



soberton inc.

EM ELECTRET  
CONDENSER  
MICROPHONE

Acoustic Product Specification

Product No: EM-6027UN-38



Release | Revision: A/2019

TYPE: Noise Cancelling

CONTENTS

This document contains the technical specifications for the Unidirectional Noise Cancelling electret condenser microphone.

Page 1  
Electrical Characteristics

Page 2  
Typical Frequency Response Curve  
Measurement Circuit

Page 3  
Measurement Setup Drawing  
Product External and Dimensions

Page 4  
Exploded Drawing  
Material Table

Page 5  
Temperature Conditions  
Reliability Test

Page 6  
Soldering Condition  
Heat Sink

Page 7  
Packing

Electrical Characteristics  
Temperature =20±2°C Humidity=65±5% Air pressure=86 to 106 KPa

Sensitivity

Symbol: S                      Unit: dB  
  
Condition: 0dB=1V/Pa, at 1KHz  
  
Limits: Min: -41    Center: -38    Max: -35

Output impedance

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

Current Consumption

Symbol: IDSS                Unit: μA  
  
Condition: V<sub>CC</sub>=2.0V, R<sub>L</sub>=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: 70

Decreasing Voltage

Symbol: ΔS-VS            Unit: dB  
  
Condition: V<sub>CC</sub> = 3.0V to 2.0V  
  
Limits: Max: -3

Operating Voltage

Unit: V  
  
Limits: Min: 1.0    Max: 10

Maximum input S.P.L

Unit: dB  
  
Condition: THD<3%, 1kHz  
  
Limits: Max: 110

Directional Sensitivity

Condition: 1kHz @ 180 degree  
  
Limits: Min: 10  
  
Unit: dB

Dimension

Ø 6.0x2.7mm

IP Level

IP50



soberton inc.

EM ELECTRET  
CONDENSER  
MICROPHONE

Acoustic Product Specification

Product No: EM-6027UN-38



Release | Revision: A/2019

TYPE: Noise Cancelling

CONTENTS

This document contains the technical specifications for the Unidirectional Noise Cancelling electret condenser microphone.

Page 1  
Electrical Characteristics

Page 2  
Typical Frequency Response Curve  
Measurement Circuit

Page 3  
Measurement Setup Drawing  
Product External and Dimensions

Page 4  
Exploded Drawing  
Material Table

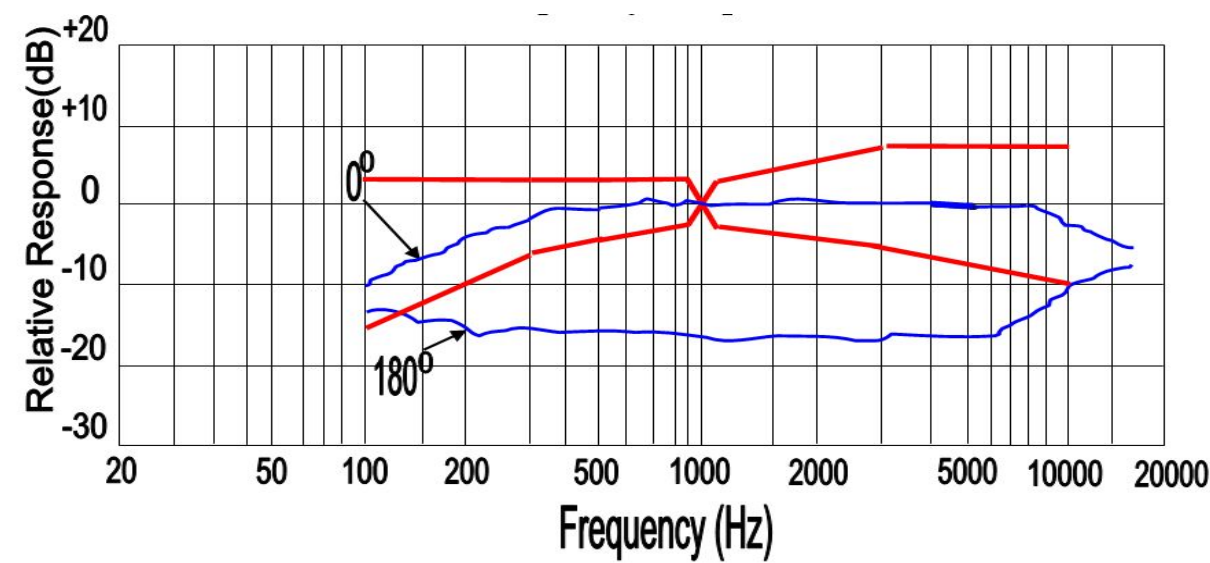
Page 5  
Temperature Conditions  
Reliability Test

Page 6  
Soldering Condition  
Heat Sink

Page 7  
Packing

Typical Frequency Response Curve

Frequency Response

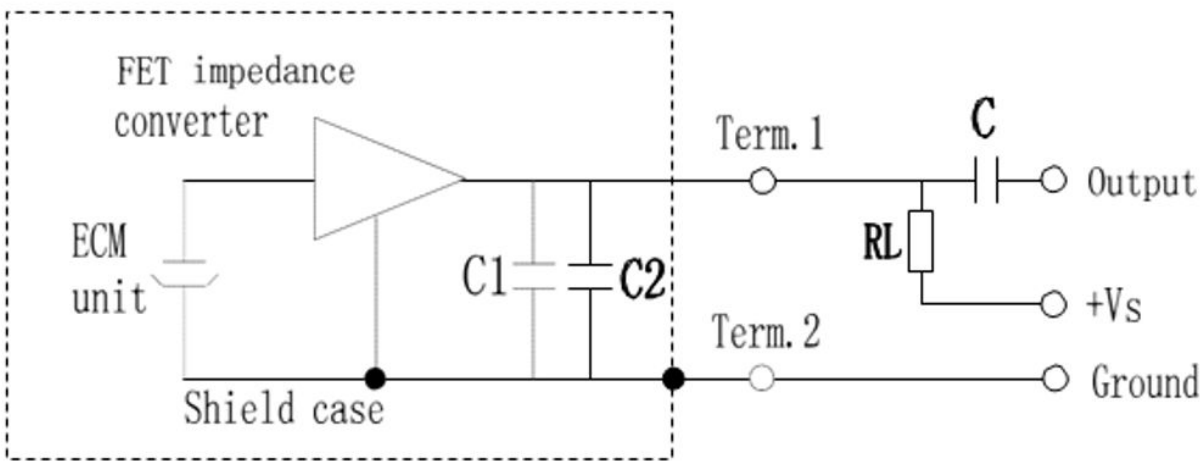


Microphone Response Tolerance Window

| Frequency(Hz) | Lower Limit(dB) | Upper Limit(dB) |
|---------------|-----------------|-----------------|
| 100           | -15             | +3              |
| 800           | -4              | +3              |
| 1000          | 0               | 0               |
| 1200          | -4              | +4              |
| 3000          | -5              | +8              |
| 5000          | -6              | +8              |
| 10000         | -10             | +8              |

Measurement Circuit

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





soberton inc.

EM ELECTRET  
CONDENSER  
MICROPHONE

Acoustic Product Specification

Product No: EM-6027UN-38



Release | Revision: A/2019

TYPE: Noise Cancelling

CONTENTS

This document contains the technical specifications for the Unidirectional Noise Cancelling electret condenser microphone.

Page 1  
Electrical Characteristics

Page 2  
Typical Frequency Response Curve  
Measurement Circuit

Page 3  
Measurement Setup Drawing  
Product External and Dimensions

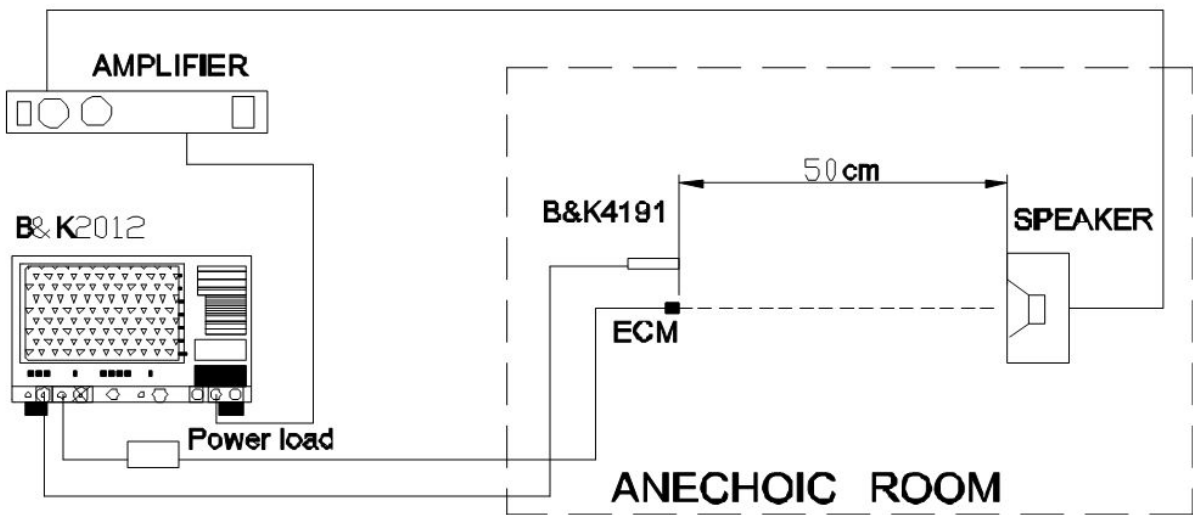
Page 4  
Exploded Drawing  
Material Table

Page 5  
Temperature Conditions  
Reliability Test

Page 6  
Soldering Condition  
Heat Sink

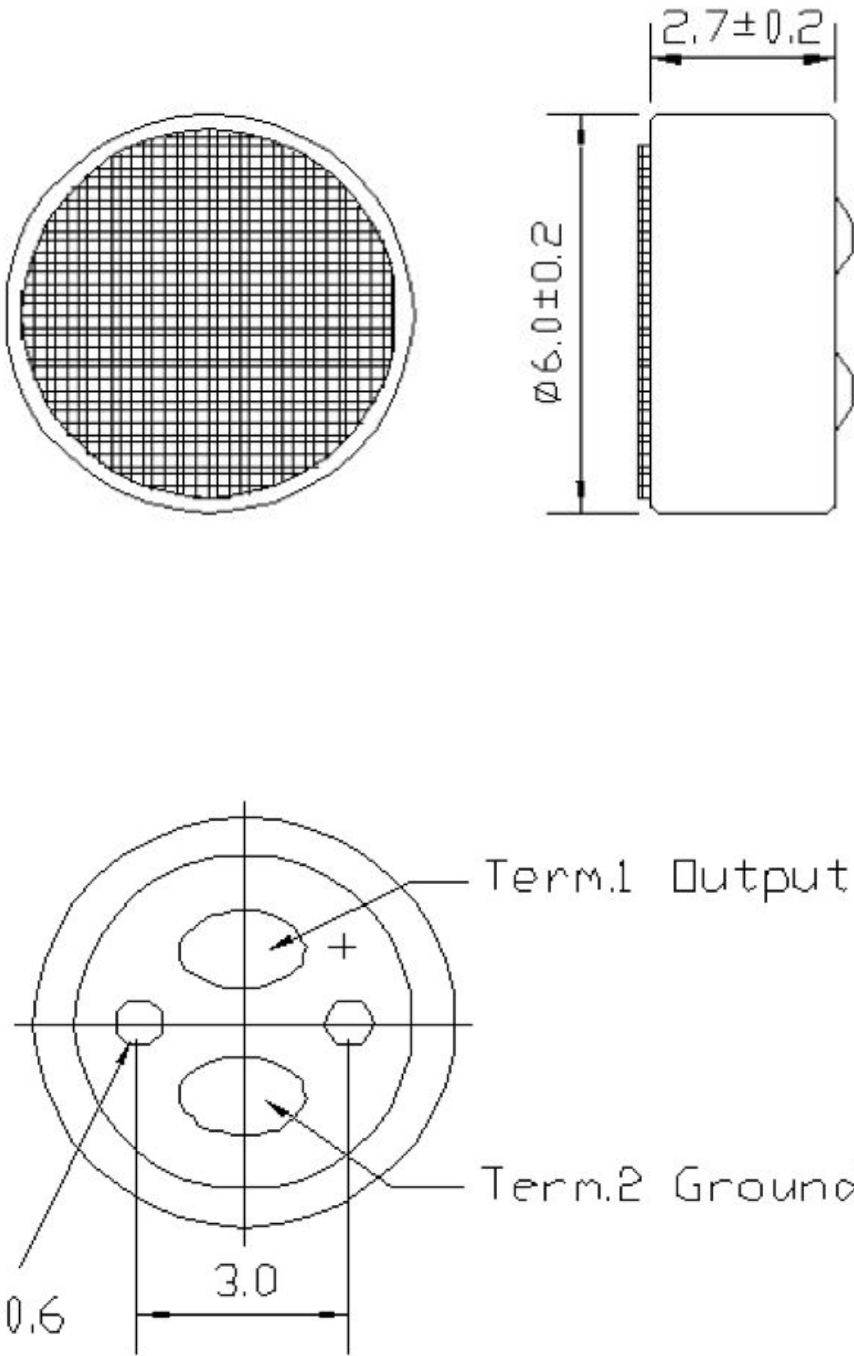
Page 7  
Packing

Measurement Setup Drawing



Product External and Dimension

Unit: mm





soberton inc.

EM ELECTRET  
CONDENSER  
MICROPHONE

Acoustic Product Specification

Product No: EM-6027UN-38



Release | Revision: A/2019

TYPE: Noise Cancelling

CONTENTS

This document contains the technical specifications for the Unidirectional Noise Cancelling electret condenser microphone.

Page 1  
Electrical Characteristics

Page 2  
Typical Frequency Response Curve  
Measurement Circuit

Page 3  
Measurement Setup Drawing  
Product External and Dimensions

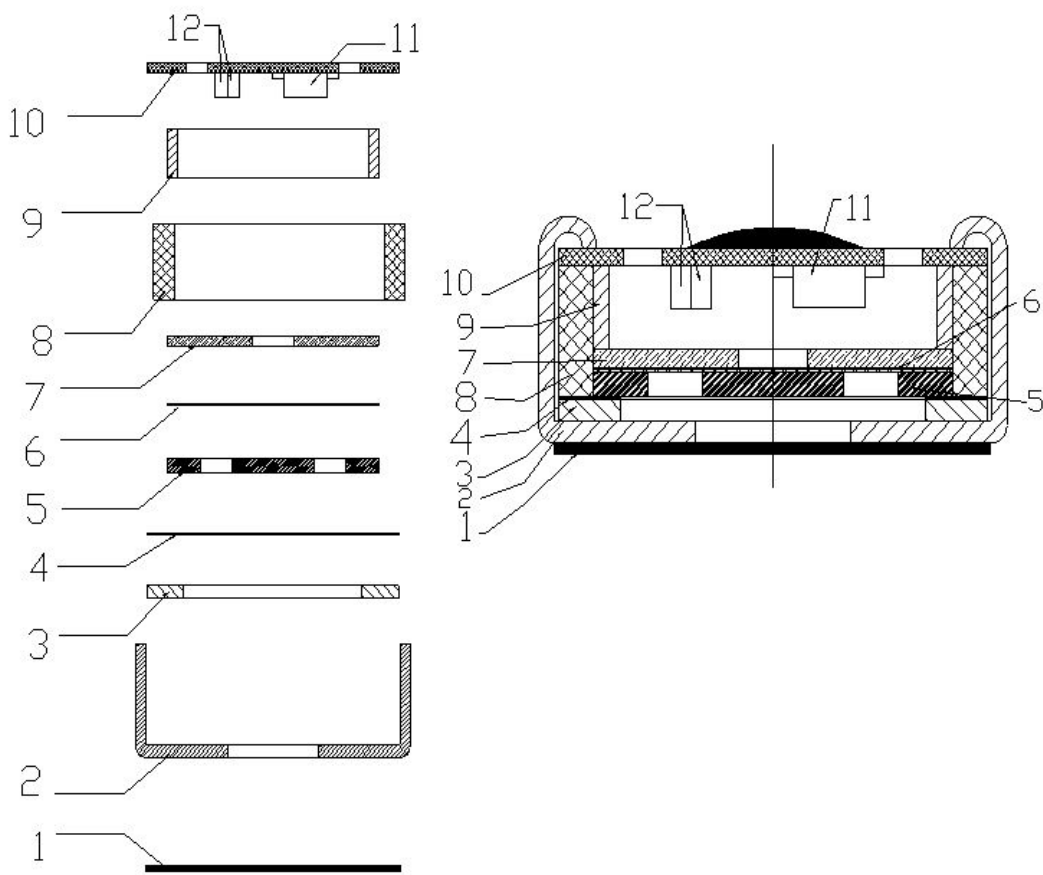
Page 4  
Exploded Drawing  
Material Table

Page 5  
Temperature Conditions  
Reliability Test

Page 6  
Soldering Condition  
Heat Sink

Page 7  
Packing

Exploded Drawing and Material Table



| No. | Part Name       | Material    | Quantity |
|-----|-----------------|-------------|----------|
| 1   | Dustproof Gauze |             | 1        |
| 2   | Case            | Al-Mg Alloy | 1        |
| 3   | Diaphragm       |             | 1        |
| 4   | Spacer          |             | 1        |
| 5   | Electret Plate  |             |          |
| 6   | Damping         |             | 1        |
| 7   | One Hole Plate  |             |          |
| 8   | Chamber         |             | 1        |
| 9   | Copper Ring     |             | 1        |
| 10  | PCB             | FR-4        | 1        |
| 11  | FET             |             | 1        |
| 12  | Capacitance     | 10pF+33pF   | 2        |



soberton inc.

EM ELECTRET  
CONDENSER  
MICROPHONE

Acoustic Product Specification

Product No: EM-6027UN-38



Release | Revision: A/2019

TYPE: Noise Cancelling

CONTENTS

This document contains the technical specifications for the Unidirectional Noise Cancelling electret condenser microphone.

Page 1  
Electrical Characteristics

Page 2  
Typical Frequency Response Curve  
Measurement Circuit

Page 3  
Measurement Setup Drawing  
Product External and Dimensions

Page 4  
Exploded Drawing  
Material Table

Page 5  
Temperature Conditions  
Reliability Test

Page 6  
Soldering Condition  
Heat Sink

Page 7  
Packing

Temperature Conditions

Operating Temperature Range

-40°C~+85°C

Storage Temperature Range

-40°C~+85°C

Reliability Test

After each of the following tests, the sensitivity of the microphone should be within ±3dB 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,+40°C for 240 hours.

Thermal Shock Test

-40°C, 30 minutes ↔ +80°C, 30 minutes, repeated 32 cycles → room temperature, 3 hours.

Temperature Cycles

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

Packing Drop Test

Height: 1.5m

Procedure: 5 times from each of 3 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





soberton inc.

EM ELECTRET  
CONDENSER  
MICROPHONE

Acoustic Product Specification

Product No: EM-6027UN-38



Release | Revision: A/2019

TYPE: Noise Cancelling

CONTENTS

This document contains the technical specifications for the Unidirectional Noise Cancelling electret condenser microphone.

Page 1  
Electrical Characteristics

Page 2  
Typical Frequency Response Curve  
Measurement Circuit

Page 3  
Measurement Setup Drawing  
Product External and Dimensions

Page 4  
Exploded Drawing  
Material Table

Page 5  
Temperature Conditions  
Reliability Test

Page 6  
Soldering Condition  
Heat Sink

Page 7  
Packing

Soldering Condition

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

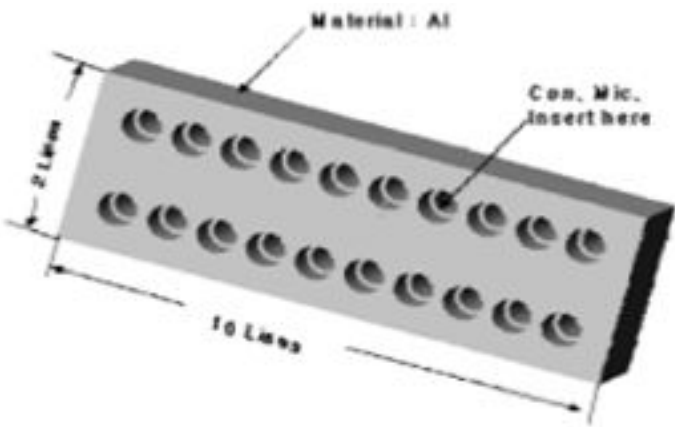
Soldering temperature should be controlled under 320°C and soldering time for each terminal should be 1~2 seconds.

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

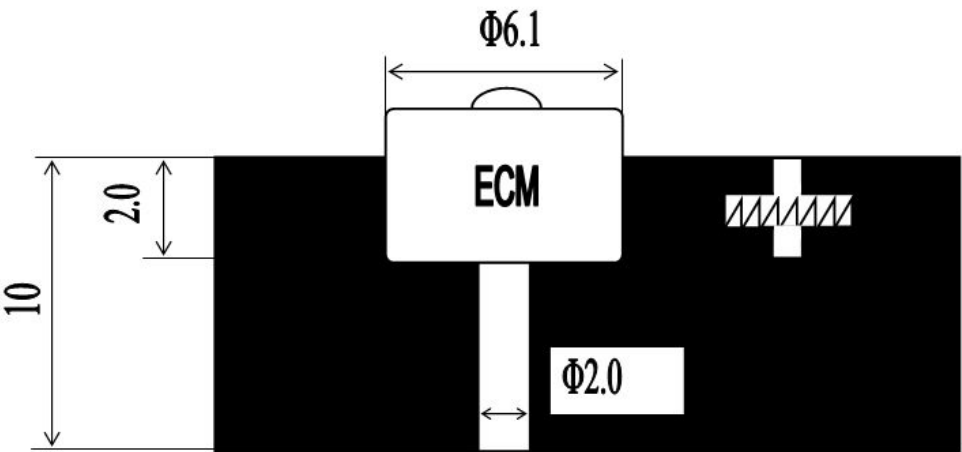
Microphone may easily be destroyed by the static electricity. The countermeasure for eliminating the static electricity shall be by grounding the worktable and operator.

Heat Sink

Shape of heat sink



Shape of hole at fixed part





soberton inc.

EM ELECTRET  
CONDENSER  
MICROPHONE

Acoustic Product Specification

Product No: EM-6027UN-38



Release | Revision: A/2019

TYPE: Noise Cancelling

CONTENTS

This document contains the technical specifications for the Unidirectional Noise Cancelling electret condenser microphone.

Page 1  
Electrical Characteristics

Page 2  
Typical Frequency Response Curve  
Measurement Circuit

Page 3  
Measurement Setup Drawing  
Product External and Dimensions

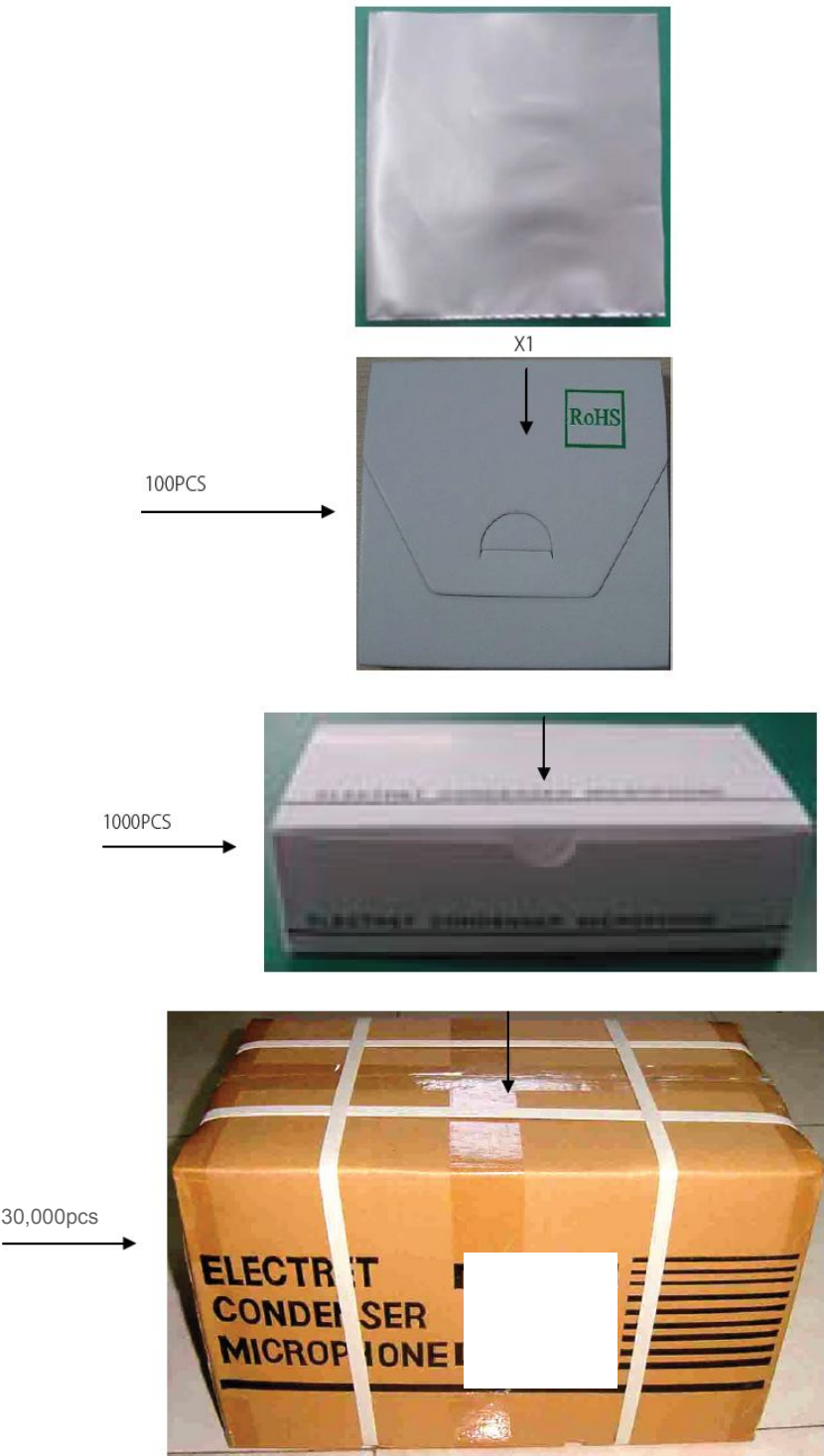
Page 4  
Exploded Drawing  
Material Table

Page 5  
Temperature Conditions  
Reliability Test

Page 6  
Soldering Condition  
Heat Sink

Page 7  
Packing

Packing



Details

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

- Anti-Static Bag:  
80 x 80 x 2mm
- Small Box:  
85 x 85 x 10mm
- Middle Box:  
175 x 85 x 50mm
- Carton Size:  
550 x 230 x 235mm

Quantity and Weight

- Small Box: 100 pcs
- Middle Box: 1,000 pcs
- Carton: 30,000 pcs
- 1PC: 0.2g
- Net Weight: 6.0kg
- Gross Weight: 10.0kg