



## PRODUCT INFORMATION

<b>PART #</b>	<b>CEM-UB9750-AJAA474C43NR</b>	<b>Revision: 0-2012</b>
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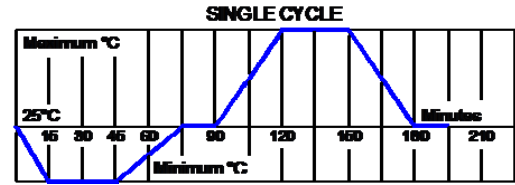


### Unidirectional Back Foil Electret Condenser Microphone

<b>DESCRIPTION</b>	<b>FEATURES</b>
Challenge Electronics Unidirectional Back Electret Condenser Microphone with a FET; 9.7 mm diameter and 5.0 mm high; A version PCB; JA = 10 V max Power Supply; -47 ± 4 dB sensitivity; A = 680 Ω External Loading Resistance; N Solder Points Termination; with built in Capacitors 33 and 10 pFD, RoHS Lead Free Compliant	<ul style="list-style-type: none"> <li>● <b>RoHS, Lead Free Compliant</b></li> <li>● <b>ISO 9001 &amp; ISO 14001 Certified</b></li> <li>● <b>Green Product</b></li> </ul>

<b>SPECIFICATIONS</b>							
<b>Direction</b>	Unidirectional Back Electret Condenser Microphone		Compliance	RoHS Lead Free			
<b>Directional Sensitivity</b>	At 1,000 Hz. at 180 degree 10 dB Minimum		Output impedance	At F = 1,000 Hz. 2,200 Ω maximum			
<b>Operating Voltage Range</b>	1.0 Vdc ~ 10.0 Vdc		Power Supply ( Vs )	1.5 V			
<b>Frequency Range</b>	50 ~ 20,000 Hz.		Maximum Current	0.35 mA			
<b>Sensitivity</b>	- 47.0 ± 4.0, ( 0 dB = 1V / Pa ) at 1K Hz.		Minimum Signal to Noise Ratio	60			
<b>Sensitivity Reduction</b>	3.0 V to 2.0 V Maximum -3 dB		Maximum input S.P.L.	110 dB at 1.0 KHz, THD <1%			
<b>Operating Temperature</b>	-40°C to + 85°C		Storage Temperature	-40°C to + 85°C			
<b>Loading Resistance ( RL )</b>	External, 680 Ohms, Vs = 1.5 V		Built in Capacitors	33 pFD and 10 pFD			
<b>Termination</b>	Solder Points						
<b>Housing Material</b>	AL-Mg Alloy			PCB Version Style #	A		
<b>Dimensions</b>	Length / Diameter	9.7 mm	Width	Height	5.0 mm	Approximate Weight	0.7 grams
<b>Options</b>							

<b>RELIABILITY</b>	
<b>Thermal Operating Temperature Test</b>	240 hours continuous operation at <b>Rated Power</b> , at <b>Maximum Rated Operating Temperature</b> *
<b>Thermal Storage Temperature Test</b>	240 hours storage at <b>Maximum Rated Storage Temperatures</b> *
<b>Thermal Shock Test</b>	<p>240 hours storage at <b>Minimum Rated Storage Temperatures</b> *</p> <p>5 cycles of <b>Minimum and Maximum Operating Temperature</b>          Each cycle shall be set per diagram and is 3 hours long *</p>
<b>Humidity Test</b>	240 Hours at +40°C±2°C. 90-95% RH *
<b>Insulation Test</b>	Must perform normal with program White Noise source at <b>Rated Power</b> for <b>100 Hours</b> per (EIA)
<b>Vibration Test</b>	2 Hours of at 1.5 mm with 10 to 55 Hz. vibration frequency to each of 3 perpendicular directions *
<b>Termination Strength</b>	Maximum pull of 0.5 kg strength for 3 seconds
<b>Drop Test</b>	Dropped naturally from 1 meter height onto the surface of 40 mm wooden board, 3 axes (X,Y,Z) directions, 3 times (9 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



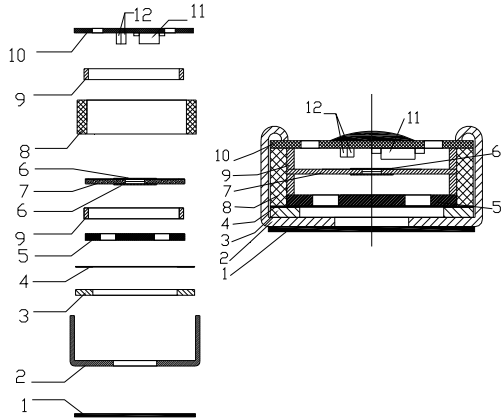
<b>Warranty</b>	For a period of one (1) year from date of shipping under normal operations conditions This warranty does not apply to products damaged through misuse, abuse, improper installation, alteration, rework, or attempt to repair
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<b>TYPICAL FREQUENCY RESPONSE</b>	<b>DIMENSIONS</b> Units in: mm Tolerance: ±0.3 mm																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Frequency (Hz)</th> <th>Lower Limit (dB)</th> <th>Upper Limit (dB)</th> </tr> </thead> <tbody> <tr><td>100</td><td>-14</td><td>-6</td></tr> <tr><td>300</td><td>-6</td><td>+2</td></tr> <tr><td>500</td><td>-2</td><td>+2</td></tr> <tr><td>1,000</td><td>0</td><td>0</td></tr> <tr><td>1,200</td><td>-4</td><td>+2</td></tr> <tr><td>5,000</td><td>-4</td><td>+4</td></tr> <tr><td>10,000</td><td>-8</td><td>+6</td></tr> </tbody> </table>	Frequency (Hz)	Lower Limit (dB)	Upper Limit (dB)	100	-14	-6	300	-6	+2	500	-2	+2	1,000	0	0	1,200	-4	+2	5,000	-4	+4	10,000	-8	+6	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Frequency</th> <th>Lower Limit (dB)</th> <th>Upper Limit (dB)</th> </tr> </thead> <tbody> <tr><td>100</td><td>-14</td><td>-6</td></tr> <tr><td>300</td><td>-6</td><td>+2</td></tr> <tr><td>500</td><td>-2</td><td>+2</td></tr> <tr><td>1,000</td><td>0</td><td>0</td></tr> <tr><td>1,200</td><td>-4</td><td>+2</td></tr> <tr><td>5,000</td><td>-4</td><td>+4</td></tr> <tr><td>10,000</td><td>-8</td><td>+6</td></tr> </tbody> </table>	Frequency	Lower Limit (dB)	Upper Limit (dB)	100	-14	-6	300	-6	+2	500	-2	+2	1,000	0	0	1,200	-4	+2	5,000	-4	+4	10,000	-8	+6
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The information contained herein is believed to be correct, but no guarantee or warranty, express or implied, with respect to accuracy, completeness or results is extended and no liability is assumed. Challenge Electronics reserves the right to make changes in any specification, data or material contained herein.

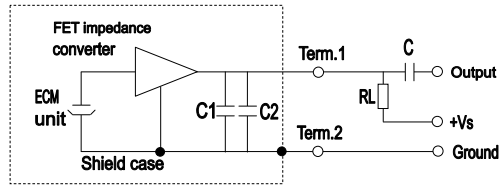


### CONSTRUCTION MATERIALS



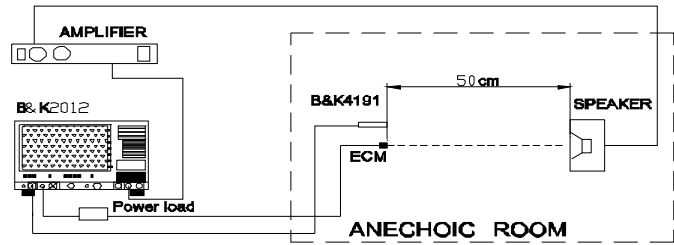
ITEM	PART NAME	MATERIAL	QTY
1	Dustproof gauze	Non-weave cloth	1
2	Case	AL-Mg Alloy	1
3	Polarized Diaphragm	DuPont	1
4	Spacer	Mylar	1
5	Electret Plate	Copper blank	1
6	Damping Net		1
7	Link Dump Iron		2
8	Housing Chamber	Gather formaldehyde	1
9	Copper Ring		
10	P.C.B	FR-4 , # A Style	1
11	FET		1
12	Chip Capacitors		2

### CIRCUIT SCHEMATIC DRAWING



$R_L$	680 $\Omega$
$V_s$	1.5 Vdc
C1	10 pFD
C2	33 pFD
C	1.0 $\mu$ FD

### 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  $\pm 1$ dB.
3. Keep the sound source pressure within  $\pm 1$ dB from speaker Measured by standard microphone.
4. The sensitivity of microphone can obtain its output voltage when sound source kept within 1,000Hz & 0.1 Pa.

### Testing Condition

#### In Normal Weather

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

#### In Arbitrate Weather

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

### ELECTROSTATIC DISCHARGE Tested to IEC61000-4-2 level 3

#### a) Contact discharge

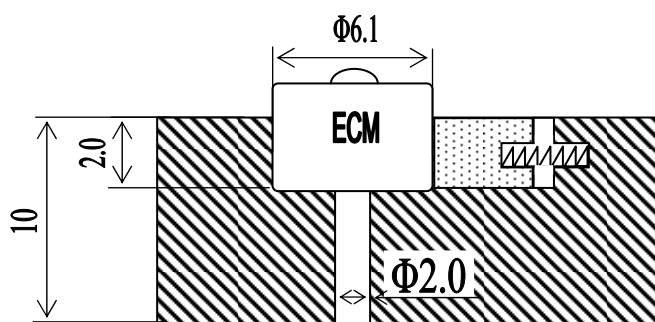
The microphone shall operate normally after 10 discharges of 6,000 Vdc and the discharge network is 150 pFD and 330  $\Omega$

#### b) Air discharge

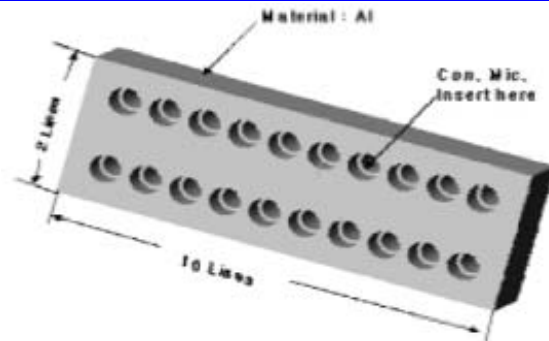
The microphone shall operate normally after 10 discharges of 8,000 Vdc and the discharge network is 150 pFD and 330  $\Omega$

### SOLDERING INFORMATION

#### Single Pattern Heat Sink



#### Shape of heat sink



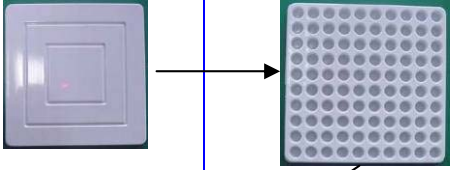


1. We recommend using anti-static welding machine which can control soldering temperature automatically.
2. Soldering temperature should be controlled under 320 °C and soldering time for each terminal should be 1~2 sec.
3. Microphone should be fixed on the metal block (heat sink), which has high radiation effects, and heat sink shall contact with MIC tightly.
4. Microphone may easily be destroyed by the static electricity and the countermeasure for eliminating the static electricity shall be executed (worktable and human body shall be ground connection).



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PACKAGING	MARKING	SIZE	
	<b>Bundle</b> Customer PN Other PN if required Quantity Lot and/or Date Code	<b>Tray / Small Box</b> Dimensions X1 <b>10 cm</b> Y1 <b>10 cm</b> Z1 <b>1 cm</b> Quantity <b>100</b>	
	<b>Shipping Box</b> Customer Part Number Other PN (if required) Quantity Lot and/or Date Code	<b>Bundle / Mid Size Boxes</b> Dimensions X1 <b>20.5 cm</b> Y1 <b>15 cm</b> Z1 <b>5 cm</b> Quantity <b>1,000</b>	
	PO Number Net Weight Gross Weight Box Number of Number of Boxes Made in China	<b>Shipping Box</b> Dimensions X3 <b>55 cm</b> Y3 <b>23 cm</b> Z3 <b>23.5 cm</b> Number of Bundles / Boxes <b>20</b> Quantity <b>20,000</b> Approximate Weight <b>18 Kg</b>	