PRODUCT INFORMATION

PART #
CEM-C9745JAD462P2.54R

Revision 0-2010

DESCRIPTION
Omni-Directional Foil Electret Condenser Microphone

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 -44 dB. Terminated with 2 solder points, Lead Free RoHS Compliant

SPECIFICATIONS:

- Direction: Omni Directional Foil Electret
- Minimum Direction sensitivity: 1.5 V
- Operating Voltage Range: Vₛ = 1.0 Vdc ~ 10.0 Vdc
- Power Supply (Vₛ): 1.5 V
- Frequency Range: 100 ~ 10,000 Hz.
- Maximum Current: 0.5 mA
- Sensitivity: -46 ± 2.0, (0 dB = 1V / Pa) at 1K Hz.
- Minimum Sensitivity to Noise Ratio: 58 dB
- Sensitivity Reduction: -3 dB
- Operating Temperature: -20ºC to + 60ºC
- Power Supply: 1.5 V
- Storage Temperature: -40ºC to + 75ºC
- Loading Resistance (Rₐ): External, 680 Ω at Vₛ = 1.5 V, Max. 2,200 Ω
- Maximum input S.P.L.: 110 dB at 1.0 KHz, THD <1%
- Built in Capacitors: None
- Termination: PC Pins, 4.5 mm Long, 0.6 mm Ø, 2.54 mm Spacing
- Dimensions: Length / Diameter 9.7 mm Ø, Height 4.5 mm
- Housing Material: Al-Mg Alloy.
- Color: RoHS, Lead Free
- Approximate Weight: 0.7 grams
- Options: None
- Compliance: RoHS, Lead Free

Reliability

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

Typical Frequency Response

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Lower Limit (dB)</th>
<th>Upper Limit (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>-6</td>
<td>+3</td>
</tr>
<tr>
<td>100</td>
<td>-3</td>
<td>+3</td>
</tr>
<tr>
<td>800</td>
<td>-3</td>
<td>+3</td>
</tr>
<tr>
<td>1000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1200</td>
<td>-3</td>
<td>+3</td>
</tr>
<tr>
<td>3000</td>
<td>-3</td>
<td>+8</td>
</tr>
<tr>
<td>5000</td>
<td>-3</td>
<td>+8</td>
</tr>
<tr>
<td>10000</td>
<td>-8</td>
<td>+8</td>
</tr>
</tbody>
</table>

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Soldering Instructions

1. Soldering temperature should be controlled under 320°F and soldering time for each terminal should be 1~2 sec.
2. Microphone should be fixed on the metal block (heat sink), which has high radiation effects, and heat sink shall contact with MIC tightly.
3. 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. Anti-Static Bag
   - Parts

2. Small Box
   - 100 Parts
   - X 60

3. Middle Box
   - 6,000 Parts
   - X 2

4. Shipping Carton
   - 12,000 Parts

Testing Procedure

1. Measure the microphones under standard operating condition.
2. 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 ±1dB.
3. Keep the sound source pressure within ±1dB from speaker Measured by standard microphone.

Testing Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Environment Temperature</th>
<th>Relative Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>5~35°C</td>
<td>45~85%</td>
</tr>
<tr>
<td>Arbitrate</td>
<td>20±2°C</td>
<td>60~70%</td>
</tr>
</tbody>
</table>

Construction Materials

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Material</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dustproof gauze</td>
<td>Al-Mg Alloy</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Case</td>
<td>DUPONT</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Diaphragm</td>
<td>Copper blank</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Spacer</td>
<td>FR4</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Electret Plate</td>
<td>FR4</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Housing Chamber</td>
<td>FR4</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>PCB</td>
<td>FR4</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>FET</td>
<td>FR4</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>PC Pins</td>
<td>FR4</td>
<td>2</td>
</tr>
</tbody>
</table>

Dimensions

1. Dimensions:
   - Anti-Static Bag: 100mm x 280mm x 135mm
   - Small Box: 550mm x 230mm x 235mm

Weight

1. One Part: 0.7 gram
2. Net Weight: 8.4 kg
3. Gross Weight: 12 kg

Label Directions

1. Contents should be visible clearly.

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