Specification of Microphone

LinkMems P/N: LOE4013TNN403WV-1D04

Designed by	Checked by	Approved by
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Customer Approval

Approved by:_____

Contents

Electret Condenser Microphone

1. Introduction

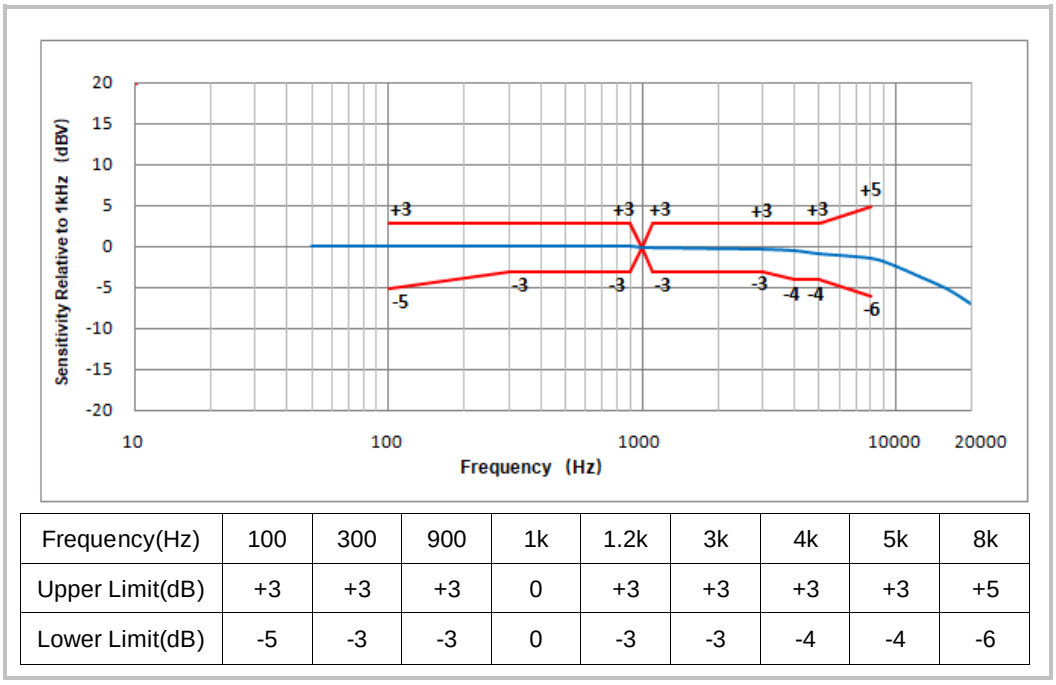
This document is the technical specification of electret condenser (ECM) Omni-Directional Microphone.

2. Electrical Characteristics

Test Condition: V_{DD}=2.0V, RL=2.2 kΩ, 23±2℃, 55±20%R.H., unless otherwise specified.

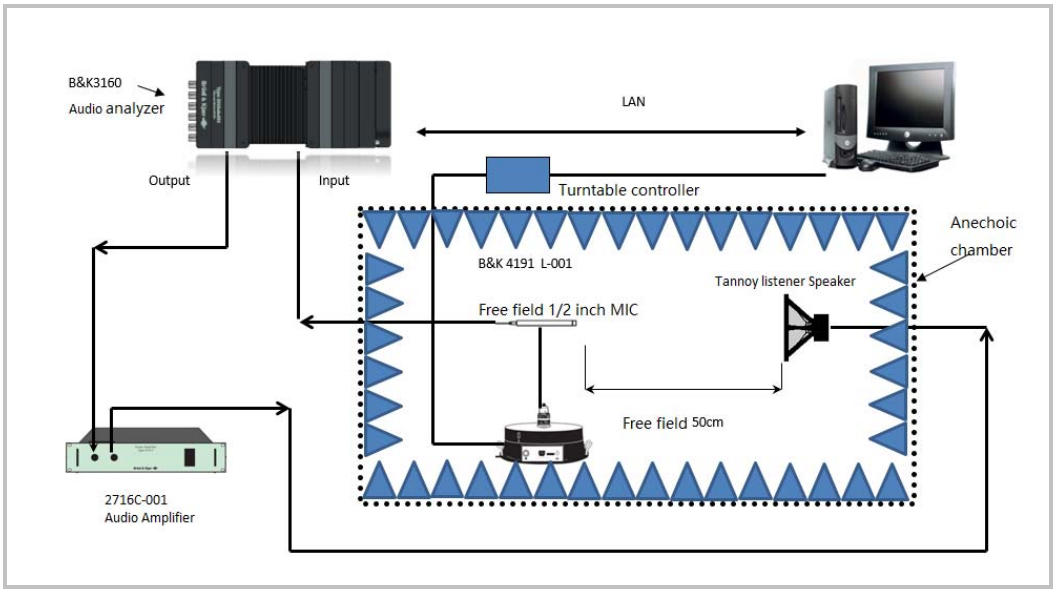
Specification	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Directivity			Omni-directional			
Sensitivity Range	S	94dBSPL @1kHz	-43	-40	-37	dB
Output Impedance	Z_{out}	94dBSPL @1kHz			2.2	kΩ
Current Consumption	I	V_S =2.0V RL=2.2 kΩ			500	μA
S/N Ratio	SNR	94dBSPL @1kHz A-Weighted	58			dB(A)
Operating Voltage	V_s		1.5	2.0	10.0	V
Sensitivity vs. Voltage	△S	94Dbspl @1kHz Vs=2.0V to 1.5V			-3	dB

3. Frequency Response Curve

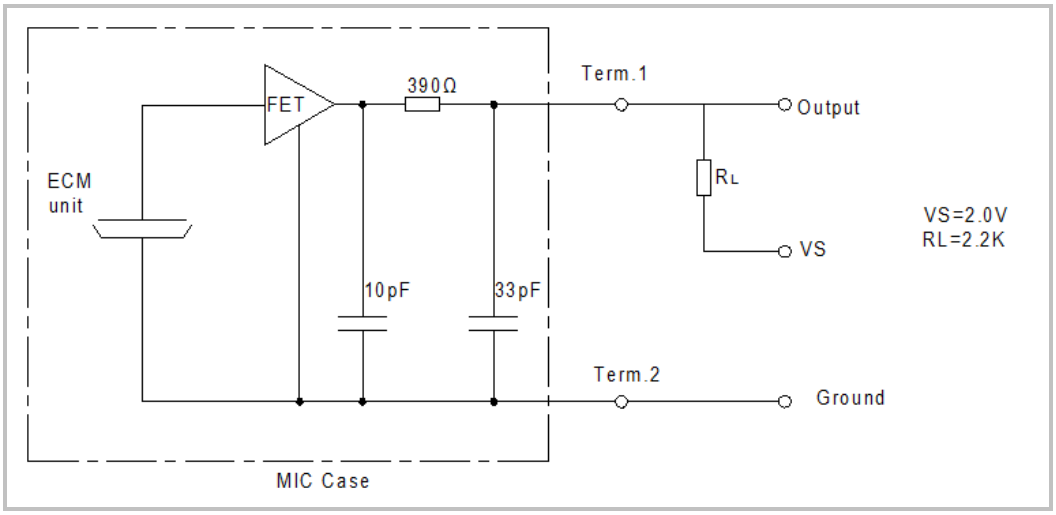


Frequency(Hz)	100	300	900	1k	1.2k	3k	4k	5k	8k
Upper Limit(dB)	+3	+3	+3	0	+3	+3	+3	+3	+5
Lower Limit(dB)	-5	-3	-3	0	-3	-3	-4	-4	-6

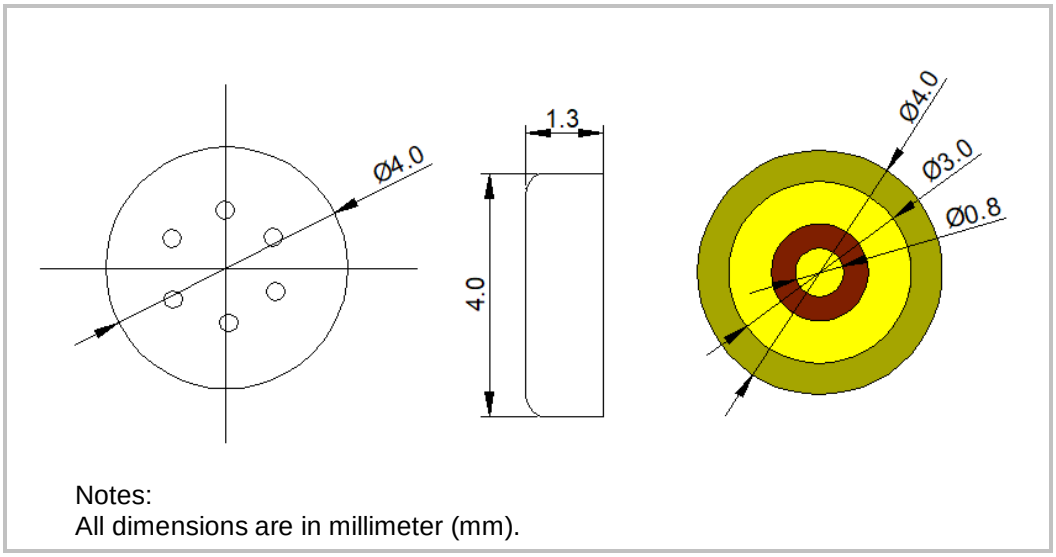
4. Test Setup (Sensitivity Test in Anechoic Room)



5. Measurement Circuit



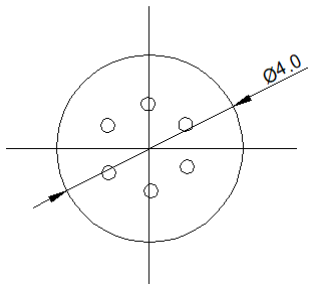
6. Mechanical Characteristics



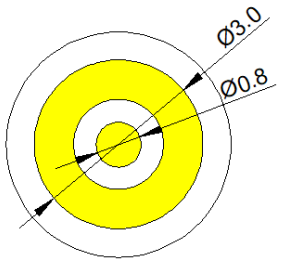
Notes:
All dimensions are in millimeter (mm).

7. Application

7.1 Pick Location& PCB Solder Pad Layout

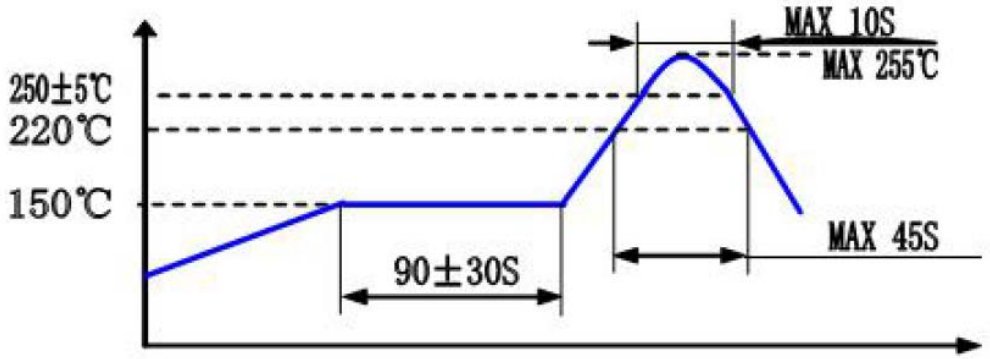


Recommended Pickup Location



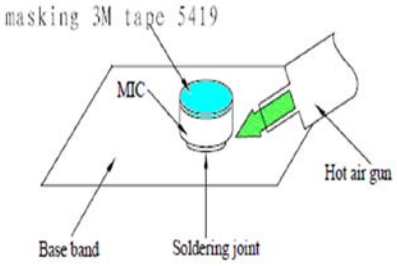
Recommended Solder Pad Layout

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℃; Actual temperature of the hot air while blowing should be less than 270℃.
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℃～+85℃.

8.1.2 Operating Condition:-20℃～+60℃.

8.1.3 Arbitration Condition:20±1℃, R.H.63~67%, Air pressure:86~106Kpa.

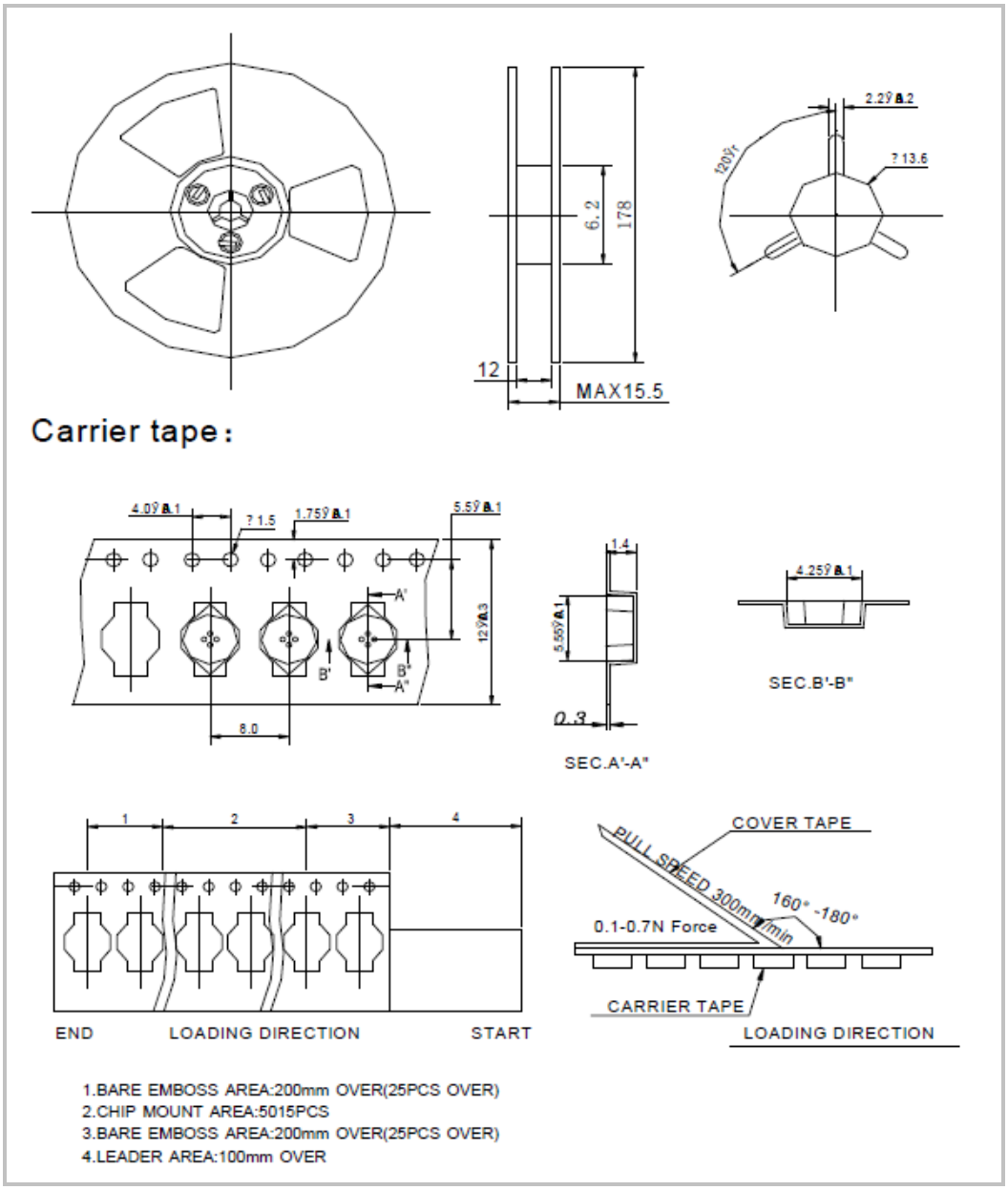
8.2 Storage Condition

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±2℃, 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±5℃ for 3±1 seconds.	±3 dB

Specification Revisions

Revision	Description	Approved	Date
1.0	New Version Released	Kevin	09/01/2026