

Specification of Microphone

RoHS Compliance & Halogen Free

LinkMems P/N: LOE4013TNN383UT-OAM02

Designed by	Checked by	Approved by
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Electret Condenser Microphone

1. Introduction

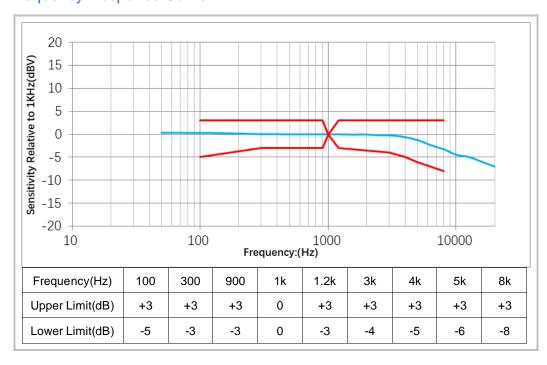
This document is the technical specification of electret condenser (ECM) Omni-Directional Microphone.

2. Electrical Characteristics

Test Condition: V_{DD} =2.0V, RL=2.2 k Ω , 23 \pm 2°C, 55 \pm 20%R.H., unless otherwise specified.

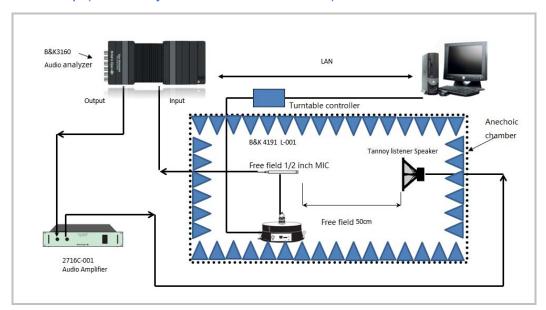
Specification	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Directivity			Omi	ni-direct	ional	
Sensitivity Range	S	94dBSPL @1kHz	-41	-38	-35	dB
Output Impedance	Z _{out}	94dBSPL @1kHz			2.2	kΩ
Current Consumption	ı	Vs =2.0V RL=2.2 kΩ			500	μΑ
S/N Ratio	SNR	94dBSPL @1kHz A-Weighted	60			dB(A)
Operating Voltage	Vs		1.5	2.0	10.0	V
Sensitivity vs. Voltage	ΔS	94dBSPL @1kHz Vs=2.0V to 1.5V			-3	dB

3. Frequency Response Curve

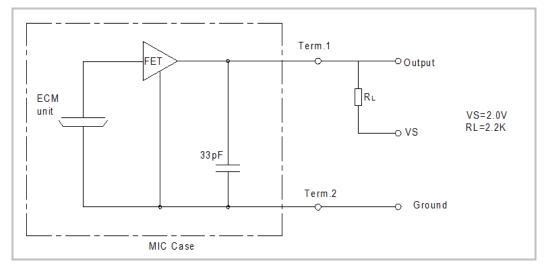




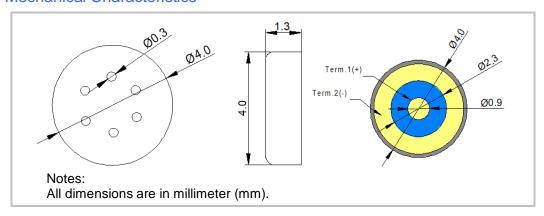
4. Test Setup (Sensitivity Test in Anechoic Room)



5. Measurement Circuit



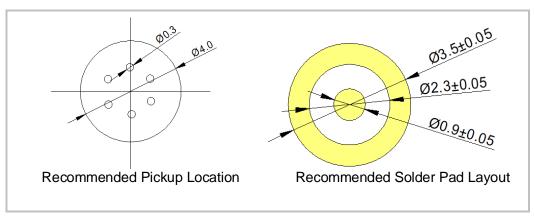
6. Mechanical Characteristics



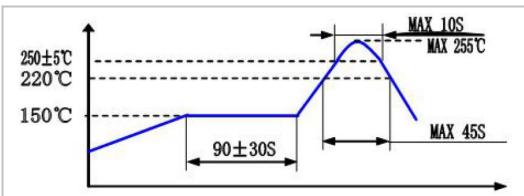


7. Application

7.1 Pick Location& PCB Solder Pad Layout

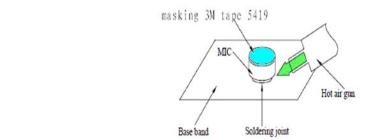


7.2 Temperaure restrictions during the reflow process



- *After the initial reflow, the MIC shall be resumed to ambient temperature if more reflow required.
- *Do not perform it more than twice.
- *After two SMT tests, the sensitivity of the MIC unit shall change less than ±2dB for initial value
- *The MIC should be exposed to room temperature for 3 hours and tested.

7.3 Hot air gun using instruction



- a) Please add one heat-resistance tape before removal and rework on the back of mic.
- b) Hot air gun is used to separate the reflowable MIC from the base board.
- c) Max. temperature of the nozzle should be less than 400°C; Actual temperature of the hot air while blowing should be less than 270°C.
- d) Distance between nozzle's tip and reflowable MIC should be within 2mm.
- e) Operation time: Less than 10 seconds.
- f) Hot air's entry to the sound hole of the reflowable MIC should be prohibited.
- g) Aim the nozzle's tip to the joint of the soldering joint of the reflowable MIC and the base board.
- h) Anti-static measure should be taken for reflowable MIC is easy to be destroyed.



8. Special Cautions

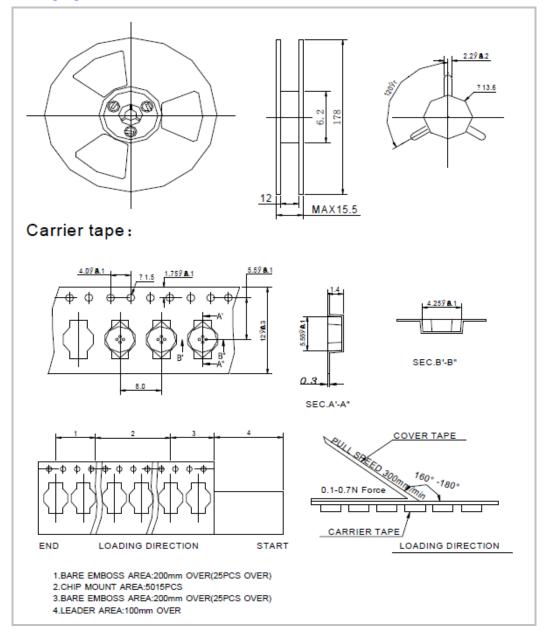
8.1 Environmental Condition

- 8.1.1 Storage Condition:-40°C~+85°C.
- 8.1.2 Operating Condition:-20°C~+60°C.
- 8.1.3 Arbitration Condition:20±1°C, R.H.63~67%, Air pressure:86~106Kpa.

8.2 Storage Condition

- 8.2.1 Keep ECM in warehouse with humidity less than 75%R.H. and without sudden temperature change, acid air, any other harmful air or strong magnetic field.
- 8.2.2 Please protect products against moist, shock, sunburn and pressure.
- 8.2.3 MSL Please take proper measures against ESD in the process. Please use the shipment package for long-term storage.

9. Packaging Information





10. Reliability Test

The samples should be placed in the room with $20\pm2^{\circ}$ C, 65 ± 5 %R.H. for 3 hours at least before final measurement, unless otherwise specified.

Item	Detail	Standard
High temperature Test	After exposure at +85°C for 200 hours.	±3 dB
Low temperature Test	After exposure at -40°C for 200 hours.	±3 dB
Humidity & Heat Test	After exposure at +40°C and 93% relative humidity for 200 hours.	±3 dB
Thermal Shock	After exposure at -25°C for 30 minutes, at 20°C for 10 minutes, at+70°c for 30 minutes, at 20°C for 10 minutes,32 cycles.	±3 dB
Vibration Test	To be no interference in operation after vibrations, 10-55Hz for 2 hours at three axises with 2mm-high amplitude	±3 dB
Drop Test	The microphone without packaged must be subjected to each 3 drops from the height of 100cm to 1cm thick ceramic tile.	±3 dB
Soldering Heat Shock	After soldering heat shock temperature 300 $\pm5^\circ\!$	±3 dB



Specification Revisions

Released uit diagram	Hary	30/05/2025
uit diagram	Hary	11/06/2025
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