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• ISO 9001:2000

• ISO 14001:2004

• ISO/TS 16949:2002



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# PRODUCT INFORMATION

<b>PART #</b>	<b>CEM-C9745JAD462P2.54R</b>	<b>Revision</b>	<b>2-2017</b>
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## Omni-Directional Foil Electret Condenser Microphone

### DESCRIPTION

Omni-Directional Foil Electret Microphone, 9.7 mm diameter and 4.5 mm high, Power Supply 5.0 V max, External Resistance Loading of 680 Ω, and sensitivity of -46 dB. Terminated with 2 solder points, Lead Free RoHS Compliant

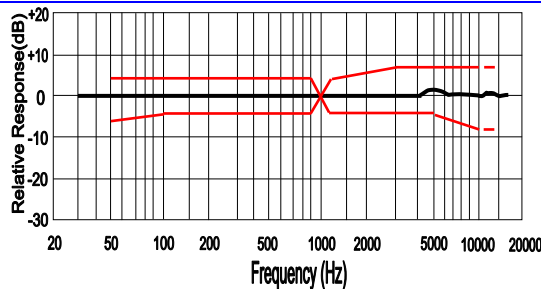
### SPECIFICATIONS:

<b>Direction</b>	Omni Directional Foil Electret		<b>Minimum Direction sensitivity</b>		
<b>Operating Voltage Range</b>	Vs= 1.0 Vdc ~ 10.0 Vdc		<b>Power Supply ( Vs )</b>		1.5 V
<b>Frequency Range</b>	100 ~ 10,000 Hz.		<b>Maximum Current</b>		0.5 mA
<b>Sensitivity</b>	- 46 ± 2.0, ( 0 dB = 1V / Pa ) at 1K Hz.		<b>Minimum Sensitivity to Noise Ratio</b>		58 dB
<b>Sensitivity Reduction</b>	3.0 V to 2.0 V -3 dB		<b>Maximum input S.P.L.</b>		110 dB at 1.0 KHz, THD <1%
<b>Operating Temperature</b>	-40°C to +85°C		<b>Storage Temperature</b>		-40°C to +75°C
<b>Loading Resistance (RL)</b>	External, 680 Ω at Vs = 1.5 V, Max. 2,200 Ω		<b>Built in Capacitors</b>		None
<b>Termination</b>	PC Pins, 4.5 mm Long, 0.6 mm Ø, 2.54 mm Spacing				
<b>Dimensions</b>	<b>Length / Diameter</b>	9.7 mm Ø	<b>Height</b>	4.5 mm	<b>Housing Material</b> Al-Mg Alloy. <b>Color</b>
<b>Approximate Weight</b>	0.7 grams	<b>Options</b>		<b>Compliance</b>	RoHS, Lead Free

### Reliability

<b>Thermal Operating Cycle Test</b>	250 hours continuous operation at <b>Rated Power</b> , at <b>Maximum Rated Operating Temperature</b> *
	250 hours continuous operation at <b>Rated Power</b> , at <b>Minimum Rated Operating Temperature</b> *
<b>Thermal Storage Cycle Test</b>	Parts are subjected to <b>250 hours</b> storage at <b>Maximum Rated Storage Temperatures</b> *
	Parts are subjected to <b>250 hours</b> storage at <b>Minimum Rated Storage Temperatures</b> *
<b>Thermal Shock Test:</b>	Parts are subjected to five (5) cycles of <b>Minimum and Maximum Operating Temperature</b> . Each cycle shall be set per diagram below and is three (3) hours long *
<b>Humidity Test</b>	Parts are subjected to <b>240 Hours</b> at +40°C±2°C. 90-95% RH *
<b>Vibration Test</b>	Parts are subjected to 2 Hours of at 1.5 mm with 10 to 55 Hz. vibration frequency to each of 3 perpendicular directions *
<b>Drop Test</b>	Parts are dropped naturally from 1 meter height onto the surface of 40 mm wooden board, 2 axes (X,Y) directions, 3 times (6 times total) *
<b>Reliability Test Performance *</b>	Parts should conform to original performance within ±5 dB tested with <b>Rated Power</b> , after 3 hours of recovery period.
<b>Termination Strength</b>	Terminals should withstand a 1.0 Kg. pull test for up to 1 minute.
<b>Life Test</b>	At rated voltage in room temperature continuously for 1,000 hours
<b>Warranty</b>	For a period of one (1) year from date of shipping under normal operations conditions

### Typical Frequency Response

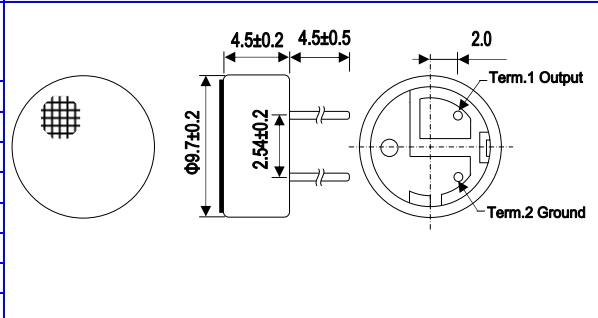


Microphone Response Tol Window

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

### Dimensions

Units in: mm Tolerance: ±0.3 mm



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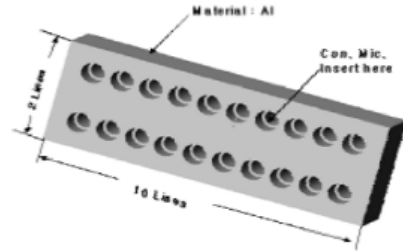
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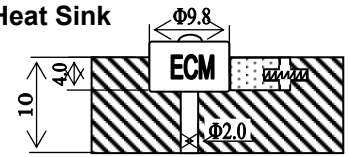
**Soldering Instructions**

- Soldering temperature should be controlled under 320°C and soldering time for each terminal should be 1~2 sec..
- 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. All countermeasure for eliminating static electricity must be executed (worktable and human body shall be ground connection)

**Shape of heat sink**

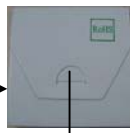


**Shape of hole at fixed part Heat Sink**

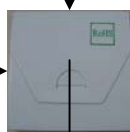


**Packaging**

**1.1 Anti-Static Bag Parts**



**1.2 Small Box 100 Parts**



X 60

**1.3 Middle Box 6,000 Parts**



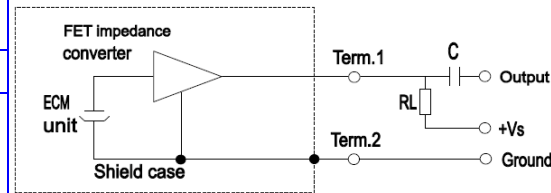
X 2

**1.4 Shipping Carton 12,000 Parts**



**4. Shipping Label**

**Schematic Drawing**

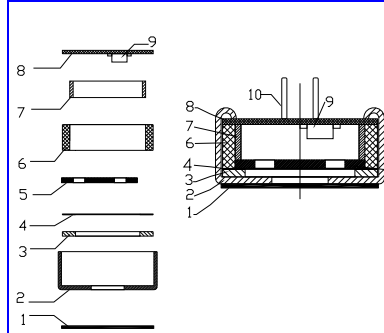


$R_L = 680\Omega$

$V_S = 1.5 V$

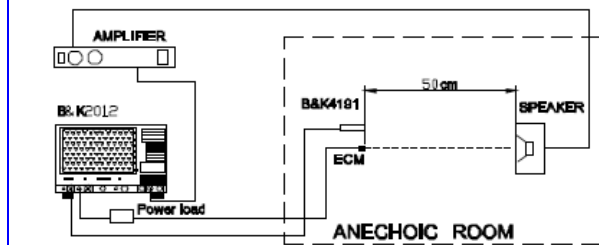
$C = 1\mu F$

**Construction Materials**



#	Name	Material	QTY
1	Dustproof gauze	Cloth	1
2	Case	Al-Mg Alloy	1
3	Diaphragm	DUPONT	1
4	Spacer		1
5	Electret Back	Copper blank	
6	Housing Chamber		1
7	Ring	Copper	1
8	PCB	FR4	1
9	FET		1
10	PC Pins	Copper	2

**Testing Procedure**



- Measure the microphones under standard operating condition.
- Put the microphone and standard microphone face to the sound source (speaker), the distance between sound source and microphone & standard microphone is 50cm. And keep the center distance 5cm between them to ensure that the change of sound pressure should be kept within  $\pm 1dB$ .
- Keep the sound source pressure within  $\pm 1dB$  from speaker Measured by standard microphone.

The sensitivity of microphone can obtain its output voltage when sound source kept within 1,000Hz & 0.1Pa.

**Testing Condition**

**In Normal Weather**

Environment Temperature: 5~+35°C  
Relative Humidity: 45 ~ 85%  
air Pressure: 86 ~ 106Kpa

**In Arbitrate Weather**

Environment Temperature: 20±2°C  
Relative Humidity: 60 ~ 70%  
Air Pressure: 86 ~ 106Kpa

1. Dimensions:	Length	Width	Height
1.1 Anti-Static Bag:	mm	mm	mm
1.2 Small Box:	100 mm	100 mm	5 mm
1.3 Middle Box:	450 mm	280 mm	135 mm
1.3 Carton Size:	550 mm	230 mm	235 mm

2. Quantity:	2.1 In Anti Static Box	100 parts
	2.2 In mid. Size box	6,000 parts.
	2.3 In master box	12,000 parts
3. Weight:	3.1 One Part:	0.7 gram
	3.2 Net Weight:	8.4 kg
	3.3 Gross Weight:	12 kg

4. Label Directions: 4.1 Contents should be visible clearly.

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Revision	Description	By	Date
1-2013	Corrected the sensitivity in the description, storage and operating temps.	WS	11/9/2013
2-2017	Added Copper Ring to mechanical assembly. Revise storage temp range.	WS	4/10/2017