

 AAC AAC ACOUSTIC TECHNOLOGIES (SHENZHEN) CO., LTD.	ISSUE: F
PART No. SM0102B-TD381-M02	Remark: GP& ROHS compliant DATE: Dec. 20 th , 2023

APPROVAL SHEET FOR MICROPHONE

AAC P/N: SM0102B-TD381-M02

CHECKER: Sean Ma

APPROVER: Zhang Rui

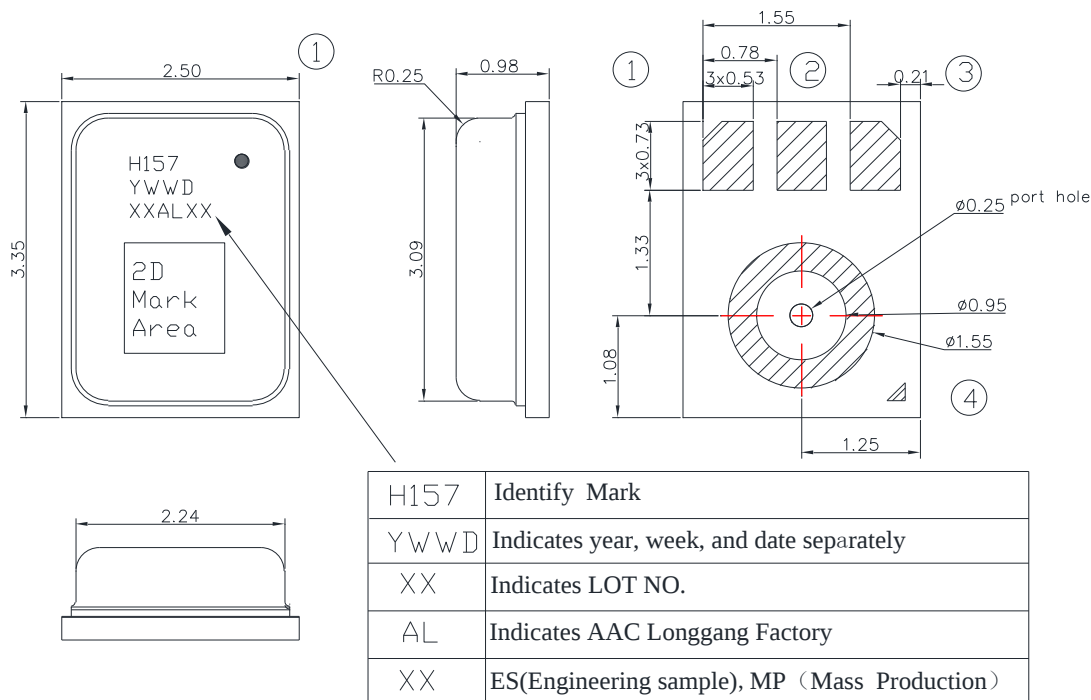
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1. Mechanical Layout and Dimensions



16 位 2D-BARCODE 内容说明					
PPP	YWWD	SS	SSS	EEE	R
公司名	年周日	流水号	跳号	产品代码	版本号

Pin Output	
Pin #	Function
1	Vdd
2	Output-
3	Output+
4	Ground

Items	Dim.	Tol. (+/-)	Units
Length	3.35	0.10	mm
Width	2.50	0.10	mm
Height	0.98	0.10	mm
Port Hole	0.25	0.05	mm

Note: Tolerance +/-0.15mm unless otherwise specified

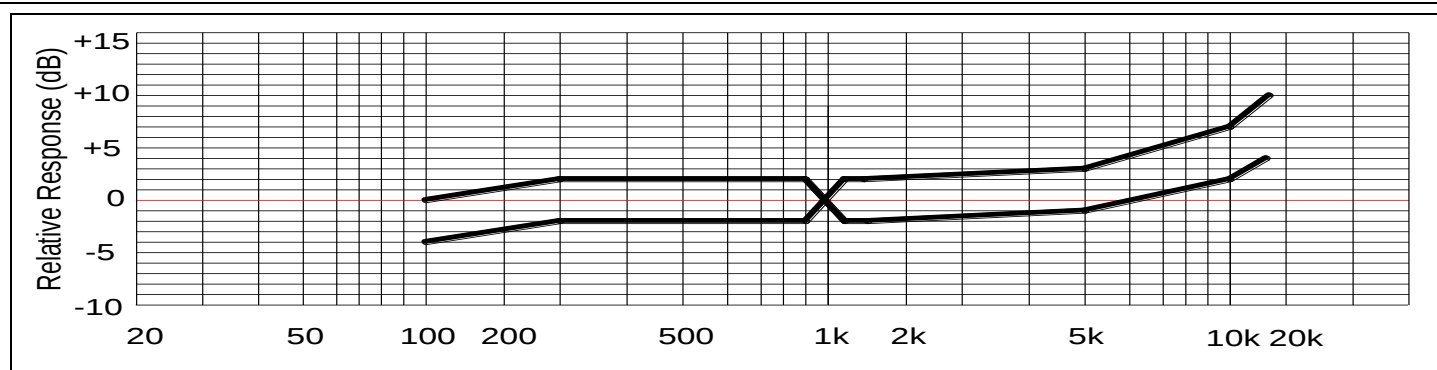
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2. Product Specifications:

Test conditions: 25°C room temperature, 50% room humidity and 2.75V bias voltage

Items	Symbol	Condition	Limits			Unit
			Min.	Typ.	Max.	
2.1 Directivity		Omni-Directional				
2.2 Sensitivity w/ differential output	S	1kHz, 94dBSPL	-39	-38	-37	dB
2.3 Output Impedance	Z _{out}	1kHz, 94dBSPL			400	Ω
2.4 Supply Voltage	Vdd		1.6	2.75	3.6	V
2.5 Current Consumption				150	220	uA
2.6 S/N Ratio	S/N	1kHz,94dBSPL, A-weighted		66		dB
2.7 Power Supply Rejection	PSR	100mVpp Squarewave @217Hz, Vdd=2.75V, A-weighted		-110		dBv
2.8 Power Supply Rejection Ratio	PSRR	200mVpp Sinewave @1KHz, Vdd=3.6V, Rload>2Kohm		90		dB
2.9 Total Harmonic Distortion	THD	1kHz, 94dBSPL		0.01	0.5	%
		1kHz, 110dBSPL		0.03	1	%
2.10Acoustic Overload Point	AOP	10% THD @1kHz S=Typ, Vdd=3.6V		136		dB SPL

2.11 Frequency Response Curve Mask

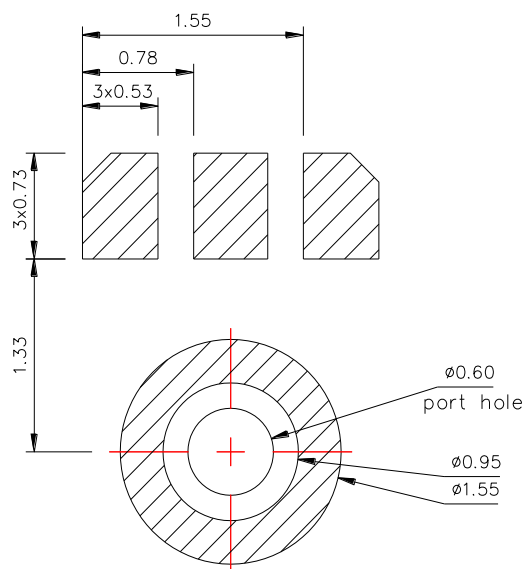


Frequency(Hz)	100	300	900	1000	1200	5000	10000	13000	16000
Upper Limit(Db)	0	2	2	0	2	3	7	9	10
Lower Limit(Db)	-4	-2	-2	0	-2	-1	2	3	4

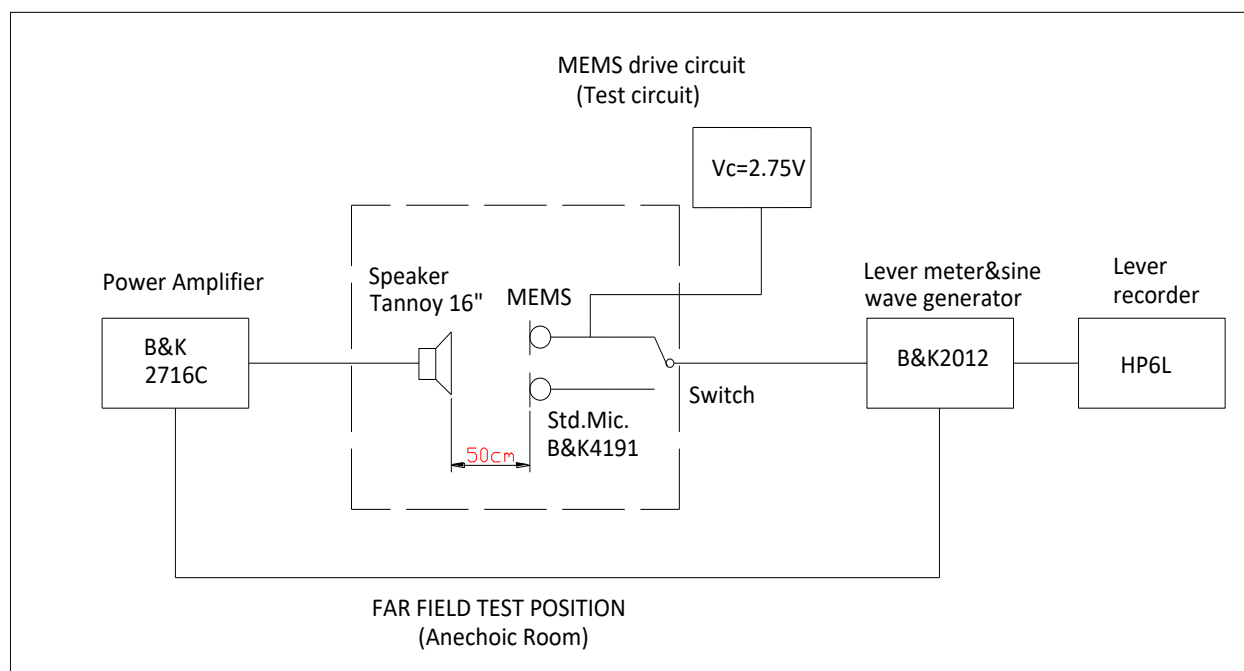
2.12 Operating Temperature			-40		+100	°C
2.13 Storage Temperature		Soldered onto PC Board	-40		+100	°C
		In Tape/Reel	-10		+50	°C

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3. Recommended Customer Land Pattern



4. Test Setup



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5. Reliability Specifications

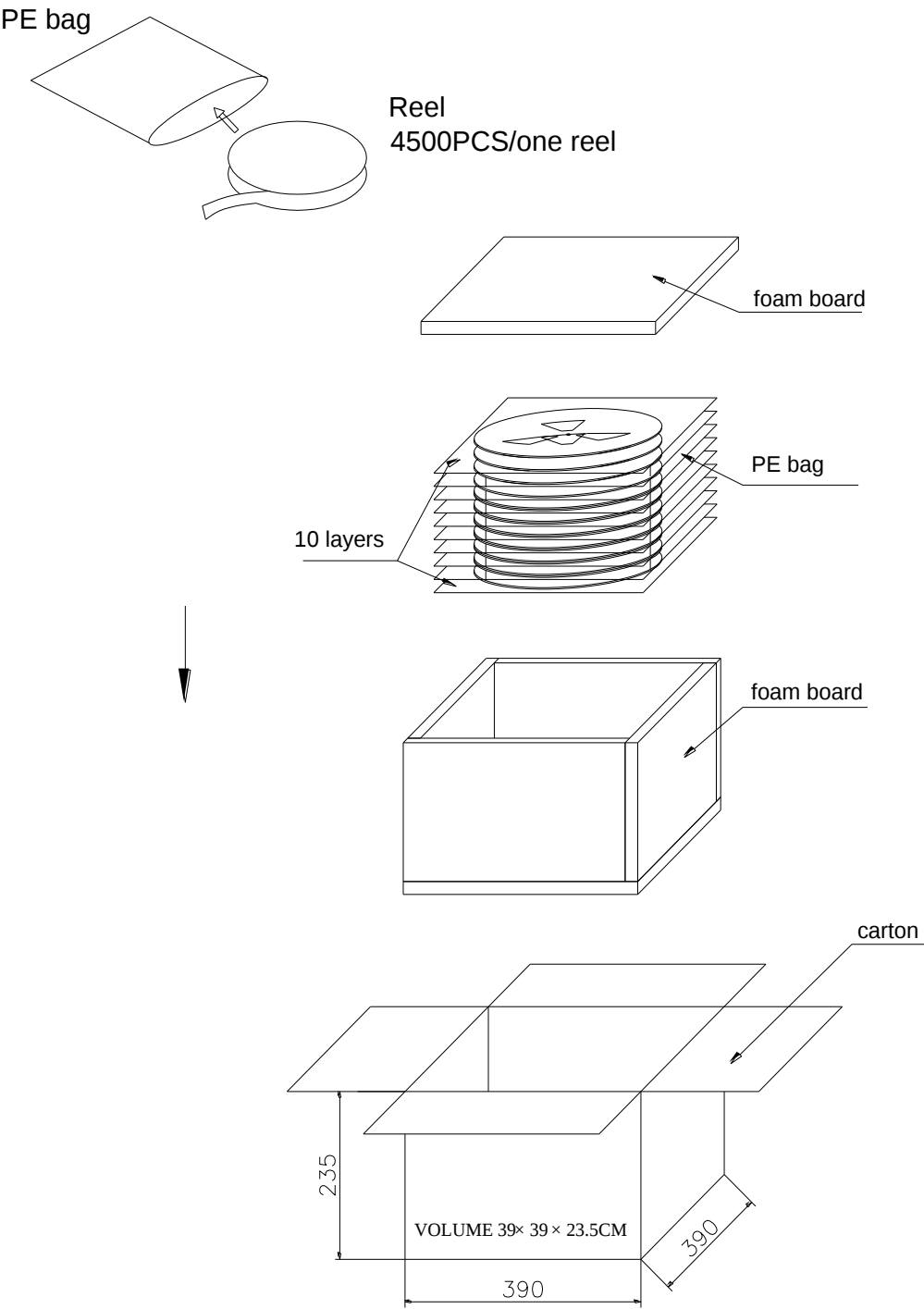
As per customer's requirements. Products' MSL is Level 1. .

Test item	Detail
Reflow	Microphone is tested to 3 passes through reflow oven, with microphone mounted upside-down under conditions of 260℃ for 30 seconds maximum.
Thermal Shock	Microphone unit must operate when exposed to air-to-air thermal shock 100 cycles From -40℃ to +125℃ with 15 minute soaks.(IEC 60068-2-14)
Mechanical Shock	Microphone must operate after exposure to shock test of 3,000 G (IEC60068-2-27)
Low Temperature	Microphone unit must maintain sensitivity after storage at -40±3℃ for 72 hours.(IEC60068-2-1)
High Temperature	Microphone unit must maintain sensitivity after storage at +85±3℃ for 72 hours.(IEC60068-2-2)
Vibration Test	Microphone unit must operate under test condition: 4 cycles, from 20 to 2,000Hz in each direction (x,y,z), 48 minutes, using peak acceleration of 20 G (+20%,-0%). (IEC60068-2-6)
Damp heat	Tested at 55±3℃/95%R.H for 96 hours.
Drop Test	Microphone put in a 150 grams block,1.5 Meter height onto a concrete surface each time at three direction in state of packing.(IEC60068-2-32)
ESD	HBM: 100Pf,1500 ohms, +/-2Kv direct contact Power Pin and Output Pin; MM: 100Pf,0 ohms, +/-200V direct contact Power Pin and Output Pin. 3 times each supply

The measurement shall to be done after 2 hours of conditioning at room temperature.

The sensitivity change within ±3Db relative to initial value unless otherwise specified.

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4,5000 PCS PRODUCTS/1 CARTON



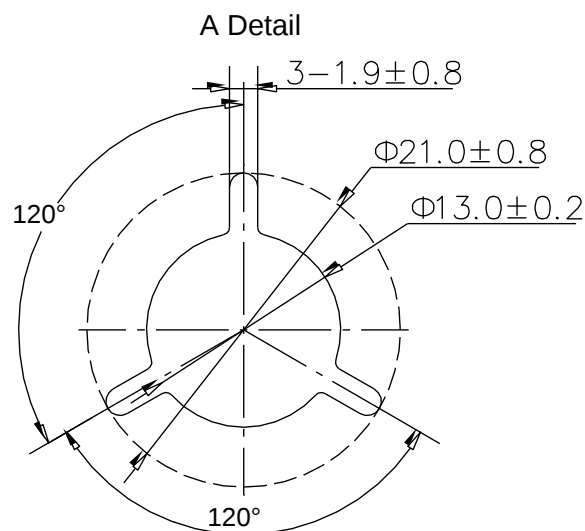
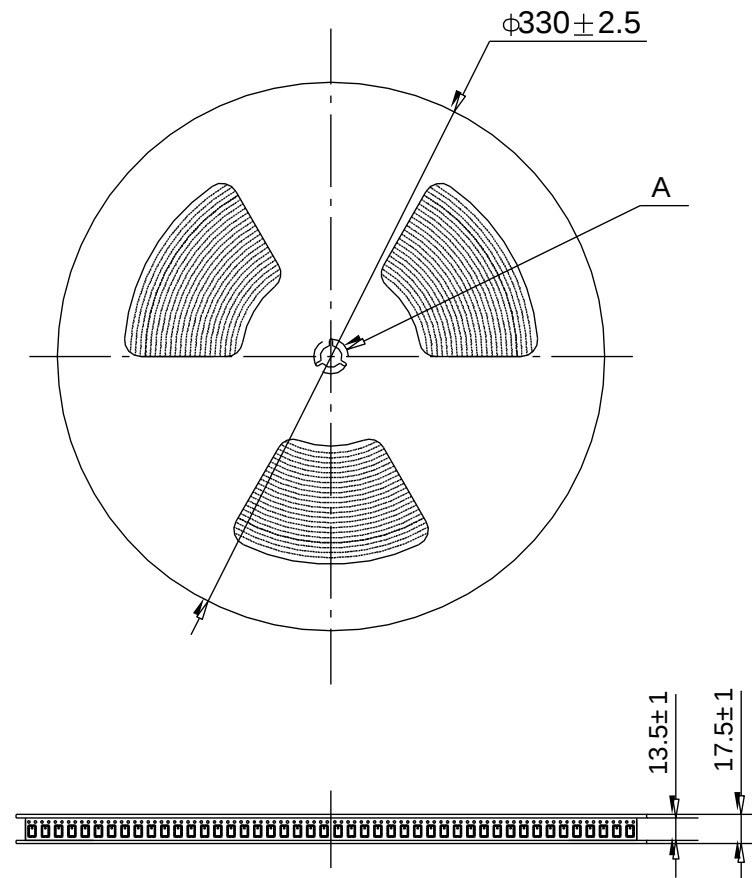
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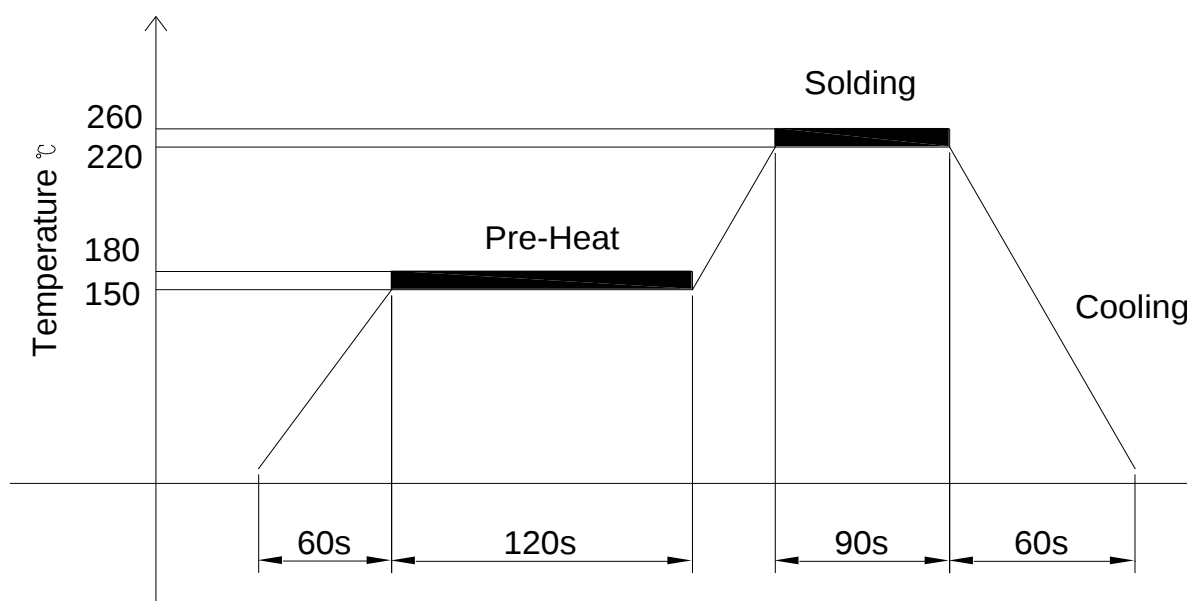
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4,500 PCS PRODUCTS/1 reel

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8. Solder Reflow Profile



Stage	Temperature Profile	Time
Pre-heat	150-200°C	60-120sec.
Soldering	217-260°C	60-150sec.
Peak	255-260°C	20-40sec.

Notes:

1. Pulling vacuum over acoustical hole of the microphone is not allowed, because the device can be damaged by vacuum.
2. Wash the board after reflow process is not allowed, because board washing and cleaning agents can damage the device. Device should not be exposed to ultrasonic processing or cleaning.
3. Recommended number of reflow is no more than 3 times.

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8. Specification History

ISSUE	PREP	CHKD	DETAIL SPEC CHANGES:	DATE
X1	Zeng Peng	Wu Zhijiang	Initial Spec Release	Oct 06 th , 2015
X2	Chenxingfu	Wu Zhijiang	Update Product Specifications items 2.14/2.15/2.16/2.17/2.18	May 05 th , 2016
A	Chenxingfu	Wu Zhijiang	Initial Spec Release	Apr 19 th , 2017
B	Chenxingfu	Wu Zhijiang	Add 2D Barcode	Dec 26 th , 2017
C	Chenxingfu	Wu Zhijiang	Add 20~50Khz frequency response	Mar 09 th , 2018
D	WangTianjiao	Wu Zhijiang	Delete 2.14~2.19	Jan 04 th , 2020
E	Chenxingfu	Wang Kai	Update Product Specifications items 2.8/2.10	Jan 04 th , 2021
F	Sean Ma	Zhang Rui	Update Product Specifications	Dec.20 th , 2023