



soberton inc.

EM ELECTRET CONDENSER MICROPHONE

Acoustic Product Specification

Product No: EM-3015



Release | Revision: A/2018

CONTENTS

This document contains the technical specifications for the omni directional back 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 and 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: -45 Center: -42 Max: -39

Output impedance

Symbol: Z out Unit: KΩ

Condition: f=1kHz

Limits: Max: 5.5

Current Consumption

Symbol: IDSS Unit: μA

Condition: VCC =2.0V,RL=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: 55

Decreasing Voltage

Symbol: ΔS-VS Unit: dB

Condition: VCC=3.0V to 2.0V

Limits: Max: -3

Operating Voltage

Unit: V

Condition: THD<3%, at 1KHz

Limits: Min: 1.4 Max: 5

Maximum input S.P.L

Unit: dB

Limits: Max: 110

Dimension

Ø 3.0x1.5mm

IP Level

IP50



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Page 1
Electrical Characteristics

Page 2
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Measurement Circuit

Page 3
Measurement Setup Drawing
Product External and Dimensions

Page 4
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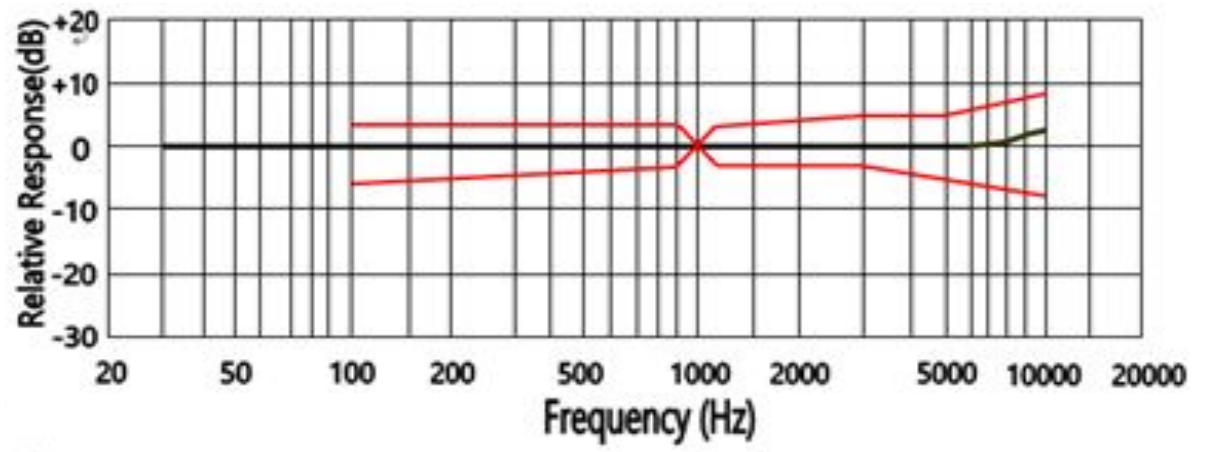
Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

Page 7
Packing

Typical Frequency Response Curve

Frequency Response

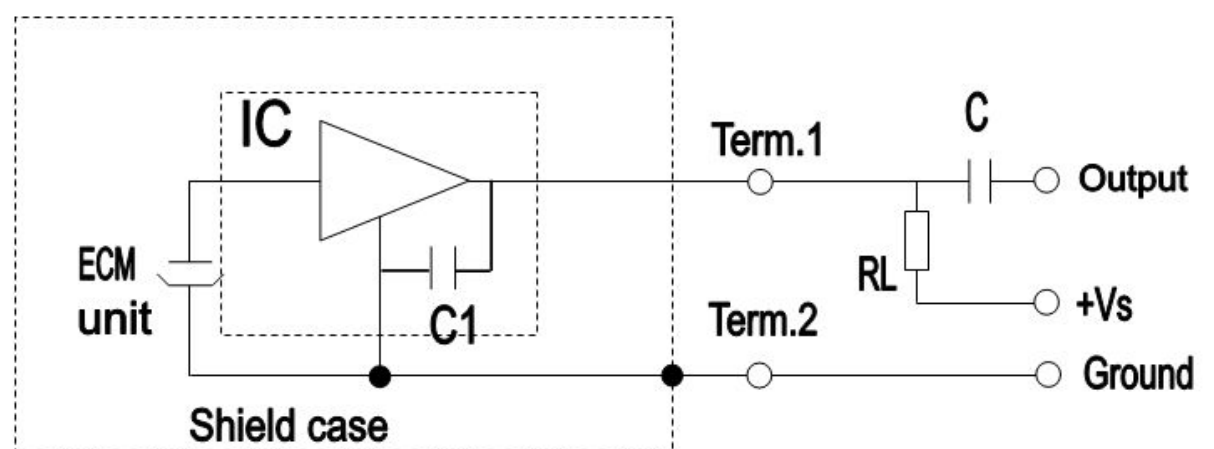


Standard Test Fixture

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

Measurement Circuit

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





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Page 1
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Measurement Circuit

Page 3
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Product External and Dimensions

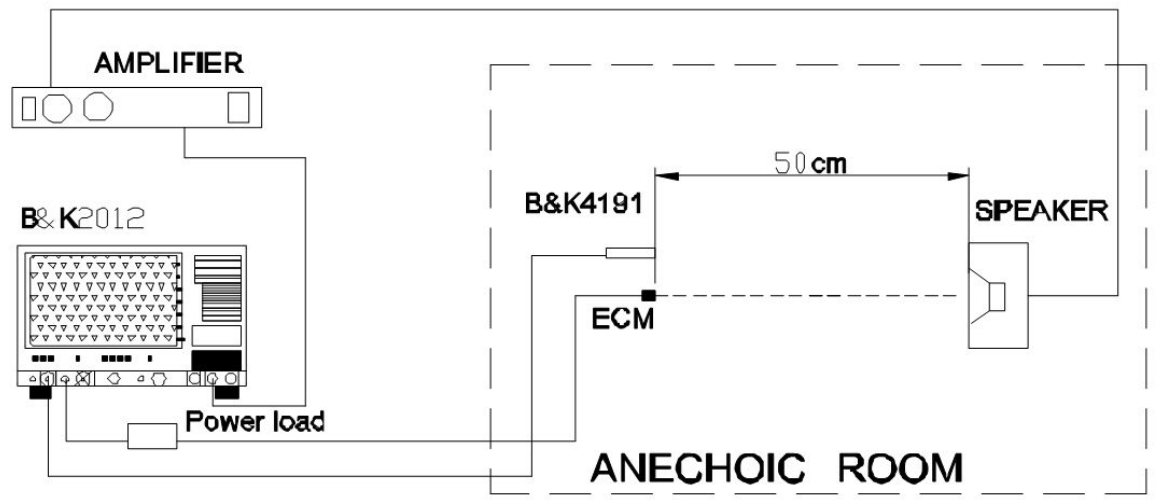
Page 4
Exploded Drawing and Material Table

Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

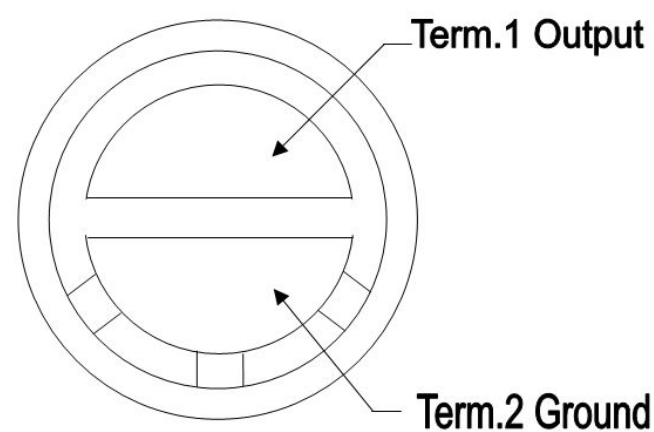
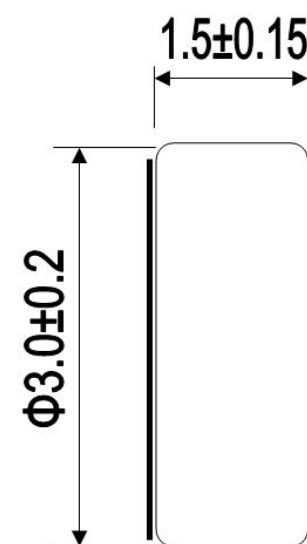
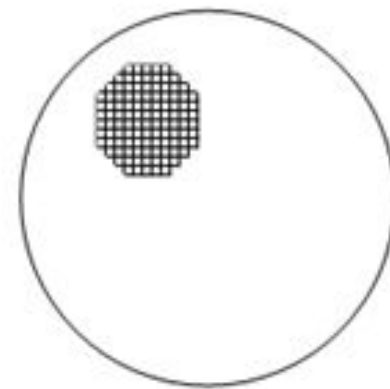
Page 7
Packing

Measurement Setup Drawing



Product External and Dimension

Unit: mm





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Page 1

Electrical Characteristics

Page 2

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Measurement Circuit

Page 3

Measurement Setup Drawing
Product External and Dimensions

Page 4

Exploded Drawing and Material Table

Page 5

Temperature Conditions
Terminal Mechanical Strength
Reliability Test

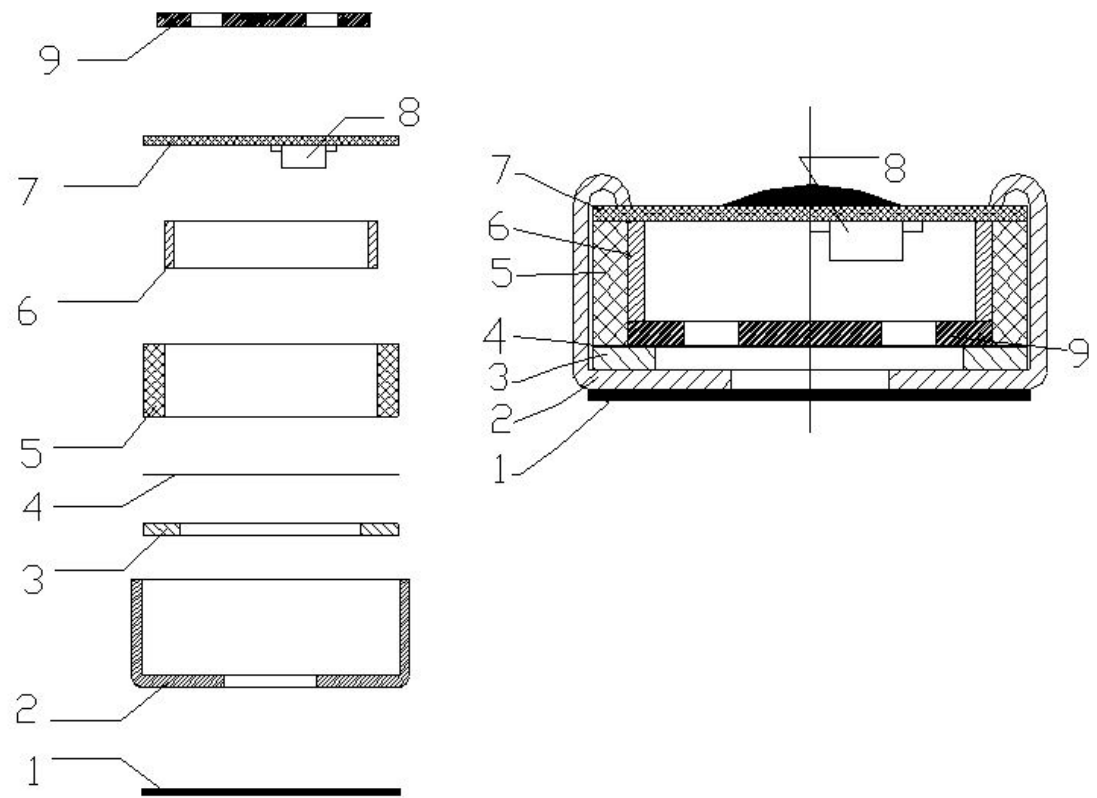
Page 6

Soldering Condition
Heat Sink

Page 7

Packing

Exploded Drawing and Material Table



No.	Part Name	Material	Quantity
1	Felt		1
2	Case	Copper	1
3	Polarized Diaphragm		1
4	Spacer		1
5	Housing Chamber		1
6	Copper Ring		1
7	PCB	FR-4	1
8	FET	Build in 10 pF	1
9	Electret Back		1



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Page 1
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Page 3
Measurement Setup Drawing
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Page 4
Exploded Drawing and Material Table

Page 5
Temperature Conditions
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Temperature Conditions

Operating Temperature Range

-40°C~+85°C

Storage Temperature Range

-40°C~+85°C

Reliability Test

After each of following test, 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 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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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 and Material Table

Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
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Page 7
Packing

Soldering Condition

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

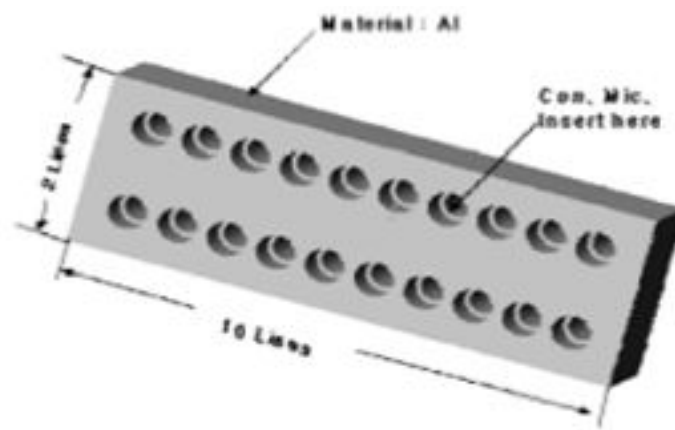
Soldering temperature should be controlled under 320°C and soldering time for each terminal should be 1~2 seconds.

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

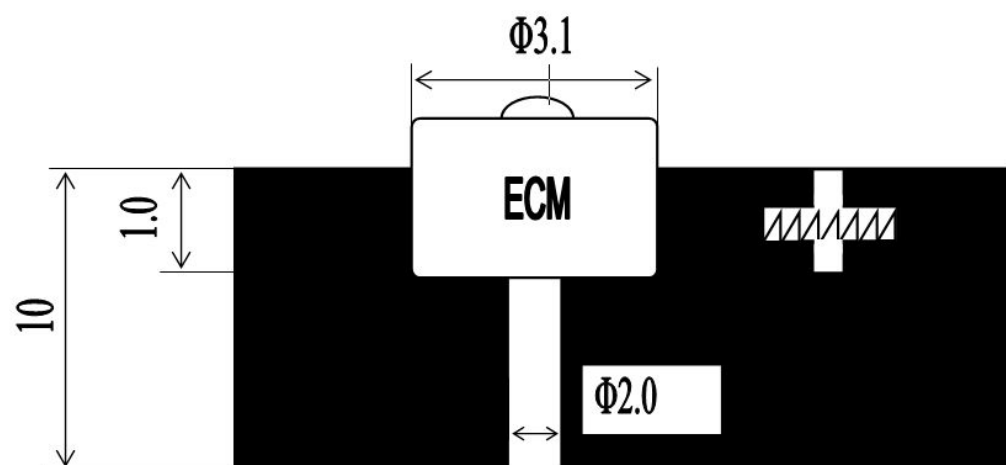
Microphone may easily be destroyed by the static electricity. The countermeasure for eliminating the static electricity shall be by grounding the worktable and operator.

Heat Sink

Shape of heat sink



Shape of hole at fixed part





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Measurement Circuit

Page 3
Measurement Setup Drawing
Product External and Dimensions

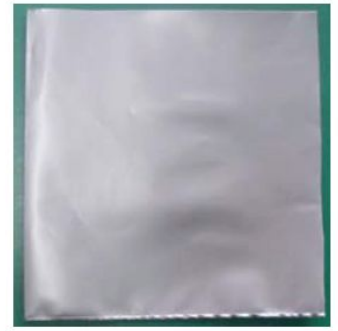
Page 4
Exploded Drawing and Material Table

Page 5
Temperature Conditions
Terminal Mechanical Strength
Reliability Test

Page 6
Soldering Condition
Heat Sink

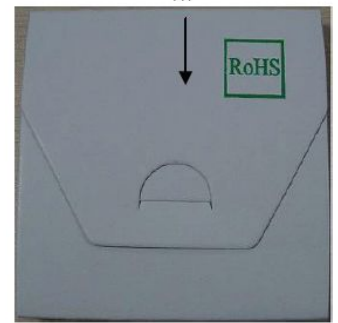
Page 7
Packing

Packing

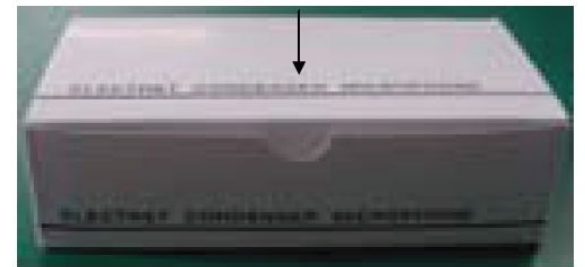


X1

100PCS



1000PCS



X30

30000PCS



Details

Dimension: (length x width x height)

- Anti-Static Bag:**
80mm x 80mm x 3mm
- Small Packet:**
85mm x 85mm x 10mm
- Middle Box:**
170mm x 85mm x 50mm
- Carton Size:**
550mm x 230mm x 235mm

Quantity and Weight

- Small Box:** 100 pcs
- Middle Box:** 1000 pcs
- Carton:** 30,000 pcs
- 1PC:** 0.1g
- Net Weight:** 3.0kg
- Gross Weight:** 6.0kg