



PRODUCT INFORMATION

Part Numbers

CM2OS-0338-A1

Revision

2-2018

Type

Analog MEMS Microphone
Active RF Filter

Compliance

- **RoHS, Lead Free**
- **ISO 9001:2000**
- **REACH: SUBSTANCE OF VERY HIGH CONCERN (SVHC)** This product does NOT contain any of the REACH Substances of Very High Concern (SVHC), and is in compliance with European Union REACH Regulation No.1907/2006 regarding chemical substances which must be registered or disclosed.



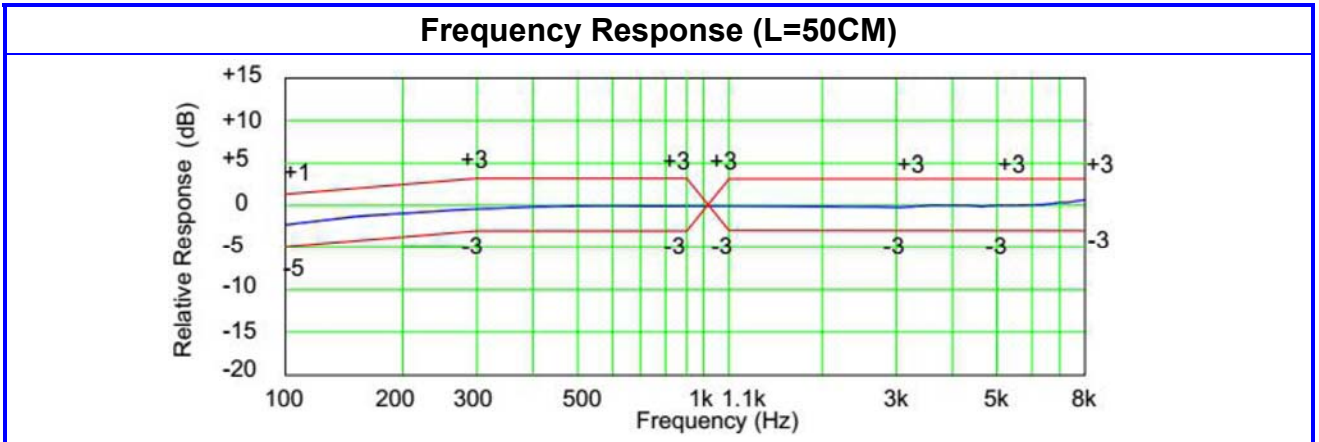
1. Acoustic and Electrical Characteristics

Test condition: $V_s = 2.0\text{ V}$, at $20 \pm 2^\circ\text{C}$, $L = 50\text{ cm}$, Relative Humidity $65 \pm 5\%$ unless otherwise specified

Parameter	Symbol	Condition	Limits			Unit
			Min.	Typical	Max.	
Directivity			Omni-directional			
Sensitivity ¹	S	Pin = 1Pa, at 1 kHz.	-39	-38	-37	dBV
Output impedance	Z out	Pin = 1Pa, at 1 kHz.			400	Ω
Current Consumption	I	$V_s = 2.0\text{V}$			150	μA
Internal Capacitance	C_I				50+50	pF
Signal to Noise Ratio	S/N	Pin = 1Pa, at 1 kHz. (A- Weighted Curve)	60	62		dB
Decreasing Voltage	ΔS	Pin = 1Pa, at 1 kHz. $V_s = 3.6 - 1.5\text{ V}$	No Change			
Operating Voltage	V_s		1.5	2.0	3.6	V
Acoustic Overload Point	AOP	10% THD @ 1 kHz.	120	123		dB SPL
Load Resistor	R_L		10			kΩ
Load Capacitance	C_L				150	pF
Power Supply Rejection	PSR	100mVpp square wave @ 217Hz, $V_s = 2.0\text{ V}$, A-weighted		-100		dBV
Total Harmonic Distortion	THD	94dB SPL @ 1 kHz.			1	%
		110 dB SPL @ 1 kHz.			2	

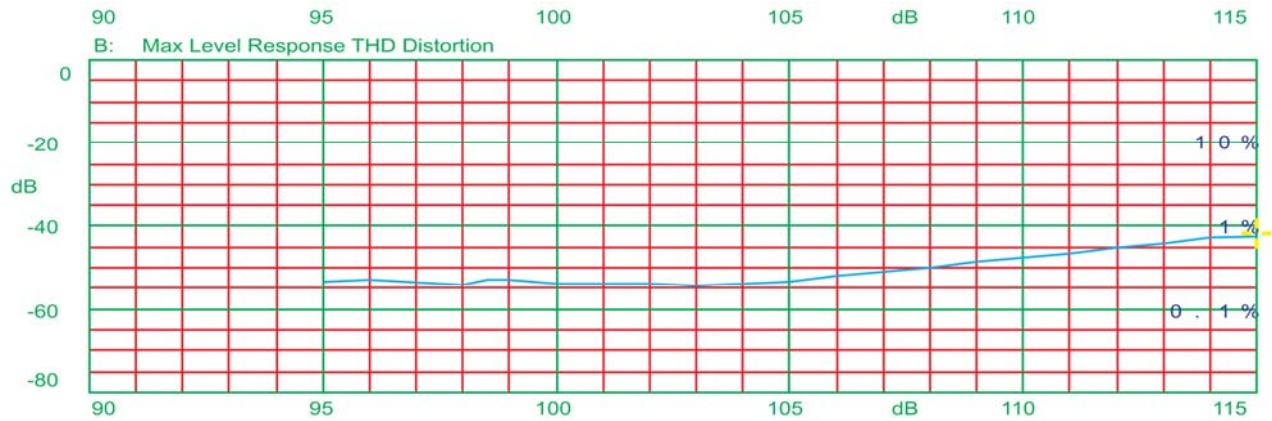


2. Frequency Response Curve



¹ 0dB = 1V/Pa, per I.E.C. (International Electrotechnical Commission) recommendation. To convert to a 0dB "ubar" reference, subtract 20 dB. Example: -40dB (1V/Pa) = -60dB (0dB = 1V/ubar)

3. THD Curve



4. Operating and Storage Application

4.1. Temperature Condition

4.1.a. Storage temperature range: -40°C ~+70°C.

4.1.b. Operating temperature range: -40°C ~+100°C.

5. Mechanical Characteristics

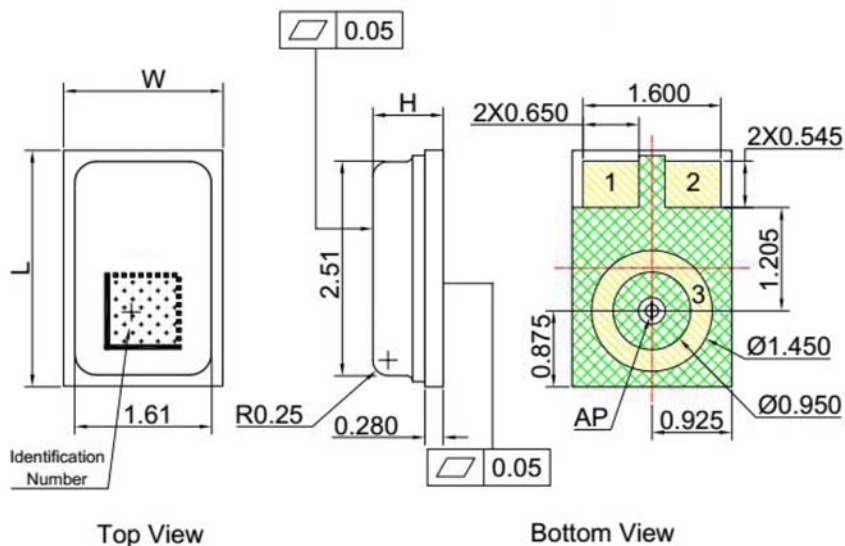
5.1. Weight: Less than 0.02 grams

5.2. All dimensions are: in millimeter (mm).

5.3. Tolerance: ±0.1 mm unless otherwise specified.

5.4. Microphone Dimensions: 2.75 mm x 1.85 mm x 0.90 mm

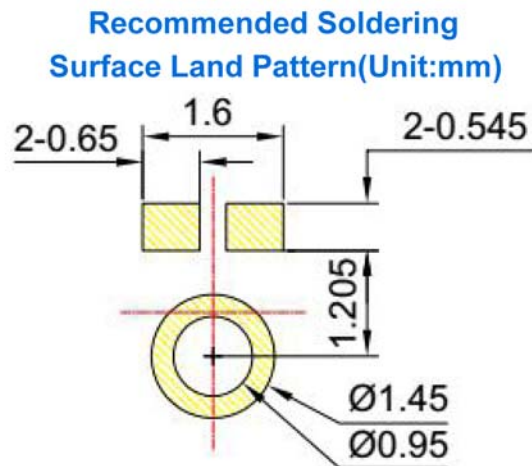
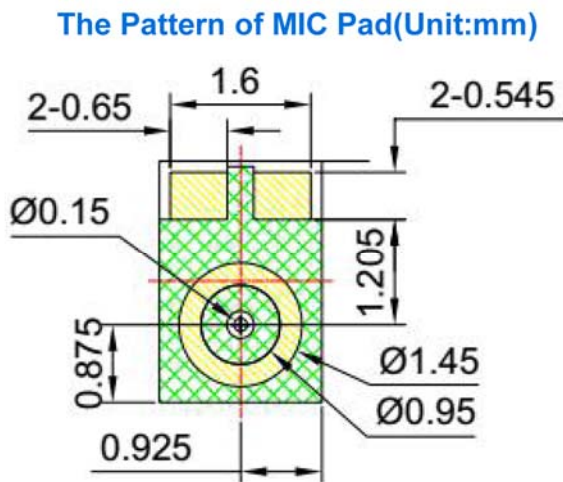
5.5. Microphone Material: Copper with Nickel plating



Pin#	Function
1	Power
2	Output
3	GND

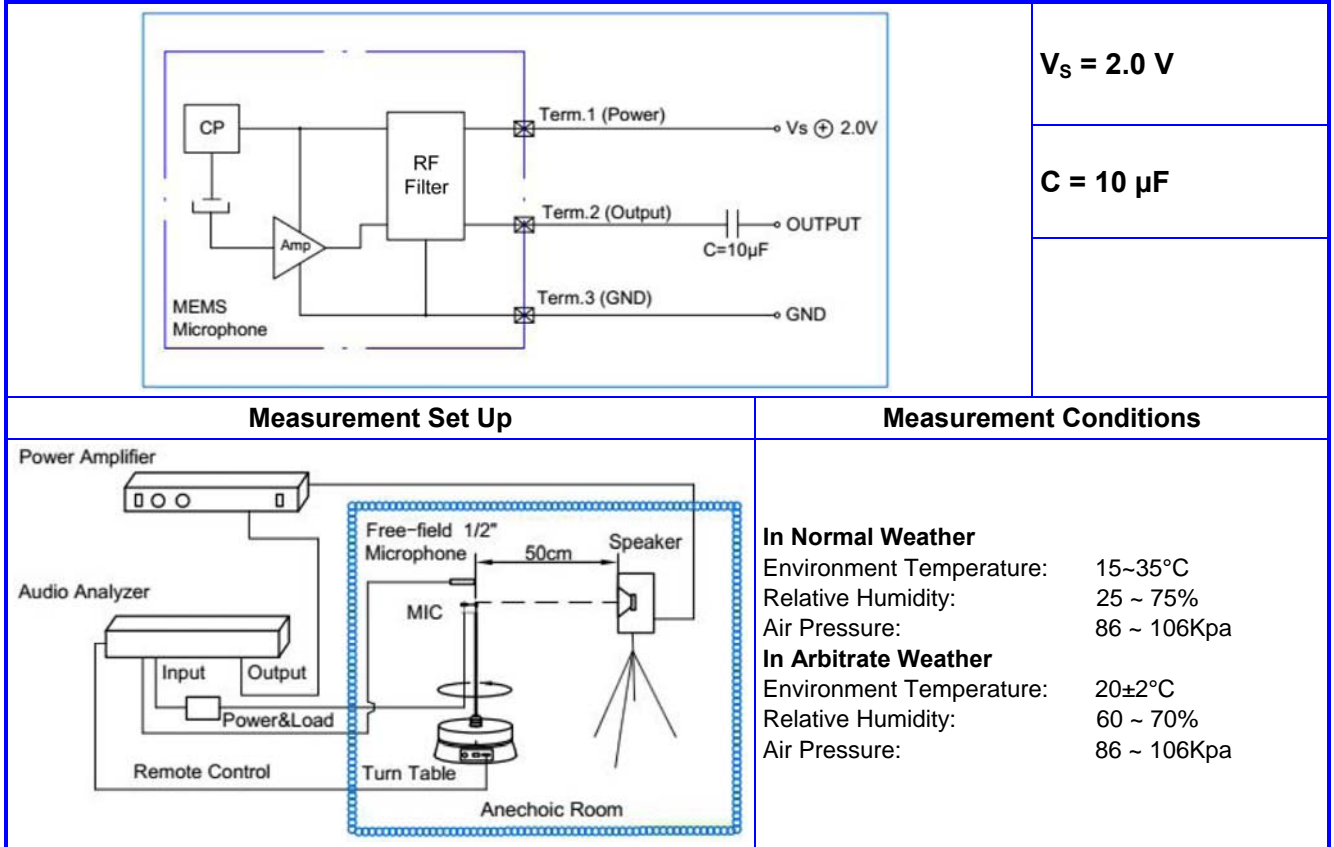
Item	Dimension	Tolerance	Units
Length(L)	2.75	± 0.10	mm
Width(W)	1.85	± 0.10	mm
Height(H)	0.90	± 0.10	mm
Acoustic Port(AP)	$\varnothing 0.15$	± 0.05	mm

6. Recommended Land Pattern





7. Measurement Circuit



8. Part Number Description

ID	Description
C	Challenge Electronics
M	Microphone
2	2.75 mm Length
O	Omni-directional
S	SMD Termination
-	dash
03	3.6 V Maximum Voltage
38	-38 dB Typical Sensitivity
-	Dash
A	Analog Signal
1	Version 1

9. Warranty

For a period of one (1) year from date of shipping under normal handling and operations conditions
This warranty does not apply to products damaged through misuse, abuse, improper installation, alteration, rework, or attempt to repair

Revision	Description	By	Date
0-2018	Initial Specification Sheet	JL	01/12/2018
1-2018	Added THD Curve and Internal Capacitance. Changed type description from Omni-directional MEMS Mic to Analog MEMS Mic. Added Active RF Filter to description	JL	2018-06-04
2-2018	Added Recommended Land Pattern	JL	2018-07-23