



soberton inc.

EM ELECTRET CONDENSER MICROPHONE

Acoustic Product Specification

Product No: EM-6027LRNW



Release | Revision: B/2019

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Electrical Characteristics

Temperature = 20±2°C Humidity = 65±5%

Sensitivity

Symbol: S Unit: dB
Condition: 0dB=1V/Pa, at 1KHz
Limits: Min: -45 Center: -42 Max: -39

Output impedance

Symbol: Z out Unit: KΩ
Condition: f=1kHz
Limits: Max: 2.2

Current Consumption

Symbol: I_{DSS} Unit: μA
Condition: V_{CC} = 2.0V, R_L = 2.2KΩ
Limits: Max: 500

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: ΔS-VS Unit: dB
Condition: V_{CC} = 2.0V to 1.0V
Limits: Max: -3

Operating Voltage

Unit: V
Limits: Min: 1.0 Max: 10

Maximum input S.P.L

Unit: dB
Limits: Max: 110

Dimension

Ø 6.0x2.7mm
Rubber Seal: 8.0x4.7mm

Wire

86mm (UL3302 / AWG32#)

Connector

11251H00-2P-HF Pin: 1.25mm

IP Level

IP65



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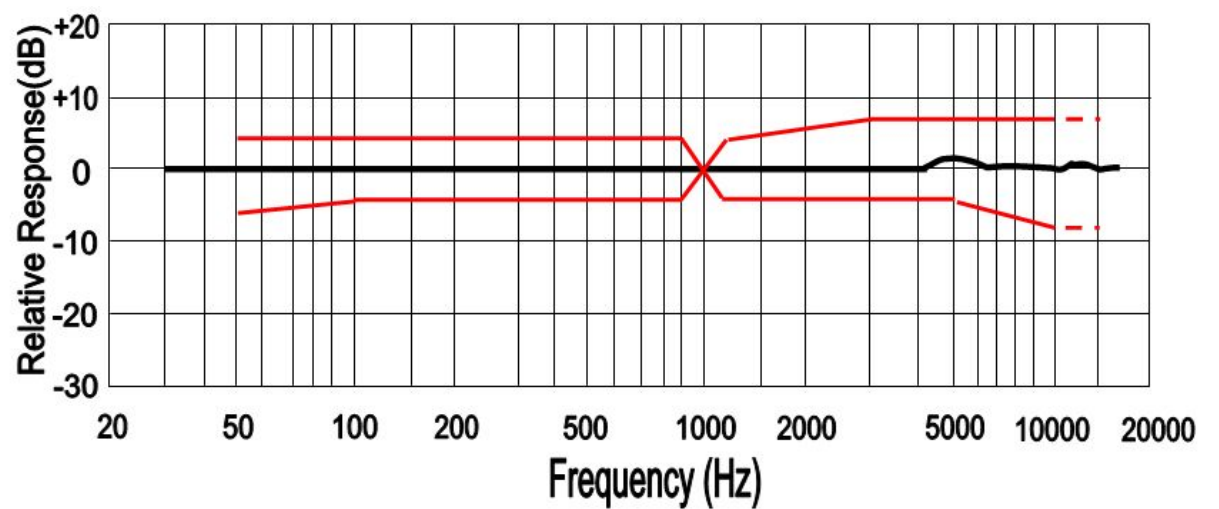
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Typical Frequency Response Curve

Frequency Response

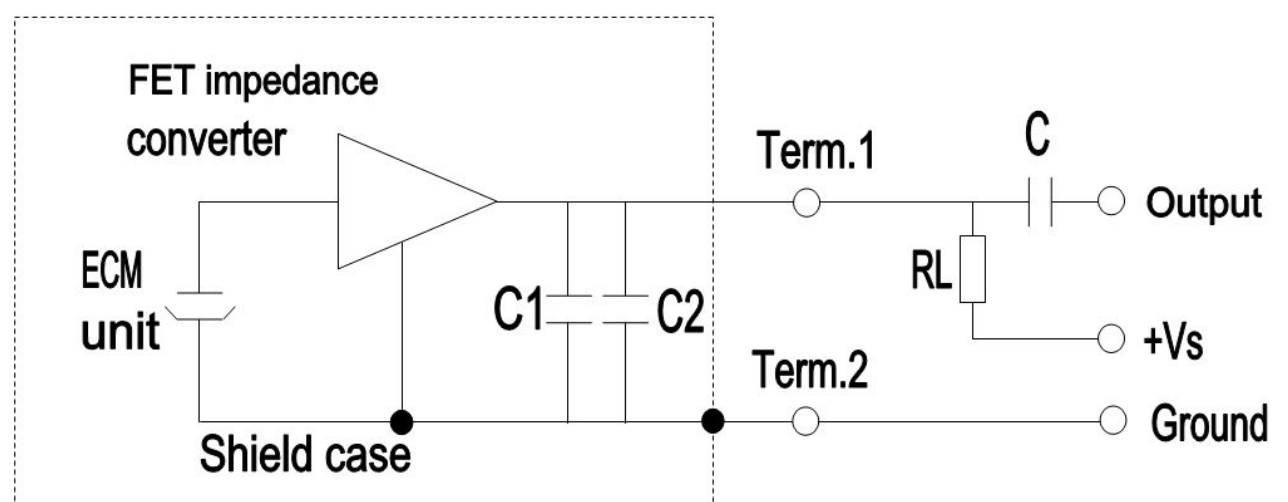


Microphone Response Tolerance Window

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 = 2.2KΩ Vs = 2.0V C1 = 10pF C2=33pF C = 1μF





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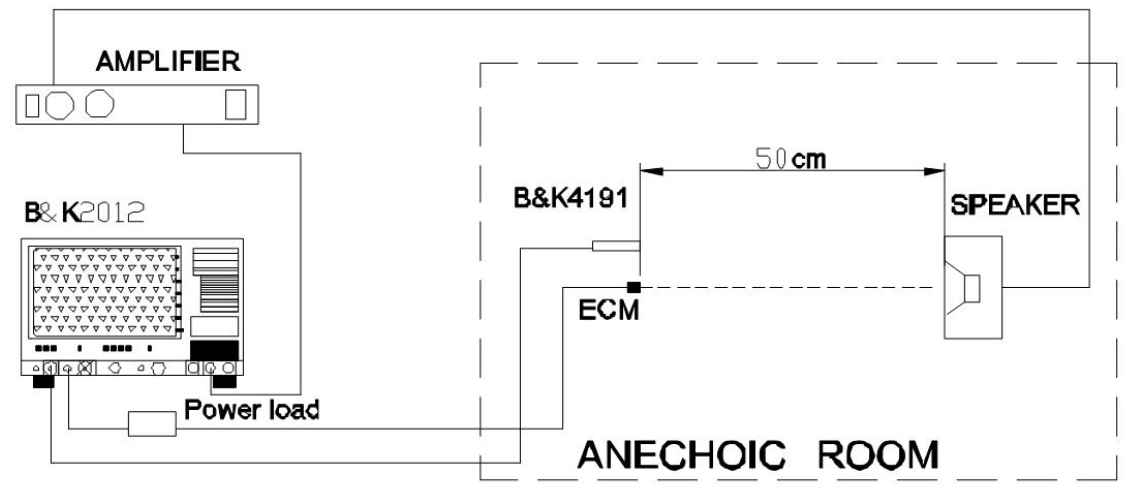
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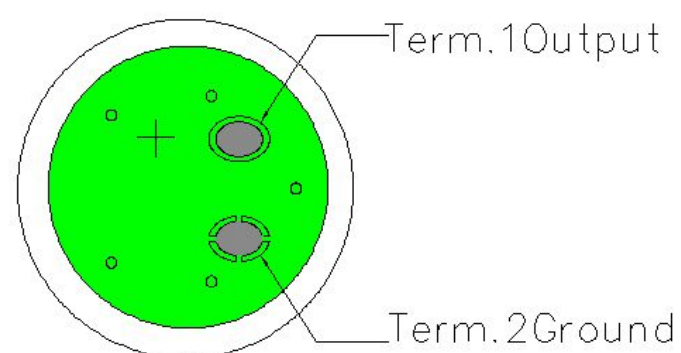
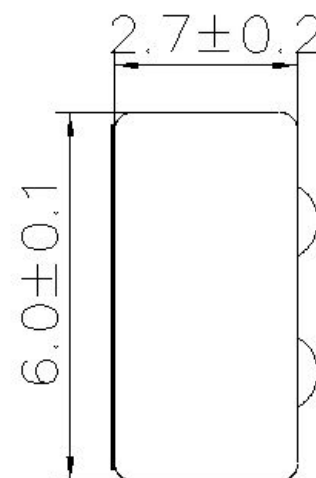
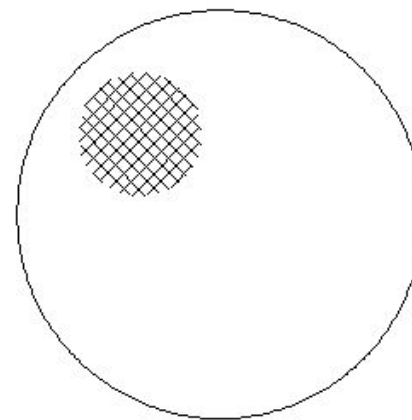
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Measurement Setup Drawing



Product External and Dimension

Unit: mm





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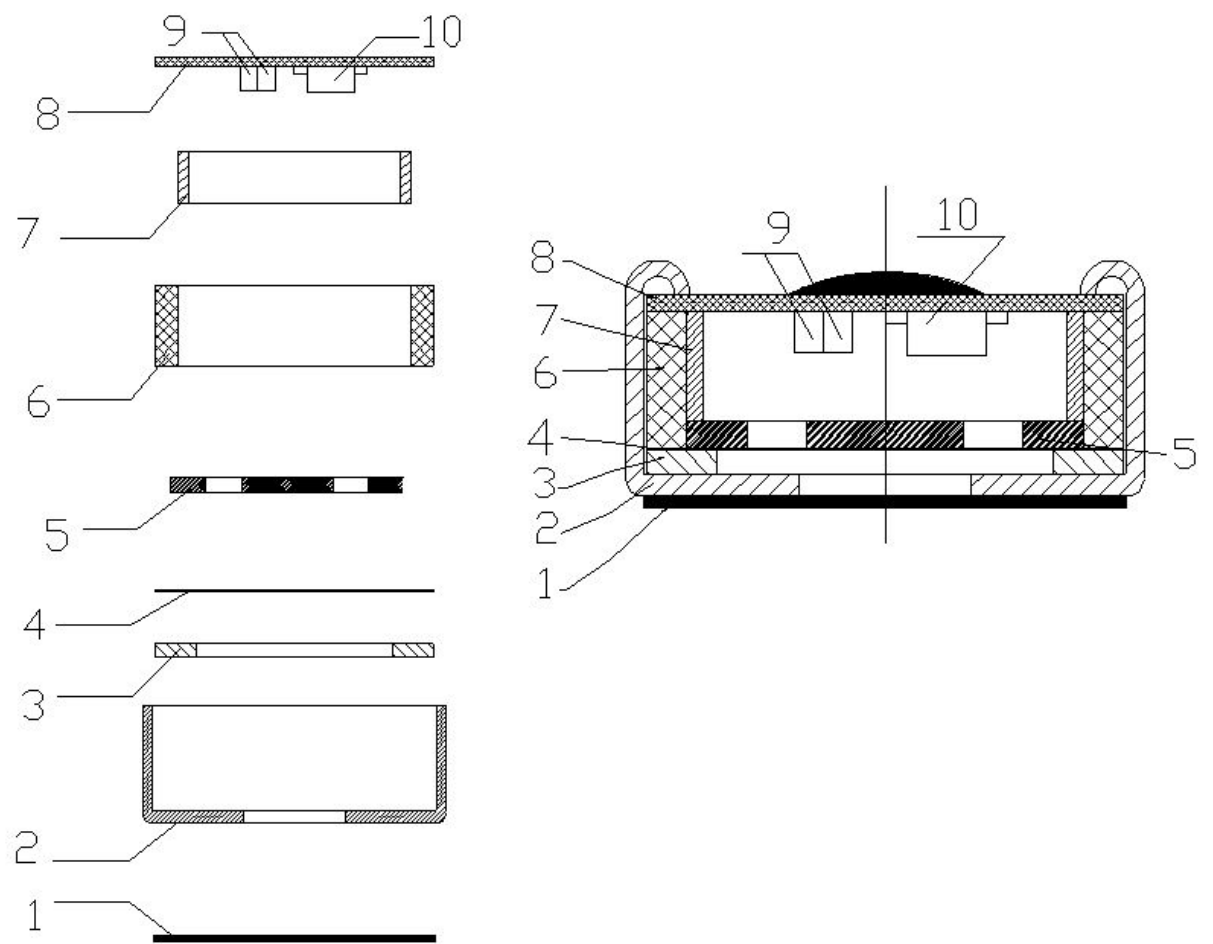
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Exploded Drawing and Material Table



No.	Part Name	Material	Quantity
1	Felt	Fabric Cloth	1
2	Case	Al-Mg Alloy	1
3	Polarized Diaphragm	Dupont	1
4	Spacer	Mylar	1
5	Electret Back	Copper Blank	1
6	Housing Chamber	Gather formaldehyde	1
7	Copper ring	Copper Tube	1
8	PCB	FR-4	1
9	CAP	10pF +33pF	
10	FET		1



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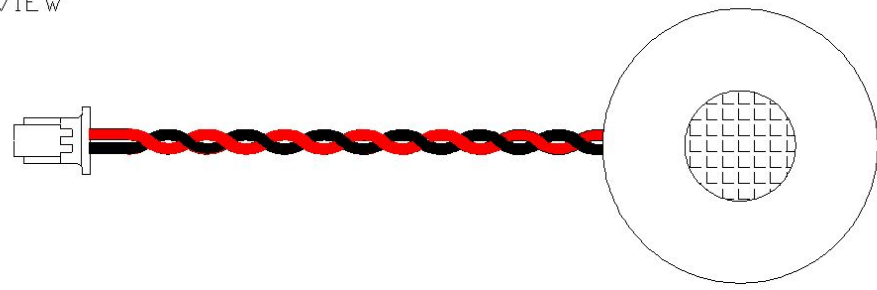
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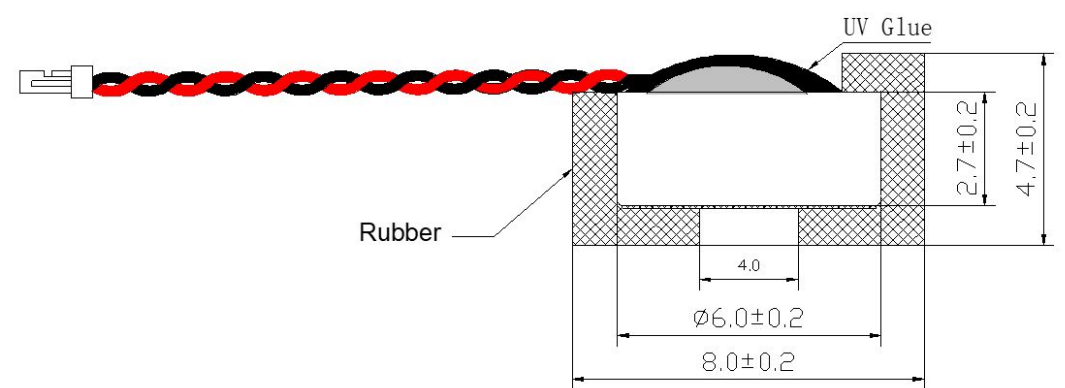
Accessory Drawing

Unit: mm

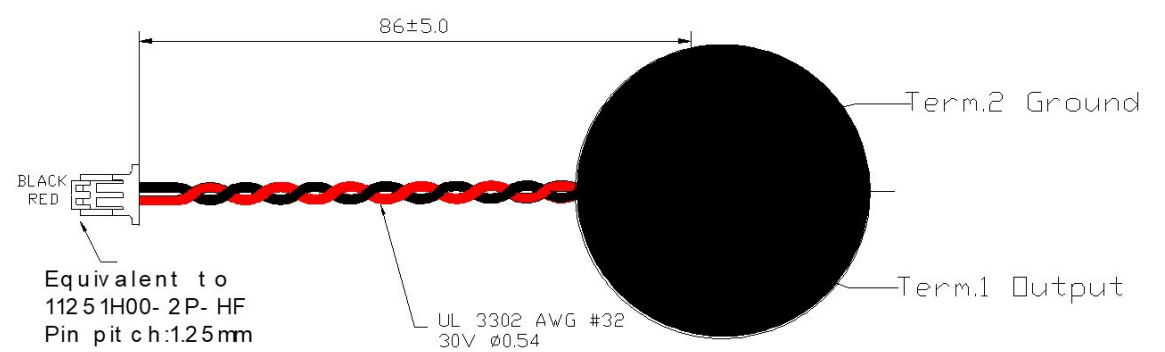
TOP VIEW



SIDE VIEW



BOTTOM VIEW





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Temperature Conditions

Operating Temperature Range

-40°C~+85°C

Storage Temperature Range

-40°C~+85°C

Terminal Mechanical Strength

Terminal mechanical strength to be no interference in operation after pulled the terminal with 1kg strength for 1 minute.

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

High Temperature Test

+85°C for 240 hours.

Low Temperature Test

-40°C for 240 hours.

Humidity Test

90%~95%RH,+60°C for 240 hours.

Thermal Shock Test

-40°C, 30 minutes \leftrightarrow +80°C, 30 minutes, repeated 32 cycles \rightarrow room temperature, 3 hours.

Temperature Cycles

-40°C \leftrightarrow +20°C \leftrightarrow +85°C \leftrightarrow +20°C \leftrightarrow -40°C
(2h) (0.5h) (2h) (0.1h) (2h) (0.5h) (2h) (0.5h) (2h) for 5 cycles.

Packing Drop Test

Height: 1.5m

Procedure: 5 times from each 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

IP Level

IP65 (UV Glue and Waterproof)



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Soldering Condition

We suggest using anti-static welding machine which can control soldering temperature automatically.

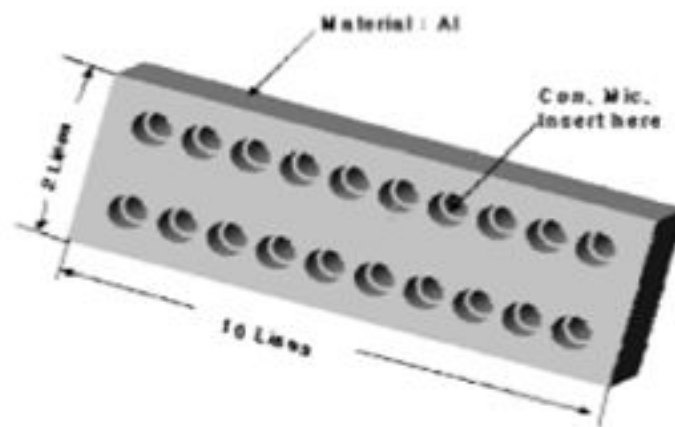
Soldering temperature should be controlled under 320°C and soldering time for each terminal should be 1~2 seconds.

Microphone should be fixed on the metal block (heat sink), which has high radiation effects, and heat sink shall contact with MIC tightly.

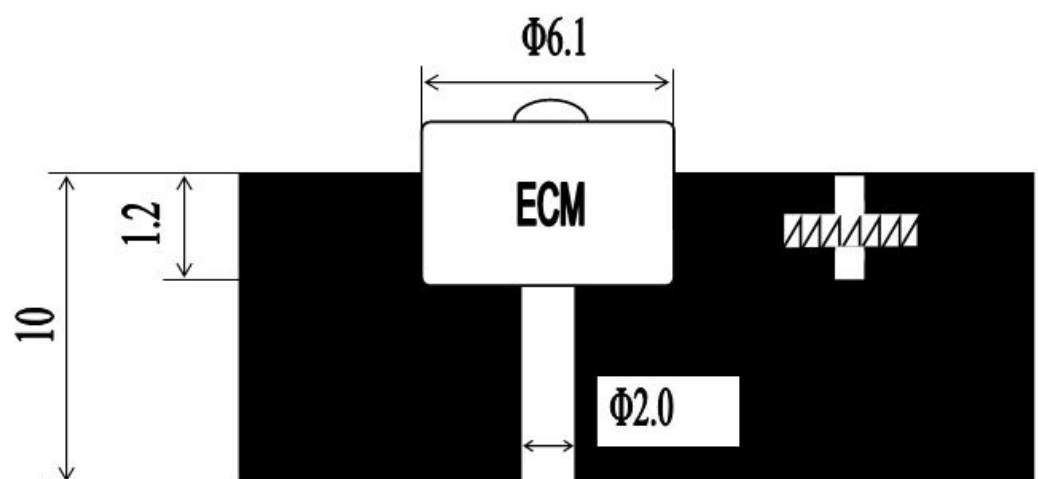
Microphone may easily be destroyed by the static electricity. The countermeasure for eliminating the static electricity shall be by grounding the worktable and operator.

Heat Sink

Shape of heat sink



Shape of hole at fixed part





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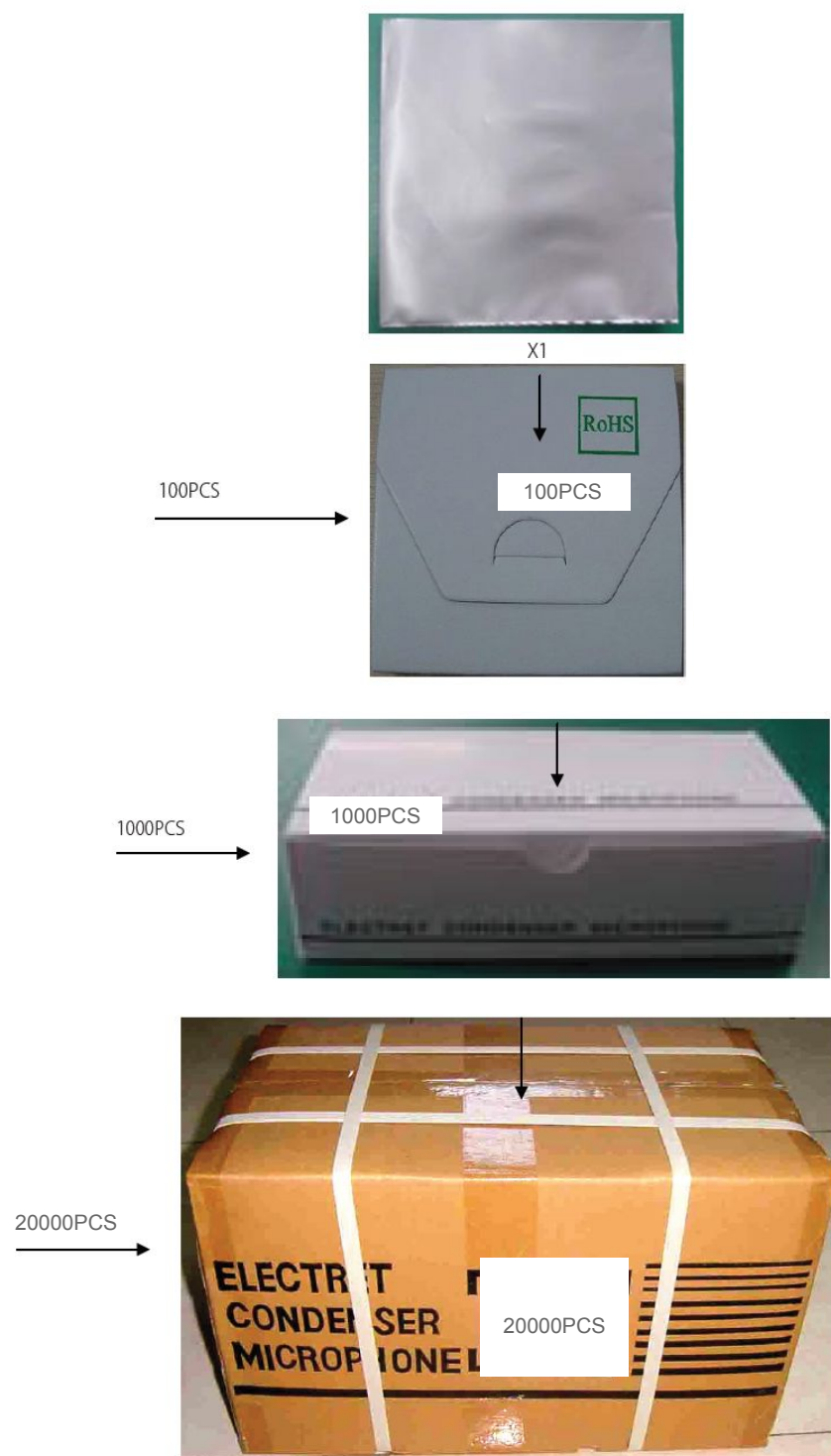
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Details

Dimension: (length x width x height) unit:mm

- Anti-Static Bag:**
100 x 100 x 2mm
- Small Box:**
100 x 100 x 10mm
- Middle Box:**
205 x 105 x 50mm
- Carton Size:**
550 x 230 x 235mm

Quantity and Weight

- Small Box:** 100 pcs
- Middle Box:** 1,000 pcs
- Carton:** 20,000 pcs
- 1PC:** 0.2g
- Net Weight:** 4.0kg
- Gross Weight:** 7.0kg