



# PRODUCT INFORMATION

**PART #:** CEM-OB6027-2JAD423C33P19R **Revision:** 1-2014



## Omni Directional Back Electret Condenser Microphone

### DESCRIPTION

Challenge Electronics Omni Direction Back Electret Condenser Microphone with a FET, 6.0 mm diameter and 2.7 mm high, 2 version PCB, JA = 10 V max Power Supply, -42 ± 3 dB sensitivity, D = 2.2 K Ω External Loading Resistance, Capacitor 33 pFD built in, Pins 19 mm Pins Spacing termination, RoHS Lead Free Compliant.

### FEATURES

- RoHS, Lead Free Compliant
- ISO 9001 & ISO 14001 Certified
- Green Product

### SPECIFICATIONS

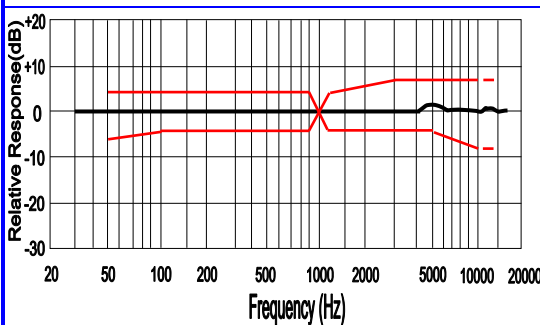
<b>Direction</b>	Omni Directional Back Electret	<b>Compliance</b>	RoHS Lead Free
<b>Operating Voltage Range</b>	1.0 Vdc ~ 10.0 Vdc	<b>Power Supply ( Vs )</b>	2.0 V
<b>Frequency Range</b>	50 ~ 20,000 Hz.	<b>Maximum Current</b>	0.5 mA
<b>Sensitivity</b>	- 42.0 ± 3.0, ( 0 dB = 1V / Pa ) at 1K Hz.	<b>Minimum Signal to Noise Ratio</b>	58 dB
<b>Sensitivity Reduction</b>	3.0 V to 2.0 V Maximum -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 + 85°C
<b>Loading Resistance ( RL )</b>	External, 2.2 K Ohms, Vs = 2.0 V	<b>Built in Capacitors</b>	C-1 33 pFD
<b>Termination</b>	PC Pins, 0.45 mm Diameter, 2.8 mm Long, 1.9 mm apart		
<b>Housing Material</b>	Aluminum / Magnesium Alloy	<b>PCB Version Style #</b>	2
<b>Dimensions</b>	<b>Length / Diameter</b> 6.0 mm	<b>Width</b>	<b>Height</b> 2.7 mm
<b>Options</b>	<b>Approximate Weight</b>	0.2 grams	

### RELIABILITY

<b>Thermal Operating Temperature Test</b>	240 hours continuous operation at <b>Rated Power</b> , at <b>Maximum Rated Operating Temperature</b> *
	240 hours continuous operation at <b>Rated Power</b> , at <b>Minimum Rated Operating Temperature</b> *
<b>Thermal Storage Temperature Test</b>	96 hours storage at <b>Maximum Rated Storage Temperatures</b> *
	96 hours storage at <b>Minimum Rated Storage Temperatures</b> *
<b>Thermal Shock Test</b>	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>	240 Hours at +40°C±2°C. 90-95% RH *
<b>Operation Life 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 <b>3 seconds</b>
<b>Drop Tet</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

**Warranty** 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

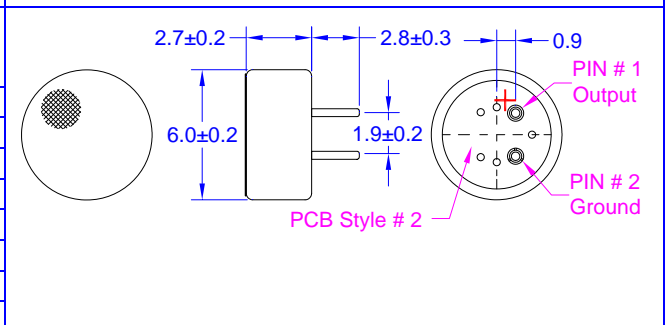
### TYPICAL FREQUENCY RESPONSE



Frequency (Hz)	Lower Limit (dB)	Upper Limit (dB)
50	-6	+3
100	-3	+3
800	-3	+3
1,000	0	0
1,200	-3	+3
3,000	-3	+8
5,000	-3	+8
10,000	-8	+8

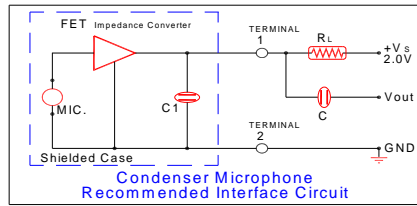
### DIMENSIONS

Units in: mm Tolerance: ±0.3 mm





### CIRCUIT SCHEMATIC DRAWING

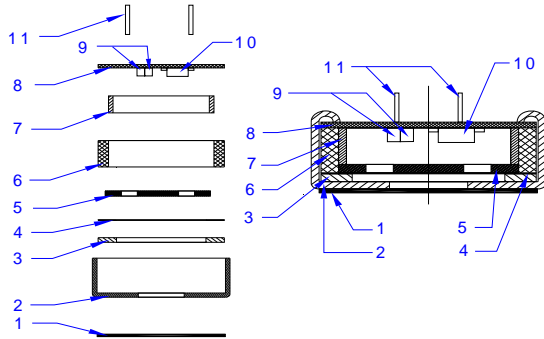


<b>RL</b>	<b>2.2 KΩ</b>
<b>Vs</b>	<b>2.0 V</b>
<b>C1</b>	<b>33 pFD</b>
<b>C</b>	<b>1 μFD</b>

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

### CONSTRUCTION MATERIALS



ITEM	PART NAME	MATERIAL	QTY
1	Felt	Fabric cloth	1
2	Case	Al-Mg alloy PA	1
3	Polarized Diaphragm	DuPont	1
4	Spacer	Mylar	1
5	Electret Plate	Copper blank	1
6	Chamber	Gather formaldehyde	1
7	Ring	Copper	1
8	P.C.B	FR-4 , # 8 Style	1
9	Chip Capacitors	0402 Case, 33 pFD	1
10	FET	3782	1
11	PC Pins	Copper	2

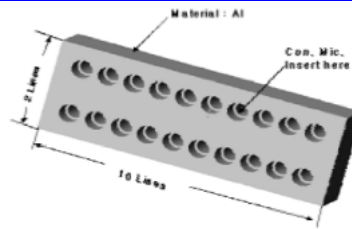
### Testing Condition

In Normal Weather	In Arbitrate Weather
Environment Temperature: 5~+35°C	Environment Temperature: 20±2°C
Relative Humidity: 45 ~ 85%	Relative Humidity: 60 ~ 70%
Air Pressure: 86 ~ 106Kpa	Air Pressure: 86 ~ 106Kpa

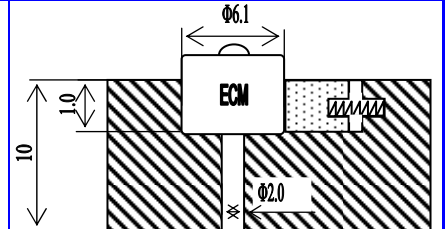
### SOLDERING INFORMATION

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).

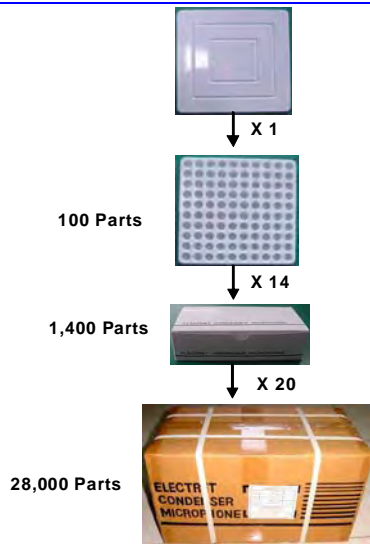
### Shape of heat sink



### Single Pattern Heat Sink



### PACKAGING



### MARKING

### SIZE

Bundle	Tray / Small Box		
Part Number	Dimensions	X1	10 cm
Other PN if required		Y1	10 cm
Quantity		Z1	0.5 cm
Lot and/or Date Code	Quantity	100	
Bundle Number	Bundle / Mid Size Boxes		
Shipping Box	Dimensions	X1	20.5 cm
Part Number		Y1	10.5 cm
Other PN (if required)		Z1	5 cm
Quantity	Quantity	1,400	
Lot and/or Date Code	Shipping Box		
PO Number	Dimensions	X3	55 cm
Net Weight		Y3	23 cm
Gross Weight		Z3	23.5 cm
Box Number of Boxes	Number of Bundles	20	
Made in China	Quantity	28,000	
	Approximate Weight	8.6 Kg	

Revision:	Description:	By:	Date:
1-2014	Updated temperature and Test Circuit Drawing specifications	Ely Zofan	3/18/2014