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SPECIFICATION FOR APPROVAL

Analog MEMS Microphone

Part Number	OWMMOA-372911A-S38-BP
Note	This item is in compliance with the following requirements: 1. RoHS directive 2. REACH
Customer P/N	

		Prepared	Checked	Approved
Ole Wolff	Signature / Date	Davy Liu 2020.04.16		Ryan Li 2020.04.16

		Confirmation		
Customer	Signature / Date			

REVISION NOTES:

Date	Rev.	Description of Revision
2020.04.16	00	Initial Release

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1. SCOPE

THIS SPECIFICATION IS APPLIED TO OLE WOLFF MINI SILICON MICROPHONE UNIT, MODEL NO.: OWMMOA-372911A-S38-BP

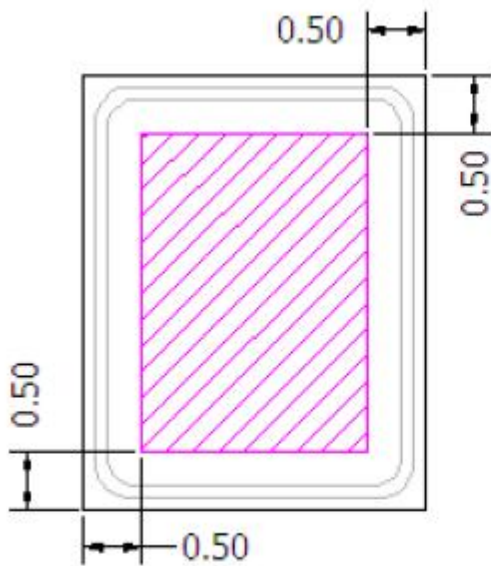
THE MEMS MICROPHONES ARE INTEGRATED WITH SPECIALIZED PRE-AMPLIFICATION ASIC TO PROVIDE HIGH SENSITIVITY, HIGH SNR OUTPUT FROM A CAPACITIVE AUDIO SENSOR. IT'S PACKAGED FOR SURFACE MOUNTING AND HIGH TEMPERATURE RE-FLOW ASSEMBLY.

2. DIMENSIONS AND MECHANICAL LAYOUT

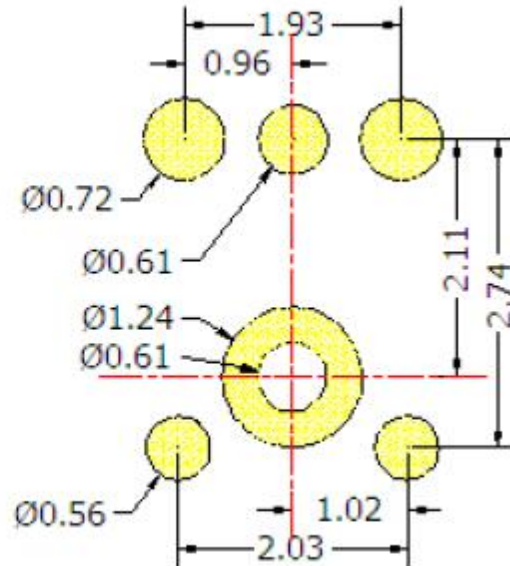
DIMENSIONS: AS SHOWN IN FIGURE 6

WEIGHT: 0.023g

3. PICKUP TOOL PICK LOCATION & PCB SOLDER PAD LAYOUT (FIGURE 1)



Recommended Pickup Location



Recommended Solder Pad Layout

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4. ELECTRICAL SPECIFICATIONS

Standard Conditions

Ordinary Temperature 5 to 35°C

Ordinary Humidity 45 to 85%

Ordinary air pressure 86 to 106kPa

Basic Test Conditions

Temperature 20 ± 2°C

Humidity 63 to 67%

Ordinary air pressure 86 to 106kPa

Specification	Symbol	Test Conditions	Min.	Typ.	Max.	Unit.
Directivity		Omni-directional				
Sensitivity Range	S	94dB SPL @1kHz,	-41	-38	-35	dB
Output Impedance	Z _{out}	94dB SPL @1kHz,			400	Ω
Current Consumption	I	94dB SPL @1kHz,	60		200	uA
S/N Ratio	SNR	94dB SPL @1kHz, A-Weighted	60	62		dB(A)
Operating Voltage	V _{DD}		1.5		3.6	V
Total Harmonic distortion	THD	94dB SPL @1kHz, S=Typ			0.5	%
Maximum input S.P.L	AOP	10% THD @1kHz S=Typ, V _{dd} =2V, R _{load} >2Kohm	118	120		dB
Power Supply Rejection	PSR	100mVpp Square wave @217Hz, A-weighted		-70		dB

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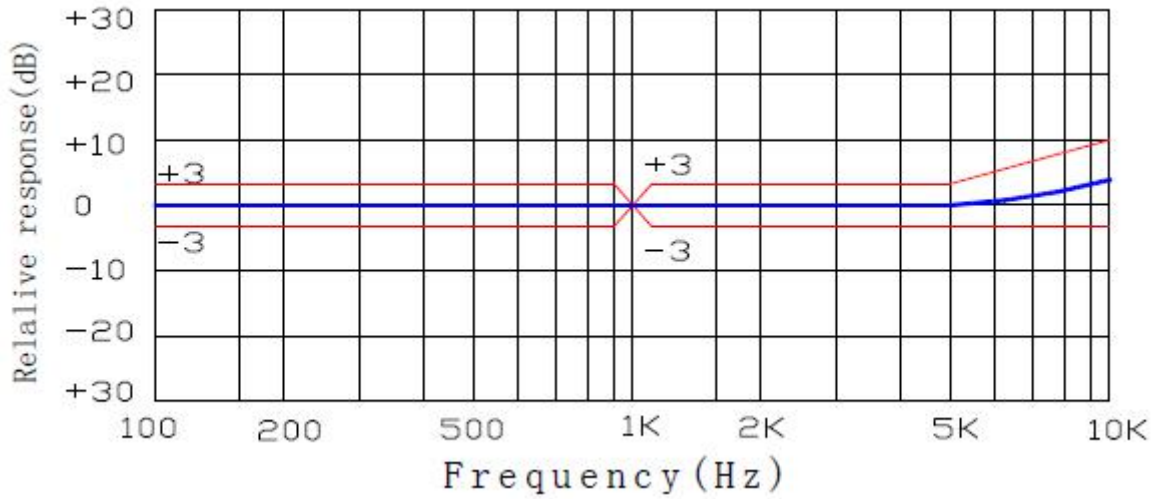
5. RELIABILITY TEST

- After test All tests are Satisfied after testing. The sensitivity should be within ± 3 dB from initial sensitivity after 2 hours recovering on the conditioning of 20°C
- High Temperature Storage Test After exposure at 105°C for 1000 hours, the sensitivity should be within ± 3 dB from the initial value.
- Low Temperature Storage Test After exposure at - 40° C for 1000 hours, the sensitivity should be within ± 3 dB from the initial value.
- Thermal Shock 100 cycles air-to-air thermal shock from -40 o C to +125 o C with 15minute soaks.the sensitivity should be within ± 3 dB from the initial value
- Humidity Test After exposure at 85 \pm 3°C and 85% relative humidity for 1000 hours, the sensitivity should be within ± 3 dB from the initial value.
- Vibration Test 4 cycles of 20 to 2,000 Hz sinusoidal sweep with 20 G peak acceleration lasting 12 minutes in X, Y, and Z directions.
- ESD-HBM 3 discharges of ± 2 kV direct contact to I/O pins.
- ESD-LID/GND 3 discharges of ± 8 kV direct contact to lid while unit is grounded.
- ESD-MM 3 discharges of ± 200 V direct contact to I/O pins.
- Reflow 5 reflow cycles with peak temperature of +260 o C
- Mechanical Shock 3 pulses of 10,000 G in the X, Y, and Z direction

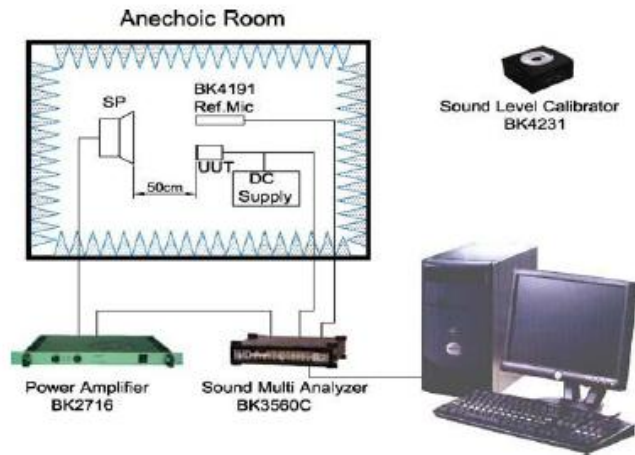
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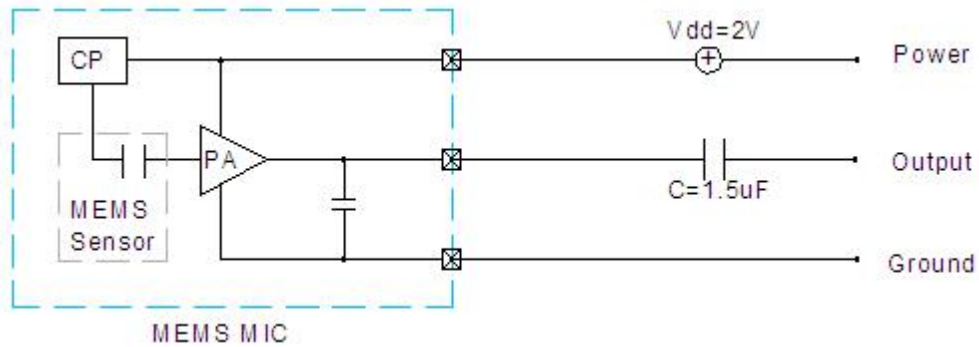
6. TYPICAL FREQUENCY RESPONSE (FIGURE 2)



7. MEASUREMENT CIRCUIT (FIGURE 3)



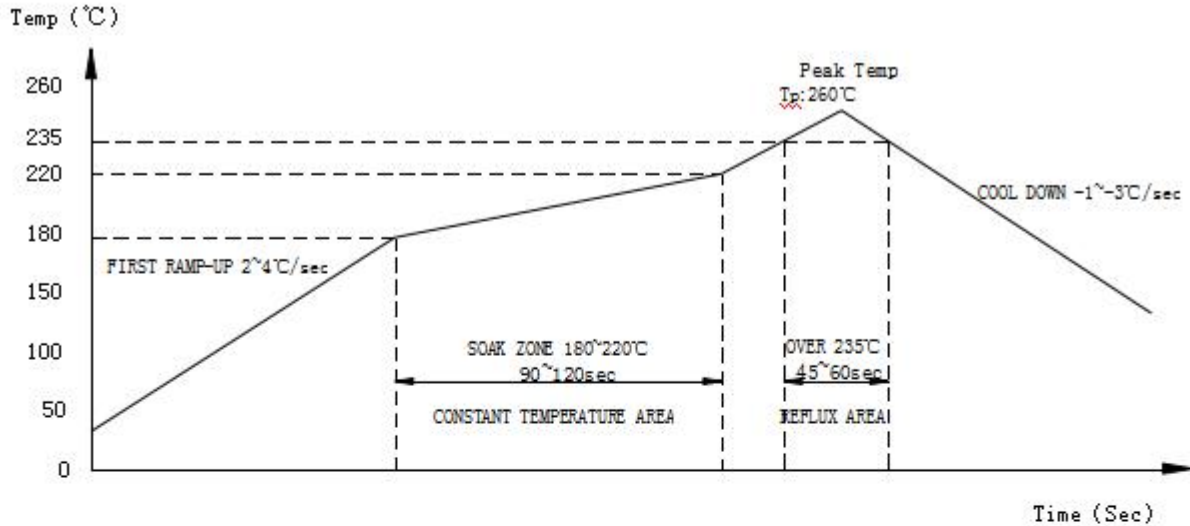
8. APPLICATION CIRCUIT (FIGURE 4)



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9. REFLOW PROFILE (FIGURE 5)



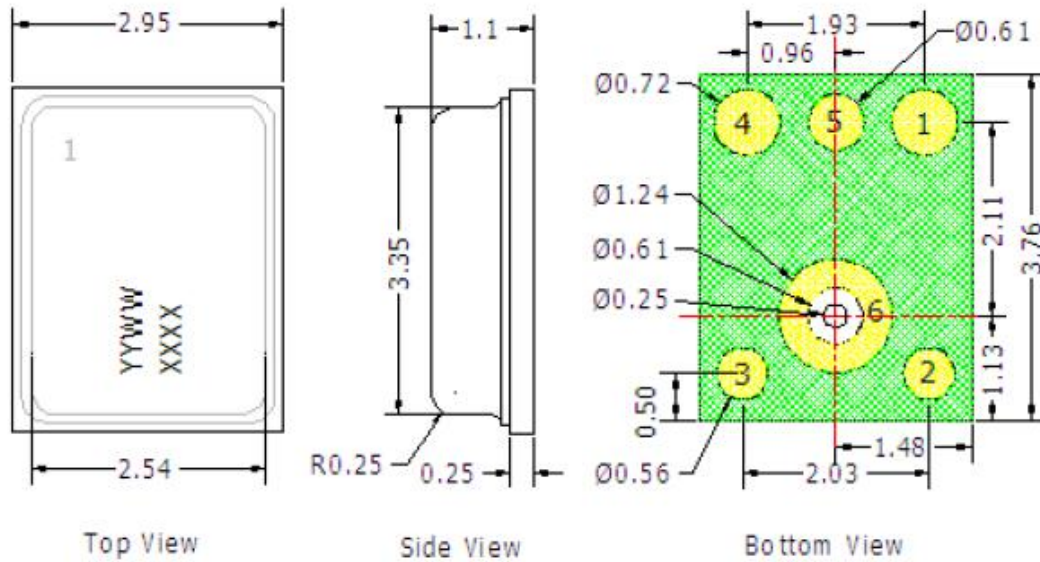
NOTE	The maximum temperature rise in the slope of 2~4°C/sec.
	The constant temperature is 180~220°C, Time:90~120sec.
	The <u>reflux</u> area temperature is above 235°C, Time:45~50sec.
	The maximum temperature is 260°C.
	The maximum temperature drop in the slope of -1~-3°C/sec.
REFLOW SOLDERING PROFILE (TBD)	Do not perform more than twice.
	After reflow soldering under following conditions in the first time, the sensitivity of the microphone shall be changed within 2dB from initial value. Can not sure the sensitivity can be in the scope of 2dB if reflow two times or more.

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10. APPEARANCE & DIMENSIONS (FIGURE 6)

The board surface cleaning pressure is 0.3Mpa limited



Item	Dimension	Tolerance(+/-)	Units
Length(L)	3.76	0.10	mm
Width(W)	2.95	0.10	mm
Height(H)	1.1	0.10	mm
Acoustic Port(AP)	Ø0.5	0.05	mm

Pin #	Pin Name	Type	Description
1	Output	Signal	Output Signal
2	GND	Ground	Ground
3	GND	Ground	Ground
4	V _{DD}	Power	Power Supply
5	GND	Ground	Ground
6	GND	Ground	Ground

Notes:

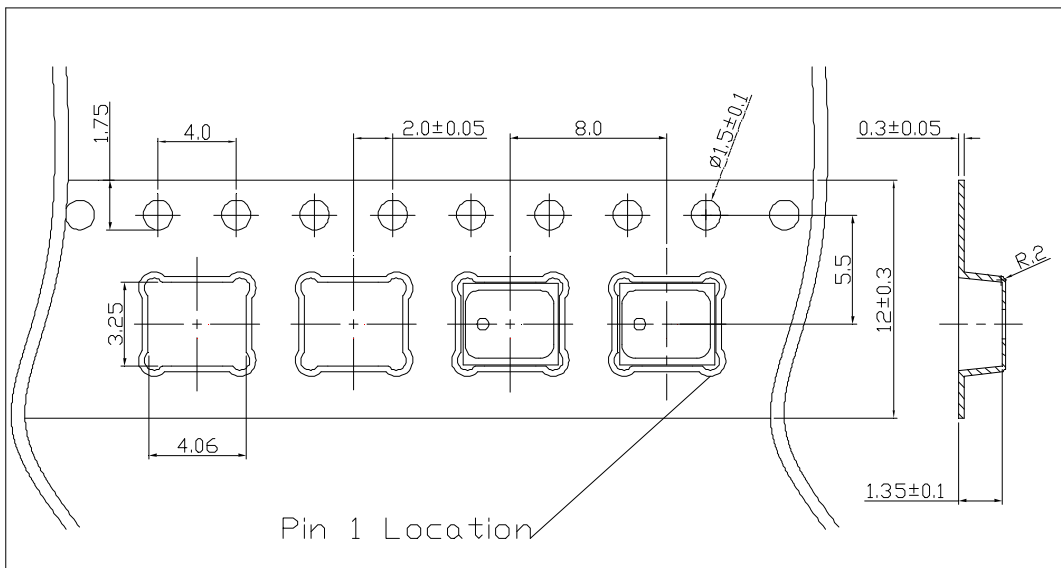
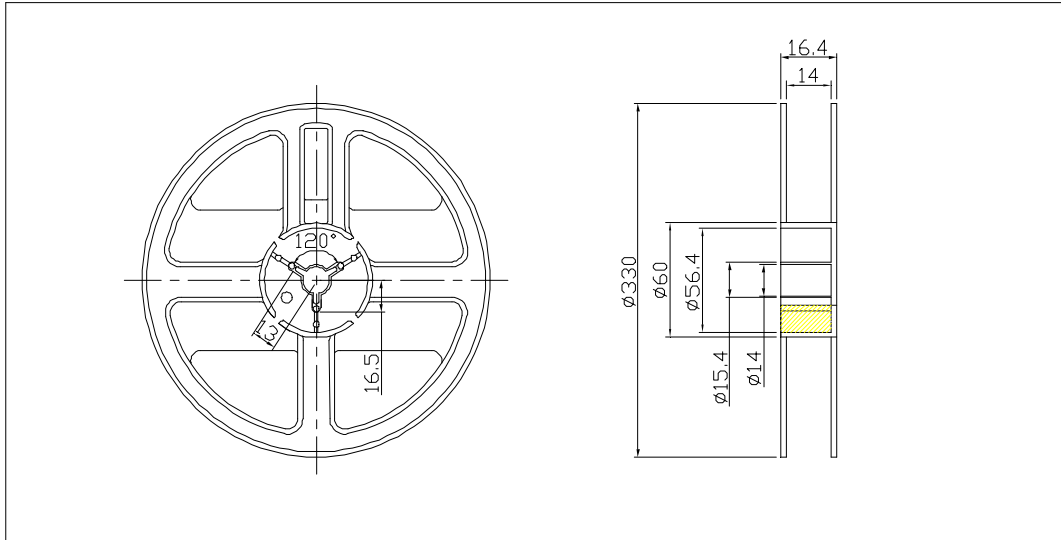
All dimensions are in millimeter (mm).

Tolerance±0.15mm unless otherwise specified.

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11. PACKING (UNIT: MM) (FIGURE 7)



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12 CAUTIONS WHEN USING MEMS MIC

12.1 Board Wash Restrictions

It is very important not to wash this silicon microphone; otherwise this could damage the microphone.

12.2 Sound Hole Protection

It is very important not to operate vacuum and air blow into sound hole (without any covering over sound holes), otherwise this could damage the microphone. And it is necessary to be careful about substances into sound hole inside silicon microphone.

12.3 ESD Protection

The microphone is sensitive element, it is necessary to be careful when using. Otherwise this maybe damage the microphone.

12.4 Ultrasonic Restrictions

It is very important not to use ultrasonic process. Otherwise this could damage the microphone.

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