LJ DEVICE CO., LTD.

# 力 臻 股 份 有 限 公 司
# LJ DEVICE CO., LTD.

## 零 件 規 格 書/承 認 書
## SPECIFICATION FOR APPROVAL

**CUSTOMER :** _____

**DESCRIPTION :** Electret Condenser Microphone

**MODEL :** EM9745-FOP-422

**CUSTOMER PART NO :** _____

## APPROVED SIGNATURES

| | | | |
|---|---|---|---|
| | | | |

| Rev | Date | Description | Designed | Checked | Approved |
|---|---|---|---|---|---|
| A | 2006/1/1 | Release | | Kevin | |
| | | | | | |
| | | | | | |
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| | | | | | |

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### 1.1 Security warning

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### 1.2 Publication history

| Version | Author | Date | Description |
|---|---|---|---|
| 1.4 | Tony,Wang | Jun,23,04 | A. Increase the remark that we require to get the feedback from customer in page1.<br>B. Increase the restricted information in page 2.<br>C. Increase the heat shock test in page 4.<br>D. Update "the soldering iron of the 13W" to "the constant temperature soldering iron of more than 60W" in page 5.<br>E. Delete " normal sampling level Ⅱ" and " the value of AQL is 0.65" in page 6. |

### 1.3 Modification Mark column：

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| Modified Mark | Modified QTY | Modified p/o No. | Modified position | Modifier/Date |

# PRODUCT SPECIFICATIONS

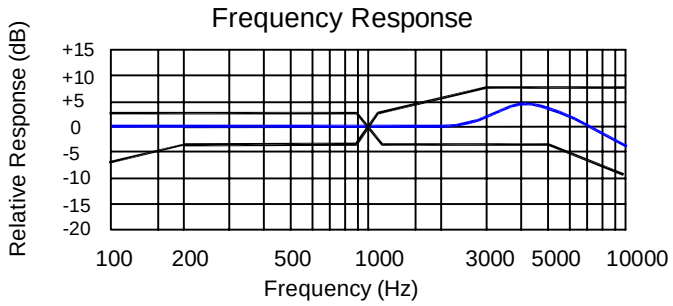
Type: Foil Electret Condenser Microphone (RoHS Compliance)

Number: EM9745-FOP-422

**1. Electrical Characteristics** Test Condition (Vs=3.0V RL=2.2KΩ Ta=20± 2° C R.H.=60%~70% )

| Item | Symbol | Test Conditions | Min | Standard | Max | Unit |
|---|---|---|---|---|---|---|
| Sensitivity | S | f=1kHz, Pin=1Pa | -44 | -42 | -40 | dB 0dB=1V/Pa |
| Output Impedance | Zout | f=1kHz, Pin=1Pa | | | 2.2K | Ω |
| Directivity | | Omnidirectional | | | | dB |
| Current Consumption | I | | | | 500 | μA |
| S/N Ratio | S/N(A) | f=1kHz, Pin=1Pa A Curve | 58 | | | dB |
| Decreasing Voltage Characteristic | ΔS | f=1kHz, Pin=1Pa Vs=3.0-- 1.5V | | | -3 | dB |
| Max Input Sound Pressure Level | MISPL | f=1kHz, THD<2% | | | 120 | dB |

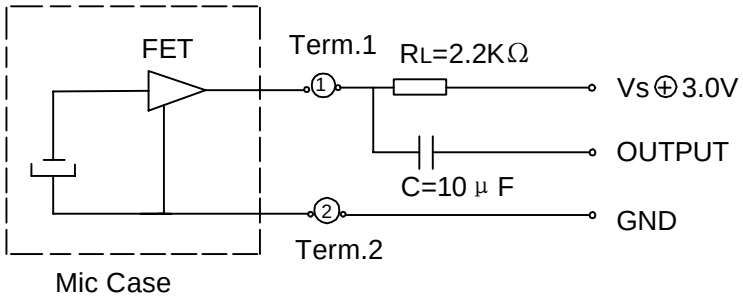
**2. Frequency in Cycles Per Second &Microphone Response Tolerance Window**



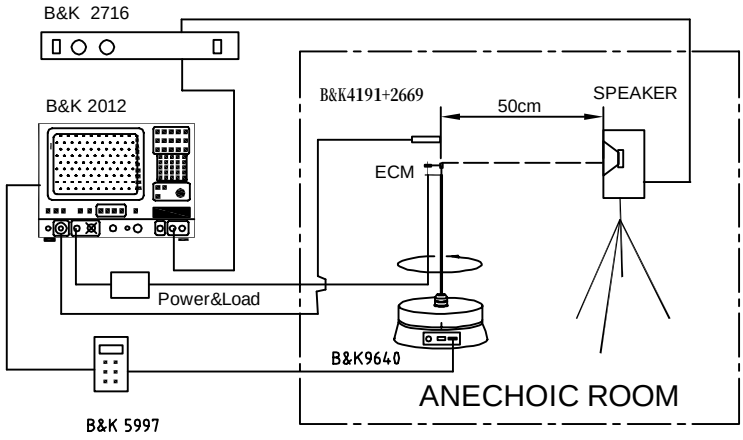

Microphone Response Tolerance Window

| Frequency(Hz) | Lower Limit(dB) | Upper Limit(dB) |
|---|---|---|
| 100 | -6 | +3 |
| 200 | -3 | +3 |
| 900 | -3 | +3 |
| 1000 | 0 | 0 |
| 1100 | -3 | +3 |
| 3000 | -3 | +8 |
| 5000 | -3 | +8 |
| 10000 | -8 | +8 |

**3. Measurement Circuit**




**4. Test setup Drawing**



## 5. Extreme Range

| Operating voltage Range | Storage Temperature Range | Operating Temperature Range |
|---|---|---|
| Vs(V) | Tstg(° C) | Topr(° C) |
| 1.1--10 | -25-- +70 | -20-- +60 |

## 6. Reliability Test

### 6.1 Vibration Test

To be no interference in operation after vibrations,10Hz to 55 Hz for 1 minute full amplitude 1.52 mm, for 2 hours at three axises in state of standard packing,sensitivity to be within ± 3dB from initial sensitivity.
(The measurement to be done after 2 hours of conditioning at 20° C, R.H 50% )

### 6.2 Drop Test

To be no interference in operation after dropped to concrete floor each one time from 1 meter height at three directions in state of Outer packing,sensitivity to be within ± 3dB from initial sensitivity.
(The measurement to be done after 2 hours of conditioning at 20° C, R.H 50% )

### 6.3 Temperature Test

a) After exposure at +70° C for 200 hours,sensitivity to be within ±3dB from initial sensitivity.
(The measurement to be done after 2 hours of conditioning at 20° C, R.H 50% )

b) after exposure at -25° C for 200 hours,sensitivity to be within ±3dB from initial sensitivity.
(The measurement to be done after 2 hours of conditioning at 20° C, R.H 50% )

### 6.4 Humidity Test

After exposure at +40° C and 90-- 95% relative humidity for 200 hours,sensitivity to be within ±3dB from initial sensitivity.
(The measurement to be done after 2 hours of conditioning at 20° C, R.H 50% )

### 6.5 Temperature Cycle Test

After exposure at -25° C for 30 minutes, at 20° C for 10 minutes, at+70° c for 30 minutes,at 20° C for 10 minutes,5 cycles,sensitivity to be within ±3dB from initial sensitivity.
(The measurement to be done after 2 hours of conditioning at 20° C, R.H 50% )

### 6.6 Soldering Heat Shock

To be no interference in operation after soldering heat shock,temperature 260± 5° C for 2± 0.5 seconds.If customer confirm to use lead-free soldering,the soldering temperature is 300± 10° C for 2± 0.5 seconds,sensitivity to be within ± 1dB from initial sensitivity.
(The measurement to be done after 30 minutes of conditioning at 20° C, R.H 50% )

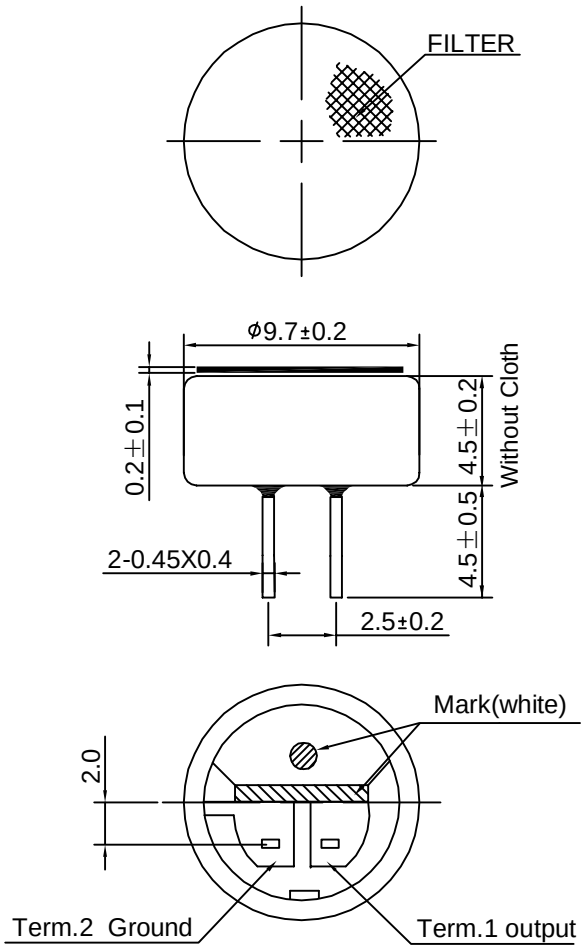
### 6.7 Heat Shock Test

After exposure at -25° C for 30 minutes, at+70° c for 30 minutes,200 cycles,sensitivity to be within ±3dB from initial sensitivity.
(The measurement to be done after 2 hours of conditioning at 20° C, R.H 50% )

## 7. Mechanical Characteristics

### 7.1 Appearance Drawing

Unit: mm




### 7.2 Weight

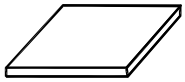
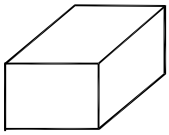
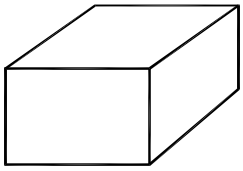
Less than 1.0g

### 7.3 Cautions:

a.The constant temperature soldering iron of more than 60W shall be applied.
b.The temperature of the working surface of the the soldering copper shall be below 270 ° C.
If customer confirm to use lead-free soldering,the soldering temperature is
300 ± 10° C for 2 ± 0.5 seconds.
c.ECM shall be soldered fixed on the metal block (heat sink)which has the higher radiation effects
Said heat sink shall contact with each of ECM.
d. The soldering time for each terminal shall be 1--2 seconds.
e. The pin hole after soldering shall be avoided.
f. ECM may easily destroyed by the static electricity, and the countermeasure for elimination the static electricity (the ground or soldering copper,for worktable and for human body )shall be executed.

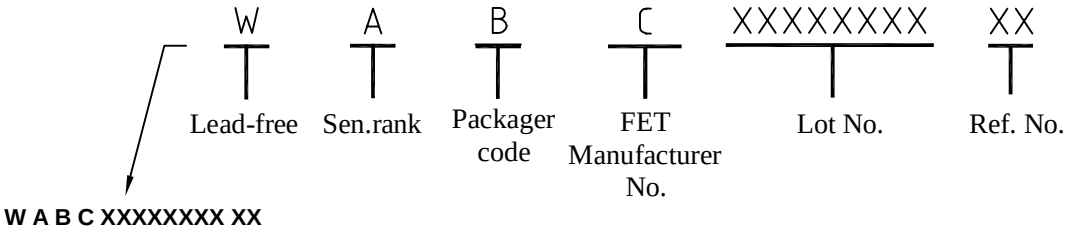
## 8. Packaging

### 8.1 Package dimension figure

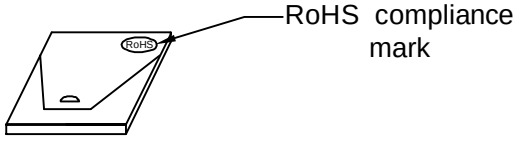
| | DRAWING | QTY(PCS) | SIZE(MM) | MARKING |
|---|---|---|---|---|
| PACKING |  | 100 | 100X100X12 | AS CUSTOMER'S P.O |
| MIDDLE BOX | | | | |
| INNER BOX |  | 6000 | 525X160X120 | AS CUSTOMER'S P.O |
| OUTER BOX |  | 12000 | 535X265X190 | AS CUSTOMER'S P.O |

### 8.2 Package labeling

#### 8.2.1 The facing of a quilt labeling




#### 8.2.2 The obverse labeling




#### 8.2.3 The obverse labeling

According to the requirement from customer.

## 9. Output Inspection standard

Output inspection standard is excuted according to 《JIS-Z9015》.