



soberton inc.

EM ELECTRET CONDENSER MICROPHONE

Acoustic Product Specification

Product Number: EM-9745P-46



Release | Revision: C/2019

CONTENTS

This document contains the technical specifications for the omni directional electret condenser microphone.

Page 1
Electrical Characteristics

Page 2
Typical Frequency Response Curve
Measurement Circuit

Page 3
Measurement Setup Drawing
Product External and Dimensions
Pad Layout

Page 4
Exploded Drawing
Material Table

Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

Page 7
Packing

Electrical Characteristics

Sensitivity

Symbol: S Unit: dB

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

Limits: Min: -49 Center: -46 Max: -43

Output Impedance

Symbol: Z out Unit: KΩ

Condition: f=1kHz

Limits: Max: 2.2

Current Consumption

Symbol: I_{DSS} Unit: μA

Condition: V_{CC} =3.0V, 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}= 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

Limits: Max: 110

Testing Condition

Temperature: 20±2°C

Humidity: 65±5%

Air Pressure: 86~106KPa

Dimension

Ø9.7 x 4.5 mm

IP Level

IP50



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Page 1
Electrical Characteristics

Page 2
Typical Frequency Response Curve
Measurement Circuit

Page 3
Measurement Setup Drawing
Product External and Dimensions
Pad Layout

Page 4
Exploded Drawing
Material Table

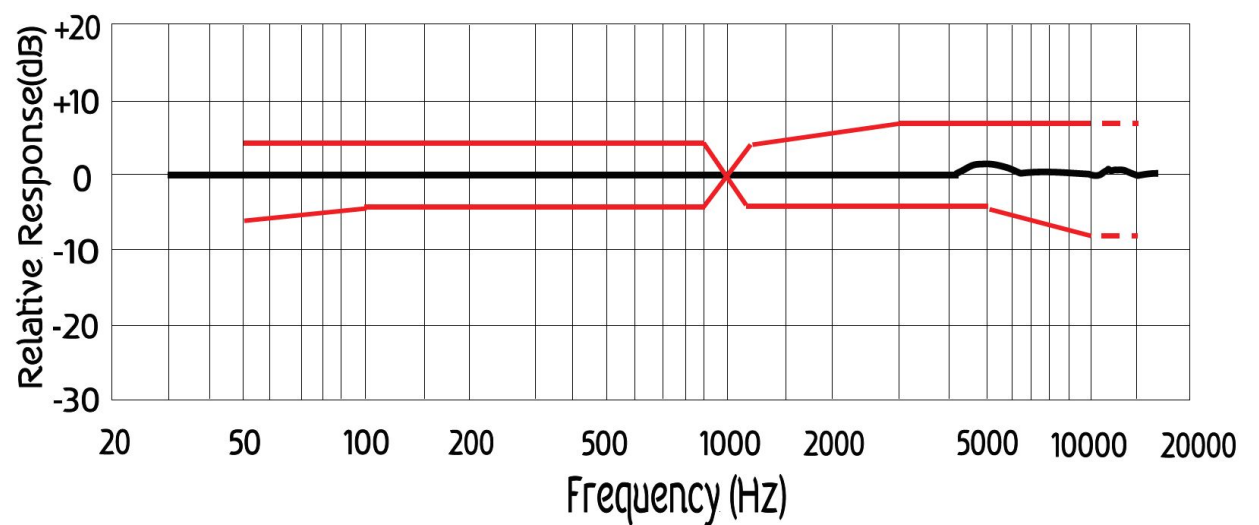
Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

Page 7
Packing

Typical Frequency Response Curve

Frequency Response

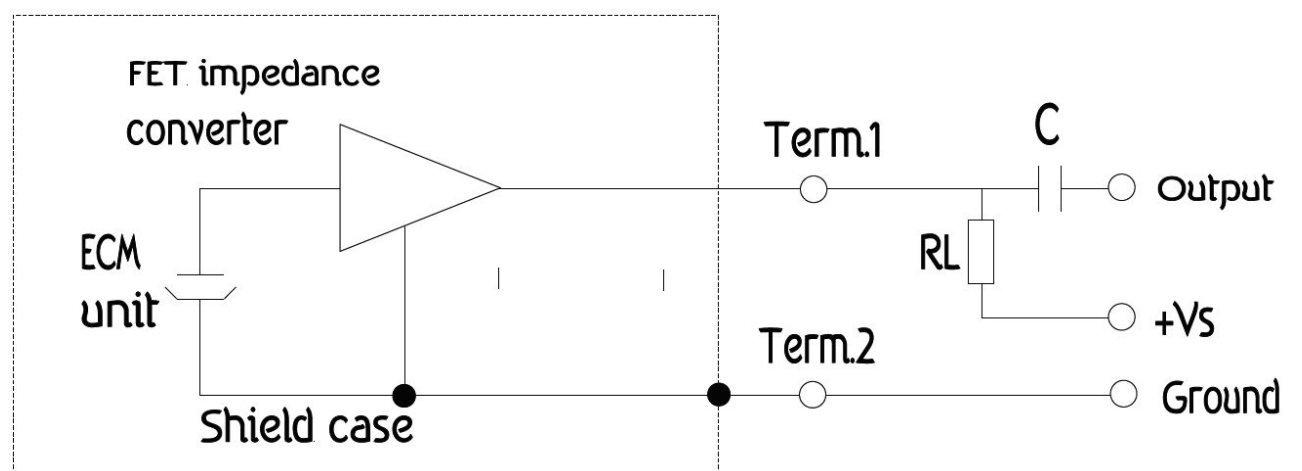


Microphone Response Tolerance Window

Frequency(Hz)	Lower Limit(dB)	Upper Limit(dB)
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

$R_L = 2.2K\Omega$ $V_s = 3.0V$ $C = 1\mu F$





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Page 1
Electrical Characteristics

Page 2
Typical Frequency Response Curve
Measurement Circuit

Page 3
Measurement Setup Drawing
Product External and Dimensions
Pad Layout

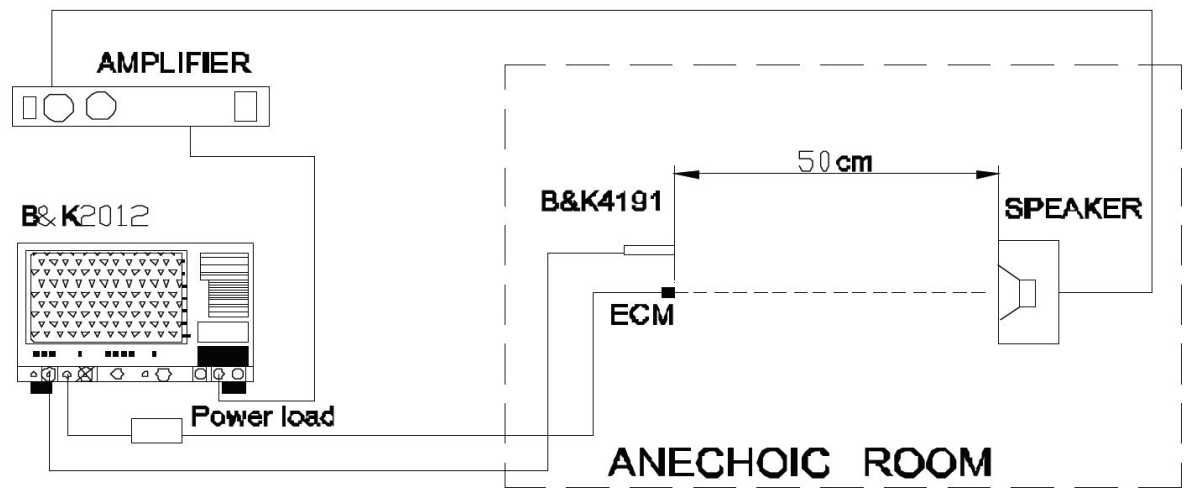
Page 4
Exploded Drawing
Material Table

Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

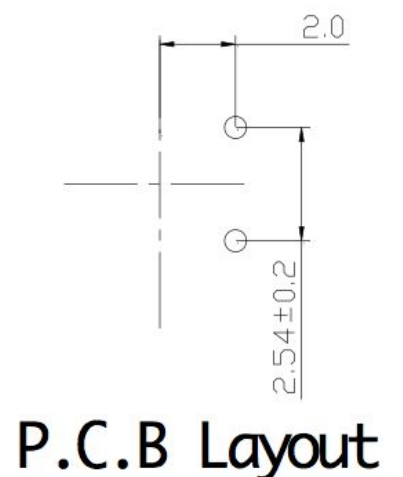
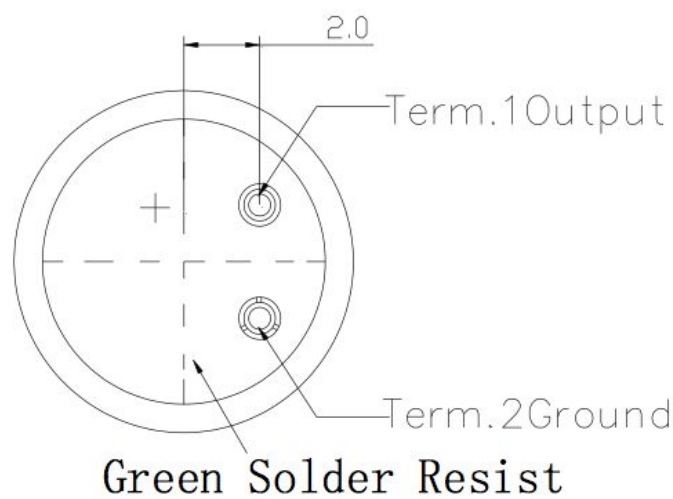
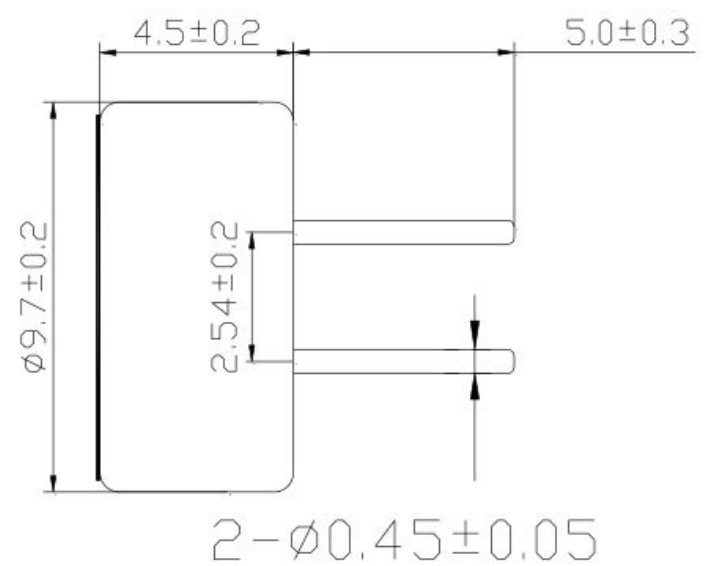
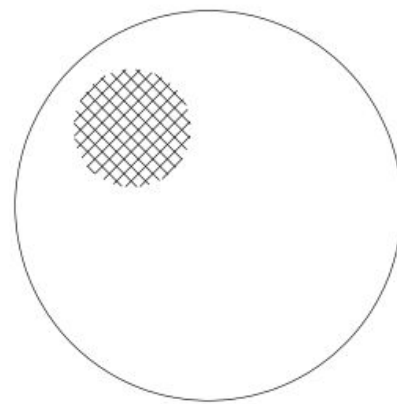
Page 7
Packing

Measurement Setup Drawing



Product External and Dimension

Unit: mm



P.C.B Layout



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Page 1

Electrical Characteristics

Page 2

Typical Frequency Response Curve
Measurement Circuit

Page 3

Measurement Setup Drawing
Product External and Dimensions
Pad Layout

Page 4

Exploded Drawing
Material Table

Page 5

Temperature Conditions
Terminal Mechanical Strength
Reliability Test

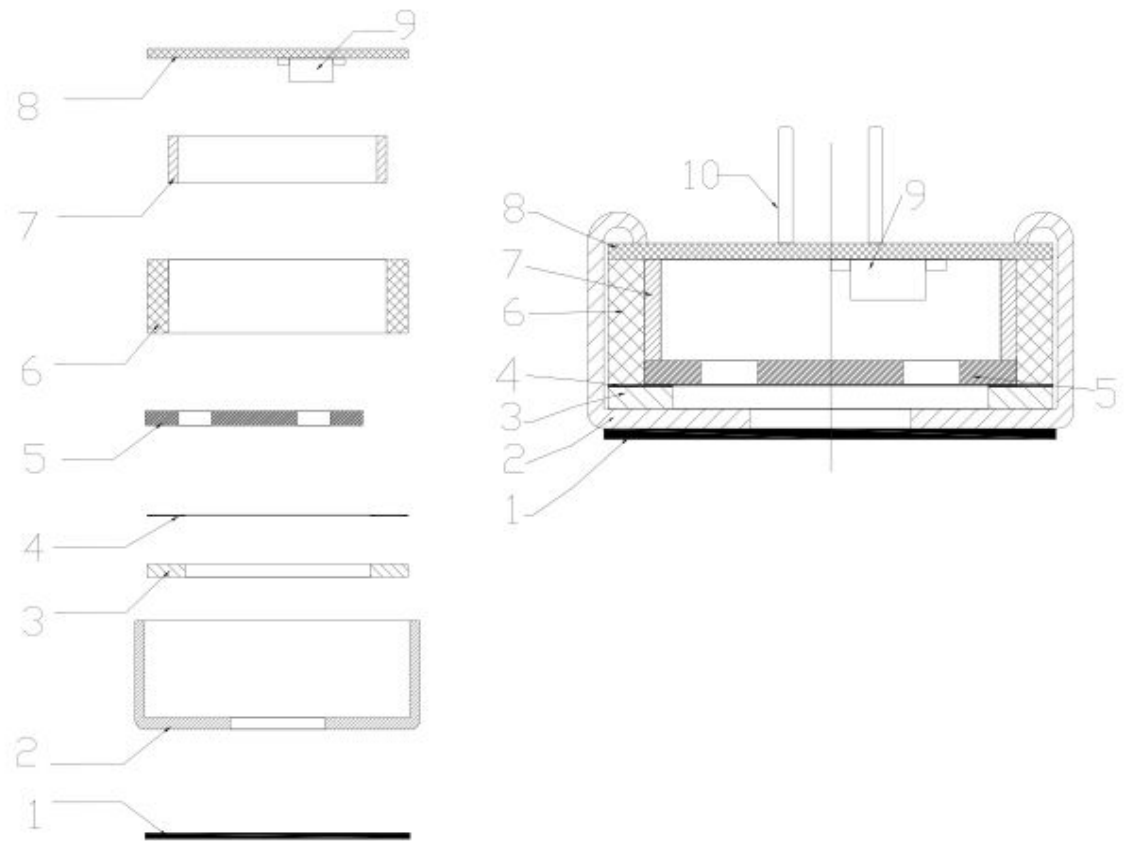
Page 6

Soldering Condition
Heat Sink

Page 7

Packing

Exploded Drawing and Material Table



No.	Part Name	Material	Quantity	Remark
1	Felt	Fabric Cloth	1	
2	Case	Al & Mg Alloy	1	
3	Diaphragm		1	
4	Spacer		1	
5	Electret Back	Copper Blank	1	
6	Housing Chamber		1	
7	Copper Ring		1	
8	PCB	FR-4	1	
9	FET		1	
10	PIN		2	



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Page 1
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Page 2
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Measurement Circuit

Page 3
Measurement Setup Drawing
Product External and Dimensions
Pad Layout

Page 4
Exploded Drawing
Material Table

Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

Page 7
Packing

Temperature Conditions

Operating Temperature Range

-40°C~+75°C

Storage Temperature Range

-40°C~+75°C

Note: Store in electronic warehouse.

Terminal Mechanical Strength

Test by pulling the terminal with 1 kg pressure for 1 minute. No performance defects will be shown.

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

+70°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 +70°C, 30 minutes, repeated 32 cycles \rightarrow room temperature, 3 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: 1.5m

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



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Measurement Circuit

Page 3
Measurement Setup Drawing
Product External and Dimensions
Pad Layout

Page 4
Exploded Drawing
Material Table

Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

Page 7
Packing

Soldering Condition

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

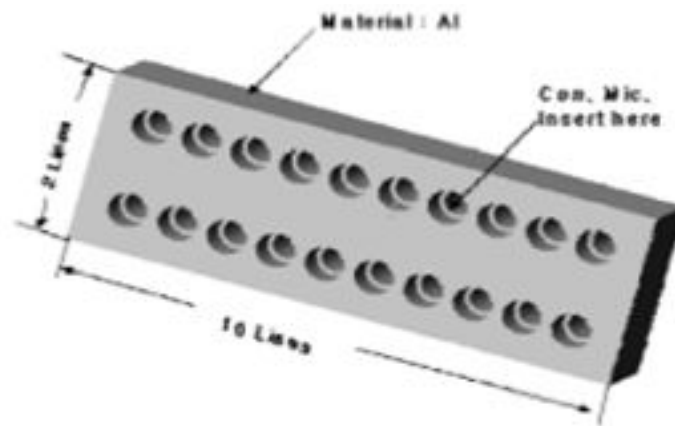
Soldering temperature should be controlled under 320°C and soldering time for each terminal should be 1~2 seconds.

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

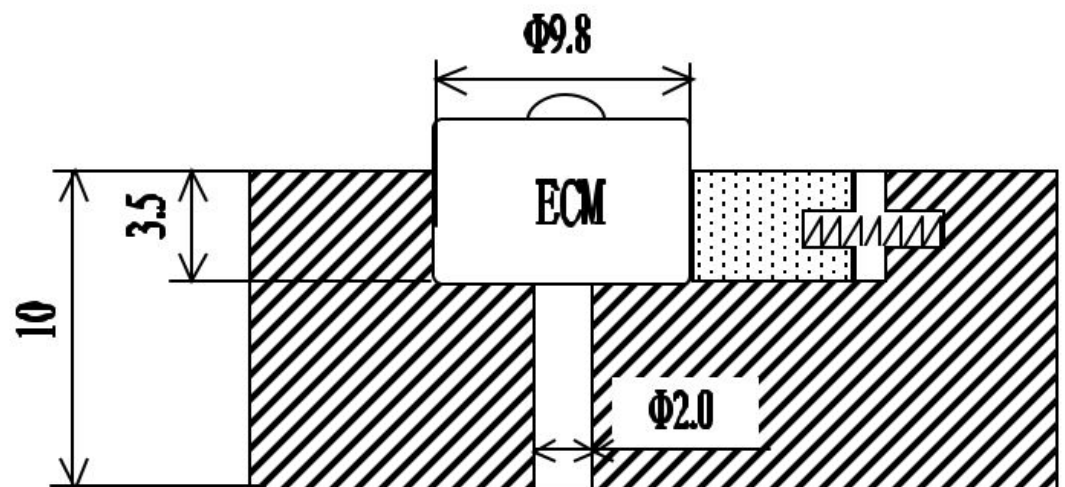
Microphone may easily be destroyed by the static electricity. The countermeasure for eliminating the static electricity shall be by grounding the worktable and operator.

Heat Sink

Shape of heat sink



Shape of hole at fixed part





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Page 3

Measurement Setup Drawing
Product External and Dimensions
Pad Layout

Page 4

Exploded Drawing
Material Table

Page 5

Temperature Conditions
Terminal Mechanical Strength
Reliability Test

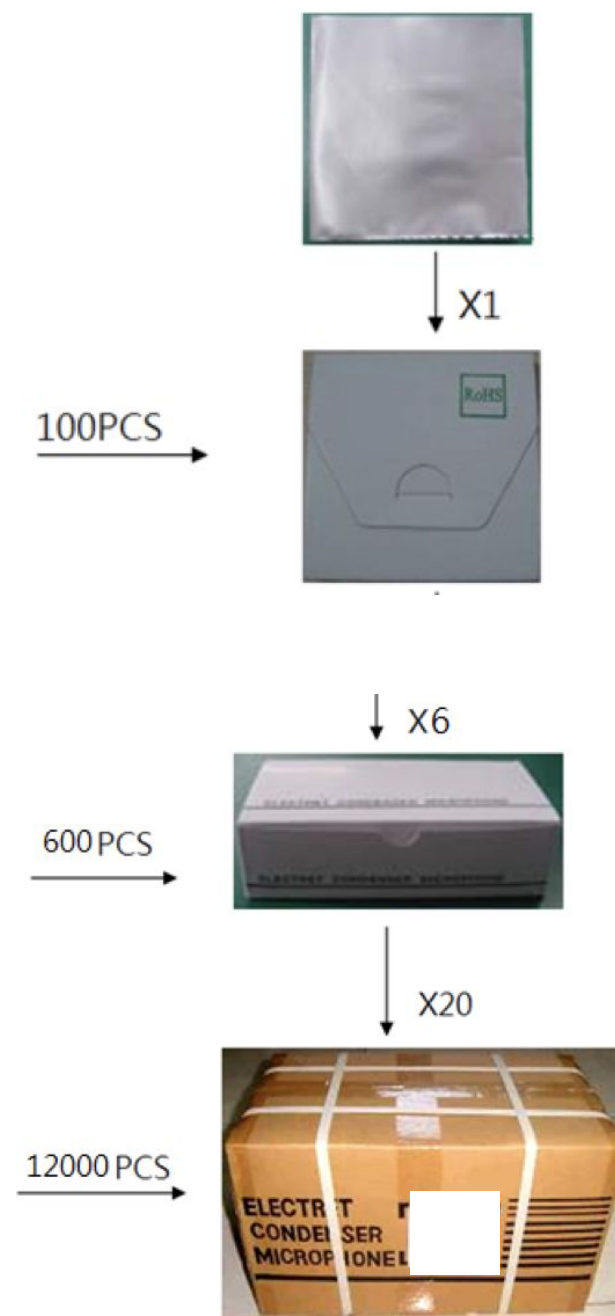
Page 6

Soldering Condition
Heat Sink

Page 7

Packing

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Details

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

Anti-Static Foam:

100 x 100 x 10mm

Small Packet:

100 x 100 x 17mm

Middle Box:

200 x 300 x 50mm

Carton Size:

500 x 300 x 285mm

Quantity and Weight

Small Box: 100 pcs

Middle Box: 6,000 pcs

Carton: 12,000 pcs

1PC: 0.7g

Net Weight: 8.4kg

Gross Weight: 12.1kg