Challenge Electronics
95 East Jefryn Boulevard
Deer Park, NY 11729

Tel: 1-800-722-8197
1-631-595-2217
Fax: 1-631-667-5484

EMAIL: SALES@CHALLELEC.COM
WEB: WWW.CHALLENGEELECTRONICS.COM

PRODUCT INFORMATION

PART #	CEM-OB6018-3EAD443C43MR	Revision: 3-2013

Lead Free RoHS COMPLIANCE

SMD Omni Directional Condenser Microphones

DESCRIPTION

Challenge Electronics Omni Direction Back Electret Condenser Microphone with a FET, 6.0 mm diameter and 1.8 mm high, PCB version # 3, EA = 10 V max Power Supply, -44±3 dB sensitivity, D = 2.2 K Ω External Loading Resistance, C43 pDF (33+10 pF) Internal Capacitance, SMD termination. RoHS Lead Free Compliant.

FEATURES

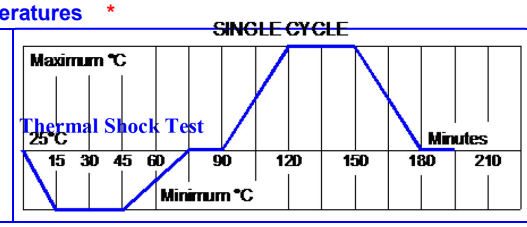
- RoHS, Lead Free Compliant
- ISO 9001 & ISO 14001 Certified
- Green Product

SPECIFICATIONS

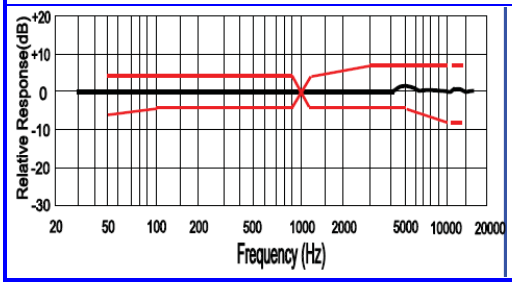
Direction	Omni Directional	Compliance	RoHS Lead Free
Operating Voltage Range	1.0 Vdc ~ 10 Vdc	Power Supply (Vs)	2.0 V
Frequency Range	50 ~ 20,000 Hz.	Maximum Current	0.5 mA
Sensitivity	- 44.0 ± 3.0, (0 dB = 1V / Pa) at 1K Hz.	Signal to Noise Ratio	58
Sensitivity Reduction	2.0V to 1.5V -3 dB	Maximum input S.P.L.	110 dB at 1.0 KHz, THD <1%
Operating Temperature	-40ºC to +85ºC	Storage Temperature	-40ºC to + 85ºC
Loading Resistance (RL)	External, 2.2 K Ohms, Vs = 2.0 V	Built in Capacitors	33 & 10 pF
Termination	SMD		
Housing Material	Copper	PCB Version #	3
Dimensions	Length / Diameter 6.0 mm	Width mm	Height 1.8 mm
Options			

RELIABILITY

Thermal Operating Temperature Test	**240 hours** continuous operation **at Rated Power,** at **Maximum Rated Operating Temperature** *
	240 hours continuous operation **at Rated Power,** at **Minimum Rated Operating Temperature** *
Thermal Storage Temperature Test	**240 hours** storage at **Maximum Rated Storage Temperatures** *
	240 hours storage at **Minimum Rated Storage Temperatures** *
Thermal Shock Test	**5 cycles** of **Minimum and Maximum Operating Temperature** Each cycle shell be set per diagram below and is three (3) hours long *
Humidity Test	**240 Hours** at +40°C±2°C. 90-95% RH *
Operation Life Test	Must perform normal with program White Noise source at Rated Power for **100 Hours** per (EIA)
Vibration Test	After parts are subjected to 2 Hours of at 1.5 mm with 10 to 55 Hz. vibration frequency to each of 3 perpendicular directions *
Termination Strength	Maximum pull of 0.5 kg strength for 3 seconds
Drop Test	After parts are subjected to 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) *
* Reliability Test Performance	**Parts should conform to original performance within ±5 dB tested with Rated Power, 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



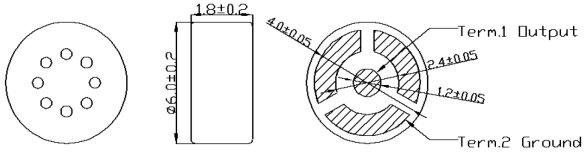
TYPICAL FREQUENCY RESPONSE



Frequency	Frequency	Frequency
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: ±0.5 mm



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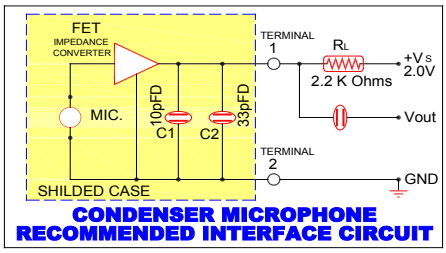
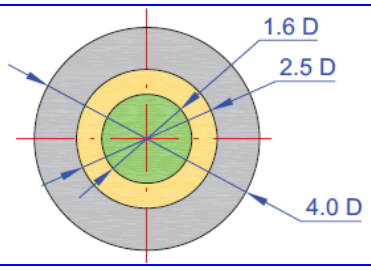
SCHEMATIC DRAWING



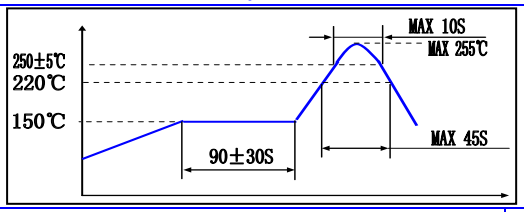
CONDENSER MICROPHONE RECOMMENDED INTERFACE CIRCUIT

R_L = 2,200 Ω
Vs = 2 Vdc
C 2 = 33 pDF
C 1 = 10 pDF
C = 1.0 µDF

RECOMMENDED LAND DESIGN



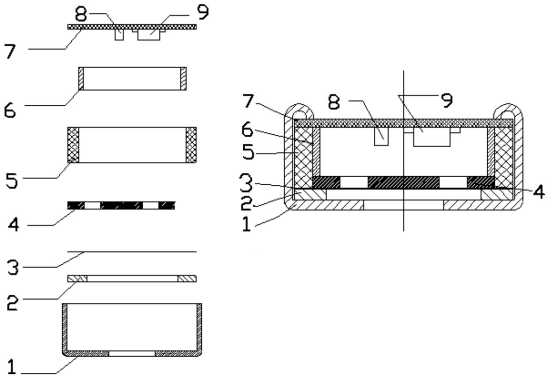
REFLOW PTOFILE (Maximum Reflow Conditions)



Setting Temperature at peak	**270ºC**
Actual Temperature to Microphone	**260ºC**
Duration at Peak Temperature	**30 sec**
Total Duration Period	**6 minutes**

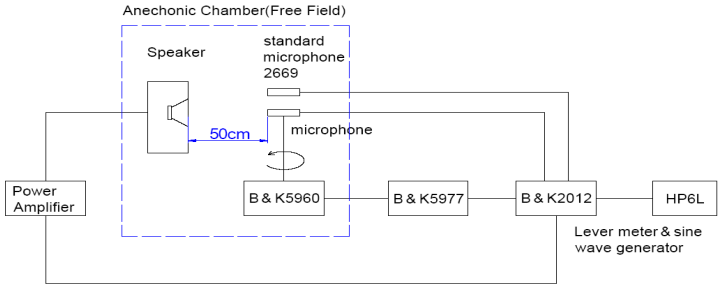
Do not perform more than twice
After reflow soldering twice under following conditions, the sensitivity of the microphone shall be without±3 dB from initial value

CONSTRUCTION MATERIAL



ITEM	PART NAME	MATERIAL	QTY
9	FET		1
8	Chip Capacitor	10 + 32 pF (0402)	1
7	P.C.B.	FR-4	1
6	Copper Ring	Copper Tube	1
5	Housing Chamber	Gather Formaldehyde	1
4	Electret Back	Copper Blank	1
3	Spacer	Mylar	1
2	Polarized Diaphram	Dupont	1
1	Case	Copper	1

TESTING PROCEDURES

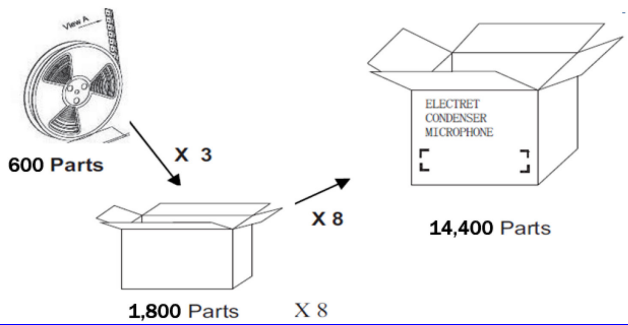


1. Measure the microphones under standard operating condition.
2. Put the microphone and standard microphone face to the sound source (speaker), the distance between sound sourcet and microphone & standard microphone is 50cm. And keep the center distance 5cm between them to ensure that the change of 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.
5. 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

PACKAGING



Packaging Quantities		Weight	
Parts per Reel	600	1PC	0.2 g
Reels / Parts per middle box	3 / 1,800	NET WEIGHT	2.9 kg
middle box / Parts per shipping boxes	14,400	GROSS WEIGHT	5.8 kg

Shipping Box Information	
Part Number	Gross Weighjt
Other PN (if required)	Box Number of Boxes
Quantity	Made in China
Lot and/or Date Code	
PO Number	

Revision	Description	By	Date
2-2013	Updated Specifications	Ely Zofan	9/4/2013
3-2013	Updated Operating Voltage, Operating/Storage Temps. Ring/Case material, # Parts/Reel, Weights, Construction drawing, Packaging drawing & specifications, dimensions drawing.	W.Sargent	9/4/2013