



PRODUCT INFORMATION

Part Numbers

CM03OS-0342-A1

Revision

1-2018

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

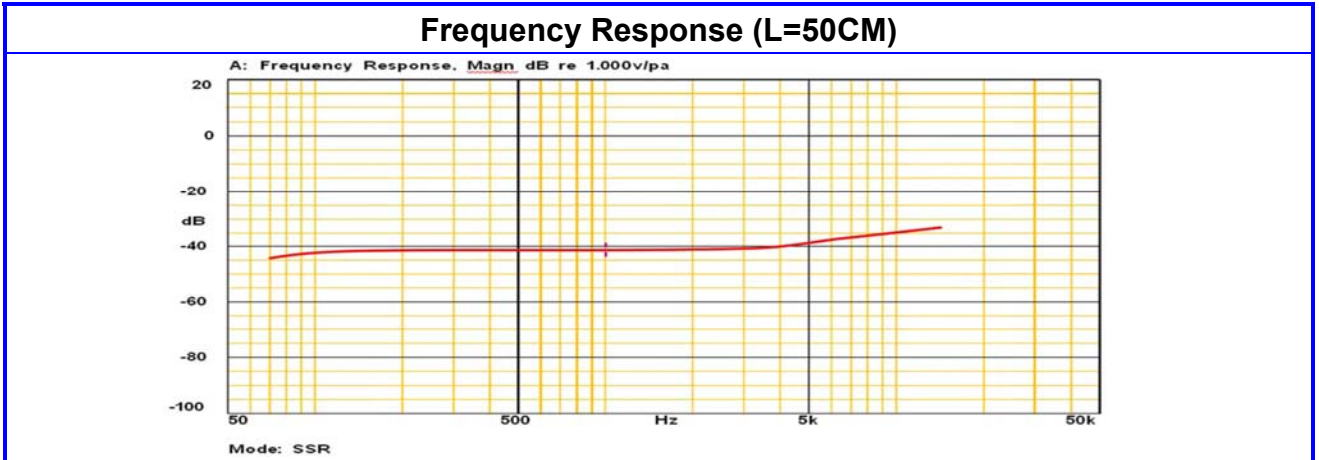
Test condition: $V_{DD} = 2.0\text{ V}$ at $23 \pm 2^\circ\text{C}$, $L = 50\text{ cm}$, Relative Humidity $65 \pm 5\%$ unless otherwise specified

Parameter	Symbol	Condition	Limits			Unit
			Min.	Typical	Max.	
Directivity		Omni-directional				
Sensitivity ¹	S	$V_{DD} = 2\text{V}$, $f = 1\text{ kHz}$, $\text{SPL} = 1\text{ Pa}$, $0\text{ dB} = 1\text{V/Pa}$	-45	-42	-39	dBV
Output impedance	Z out	$f = 1\text{ kHz}$.	-	-	300	Ω
Current Consumption	IDSS	$V_{DD} = 2.0\text{V}$	-	70	100	μA
Internal Capacitance	C_I				50+50	pF
Signal to Noise Ratio	S/N	$f = 1\text{ kHz}$, $\text{SPL} = 1\text{ Pa N}$ (A- Weighted Curve)		59		dB
Sensitivity Change Across Voltage	$\Delta\text{S/V}$	$V_{DD} = 1.5\text{--}3.6\text{ V}$	0.5	-	0.5	dB
Operating Voltage	V_{DD}		1.5	2.0	3.6	V
Total Harmonic Distortion	THD	100 dB SPL @ 1 kHz.	-	-	1.0	%
		115 dB SPL @ 1 kHz.	-	-	10.0	
Acoustic Overload Point	AOP	10% THD @ 1 kHz, S = Typ	-	120	-	dB SPL

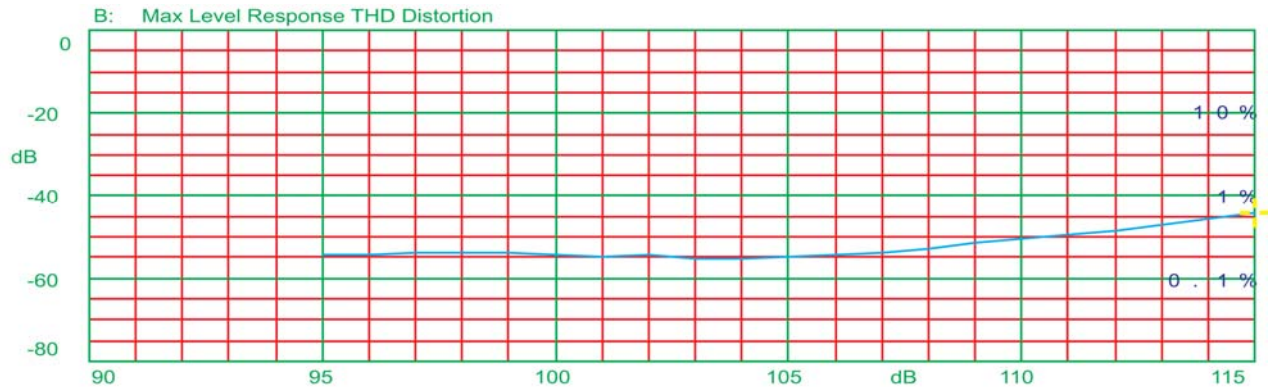
¹ 0dB = 1V/Pa, per I.E.C. (International Electrotechnical Commission) recommendation. To convert to a 0dB "ubar" reference, subtract 20 dB. Example: -40dB (1V/Pa) = -60dB (0dB = 1V/ubar)



2. Frequency Response Curve



3. THD Curve



4. Operating and Storage Application

4.1. Temperature Condition

4.1.a. Storage temperature range: $-40^{\circ}\text{C} \sim +100^{\circ}\text{C}$.

4.1.b. Operating temperature range: $-40^{\circ}\text{C} \sim +100^{\circ}\text{C}$.

5. Mechanical Characteristics

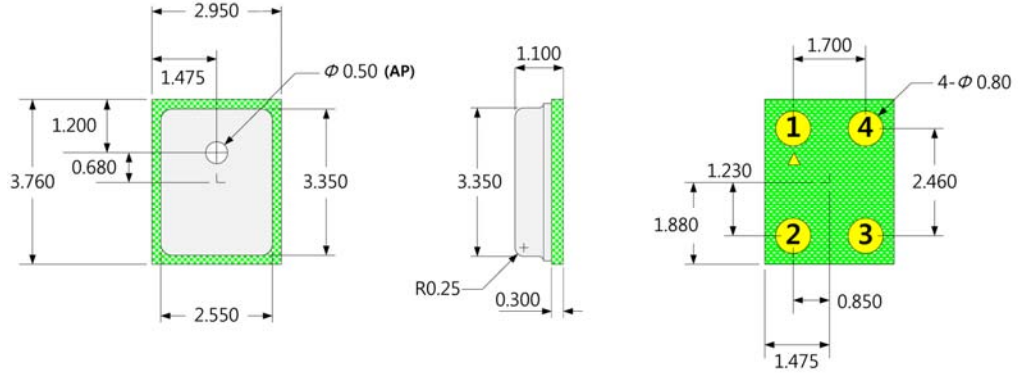
5.1. Weight: Less than 0.04 grams

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

5.3. Tolerance: ± 0.1 mm unless otherwise specified.

5.4. Microphone Dimensions: 3.76 mm x 2.95 mm x 1.1 mm

5.5. Microphone Material: Copper with Nickel plating



TOP VIEW

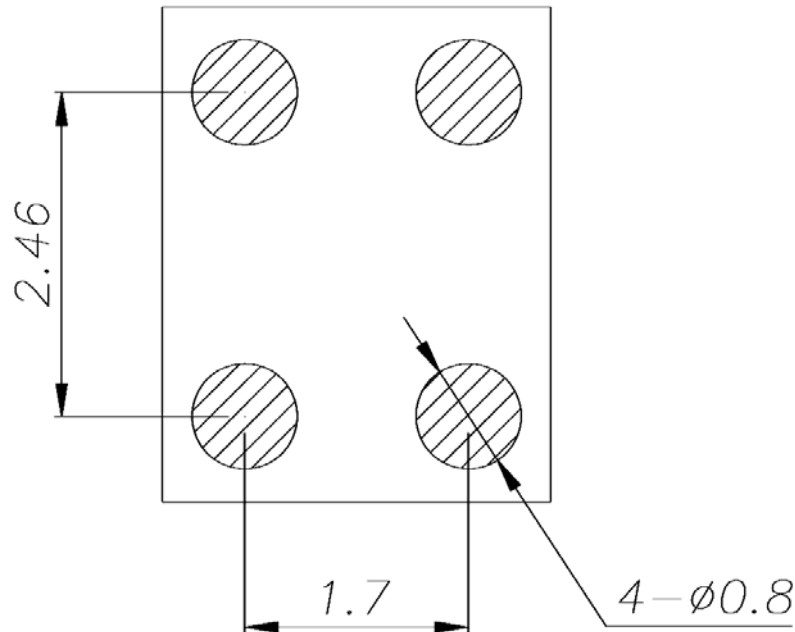
BOTTOM VIEW

Unit: mm, Tolerance: ± 0.1 mm Pick

Area only extends to 0.25 mm of any edge or hole unless otherwise specified

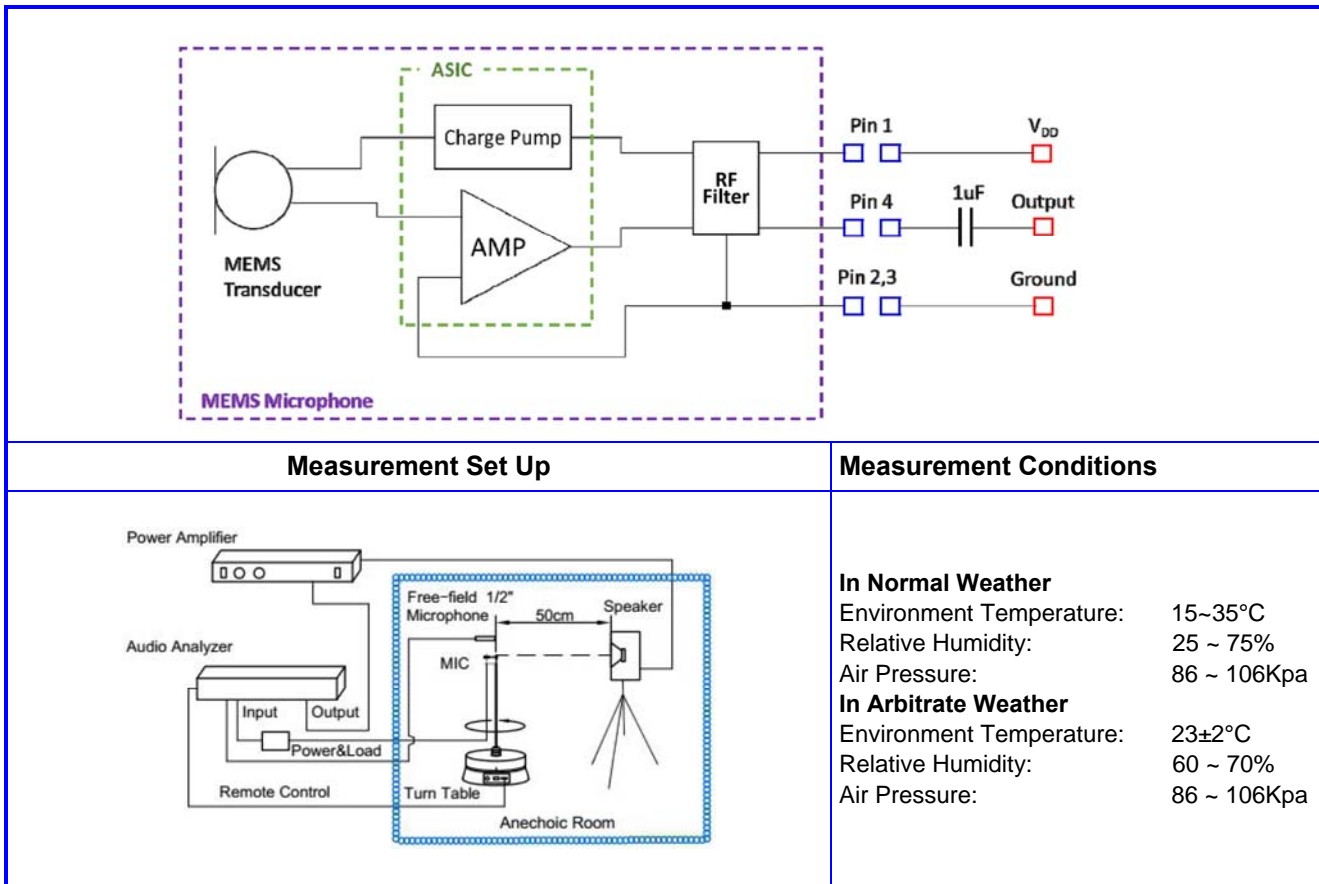
Pin 1	Pin 2	Pin 3	Pin 4
VDD	GND	GND	DAT

6. Recommended Land Pattern





7. Measurement Circuit



8. Part Number Description

ID	Description
C	Challenge Electronics
M	Microphone
03	3.76 mm Length
O	Omni-directional
S	SMD Termination
-	dash
03	3.6 V Maximum Voltage
42	-42 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	2018-06-04
1-2018	Added Recommended Land Pattern	JL	2018-07-23