International Components Corporation

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SPECIFICATION

RoHS Compliant

Product Type: Omni-Directional Electret Condenser Microphone
MEMS Bottom Port Analog

ICC Part Number: MEOM3527-BA-02-583

Professional Microphones

INTERNATIONAL COMPONENTS CORPORATION

Version: V5.0
Released Date: 11-14-2013

1. Scope

This document is the technical specification of a MEMS microphone.

2. Product Type

Product Number:

MEOM3527-BA-02-583

Product Description:

3.5x2.65x0.98mm Analog Bottom Port. With high SNR and MAXRF protection

3. Electro-Acoustic Specifications

Table 3-1 Electrical Specifications

Test condition: +20℃, 63%～67% RH, 86~106Kpa, Vdd=2V, unless specified differently.

No.	Parameter	Symbol	Condition	Limits			Unit
				Min	Nom.	Max	
3.1	Sensitivity	S	f=1kHz, Pin=1Pa, 0dB=1V/Pa	-41	-38	-35	dB
3.2	Directivity			Omni-directional			
3.3	Output Impedance	ZOUT	f=1kHz			200	Ω
3.4	Current Consumption	I	1.5V to 3.3V		130	250	μA
3.5	S/N Ratio	S/N	f=1kHz, Pin=1Pa, (A-Weighted)		65		dB
3.6	Operating Voltage			1.5	2	3.3	V
3.7	Sensitivity vs. Voltage	ΔS	Vs= 3.3V to 1.5V	<0.5			dB
3.8	Power Supply Rejection	PSR	100mVpp square wave@217Hz A-weighted		-90		dBV
3.9	Total Harmonic Distortion	THD	100dB SPL @1KHz			1	%
			115dB SPL @1KHz			5	
3.10	Acoustic Overload Point	AOP	10% THD@ 1KHz		122		dB SPL

4. Frequency Response

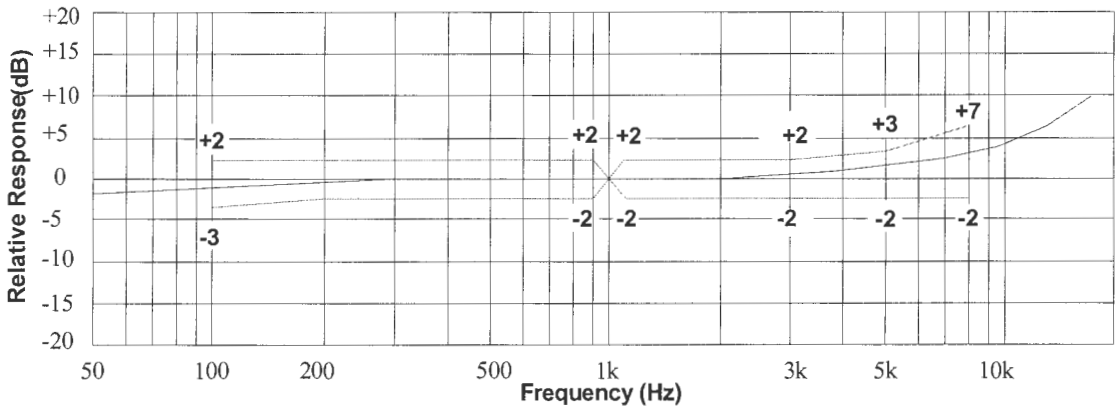


Fig. 4-1 Frequency Response

Table 4-1 Frequency Response Limit Template

Frequency [Hz]	100	300	500	3K	5K	8K
Upper Limit [dB]	2	2	2	2	3	7
Lower Limit [dB]	-3	-2	-2	-2	-2	-2

5. Measurement System Setup

Test signal: Sinusoid, Sweep,

Frequency Range: 50Hz-17KHz

Step: 1/12 octave

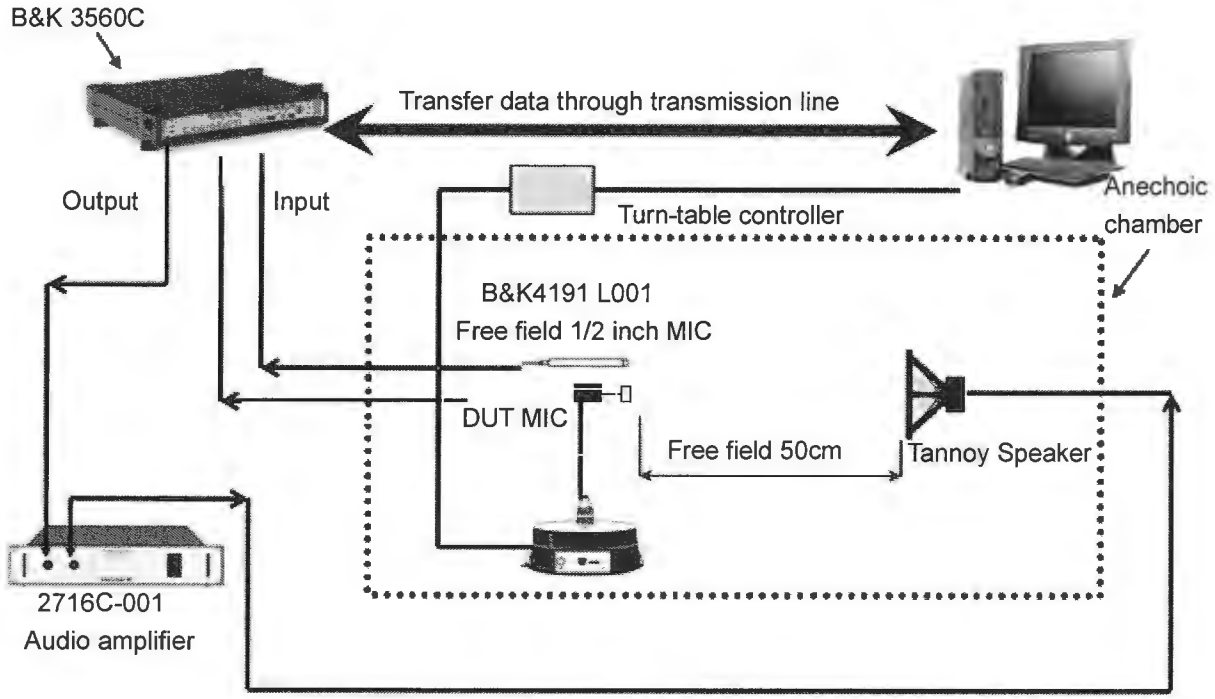
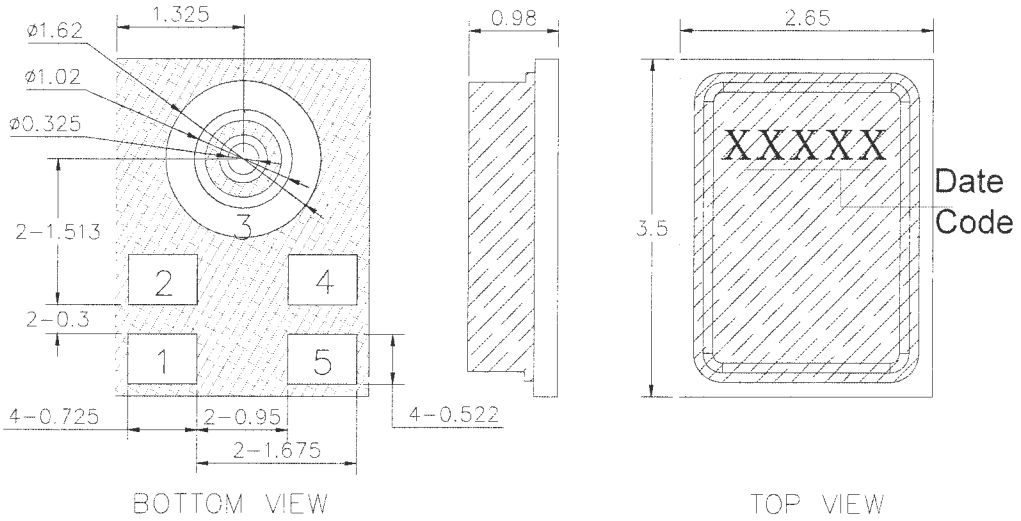


Fig. 5-1 Measurement System Setup

6. Mechanical Specification



Unit: mm Unmarked Tolerance: ± 0.1 (mm)

Pad definition: 1--OUTPUT 2—GND 3—GND 4—GND 5—VDD

Fig. 6-1 Dimension

7. Reliability Tests

After conducting any of the following tests, the sensitivity change of DUT shall be less than ±3dB from its initial value and shall keep its initial operation and appearance.

7.1 Hi-Temperature Test

Temperature: +85℃
Duration: 240 hours

7.2 Low-Temperature Test

Temperature: -40℃
Duration: 240 hours

7.3 Humidity & Heat Test

Temperature: +70℃
Humidity: 93% RH
Duration: 240 hours

7.4 Thermal Shocking Test

Temperature & Duration: -40℃, 30 minutes
Temperature & Duration: +80℃, 30 minutes,
Cycles: 32 cycles

7.5 Vibration Test

Frequency: 10-55Hz
Amplitude: 1.52mm
Direction: 2 directions
Duration: 2 hours

7.6 Drop Test

Drop the microphones to the floor without package.
Height: 1.5m
Reference Surface: slippery marble floor
Duration: 5 times

7.7 Electrostatic Discharge

The tests are performed acc. to IEC61000-4-2 level 3:

a. Contact Discharge

Discharge Position: Output of Microphone
Charge Voltage: ±6000VDC
Discharge Network: 150pF & 330Ω

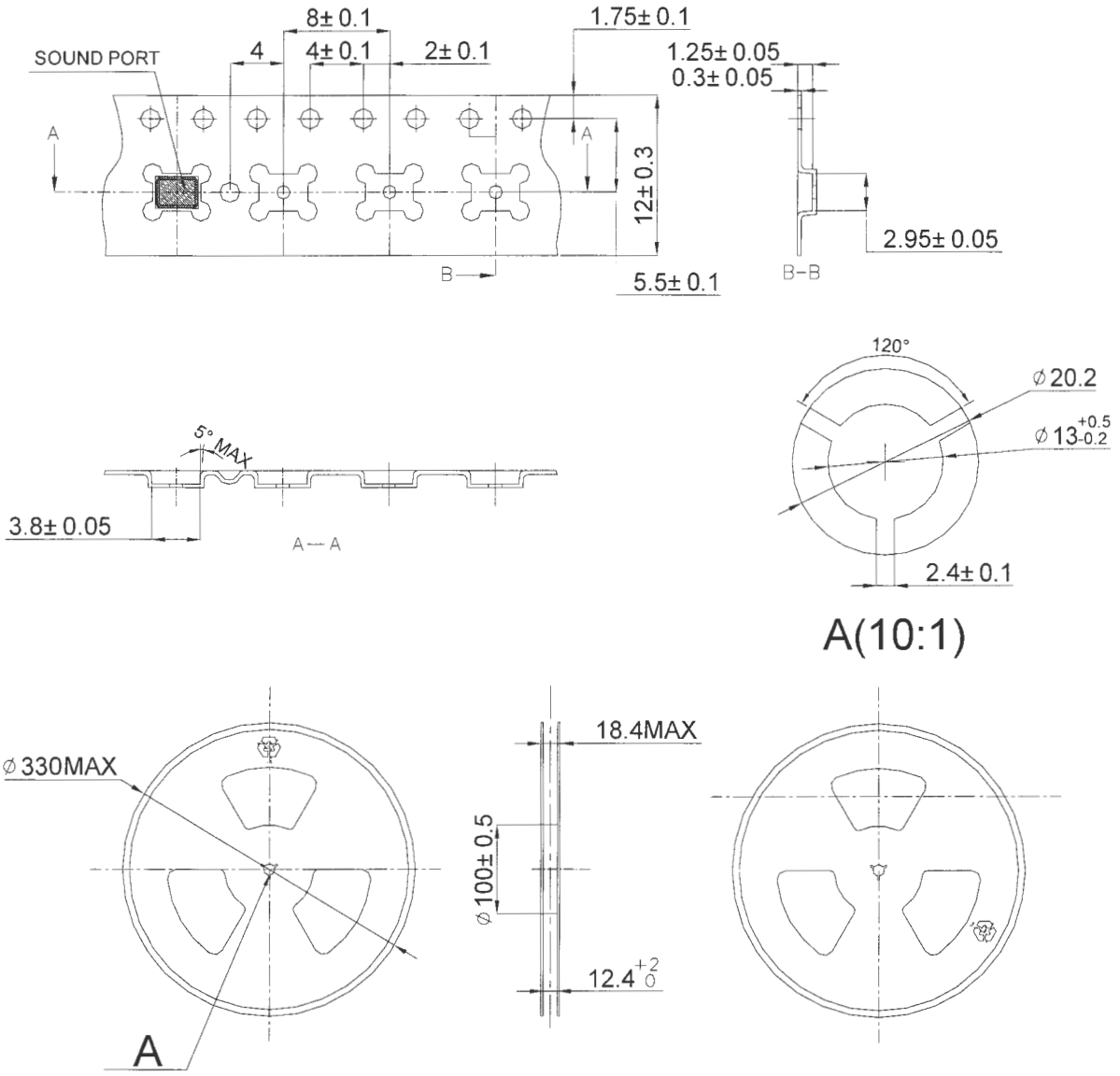
b. Air Discharge

Discharge Position: Sound Hole
Charge Voltage: ±8000VDC
Discharge Network: 150pF & 330Ω

8. Packaging

* Use ESD reel and tape for microphone packaging.

* Anti-static measures should be applied during packaging operation.

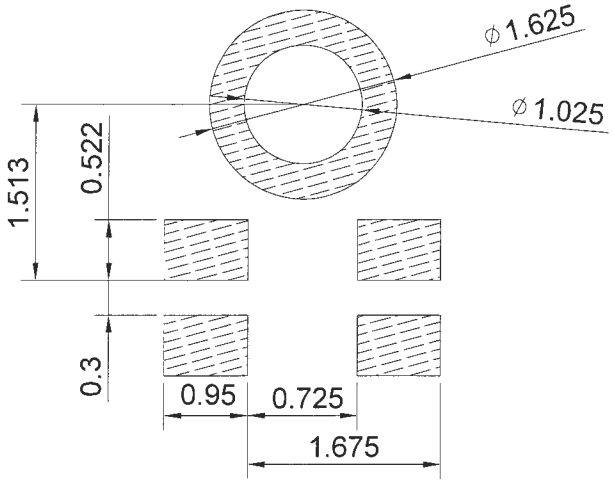


Tape and Reel	φ330mm	5,500PCS×1=5,500PCS
Batch Box	120mm*350mm*365mm	5,500PCS×5=27,500PCS
Shipping Box	265mm*375mm*400mm	27,500PCS×2=55,000PCS

Fig. 8-1 Packaging

9. Application Design Suggestions

9.1 Recommended PCB Design



Unit: mm

Fig. 9-1 Recommended PCB Design

9.2 Temperature Profile during Reflow Process

Table 9-1 Temperature Profile during Reflow Process

Parameter	Reference	Specification
Average Temperature Gradient in Preheating		2.5°C/s
Soak Time	Tsoak	2-3 minutes
Time above 217°C	t1	Max 60s
Time above 230°C	t2	Max 50s
Time above 250°C	t3	Max 10s
Peak Temperature in Reflow	Tpeak	255°C (–0/+5°C)
Temperature Gradient in Cooling		Max -5°C/s

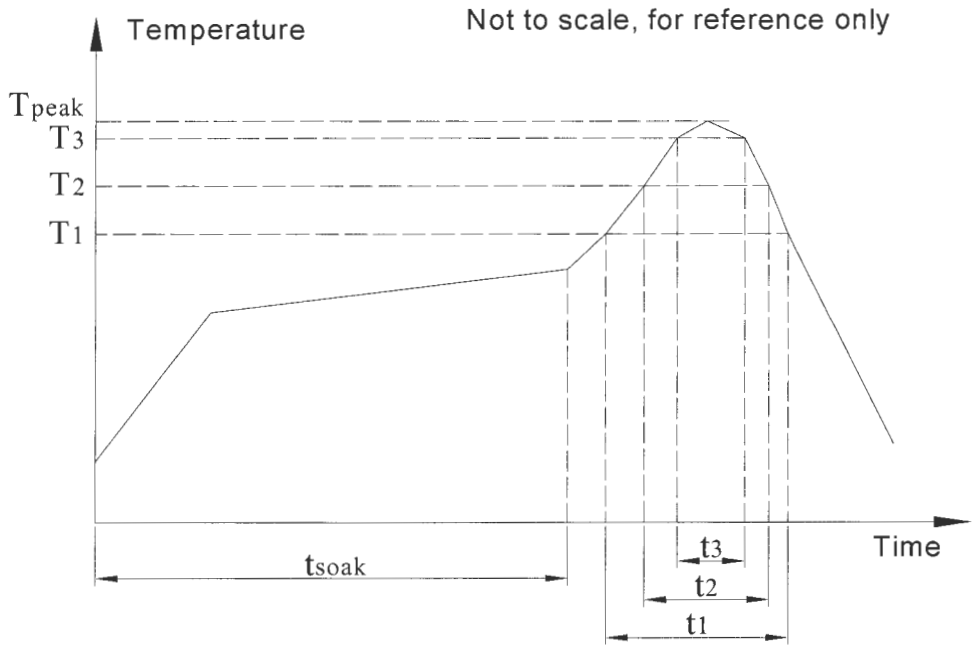


Fig. 9-2 Reflow Profile

*After the initial reflow, the MIC shall be resumed to room temperature if more reflow is needed.

*The test should be conducted after the MIC unit has been exposed to room temperature for 3 hours.

9.3 Recommended nozzle for reflow MIC

External diameter is Φ1.8mm

Inside diameter is Φ1.2mm

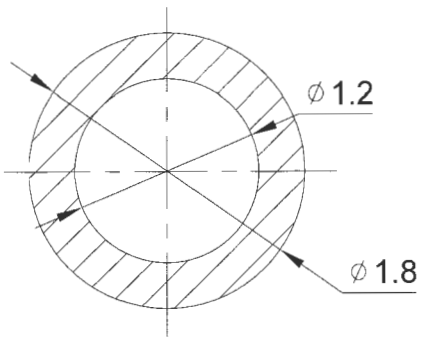


Fig. 9-3 Recommended nozzle for reflow MIC

10. Special Cautions

10.1 Air Rifle Cleaning Restriction

Do not bring air rifle to the port hole directly.

Recommended Condition:

Air pressure < 0.3MPa;

Distance > 5cm;

Time < 5 sec.

10.2 Board Wash Restriction

It is prohibited to wash the board after reflow process. This could damage the MIC.

10.3 Vacuum Restriction

It is prohibited to use a vacuum over the port hole of the MIC. This could damage the MIC.

10.4 Environmental Condition

Storage Condition: -40℃~+100℃

Operation Condition: -40℃~+100℃

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

10.5 Storage

The component needs to meet the requirement of MSL(Moisture Sensitivity Level) class 2a. Please keep MICs in warehouse with humidity less than 75% and without sudden temperature change, acid air, and any other harmful air or strong magnetic field.

Please protect products against moist, shock, sunburn and pressure.

Please take proper measures against ESD in the process of assembly and transportation..

Please use the shipping package for long-term storage.