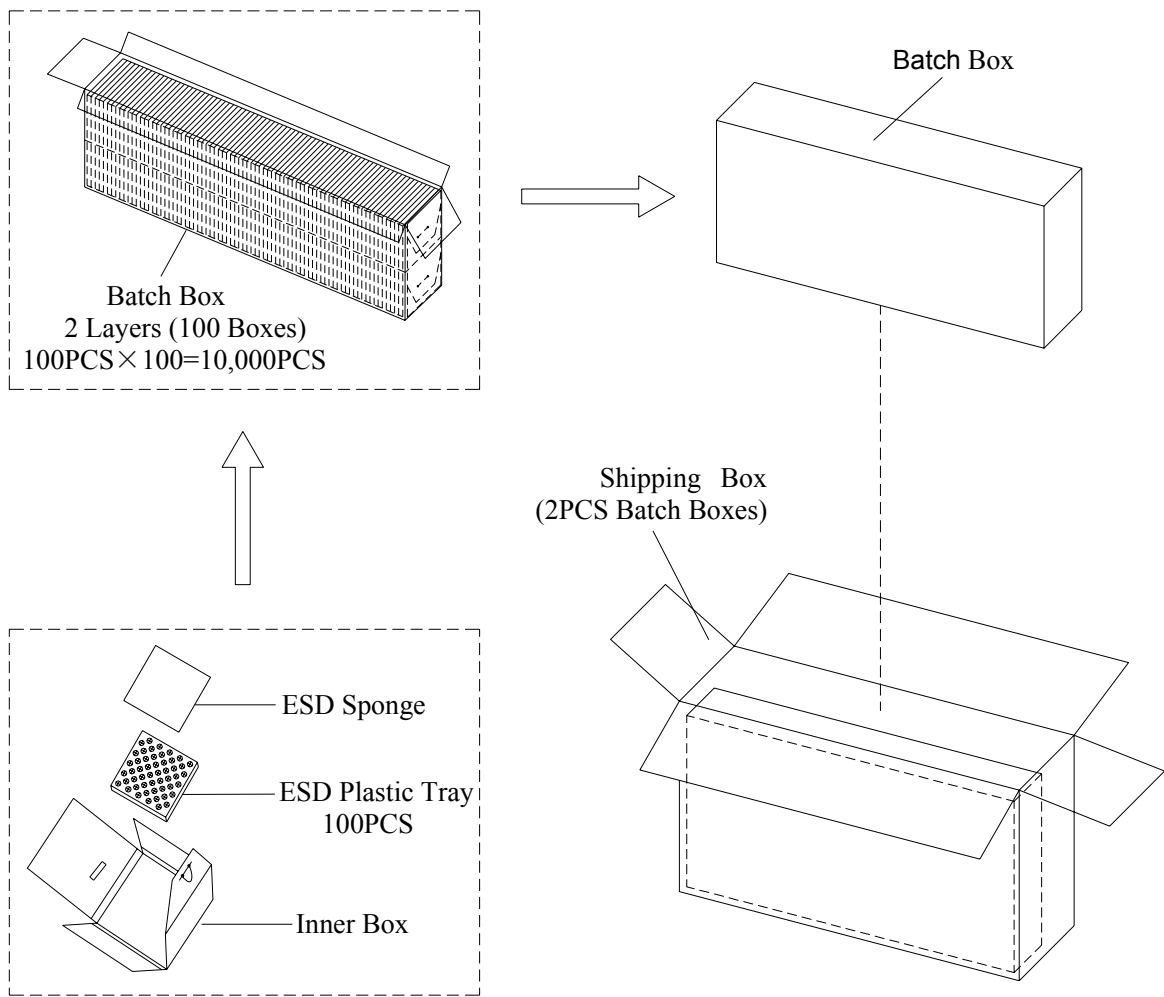
**b. Air discharge**

Discharge position: Sound hole

Charge voltage:  $\pm 8000\text{VDC}$

Discharge network: 150pF & 330 $\Omega$

## 9. Packaging



Inner Box	82mm×82mm×8mm	100PCS×1=100PCS
Batch Box	435mm×100mm×185mm	100PCS×100=10,000PCS
Shipping Box	455mm×233mm×211mm	10,000PCS×2=20,000PCS

**Fig. 9-1 Packaging**

## 10. Soldering Suggestions

### 10.1 Soldering Condition

All the soldering process must be completed in a metallic fixture. The temperature of the soldering irons must be limited to  $350^{\circ}\text{C} \pm 10^{\circ}\text{C}$ . Soldering time should not exceed 2 seconds.

Operators, the solder fixture and the soldering iron must be statically grounded under each soldering process.

### 10.2 Soldering Fixture

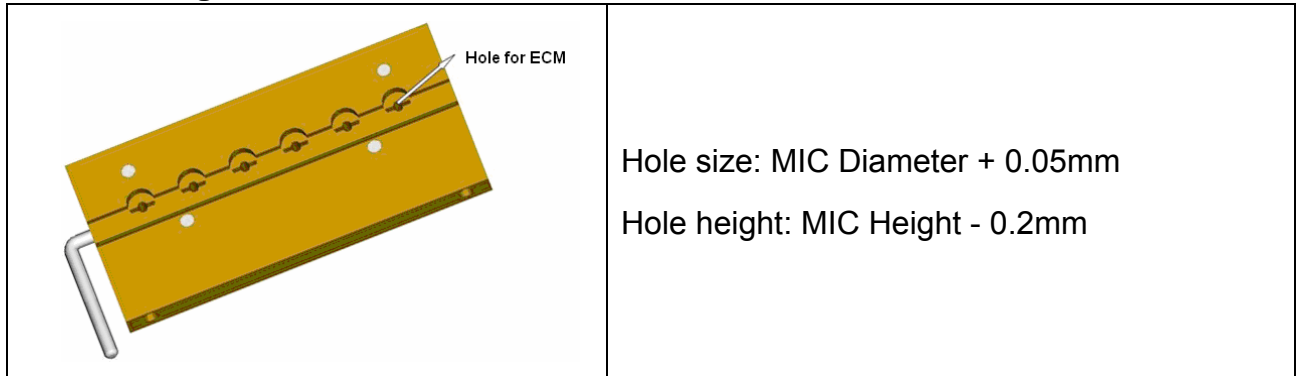


Fig. 10-1 Soldering Fixture

## 11. Special Cautions

### 11.1 Environmental Condition

Storage Condition:  $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$ .

Operation Condition:  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ .

Arbitration Condition:  $20^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , R.H. 63%~67%, Air pressure: 86~106Kpa.

### 11.2 Storage

Keep ECM in warehouse with humidity less than 75%R.H. and without sudden temperature change, acid air, any other harmful air or strong magnetic field.

Please protect products against moist, shock, sunburn and pressure.

Please take proper measures against ESD in the process. Please use the shipment package for long-term storage.