Challenge Electronics
95 East Jefryn Boulevard
Deer Park, NY 11729

Tel: 1-800-722-8197
1-631-595-2217
Fax: 1-631-586-5899

- ISO 9001:2000
- ISO 14001:2004
- ISO/TS 16949:2002

Lead Free RoHS COMPLIANCE

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

PRODUCT INFORMATION

PART #:	CEM-N9767JAD544P2.54R	Revision:	1-2013

Noise Cancelling Foil Electret Condenser Microphone

DESCRIPTION:

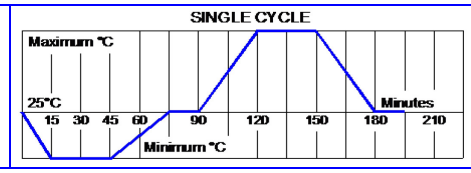
Challenge Electronics Microphone, N = Noise Canceling, 9.7 mm diameter and 6.7 mm high, JA = 1 to 10 Vdc Operating Voltage, D = 2,200 Ω External Loading Resistance, -54 ± 4 dB sensitivity, 2 PC Pins 2.5 mm apart termination, RoHS Lead Free Compliant

SPECIFICATIONS

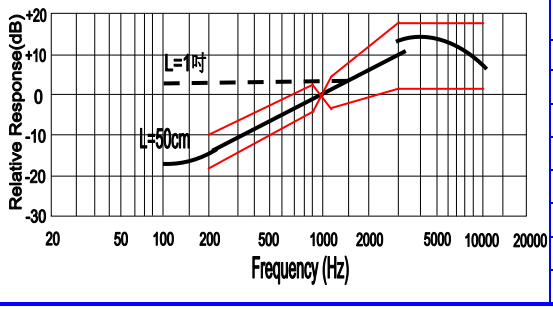
Direction	Noise Canceling Foil Electret	Minimum Direction sensitivity	
Operating Voltage Range	Vs= 1.0 Vdc ~ 10.0 Vdc	Power Supply (Vs)	1.5 V
Frequency Range	100 ~ 10,000 Hz.	Maximum Current	0.5 mA, at 2.0 V, 2.2 KΩ
Sensitivity	-54 ± 4.0, (0 dB = 1V / Pa) at 1K Hz., 50 cm	Minimum Signal to Noise Ratio	50 dB
Sensitivity Reduction	3.0 V to 2.0 V -3 dB	Maximum input S.P.L.	110 dB at 1.0 KHz, THD <1%
Operating Temperature	-20ºC to + 60ºC	Storage Temperature	-40ºC to + 75ºC
Loading Resistance (RL)	External, 680 Ω at Vs = 1.5 V, Max. 2,200 Ω	Built in Capacitors	None
Termination	Two (2) PC Pins, Copper with tin plating,	Housing Material: Al-Mg Alloy.	Color:
Dimensions	Length / Diameter: 9.7 mm Ø	Width: mm	Height: 6.7 mm; PC Pins Spacing: 2.54 mm
Approximate Weight	0.7 grams	FELT: Non-Weave Cloth	Compliance: RoHS, Lead Free
Options			

RELIABILITY,

Thermal Operating Cycle Test	**250 hours** continuous operation **at Rated Power,** at **Maximum Rated Operating Temperature** *
	250 hours continuous operation **at Rated Power,** at **Minimum Rated Operating Temperature** *
Thermal Storage Cycle Test	**250 hours** storage at **Maximum Rated Storage Temperatures** *
	250 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 *
Vibration Test:	2 Hours of at 1.5 mm with 10 to 55 Hz. vibration frequency to each of 3 perpendicular directions *
Drop Test:	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



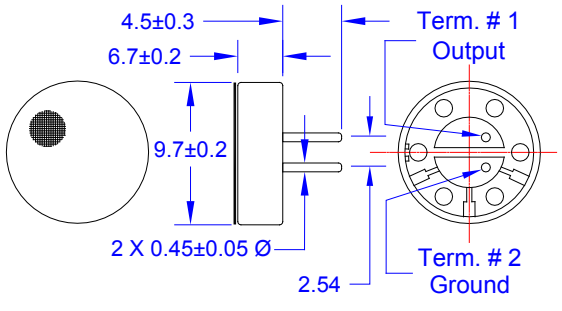
TYPICAL FFREQUENCY RESPONSE



Microphone Response Toll Window

Frequency (Hz)	Lower Limit (dB)	Upper Limit (dB)
200	-18	-10
800	-6	+2
1000	0	0
1200	-4	+4
3000	+2	+18
5000	+2	+18
10000	+2	+18

DIMENSIONS Units in: mm Tolerance: ±0.3 mm



Challenge Electronics
95 East Jefryn Boulevard
Deer Park, NY 11729

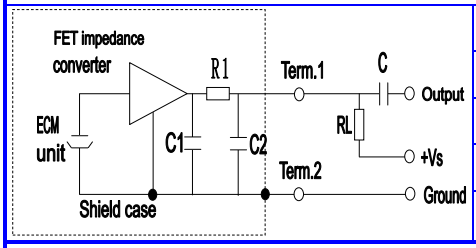
Tel: 1-800-722-8197
1-631-595-2217
Fax: 1-631-586-5899

- ISO 9001:2000
- ISO 14001:2004
- ISO/TS 16949:2002

Lead Free RoHS COMPLIANCE

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

CIRCUIT SCHEMATIC DRAWING

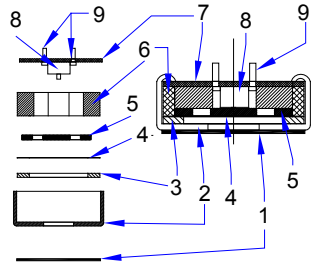


R_L	680 Ω
V_S	1.5 V
C1	None
C2	None
C	1 μFD

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	Dustproof gauze	Non-weave cloth	1
2	Case	Al-Mg alloy PA	1
3	Diaphragm		1
4	Spacer	Polyester	1
5	Electret Plate	FEP and Metal	1
6	Chamber		1
7	P.C.B	FR-4	1
8	FET	3782	1
9	Pins		2
10			

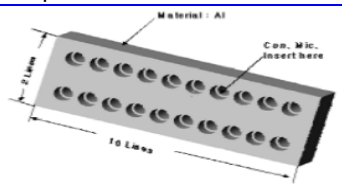
Testing Condition

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

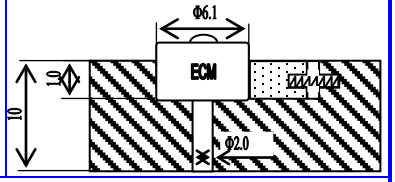
SOLDERING INFORMATION RECOMENDATION

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

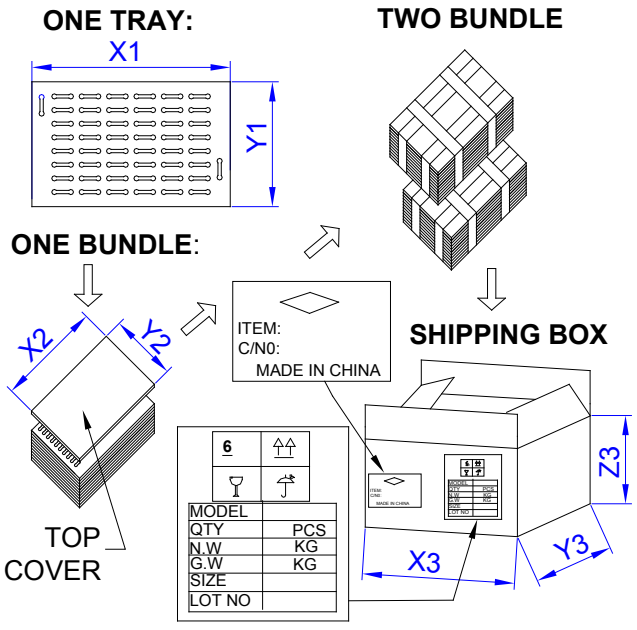
Shape of heat sink



Single Pattern Heat Sink



PACKAGING



MARKING	SIZE		
Bundle	**Tray / Small Box**		
Customer PN	Dimensions	X1	10 cm
Other PN if required		Y1	10 cm
Quantity		Z1	1.7 cm
Lot and/or Date Code	Quantity		100
Bundle Number	**Bundle / Mid Size Boxes**		
Shipping Box	Dimensions	X1	20.5 cm
Customer Part Number		Y1	15 cm
Other PN (if required)		Z1	5 cm
Quantity	Quantity		1,000
Lot and/or Date Code	**Shipping Box**		
PO Number	Dimensions	X3	55 cm
Net Weight		Y3	23 cm
Gross Weighjt		Z3	23.5 cm
Box Number	Number of Bundles / Boxes		20
of Number of Boxes	Quantity		20,000
Made in China	Approximate Weight		16 Kg.

Revision	Description	By:	Date
1-2013	Corrected label from "Maximum Sensitivity to Noise" to "Maximum Signal to Noise"	W.Sargent	8/08/2013

Challenge Electronics
95 East Jefryn Boulevard
Deer Park, NY 11729

Tel: 1-800-722-8197
1-631-595-2217
Fax: 1-631-586-5899

- **ISO 9001:2000**
- **ISO 14001:2004**
- **ISO/TS 16949:2002**

Lead Free RoHS COMPLIANCE

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